

# Traffic Impact Study

141 West Front Street

Block 34, Lots 3.01, 25, and 26

Borough of Red Bank, Monmouth County, New Jersey

November 14, 2019

*Prepared For*

Red Bank Corporate Plaza, LLC

40 Monmouth Park Highway

PO Box 70

West Long Branch, NJ 07764

*Prepared By*

Maser Consulting P.A.

331 Newman Springs Road, Suite 203

Red Bank, NJ 07701

732.383.1950



S. Maurice Rached, P.E., PTOE

N.J.P.E. License No. 37963



Michelle R. Briehof, P.E.

N.J.P.E. License No. 51939

MC Project No. 19003629A



## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
II.	EXISTING ROADWAY CONDITIONS.....	2
III.	EXISTING TRAFFIC CONDITIONS .....	3
IV.	TRIP GENERATION & DISTRIBUTION .....	4
V.	FUTURE TRAFFIC CONDITIONS .....	6
VI.	HCM CAPACITY ANALYSIS.....	7
VII.	SITE ACCESS AND PARKING ASSESSMENT .....	10
VIII.	SUMMARY AND CONCLUSIONS .....	13

## TABLES

Table 1 – Data Collection Efforts and Established Peak Hours.....	3
Table 2 – Trip Generation Calculations.....	4
Table 3 – Trip Distribution .....	4
Table 4 – HCM Unsignalized LOS/Delay Criteria .....	7
Table 5 – Level of Service Summary.....	8

## APPENDICES

Appendix A.....	Traffic Figures
Appendix B .....	Traffic Count Data
Appendix C .....	Trip Generation
Appendix D.....	Capacity Analysis
Appendix E .....	Shared Parking Model and Parking Observation Data

## **I. INTRODUCTION**

This Traffic Impact Study has been prepared for Red Bank Corporate Plaza, LLC (“Applicant”) in association with a proposed 150-unit multi-family residential development (“The Project”) in the Borough of Red Bank, Monmouth County, New Jersey. The subject site is bounded by Wall Street to the south, Pearl Street to the east, West Front Street to the north, and West Street to the west, and is designated as Block 34, Lots 3.01, 25, and 26 on the Borough of Red Bank Tax Maps. The subject site is currently developed with an 83,950 SF office building and a 6,153 SF restaurant. It is proposed to construct the residential units alongside the existing office and restaurant, as well as additional structured parking spaces. It is noted the existing auto repair shop on Lot 26 will be razed.

The existing access along Wall Street will be modified as part of the proposed development. Additionally, it is proposed to construct a full movement driveway along West Street. Further, it is proposed to eliminate the existing access along West Front Street. The site location map and dimension plan are included as **Figures 1 and 2 in Appendix A.**

This study presents an evaluation of the current and future traffic conditions in the vicinity of the 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, 10<sup>th</sup> Edition;
- Forecast of the 2022 No-Build traffic volumes;
- Forecast of the 2022 Build traffic volumes;
- Peak Hour Capacity Analysis for the 2022 No-Build and Build conditions;
- Site Access and Parking Assessment; and
- Summary and Conclusions.

## **II. 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**

**West Front Street (CR 10)** is an urban minor arterial under Monmouth County jurisdiction with a general east/west orientation. Within the vicinity of the site, West Front Street (CR 10) provides one (1) travel lane in each direction and has a posted speed limit of 30 MPH.

**West Street** is a local road under Borough of Red Bank jurisdiction with a general north/south orientation. West Street provides one (1) travel lane in each direction and has no posted speed limit.

**Wall Street** is a local road under Borough of Red Bank jurisdiction with a general east/west orientation. Wall Street provides one (1) travel lane in each direction and has no posted speed limit.

**Pearl Street (Route 35)** is an urban principal arterial under NJDOT jurisdiction with a general north/south orientation. Between West Front Street and Wall Street, Pearl Street provides one (1) southbound travel lane and one (1) dedicated southbound left turn lane. South of Wall Street, Pearl Street provides one (1) travel lane in each direction with a posted speed limit of 30 MPH.

### **Intersections**

**Wall Street & West Street** is an unsignalized T-intersection with the westbound approach of Wall Street under stop control. The westbound approach of Wall Street provides one (1) shared lane for left turn and right turn movements. The northbound and southbound approaches of West Street provide one (1) shared lane for all turning movements.

**Wall Street/Water Street & Pearl Street** is an unsignalized four-leg intersection with the eastbound approach of Wall Street and the northbound approach of Pearl Street under stop control. The eastbound approach of Wall Street provides one (1) shared lane for through and right turn movements. The northbound approach of Pearl Street provides one (1) shared lane for left turn and right turn movements. The southbound approach of Pearl Street provides (1) shared lane for all turning movements and one (1) dedicated lane for left turn movements.

### III. EXISTING TRAFFIC CONDITIONS

Traffic volume data for the roadway network adjacent to the subject property was obtained through manual turning movement counts (MTMC) conducted at the following intersections:

- Wall Street & West Street;
- Wall Street/Water Street & Pearl Street;
- Wall Street & Existing Site Access; and
- West Front Street & Existing Site Access.

The traffic counts were conducted on Thursday, October 10, 2019 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. The following table details the data collection efforts and peak hours.

**Table 1 – Data Collection Efforts and Established Peak Hours**

Peak Period	Date Collected	Traffic Count Time Frame	Established Peak Hour
Weekday Morning	Thursday, October 10, 2019	7:00 AM – 9:00 AM	7:45 AM – 8:45 AM
Weekday Evening		4:00 PM – 6:00 PM	5:00 PM – 6:00 PM

**Figure 3**, located in **Appendix A**, details the existing traffic volumes. The MTMC summary sheets are provided in **Appendix B**.

## IV. TRIP GENERATION & 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 add them to the No Build traffic volumes for the peak hours.

Trip generation estimates for the development of The Project were made utilizing data published under Land Use Code 221 – Multifamily Housing (Mid-Rise) in the Institute of Transportation Engineers’ (ITE) publication *Trip Generation, Tenth Edition*. This publication sets for trip generation rates based on traffic counts conducted at research sites throughout the country. **Table 2** details the anticipated trips for The Project.

**Table 2 – Trip Generation Calculations**

ITE Trip Generation		AM Peak			PM Peak		
Land Use	Size	In	Out	Total	In	Out	Total
221 – Multifamily Housing (Mid-Rise)	150 Units	14	40	54	40	26	66

As illustrated from the table above, the proposed development would generate a maximum of 66 peak hour trips. It is noted NJDOT and ITE define a significant increase in traffic as 100 or more peak hour trips added to the adjacent network. As the project would generate less than 100 trips during the weekday morning and evening peak hours, it can be considered not a significant increase in traffic on the adjacent roadway system.

### 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 use, development locations, driveway locations, and the proximity of major arterials within the project vicinity.

The following trip distribution patterns were established upon a review of the existing roadway volumes, adjacent land uses, and anticipated travel patterns.

**Table 3 – Trip Distribution**

To/From	Distribution
West Front Street (CR 10) – West of Site	45%
West Front Street (CR 10) – East of Site	25%
Pearl Street – South of Site	20%
West Street – South of Site	10%
<b>Total</b>	<b>100%</b>



The site generated trips were implemented into the roadway network based upon the anticipated distributions and are illustrated as **Figures 4 - 5** in **Appendix A**.

## **V. FUTURE TRAFFIC CONDITIONS**

To determine the traffic impact of the development, an estimation of the traffic operational 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 2022.

### **2022 Base Conditions**

The NJDOT Annual Background Growth Rate Table recommends a rate of 1.00% for both urban minor arterials and local roads in Monmouth County, thus a growth rate of 1.00% was utilized. This forecast accounts for general increases in local traffic volumes each year in the study area.

### **Adjacent Developments**

Maser Consulting contacted the Borough of Red Bank Planning Board to determine if there are any planned or approved developments in the vicinity of the project site. It was determined there are no planned developments that will affect the project.

### **2022 No-Build Conditions**

The 2022 No-Build volumes equate to the 2022 Base volumes, as there are no planned developments within the vicinity of the site. A Volume Flow Diagram illustrating the 2022 No-Build Conditions is provided as **Figure 6** in **Appendix A**.

### **2022 Build Traffic Volumes**

Under the Build condition, it is proposed to eliminate the existing access along West Front Street (CR 10), thus the trips for the existing office and restaurant uses were rerouted to the proposed site accesses along Wall Street and West Street. A Volume Flow Diagram illustrating the Redistributed Trips is provided as **Figure 7** in **Appendix A**.

The proposed site generated trips were added to the 2022 No-Build volumes to simulate the 2022 Build volumes. A Volume Flow Diagram illustrating the 2022 Build Conditions is provided as **Figure 8** in **Appendix A**.

## VI. HCM CAPACITY ANALYSIS

The peak hour traffic operations within the project vicinity were evaluated at the study intersections. The analyses were performed using *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 LOS are defined for each type of facility with analysis procedures available. Levels of Service range from "A" through "F", with "A" representing excellent conditions with no delays and failure and deficient operations denoted by Level "F". The HCM LOS criteria for unsignalized intersections are summarized in **Table 3**.

**Table 4 – HCM Unsignalized LOS/Delay Criteria**

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

The Levels of Service for the 2022 No-Build and Build conditions are detailed in **Table 4**.

**Table 5 – Level of Service Summary**

Intersection	Movement		2022 No-Build				2022 Build			
			AM Peak		PM Peak		AM Peak		PM Peak	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Wall Street (WB) & West Street (NB/SB)	WB	LR	A	9.8	A	9.6	B	10.1	A	9.7
	SB	L	A	7.4	A	7.6	A	7.4	A	7.6
Wall Street (EB/WB) & United Methodist Access (NB)/Site Access South (SB)	EB	L	A	7.3	A	7.3	A	7.3	A	7.4
	WB	L	A	7.3	A	7.4	A	7.3	A	7.4
	NB	LR	A	8.9	A	9.3	A	8.9	A	9.4
	SB	LR	A	8.8	A	8.8	A	9.3	A	9.4
Wall Street/Water Street (EB) & Pearl Street (NB/SB)*	EB	TR	A	9.6	A	9.6	A	9.8	A	9.9
	NB	LR	A	8.0	A	8.2	A	8.1	A	8.5
	SB	L	D	28.7	C	21.6	D	29.8	C	23.3
Site Access West (WB) & West Street (NB/SB)	WB	LR	-	-	-	-	A	8.7	A	9.2
	SB	L	-	-	-	-	A	7.3	A	7.6

\* Due to the existing geometry and stop control, the intersection was analyzed as a four-way stop to provide a conservative analysis

All capacity analysis calculation worksheets are provided in **Appendix D**. The following subsections summarize the findings for the study intersections.

### **Wall Street & West Street**

#### *2022 No-Build Analysis*

Under the No-Build conditions, all intersection movements will operate at Levels of Service “A” or better during all peak hours studied.

#### *2022 Build Analysis*

Under the Build conditions, all movements at the intersection of Wall Street & West Street will operate at Levels of Service “B” or better during all peak hours studied.

### **Wall Street & United Methodist Access/Site Driveway**

#### *2022 No-Build Analysis*

Under the No-Build conditions, all intersection movements will operate at Levels of Service “A” or better during all peak hours studied.

#### *2022 Build Analysis*

Under the Build conditions, the site access along Wall Street will continue to operate at No Build levels of service during all peak hours studied.

### **Wall Street/Water Street & Pearl Street**

#### *2022 No-Build Analysis*

Under the No-Build conditions, all intersection movements will operate at Levels of Service “D” or better during all peak hours studied. It is noted due to the existing geometry and stop control, the intersection was analyzed as a four-way stop to provide a conservative analysis. The southbound approach of Pearl Street is a free flow movement, thus the reported levels of service and delay represent a conservative calculation.

#### *2022 Build Analysis*

Under the Build conditions, all movements at the intersection of Wall Street/Water Street & Pearl Street will operate at or near No-Build Levels of Service during all peak hours studied.

### **West Street & West Site Driveway**

#### *2022 Build Analysis*

Under the Build conditions, all movements at the site driveway along West Street will operate at Levels of Service “A” or better during all peak hours studied.

## **VII. SITE ACCESS AND PARKING ASSESSMENT**

The existing access along Wall Street will be modified as part of the proposed development. Additionally, it is proposed to construct a full movement driveway along West Street. The layout of the site provides sufficient circulation for the anticipated design vehicles to efficiently maneuver through the site.

The New Jersey Residential Site Improvement Standards (RSIS) sets forth a parking requirement of 1.8 spaces per unit for 1-bedroom units, 2.0 spaces per unit for 2-bedroom units, and 2.1 spaces per unit for 3-bedroom units. For the proposed 110 1-bedroom units, 36 2-bedroom units, and 4 3-bedroom units, this equates to a total requirement of 279 spaces.

As previously mentioned, the 83,950 SF office and 6,153 SF restaurant will remain as part of the development. The Borough of Red Bank Ordinance sets forth a parking requirement of 5 spaces per 1,000 SF for office uses and 14 spaces per 1,000 SF for restaurants. For the existing office and restaurant uses, this equates to a parking requirement of 506 spaces. The total development, including the newly proposed residential units, has a parking requirement of 784 spaces. It is proposed to provide 556 structured parking spaces, thus requiring a variance for 228 spaces.

### **Shared Parking Analysis**

In order to determine the parking requirements and shared parking characteristics of the proposed development, the shared parking methodology was applied. Shared parking is an analysis methodology which accounts for elements of parking, such as motorist behavior and land use parking patterns, which standard parking rates do not consider. A shared parking stall is one which is used by more than one motorist, which allows mixed-use parking facilities to operate more efficiently. A single parking stall may be utilized by more than one vehicle during different times of the day. This can occur because differing land uses within a mixed-use development may not share the same peak parking period, and therefore, patrons do not compete for parking, reducing the need for additional parking stalls.

ULI Shared Parking provides base rates generally consistent with the ITE 85th percentile peak parking demand rates, time-of-day variables, and seasonal variables for each land use that is within a mixed-use development.

