Cranston, Rhode Island

Proposed Mixed-Use Redevelopment

November 2021

TRAFFIC IMPACT STUDY

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Proposed Mixed-Use Redevelopment

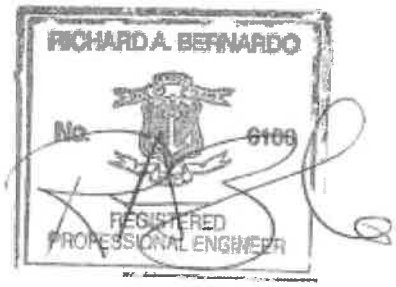
Cranston, Rhode Island

TRAFFIC IMPACT STUDY

Prepared by: BETA GROUP, INC.

Prepared for: Mr. Marshall Dambrosio
Legion Development, Inc.
661 Park Avenue
Cranston, Rhode Island 02910

November 2021



IMPROVING COMMUNITIES TOGETHER

November 30, 2021

Mr. Marshall Dambrosio
Legion Development, Inc.
661 Park Avenue
Cranston, Rhode Island 02910

Re: **Proposed Mixed-Use Redevelopment**
661 Park Avenue
Cranston, Rhode Island

Dear Mr. Dambrosio:

BETA Group, Inc., in accordance with our scope of services, has completed a traffic impact study for a proposed mixed-use redevelopment project in the City of Cranston, Rhode Island. The site is located on the northwest corner of the intersection of Park Avenue (Route 12) with Doric Avenue immediately west of the Interstate 95 corridor. The parcel is defined by Assessor's Plat 3, Lot 1696 which contains approximately 1.93 acres of fully developed land.

Based upon our discussions and a review of the site development plan provided by *DiPrete Engineering,* it is our understanding that the mixed-use redevelopment includes razing two commercial buildings to allow construction of a single 4-story building fronting Park Avenue and Doric Avenue to accommodate 74 residential apartment units and a small retail use. The primary access and egress to the site is proposed at the unsignalized intersection of Park Avenue with South Clarendon Street that will be modified to include a southbound approach to accommodate the site driveway creating a four-way junction. Secondary access/egress to the site is proposed at a single driveway on both Doric Avenue and on North Clarendon Street, which consolidates and maintains existing points of access to the adjacent side streets from the property.

The study included herein, was conducted to determine the adequacy of the existing servicing roadways to accommodate anticipated traffic to be generated by the mixed-use redevelopment project. An analysis of potential impacts to the roadway capacity and safety has been completed and is discussed in the following report.

Very truly yours,
BETA Group, Inc.

Paul J. Bannon
Associate

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1.0 INTRODUCTION

The objective of the following study is to assess the potential traffic impacts associated with a proposed mixed-use development project in the City of Cranston, Rhode Island. The mixed-use project is situated on a parcel of land on the northwest corner of the intersection of Park Avenue (Route 12) with Doric Avenue between Pontiac Avenue and the I-95 corridor. Refer to the Figure 1, Project Vicinity Map, on the following page for the project location within the city.

The mixed-use development proposal consists of razing two existing structures, currently utilized by several commercial businesses including the *Legion Bowling Alley*, and a real estate company to allow construction of a 4-story building for residential apartments with 1st-floor commercial use. A total of 74 apartment units and 2,000 square feet for retail use are proposed along with a parking lot to the rear of the structure containing 100 spaces. Main access/egress will be provided at the unsignalized intersection of Park Avenue with South Clarendon Street that will modified to create a four-way junction. Secondary access/egress is proposed at single driveways on both Doric Avenue and on North Clarendon Street.

The study summarized herein focused on both traffic flow efficiency and safety along Park Avenue (Route 12) and Doric Avenue in the immediate vicinity of the subject property, including the proposed site driveways. The potential impacts associated with the site related traffic have been defined and evaluated in accordance with standard traffic engineering guidelines and procedures.

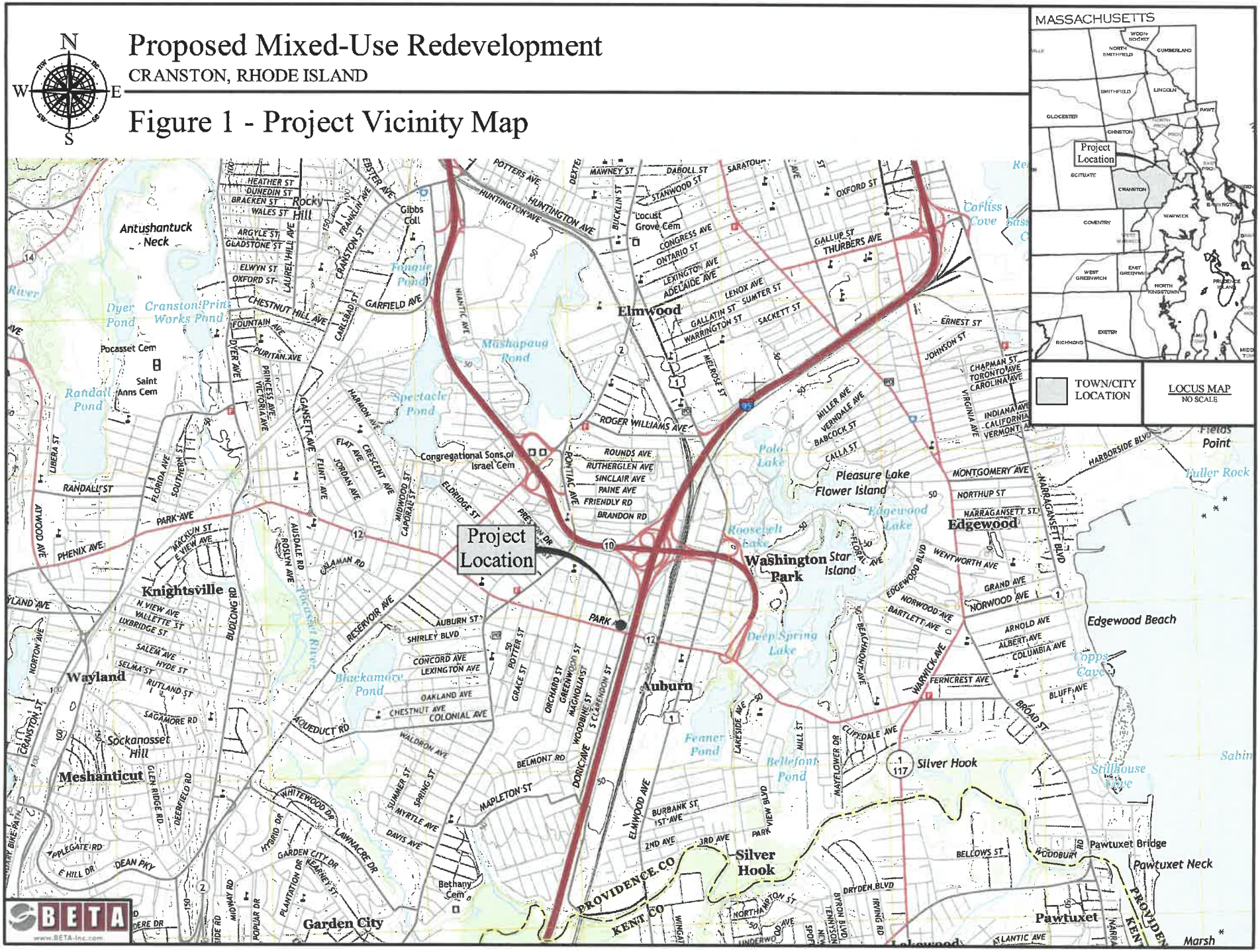
The traffic engineering study completed for this project included the following:

- A traffic counting program to define the existing traffic patterns and operational characteristics along the servicing roadways. The data collection included manual turning movement counts (TMCs) at the Park Avenue (Route 2) intersections with South Clarendon Street and with Doric Avenue and a review of record traffic data provided by the Rhode Island Department of Transportation (RIDOT).
- An inventory of the physical roadway characteristics of Park Avenue and Doric Avenue in the project area to determine the adequacy of the existing roadway geometric features in reference to safety and operations.
- An analysis of crash records obtained from the Cranston Police Department to determine if there are any safety concerns relative to the frequency, severity, or pattern of crashes in the project area.
- An estimate of future traffic volumes for the proposed mixed-use development was calculated using data from the "Trip Generation" Manual, an informational report published by the Institute of Transportation Engineers (ITE).
- Evaluation and analysis of the traffic safety and operations for existing and future traffic conditions.

Proposed Mixed-Use Redevelopment

CRANSTON, RHODE ISLAND

Figure 1 - Project Vicinity Map



- Development of recommendations where necessary, that would be required to maintain safe and efficient traffic flow in the project area.

2.0 Project Area

As noted in the previous section, the proposed mixed-use project is situated on a parcel of land along the northerly side of Park Avenue just west of the I-95 corridor. The site is fully developed with two commercial structures and a paved parking lot for a bowling alley and real estate company. Figure 2 on the following page depicts the general project area, and the boundary lines of the subject property.

Land use in the immediate area can be defined as predominantly commercial properties along Park Avenue (Route 12) with high density residential lots off intersecting side streets. Immediately abutting the subject site to the north and south across Park Avenue are residential properties, to the west is a small commercial plaza, and to the east across from Doric Avenue is the I-95 corridor. Further east along Park Avenue is the Amtrak railway corridor. Beyond the immediate project area to the west is Cranston East High School, which is adjacent to the Cranston City Hall.

Park Avenue (Route 12) will serve as the primary access route to the redeveloped property, with Doric Avenue and North Clarendon Street providing secondary access. Based upon the operating characteristics along the servicing roadways, and the low estimated volume and type of traffic associated with the mixed-use development, a study impact area was defined for the project. The limits of our analysis focused on Doric Avenue and Park Avenue (Route 12) between Pontiac Avenue easterly to Wellington Avenue, and the site driveways.

3.0 Existing Conditions

3.1 Roadways

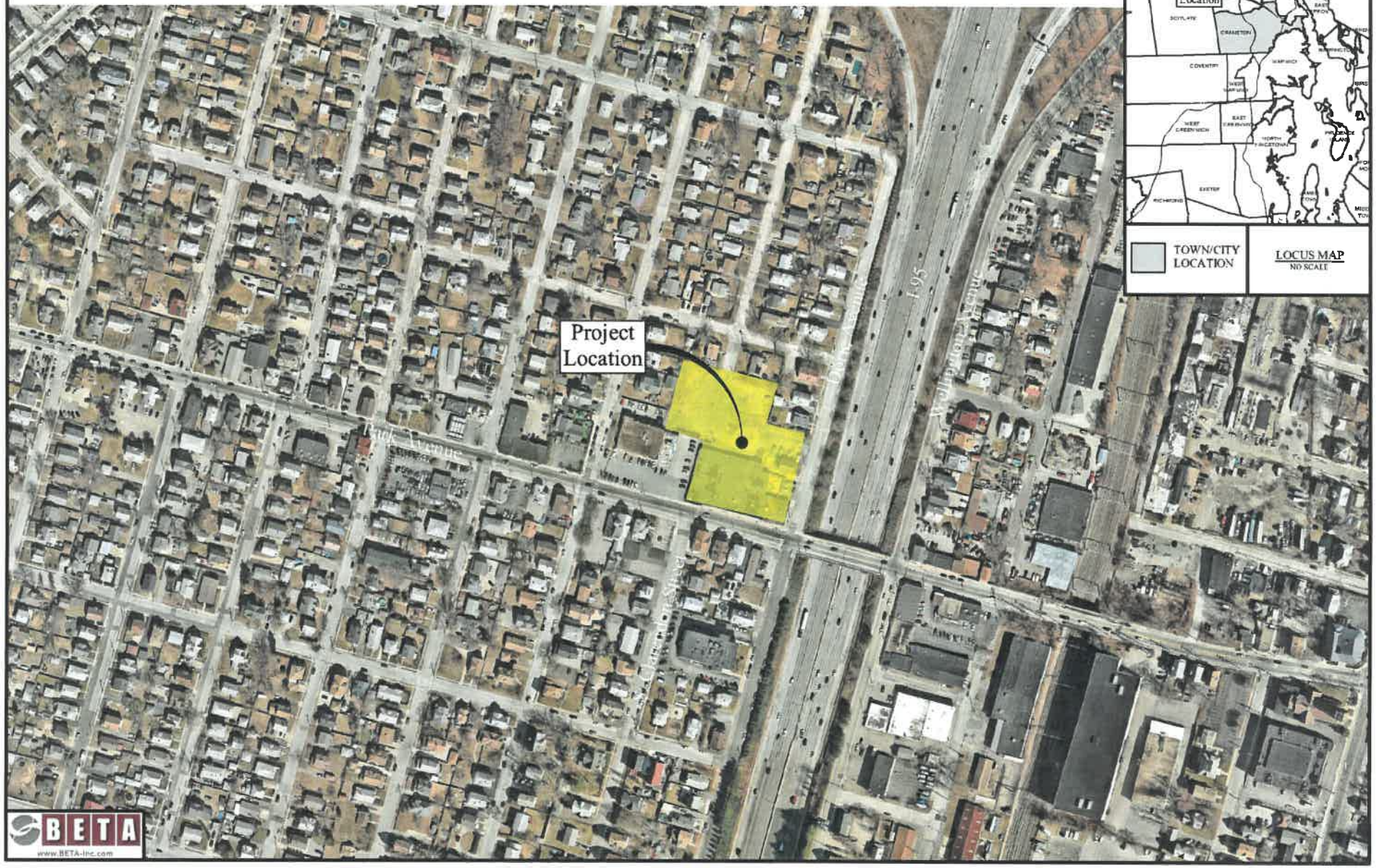
Park Avenue (Route 12)

Park Avenue (Route 12) is an east/west urban principal arterial between Cranston Street to the east and Warwick Avenue (Route 117) to the west. The roadway provides immediate local access to abutting properties but also links to higher order facilities including I-95 to the east via Route 10. It is important to note that Park Avenue over the Amtrak railway corridor is currently closed for reconstruction of the bridge with a detour in place along Wellington Avenue to Elmwood Avenue.

