Colliers Engineering & Design

Traffic Impact Study

September 22, 2021

DCH Brunswick Toyota

Block 143.05, Lots 18.02, 19.01, & 21.01
Township of North Brunswick, Middlesex County, New Jersey

Prepared for:

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Project No. 19003878A

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Introduction

The following report has been prepared for DCH Auto Group ("Applicant") in association with the proposed expansion of the existing DCH Brunswick Toyota ("Project") within the Township of North Brunswick, Middlesex County, New Jersey. The site is currently developed with 36,652 SF of an existing Automobile Sales facility, consisting of the 20,652 SF DCH Brunswick Toyota dealership and the 16,000 SF Saturn dealership. The Applicant proposes to demolish the former 16,000 SF Saturn building and expand the 20,652 SF Toyota dealership and service building with a 38,521 SF addition for a total of 59,173 SF. Additionally, it is proposed to demolish the existing retail building on Lot 21.01 to increase the number of inventory parking. The site is designated as Block 143.05, Lots 18.02, 19.01, & 21.01 on the Township of North Brunswick Tax Maps. The project site is bounded by Route 1 to the north and west and residential land uses to the south and east. A site location map is included as **Figure 1** in **Appendix A**.

Access to the site is currently provided via three (3) right-in/right-out only driveways along Route 1 northbound. It is proposed to consolidate all three (3) site driveways into one (1) driveway, which will reduce the number of curb cuts along Route 1 and enhance the safety of the site. The proposed Dimension Plan is provided as **Figure 2** in **Appendix A**.

This study presents an evaluation of the current and future traffic conditions in the vicinity of the project site. Specific elements included in this study are:

- An inventory of the roadway facilities in the vicinity of the Project, including the existing physical and traffic operating characteristics;
- Determination of the Existing Conditions;
- Site Generated Trips as described in the ITE Trip Generation Manual, 10th Edition;
- Trip Distribution and Assignment;
- Forecast of 2023 No-Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2023 No-Build Conditions;
- Forecast of the 2023 Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2023 Build Conditions;
- Site Access and Parking Assessment; and
- Summary and Conclusions.

Existing Roadway Conditions

A field investigation was conducted adjacent to the project site to obtain an inventory of existing roadway conditions, posted traffic controls, adjacent land uses, lane configurations, and existing vehicular/pedestrian traffic patterns.

Roadways

Route 1 is an urban principal arterial roadway under jurisdiction of the New Jersey Department of Transportation (NJDOT). Within the vicinity of the study area, the highway provides two (2) travel lanes in each direction with a posted speed limit of 55 mph.

Intersections

Route 1 & South Site Driveway is an unsignalized T-intersection with the westbound approach of South Site Driveway under stop control. The westbound approach of South Site Driveway provides one (1) channelized right-turn lane. The northbound approach of Route 1 provides three (3) through lanes and one (1) shared through/right-turn lane. The southbound approach of Route 1 provides four (4) through lanes. The northbound and southbound approaches of Route 1 are divided by a concrete median.

Route 1 & Central Site Driveway is an unsignalized T-intersection with the westbound approach of Central Site Driveway under stop control. The westbound approach of Central Site Driveway provides one (1) right-turn lane. The northbound approach of Route 1 provides three (3) through lanes and one (1) shared through/right-turn lane. The southbound approach of Route 1 provides four (4) through lanes. The northbound and southbound approaches of Route 1 are divided by a concrete median.

Route 1 & North Site Driveway is an unsignalized T-intersection with the westbound approach of North Site Driveway under stop control. The westbound approach of North Site Driveway provides one (1) channelized right-turn lane. The northbound approach of Route 1 provides three (3) through lanes and one (1) shared through/right-turn lane. The southbound approach of Route 1 provides four (4) through lanes. The northbound and southbound approaches of Route 1 are divided by a concrete median.

Existing Traffic Conditions

Traffic volume data was collected within the study area to gain an understanding of the existing roadway conditions and operations through turning movement counts ("TMC") conducted on Saturday, June 5, 2021 from 11:00 AM to 2:00 PM, and on Tuesday, June 8, 2021, from 4:00 PM to 6:00 PM at the following intersections:

- Route 1 & South Site Driveway;
- Route 1 & Central Site Driveway; and
- Route 1 & North Site Driveway.

The data collection efforts are detailed in **Table 1**. The processed TMC data is provided in **Appendix B**.

Table 1 – Data Collection Efforts and Established Network Peak Hours

Peak Period	Date Collected	Traffic Count Time Frame	Established Network Peak Hour
Weekday Evening	Tuesday, June 8, 2021	4:00 PM – 6:00 PM	4:45 PM – 5:45 PM
Midday Saturday	Saturday, June 5, 2021	11:00 AM – 2:00 PM	12:45 PM – 1:45 PM

Existing Traffic Volumes

The TMC data was cross-referenced with ATR data recorded along Route 1 by NJDOT's Traffic Monitoring System and within close proximity to the site to establish the existing traffic conditions due to the on-going COVID-19 pandemic. The 2017 counts were forecasted to 2021 by applying an NJDOT annual background growth rate factor of 1.00% for urban principal arterials in Middlesex County. The observed traffic volumes were found to be approximately 21% lower than the historically reported counts during the weekday evening peak hour. The count data was adjusted accordingly for both the weekday evening and Saturday midday peak hours to provide a more conservative analysis. **Table 2** provides a detailed comparison of the traffic volumes throughout the study area. A Volume Flow Diagram illustrating the 2021 Existing Conditions is provided as **Figure 3** in **Appendix A**. The ATR data is provided in **Appendix B**.

Table 2 – Traffic Volume Comparison

Data Source	Collection Date	Traffic Volume
		PM Peak
NJDOT	Thursday, November 30, 2017	3,344
TMC	Tuesday, June 8, 2021	2,633
Difference	**Trips**	**-711**
	Percentage	**-21%**

Trip Generation and Distribution

Trip Generation

The ability of any roadway network to serve anticipated traffic volumes is measured by comparing peak hour traffic volumes to roadway capacities. Thus, it is essential to determine the hourly traffic volumes to be generated by the Project and to add them to the No-Build traffic volumes during the peak hours.

Trip generation estimates for the proposed development were made utilizing data published under Land Use Code 840 – Automobile Sales (New) in the Institute of Transportation Engineers' (ITE) publication *Trip Generation Manual, 10th Edition*. This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. **Table 3** details the anticipated trip generation for the Project.

Table 3 – Trip Generation Comparison

Land Use		Size (SF)	PM Peak Hour			SAT Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
840 – Automobile Sales (New)	Existing	36,652	36	53	89	73	74	147
	Proposed	59,173	58	86	144	119	119	238
Difference		**38,521***	**+22**	**+33**	**+55**	**+46**	**+45**	**+91**

*It is proposed to demolish 16,000 SF of the existing building and construct a 38,521 SF addition.

Trip Distribution

Trip distribution methodology is developed based on a variety of factors. These factors include the existing travel patterns within the adjacent roadway network, adjacent land uses, proposed land uses, development locations, driveway locations, and the proximity of major arterials within the project vicinity.

Trip Distribution

The following trip distribution pattern was established for passenger vehicles upon a review of the existing roadway volumes, adjacent land uses, and anticipated commuter travel patterns:

- To/From Route 1 – 100%.

Volume Flow Diagrams illustrating the Trip Distribution and Site Generated Trips are provided as **Figures 4** and **5** in **Appendix A**.

Future Traffic Conditions

To determine the traffic impact of the proposed development, an estimation of the operational traffic characteristics at the Build date, without the construction of the Project (or "No-Build" condition), is made. The existing volumes have been projected to the Build year of 2023.

Background Growth

The NJDOT Annual Background Growth Rate Table recommends growth rates to account for general increases in traffic due to regional population and employment growth by the build year. The table recommends a rate of 1.00% for urban principal arterial roadways within Middlesex County.

Adjacent Developments

Colliers Engineering & Design contacted the Township of North Brunswick to determine if there are any planned or approved developments within the vicinity of the study area. It was determined there were no such projects.

2023 No-Build Conditions

The 2023 No-Build traffic volumes were forecasted by applying the background growth rate to the existing traffic volumes. A Volume Flow Diagram illustrating the 2023 No-Build Conditions is provided as **Figure 6** in **Appendix A**.

2023 Build Conditions

The 2023 Build traffic volumes were forecasted by adding the site generated traffic to the 2023 No-Build traffic volumes within the roadway network. A Volume Flow Diagram illustrating the 2023 Build Conditions is provided as **Figure 7** in **Appendix A**.

HCM Capacity Analysis

The peak hour traffic operations within the project vicinity were evaluated at the study intersection. The analyses were performed using the latest version of *Synchro Trafficware*, a traffic analysis and simulation program. The results of these analyses provide Levels of Service ("LOS"), volume/capacity descriptions, and average seconds of delay for the intersection movements.

The efficiency with which an intersection operates is a function of volume and capacity. The capacity of an intersection is the volume of vehicles it can accommodate during a given time period. LOS is a qualitative measure describing operational conditions within a traffic stream in terms of traffic characteristics, such as freedom to maneuver, traffic interruption, comfort, and convenience. Six (6) LOS are defined for each type of facility with analysis procedures available. Levels of Service range from "A" through "F," with Level "A" representing excellent conditions with no delays, and failure and deficient operations denoted by Level "F." The HCM LOS criteria for unsignalized intersections is summarized in the **Table 5**.

Table 4 – HCM LOS/Delay Criteria

Level of Service	Average Control Delay (sec/veh)
	Unsignalized Intersections
A	< 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

The Levels of Service for the 2023 No-Build and Build Conditions are detailed in **Table 5**. The capacity analysis calculation worksheets are provided in **Appendix D**.

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Table 5 – Level of Service Summary

Intersection	Movement		2023 No-Build				2023 Build			
			PM Peak		SAT Peak		PM Peak		SAT Peak	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Route 1 (NB/SB) & South Site Driveway (WB)	WB	R	C	17.8	C	16.7	C	20.8	C	20.2
Route 1 (NB/SB) & Central Site Driveway (WB)	WB	R	C	17.8	C	16.6				
Route 1 (NB/SB) & North Site Driveway (WB)	WB	R	C	17.5	C	16.3				

Route 1 (NB/SB) & Site Driveway (WB)

2023 No-Build Analysis

Under the No-Build condition, the existing site driveways will operate at Levels of Service "C" or better during both peak hours studied.