Residential parking demand typically peaks overnight between 7:00PM and 7:00AM. In comparison, office parking demand typically peaks throughout the day between 7:00AM and 7:00PM. However, office land use does not generate much parking demand on the weekend.

ULI Shared Parking also encourages the use of modal and noncaptive adjustment factors similar to the parking adjustment factors detailed within the RSIS. The Modal Split Section in Chapter 3 of ULI Shared Parking states:

*“All the parking ratios recommended in this book are intended to reflect conditions in suburban settings with little or no transit and with minimal employee ridesharing. Adjustments for reduced use of automobiles owing to alternative modes of transportation, formal ridesharing programs, or an atypical ratio of persons per car resulting from carpooling can be made by a mode adjustment.”*

The noncaptive adjustment accounts for a patron, tenant, or employee that parks at one land use and walks to another land use or uses. When this condition occurs, only one parking space is demanded rather than a parking space for each land use. The following two quotes are from the Noncaptive Adjustment Section in Chapter 3 of ULI Shared Parking:

*“Both formal studies and general experience have proven that some reduction of customer parking needs occurs in a mixed-use project due to patronage of multiple land uses.”*

*“For example, a parking demand analysis may consider that employees in a complex or district may already have parked at another land use and thus will not generate any parking.”*

The noncaptive adjustment factors utilized in this Parking Study are based upon case studies detailed in ULI Shared Parking as well as engineering judgment. The Noncaptive Adjustment Section in Chapter 3 of ULI Shared Parking states:

*“Suggested ranges of noncaptive factors are not tabulated in this book. Instead, the analyst must evaluate the reasonableness of the captive market estimates for each development by comparing potential patronage from other uses with the expected patronage at peak hours.”*

The modal split factors utilized in this Parking Study are based upon guidance in the ULI Shared Parking as well as the Station Area Parking Reduction Schedule as detailed in the Federal Transit Administration (“FTA”) Planning for Friendly-Transit Land Use Handbook. For this Analysis a non-captive adjustment factor of 10% was utilized and a modal adjustment factor of 15% for the office space, 10% for the non-residential non-office space, and 20% for the residential units was utilized.

The ULI Shared Parking sets forth a requirement of 471 spaces for the proposed mixed-use development. As previously mentioned, it is proposed to provide 556 spaces, thus satisfying the shared parking requirement. The shared parking calculations are provided in **Appendix E**.

### **Parking Observations**

Parking observations were conducted within the existing parking garage on Friday, October 11, 2019, between 9:00 AM to 10:00 AM and from 5:00 PM to 8:00 PM, with the intent of capturing the maximum demand of the office and restaurant uses. The existing parking garage provides 339 spaces and had a maximum observed parking demand of 77 spaces (23%), which occurred at 7:30 PM. In order to account for any vacancies within the existing office building, the observed demand was adjusted by 20%, which equates to a maximum parking demand of 93 spaces (28%). As previously mentioned, the proposed 150-unit multi-family residential development requires 279 spaces per RSIS. Based on the adjusted demand of 93 spaces and the RSIS requirement of 279, the total parking demand equates to 372 spaces. As previously mentioned, it is proposed to provide 556 spaces, thus the proposed parking supply is sufficient based on the anticipated demand. The parking observation data is provided in **Appendix E**.

## **VIII. SUMMARY AND CONCLUSIONS**

This Traffic Impact Study evaluated a proposal to develop a multi-family residential development within the Borough of Red Bank, Monmouth County, New Jersey. The findings of the Traffic Impact Study are summarized as follows:

1. The Applicant proposes to develop a 150-unit multi-family residential development alongside the existing office and restaurant uses on the site.
2. The existing access along Wall Street will be modified as part of the proposed development. Additionally, it is proposed to construct a full movement driveway along West Street. Further, it is proposed to eliminate the existing access along West Front Street.
3. Under the Build conditions, all movements at the intersection of Wall Street & West Street will operate at or near No-Build Levels of Service during all peak hours studied.
4. Under the Build conditions, all movements at the Site Driveway along Wall Street will operate at or near No-Build Levels of Service during all peak hours studied.
5. Under the Build conditions, all movements at the intersection of Wall Street/Water Street & Pearl Street will operate at or near No-Build Levels of Service during all peak hours studied.
6. Under the Build conditions, all movements at the Site Driveway along West Street will operate at Levels of Service “A” during all peak hours studied.
7. Based on the shared parking model and parking observations conducted within the existing parking garage, the proposed parking supply of 556 spaces is sufficient based on the projected parking demand and published industry standards.



141 West Front Street  
Borough of Red Bank, Monmouth County, New Jersey  
MC Project No.: 19003629A  
Appendix

---

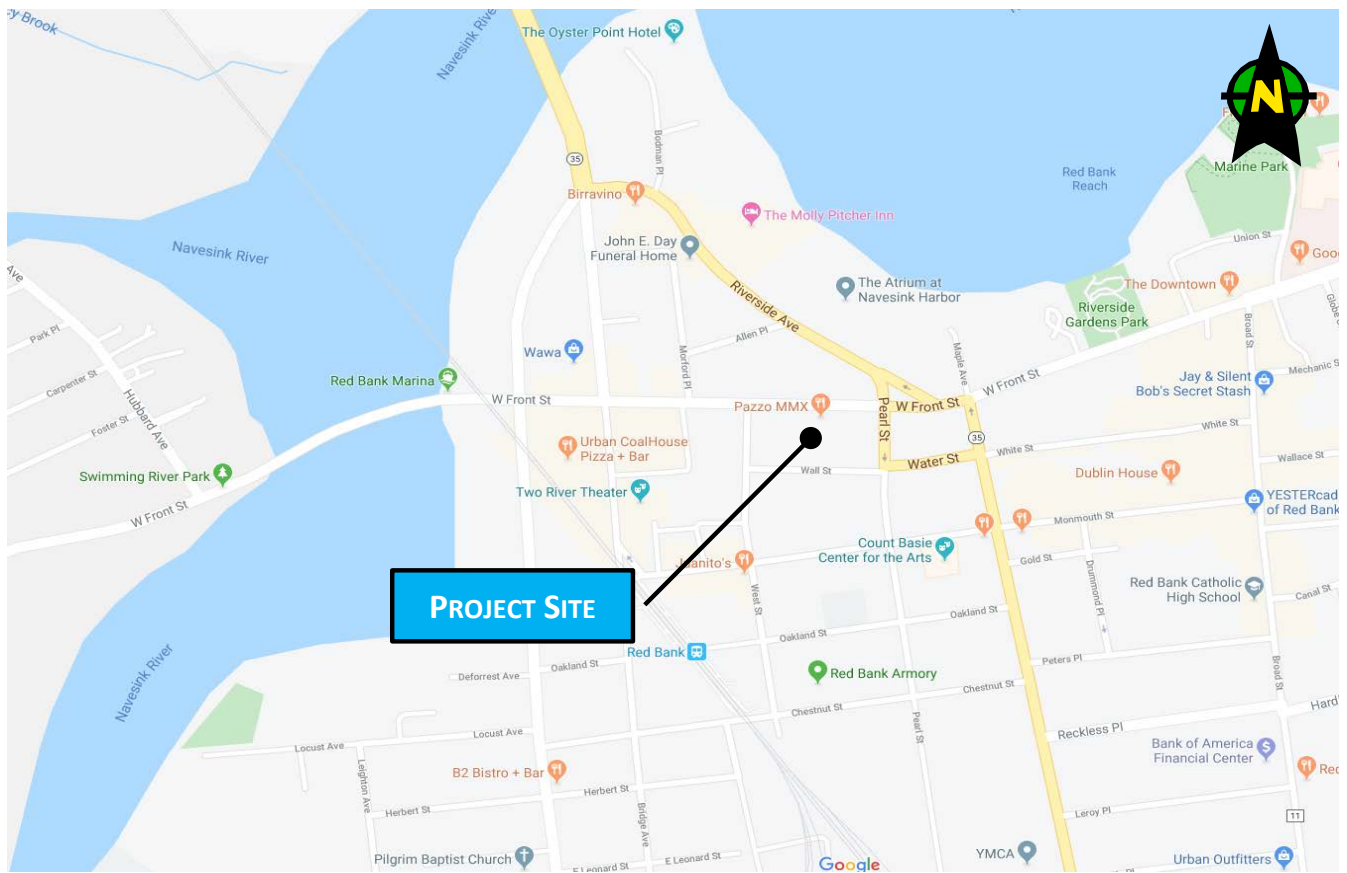
# ***141 WEST FRONT STREET***


## ***TRAFFIC IMPACT STUDY***

---

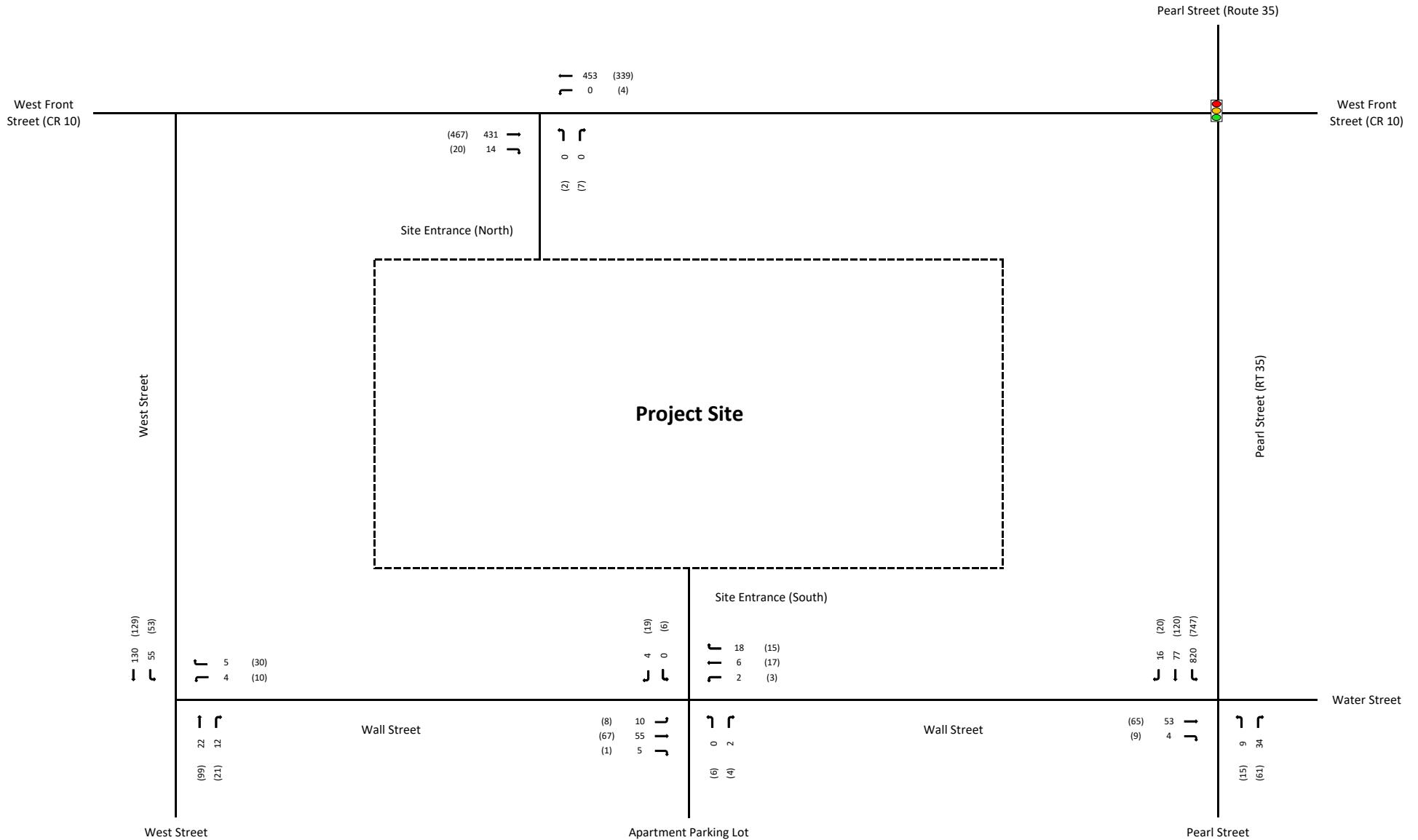
### **APPENDIX A**

### **TRAFFIC FIGURES**



 <p>19003629A</p>	<p>141 West Front Street</p> <p>Borough of Red Bank, Monmouth County, New Jersey</p>	<p>Figure 1</p> <p>Site Location Map</p>
--	--	--