Proposed Mixed-Use Redevelopment

CRANSTON, RHODE ISLAND

Figure 2 - Project Area Map



In the project area, the roadway is generally thirty-eight (38) feet wide consisting of an 11-foot travel lane and 8-foot parking lane in each direction delineated by a double yellow centerline and white shoulder markings. Granite curbing and cement concrete sidewalks are provided on both sides of the road.

The pavement surface can be classified as being in fair conditong along the eastbound lanes with visible transverse cracking and minor rutting and in good condition along the westbound lanes as it appears to be recently repaved between Garden Street in the west and Doric Avenue in the east that may be due to utility installation. Cobra head lighting is provided for night time visibility in the area. The speed limit is posted at 25 mph in the vicinty of the site. The photograph on page 4 depicts the typical roadway characteristics of Park Avenue looking west with the subject property on the right side.

Doric Avenue

Doric Avenue is a local residential roadway running in a north/south direction parelleling the I-95 corridor on the west side between Beckwith Street to the north and Woodbine Street to the south. In the project area, the roadway is generally thirty-seven (37) feet wide consisting of an undelineated single travel lane in each direction with observed parking on both sides of the road as depicted on the adjacent photograh looking north with the site property on the left. It was noted that a truck exclusion sign is posted at the intersection with Park Avenue, prohibiting trucks within the neighborhood along Doric Avenue between Park Avenue to the south and Beckwith Street to the north.

Granite curbing and a combination of cement and bitumnous concrete sidewalk was present on the westerly side of the road. Granite curbing and cement concrete sidewalk, though not accessible, with guardrail and a chainlink fence extends along the easterly side of the roadway to protect access and the slope adjacent to the I-95 corridor. The pavement can be classified as being in fair condition with no visible signs of major pavement distress. There was no posted speed limit observed in the immediate area and was assumed at 25 mph due to the urban and local residential nature of the area. Sporadic cobra head lighting on utility poles is provided for night time visibility in the area.

3.2 INTERSECTIONS

Park Avenue (Route 12) at South Clarendon Street

South Clarendon Street intersects Park Avenue (Route 12) to form an unsignalized, three-way "T"-type junction with stop control on the minor South Clarendon Street northbound approach. A *Stop* sign and stop line are provided on the South Clarendon Street northbound approach to the intersection.

The Park Avenue eastbound and westbound approaches provide a shared thru/right turn lane and a single shared left turn/thru lane, respectively. The South Clarendon Street northbound approach provides a single lane.

Curb ramps, though not ADA-compliant, are provided on both corners of the northbound approach including on the northerly side of Park Avenue for the marked crosswalk on the eastern leg of the intersection. A Cobra-head light fixture on a utility pole is provided for nighttime illumination of the intersection. The adjacent aerial depicts the physical characteristics of the intersection.

Park Avenue (Route 12) at Doric Avenue

Doric Avenue intersects Park Avenue (Route 12) to form an unsignalized, four-way junction with stop control on the minor Doric Avenue northbound and southbound approaches. A *Stop* sign and stop line are provided on both the Doric Avenue northbound and southbound approaches to the intersection. All approaches to the intersection provide a single shared travel lane.

Curb ramps are present on all corners of the intersection, though they are not ADA-compliant, and marked crosswalks are available on all legs of the intersection except crossing the eastern leg as depicted on the adjacent aerial. A Cobra-head light fixture on a utility pole is provided for nighttime illumination of the intersection. Parking

restrictions were noted in the vicinity of the intersection as a "No Parking Here To Corner" sign is posted on the northwest corner of the intersection approximately 30 feet from the nearside Doric Avenue curb line. This restriction is in place to prohibit parking along the northerly section of Park Avenue to enhance sight lines for southbound vehicles entering Park Avenue from Doric Avenue.

Park Avenue (Route 12) at Wellington Avenue

Wellington Avenue intersects Park Avenue (Route 12) to form a four-way junction just east of the I-95 corridor. All approaches to the intersection provide a single shared lane. The intersection is controlled by a traffic signal. The signal system appears to be in good operating condition. The layout of the equipment consists of mast arm mounted vehicle signal heads with in-road loop detection. A combination of mast arm pole and pedestal pole mounted pedestrian signal heads with pedestrian push buttons for the marked crosswalks, though faded, with curb ramps are provided on all legs of the intersection. It was also determined that the pushbuttons and curb ramps are not ADA compliant. The adjacent aerial depicts the typical characteristics of the intersection including the I-95 corridor on the left side.

The intersection was determined to operate in a fully actuated mode consisting of two phases. Park Avenue eastbound and westbound movements are serviced under a single permitted phase and Wellington Avenue northbound and southbound movements are serviced under the second phase each with concurrent pedestrian phasing.

3.3 Traffic Data

Existing traffic flow characteristics for this area were developed from a traffic counting program conducted by BETA and review of historical data provided by the RIDOT in the immediate area. As previously mentioned, Park Avenue over the Amtrak railway corridor, just east of the site, is currently closed due to the reconstruction of the bridge with a detour in place. As such, record July 2018 Automatic Traffic Recorder (ATR) count data along Park Avenue in the vicinity of the project and record August 2018 manual Turning Movement Counts (TMC) at the signalized intersection of Park Avenue with Wellington Avenue collected as part of the bridge replacement detour development were obtained from RIDOT. Based on the record ATR data, Park Avenue in the project area was found to service an Average Daily Traffic (ADT) volume of approximately 13,800 vehicles per day. On a typical weekday along Park Avenue, traffic volumes begin to increase at 6:00 AM with no defined morning peak hour as the volumes

gradually increase hourly until the afternoon peak of approximately 1,100 vehicles (550 EB / 550 WB) occurring between 4:00 and 5:00 PM.

In addition to the record data, BETA obtained current counts specifically for this project that included Manual Turning Movement Counts (TMC) at the unsignalized Park Avenue intersections with South Clarendon Street and with Doric Avenue adjacent to the site. Data was collected in November 2021 during the weekday morning and afternoon periods between 11 AM to Noon and 4 to 6 PM which represents the peak AM/PM traffic condition. Due to the closure of Park Avenue as previously mentioned where existing traffic patterns are not consistent with typical daily traffic conditions, the TMC volumes collected as part of this study in November 2021 were compared to the record TMC data obtained from RIDOT.

As anticipated, based on a comparison of the TMC data between the intersections of Park Avenue with Doric Avenue and with Wellington Avenue, the TMC volume data collected in August 2018 by the RIDOT had higher overall existing traffic volumes along Park Avenue. Therefore, for this study the traffic data collected in August 2018 has been utilized as a basis of analysis for this project at the Wellington Avenue study intersection. In order to account for the difference between counts, the TMC volumes collected at the Park Avenue intersections with South Clarendon Street and Doric Avenue as part of BETA's data collection were adjusted higher and balanced between intersections to reflect the RIDOT record higher volumes along Park Avenue. These volumes did not require further adjustment to account for seasonal conditions as urban principal arterials in the month of August typically experience higher than average daily traffic volumes.

Based upon the count data obtained for this project and adjusted accordingly, it was determined that Park Avenue adjacent to the site services approximately 905 vehicles during the weekday late morning peak hour between 11:00 AM and 12:00 PM with approximately 455 vehicles eastbound and 450 vehicles westbound. During the same time period, Doric Avenue was found to service 55 vehicles with 35 vehicles northbound and 20 vehicles southbound.

During the weekday afternoon peak hour between 4:30 and 5:30 PM, Park Avenue serviced 1,115 vehicles with approximately 535 vehicles eastbound and 580 vehicles westbound. During the same time period, Doric Avenue was found to service 65 vehicles with 30 vehicles northbound and 35 vehicles southbound. Figure 3 on the following page depicts the balanced daily peak hour turning movement volumes at the study intersections. Complete count information can be found in the Appendix.

4.0 Safety Analysis

To determine if there are any limiting factors affecting safety relating to access to the proposed mixed-use project, the physical characteristics of Park Avenue (Route 12) and Doric Avenue in the project area were investigated. These limiting factors would potentially include horizontal or vertical alignment changes or roadside obstructions that limit sight distances for vehicles traveling along the road or entering the road from a side street or driveway location. In this instance, the sight distance standard is necessary to permit turning vehicles to safely enter and exit the site driveways.

Proposed Mixed-Use Redevelopment

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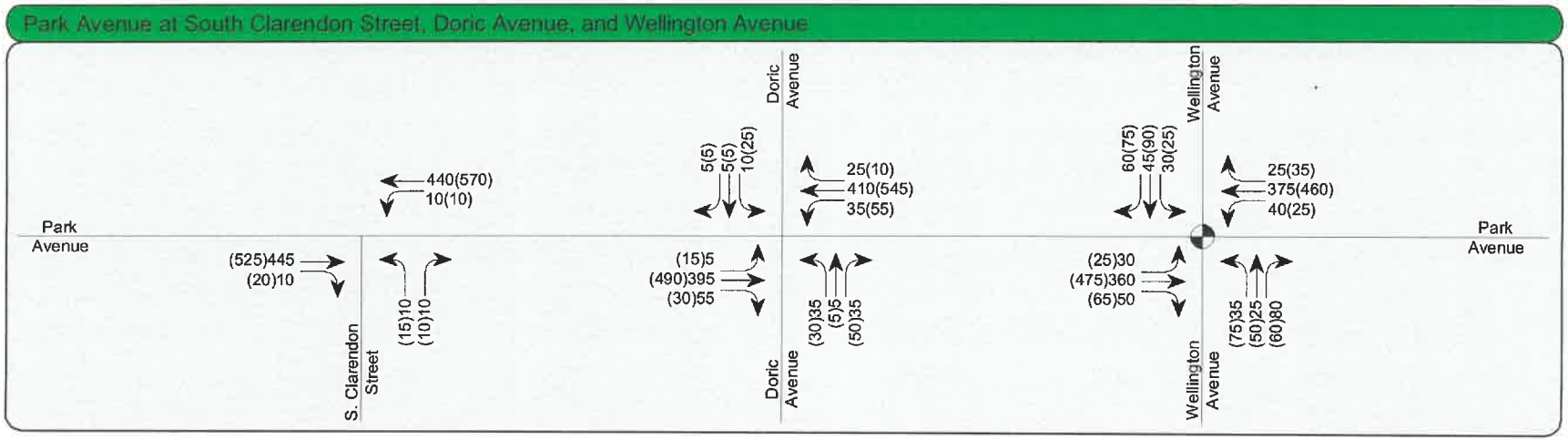
Figure 3 - Existing Traffic Volumes



LEGEND:

- TURN LANE
- XXX WEEKDAY AM PEAK VOLUMES (11:00 AM TO 12:00 PM)
- (XXX) WEEKDAY PM PEAK VOLUMES (4:30 PM TO 5:30 PM)
- STUDY INTERSECTION
- TRAFFIC SIGNAL

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The horizontal and vertical alignment of Park Avenue in the project area can be described as generally straight and level with no limiting factors for sight distances. Based upon the existing roadway geometry as described, the available stopping sight distances at the proposed site driveway intersection along Park Avenue are greater than 500 feet to the east and west. At the Doric Avenue intersection, these physical features of Park Avenue provide stopping sight distances that are greater than 500 through the signalized intersection with Wellington Avenue to the east and in excess of 500 feet to the west. The values at both study intersection locations exceed AASHTO's recommended minimum sight distance of 155 feet based on the posted speed limit of 25 mph and are sufficient for speeds in excess of 55 mph. However, it should be noted that on occasion, parking on the northerly side of Park Avenue creates potential obstructions that can limit sight distances for vehicles exiting side streets and driveways onto Park Avenue. In an effort to enhance safety and limit vehicles parking in the vicinity of the proposed main site driveway intersection, opposite of South Clarendon Street, in accordance with the City of Cranston regulations, parking restriction signs could be placed a minimum of 25 feet east and west of the new main site driveway location prohibiting parking on the northerly side of Park Avenue in this area.

The horizontal and vertical alignment of Doric Avenue in the project area can be described as generally straight and level with no limiting factors for sight distances. These physical features of Doric Avenue described provide stopping sight distances greater than 400 feet to the north and in excess of 400 feet through the unsignalized junction with Park Avenue (Route 12) to the south. It should be noted that the speeds are highly variable due to the controlled junction with Park Avenue, where vehicles are turning off or onto Park Avenue at a very low speed or slowing to the stop line. Similar to Park Avenue, it should be noted that on occasion, parking on the westerly side of Doric Avenue creates potential obstructions that can limit sight distances for vehicles exiting side streets and driveways onto Doric Avenue. In an effort to enhance safety and limit vehicles parking in the vicinity of the proposed site driveway intersection, in accordance with the City of Cranston regulations, parking restriction signs could be placed a minimum of 25 feet north and south of the site driveway location prohibiting parking on the westerly side of Doric Avenue in this area.

Also, as part of our analysis, a review of crash statistics along Park Avenue (Route 12) between Wellington Avenue to the east and Woodbine Street to the west was completed. Data was reviewed from the City of Cranston Police Department for the latest full three-year period (2018-2020) to determine if any location in the immediate vicinity of the development experienced a high frequency or pattern of crashes. A summary of the crash data is depicted in Table 1 on the following page, indicating the type and severity of the crashes that occurred within the study period.