2023 Build Analysis

Under the Build condition, it is proposed to consolidate all three (3) site driveways into one (1) driveway, which will reduce the number of curb cuts along Route 1 and enhance the safety of the site. The proposed site driveway will continue to operate at No Build levels of service with calculated 95th percentile queue lengths of one (1) vehicle or less during both peak hours studied.

Site Access and Parking Assessment

Site Access

Access to the site is currently provided via three (3) right-in/right-out only driveways along Route 1 northbound. It is proposed to consolidate all three (3) site driveways into one (1) driveway, which will reduce the number of curb cuts along Route 1 and enhance the safety of the site. The proposed site plan maintains the existing minimum 24-foot-wide aisles and sufficient circulation for a garbage truck, delivery truck, and emergency vehicle to efficiently maneuver throughout the site.

Parking Analysis

The Township of North Brunswick Ordinance, Section *§205-100.B(11) – Off-street parking for nonresidential uses*, sets forth a parking requirement of one (1) parking space for each 200 square feet of gross floor area, not including spaces used for storage of new or used vehicles being offered for sale of being serviced, plus one parking space for each employee during the largest shift. **Table 6** details the Ordinance parking requirements and the proposed parking supply.

Table 6 – Ordinance Parking Requirement

Land Use	Size	Ordinance Requirement		Proposed Parking Supply
		Rate	Calculation	
New Car Sales and Service	59,173 SF	1.0 space per 200 SF of GFA	296 spaces	**463 spaces**
	30 employees	1.0 space per employee	30 spaces	
Total			**317 spaces**	

As illustrated by **Table 6**, the proposed parking supply of 463 spaces exceeds the Ordinance requirement.

Summary and Conclusions

The Traffic Impact Study evaluated the proposed warehouse development within the Township of North Brunswick, Middlesex County, New Jersey. The findings of the Traffic Impact Study are summarized as follows:

1. The Applicant proposes to demolish the former 16,000 SF Saturn building and expand the existing 20,652 SF Toyota dealership and service building with a 38,521 SF addition for a total of 59,173 SF as well as demolish the existing retail building on Lot 21.01 to increase the number of inventory parking.

2. Access to the site is currently provided via three (3) right-in/right-out only driveways along Route 1 northbound. It is proposed to redevelop the site to provide one (1) right-in/right-out only driveway along Route 1 northbound.

3. Under the Build condition, it is proposed to consolidate all three (3) site driveways into one (1) driveway, which will reduce the number of curb cuts along Route 1 and enhance the safety of the site. All movements at the intersection of Route 1 & the Proposed Site Driveway will continue to operate at No Build levels of service with calculated 95th percentile queue lengths of one (1) vehicle or less during both peak hours studied.

4. The proposed parking supply of 463 spaces exceeds the Ordinance requirement.

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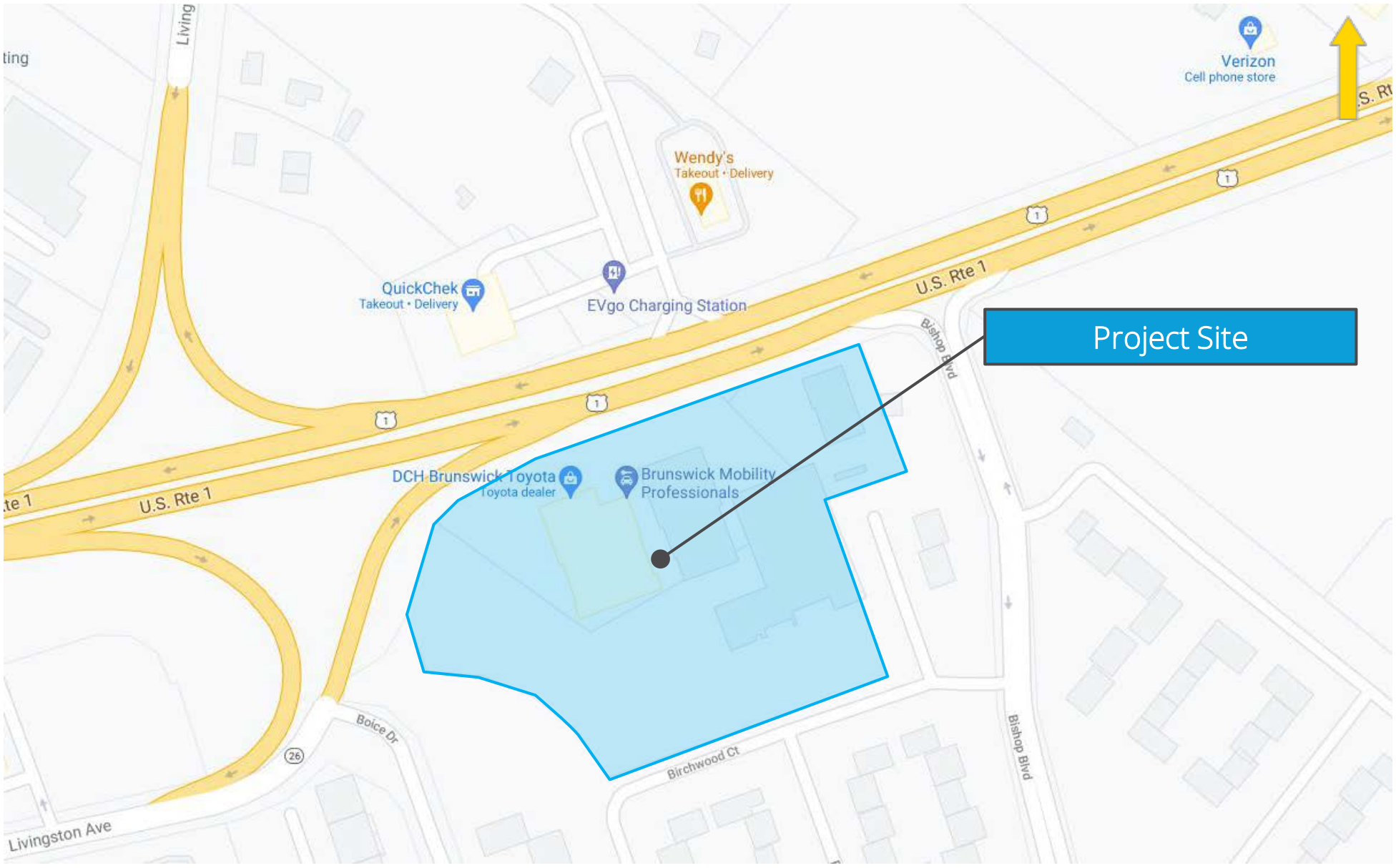
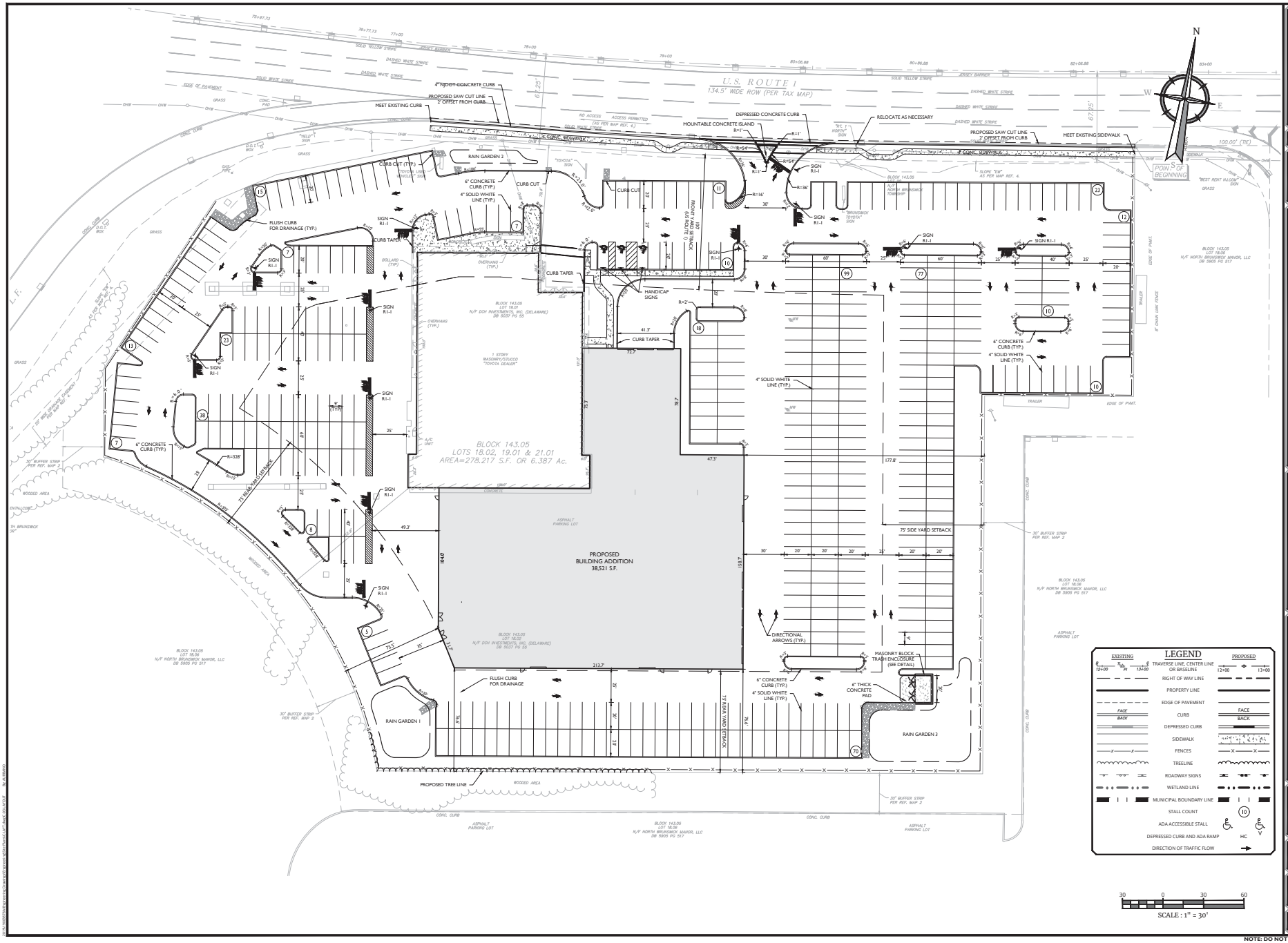
Traffic Impact Study