141 West Front Street  
MC Project No. 19003629A  
Borough of Red Bank, Monmouth County, New Jersey

**Legend**

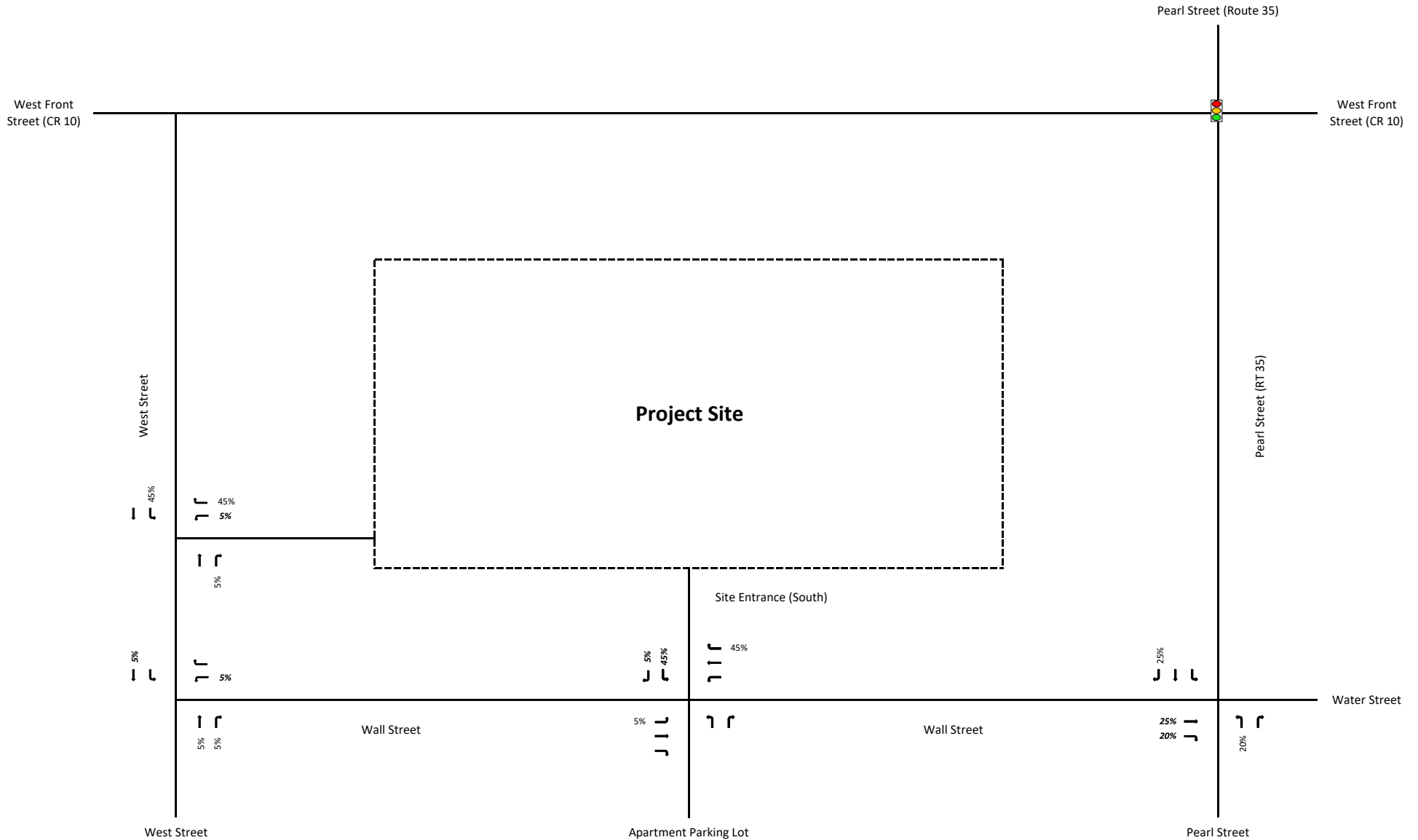
AM Peak Hour: XX  
PM Peak Hour: (XX)

Signalized Intersection:   
Thru Movement:   
Turning Movement:

**Figure 3**

**2019 Existing Conditions**

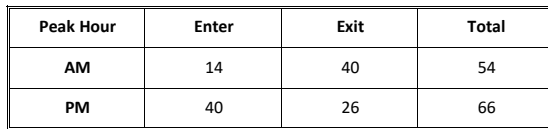
**AM & PM Peak Hours**



141 West Front Street  
MC Project No. 19003629A  
Borough of Red Bank, Monmouth County, New Jersey

**Legend**  
Entering: XX%  
Exiting: XX%  
Signalized Intersection:   
Thru Movement:   
Turning Movement:

**Figure 4**  
**Site Trip Distribution**  
**AM & PM Peak Hours**



Borough of Red Bank, Monmouth County, New Jersey

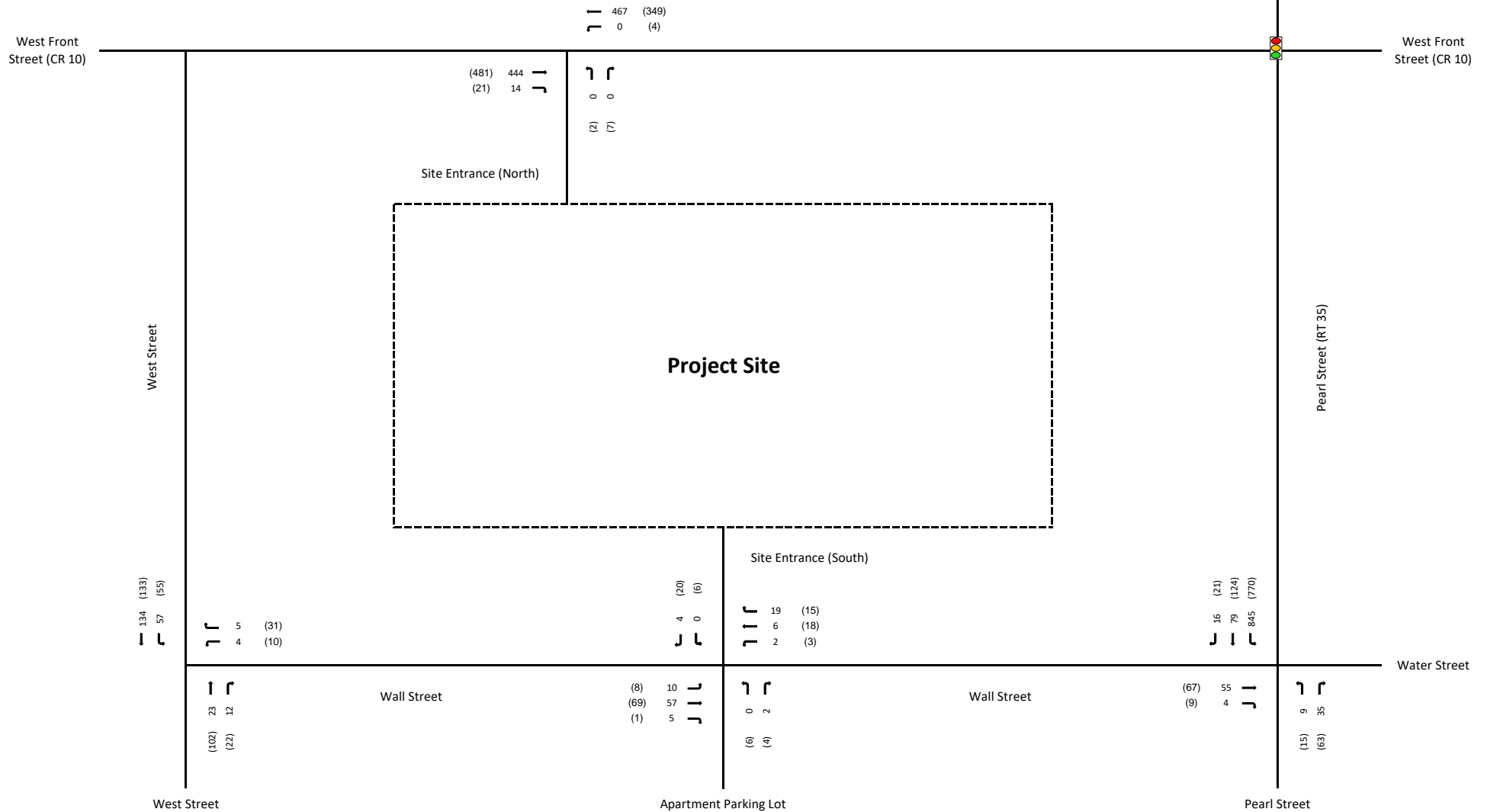
AM Peak Hour:	XX
PM Peak Hour:	(XX)

Signalized Intersection	
Thru Movement:	
Turning Movement:	

### AM & PM Peak Hours



Growth Rate Table	
Existing Year	2019
Build Year	2022
Yearly Growth Rate	1.00%
Growth Factor 2019 - 2022	1.03



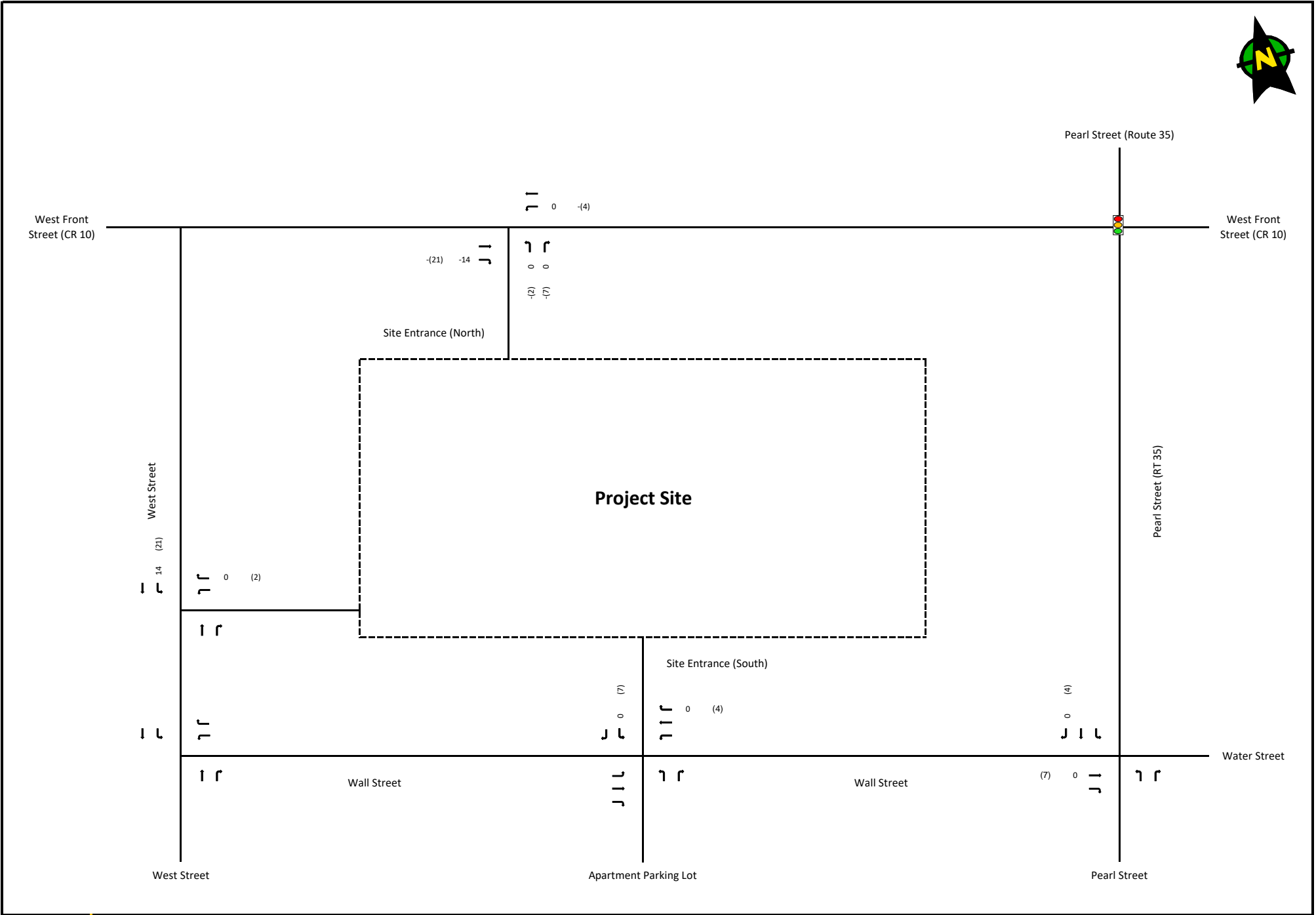
141 West Front Street  
MC Project No. 19003629A  
Borough of Red Bank, Monmouth County, New Jersey





**Legend**

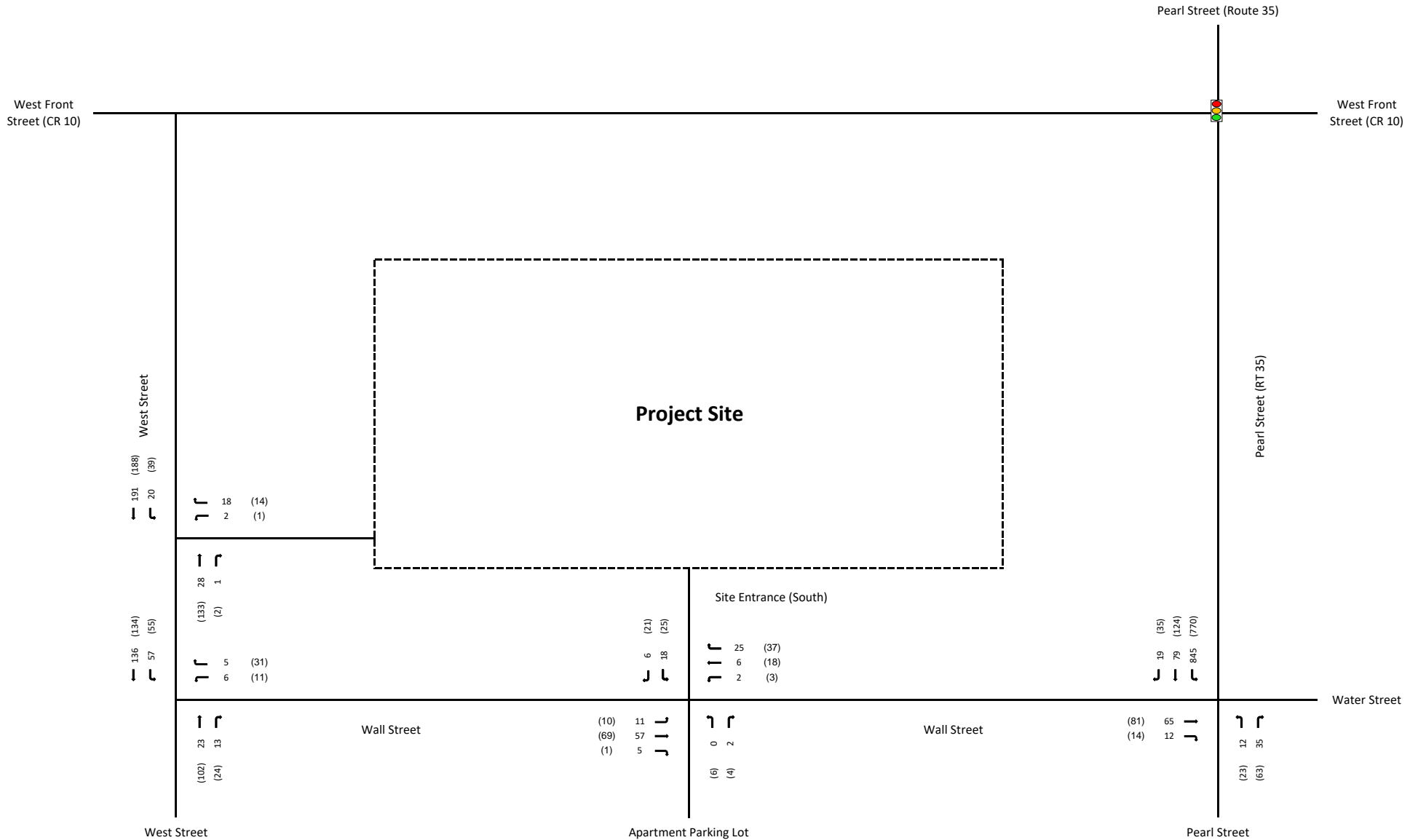
AM Peak Hour: XX  
PM Peak Hour: (XX)