A total of forty-eight crashes (avg. 16 per year) occurred in the project area over the three-year study period, with fourteen involving an injury. The majority of the crashes (34) with ten involving an injury occurred at the signalized intersection of Park Avenue with Wellington Avenue, six crashes with one involving an injury occurred at the unsignalized intersection of Park Avenue with Doric Avenue, two crashes with no reported injuries occurred at the unsignalized intersection of Park Avenue with South Clarendon Street, four crashes with two involving an injury occurred at the unsignalized intersection of

Park Avenue with Woodbine Street, and two crashes with one involving an injury occurred along Park Avenue between Woodbine Street and Wellington Avenue.

TABLE 1 – Crash Data Summary

	INTERSECTIONS				CORRIDORS
	Park Ave. at Woodbine St.	**Park Ave. at S. Clarendon St.**	**Park Ave. at Doric Ave.**	**Park Ave. at Wellington Ave.**	**Park Ave. Woodbine St. to Wellington Ave.**
Collision Type					
Rear-End	0	1	1	9	1
Angle	2	0	4	18	0
Sideswipe, Same Direction	0	1	1	2	1
Sideswipe, Opposite Direction	0	0	0	1	0
Collision w/ Pedestrian	2	0	0	0	0
Collision w/ Bicycle	0	0	0	4	0
Crash Severity					
Property	2	2	5	24	1
Injury	2	0	1	10	1
TOTAL CRASHES	**4**	**2**	**6**	**34**	**2**

The majority (75%) of the rear-end crashes occurred at the signalized study intersection, which is typical of signalized junctions due to the numerous starting and stopping movements required for the signal change intervals. The angle crashes at the signalized study intersection can be attributed to a few factors, including running a red light, not yielding the right of way, and roadway conditions. The sideswipe collisions are attributed to vehicles attempting to drive around turning vehicles. The crashes involving a pedestrian on two separate occasions with one involving an injury at the unsignalized intersection of Park Avenue with Woodbine Street may be attributed to either inattentive driver and/or poor sight line visibility of pedestrians due to parked vehicles along both the northerly and southerly sides of the intersection. In addition, there were four crashes between a vehicle and a bicyclist that resulted in one involving an injury at the signalized intersection of Park Avenue with Wellington Avenue that may be attributed to a vehicle not yielding to bicyclists crossing during concurrent pedestrian phasing and/or bicyclists unlawfully crossing (Do Not Cross Signal Phase) at the marked crosswalks.

Based upon the historical crash data obtained from the local police, and a review of existing roadway geometry and operations, several roadway or traffic related safety enhancements could be investigated to improve safety within the project area. The city could review the following safety enhancements at the following study intersections:

Park Avenue at Wellington Avenue;

1. The clearance intervals to determine if they require adjustment in an effort to reduce the number of rear-end collisions.
2. Addition of signal head backplates including reflectorized yellow strips around the edge to existing traffic signal heads to enhance traffic signal visibility.
3. Addition of an exclusive pedestrian phase to eliminate conflict with vehicle during the crossing phase.

Park Avenue at Woodbine Street;

1. Addition of parking restriction signs, in accordance with the City of Cranston regulations, could be placed a minimum of 25 feet east and west of the marked crosswalks along Park Avenue at the intersection with Woodbine Street prohibiting parking on the northerly and southerly sides of Park Avenue to enhance visibility of the pedestrians at this location.

5.0 Impact Analysis

5.1 Trip Generation

To determine the traffic impact of a proposed development, estimates of anticipated traffic to be generated by a particular land use must be calculated. As previously discussed, the development proposal consists of the construction of a 4-story building for residential apartments (74 Units) that will also include a 1st floor commercial space (2,000 square feet) for retail use. Main access/egress will be provided at the unsignalized intersection of Park Avenue with South Clarendon Street that will modified to create a four-way junction for the site driveway. Secondary access/egress points at single driveways on both Doric Avenue and on North Clarendon Street that will maintain access from the site to these side streets is proposed. Figure 4 on the following page depicts the site layout and access plan provided by *DiPrete Engineering.*

For this development, estimated traffic volumes for the mixed-use project were based on use of trip generation factors. These factors are taken from the "Trip Generation" manual, an informational report published by the Institute of Transportation Engineers (ITE), a national professional organization for traffic and transportation engineers. The data provided in the ITE report are based on extensive traffic studies for various types of land uses (residential, commercial, industrial, etc.). This data has been found to be very reliable and provides a sound basis for estimating future trips to new development projects.

For the proposed multi-use project, Land Use Code (LUC) 221 Multifamily Housing and Land Use Code 822 Strip Commercial Plaza were reviewed for applicability in developing an estimate of site related vehicles trips. Table 2 on Page 14 summarizes the peak hour site trips for the mixed-use project that have been estimated utilizing the land use code data available from the ITE manual. The appropriate worksheets from the manual are included in the Appendix, along with the trip estimate calculations.

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Figure 4 - Site Layout

Site Plan provided by DiPrete Engineering

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TABLE 2 – Trip Generation Estimate

	Description	Enter	Exit	Total
Weekday AM Peak Hour				
ITE Land Use Code 221	Multifamily Housing (Mid-Rise)	6	20	26
ITE Land Use Code 822	Strip Retail Plaza (<40k)	4	12	16
		10	32	42
Weekday PM Peak Hour				
ITE Land Use Code 230	Low-Rise Residential with	20	9	29
ITE Land Use Code 822	Strip Retail Plaza (<40k)	9	5	14
		29	14	43

5.2 FUTURE TRAFFIC CONDITIONS

In order to properly assess the impacts of a development, future traffic conditions of area roadways should be estimated for the period when the development is constructed and fully occupied. Typically, the expansion of base traffic is calculated when a project is to be constructed over an extended period (+3 to 5 years). In all instances, area growth that may affect capacity results should be considered. For this project, a conservative annual growth rate of 1.0 percent was utilized for the future background traffic growth of Park Avenue though little to no traffic growth has been experienced in this area. Also, based on coordination with the City of Cranston, there are no planned future developments in the project vicinity that would impact base traffic volumes as the area is in a heavily developed section of the community.

The annual growth rate of 1.0% was applied to the existing through volumes along Park Avenue as the study intersection side streets service heavily developed residential neighborhoods that will not experience change or growth during this period. To establish the future 2026 Build traffic condition trips generated by the proposed project were added to the base traffic expansion on Park Avenue. Due to the small-scale of the proposed mixed-use redevelopment project, coupled with the lack of base traffic growth anticipated during this period, a Future 2026 No-Build condition is not warranted for analysis for this project. Figure 5 on the following page depicts the estimated future traffic volumes at the study intersections. Site distribution figures are also provided in the Appendix for reference.

In developing the intersection volumes to be analyzed under build conditions, a directional distribution of the site traffic was estimated. The distribution was based on current traffic patterns in the area including proximity to Route 10 and Interstate 95. It is estimated that 60% of the site trips will arrive from and depart to the east and 40% will arrive from and depart to the west during both the morning and afternoon peak hours. As previously discussed, main access to the site will be provided on Park Avenue that will have direct connection to the secondary access on North Clarendon Street through the parking lot. This driveway will allow for connectivity between Park Avenue and Pond Street similar to other side streets the connect the neighborhoods on the north side of Park Avenue at multiple points

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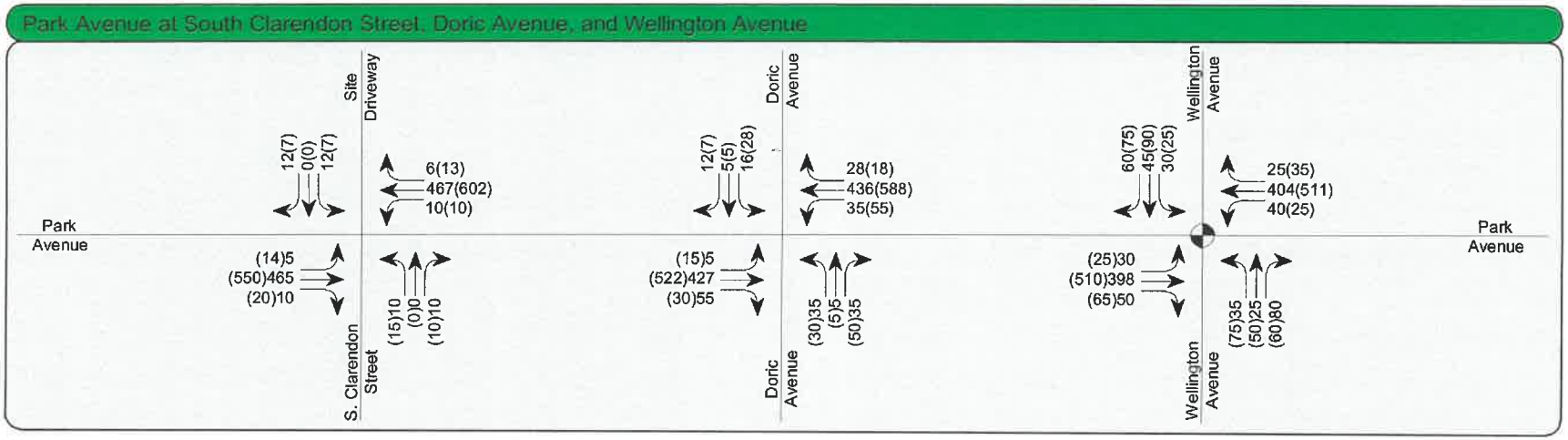
Figure 5 - Future Traffic Volumes



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- (XXX) WEEKDAY PM PEAK VOLUMES (4:30 PM TO 5:30 PM)
- STUDY INTERSECTION
- TRAFFIC SIGNAL

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along the main corridor. As such, it is anticipated that some cut-thru traffic, for convenience will occur and has been accounted for in our analysis.

5.3 Operation Analysis

The key to any traffic impact analysis is the evaluation of roadway operations during peak traffic periods on the servicing roadway system. This condition would occur when the site-generated traffic, combined with the traffic volumes on the main roadway, result in the highest one-hour volume serviced along a roadway segment, or through an intersection. Review of record traffic data found that the weekday late morning and afternoon peak hours would represent this worst-case combination of site-generated traffic with the servicing roadway peak traffic period.

The Highway Capacity Manual methodology provides the most accurate means of evaluating traffic capacity and delays for roadways and intersections. The results of this procedure are expressed in terms of Level of Service (LOS). Level of Service is a qualitative measure of traffic flow efficiency based on anticipated vehicle delays. For example, LOS "A" represents the best condition with little or no delay, while LOS "F" indicates that the roadway/intersection is at full capacity resulting in extended vehicle delays and potential queuing. Table 3 outlines the Level of Service delay criteria presented in the Highway Capacity Manual for signalized and unsignalized intersections.

TABLE 3 – Highway Capacity Manual Criteria

Level of Service	Unsignalized Delay Per Vehicle (sec)	Signalized Delay Per Vehicle (sec)
A	<10	<10
B	>10 and <15	>10 and <20
C	>15 and <25	>20 and <35
D	>25 and <35	>35 and <55
E	>35 and <50	>55 and <80
F	>50	>80

The Park Avenue intersections with South Clarendon Street, with Doric Avenue, with Wellington Avenue, and with the site driveway were all analyzed for the weekday morning and afternoon peak hours. The capacity analysis worksheets are included in the Appendix and Tables 4 and 5 summarize the results of the analyses.

Table 4 on the following page depicts the current conditions at the study intersections. As can be seen in the table, all critical movements at the unsignalized junction of Park Avenue with South Clarendon Street currently operates at LOS C or better during the daily morning and afternoon peak periods, with no movements experiencing excessive delays or queuing.

At the unsignalized intersection of Park Avenue and Doric Avenue, all critical movements currently operate at LOS C or better, except for the Doric Avenue southbound movement during the afternoon peak hour where it experiences greater delays of more than 45 seconds representing LOS E, though due to the low movement volumes, results in typically only one to two vehicles waiting to turn onto Park Avenue at any one time with no congestion.

One condition that does have a positive impact on the available gaps in traffic is the adjacent signalized intersection at Wellington Avenue to the east. The traffic signal helps create gaps in Park Avenue traffic during the through traffic phase on Wellington Avenue and the change intervals that driveway and side street traffic can utilize to access the main road. The positive effect of the adjacent signal cannot be adequately modeled into the HCS analysis, resulting in an overly conservative delay estimate.

The analysis completed also determined that the Park Avenue signalized intersection with Wellington Avenue currently operates in an efficient manner at an overall LOS A during both the morning and afternoon peak periods with critical movements operating at LOS A.

TABLE 4 – Level of Service Summary (Existing)

Location / Movement	EXISTING CONDITIONS							
	AM Peak Hour				PM Peak Hour			
	LOS	Delay	95th % Queue Length (veh.)	v/c	LOS	Delay	95th % Queue Length (veh.)	v/c
Park Avenue at South Clarendon Street (U)								
Park Avenue WB	A	8.4	1	0.01	A	8.7	1	0.01
South Clarendon Street NB	C	15.2	1	0.06	C	20.3	1	0.10
Park Avenue at Doric Avenue (U)								
Park Avenue EB	A	8.3	1	0.01	A	8.7	1	0.02
Park Avenue WB	A	8.4	1	0.03	A	8.8	1	0.06
Doric Avenue NB	C	20.7	1	0.26	D	32.3	2	0.42
Doric Avenue SB	C	20.9	1	0.09	E	47.5	2	0.32
Park Avenue at Wellington Avenue (S)								
Park Avenue EB	A	8.1	6	0.61	A	8.3	8	0.65
Park Avenue WB	A	8.0	6	0.61	A	7.9	7	0.60
Wellington Avenue NB	A	8.7	3	0.27	A	9.8	4	0.33
Wellington Avenue SB	A	8.6	3	0.26	A	9.8	4	0.34
OVERALL	**A**	**8.2**	-	-	**A**	**8.5**	-	-

(S) – Signalized
(U) – Unsignalized

Table 5 on the following page represents the future design period taking into considerations base traffic growth along the servicing roadways and the trips generated by the proposed mixed-use project. As can be seen, all critical movements at the Park Avenue unsignalized junction with South Clarendon Street,

which will be modified to form a four-way junction with the site driveway as previously mentioned, is estimated to operate at LOS D or better during the daily morning and afternoon peak periods, with no movements experiencing excessive delays or queuing.