Appendix A | Traffic Figures



Colliers Engineering & Design	DCH Brunswick Toyota	**Figure 1**
	Project No. 19003878A	
	Township of North Brunswick, Middlesex County, New Jersey	**Site Location Map**

Figure 2



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REV	DATE	DRAWN BY	DESCRIPTION

USE VARIANCE & PRELIMINARY AND FINAL MAJOR SITE PLAN

FOR

DCH BRUNSWICK TOYOTA

BLOCK 143.05, LOTS 18.02, 19.01 & 21

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

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COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

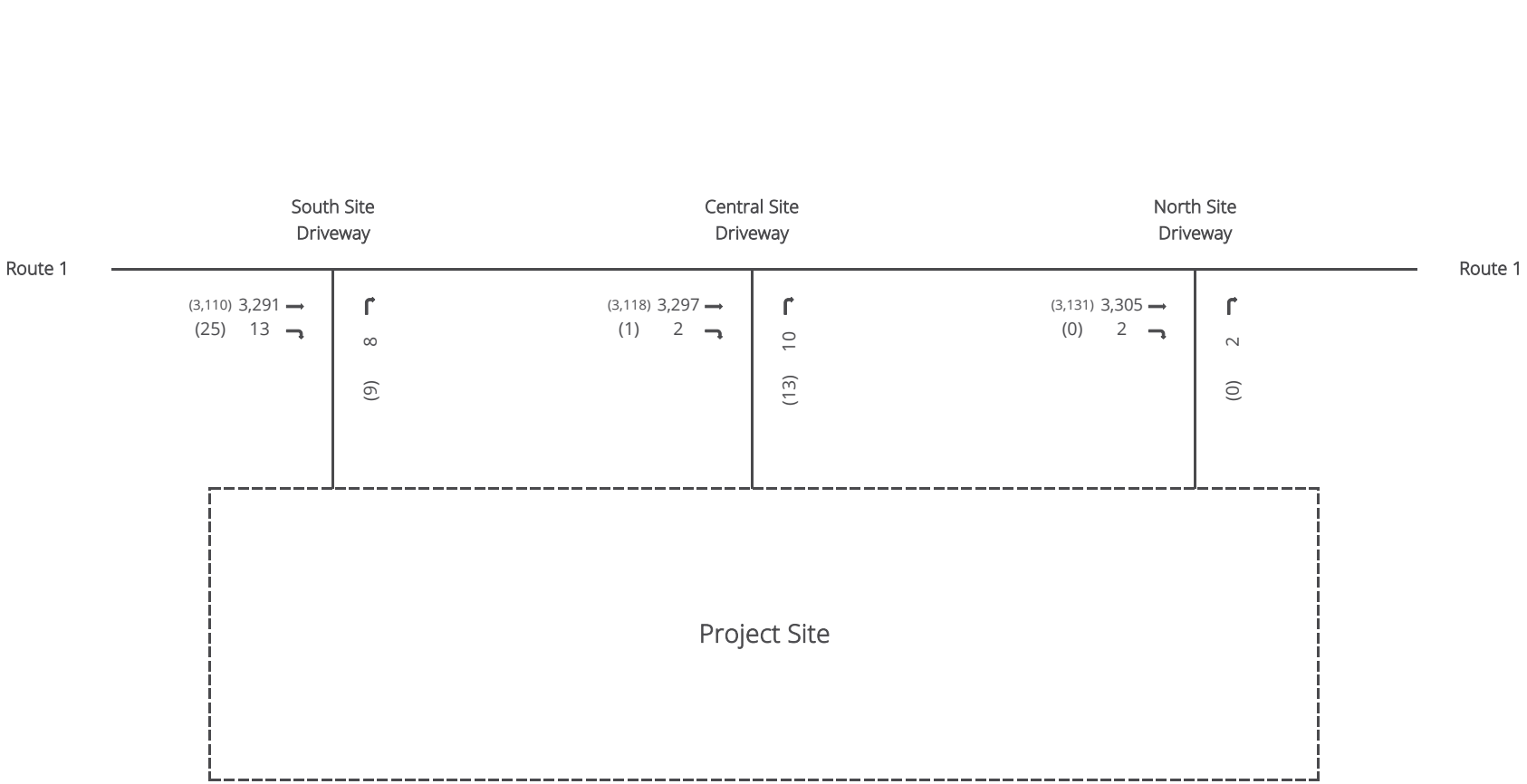
SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	7/30/2021	AJU	MFG