Signalized Intersection:   
Thru Movement:   
Turning Movement:

**Figure 6**  
**2022 No-Build Conditions**  
**AM & PM Peak Hours**



	141 West Front Street	<b>Legend</b>  AM Peak Hour: XX PM Peak Hour: (XX)  Signalized Intersection:  Thru Movement:  Turning Movement: 	<b>Figure 7</b>
	MC Project No. 19003629A		<b>Redistributed Trips</b>
	Borough of Red Bank, Monmouth County, New Jersey		<b>AM &amp; PM Peak Hours</b>



141 West Front Street  
MC Project No. 19003629A  
Borough of Red Bank, Monmouth County, New Jersey

**Legend**

AM Peak Hour: XX  
PM Peak Hour: (XX)

Signalized Intersection:   
Thru Movement:   
Turning Movement: 

**Figure 8**

**2022 Build Conditions**  
**AM & PM Peak Hours**



141 West Front Street  
Borough of Red Bank, Monmouth County, New Jersey  
MC Project No.: 19003629A  
Appendix

---

# ***141 WEST FRONT STREET***

## ***TRAFFIC IMPACT STUDY***

---

### **APPENDIX B**

#### **TRAFFIC COUNT DATA**



Imperial Traffic & Data Collection  
www.imperialtdc.com  
PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.35009, -74.073181

Count Name: 1. Wall Street & West Street  
Site Code: 1  
Start Date: 10/10/2019  
Page No: 1

## Turning Movement Data

Start Time	Wall Street Westbound					West Street Northbound					West Street Southbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	
7:00 AM	0	1	0	0	1	0	6	0	0	6	0	7	18	0	25	32
7:15 AM	0	2	1	2	3	0	9	1	0	10	0	14	19	0	33	46
7:30 AM	0	1	2	0	3	0	6	1	0	7	0	10	29	0	39	49
7:45 AM	0	2	1	1	3	0	10	3	0	13	0	13	40	0	53	69
Hourly Total	0	6	4	3	10	0	31	5	0	36	0	44	106	0	150	196
8:00 AM	0	0	1	0	1	0	2	3	2	5	0	16	34	0	50	56
8:15 AM	0	1	2	3	3	1	4	3	1	8	0	11	30	0	41	52
8:30 AM	0	1	1	0	2	0	6	3	2	9	0	15	26	0	41	52
8:45 AM	0	0	1	1	1	0	10	9	1	19	0	11	29	0	40	60
Hourly Total	0	2	5	4	7	1	22	18	6	41	0	53	119	0	172	220
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	3	11	0	14	0	31	1	0	32	0	7	21	0	28	74
4:15 PM	0	2	5	0	7	0	12	3	0	15	0	11	21	0	32	54
4:30 PM	0	3	11	0	14	0	11	2	0	13	0	12	29	0	41	68
4:45 PM	0	3	8	0	11	0	20	4	0	24	0	5	22	0	27	62
Hourly Total	0	11	35	0	46	0	74	10	0	84	0	35	93	0	128	258
5:00 PM	0	3	7	5	10	0	29	5	1	34	1	8	30	0	39	83
5:15 PM	0	3	8	3	11	0	25	4	1	29	0	16	36	0	52	92
5:30 PM	0	1	10	3	11	0	18	7	3	25	0	14	30	0	44	80
5:45 PM	0	3	5	3	8	0	27	5	3	32	0	15	33	0	48	88
Hourly Total	0	10	30	14	40	0	99	21	8	120	1	53	129	0	183	343
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	29	74	21	103	1	226	54	14	281	1	185	447	0	633	1017
Approach %	0.0	28.2	71.8	-	-	0.4	80.4	19.2	-	-	0.2	29.2	70.6	-	-	-
Total %	0.0	2.9	7.3	-	10.1	0.1	22.2	5.3	-	27.6	0.1	18.2	44.0	-	62.2	-
Lights	0	28	73	-	101	1	222	53	-	276	1	184	437	-	622	999
% Lights	-	96.6	98.6	-	98.1	100.0	98.2	98.1	-	98.2	100.0	99.5	97.8	-	98.3	98.2
Mediums	0	1	1	-	2	0	4	1	-	5	0	1	10	-	11	18
% Mediums	-	3.4	1.4	-	1.9	0.0	1.8	1.9	-	1.8	0.0	0.5	2.2	-	1.7	1.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	9.5	-	-	-	-	7.1	-	-	-	-	-	-	-
Pedestrians	-	-	-	19	-	-	-	-	13	-	-	-	-	0	-	-



Imperial Traffic & Data Collection

www.imperialtdc.com

PO BOX 4637

Cherry Hill, New Jersey, United States 08034

609-706-6100 lklein@imperialtdc.com

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.35009, -74.073181

Count Name: 1. Wall Street & West Street  
Site Code: 1  
Start Date: 10/10/2019  
Page No: 4

### Turning Movement Peak Hour Data (7:45 AM)

Start Time	Wall Street Westbound					West Street Northbound					West Street Southbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	
7:45 AM	0	2	1	1	3	0	10	3	0	13	0	13	40	0	53	69
8:00 AM	0	0	1	0	1	0	2	3	2	5	0	16	34	0	50	56
8:15 AM	0	1	2	3	3	1	4	3	1	8	0	11	30	0	41	52
8:30 AM	0	1	1	0	2	0	6	3	2	9	0	15	26	0	41	52
Total	0	4	5	4	9	1	22	12	5	35	0	55	130	0	185	229
Approach %	0.0	44.4	55.6	-	-	2.9	62.9	34.3	-	-	0.0	29.7	70.3	-	-	-
Total %	0.0	1.7	2.2	-	3.9	0.4	9.6	5.2	-	15.3	0.0	24.0	56.8	-	80.8	-
PHF	0.000	0.500	0.625	-	0.750	0.250	0.550	1.000	-	0.673	0.000	0.859	0.813	-	0.873	0.830
Lights	0	3	4	-	7	1	19	11	-	31	0	55	123	-	178	216
% Lights	-	75.0	80.0	-	77.8	100.0	86.4	91.7	-	88.6	-	100.0	94.6	-	96.2	94.3
Mediums	0	1	1	-	2	0	3	1	-	4	0	0	7	-	7	13
% Mediums	-	25.0	20.0	-	22.2	0.0	13.6	8.3	-	11.4	-	0.0	5.4	-	3.8	5.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	4	-	-	-	-	5	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Imperial Traffic & Data Collection

www.imperialtdc.com

PO BOX 4637

Cherry Hill, New Jersey, United States 08034

609-706-6100 lklein@imperialtdc.com

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.35009, -74.073181

Count Name: 1. Wall Street & West Street  
Site Code: 1  
Start Date: 10/10/2019  
Page No: 6

### Turning Movement Peak Hour Data (5:00 PM)

Start Time	Wall Street Westbound					West Street Northbound					West Street Southbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	
5:00 PM	0	3	7	5	10	0	29	5	1	34	1	8	30	0	39	83
5:15 PM	0	3	8	3	11	0	25	4	1	29	0	16	36	0	52	92
5:30 PM	0	1	10	3	11	0	18	7	3	25	0	14	30	0	44	80
5:45 PM	0	3	5	3	8	0	27	5	3	32	0	15	33	0	48	88
Total	0	10	30	14	40	0	99	21	8	120	1	53	129	0	183	343
Approach %	0.0	25.0	75.0	-	-	0.0	82.5	17.5	-	-	0.5	29.0	70.5	-	-	-
Total %	0.0	2.9	8.7	-	11.7	0.0	28.9	6.1	-	35.0	0.3	15.5	37.6	-	53.4	-
PHF	0.000	0.833	0.750	-	0.909	0.000	0.853	0.750	-	0.882	0.250	0.828	0.896	-	0.880	0.932
Lights	0	10	30	-	40	0	99	21	-	120	1	53	128	-	182	342
% Lights	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	100.0	100.0	99.2	-	99.5	99.7
Mediums	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	1
% Mediums	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.8	-	0.5	0.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	7.1	-	-	-	-	12.5	-	-	-	-	-	-	-
Pedestrians	-	-	-	13	-	-	-	-	7	-	-	-	-	0	-	-
% Pedestrians	-	-	-	92.9	-	-	-	-	87.5	-	-	-	-	-	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com

PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350113, -74.071043

Count Name: 2. Wall Street & Pearl Street/Water Street  
Site Code: 2  
Start Date: 10/10/2019  
Page No: 1

## Turning Movement Data

Start Time	Wall Street Eastbound						Water Street Westbound						Pearl Street Northbound						Pearl Street Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	5	1	2	6	0	0	0	0	0	0	0	0	0	6	0	6	0	119	7	1	1	127	139
7:15 AM	0	0	12	2	1	14	0	0	0	0	1	0	0	1	0	4	0	5	0	143	11	0	2	154	173
7:30 AM	0	0	10	2	4	12	0	0	0	0	0	0	0	2	0	2	0	4	0	181	20	1	5	202	218
7:45 AM	0	0	11	1	3	12	0	0	0	0	1	0	0	2	0	8	0	10	0	253	24	4	5	281	303
Hourly Total	0	0	38	6	10	44	0	0	0	0	2	0	0	5	0	20	0	25	0	696	62	6	13	764	833
8:00 AM	0	0	17	1	2	18	0	0	0	2	1	2	0	2	0	9	1	11	0	167	15	3	2	185	216
8:15 AM	0	0	10	1	3	11	0	0	0	0	0	0	0	2	0	10	1	12	0	196	18	2	2	216	239
8:30 AM	0	0	15	1	4	16	0	0	0	0	0	0	0	3	0	7	1	10	0	204	20	7	2	231	257
8:45 AM	0	0	12	3	2	15	0	0	0	0	0	0	0	4	0	9	1	13	0	248	20	3	1	271	299
Hourly Total	0	0	54	6	11	60	0	0	0	2	1	2	0	11	0	35	4	46	0	815	73	15	7	903	1011
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	11	5	0	16	0	0	0	0	2	0	0	1	0	16	3	17	0	144	20	6	3	170	203
4:15 PM	0	0	14	3	4	17	0	0	0	0	1	0	0	1	0	9	1	10	0	154	17	1	3	172	199
4:30 PM	0	0	18	0	6	18	0	0	0	0	1	0	0	3	0	17	1	20	0	165	10	5	7	180	218
4:45 PM	0	0	12	3	4	15	0	0	0	0	0	0	0	5	0	14	0	19	0	165	27	2	6	194	228
Hourly Total	0	0	55	11	14	66	0	0	0	0	4	0	0	10	0	56	5	66	0	628	74	14	19	716	848
5:00 PM	0	0	12	3	5	15	0	0	0	0	1	0	0	1	0	9	1	10	0	159	23	3	2	185	210
5:15 PM	0	0	18	1	8	19	0	0	0	0	0	0	0	2	0	18	6	20	0	197	33	4	4	234	273
5:30 PM	0	0	21	2	2	23	0	0	0	0	1	0	0	7	0	17	1	24	0	192	35	10	9	237	284
5:45 PM	0	0	14	3	0	17	0	0	0	0	3	0	0	5	0	17	0	22	0	199	29	3	6	231	270
Hourly Total	0	0	65	9	15	74	0	0	0	0	5	0	0	15	0	61	8	76	0	747	120	20	21	887	1037
Grand Total	0	0	212	32	50	244	0	0	0	2	12	2	0	41	0	172	17	213	0	2886	329	55	60	3270	3729
Approach %	0.0	0.0	86.9	13.1	-	-	0.0	0.0	0.0	100.0	-	-	0.0	19.2	0.0	80.8	-	-	0.0	88.3	10.1	1.7	-	-	-
Total %	0.0	0.0	5.7	0.9	-	6.5	0.0	0.0	0.0	0.1	-	0.1	0.0	1.1	0.0	4.6	-	5.7	0.0	77.4	8.8	1.5	-	87.7	-
Lights	0	0	209	32	-	241	0	0	0	2	-	2	0	41	0	169	-	210	0	2810	320	53	-	3183	3636
% Lights	-	-	98.6	100.0	-	98.8	-	-	-	100.0	-	100.0	-	100.0	-	98.3	-	98.6	-	97.4	97.3	96.4	-	97.3	97.5
Mediums	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	3	-	3	0	69	9	2	-	80	86
% Mediums	-	-	1.4	0.0	-	1.2	-	-	-	0.0	-	0.0	-	0.0	-	1.7	-	1.4	-	2.4	2.7	3.6	-	2.4	2.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	7
% Articulated Trucks	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.2	0.0	0.0	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	-	6.0	-	-	-	-	-	8.3	-	-	-	-	-	5.9	-	-	-	-	-	8.3	-	-
Pedestrians	-	-	-	-	47	-	-	-	-	-	11	-	-	-	-	-	16	-	-	-	-	-	55	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com  
PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350113, -74.071043

Count Name: 2. Wall Street & Pearl Street/Water Street  
Site Code: 2  
Start Date: 10/10/2019  
Page No: 4