TABLE 5 – Level of Service Summary (Future Build Conditions)

Location / Movement	2026 BUILD CONDITIONS							
	AM Peak Hour				PM Peak Hour			
	LOS	Delay	95th % Queue Length (veh.)	v/c	LOS	Delay	95th % Queue Length (veh.)	v/c
Park Avenue at South Clarendon Street/Site Driveway (U)								
Park Avenue EB	A	8.4	1	0.01	A	8.9	1	0.02
Park Avenue WB	A	8.4	1	0.01	A	8.8	1	0.01
South Clarendon Street NB	C	18.2	1	0.07	D	28.2	1	0.15
Site Driveway SB	C	18.3	1	0.09	C	24.7	1	0.08
Park Avenue at Doric Avenue (U)								
Park Avenue EB	A	8.3	1	0.01	A	8.9	1	0.02
Park Avenue WB	A	8.5	1	0.04	A	8.9	1	0.06
Doric Avenue NB	C	23.0	2	0.29	E	39.0	3	0.48
Doric Avenue SB	C	22.1	1	0.14	F	59.5	2	0.41
Park Avenue at Wellington Avenue (S)								
Park Avenue EB	A	8.1	9	0.64	A	8.4	10	0.67
Park Avenue WB	A	8.0	8	0.62	A	8.0	10	0.63
Wellington Avenue NB	A	9.2	4	0.28	B	10.2	5	0.34
Wellington Avenue SB	A	9.1	4	0.27	B	10.3	5	0.35
OVERALL	**A**	**8.3**	-	-	**A**	**8.7**	-	-

(S) – Signalized

At the unsignalized intersection of Park Avenue and Doric Avenue, all critical movements are estimated to operate at LOS C or better, except for the Doric Avenue northbound and southbound movements during the afternoon peak hour where it will continue to experience greater delays as defined under existing conditions. The unsignalized intersections of the proposed site driveway with Doric Avenue will operate efficiently with no delays during both the morning and afternoon peak conditions due to the estimated low volume on the site driveway, coupled with the low volume of traffic along Doric Avenue, and does not require analysis.

The unsignalized capacity analysis results for the minor approach delays are consistent with most unsignalized driveways or side street intersections along Park Avenue due to the high main street volumes and limitations of the unsignalized analysis as previously discussed. The signalization benefits of the adjacent intersection to the east, which provide additional gaps in main street traffic, will result in acceptable operations and no congestion at the intersection.

The signalized intersection of Park Avenue with Wellington Avenue will also continue to operate efficiently at an overall LOS A during both the morning and afternoon peak periods with critical movements operating at LOS B or better.

6.0 Conclusions and Recommendations

In summary, the study has shown that the proposed mixed-use redevelopment project access and circulation plan has been designed to provide a level of traffic safety and efficiency on the servicing roadway system with the recommended improvements. As previously discussed, the city could review the following safety enhancements at the following study intersections:

Park Avenue at South Clarendon Street/Site Driveway:

1. Parking restriction signs could be placed a minimum of 25 feet east and west of the site driveway location prohibiting parking on the northerly side of Park Avenue in this area to enhance sight distance for vehicles exiting the site driveway.

Park Avenue at Wellington Avenue;

1. The clearance intervals to determine if they require adjustment in an effort to reduce the number of rear-end collisions.
2. Addition of signal head backplates including reflectorized yellow strips around the edge to existing northbound approach traffic signal heads to enhance traffic signal visibility.
3. Addition of an exclusive pedestrian phase to eliminate conflicts between pedestrians/bicyclists and vehicles during the crossing phase.

Park Avenue at Woodbine Street;

1. Addition of parking restriction signs, in accordance with the City of Cranston regulations, could be placed a minimum of 25 feet east and west of the marked crosswalks along Park Avenue at the intersection with Woodbine Street prohibiting parking on the northerly and southerly sides of Park Avenue to enhance visibility of the pedestrians at this location.

The results of the operational analysis determined that the estimated minor increase in traffic during the peak periods resulting from the proposed mixed-use redevelopment project will have a negligible effect on overall traffic operations along the servicing roadways, particularly during the daily morning and afternoon peak hours when the site would generate its highest daily traffic volumes.

Therefore, based upon the data collected on the servicing roadways, the analysis completed as part of this study, it can be concluded that the future traffic conditions resulting from the proposed mixed-use redevelopment with the recommended mitigation, will provide for adequate and safe access to a public street, and will not have a detrimental effect on public safety and welfare in the study area.

APPENDIX

A. Traffic Volume Data

B. Traffic Crash Data

C. Trip Generation

D. Operational Analysis

APPENDIX A – Traffic Volume Data

Automatic Traffic Recorder Count

Park Avenue

Intersection Turning Movement Count

Park Avenue at South Clarendon Street

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

A

Automatic Traffic Recorder Count

Park Avenue

Park Avenue

(*Source;* Rhode Island Department of Transportation, July 2018)

Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02908

Site Code: 10027.25
Station ID: Park Ave Bridge 922
EB
WB
Latitude: 0' 0.0000 Undefined

Start	23-Jul-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	39	68	56	69	44	72	65	89	97	105	113	104	69	84
01:00	*	*	29	30	38	38	35	36	61	58	46	76	92	80	50	53
02:00	*	*	25	25	21	21	17	20	16	25	42	43	47	62	28	33
03:00	*	*	20	10	13	16	15	8	20	17	29	28	25	36	20	19
04:00	*	*	34	19	23	19	39	21	28	24	26	24	26	26	29	22
05:00	*	*	85	59	92	49	81	57	79	51	55	25	32	15	71	43
06:00	*	*	223	133	211	134	232	133	217	127	103	61	68	34	176	104
07:00	*	*	323	248	340	213	296	236	320	257	146	151	164	89	265	199
08:00	*	*	424	422	451	424	411	423	421	384	277	251	184	168	361	345
09:00	*	*	**459**	**452**	403	426	463	437	433	448	383	357	244	261	398	397
10:00	*	*	405	430	430	400	384	413	442	426	462	451	**412**	341	422	410
11:00	*	*	447	439	**481**	**475**	**486**	**471**	**461**	**469**	**498**	**489**	400	**404**	**462**	**458**
12:00 PM	*	*	482	466	495	505	501	485	507	524	**553**	**525**	398	406	489	485
01:00	*	*	493	467	473	450	479	465	508	481	500	484	**407**	405	477	459
02:00	*	*	456	455	474	462	452	484	448	488	498	493	403	**413**	455	466
03:00	455	469	487	541	508	481	545	523	529	**589**	462	434	326	380	473	488
04:00	**523**	**556**	**541**	**555**	**523**	**591**	**558**	533	**544**	581	424	438	359	313	**496**	**510**
05:00	510	531	528	536	513	499	526	**550**	531	554	394	424	323	383	475	497
06:00	443	417	456	464	449	439	499	455	538	494	422	353	354	352	452	425
07:00	373	353	382	376	362	371	412	373	472	413	346	371	335	321	383	368
08:00	340	323	361	320	360	353	384	336	348	380	336	332	251	291	340	334
09:00	226	230	237	291	239	264	282	279	301	344	263	306	265	278	259	285
10:00	140	163	153	173	195	167	168	205	207	218	226	230	145	173	176	190
11:00	89	89	88	111	106	85	128	118	149	164	172	193	85	86	117	121
Lane	3099	3131	7177	7090	7256	6951	7437	7133	7645	7605	6760	6644	5458	5421	6943	6795
Day	6230		14267		14207		14570		15250		13404		10879		13738	
AM Peak	-	-	09:00	09:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00	10:00	11:00	11:00	11:00
Vol.	-	-	459	452	481	475	486	471	461	469	498	489	412	404	462	458
PM Peak	16:00	16:00	16:00	16:00	16:00	16:00	16:00	17:00	16:00	15:00	12:00	12:00	13:00	14:00	16:00	16:00
Vol.	523	556	541	555	523	591	558	550	544	589	553	525	407	413	496	510

Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02908

Site Code: 10027.25
Station ID: Park Ave Bridge 922
EB
WB
Latitude: 0' 0.0000 Undefined

Start	30-Jul-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	66	78	50	62	*	*	*	*	*	*	*	*	*	*	58	70
01:00	39	35	30	31	*	*	*	*	*	*	*	*	*	*	34	33
02:00	25	21	20	21	*	*	*	*	*	*	*	*	*	*	22	21
03:00	15	16	21	12	*	*	*	*	*	*	*	*	*	*	18	14
04:00	31	21	32	16	*	*	*	*	*	*	*	*	*	*	32	18
05:00	88	49	96	45	*	*	*	*	*	*	*	*	*	*	92	47
06:00	207	114	213	131	*	*	*	*	*	*	*	*	*	*	210	122
07:00	335	248	359	263	*	*	*	*	*	*	*	*	*	*	347	256
08:00	439	413	425	409	*	*	*	*	*	*	*	*	*	*	432	411
09:00	451	421	212	222	*	*	*	*	*	*	*	*	*	*	332	322
10:00	415	416	*	*	*	*	*	*	*	*	*	*	*	*	415	416
11:00	480	421	*	*	*	*	*	*	*	*	*	*	*	*	480	421
12:00 PM	496	465	*	*	*	*	*	*	*	*	*	*	*	*	496	465
01:00	471	473	*	*	*	*	*	*	*	*	*	*	*	*	471	473
02:00	479	460	*	*	*	*	*	*	*	*	*	*	*	*	479	460
03:00	496	570	*	*	*	*	*	*	*	*	*	*	*	*	496	570
04:00	524	568	*	*	*	*	*	*	*	*	*	*	*	*	524	568
05:00	519	583	*	*	*	*	*	*	*	*	*	*	*	*	519	583
06:00	494	483	*	*	*	*	*	*	*	*	*	*	*	*	494	483
07:00	389	353	*	*	*	*	*	*	*	*	*	*	*	*	389	353
08:00	308	305	*	*	*	*	*	*	*	*	*	*	*	*	308	305
09:00	225	214	*	*	*	*	*	*	*	*	*	*	*	*	225	214
10:00	132	159	*	*	*	*	*	*	*	*	*	*	*	*	132	159
11:00	90	89	*	*	*	*	*	*	*	*	*	*	*	*	90	89
Lane	7214	6975	1458	1212	0	0	0	0	0	0	0	0	0	0	7095	6873
Day	14189		2670		0		0		0		0		0		13968	
AM Peak	11:00	09:00	08:00	08:00	-	-	-	-	-	-	-	-	-	-	11:00	11:00
Vol.	480	421	425	409	-	-	-	-	-	-	-	-	-	-	480	421
PM Peak	16:00	17:00	-	-	-	-	-	-	-	-	-	-	-	-	16:00	17:00
Vol.	524	583	-	-	-	-	-	-	-	-	-	-	-	-	524	583

Comb. Total	20419	16937	14207	14570	15250	13404	10879	27706
ADT	ADT 13,781	AADT 13,781						

A

Intersection Turning Movement Count

Park Avenue at South Clarendon Street

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

Park Avenue at South Clarendon Street

BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: S. Clarendon/ Park Ave
Weather: Sunny, 40's

File Name : 7583_S.Clarendon_Weekday
Site Code : 00758302
Start Date : 11/3/2021
Page No : 1

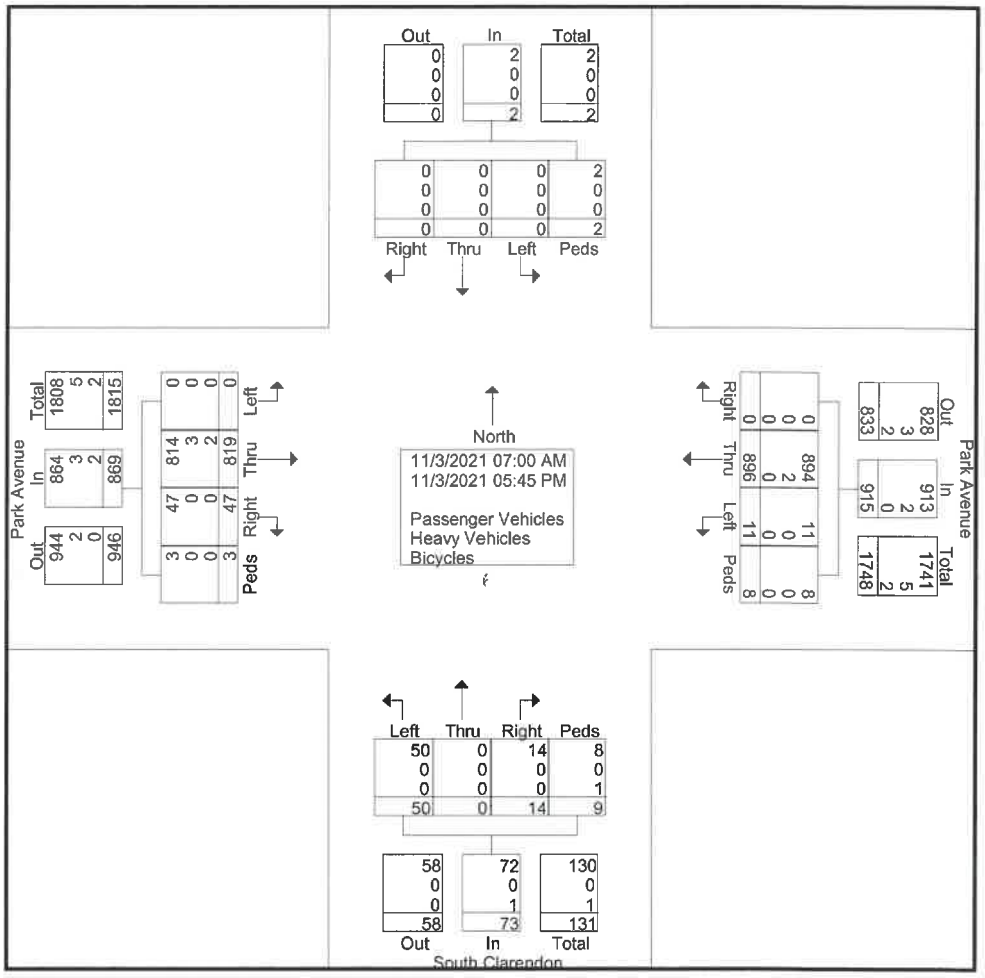
Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