PROJECT NUMBER: 19003878A | DRAWING NAME: C-LAYT

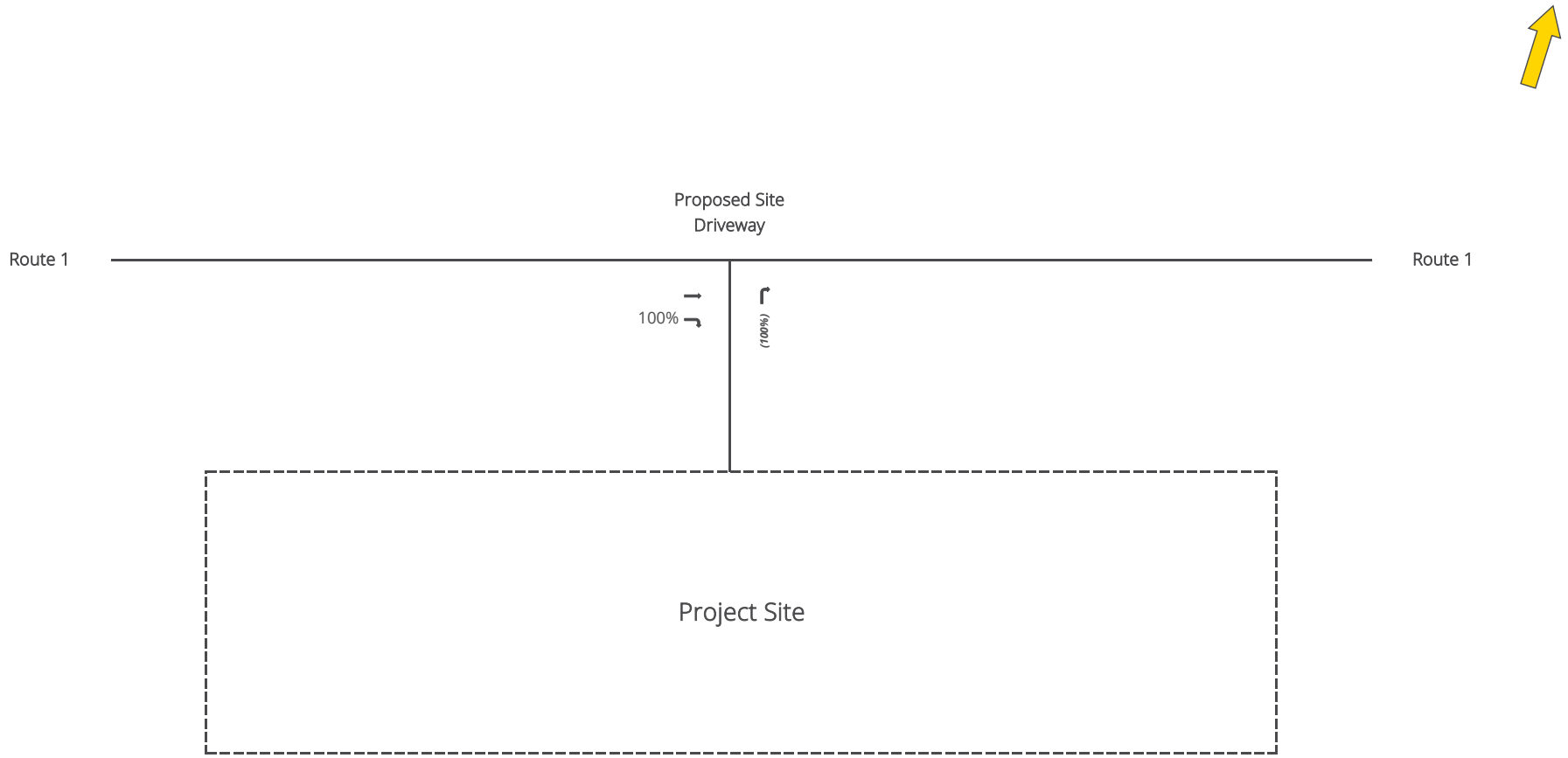
SHEET TITLE: DIMENSION PLAN

SHEET NUMBER: 3 of XX

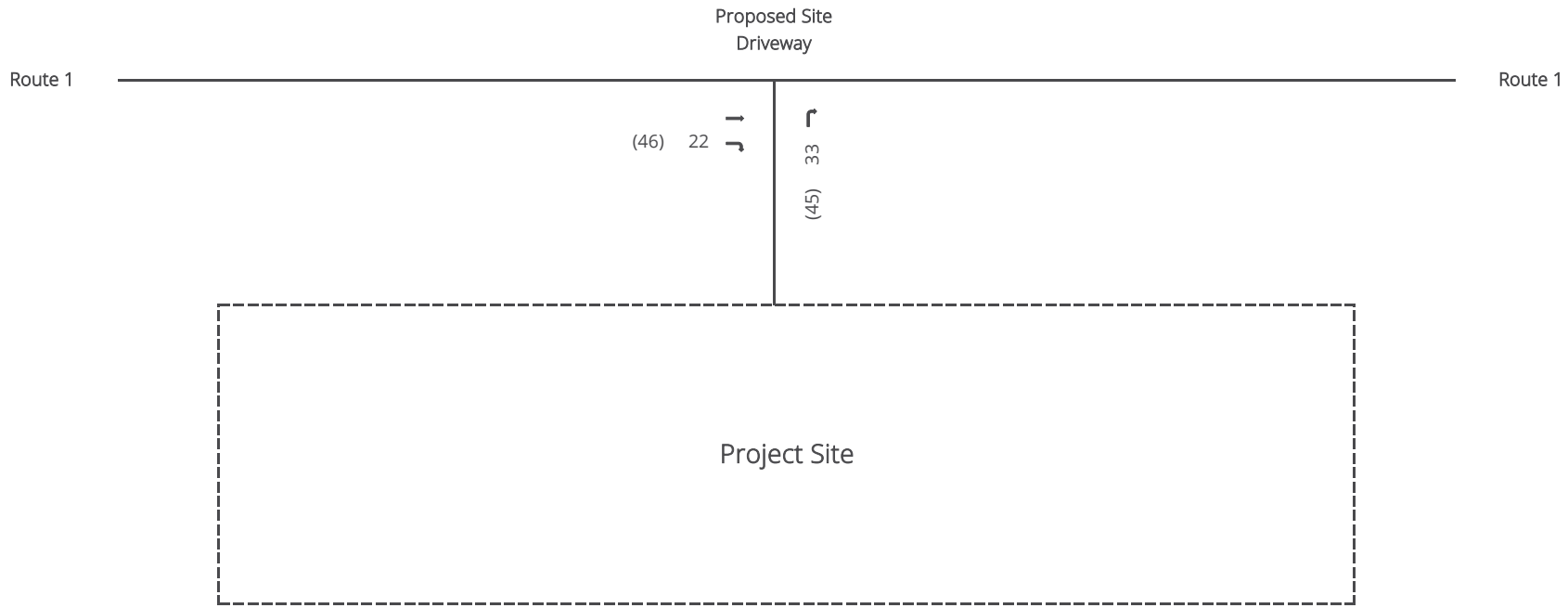
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



Colliers Engineering & Design	DCH Brunswick Toyota Project No. 19003878A Township of North Brunswick, Middlesex County, New Jersey	Legend PM Peak Hour: (###) Through Movement: SAT Peak Hour: [###] Turning Movement:	**Figure 3** **2021 Existing Conditions** **PM & SAT Peak Hours**



Colliers Engineering & Design	DCH Brunswick Toyota Project No. 19003878A Township of North Brunswick, Middlesex County, New Jersey	Legend PM Peak Hour: (###) Through Movement: SAT Peak Hour: [###] Turning Movement:	**Figure 4** **Trip Distribution** **PM & SAT Peak Hours**



Peak Hour	Enter	Exit	Total
PM	22	33	55
SAT	46	45	91

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DCH Brunswick Toyota

Project No. 19003878A

Township of North Brunswick, Middlesex County, New Jersey

Legend

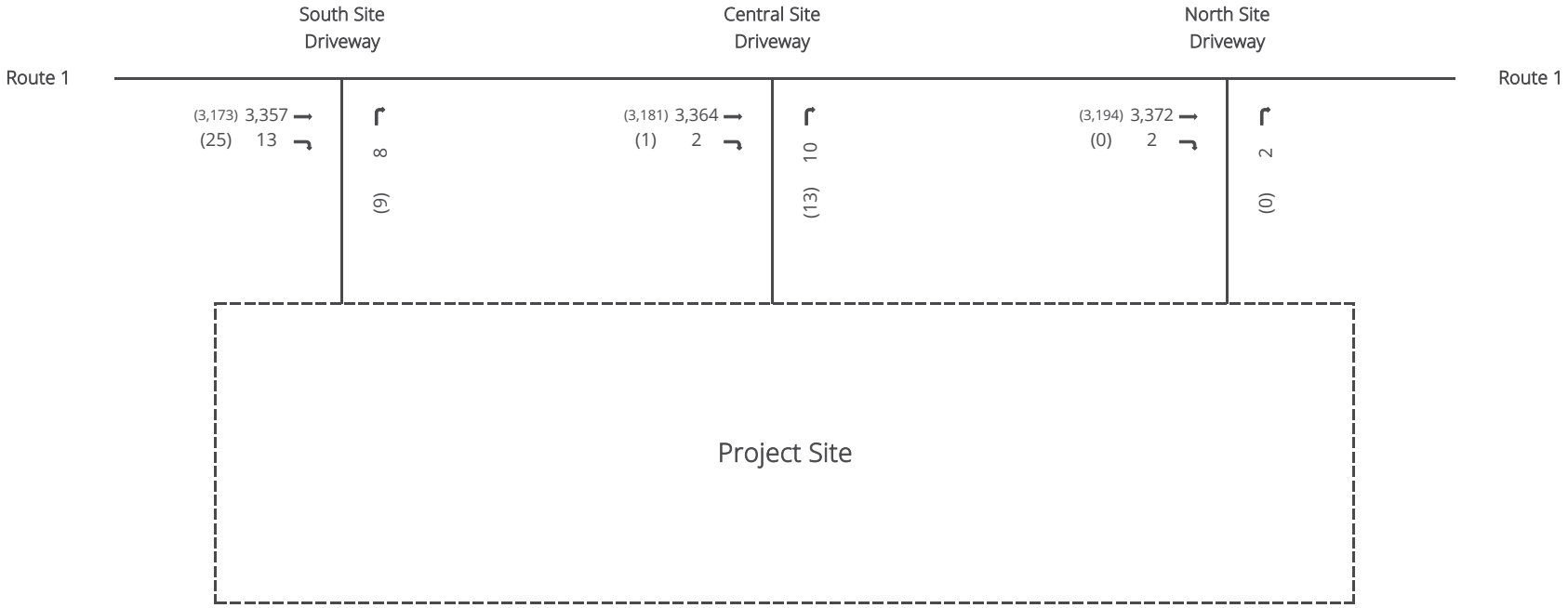
PM Peak Hour: (###) Through Movement:

SAT Peak Hour: [###] Turning Movement:

Figure 5

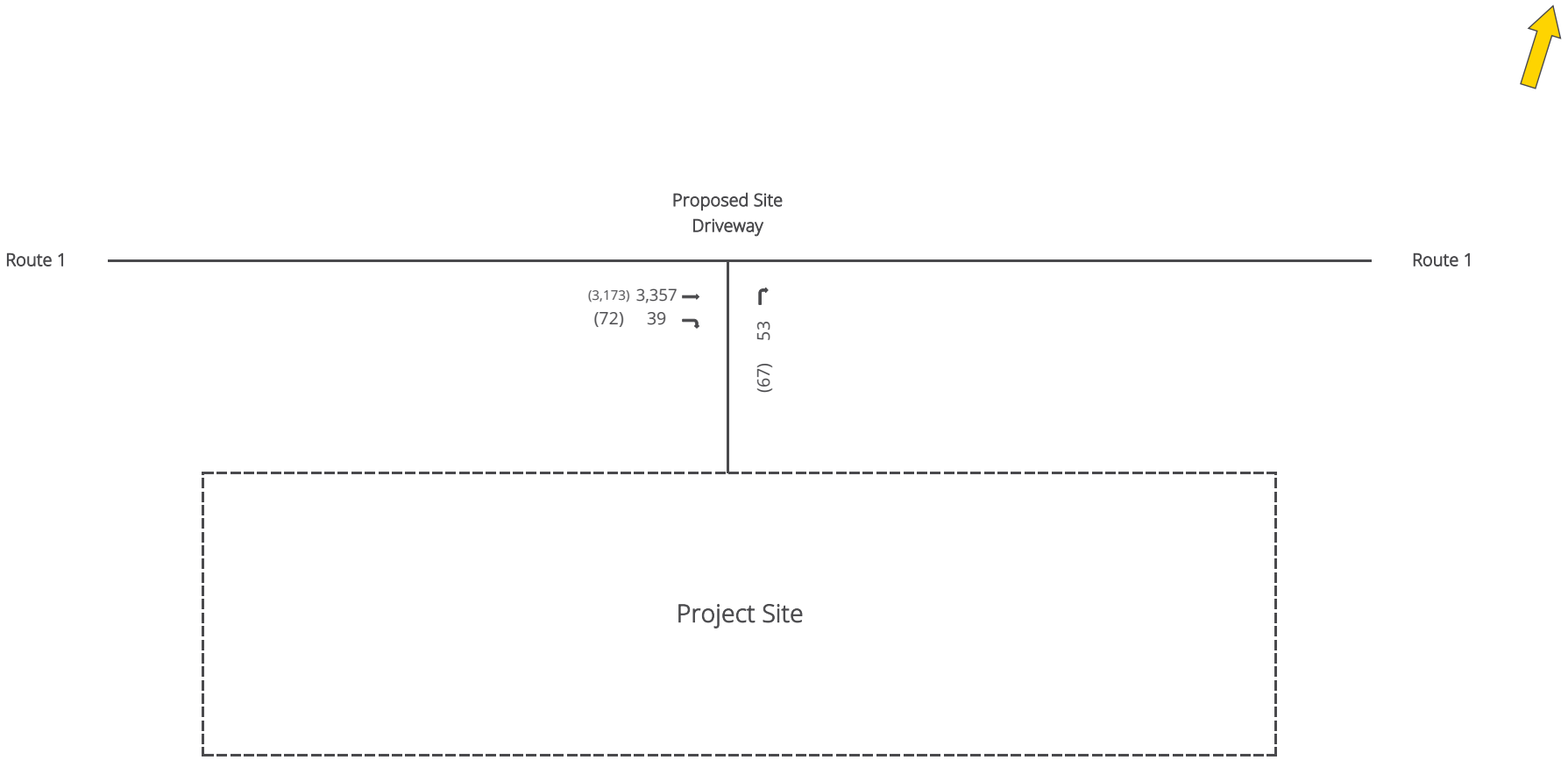
Site Generated Trips

PM & SAT Peak Hours



Build-Year Growth Rate	
Growth Rate:	1.00%
Years:	2
Growth Factor:	1.020

Colliers Engineering & Design	DCH Brunswick Toyota Project No. 19003878A Township of North Brunswick, Middlesex County, New Jersey	Legend PM Peak Hour: (###) Through Movement: SAT Peak Hour: [###] Turning Movement:	**Figure 6** **2023 No-Build Conditions** **PM & SAT Peak Hours**