### Turning Movement Peak Hour Data (7:45 AM)

Start Time	Wall Street Eastbound						Water Street Westbound						Pearl Street Northbound						Pearl Street Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:45 AM	0	0	11	1	3	12	0	0	0	0	1	0	0	2	0	8	0	10	0	253	24	4	5	281	303
8:00 AM	0	0	17	1	2	18	0	0	0	2	1	2	0	2	0	9	1	11	0	167	15	3	2	185	216
8:15 AM	0	0	10	1	3	11	0	0	0	0	0	0	0	2	0	10	1	12	0	196	18	2	2	216	239
8:30 AM	0	0	15	1	4	16	0	0	0	0	0	0	0	3	0	7	1	10	0	204	20	7	2	231	257
Total	0	0	53	4	12	57	0	0	0	2	2	2	0	9	0	34	3	43	0	820	77	16	11	913	1015
Approach %	0.0	0.0	93.0	7.0	-	-	0.0	0.0	0.0	100.0	-	-	0.0	20.9	0.0	79.1	-	-	0.0	89.8	8.4	1.8	-	-	-
Total %	0.0	0.0	5.2	0.4	-	5.6	0.0	0.0	0.0	0.2	-	0.2	0.0	0.9	0.0	3.3	-	4.2	0.0	80.8	7.6	1.6	-	90.0	-
PHF	0.000	0.000	0.779	1.000	-	0.792	0.000	0.000	0.000	0.250	-	0.250	0.000	0.750	0.000	0.850	-	0.896	0.000	0.810	0.802	0.571	-	0.812	0.837
Lights	0	0	52	4	-	56	0	0	0	2	-	2	0	9	0	32	-	41	0	796	75	14	-	885	984
% Lights	-	-	98.1	100.0	-	98.2	-	-	-	100.0	-	100.0	-	100.0	-	94.1	-	95.3	-	97.1	97.4	87.5	-	96.9	96.9
Mediums	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	2	-	2	0	22	2	2	-	26	29
% Mediums	-	-	1.9	0.0	-	1.8	-	-	-	0.0	-	0.0	-	0.0	-	5.9	-	4.7	-	2.7	2.6	12.5	-	2.8	2.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% Articulated Trucks	-	-	0.0	0.0	-	0.0	-	-	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.2	0.0	0.0	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	16.7	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	9.1	-	-
Pedestrians	-	-	-	-	10	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	10	-	-
% Pedestrians	-	-	-	-	83.3	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	90.9	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com  
PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350113, -74.071043

Count Name: 2. Wall Street & Pearl Street/Water Street  
Site Code: 2  
Start Date: 10/10/2019  
Page No: 6

### Turning Movement Peak Hour Data (5:00 PM)

Start Time	Wall Street Eastbound						Water Street Westbound						Pearl Street Northbound						Pearl Street Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
5:00 PM	0	0	12	3	5	15	0	0	0	0	1	0	0	1	0	9	1	10	0	159	23	3	2	185	210
5:15 PM	0	0	18	1	8	19	0	0	0	0	0	0	0	2	0	18	6	20	0	197	33	4	4	234	273
5:30 PM	0	0	21	2	2	23	0	0	0	0	1	0	0	7	0	17	1	24	0	192	35	10	9	237	284
5:45 PM	0	0	14	3	0	17	0	0	0	0	3	0	0	5	0	17	0	22	0	199	29	3	6	231	270
Total	0	0	65	9	15	74	0	0	0	0	5	0	0	15	0	61	8	76	0	747	120	20	21	887	1037
Approach %	0.0	0.0	87.8	12.2	-	-	0.0	0.0	0.0	0.0	-	-	0.0	19.7	0.0	80.3	-	-	0.0	84.2	13.5	2.3	-	-	-
Total %	0.0	0.0	6.3	0.9	-	7.1	0.0	0.0	0.0	0.0	-	0.0	0.0	1.4	0.0	5.9	-	7.3	0.0	72.0	11.6	1.9	-	85.5	-
PHF	0.000	0.000	0.774	0.750	-	0.804	0.000	0.000	0.000	0.000	-	0.000	0.000	0.536	0.000	0.847	-	0.792	0.000	0.938	0.857	0.500	-	0.936	0.913
Lights	0	0	65	9	-	74	0	0	0	0	-	0	0	15	0	61	-	76	0	741	118	20	-	879	1029
% Lights	-	-	100.0	100.0	-	100.0	-	-	-	-	-	-	-	100.0	-	100.0	-	100.0	-	99.2	98.3	100.0	-	99.1	99.2
Mediums	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	6	2	0	-	8	8
% Mediums	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	0.8	1.7	0.0	-	0.9	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	9.5	-	-
Pedestrians	-	-	-	-	15	-	-	-	-	-	5	-	-	-	-	-	8	-	-	-	-	-	19	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	90.5	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com

PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350076, -74.071946

Count Name: 3. Wall Street & Existing Site  
Access  
Site Code: 3  
Start Date: 10/10/2019  
Page No: 1

## Turning Movement Data

Start Time	Wall Street Eastbound						Wall Street Westbound						United Methodist Access Northbound						141 Front Street Driveway Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	1	6	0	0	7	0	0	1	0	1	1	0	0	0	0	3	0	0	0	0	1	3	1	9
7:15 AM	0	1	14	0	0	15	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1	18
7:30 AM	0	1	11	0	0	12	0	0	3	0	1	3	0	0	0	0	2	0	0	0	0	0	1	0	15
7:45 AM	0	3	12	1	0	16	0	0	1	5	0	6	0	0	0	0	3	0	0	0	0	1	4	1	23
Hourly Total	0	6	43	1	0	50	0	0	6	5	2	11	0	0	0	1	8	1	0	0	0	3	8	3	65
8:00 AM	0	2	18	0	0	20	0	0	1	5	0	6	0	0	0	0	3	0	0	0	0	1	1	1	27
8:15 AM	0	2	12	0	0	14	0	1	1	2	1	4	0	0	0	0	2	0	0	0	0	2	3	2	20
8:30 AM	0	3	13	4	0	20	0	1	3	6	0	10	0	0	0	2	0	2	0	0	0	0	2	0	32
8:45 AM	0	4	15	1	0	20	0	1	1	5	1	7	0	0	0	0	1	0	0	0	0	1	1	1	28
Hourly Total	0	11	58	5	0	74	0	3	6	18	2	27	0	0	0	2	6	2	0	0	0	4	7	4	107
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	7	1	0	8	0	0	3	4	0	7	0	0	0	0	1	0	0	5	0	10	0	15	30
4:15 PM	0	2	12	0	0	14	0	0	2	0	0	2	0	1	0	2	0	3	0	4	0	4	1	8	27
4:30 PM	0	1	12	1	0	14	0	2	4	2	0	8	0	0	0	1	0	1	0	1	0	10	0	11	34
4:45 PM	0	0	9	1	0	10	0	0	6	1	2	7	0	0	0	1	3	1	0	5	0	6	2	11	29
Hourly Total	0	3	40	3	0	46	0	2	15	7	2	24	0	1	0	4	4	5	0	15	0	30	3	45	120
5:00 PM	0	0	11	1	0	12	0	0	3	1	1	4	0	1	0	2	4	3	0	2	0	6	0	8	27
5:15 PM	0	3	17	0	0	20	0	0	2	4	0	6	0	2	0	1	3	3	0	2	0	8	10	10	39
5:30 PM	0	2	22	0	2	24	0	3	7	7	2	17	0	2	0	0	4	2	0	2	0	3	8	5	48
5:45 PM	0	3	17	0	1	20	0	0	5	3	1	8	0	1	0	1	3	2	0	0	0	2	11	2	32
Hourly Total	0	8	67	1	3	76	0	3	17	15	4	35	0	6	0	4	14	10	0	6	0	19	29	25	146
Grand Total	0	28	208	10	3	246	0	8	44	45	10	97	0	7	0	11	32	18	0	21	0	56	47	77	438
Approach %	0.0	11.4	84.6	4.1	-	-	0.0	8.2	45.4	46.4	-	-	0.0	38.9	0.0	61.1	-	-	0.0	27.3	0.0	72.7	-	-	-
Total %	0.0	6.4	47.5	2.3	-	56.2	0.0	1.8	10.0	10.3	-	22.1	0.0	1.6	0.0	2.5	-	4.1	0.0	4.8	0.0	12.8	-	17.6	-
Lights	0	28	205	10	-	243	0	8	43	44	-	95	0	7	0	11	-	18	0	21	0	55	-	76	432
% Lights	-	100.0	98.6	100.0	-	98.8	-	100.0	97.7	97.8	-	97.9	-	100.0	-	100.0	-	100.0	-	100.0	-	98.2	-	98.7	98.6
Mediums	0	0	2	0	-	2	0	0	1	1	-	2	0	0	0	0	-	0	0	0	0	1	-	1	5
% Mediums	-	0.0	1.0	0.0	-	0.8	-	0.0	2.3	2.2	-	2.1	-	0.0	-	0.0	-	0.0	-	0.0	-	1.8	-	1.3	1.1
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	-	0.0	0.5	0.0	-	0.4	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	4.3	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	10	-	-	-	-	-	32	-	-	-	-	-	45	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com  
PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350076, -74.071946

Count Name: 3. Wall Street & Existing Site  
Access  
Site Code: 3  
Start Date: 10/10/2019  
Page No: 4

### Turning Movement Peak Hour Data (7:45 AM)

Start Time	Wall Street Eastbound						Wall Street Westbound						United Methodist Access Northbound						141 Front Street Driveway Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:45 AM	0	3	12	1	0	16	0	0	1	5	0	6	0	0	0	0	3	0	0	0	0	1	4	1	23
8:00 AM	0	2	18	0	0	20	0	0	1	5	0	6	0	0	0	0	3	0	0	0	0	1	1	1	27
8:15 AM	0	2	12	0	0	14	0	1	1	2	1	4	0	0	0	0	2	0	0	0	0	2	3	2	20
8:30 AM	0	3	13	4	0	20	0	1	3	6	0	10	0	0	0	2	0	2	0	0	0	0	2	0	32
Total	0	10	55	5	0	70	0	2	6	18	1	26	0	0	0	2	8	2	0	0	0	4	10	4	102
Approach %	0.0	14.3	78.6	7.1	-	-	0.0	7.7	23.1	69.2	-	-	0.0	0.0	0.0	100.0	-	-	0.0	0.0	0.0	100.0	-	-	-
Total %	0.0	9.8	53.9	4.9	-	68.6	0.0	2.0	5.9	17.6	-	25.5	0.0	0.0	0.0	2.0	-	2.0	0.0	0.0	0.0	3.9	-	3.9	-
PHF	0.000	0.833	0.764	0.313	-	0.875	0.000	0.500	0.500	0.750	-	0.650	0.000	0.000	0.000	0.250	-	0.250	0.000	0.000	0.000	0.500	-	0.500	0.797
Lights	0	10	54	5	-	69	0	2	5	17	-	24	0	0	0	2	-	2	0	0	0	3	-	3	98
% Lights	-	100.0	98.2	100.0	-	98.6	-	100.0	83.3	94.4	-	92.3	-	-	-	100.0	-	100.0	-	-	-	75.0	-	75.0	96.1
Mediums	0	0	0	0	-	0	0	0	1	1	-	2	0	0	0	0	-	0	0	0	0	1	-	1	3
% Mediums	-	0.0	0.0	0.0	-	0.0	-	0.0	16.7	5.6	-	7.7	-	-	-	0.0	-	0.0	-	-	-	25.0	-	25.0	2.9
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	-	0.0	1.8	0.0	-	1.4	-	0.0	0.0	0.0	-	0.0	-	-	-	0.0	-	0.0	-	-	-	0.0	-	0.0	1.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	8	-	-	-	-	-	10	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com

PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350076, -74.071946

Count Name: 3. Wall Street & Existing Site  
Access  
Site Code: 3  
Start Date: 10/10/2019  
Page No: 6

### Turning Movement Peak Hour Data (5:00 PM)

Start Time	Wall Street Eastbound						Wall Street Westbound						United Methodist Access Northbound						141 Front Street Driveway Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
5:00 PM	0	0	11	1	0	12	0	0	3	1	1	4	0	1	0	2	4	3	0	2	0	6	0	8	27
5:15 PM	0	3	17	0	0	20	0	0	2	4	0	6	0	2	0	1	3	3	0	2	0	8	10	10	39
5:30 PM	0	2	22	0	2	24	0	3	7	7	2	17	0	2	0	0	4	2	0	2	0	3	8	5	48
5:45 PM	0	3	17	0	1	20	0	0	5	3	1	8	0	1	0	1	3	2	0	0	0	2	11	2	32
Total	0	8	67	1	3	76	0	3	17	15	4	35	0	6	0	4	14	10	0	6	0	19	29	25	146
Approach %	0.0	10.5	88.2	1.3	-	-	0.0	8.6	48.6	42.9	-	-	0.0	60.0	0.0	40.0	-	-	0.0	24.0	0.0	76.0	-	-	-
Total %	0.0	5.5	45.9	0.7	-	52.1	0.0	2.1	11.6	10.3	-	24.0	0.0	4.1	0.0	2.7	-	6.8	0.0	4.1	0.0	13.0	-	17.1	-
PHF	0.000	0.667	0.761	0.250	-	0.792	0.000	0.250	0.607	0.536	-	0.515	0.000	0.750	0.000	0.500	-	0.833	0.000	0.750	0.000	0.594	-	0.625	0.760
Lights	0	8	66	1	-	75	0	3	17	15	-	35	0	6	0	4	-	10	0	6	0	19	-	25	145
% Lights	-	100.0	98.5	100.0	-	98.7	-	100.0	100.0	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	-	100.0	99.3
Mediums	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Mediums	-	0.0	1.5	0.0	-	1.3	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	3.4	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	14	-	-	-	-	-	28	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	96.6	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350882, -74.07217

Count Name: 4. West Front Street & Existing  
Site Access  
Site Code: 4  
Start Date: 10/10/2019  
Page No: 1