	Southbound				Park Avenue Westbound				South Clarendon Northbound				Park Avenue Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	0	0	0	0	24	0	0	1	0	0	2	0	34	0	1	62
07:15 AM	0	0	0	0	0	38	0	0	4	0	1	1	0	29	2	0	75
07:30 AM	0	0	0	1	1	44	0	0	2	0	0	1	0	58	5	0	112
07:45 AM	0	0	0	0	0	52	0	0	5	0	0	0	0	50	2	0	109
Total	0	0	0	1	1	158	0	0	12	0	1	4	0	171	9	1	358
08:00 AM	0	0	0	0	0	46	0	0	3	0	0	1	0	52	2	0	104
08:15 AM	0	0	0	0	0	47	0	3	2	0	1	0	0	44	2	0	99
08:30 AM	0	0	0	0	2	53	0	0	5	0	2	0	0	47	2	0	111
08:45 AM	0	0	0	0	0	46	0	0	5	0	1	1	0	59	3	0	115
Total	0	0	0	0	2	192	0	3	15	0	4	2	0	202	9	0	429
*** BREAK ***																	
04:00 PM	0	0	0	0	3	85	0	0	3	0	2	0	0	55	3	0	151
04:15 PM	0	0	0	0	1	64	0	5	3	0	1	1	0	54	3	0	132
04:30 PM	0	0	0	1	2	60	0	0	1	0	1	1	0	55	6	0	127
04:45 PM	0	0	0	0	0	69	0	0	2	0	1	1	0	54	5	2	134
Total	0	0	0	1	6	278	0	5	9	0	5	3	0	218	17	2	544
05:00 PM	0	0	0	0	0	69	0	0	5	0	2	0	0	57	2	0	135
05:15 PM	0	0	0	0	1	77	0	0	7	0	1	0	0	56	6	0	148
05:30 PM	0	0	0	0	0	65	0	0	1	0	1	0	0	58	3	0	128
05:45 PM	0	0	0	0	1	57	0	0	1	0	0	0	0	57	1	0	117
Total	0	0	0	0	2	268	0	0	14	0	4	0	0	228	12	0	528
Grand Total	0	0	0	2	11	896	0	8	50	0	14	9	0	819	47	3	1859
Apprch %	0	0	0	100	1.2	97.9	0	0.9	68.5	0	19.2	12.3	0	94.2	5.4	0.3	
Total %	0	0	0	0.1	0.6	48.2	0	0.4	2.7	0	0.8	0.5	0	44.1	2.5	0.2	
Passenger Vehicles	0	0	0	2	11	894	0	8	50	0	14	8	0	814	47	3	1851
% Passenger Vehicles	0	0	0	100	100	99.8	0	100	100	0	100	88.9	0	99.4	100	100	99.6
Heavy Vehicles	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
% Heavy Vehicles	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0.4	0	0	0.3
Bicycles	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	3
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	11.1	0	0.2	0	0	0.2

BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: S. Clarendon/ Park Ave
Weather: Sunny, 40's

File Name : 7583_S.Clarendon_Weekday
Site Code : 00758302
Start Date : 11/3/2021
Page No : 2



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Town/City: Cranston, RI
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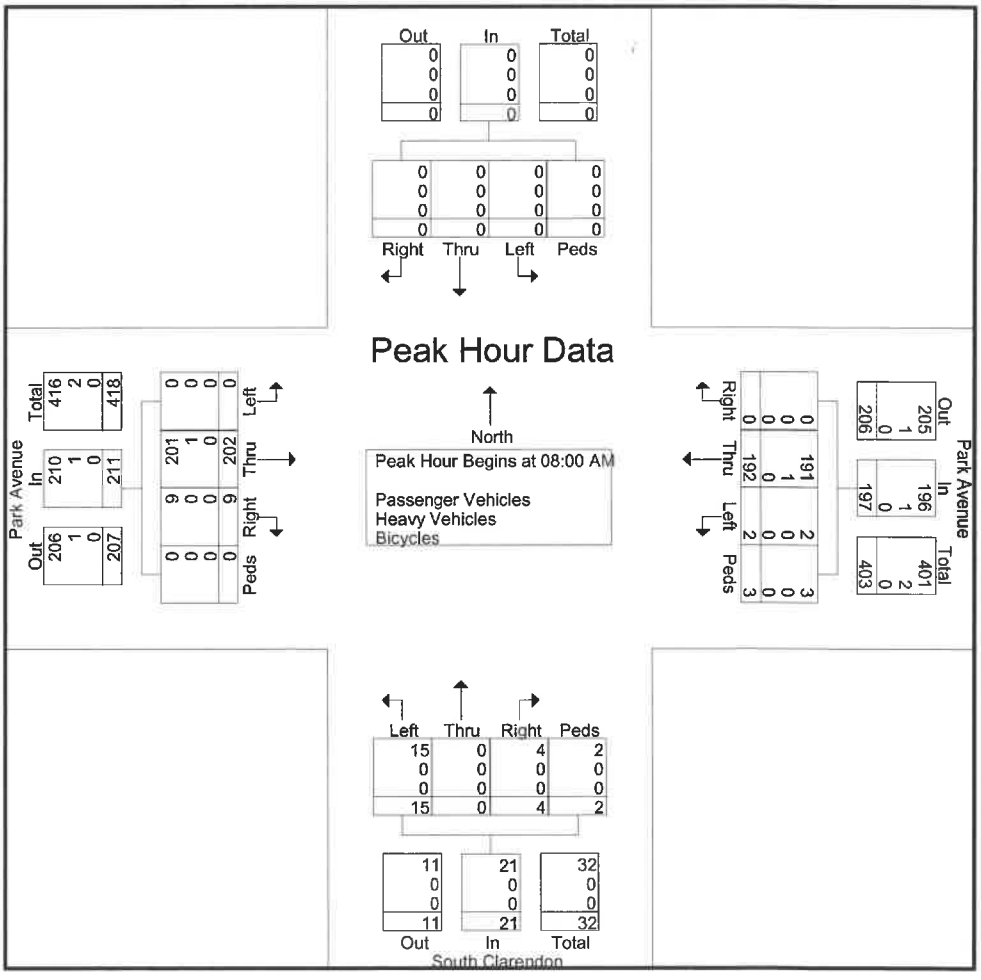
File Name : 7583_S.Clarendon_Weekday
Site Code : 00758302
Start Date : 11/3/2021
Page No : 3

	Southbound					Park Avenue Westbound					South Clarendon Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	46	0	0	46	3	0	0	1	4	0	52	2	0	54	104
08:15 AM	0	0	0	0	0	0	47	0	3	50	2	0	1	0	3	0	44	2	0	46	99
08:30 AM	0	0	0	0	0	2	53	0	0	55	5	0	2	0	7	0	47	2	0	49	111
08:45 AM	0	0	0	0	0	0	46	0	0	46	5	0	1	1	7	0	59	3	0	62	115
Total Volume	0	0	0	0	0	2	192	0	3	197	15	0	4	2	21	0	202	9	0	211	429
% App. Total	0	0	0	0		1	97.5	0	1.5		71.4	0	19	9.5		0	95.7	4.3	0		
PHF	.000	.000	.000	.000	.000	.250	.906	.000	.250	.895	.750	.000	.500	.500	.750	.000	.856	.750	.000	.851	.933
Passenger Vehicles	0	0	0	0	0	2	191	0	3	196	15	0	4	2	21	0	201	9	0	210	427
% Passenger Vehicles	0	0	0	0	0	100	99.5	0	100	99.5	100	0	100	100	100	0	99.5	100	0	99.5	99.5
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Heavy Vehicles	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0	0	0	0	0.5	0	0	0.5	0.5
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

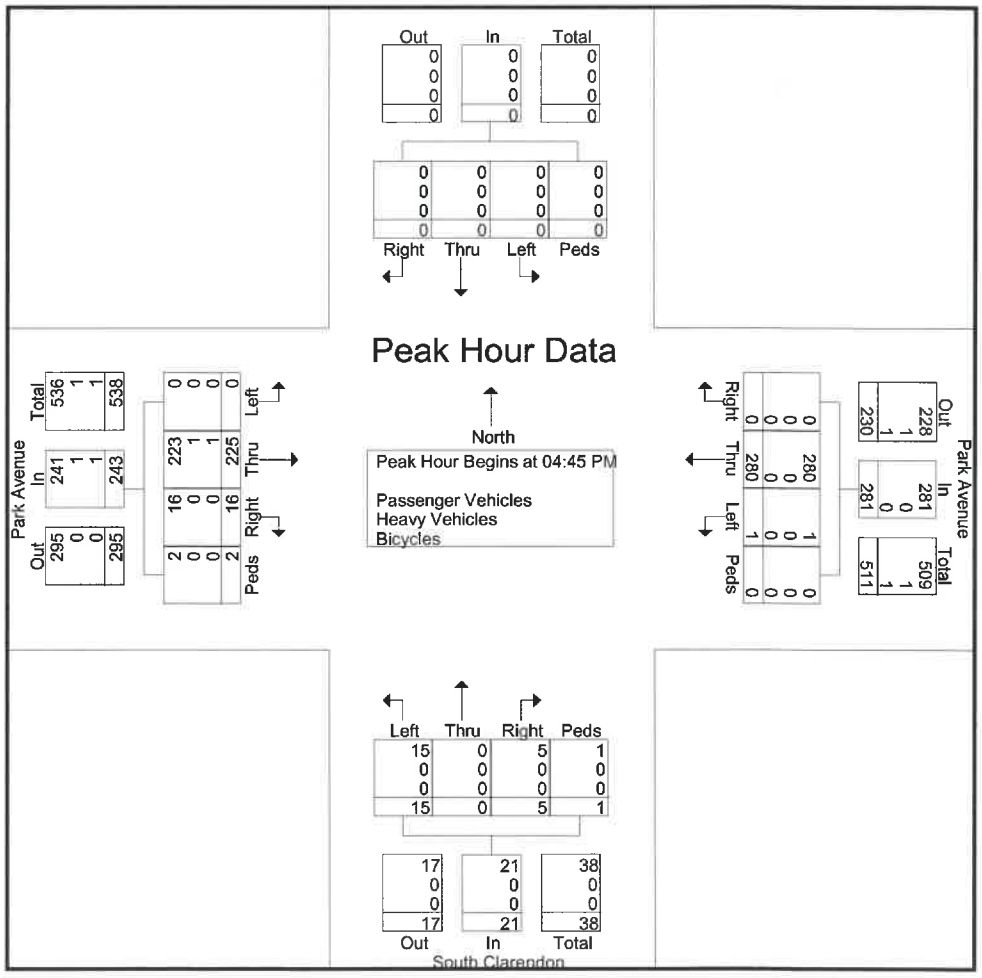


BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: S. Clarendon/ Park Ave
Weather: Sunny, 40's

File Name : 7583_S.Clarendon_Weekday
Site Code : 00758302
Start Date : 11/3/2021
Page No : 4

	Southbound					Park Avenue Westbound					South Clarendon Northbound					Park Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	69	0	0	69	2	0	1	**1**	4	0	54	5	**2**	61	134
05:00 PM	0	0	0	0	0	0	69	0	0	69	5	0	**2**	0	7	0	57	2	0	59	135
05:15 PM	0	0	0	0	0	**1**	**77**	0	0	**78**	**7**	0	1	0	**8**	0	56	**6**	0	**62**	**148**
05:30 PM	0	0	0	0	0	0	65	0	0	65	1	0	1	0	2	0	**58**	3	0	61	128
Total Volume	0	0	0	0	0	1	280	0	0	281	15	0	5	1	21	0	225	16	2	243	545
% App. Total	0	0	0	0		0.4	99.6	0	0		71.4	0	23.8	4.8		0	92.6	6.6	0.8		
PHF	.000	.000	.000	.000	.000	.250	.909	.000	.000	.901	.536	.000	.625	.250	.656	.000	.970	.667	.250	.980	.921
Passenger Vehicles	0	0	0	0	0	1	280	0	0	281	15	0	5	1	21	0	223	16	2	241	543
% Passenger Vehicles	0	0	0	0	0	100	100	0	0	100	100	0	100	100	100	0	99.1	100	100	99.2	99.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.4	0.2
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.4	0.2