Colliers Engineering & Design	DCH Brunswick Toyota Project No. 19003878A Township of North Brunswick, Middlesex County, New Jersey	Legend PM Peak Hour: (###) Through Movement: SAT Peak Hour: [###] Turning Movement:	**Figure 7** **2023 Build Conditions** **PM & SAT Peak Hours**

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Traffic Impact Study

Appendix B | Traffic Count Data

Project: Route 1 & Toyota
Municipality: North Brunswick, Middlesex County, NJ
Setup: NR
Location: 40.45609, -74.47937

Imperial Traffic & Data Collection
www.imperialtdc.com
PO BOX 4637
Cherry Hill, New Jersey, United States 08034
609-706-6100 lklein@imperialtdc.com

Count Name: 1. Route 1 and Toyota Driveway 1
Site Code: 1
Start Date: 06/05/2021

Turning Movement Data

Start Time	Toyota Driveway Westbound					Route 1 Northbound					Route 1 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
11:00 AM	0	0	4	0	4	0	612	9	0	621	0	0	534	0	534	1159
11:15 AM	0	0	3	0	3	0	570	8	0	578	0	0	534	0	534	1115
11:30 AM	0	0	0	0	0	0	609	3	0	612	0	0	565	0	565	1177
11:45 AM	0	0	4	0	4	0	550	6	0	556	0	0	571	0	571	1131
Hourly Total	0	0	11	0	11	0	2341	26	0	2367	0	0	2204	0	2204	4582
12:00 PM	0	0	1	0	1	0	534	4	0	538	0	0	547	0	547	1086
12:15 PM	0	0	3	0	3	0	567	4	0	571	0	0	571	0	571	1145
12:30 PM	0	0	3	0	3	0	569	5	0	574	0	0	604	0	604	1181
12:45 PM	0	0	2	0	2	0	575	3	0	578	0	0	616	0	616	1196
Hourly Total	0	0	9	0	9	0	2245	16	0	2261	0	0	2338	0	2338	4608
1:00 PM	0	0	5	0	5	0	637	7	0	644	0	0	596	0	596	1245
1:15 PM	0	0	1	0	1	0	604	6	0	610	0	0	570	0	570	1181
1:30 PM	0	0	1	0	1	0	672	9	0	681	0	0	575	0	575	1257
1:45 PM	0	0	4	0	4	0	585	4	0	589	0	0	513	0	513	1106
Hourly Total	0	0	11	0	11	0	2498	26	0	2524	0	0	2254	0	2254	4789
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	1	0	1	0	648	2	0	650	0	0	502	0	502	1153
4:15 PM	0	0	0	0	0	0	635	4	0	639	0	0	571	0	571	1210
4:30 PM	0	0	0	0	0	0	676	1	0	677	0	0	535	0	535	1212
4:45 PM	0	0	4	0	4	0	676	4	0	680	0	0	626	0	626	1310
Hourly Total	0	0	5	0	5	0	2635	11	0	2646	0	0	2234	0	2234	4885
5:00 PM	0	0	1	0	1	0	695	2	0	697	0	0	499	0	499	1197
5:15 PM	0	0	3	0	3	0	621	4	0	625	0	0	609	0	609	1237
5:30 PM	0	0	0	0	0	0	641	3	0	644	0	0	609	0	609	1253
5:45 PM	0	0	1	0	1	0	626	2	0	628	0	0	594	0	594	1223
Hourly Total	0	0	5	0	5	0	2583	11	0	2594	0	0	2311	0	2311	4910
Grand Total	0	0	41	0	41	0	12302	90	0	12392	0	0	11341	0	11341	23774
Approach %	0.0	0.0	100.0	-	-	0.0	99.3	0.7	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	0.0	0.2	-	0.2	0.0	51.7	0.4	-	52.1	0.0	0.0	47.7	-	47.7	-
Lights	0	0	41	-	41	0	11891	89	-	11980	0	0	10970	-	10970	22991
% Lights	-	-	100.0	-	100.0	-	96.7	98.9	-	96.7	-	-	96.7	-	96.7	96.7
Mediums	0	0	0	-	0	0	209	1	-	210	0	0	198	-	198	408
% Mediums	-	-	0.0	-	0.0	-	1.7	1.1	-	1.7	-	-	1.7	-	1.7	1.7
Articulated Trucks	0	0	0	-	0	0	202	0	-	202	0	0	173	-	173	375
% Articulated Trucks	-	-	0.0	-	0.0	-	1.6	0.0	-	1.6	-	-	1.5	-	1.5	1.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-

Project: Route 1 & Toyota
Municipality: North Brunswick, Middlesex County, NJ
Setup: NR
Location: 40.45609, -74.47937

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PO BOX 4637
Cherry Hill, New Jersey, United States 08034
609-706-6100 lklein@imperialtdc.com

Count Name: 1. Route 1 and Toyota Driveway 1
Site Code: 1
Start Date: 06/05/2021

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Toyota Driveway Westbound					Route 1 Northbound					Route 1 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:45 PM	0	0	2	0	2	0	575	3	0	578	0	0	616	0	616	1196
1:00 PM	0	0	5	0	5	0	637	7	0	644	0	0	596	0	596	1245
1:15 PM	0	0	1	0	1	0	604	6	0	610	0	0	570	0	570	1181
1:30 PM	0	0	1	0	1	0	672	9	0	681	0	0	575	0	575	1257
Total	0	0	9	0	9	0	2488	25	0	2513	0	0	2357	0	2357	4879
Approach %	0.0	0.0	100.0	-	-	0.0	99.0	1.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	0.0	0.2	-	0.2	0.0	51.0	0.5	-	51.5	0.0	0.0	48.3	-	48.3	-
PHF	0.000	0.000	0.450	-	0.450	0.000	0.926	0.694	-	0.923	0.000	0.000	0.957	-	0.957	0.970
Lights	0	0	9	-	9	0	2434	25	-	2459	0	0	2295	-	2295	4763
% Lights	-	-	100.0	-	100.0	-	97.8	100.0	-	97.9	-	-	97.4	-	97.4	97.6
Mediums	0	0	0	-	0	0	30	0	-	30	0	0	33	-	33	63
% Mediums	-	-	0.0	-	0.0	-	1.2	0.0	-	1.2	-	-	1.4	-	1.4	1.3
Articulated Trucks	0	0	0	-	0	0	24	0	-	24	0	0	29	-	29	53
% Articulated Trucks	-	-	0.0	-	0.0	-	1.0	0.0	-	1.0	-	-	1.2	-	1.2	1.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Route 1 & Toyota
Municipality: North Brunswick, Middlesex County, NJ
Setup: NR
Location: 40.45609, -74.47937

Imperial Traffic & Data Collection
www.imperialtdc.com
PO BOX 4637
Cherry Hill, New Jersey, United States 08034
609-706-6100 lklein@imperialtdc.com

Count Name: 1. Route 1 and Toyota Driveway 1
Site Code: 1
Start Date: 06/05/2021

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Toyota Driveway Westbound					Route 1 Northbound					Route 1 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:45 PM	0	0	4	0	4	0	676	4	0	680	0	0	626	0	626	1310
5:00 PM	0	0	1	0	1	0	695	2	0	697	0	0	499	0	499	1197
5:15 PM	0	0	3	0	3	0	621	4	0	625	0	0	609	0	609	1237
5:30 PM	0	0	0	0	0	0	641	3	0	644	0	0	609	0	609	1253
Total	0	0	8	0	8	0	2633	13	0	2646	0	0	2343	0	2343	4997
Approach %	0.0	0.0	100.0	-	-	0.0	99.5	0.5	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	0.0	0.2	-	0.2	0.0	52.7	0.3	-	53.0	0.0	0.0	46.9	-	46.9	-
PHF	0.000	0.000	0.500	-	0.500	0.000	0.947	0.813	-	0.949	0.000	0.000	0.936	-	0.936	0.954
Lights	0	0	8	-	8	0	2527	13	-	2540	0	0	2252	-	2252	4800
% Lights	-	-	100.0	-	100.0	-	96.0	100.0	-	96.0	-	-	96.1	-	96.1	96.1
Mediums	0	0	0	-	0	0	46	0	-	46	0	0	42	-	42	88
% Mediums	-	-	0.0	-	0.0	-	1.7	0.0	-	1.7	-	-	1.8	-	1.8	1.8
Articulated Trucks	0	0	0	-	0	0	60	0	-	60	0	0	49	-	49	109
% Articulated Trucks	-	-	0.0	-	0.0	-	2.3	0.0	-	2.3	-	-	2.1	-	2.1	2.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2. Route 1 and Toyota Driveway 2 - ATR

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 5, 2021
Full Length (11 AM-2 PM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Channels
ID: 846179, Location: 40.45611, -74.478818, Site Code: 2