## Turning Movement Data

Start Time	West Front Street Eastbound						West Front Street Westbound						141 West Front Street Driveway Northbound						North Parking Lot Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	104	0	1	104	0	0	83	0	0	83	0	0	0	0	0	0	0	0	0	0	0	0	187
7:15 AM	0	0	94	0	0	94	0	0	98	0	0	98	0	0	0	0	2	0	0	0	0	0	0	0	192
7:30 AM	0	1	93	1	1	95	0	1	107	0	0	108	0	0	0	0	0	0	0	0	0	0	1	0	203
7:45 AM	0	0	126	2	1	128	0	0	110	0	0	110	0	0	0	0	2	0	0	0	0	0	2	0	238
Hourly Total	0	1	417	3	3	421	0	1	398	0	0	399	0	0	0	0	4	0	0	0	0	0	3	0	820
8:00 AM	0	0	106	1	0	107	0	0	116	0	0	116	0	0	0	0	2	0	0	0	0	0	0	0	223
8:15 AM	0	1	99	7	0	107	0	0	117	0	1	117	0	0	0	0	1	0	0	0	0	0	1	0	224
8:30 AM	0	0	100	4	0	104	0	0	110	0	0	110	0	0	0	0	4	0	0	0	0	0	0	0	214
8:45 AM	0	2	108	8	0	118	0	1	93	0	0	94	0	0	0	0	2	0	0	0	0	0	0	0	212
Hourly Total	0	3	413	20	0	436	0	1	436	0	1	437	0	0	0	0	9	0	0	0	0	0	1	0	873
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	104	3	0	107	0	0	85	0	2	85	0	3	0	0	5	3	0	0	0	0	4	0	195
4:15 PM	0	0	87	0	0	87	0	0	90	0	0	90	0	2	0	0	3	2	0	0	0	0	0	0	179
4:30 PM	0	0	118	1	0	119	0	0	109	0	3	109	0	2	0	1	3	3	0	0	0	0	1	0	231
4:45 PM	0	0	117	4	0	121	0	0	83	0	0	83	0	0	0	0	3	0	0	0	0	1	2	1	205
Hourly Total	0	0	426	8	0	434	0	0	367	0	5	367	0	7	0	1	14	8	0	0	0	1	7	1	810
5:00 PM	0	0	105	5	1	110	0	0	84	0	0	84	0	1	0	1	6	2	0	0	0	1	0	1	197
5:15 PM	0	0	112	2	0	114	0	2	89	0	0	91	0	1	0	1	2	2	0	0	0	3	0	3	210
5:30 PM	0	0	121	7	0	128	0	2	73	0	0	75	0	0	0	3	2	3	0	0	0	3	0	3	209
5:45 PM	0	1	129	6	0	136	0	0	93	0	0	93	0	0	0	2	0	2	0	0	1	0	0	1	232
Hourly Total	0	1	467	20	1	488	0	4	339	0	0	343	0	2	0	7	10	9	0	0	1	7	0	8	848
Grand Total	0	5	1723	51	4	1779	0	6	1540	0	6	1546	0	9	0	8	37	17	0	0	1	8	11	9	3351
Approach %	0.0	0.3	96.9	2.9	-	-	0.0	0.4	99.6	0.0	-	-	0.0	52.9	0.0	47.1	-	-	0.0	0.0	11.1	88.9	-	-	-
Total %	0.0	0.1	51.4	1.5	-	53.1	0.0	0.2	46.0	0.0	-	46.1	0.0	0.3	0.0	0.2	-	0.5	0.0	0.0	0.0	0.2	-	0.3	-
Lights	0	5	1697	51	-	1753	0	6	1505	0	-	1511	0	9	0	8	-	17	0	0	1	8	-	9	3290
% Lights	-	100.0	98.5	100.0	-	98.5	-	100.0	97.7	-	-	97.7	-	100.0	-	100.0	-	100.0	-	-	100.0	100.0	-	100.0	98.2
Mediums	0	0	23	0	-	23	0	0	35	0	-	35	0	0	0	0	-	0	0	0	0	0	-	0	58
% Mediums	-	0.0	1.3	0.0	-	1.3	-	0.0	2.3	-	-	2.3	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	1.7
Articulated Trucks	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	3
% Articulated Trucks	-	0.0	0.2	0.0	-	0.2	-	0.0	0.0	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	2.7	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	6	-	-	-	-	-	36	-	-	-	-	-	11	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com  
PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350882, -74.07217

Count Name: 4. West Front Street & Existing  
Site Access  
Site Code: 4  
Start Date: 10/10/2019  
Page No: 4

### Turning Movement Peak Hour Data (7:45 AM)

Start Time	West Front Street Eastbound						West Front Street Westbound						141 West Front Street Driveway Northbound						North Parking Lot Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:45 AM	0	0	126	2	1	128	0	0	110	0	0	110	0	0	0	0	2	0	0	0	0	0	2	0	238
8:00 AM	0	0	106	1	0	107	0	0	116	0	0	116	0	0	0	0	2	0	0	0	0	0	0	0	223
8:15 AM	0	1	99	7	0	107	0	0	117	0	1	117	0	0	0	0	1	0	0	0	0	0	1	0	224
8:30 AM	0	0	100	4	0	104	0	0	110	0	0	110	0	0	0	0	4	0	0	0	0	0	0	0	214
Total	0	1	431	14	1	446	0	0	453	0	1	453	0	0	0	0	9	0	0	0	0	0	3	0	899
Approach %	0.0	0.2	96.6	3.1	-	-	0.0	0.0	100.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	0.1	47.9	1.6	-	49.6	0.0	0.0	50.4	0.0	-	50.4	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	-
PHF	0.000	0.250	0.855	0.500	-	0.871	0.000	0.000	0.968	0.000	-	0.968	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	-	0.944
Lights	0	1	418	14	-	433	0	0	444	0	-	444	0	0	0	0	-	0	0	0	0	0	-	0	877
% Lights	-	100.0	97.0	100.0	-	97.1	-	-	98.0	-	-	98.0	-	-	-	-	-	-	-	-	-	-	-	-	97.6
Mediums	0	0	11	0	-	11	0	0	9	0	-	9	0	0	0	0	-	0	0	0	0	0	-	0	20
% Mediums	-	0.0	2.6	0.0	-	2.5	-	-	2.0	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	2.2
Articulated Trucks	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	-	0.0	0.5	0.0	-	0.4	-	-	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	9	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Imperial Traffic & Data Collection  
www.imperialtdc.com

PO BOX 4637

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

Project: 141 Front Street  
Municipality: Red Bank, Monmouth County, NJ  
Setup: NR  
Location: 40.350882, -74.07217

Count Name: 4. West Front Street & Existing  
Site Access  
Site Code: 4  
Start Date: 10/10/2019  
Page No: 6

### Turning Movement Peak Hour Data (5:00 PM)

Start Time	West Front Street Eastbound						West Front Street Westbound						141 West Front Street Driveway Northbound						North Parking Lot Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
5:00 PM	0	0	105	5	1	110	0	0	84	0	0	84	0	1	0	1	6	2	0	0	0	1	0	1	197
5:15 PM	0	0	112	2	0	114	0	2	89	0	0	91	0	1	0	1	2	2	0	0	0	3	0	3	210
5:30 PM	0	0	121	7	0	128	0	2	73	0	0	75	0	0	0	3	2	3	0	0	0	3	0	3	209
5:45 PM	0	1	129	6	0	136	0	0	93	0	0	93	0	0	0	2	0	2	0	0	1	0	0	1	232
Total	0	1	467	20	1	488	0	4	339	0	0	343	0	2	0	7	10	9	0	0	1	7	0	8	848
Approach %	0.0	0.2	95.7	4.1	-	-	0.0	1.2	98.8	0.0	-	-	0.0	22.2	0.0	77.8	-	-	0.0	0.0	12.5	87.5	-	-	-
Total %	0.0	0.1	55.1	2.4	-	57.5	0.0	0.5	40.0	0.0	-	40.4	0.0	0.2	0.0	0.8	-	1.1	0.0	0.0	0.1	0.8	-	0.9	-
PHF	0.000	0.250	0.905	0.714	-	0.897	0.000	0.500	0.911	0.000	-	0.922	0.000	0.500	0.000	0.583	-	0.750	0.000	0.000	0.250	0.583	-	0.667	0.914
Lights	0	1	466	20	-	487	0	4	334	0	-	338	0	2	0	7	-	9	0	0	1	7	-	8	842
% Lights	-	100.0	99.8	100.0	-	99.8	-	100.0	98.5	-	-	98.5	-	100.0	-	100.0	-	100.0	-	-	100.0	100.0	-	100.0	99.3
Mediums	0	0	1	0	-	1	0	0	5	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	6
% Mediums	-	0.0	0.2	0.0	-	0.2	-	0.0	1.5	-	-	1.5	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	-	0.0	-	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



141 West Front Street  
Borough of Red Bank, Monmouth County, New Jersey  
MC Project No.: 19003629A  
Appendix

---

# ***141 WEST FRONT STREET***

## ***TRAFFIC IMPACT STUDY***

---

### **APPENDIX C**

#### **TRIP GENERATION**

# Multifamily Housing (Mid-Rise) (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 53

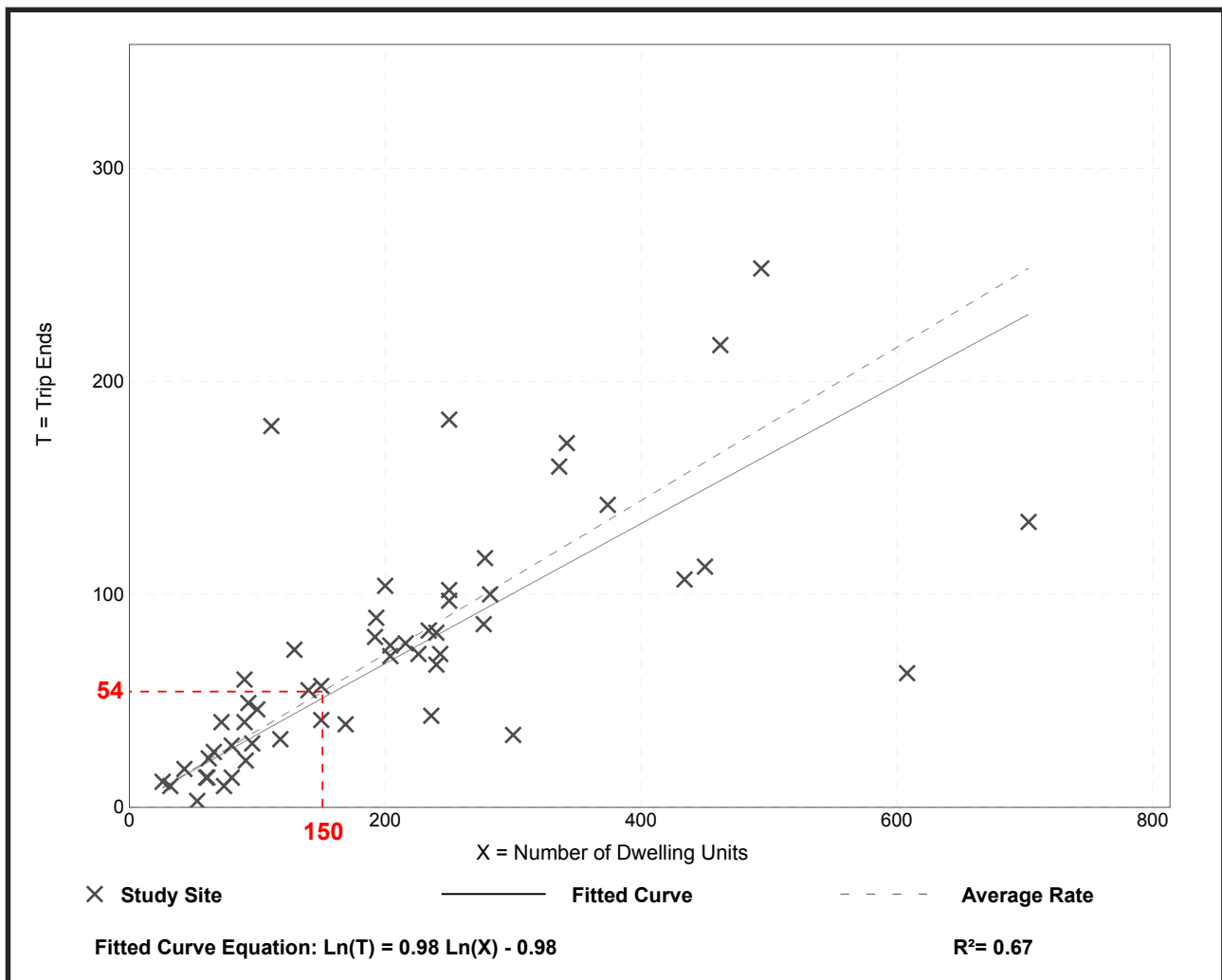
Avg. Num. of Dwelling Units: 207

Directional Distribution: 26% entering, 74% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