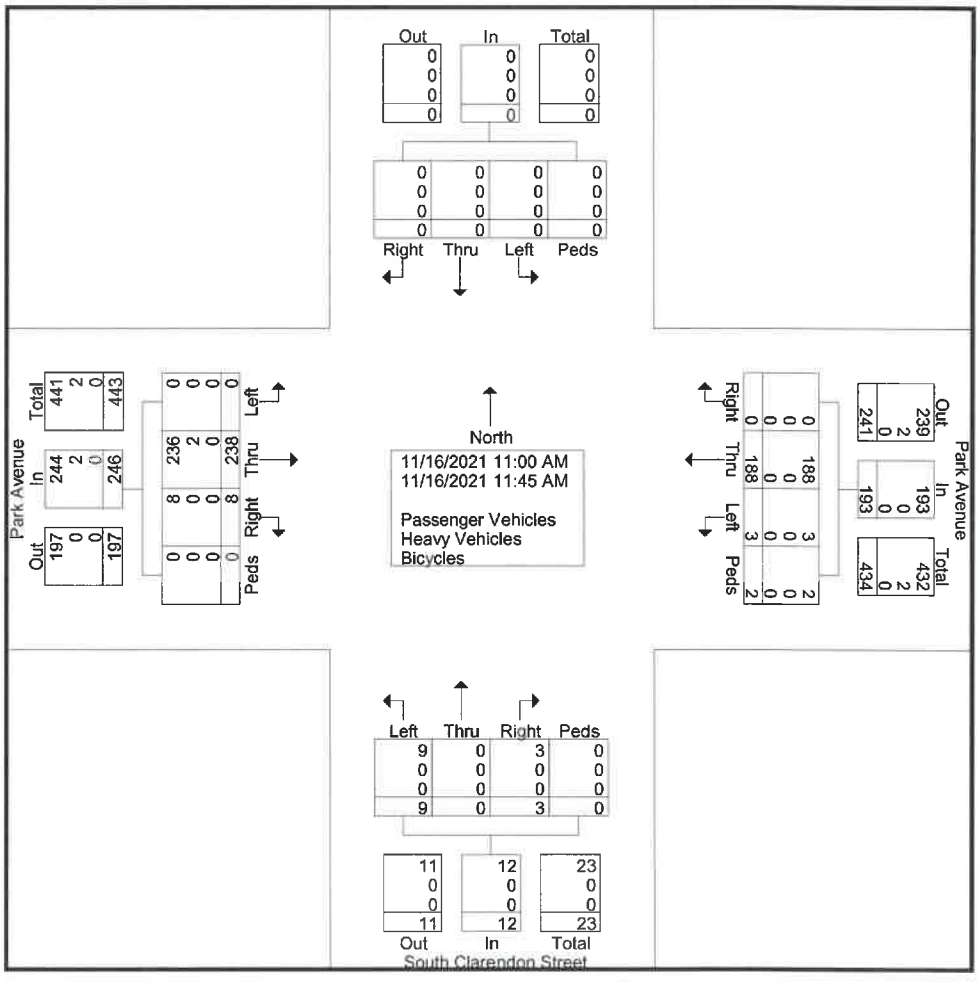
BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave. Mixed-Use
Town/City: Cranston, RI
Location: S. Clarendon St./Park Ave .
Weather: Sunny, 40s

File Name : 7583_S.Clarendon_Weekday MD Peak Hour
Site Code : 00000000
Start Date : 11/16/2021
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

	Southbound				Park Avenue Westbound				South Clarendon Street Northbound				Park Avenue Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
11:00 AM	0	0	0	0	1	52	0	0	1	0	0	0	0	60	1	0	115
11:15 AM	0	0	0	0	0	51	0	1	4	0	2	0	0	60	5	0	123
11:30 AM	0	0	0	0	0	33	0	1	0	0	1	0	0	60	1	0	96
11:45 AM	0	0	0	0	2	52	0	0	4	0	0	0	0	58	1	0	117
Total	0	0	0	0	3	188	0	2	9	0	3	0	0	238	8	0	451
Grand Total	0	0	0	0	3	188	0	2	9	0	3	0	0	238	8	0	451
Apprch %	0	0	0	0	1.6	97.4	0	1	75	0	25	0	0	96.7	3.3	0	
Total %	0	0	0	0	0.7	41.7	0	0.4	2	0	0.7	0	0	52.8	1.8	0	
Passenger Vehicles	0	0	0	0	3	188	0	2	9	0	3	0	0	236	8	0	449
% Passenger Vehicles	0	0	0	0	100	100	0	100	100	0	100	0	0	99.2	100	0	99.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0.4
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Park Avenue at Doric Avenue

BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: Doric Ave/ Park Ave
Weather: Sunny, 40's

File Name : 7583_Doric_Weekday
Site Code : 00758301
Start Date : 11/3/2021

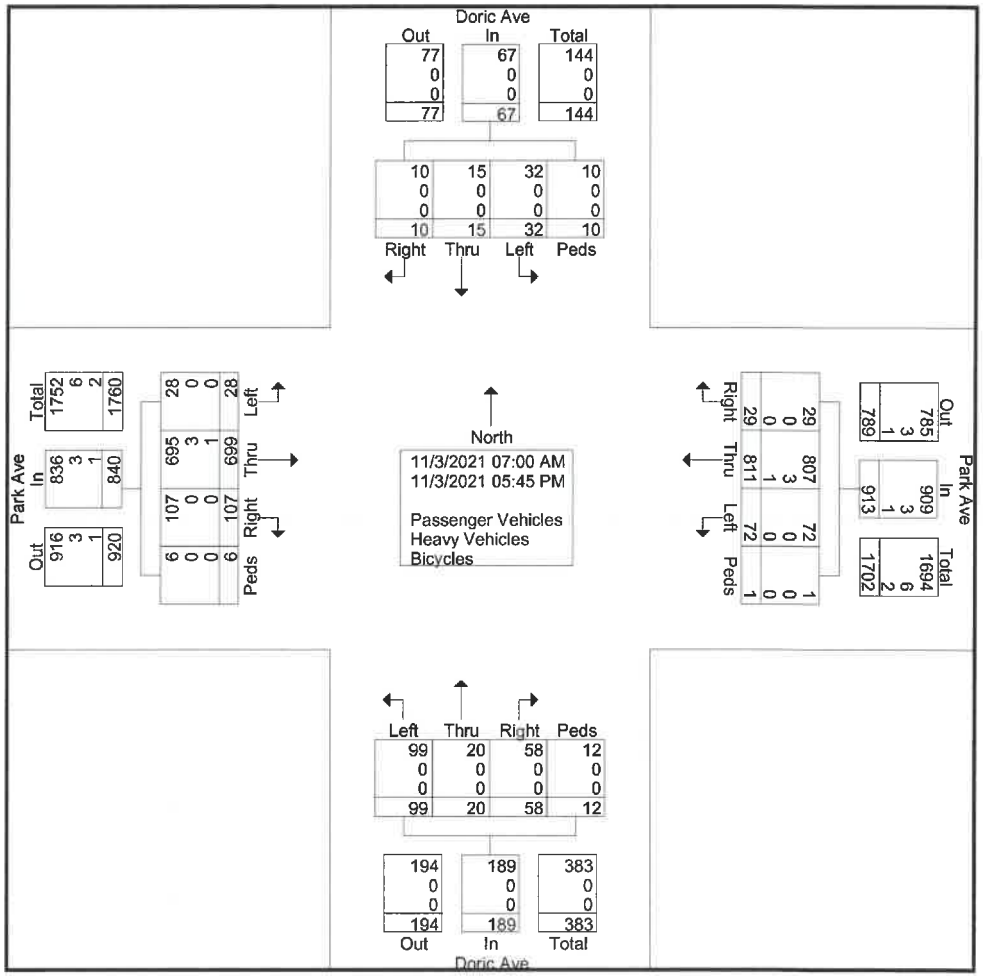
Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

	Doric Ave Southbound				Park Ave Westbound				Doric Ave Northbound				Park Ave Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	0	0	0	1	22	1	0	2	0	1	0	1	26	7	0	61
07:15 AM	4	1	0	1	5	35	3	0	4	0	4	0	1	26	2	0	86
07:30 AM	2	0	0	1	5	43	2	0	2	2	2	0	0	52	6	0	117
07:45 AM	1	1	1	1	3	44	1	0	7	1	4	1	0	45	7	0	117
Total	7	2	1	3	14	144	7	0	15	3	11	1	2	149	22	0	381
08:00 AM	0	2	0	1	1	40	3	0	4	1	3	0	1	39	9	0	104
08:15 AM	2	2	0	0	6	42	0	0	7	1	2	3	1	42	7	0	115
08:30 AM	1	0	2	0	6	50	5	0	5	2	1	2	3	33	7	0	117
08:45 AM	5	2	0	0	3	37	1	1	7	2	5	0	1	50	7	0	121
Total	8	6	2	1	16	169	9	1	23	6	11	5	6	164	30	0	457
*** BREAK ***																	
04:00 PM	1	0	1	1	5	81	2	0	5	1	8	0	2	49	8	0	164
04:15 PM	4	2	0	1	4	60	3	0	11	3	3	2	0	48	7	1	149
04:30 PM	4	0	0	2	7	62	0	0	2	0	4	3	3	47	5	1	140
04:45 PM	2	1	2	0	7	63	2	0	7	2	5	0	3	47	3	0	144
Total	11	3	3	4	23	266	7	0	25	6	20	5	8	191	23	2	597
05:00 PM	1	0	3	0	5	60	1	0	7	1	8	0	4	46	7	0	143
05:15 PM	2	1	0	1	4	66	0	0	11	0	2	1	2	50	11	2	153
05:30 PM	3	1	0	1	4	55	3	0	12	2	5	0	4	52	3	0	145
05:45 PM	0	2	1	0	6	51	2	0	6	2	1	0	2	47	11	2	133
Total	6	4	4	2	19	232	6	0	36	5	16	1	12	195	32	4	574
Grand Total	32	15	10	10	72	811	29	1	99	20	58	12	28	699	107	6	2009
Apprch %	47.8	22.4	14.9	14.9	7.9	88.8	3.2	0.1	52.4	10.6	30.7	6.3	3.3	83.2	12.7	0.7	
Total %	1.6	0.7	0.5	0.5	3.6	40.4	1.4	0	4.9	1	2.9	0.6	1.4	34.8	5.3	0.3	
Passenger Vehicles	32	15	10	10	72	807	29	1	99	20	58	12	28	695	107	6	2001
% Passenger Vehicles	100	100	100	100	100	99.5	100	100	100	100	100	100	100	99.4	100	100	99.6
Heavy Vehicles	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	6
% Heavy Vehicles	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0.4	0	0	0.3
Bicycles	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
% Bicycles	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0.1	0	0	0.1

BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: Doric Ave/ Park Ave
Weather: Sunny, 40's

File Name : 7583_Doric_Weekday
Site Code : 00758301
Start Date : 11/3/2021
Page No : 2

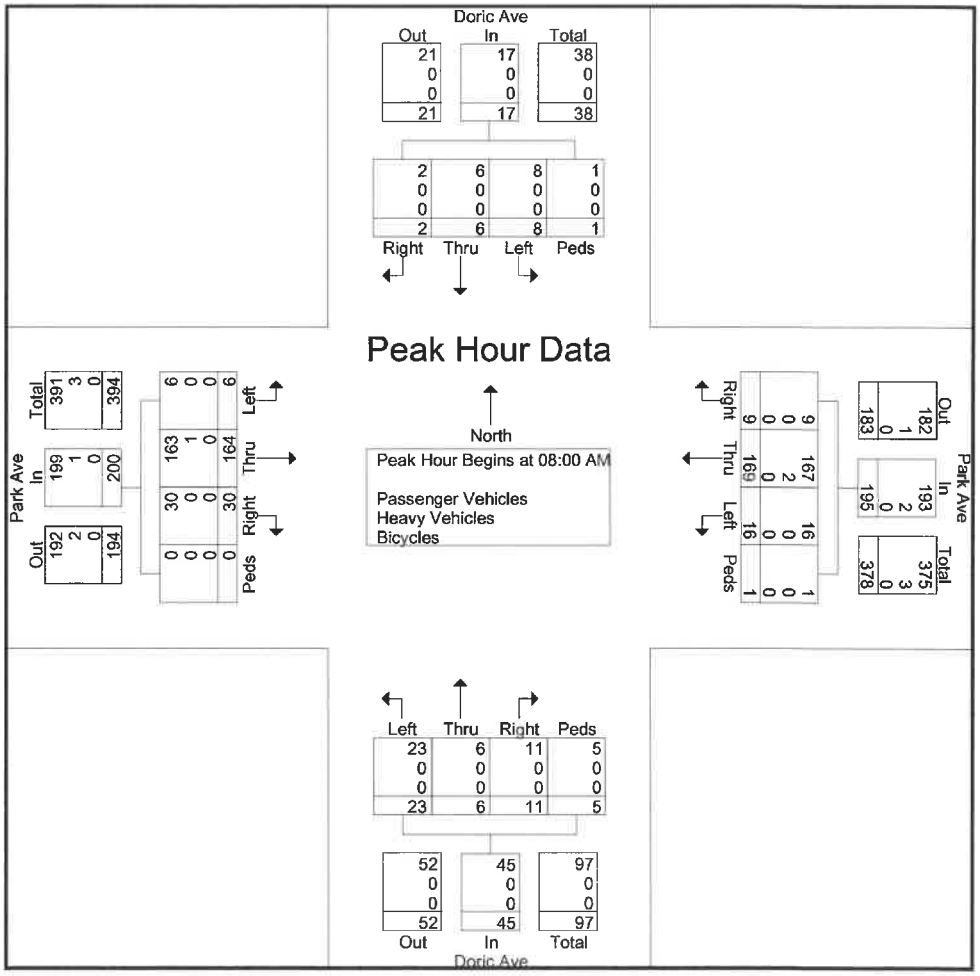


BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: Doric Ave/ Park Ave
Weather: Sunny, 40's