Leg Direction	West Eastbound		East Westbound		
Time	T	**App**	T	**App**	**Int**
2021-06-05 11:00AM	4	**4**	0	**0**	**4**
11:15AM	1	**1**	1	**1**	**2**
11:30AM	4	**4**	0	**0**	**4**
11:45AM	6	**6**	1	**1**	**7**
Hourly Total	15	**15**	2	**2**	**17**
12:00PM	2	**2**	1	**1**	**3**
12:15PM	3	**3**	2	**2**	**5**
12:30PM	1	**1**	2	**2**	**3**
12:45PM	5	**5**	0	**0**	**5**
Hourly Total	11	**11**	5	**5**	**16**
1:00PM	0	**0**	1	**1**	**1**
1:15PM	4	**4**	0	**0**	**4**
1:30PM	4	**4**	0	**0**	**4**
1:45PM	4	**4**	2	**2**	**6**
Hourly Total	12	**12**	3	**3**	**15**
2021-06-08 4:00PM	2	**2**	0	**0**	**2**
4:15PM	2	**2**	0	**0**	**2**
4:30PM	3	**3**	1	**1**	**4**
4:45PM	1	**1**	1	**1**	**2**
Hourly Total	8	**8**	2	**2**	**10**
5:00PM	3	**3**	0	**0**	**3**
5:15PM	3	**3**	1	**1**	**4**
5:30PM	3	**3**	0	**0**	**3**
5:45PM	0	**0**	0	**0**	**0**
Hourly Total	9	**9**	1	**1**	**10**
Total	55	**55**	13	**13**	**68**
% Approach	100%	**-**	100%	**-**	-
% Total	80.9%	**80.9%**	19.1%	**19.1%**	-
Lights	55	**55**	13	**13**	68
% Lights	100%	**100%**	100%	**100%**	100%
Articulated Trucks	0	**0**	0	**0**	0
% Articulated Trucks	0%	**0%**	0%	**0%**	0%
Buses and Single-Unit Trucks	0	**0**	0	**0**	0
% Buses and Single-Unit Trucks	0%	**0%**	0%	**0%**	0%

*T: Thru

2. Route 1 and Toyota Driveway 2 - ATR

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 8, 2021
Forced Peak (Jun 08 2021 4:45PM - 5:45 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Channels
ID: 846179, Location: 40.45611, -74.478818, Site Code: 2

Leg Direction	West Eastbound		East Westbound		
Time	T	**App**	T	**App**	**Int**
2021-06-08 4:45PM	1	**1**	1	**1**	**2**
5:00PM	3	**3**	0	**0**	**3**
5:15PM	3	**3**	1	**1**	**4**
5:30PM	3	**3**	0	**0**	**3**
Total	10	**10**	2	**2**	**12**
% Approach	100%	**-**	100%	**-**	-
% Total	83.3%	**83.3%**	16.7%	**16.7%**	-
PHF	0.833	**0.833**	0.500	**0.500**	0.750
Lights	10	**10**	2	**2**	12
% Lights	100%	**100%**	100%	**100%**	100%
Articulated Trucks	0	**0**	0	**0**	0
% Articulated Trucks	0%	**0%**	0%	**0%**	0%
Buses and Single-Unit Trucks	0	**0**	0	**0**	0
% Buses and Single-Unit Trucks	0%	**0%**	0%	**0%**	0%

*T: Thru

2. Route 1 and Toyota Driveway 2 - ATR

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 5, 2021
Forced Peak (Jun 05 2021 12:45PM - 1:45 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Channels
ID: 846179, Location: 40.45611, -74.478818, Site Code: 2

Leg Direction	West Eastbound		East Westbound		
Time	T	**App**	T	**App**	**Int**
2021-06-05 12:45PM	5	**5**	0	**0**	**5**
1:00PM	0	**0**	1	**1**	**1**
1:15PM	4	**4**	0	**0**	**4**
1:30PM	4	**4**	0	**0**	**4**
Total	13	**13**	1	**1**	**14**
% Approach	100%	**-**	100%	**-**	-
% Total	92.9%	**92.9%**	7.1%	**7.1%**	-
PHF	0.650	**0.650**	0.250	**0.250**	0.700
Lights	13	**13**	1	**1**	14
% Lights	100%	**100%**	100%	**100%**	100%
Articulated Trucks	0	**0**	0	**0**	0
% Articulated Trucks	0%	**0%**	0%	**0%**	0%
Buses and Single-Unit Trucks	0	**0**	0	**0**	0
% Buses and Single-Unit Trucks	0%	**0%**	0%	**0%**	0%

*T: Thru

3. Route 1 and Toyota Driveway 3 - ATR

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 5, 2021
Full Length (11 AM-2 PM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Channels
ID: 846180, Location: 40.456215, -74.478405, Site Code: 3

Leg Direction	West Eastbound		East Westbound		
Time	T	**App**	T	**App**	**Int**
2021-06-05 11:00AM	0	**0**	0	**0**	**0**
11:15AM	1	**1**	0	**0**	**1**
11:30AM	0	**0**	0	**0**	**0**
11:45AM	0	**0**	0	**0**	**0**
Hourly Total	1	**1**	0	**0**	**1**
12:00PM	2	**2**	0	**0**	**2**
12:15PM	1	**1**	0	**0**	**1**
12:30PM	0	**0**	0	**0**	**0**
12:45PM	0	**0**	0	**0**	**0**
Hourly Total	3	**3**	0	**0**	**3**
1:00PM	0	**0**	0	**0**	**0**
1:15PM	0	**0**	0	**0**	**0**
1:30PM	0	**0**	0	**0**	**0**
1:45PM	0	**0**	0	**0**	**0**
Hourly Total	0	**0**	0	**0**	**0**
2021-06-08 4:00PM	0	**0**	0	**0**	**0**
4:15PM	2	**2**	0	**0**	**2**
4:30PM	0	**0**	0	**0**	**0**
4:45PM	1	**1**	1	**1**	**2**
Hourly Total	3	**3**	1	**1**	**4**
5:00PM	1	**1**	1	**1**	**2**
5:15PM	0	**0**	0	**0**	**0**
5:30PM	0	**0**	0	**0**	**0**
5:45PM	0	**0**	0	**0**	**0**
Hourly Total	1	**1**	1	**1**	**2**
Total	8	**8**	2	**2**	**10**
% Approach	100%	**-**	100%	**-**	-
% Total	80.0%	**80.0%**	20.0%	**20.0%**	-
Lights	8	**8**	2	**2**	10
% Lights	100%	**100%**	100%	**100%**	100%
Articulated Trucks	0	**0**	0	**0**	0
% Articulated Trucks	0%	**0%**	0%	**0%**	0%
Buses and Single-Unit Trucks	0	**0**	0	**0**	0
% Buses and Single-Unit Trucks	0%	**0%**	0%	**0%**	0%

*T: Thru

3. Route 1 and Toyota Driveway 3 - ATR

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 8, 2021
Forced Peak (Jun 08 2021 4:45PM - 5:45 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)
All Channels
ID: 846180, Location: 40.456215, -74.478405, Site Code: 3

Leg Direction	West Eastbound		East Westbound		
Time	T	**App**	T	**App**	**Int**
2021-06-08 4:45PM	1	**1**	1	**1**	**2**
5:00PM	1	**1**	1	**1**	**2**
5:15PM	0	**0**	0	**0**	**0**
5:30PM	0	**0**	0	**0**	**0**
Total	2	**2**	2	**2**	**4**
% Approach	100%	**-**	100%	**-**	-
% Total	50.0%	**50.0%**	50.0%	**50.0%**	-
PHF	0.500	**0.500**	0.500	**0.500**	0.500
Lights	2	**2**	2	**2**	4
% Lights	100%	**100%**	100%	**100%**	100%
Articulated Trucks	0	**0**	0	**0**	0
% Articulated Trucks	0%	**0%**	0%	**0%**	0%
Buses and Single-Unit Trucks	0	**0**	0	**0**	0
% Buses and Single-Unit Trucks	0%	**0%**	0%	**0%**	0%

*T: Thru

New Jersey Department of Transportation

Short-term Hourly Traffic Volume for 11/28/2017 to 12/01/2017

Site names: 4-5-004,Herbert Highway-22.8,00000001__
County: MIDDLESEX
Funct Class: Urban Principal Arterial - Other
Location: BET NJ 26 and NJ 91

Seasonal Factor Grp: rg3_3U
Daily Factor Grp: rg3_3U
Axle Factor Grp: rg3_3U
Growth Factor Grp: rg3_3U

	Sun, Nov 26, 2017			Mon, Nov 27, 2017			Tue, Nov 28, 2017			Wed, Nov 29, 2017			Thu, Nov 30, 2017			Fri, Dec 1, 2017			Sat, Dec 2, 2017		
	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S	Road	N	S
00:00										885	395	490	898	415	483	1,052	484	568			
01:00										561	227	334	615	252	363	679	283	396			
02:00										522	229	293	528	233	295	563	244	319			
03:00										620	287	333	676	329	347	660	340	320			
04:00										1,005	496	509	1,000	476	524	989	467	522			
05:00										1,961	1,073	888	2,039	1,113	926	1,908	982	926			
06:00										4,041	2,244	1,797	4,136	2,268	1,868	3,864	2,163	1,701			
07:00										5,877	3,258	2,619	4,955	2,369	2,586	5,572	2,988	2,584			
08:00										6,124	3,421	2,703	6,278	3,559	2,719	5,911	3,149	2,762			
09:00										5,055	2,721	2,334	5,305	3,082	2,223						
10:00										4,399	2,344	2,055	4,450	2,558	1,892						
11:00										4,373	2,343	2,030	4,494	2,495	1,999						
12:00										4,628	2,501	2,127	4,690	2,431	2,259						
13:00										4,631	2,450	2,181	4,742	2,475	2,267						
14:00										4,775	2,444	2,331	4,962	2,521	2,441						
15:00							5,379	2,721	2,658	5,441	2,808	2,633	5,458	2,851	2,607						
16:00							6,015	3,236	2,779	6,001	3,125	2,876	6,214	3,300	2,914						
17:00							6,507	3,384	3,123	6,423	3,244	3,179	6,362	3,278	3,084						
18:00							5,556	2,723	2,833	5,740	2,747	2,993	5,632	2,847	2,785						
19:00							4,554	2,019	2,535	4,481	1,978	2,503	4,607	2,176	2,431						
20:00							3,400	1,458	1,942	3,508	1,589	1,919	3,845	1,700	2,145						
21:00							2,823	1,211	1,612	2,839	1,159	1,680	2,966	1,234	1,732						
22:00							1,964	865	1,099	2,106	952	1,154	2,290	966	1,324						
23:00							1,312	569	743	1,396	632	764	1,550	682	868						
Total							37,510	18,186	19,324	87,392	44,667	42,725	88,692	45,610	43,082	21,198	11,100	10,098			
AM Peak Vol										6,330	3,494	2,836	6,278	3,559	2,794						
AM Peak Fct										.957	.969	.942	.982	.973	.965						
AM Peak Hr										7: 30	7: 30	7: 30	8: 00	8: 00	7: 30						
PM Peak Vol										6,423	3,264	3,185	6,389	3,332	3,158						
PM Peak Fct										.966	.948	.967	.954	.959	.971						
PM Peak Hr										16: 45	16: 30	17: 15	16: 45	16: 30	17: 15						
Seasonal Fct							1.014	1.014	1.014	1.014	1.014	1.014	1.014	1.014	1.014	1.042	1.042	1.042			
Daily Fct							.948	.948	.948	.931	.931	.931	.979	.979	.979	.889	.889	.889			
Axle Fct							.487	.487	.487	.487	.487	.487	.487	.487	.487	.490	.490	.490			
Pulse Fct							2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000			