## Data Plot and Equation



# Multifamily Housing (Mid-Rise) (221)

Vehicle Trip Ends vs: Dwelling Units

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: 60

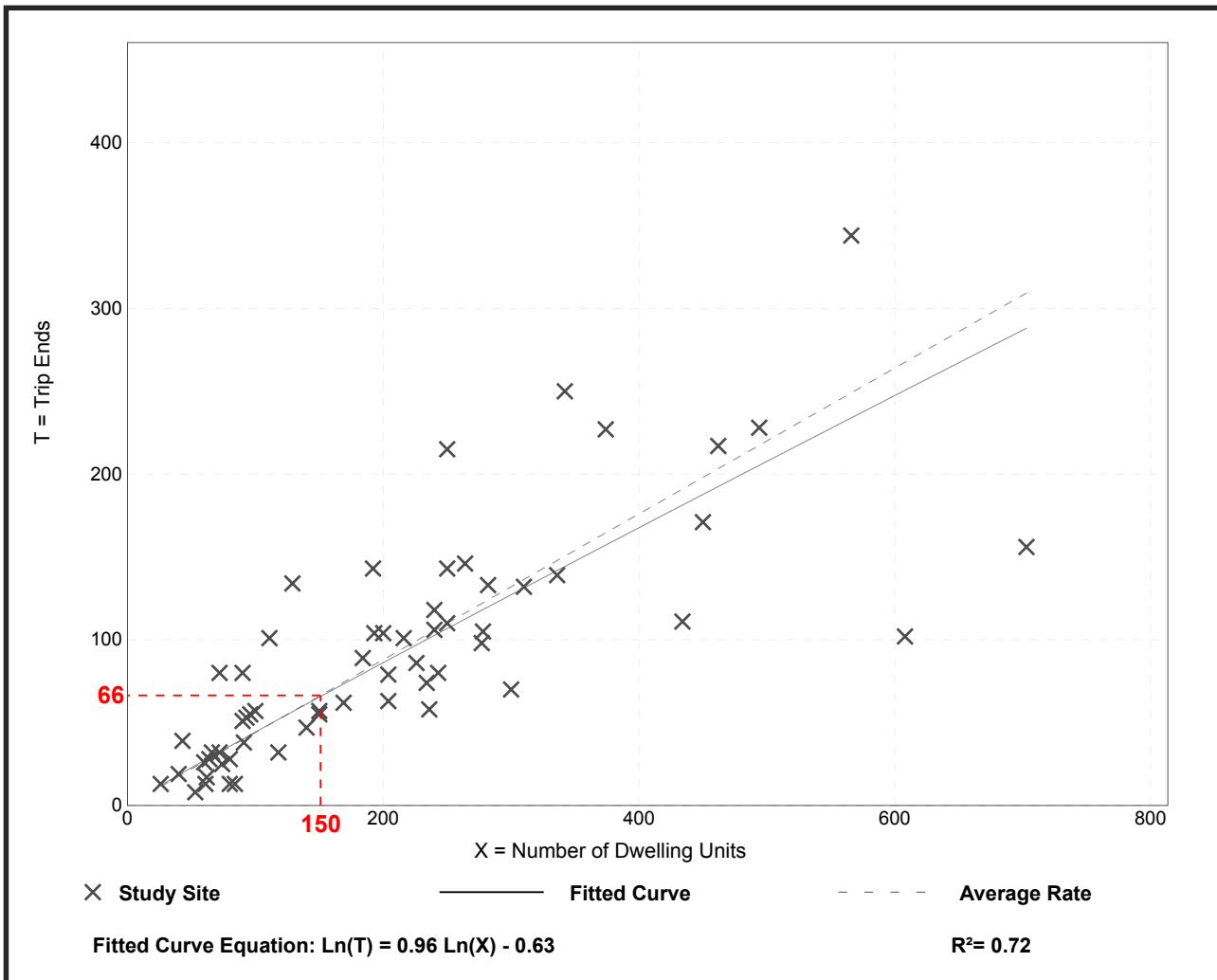
Avg. Num. of Dwelling Units: 208

Directional Distribution: 61% entering, 39% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

## Data Plot and Equation





141 West Front Street  
Borough of Red Bank, Monmouth County, New Jersey  
MC Project No.: 19003629A  
Appendix

---




# ***141 WEST FRONT STREET***

## ***TRAFFIC IMPACT STUDY***

---

### **APPENDIX D**

#### **CAPACITY ANALYSIS**

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	5	23	12	57	134
Future Vol, veh/h	4	5	23	12	57	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	25	20	14	8	0	5
Mvmt Flow	5	6	28	14	69	161
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	334	35	0	0	42	0
Stage 1	35	-	-	-	-	-
Stage 2	299	-	-	-	-	-
Critical Hdwy	6.65	6.4	-	-	4.1	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.48	-	-	2.2	-
Pot Cap-1 Maneuver	617	989	-	-	1580	-
Stage 1	931	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	587	989	-	-	1580	-
Mov Cap-2 Maneuver	587	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		2.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 758		1580	-	
HCM Lane V/C Ratio	-	- 0.014		0.043	-	
HCM Control Delay (s)	-	- 9.8		7.4	0	
HCM Lane LOS	-	- A		A	A	
HCM 95th %tile Q(veh)	-	- 0		0.1	-	





Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	57	5	2	6	19	1	0	2	1	0	4
Future Vol, veh/h	10	57	5	2	6	19	1	0	2	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	2	0	0	17	6	0	0	0	0	0	25
Mvmt Flow	13	71	6	3	8	24	1	0	3	1	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	32	0	0	77	0	0	129	138	74	128	129	20
Stage 1	-	-	-	-	-	-	100	100	-	26	26	-
Stage 2	-	-	-	-	-	-	29	38	-	102	103	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.525
Pot Cap-1 Maneuver	1593	-	-	1535	-	-	849	757	993	850	765	995
Stage 1	-	-	-	-	-	-	911	816	-	997	878	-
Stage 2	-	-	-	-	-	-	993	867	-	909	814	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1593	-	-	1535	-	-	838	749	993	841	757	995
Mov Cap-2 Maneuver	-	-	-	-	-	-	838	749	-	841	757	-
Stage 1	-	-	-	-	-	-	903	809	-	988	876	-
Stage 2	-	-	-	-	-	-	986	865	-	899	807	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.5			8.9			8.8		
HCM LOS							A			A		




Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	935	1593	-	-	1535	-	-	960
HCM Lane V/C Ratio	0.004	0.008	-	-	0.002	-	-	0.007
HCM Control Delay (s)	8.9	7.3	0	-	7.3	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	25.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	55	4	0	0	0	9	0	35	845	79	16
Future Vol, veh/h	0	55	4	0	0	0	9	0	35	845	79	16
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	2	0	0	0	0	0	0	6	3	3	13
Mvmt Flow	0	65	5	0	0	0	11	0	42	1006	94	19
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.6	8	27.1
HCM LOS	A	A	D

Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	20%	0%	100%	80%
Vol Thru, %	0%	93%	0%	17%
Vol Right, %	80%	7%	0%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	44	59	473	467
LT Vol	9	0	473	372
Through Vol	0	55	0	79
RT Vol	35	4	0	16
Lane Flow Rate	52	70	563	556
Geometry Grp	5	2	7	7
Degree of Util (X)	0.067	0.114	0.832	0.802
Departure Headway (Hd)	4.6	5.827	5.32	5.194
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	617	687	700
Service Time	2.628	3.846	3.02	2.894
HCM Lane V/C Ratio	0.067	0.113	0.82	0.794
HCM Control Delay	8	9.6	28.7	25.5
HCM Lane LOS	A	A	D	D
HCM 95th-tile Q	0.2	0.4	9.1	8.2

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	31	102	22	55	133
Future Vol, veh/h	10	31	102	22	55	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	11	33	110	24	59	143





Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	383	122	0	0	134	0
Stage 1	122	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	624	935	-	-	1463	-
Stage 1	908	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	597	935	-	-	1463	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2.2
HCM LOS	A		





Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	822	1463
HCM Lane V/C Ratio	-	-	0.054	0.04
HCM Control Delay (s)	-	-	9.6	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

19003629A - 141 West Front Street  
5: Adj. Parking Lot/Site Access South & Wall Street

2022 No-Build Conditions  
PM Peak




Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	69	1	3	18	15	6	0	4	6	0	20
Future Vol, veh/h	8	69	1	3	18	15	6	0	4	6	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	91	1	4	24	20	8	0	5	8	0	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	44	0	0	92	0	0	169	166	92	158	156	34
Stage 1	-	-	-	-	-	-	114	114	-	42	42	-
Stage 2	-	-	-	-	-	-	55	52	-	116	114	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1577	-	-	1515	-	-	799	730	971	813	740	1045
Stage 1	-	-	-	-	-	-	896	805	-	978	864	-
Stage 2	-	-	-	-	-	-	962	856	-	894	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1577	-	-	1515	-	-	773	723	971	802	733	1045
Mov Cap-2 Maneuver	-	-	-	-	-	-	773	723	-	802	733	-
Stage 1	-	-	-	-	-	-	890	799	-	971	861	-
Stage 2	-	-	-	-	-	-	935	853	-	883	799	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.6			9.3			8.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	842	1577	-	-	1515	-	-	977				
HCM Lane V/C Ratio	0.016	0.007	-	-	0.003	-	-	0.035				
HCM Control Delay (s)	9.3	7.3	0	-	7.4	0	-	8.8				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

Intersection	
Intersection Delay, s/veh	19.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	67	9	0	0	0	15	0	63	770	124	21
Future Vol, veh/h	0	67	9	0	0	0	15	0	63	770	124	21
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	2	0
Mvmt Flow	0	74	10	0	0	0	16	0	69	846	136	23
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.6	8.2	20.9
HCM LOS	A	A	C

Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	19%	0%	100%	69%
Vol Thru, %	0%	88%	0%	27%
Vol Right, %	81%	12%	0%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	76	454	461
LT Vol	15	0	454	316
Through Vol	0	67	0	124
RT Vol	63	9	0	21
Lane Flow Rate	86	84	499	506
Geometry Grp	5	2	7	7
Degree of Util (X)	0.109	0.133	0.738	0.725
Departure Headway (Hd)	4.596	5.737	5.325	5.152
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	626	679	704
Service Time	2.63	3.764	3.052	2.879
HCM Lane V/C Ratio	0.11	0.134	0.735	0.719
HCM Control Delay	8.2	9.6	21.6	20.3
HCM Lane LOS	A	A	C	C
HCM 95th-tile Q	0.4	0.5	6.5	6.3

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	5	23	13	57	136
Future Vol, veh/h	6	5	23	13	57	136
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	25	20	14	8	0	5
Mvmt Flow	7	6	28	16	69	164
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	338	36	0	0	44	0
Stage 1	36	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Critical Hdwy	6.65	6.4	-	-	4.1	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.48	-	-	2.2	-
Pot Cap-1 Maneuver	613	987	-	-	1577	-
Stage 1	930	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	584	987	-	-	1577	-
Mov Cap-2 Maneuver	584	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.1	0	2.2			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	717	1577	-	
HCM Lane V/C Ratio	-	-	0.018	0.044	-	
HCM Control Delay (s)	-	-	10.1	7.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

19003629A - 141 West Front Street  
5: Adj. Parking Lot/Site Access South & Wall Street

2022 Build Conditions  
AM Peak





Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	57	5	2	6	25	1	0	2	18	0	6
Future Vol, veh/h	11	57	5	2	6	25	1	0	2	18	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	0	2	0	0	17	6	0	0	0	0	0	25
Mvmt Flow	14	71	6	3	8	31	1	0	3	23	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	77	0	0	136	147	74	134	135	24
Stage 1	-	-	-	-	-	-	102	102	-	30	30	-
Stage 2	-	-	-	-	-	-	34	45	-	104	105	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.525
Pot Cap-1 Maneuver	1584	-	-	1535	-	-	840	748	993	842	760	990
Stage 1	-	-	-	-	-	-	909	815	-	992	874	-
Stage 2	-	-	-	-	-	-	987	861	-	907	812	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1584	-	-	1535	-	-	827	740	993	833	752	990
Mov Cap-2 Maneuver	-	-	-	-	-	-	827	740	-	833	752	-
Stage 1	-	-	-	-	-	-	901	808	-	983	872	-
Stage 2	-	-	-	-	-	-	978	859	-	897	805	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.4	8.9	9.3
HCM LOS			A	A




Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	931	1584	-	-	1535	-	-	867
HCM Lane V/C Ratio	0.004	0.009	-	-	0.002	-	-	0.035
HCM Control Delay (s)	8.9	7.3	0	-	7.3	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1




Intersection	
Intersection Delay, s/veh	26.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	65	12	0	0	0	12	0	35	845	79	19
Future Vol, veh/h	0	65	12	0	0	0	12	0	35	845	79	19
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	2	0	0	0	0	0	0	6	3	3	13
Mvmt Flow	0	77	14	0	0	0	14	0	42	1006	94	23
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.8	8.1	28.3
HCM LOS	A	A	D





Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	26%	0%	100%	79%
Vol Thru, %	0%	84%	0%	17%
Vol Right, %	74%	16%	0%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	77	473	470
LT Vol	12	0	473	372
Through Vol	0	65	0	79
RT Vol	35	12	0	19
Lane Flow Rate	56	92	563	559
Geometry Grp	5	2	7	7
Degree of Util (X)	0.073	0.147	0.84	0.813
Departure Headway (Hd)	4.719	5.786	5.366	5.233
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	759	621	676	694
Service Time	2.751	3.806	3.092	2.959
HCM Lane V/C Ratio	0.074	0.148	0.833	0.805
HCM Control Delay	8.1	9.8	29.8	26.7
HCM Lane LOS	A	A	D	D
HCM 95th-tile Q	0.2	0.5	9.3	8.5

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	18	28	1	20	191
Future Vol, veh/h	2	18	28	1	20	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	20	30	1	22	208
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	283	31	0	0	31	0
Stage 1	31	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	711	1049	-	-	1595	-
Stage 1	997	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	700	1049	-	-	1595	-
Mov Cap-2 Maneuver	700	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		0.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 999		1595	-	
HCM Lane V/C Ratio	-	- 0.022		0.014	-	
HCM Control Delay (s)	-	- 8.7		7.3	-	
HCM Lane LOS	-	- A		A	-	
HCM 95th %tile Q(veh)	-	- 0.1		0	-	





Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	31	102	24	55	134
Future Vol, veh/h	11	31	102	24	55	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	12	33	110	26	59	144
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	385	123	0	0	136	0
Stage 1	123	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	622	933	-	-	1461	-
Stage 1	907	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	595	933	-	-	1461	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.7	0	2.2			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	812	1461	-	
HCM Lane V/C Ratio	-	-	0.056	0.04	-	
HCM Control Delay (s)	-	-	9.7	7.6	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

19003629A - 141 West Front Street  
5: Adj. Parking Lot/Site Access South & Wall Street