File Name : 7583_Doric_Weekday
Site Code : 00758301
Start Date : 11/3/2021

	Doric Ave Southbound					Park Ave Westbound					Doric Ave Northbound					Park Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**2**	0	**1**	3	1	40	3	0	44	4	1	3	0	8	1	39	**9**	0	49	104
08:15 AM	2	2	0	0	4	**6**	42	0	0	48	**7**	1	2	**3**	13	1	42	7	0	50	115
08:30 AM	1	0	**2**	0	3	6	**50**	**5**	0	**61**	5	**2**	1	2	10	**3**	33	7	0	43	117
08:45 AM	**5**	2	0	0	**7**	3	37	1	**1**	42	7	2	**5**	0	**14**	1	**50**	7	0	**58**	**121**
Total Volume	8	6	2	1	17	16	169	9	1	195	23	6	11	5	45	6	164	30	0	200	457
% App. Total	47.1	35.3	11.8	5.9		8.2	86.7	4.6	0.5		51.1	13.3	24.4	11.1		3	82	15	0		
PHF	.400	.750	.250	.250	.607	.667	.845	.450	.250	.799	.821	.750	.550	.417	.804	.500	.820	.833	.000	.862	.944
Passenger Vehicles	8	6	2	1	17	16	167	9	1	193	23	6	11	5	45	6	163	30	0	199	454
% Passenger Vehicles	100	100	100	100	100	100	98.8	100	100	99.0	100	100	100	100	100	100	99.4	100	0	99.5	99.3
Heavy Vehicles	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% Heavy Vehicles	0	0	0	0	0	0	1.2	0	0	1.0	0	0	0	0	0	0	0.6	0	0	0.5	0.7
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Park Avenue at Wellington Avenue

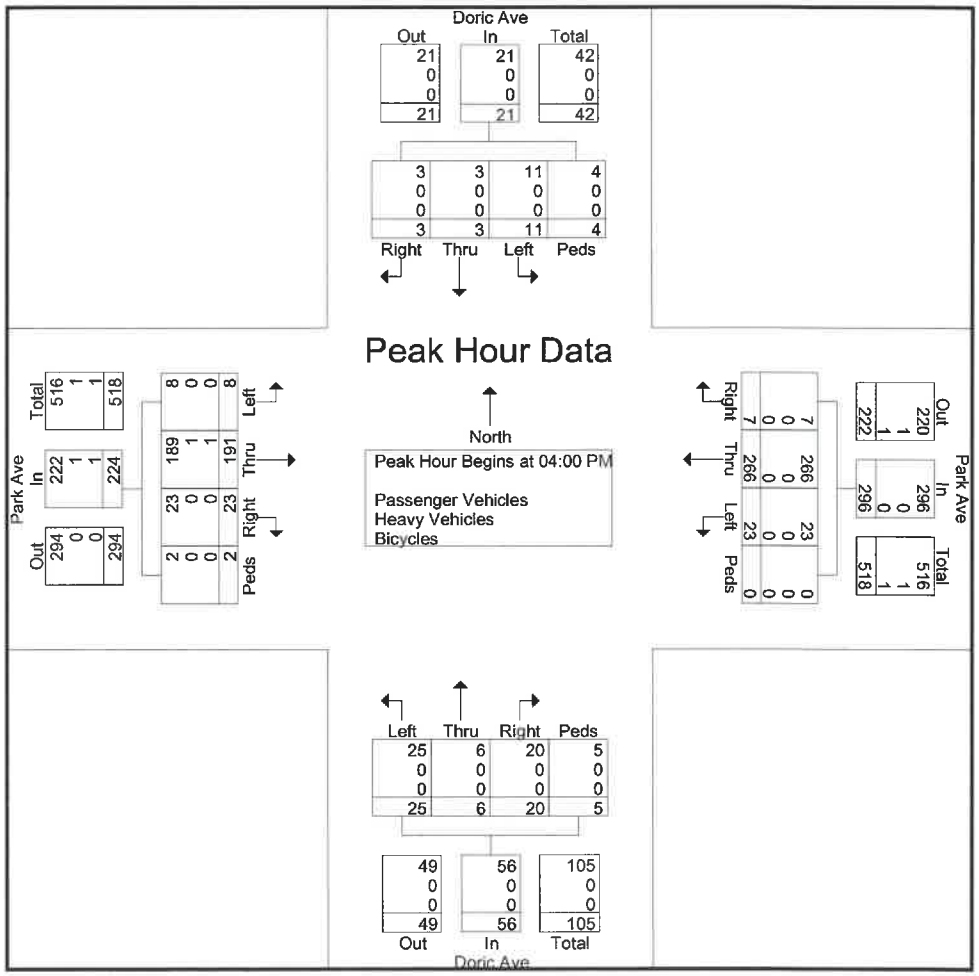
(*Source;* Rhode Island Department of Transportation, August 2018)

BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave Mixed Use
Town/City: Cranston, RI
Location: Doric Ave/ Park Ave
Weather: Sunny, 40's

File Name : 7583_Doric_Weekday
Site Code : 00758301
Start Date : 11/3/2021

	Doric Ave Southbound					Park Ave Westbound					Doric Ave Northbound					Park Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	0	1	1	3	5	**81**	2	0	**88**	5	1	**8**	0	14	2	**49**	**8**	0	**59**	**164**
04:15 PM	**4**	**2**	0	1	**7**	4	60	**3**	0	67	**11**	**3**	3	2	**19**	0	48	7	**1**	56	149
04:30 PM	4	0	0	**2**	6	**7**	62	0	0	69	2	0	4	**3**	9	**3**	47	5	1	56	140
04:45 PM	2	1	**2**	0	5	7	63	2	0	72	7	2	5	0	14	3	47	3	0	53	144
Total Volume	11	3	3	4	21	23	266	7	0	296	25	6	20	5	56	8	191	23	2	224	597
% App. Total	52.4	14.3	14.3	19		7.8	89.9	2.4	0		44.6	10.7	35.7	8.9		3.6	85.3	10.3	0.9		
PHF	.688	.375	.375	.500	.750	.821	.821	.583	.000	.841	.568	.500	.625	.417	.737	.667	.974	.719	.500	.949	.910
Passenger Vehicles	11	3	3	4	21	23	266	7	0	296	25	6	20	5	56	8	189	23	2	222	595
% Passenger Vehicles	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	99.0	100	100	99.1	99.7
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.4	0.2
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.4	0.2



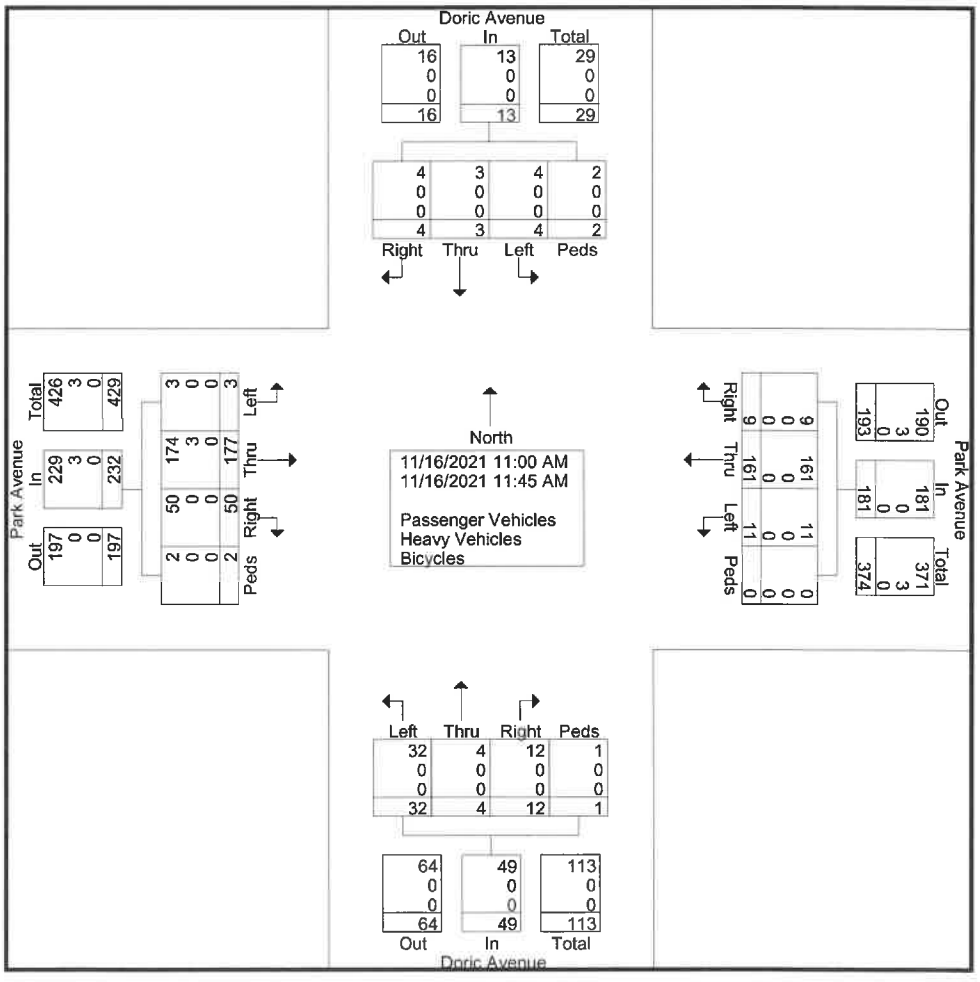
BETA Group Inc.
701 George Washington Highway
Lincoln, Rhode Island, 02865
P:401.333.2382

Project: Park Ave. Mixed-Use
Town/City: Cranston, RI
Location: Doric Ave./Park Ave.
Weather: Sunny, 40s

File Name : 7583_Doric_Weekday MD Peak Hour
Site Code : 11162021
Start Date : 11/16/2021
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Bicycles

	Doric Avenue Southbound				Park Avenue Westbound				Doric Avenue Northbound				Park Avenue Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
11:00 AM	1	2	1	1	2	38	2	0	11	0	2	0	0	44	11	0	115
11:15 AM	0	1	0	1	1	45	0	0	8	1	2	0	1	44	16	2	122
11:30 AM	1	0	0	0	6	27	5	0	4	1	2	0	1	47	12	0	106
11:45 AM	2	0	3	0	2	51	2	0	9	2	6	1	1	42	11	0	132
Total	4	3	4	2	11	161	9	0	32	4	12	1	3	177	50	2	475
Grand Total	4	3	4	2	11	161	9	0	32	4	12	1	3	177	50	2	475
Apprch %	30.8	23.1	30.8	15.4	6.1	89	5	0	65.3	8.2	24.5	2	1.3	76.3	21.6	0.9	
Total %	0.8	0.6	0.8	0.4	2.3	33.9	1.9	0	6.7	0.8	2.5	0.2	0.6	37.3	10.5	0.4	
Passenger Vehicles	4	3	4	2	11	161	9	0	32	4	12	1	3	174	50	2	472
% Passenger Vehicles	100	100	100	100	100	100	100	0	100	100	100	100	100	98.3	100	100	99.4
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	1.7	0	0	0.6
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Commonwealth Engineers & Consultants, In
400 Smith Street
Providence, RI 02908
401-273-6600

AM Peak

File Name : Park-Wellington Ave
Site Code : 01002725
Start Date : 8/8/2018
Page No : 1