Created 06/27/2018 1:38 PM

ROAD AADT 82,386 NDIR AADT 40,180 PDIR AADT 42,206

Colliers Engineering & Design

Traffic Impact Study

Appendix C | Trip Generation Calculations

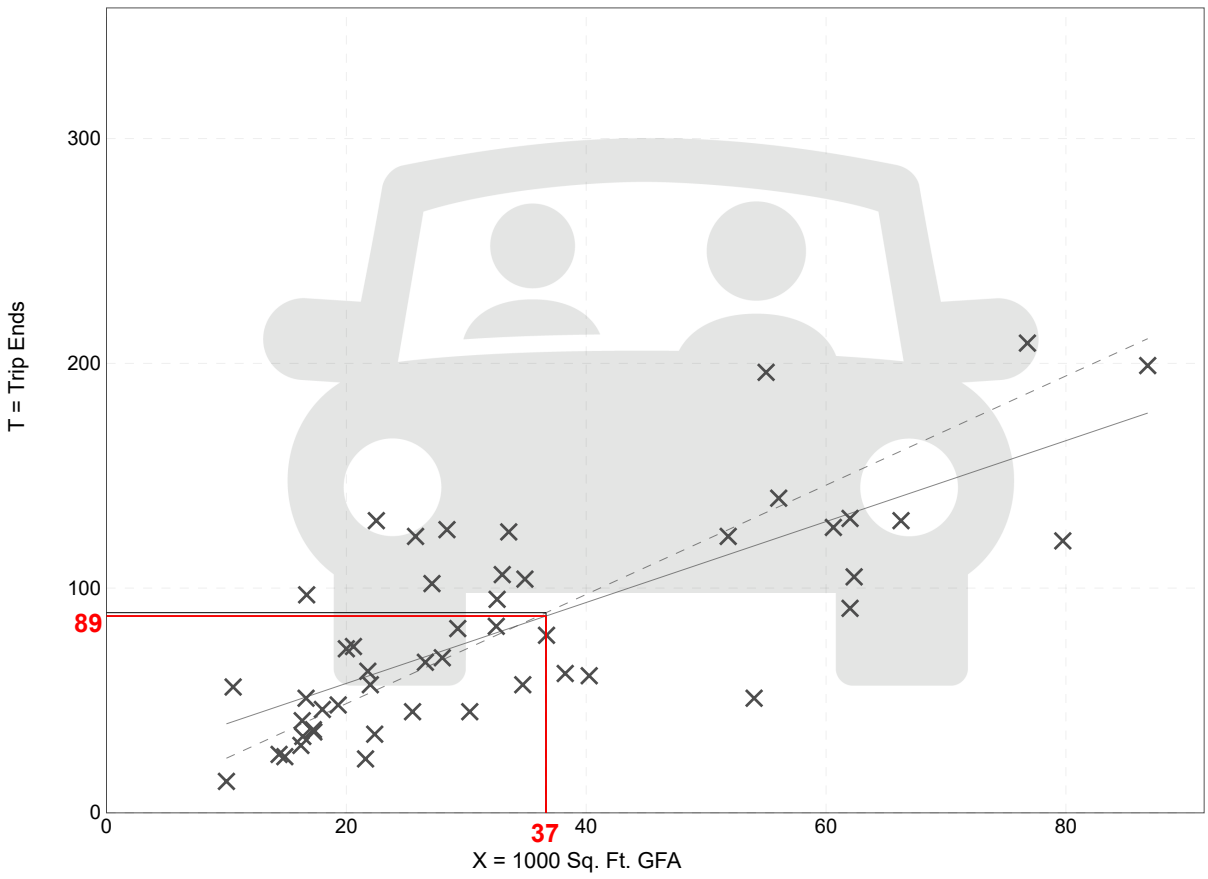
Automobile Sales (New)
(840)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	49
Avg. 1000 Sq. Ft. GFA:	34
Directional Distribution:	40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.43	0.94 - 5.81	0.99

Data Plot and Equation



Fitted Curve Equation: T = 1.80(X) + 21.60

R^2= 0.57

Automobile Sales (New)
(840)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

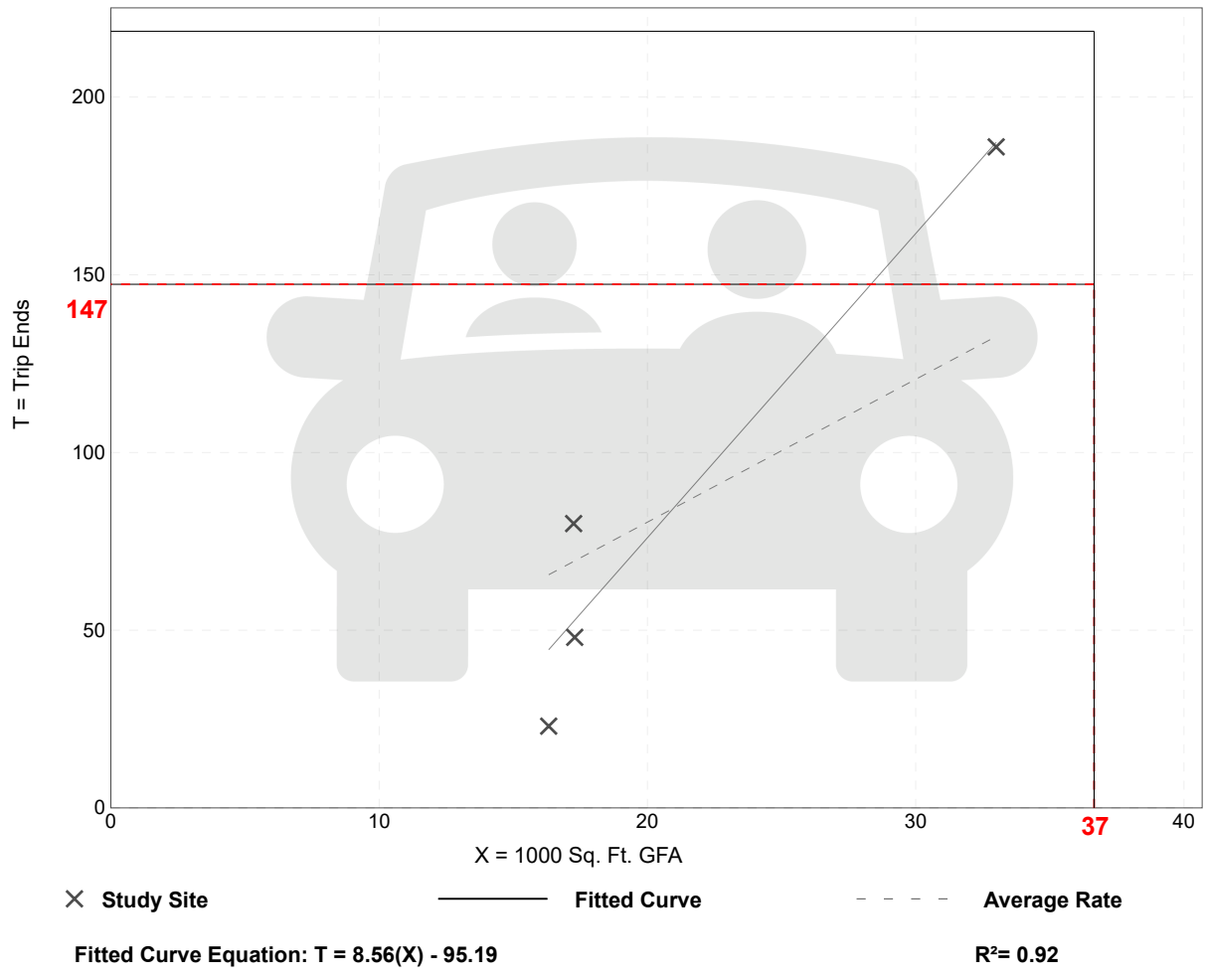
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
Avg. 1000 Sq. Ft. GFA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.02	1.41 - 5.64	1.92