2022 Build Conditions  
PM Peak




Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	69	1	3	18	37	6	0	4	25	0	21
Future Vol, veh/h	10	69	1	3	18	37	6	0	4	25	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	91	1	4	24	49	8	0	5	33	0	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	92	0	0	189	199	92	177	175	49
Stage 1	-	-	-	-	-	-	118	118	-	57	57	-
Stage 2	-	-	-	-	-	-	71	81	-	120	118	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1540	-	-	1515	-	-	776	700	971	790	722	1025
Stage 1	-	-	-	-	-	-	891	802	-	960	851	-
Stage 2	-	-	-	-	-	-	944	832	-	889	802	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1540	-	-	1515	-	-	748	692	971	778	713	1025
Mov Cap-2 Maneuver	-	-	-	-	-	-	748	692	-	778	713	-
Stage 1	-	-	-	-	-	-	883	795	-	951	848	-
Stage 2	-	-	-	-	-	-	916	830	-	876	795	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.4			9.4			9.4		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	824	1540	-	-	1515	-	-	874				
HCM Lane V/C Ratio	0.016	0.009	-	-	0.003	-	-	0.069				
HCM Control Delay (s)	9.4	7.4	0	-	7.4	0	-	9.4				
HCM Lane LOS	A	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2				

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	81	14	0	0	0	23	0	63	770	124	35
Future Vol, veh/h	0	81	14	0	0	0	23	0	63	770	124	35
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	2	0
Mvmt Flow	0	89	15	0	0	0	25	0	69	846	136	38
Number of Lanes	0	1	0	0	0	0	0	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.9	8.5	22.3
HCM LOS	A	A	C

Lane	NBLn1	EBLn1	SBLn1	SBLn2
Vol Left, %	27%	0%	100%	66%
Vol Thru, %	0%	85%	0%	27%
Vol Right, %	73%	15%	0%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	95	462	467
LT Vol	23	0	462	308
Through Vol	0	81	0	124
RT Vol	63	14	0	35
Lane Flow Rate	95	104	508	513
Geometry Grp	5	2	7	7
Degree of Util (X)	0.124	0.167	0.761	0.74
Departure Headway (Hd)	4.738	5.754	5.398	5.191
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	754	624	670	698
Service Time	2.781	3.785	3.132	2.926
HCM Lane V/C Ratio	0.126	0.167	0.758	0.735
HCM Control Delay	8.5	9.9	23.3	21.3
HCM Lane LOS	A	A	C	C
HCM 95th-tile Q	0.4	0.6	7	6.6

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	14	133	2	39	188
Future Vol, veh/h	1	14	133	2	39	188
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	15	145	2	42	204
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	434	146	0	0	147	0
Stage 1	146	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	583	906	-	-	1447	-
Stage 1	886	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	564	906	-	-	1447	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		1.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	871		1447	-	
HCM Lane V/C Ratio	-	0.019		0.029	-	
HCM Control Delay (s)	-	9.2		7.6	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	0.1		0.1	-	



141 West Front Street  
Borough of Red Bank, Monmouth County, New Jersey  
MC Project No.: 19003629A  
Appendix

---

# ***141 WEST FRONT STREET***

## ***TRAFFIC IMPACT STUDY***

---

### **APPENDIX E**

#### **SHARED PARKING MODEL AND PARKING OBSERVATION DATA**

Table  
Project: 141 West Front Street  
Description: Shared Parking

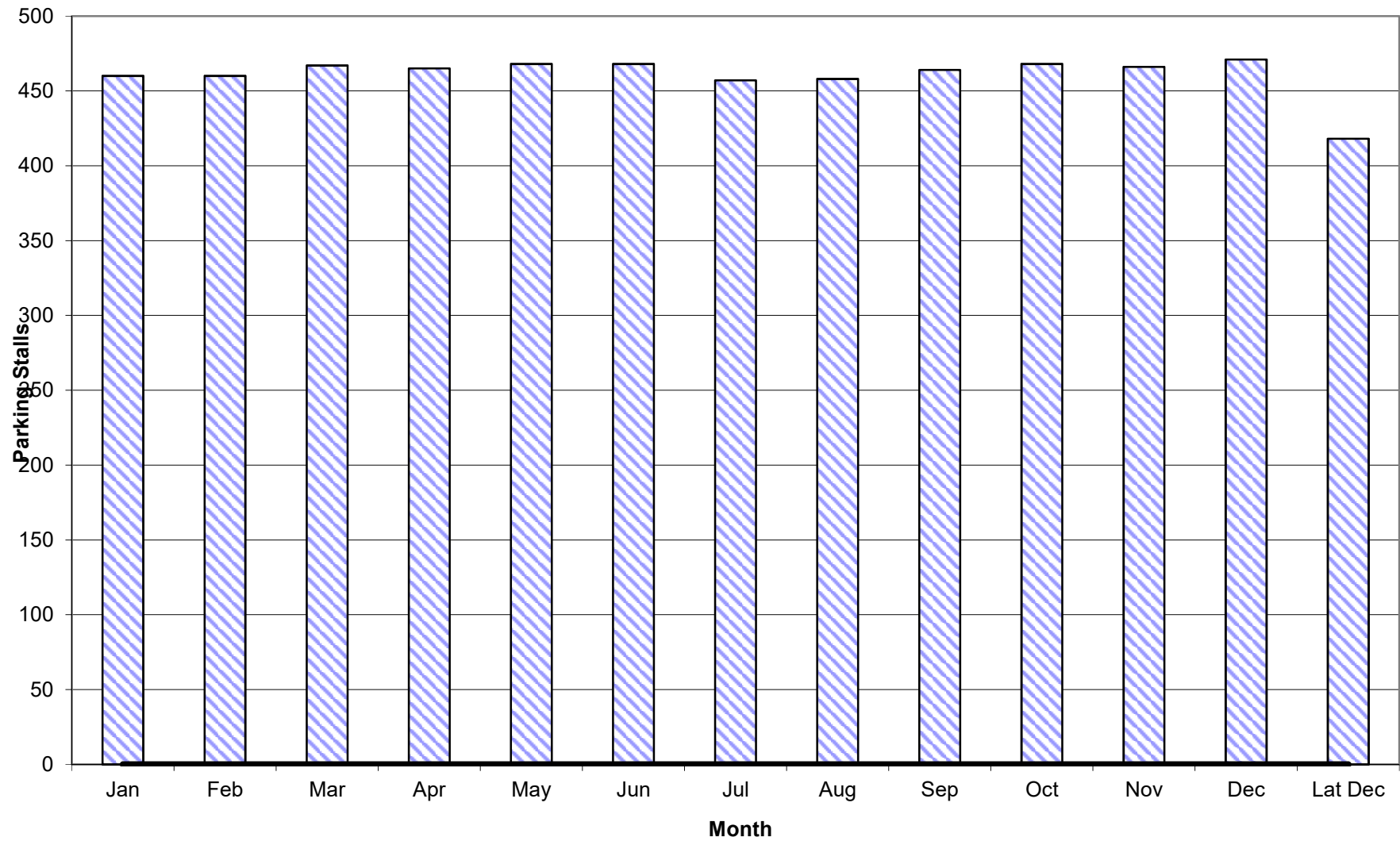
11/14/2019

SHARED PARKING DEMAND SUMMARY

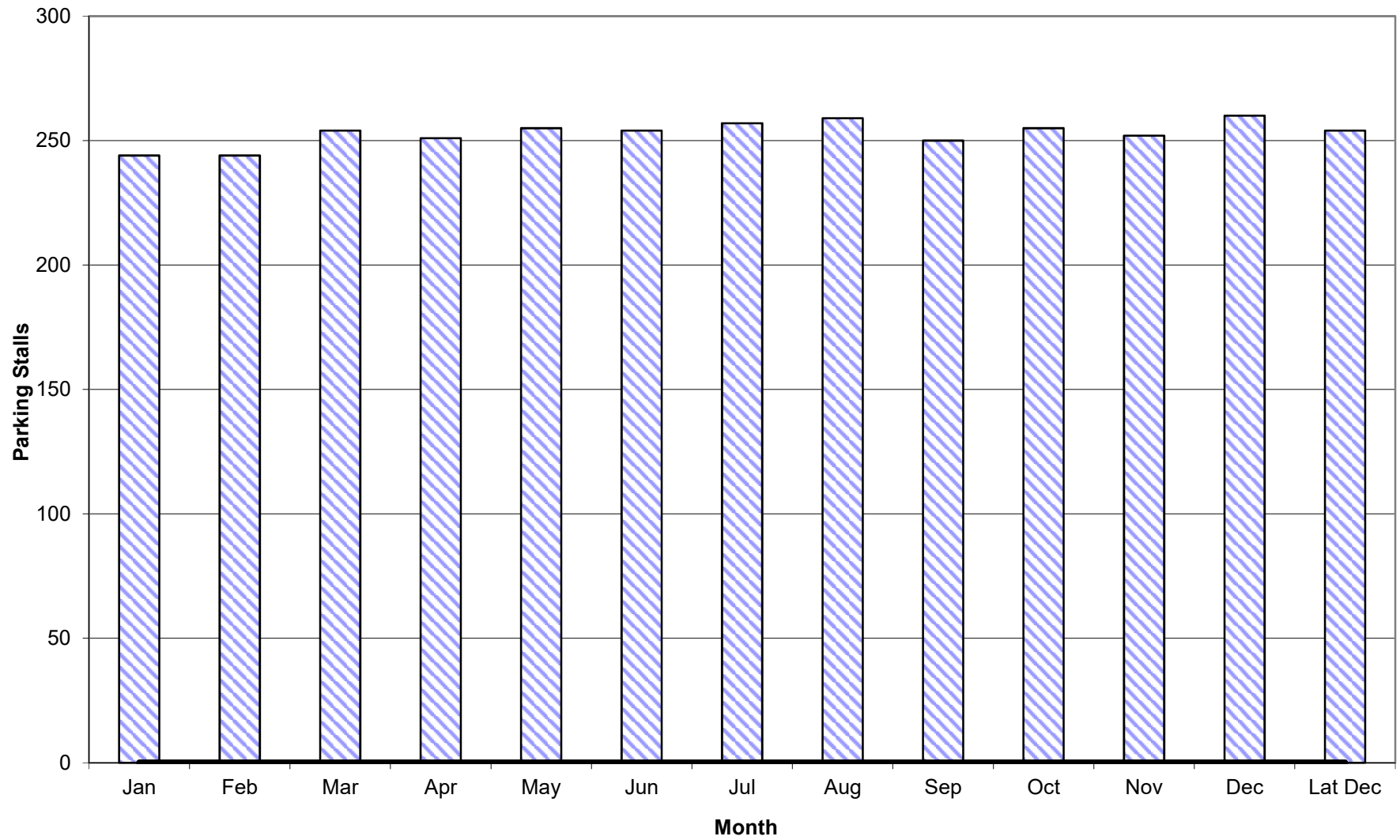
PEAK MONTH: DECEMBER -- PEAK PERIOD: 2 PM, WEEKDAY

Land Use	Project Data Quantity Unit	Weekday					Weekend					Weekday			Weekend		
		Base	Mode	Non-	Project	Unit	Base	Mode	Non-	Project	Unit	Peak Hr	Peak Mo	Estimated	Peak Hr	Peak Mo	Estimated
		Rate	Adj	Captive	Rate		Rate	Adj	Captive	Rate		2 PM	December	Parking	8 PM	December	Parking
Fine/Casual Dining Restaurant	6,153 sf GLA	22.52	0.90	0.95	19.25	/ksf GLA	20.57	0.90	0.95	17.59	/ksf GLA	0.65	1.00	77	1.00	1.00	109
Employee		0.00	0.90	0.95	0.00	/ksf GLA	0.00	0.90	0.95	0.00	/ksf GLA	0.90	1.00	0	1.00	1.00	0
Residential, Owned, Shared Spaces	150 units	0.47	0.80	0.95	0.36	/unit	0.33	0.80	0.95	0.25	/unit	0.70	1.00	38	0.98	1.00	37
Reserved	1 sp/unit	1.00	0.80	0.95	0.76	/unit	1.00	0.80	0.95	0.76	/unit	1.00	1.00	114	1.00	1.00	114
Guest	150 units	0.00	0.80	0.95	0.00	/unit	0.00	0.80	0.95	0.00	/unit	0.20	1.00	0	1.00	1.00	0
Office 25 to 100 ksf	83,950 sf GLA	0.26	0.85	0.95	0.21	/ksf GLA	0.03	0.85	0.95	0.02	/ksf GLA	1.00	1.00	18	0.00	1.00	0
Employee		3.30	0.85	0.95	2.66	/ksf GLA	0.33	0.85	0.95	0.26	/ksf GLA	1.00	1.00	224	0.00	1.00	0
ULI base data have been modified from default values.												Customer			Customer		
												Employee			Employee		
												Reserved			Reserved		
												Total			Total		
												471			260		

**Weekday Month-by-Month Estimated Parking Demand**



**Weekend Month-by-Month Estimated Parking Demand**





West Street (between W Front St and Wall St)				
Date	Time	Parking Spaces*		
		Occupied	Vacant	% Occupied
Friday 10/11/19	9:00 AM	3	8	27%
	9:30 AM	3	8	27%
	5:00 PM	0	11	0%
	5:30 PM	3	8	27%
	6:00 PM	4	7	36%
	6:30 PM	9	2	82%
	7:00 PM	10	1	91%
	7:30 PM	6	5	55%
	8:00 PM	8	3	73%

\*Spaces not marked. Total number of spaces approximated using a standard 25 ft length. 11 spaces total.

Wall Street (between West St and Pearl St)				
Date	Time	Parking Spaces*		
		Occupied	Vacant	% Occupied
Friday 10/11/19	9:00 AM	4	4	50%
	9:30 AM	3	5	38%
	5:00 PM	7	1	88%
	5:30 PM	8	0	100%
	6:00 PM	8	0	100%
	6:30 PM	9	0	100%
	7:00 PM	9	0	100%
	7:30 PM	8	0	100%
	8:00 PM	8	0	100%

\*Spaces not marked. Total number of spaces approximated using a standard 25 ft length. 8 spaces total.

Parking Garage				
Date	Time	Parking Spaces		
		Occupied	Vacant	% Occupied
Friday 10/11/19	9:00 AM	50	289	15%
	9:30 AM	71	268	21%
	5:00 PM	60	279	18%
	5:30 PM	45	294	13%
	6:00 PM	48	291	14%
	6:30 PM	57	282	17%
	7:00 PM	75	264	22%
	7:30 PM	77	262	23%
	8:00 PM	74	265	22%

339 spaces total.