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 8.56(X) - 95.19

R^2= 0.92

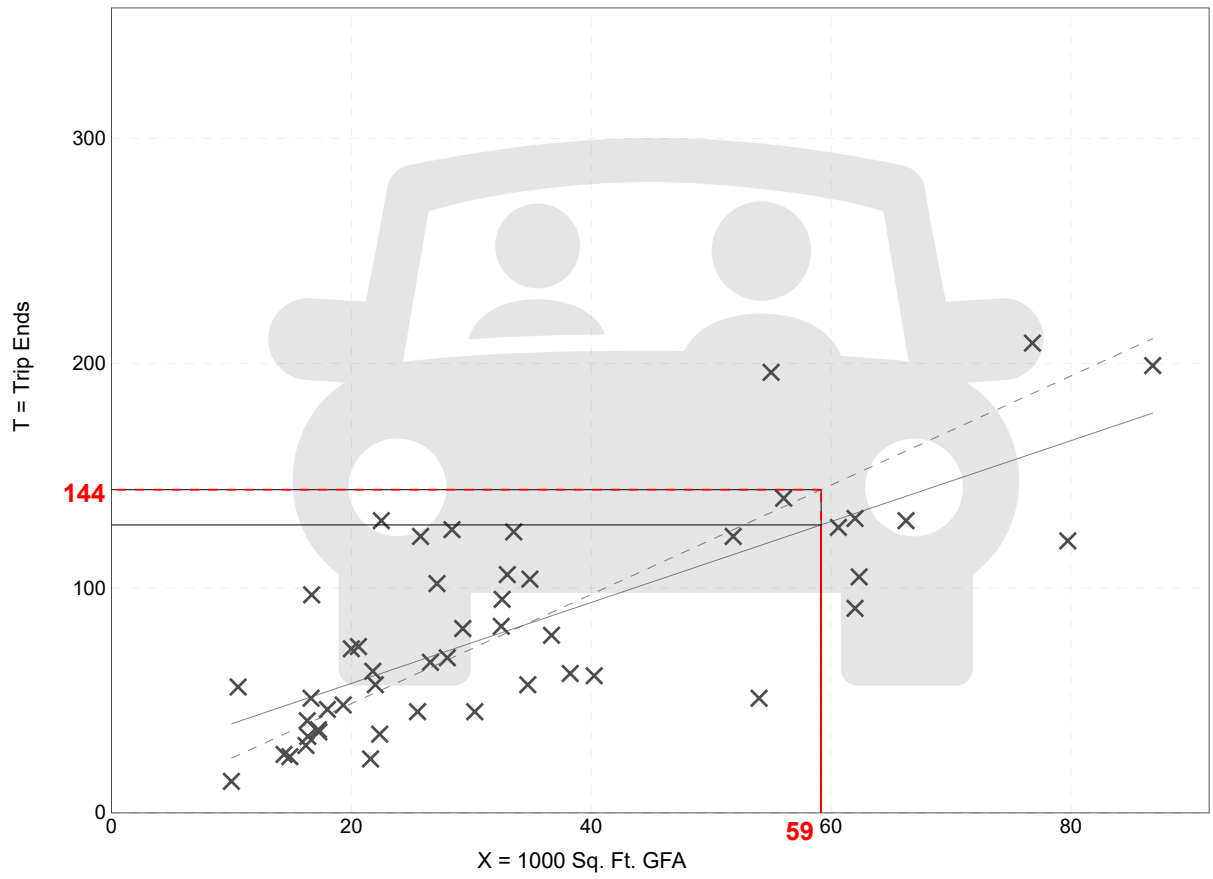
Automobile Sales (New)
(840)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 49
Avg. 1000 Sq. Ft. GFA: 34
Directional Distribution: 40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.43	0.94 - 5.81	0.99

Data Plot and Equation



Fitted Curve Equation: T = 1.80(X) + 21.60

R^2= 0.57

Automobile Sales (New)
(840)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

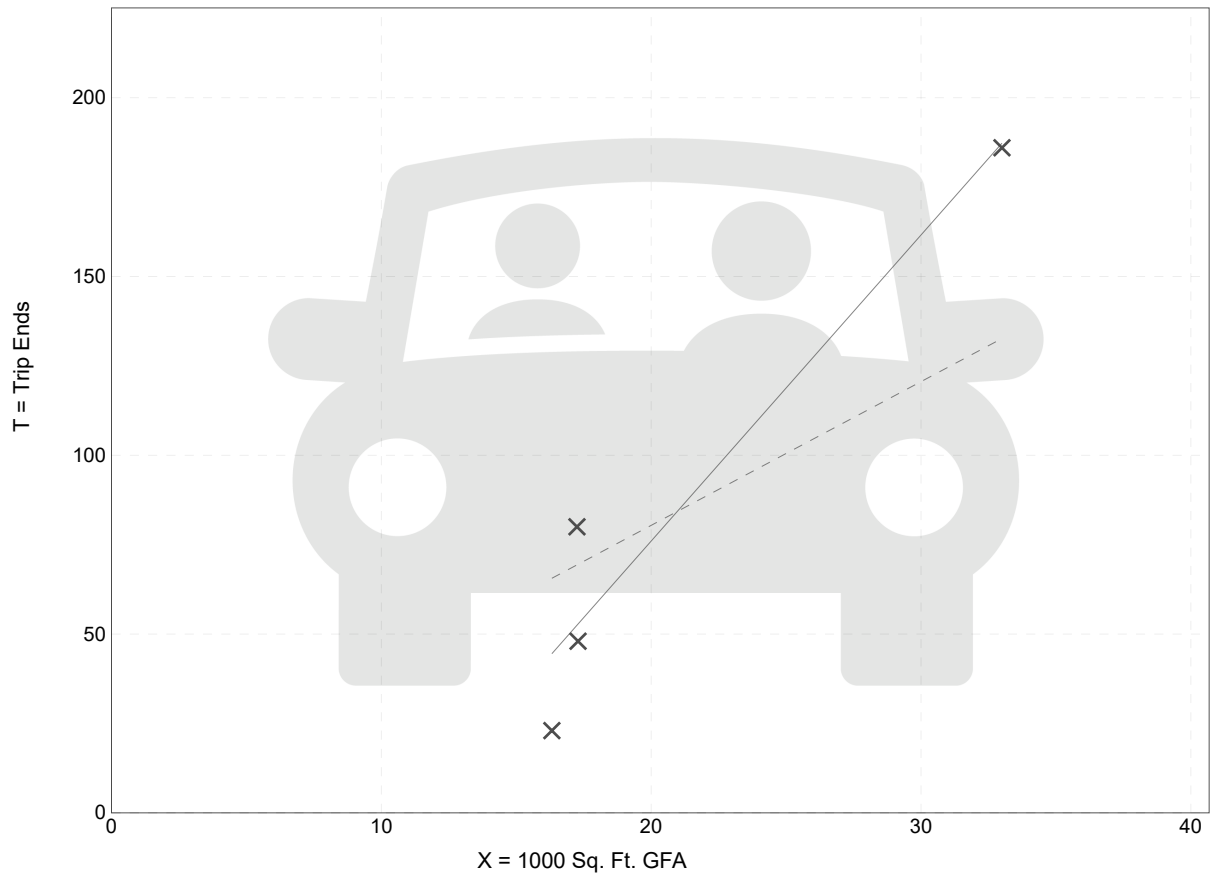
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
Avg. 1000 Sq. Ft. GFA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.02	1.41 - 5.64	1.92

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: T = 8.56(X) - 95.19

R^2= 0.92

Colliers Engineering & Design

Traffic Impact Study

Appendix D | Capacity Analysis

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	8	3357	13	0	2929
Future Volume (Veh/h)	0	8	3357	13	0	2929
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	8	3534	14	0	3083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4312	890			3548	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4312	890			3548	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	1	290			70	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	8	1010	1010	1010	519	771	771	771	771
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	8	0	0	0	14	0	0	0	0
cSH	290	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.59	0.59	0.59	0.31	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	2	0	0	0	0	0	0	0	0
Control Delay (s)	17.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	17.8	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	10	3364	2	0	2929
Future Volume (Veh/h)	0	10	3364	2	0	2929
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	11	3541	2	0	3083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4313	886			3543	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4313	886			3543	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	1	291			71	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	11	1012	1012	1012	508	771	771	771	771
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	11	0	0	0	2	0	0	0	0
cSH	291	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.60	0.60	0.60	0.30	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	3	0	0	0	0	0	0	0	0
Control Delay (s)	17.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	17.8	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	2	3372	2	0	2929
Future Volume (Veh/h)	0	2	3372	2	0	2929
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2	3549	2	0	3083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4321	888			3551	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4321	888			3551	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	1	291			70	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	2	1014	1014	1014	509	771	771	771	771
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	2	0	0	0	2	0	0	0	0
cSH	291	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.60	0.60	0.60	0.30	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	1	0	0	0	0	0	0	0	0
Control Delay (s)	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	17.5	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	9	3173	25	0	2946
Future Volume (Veh/h)	0	9	3173	25	0	2946
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	9	3271	26	0	3037
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4043	831			3297	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4043	831			3297	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	2	317			89	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	9	935	935	935	493	759	759	759	759
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	9	0	0	0	26	0	0	0	0
cSH	317	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.03	0.55	0.55	0.55	0.29	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	2	0	0	0	0	0	0	0	0
Control Delay (s)	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	16.7	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	13	3181	1	0	2496
Future Volume (Veh/h)	0	13	3181	1	0	2496
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	13	3279	1	0	2573
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3923	820			3280	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3923	820			3280	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	2	322			90	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	13	937	937	937	469	643	643	643	643
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	13	0	0	0	1	0	0	0	0
cSH	322	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.55	0.55	0.55	0.28	0.38	0.38	0.38	0.38
Queue Length 95th (ft)	3	0	0	0	0	0	0	0	0
Control Delay (s)	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	16.6	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	1	3194	1	0	2946
Future Volume (Veh/h)	0	1	3194	1	0	2946
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1	3293	1	0	3037
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4053	824			3294	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4053	824			3294	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	2	320			89	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	1	941	941	941	471	759	759	759	759
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	1	0	0	0	1	0	0	0	0
cSH	320	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.55	0.55	0.55	0.28	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0
Control Delay (s)	16.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	16.3	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	53	3357	39	0	2929
Future Volume (Veh/h)	0	53	3357	39	0	2929
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	56	3534	41	0	3083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4325	904			3575	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4325	904			3575	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	80			100	
cM capacity (veh/h)	1	284			69	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	56	1010	1010	1010	546	771	771	771	771
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	56	0	0	0	41	0	0	0	0
cSH	284	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.59	0.59	0.59	0.32	0.45	0.45	0.45	0.45
Queue Length 95th (ft)	18	0	0	0	0	0	0	0	0
Control Delay (s)	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	20.8	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	67	3173	72	0	2496
Future Volume (Veh/h)	0	67	3173	72	0	2496
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	69	3271	74	0	2573
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3951	855			3345	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3951	855			3345	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	77			100	
cM capacity (veh/h)	2	306			85	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	69	935	935	935	541	643	643	643	643
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	69	0	0	0	74	0	0	0	0
cSH	306	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.23	0.55	0.55	0.55	0.32	0.38	0.38	0.38	0.38
Queue Length 95th (ft)	21	0	0	0	0	0	0	0	0
Control Delay (s)	20.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C								
Approach Delay (s)	20.2	0.0				0.0			
Approach LOS	C								

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

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