Groups Printed- Cars

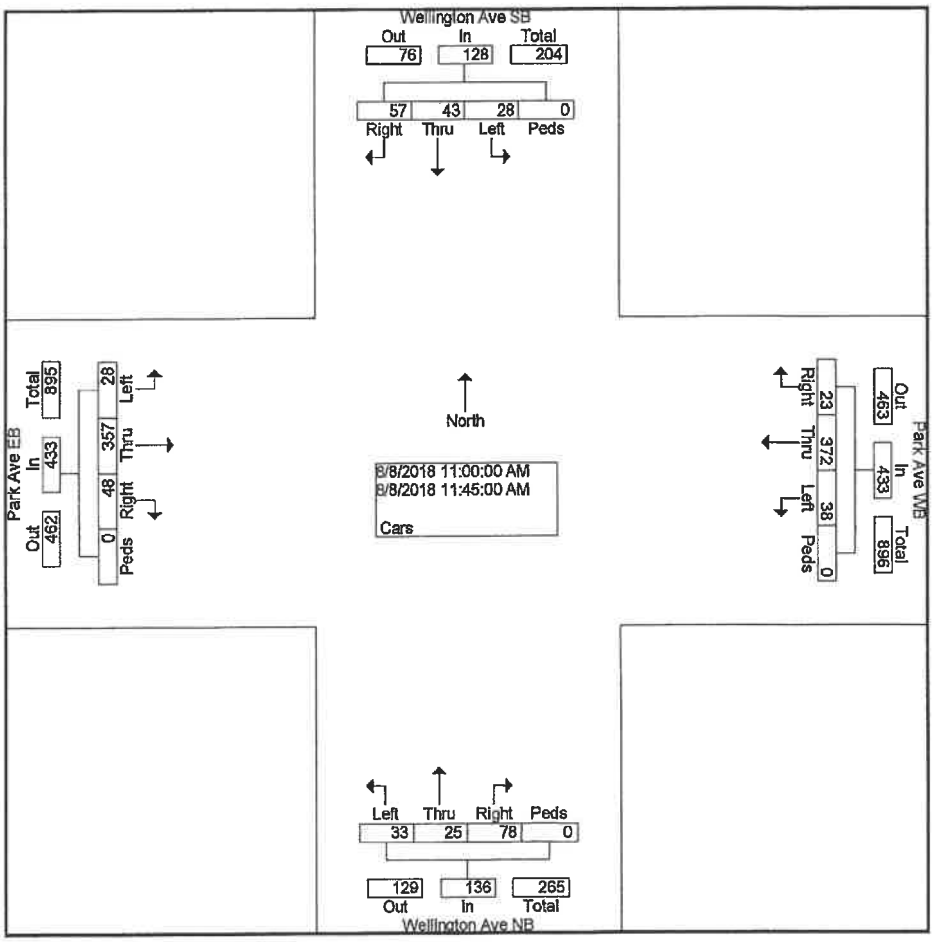
	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
09:00 AM	6	12	14	0	32	5	87	7	0	99	12	4	8	0	24	4	101	8	0	113	268
09:15 AM	12	15	5	0	32	4	88	8	0	100	14	10	5	0	29	11	81	7	0	99	260
09:30 AM	12	12	5	0	29	4	75	9	0	88	19	7	7	0	33	5	79	4	0	88	238
09:45 AM	7	15	5	0	27	6	93	20	0	119	11	10	9	0	30	10	73	2	0	85	261
Total	37	54	29	0	120	19	343	44	0	406	56	31	29	0	116	30	334	21	0	385	1027
10:00 AM	9	8	8	0	25	9	93	11	0	113	12	2	6	0	20	6	76	4	0	86	244
10:15 AM	10	10	6	0	26	8	105	9	0	122	15	8	15	0	38	4	78	4	0	86	272
10:30 AM	16	15	11	0	42	9	101	5	0	115	17	5	4	0	26	11	107	6	0	124	307
10:45 AM	14	9	11	0	34	7	81	12	0	100	12	6	13	0	31	7	71	5	0	83	248
Total	49	42	36	0	127	33	380	37	0	450	56	21	38	0	115	28	332	19	0	379	1071
11:00 AM	11	12	6	0	29	4	84	9	0	97	16	7	5	0	28	11	76	5	0	92	246
11:15 AM	25	11	8	0	44	5	75	9	0	89	15	4	11	0	30	7	82	8	0	97	260
11:30 AM	13	12	7	0	32	5	106	9	0	120	20	7	8	0	35	19	88	7	0	114	301
11:45 AM	8	8	7	0	23	9	107	11	0	127	27	7	9	0	43	11	111	8	0	130	323
Total	57	43	28	0	128	23	372	38	0	433	78	25	33	0	136	48	357	28	0	433	1130
Grand Total	143	139	93	0	375	75	1095	119	0	1289	190	77	100	0	367	106	1023	68	0	1197	3228
Apprch %	38.1	37.1	24.8	0.0		5.8	84.9	9.2	0.0		51.8	21.0	27.2	0.0		8.9	85.5	5.7	0.0		
Total %	4.4	4.3	2.9	0.0	11.6	2.3	33.9	3.7	0.0	39.9	5.9	2.4	3.1	0.0	11.4	3.3	31.7	2.1	0.0	37.1	

Commonwealth Engineers & Consultants, In
400 Smith Street
Providence, RI 02908
401-273-6600

AM Peak

File Name : Park-Wellington Ave
Site Code : 01002725
Start Date : 8/8/2018
Page No : 2

	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 09:00 AM to 11:45 AM - Peak 1 of 1																					
Intersection	11:00 AM																				
Volume	57	43	28	0	128	23	372	38	0	433	78	25	33	0	136	48	357	28	0	433	1130
Percent	44.5	33.6	21.9	0.0		5.3	85.9	8.8	0.0		57.4	18.4	24.3	0.0		11.1	82.4	6.5	0.0		
11:45 Volume	8	8	7	0	23	9	107	11	0	127	27	7	9	0	43	11	111	8	0	130	323
Peak Factor																					0.875
High Int.	11:15 AM					11:45 AM					11:45 AM					11:45 AM					
Volume	25	11	8	0	44	9	107	11	0	127	27	7	9	0	43	11	111	8	0	130	
Peak Factor					0.727					0.852					0.791					0.833	

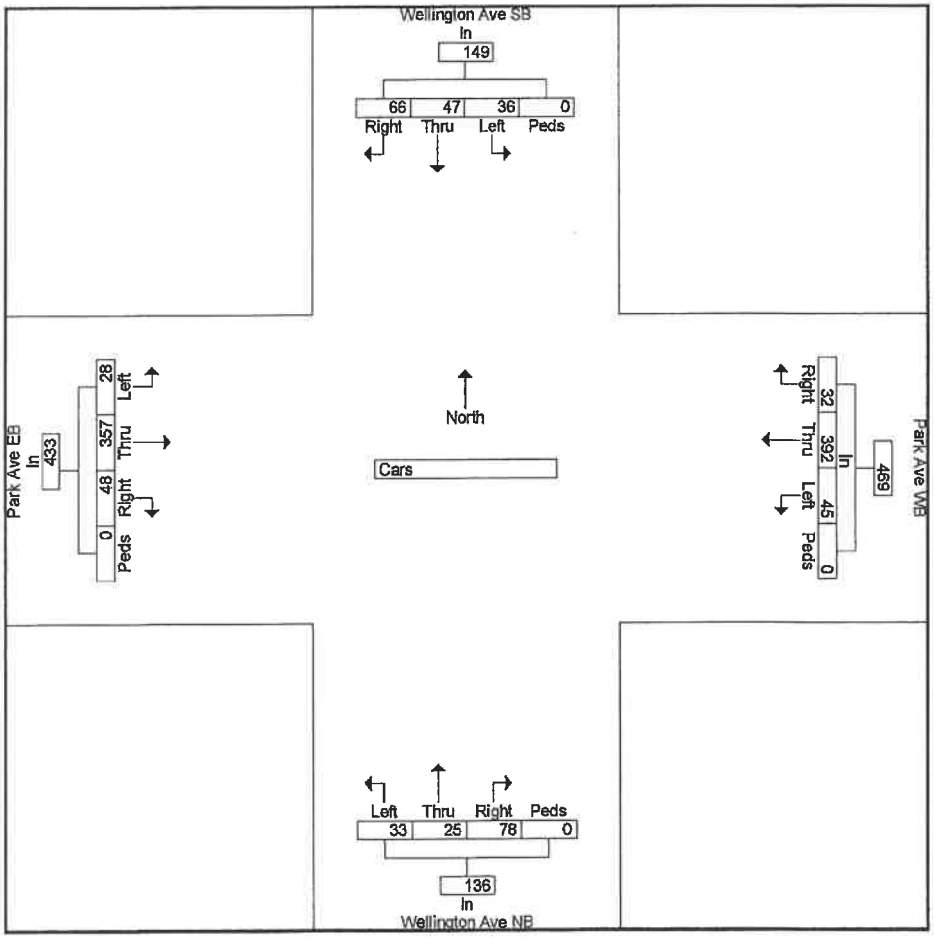


Commonwealth Engineers & Consultants, In
400 Smith Street
Providence, RI 02908
401-273-6600

AM Peak

File Name : Park-Wellington Ave
Site Code : 01002725
Start Date : 8/8/2018
Page No : 3

	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 09:00 AM to 11:45 AM - Peak 1 of 1																					
By Approach	10:30 AM					09:45 AM					11:00 AM					11:00 AM					
Volume	66	47	36	0	149	32	392	45	0	469	78	25	33	0	136	48	357	28	0	433	
Percent	44.3	31.5	24.2	0.0		6.8	83.6	9.6	0.0		57.4	18.4	24.3	0.0		11.1	82.4	6.5	0.0		
High Int.	11:15 AM					10:15 AM					11:45 AM					11:45 AM					
Volume	25	11	8	0	44	8	105	9	0	122	27	7	9	0	43	11	111	8	0	130	
Peak Factor					0.847					0.961					0.791					0.833	



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401-273-6600

PM Peak

File Name : Park-Wellington Ave (PM)
Site Code : 01002725
Start Date : 8/8/2018
Page No : 1

Groups Printed- Cars

	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:00 PM	20	11	7	1	39	8	112	6	0	126	25	9	10	2	46	12	97	11	0	120	331
03:15 PM	11	15	7	1	34	2	88	16	0	106	18	12	15	3	48	9	105	7	0	121	309
03:30 PM	12	25	5	1	43	13	108	7	1	129	20	8	15	2	45	15	116	8	0	139	356
03:45 PM	14	17	7	3	41	10	115	11	3	139	12	10	11	7	40	5	101	6	1	113	333
Total	57	68	26	6	157	33	423	40	4	500	75	39	51	14	179	41	419	32	1	493	1329
04:00 PM	15	15	4	3	37	2	96	10	0	108	21	15	18	2	56	16	103	7	0	126	327
04:15 PM	14	30	2	3	49	8	122	6	0	136	22	8	13	5	48	15	97	4	0	116	349
04:30 PM	19	25	4	2	50	9	114	4	0	127	13	13	25	3	54	15	120	3	0	138	369
04:45 PM	21	18	11	1	51	9	115	6	0	130	19	13	11	1	44	14	109	9	0	132	357
Total	69	88	21	9	187	28	447	26	0	501	75	49	67	11	202	60	429	23	0	512	1402
05:00 PM	14	22	5	3	44	8	114	6	0	128	14	17	20	5	56	14	115	8	1	138	366
05:15 PM	21	22	5	1	49	7	114	8	0	129	13	6	17	4	40	18	127	5	0	150	368
05:30 PM	19	22	6	1	48	12	112	7	0	131	14	9	12	5	40	5	109	10	0	124	343
05:45 PM	20	18	7	4	49	5	118	7	2	132	11	5	16	3	35	10	119	5	0	134	350
Total	74	84	23	9	190	32	458	28	2	520	52	37	65	17	171	47	470	28	1	546	1427
Grand Total	200	240	70	24	534	93	1328	94	6	1521	202	125	183	42	552	148	1318	83	2	1551	4158
Apprch %	37.5	44.9	13.1	4.5		6.1	87.3	6.2	0.4		36.6	22.6	33.2	7.6		9.5	85.0	5.4	0.1		
Total %	4.8	5.8	1.7	0.6	12.8	2.2	31.9	2.3	0.1	36.6	4.9	3.0	4.4	1.0	13.3	3.6	31.7	2.0	0.0	37.3	

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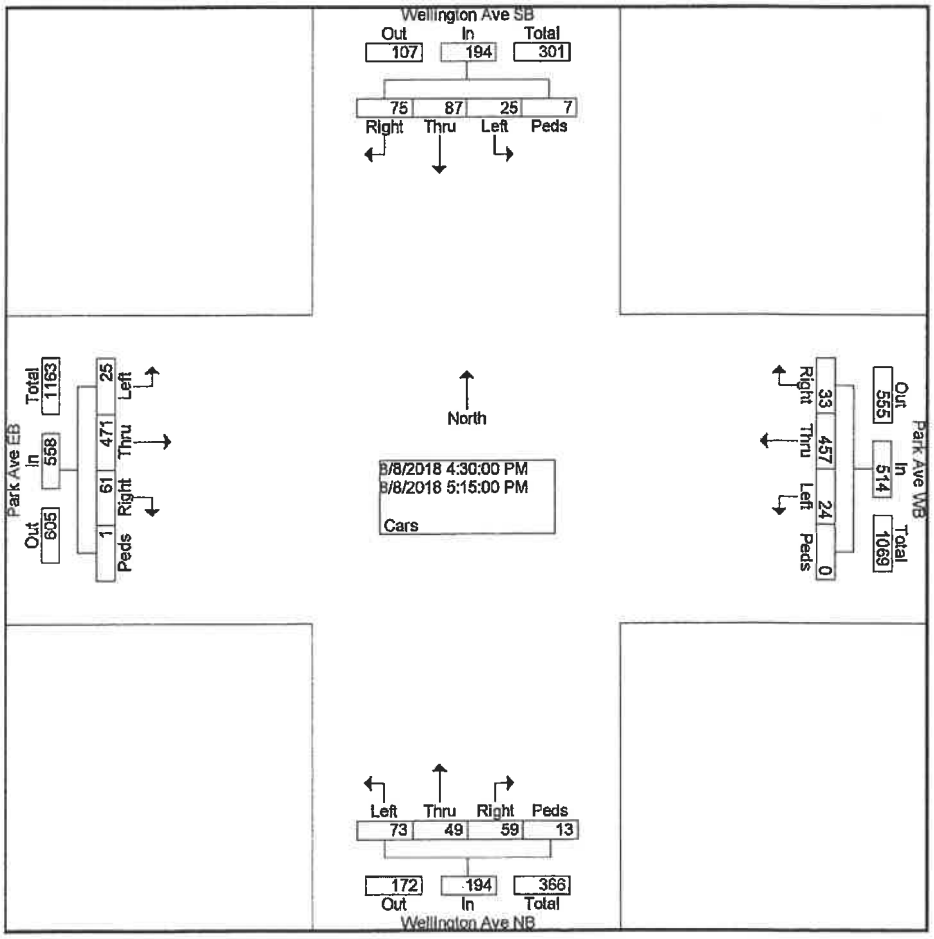
401-273-6600

PM Peak

File Name : Park-Wellington Ave (PM)
Site Code : 01002725
Start Date : 8/8/2018

	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	75	87	25	7	194	33	457	24	0	514	59	49	73	13	194	61	471	25	1	558	1460
Percent	38.7	44.8	12.9	3.6		6.4	88.9	4.7	0.0		30.4	25.3	37.6	6.7		10.9	84.4	4.5	0.2		
04:30 Volume	19	25	4	2	50	9	114	4	0	127	13	13	25	3	54	15	120	3	0	138	369
Peak Factor																					0.989
High Int.	04:45 PM					04:45 PM					05:00 PM					05:15 PM					
Volume	21	18	11	1	51	9	115	6	0	130	14	17	20	5	56	18	127	5	0	150	
Peak Factor					0.951					0.988					0.866					0.930	

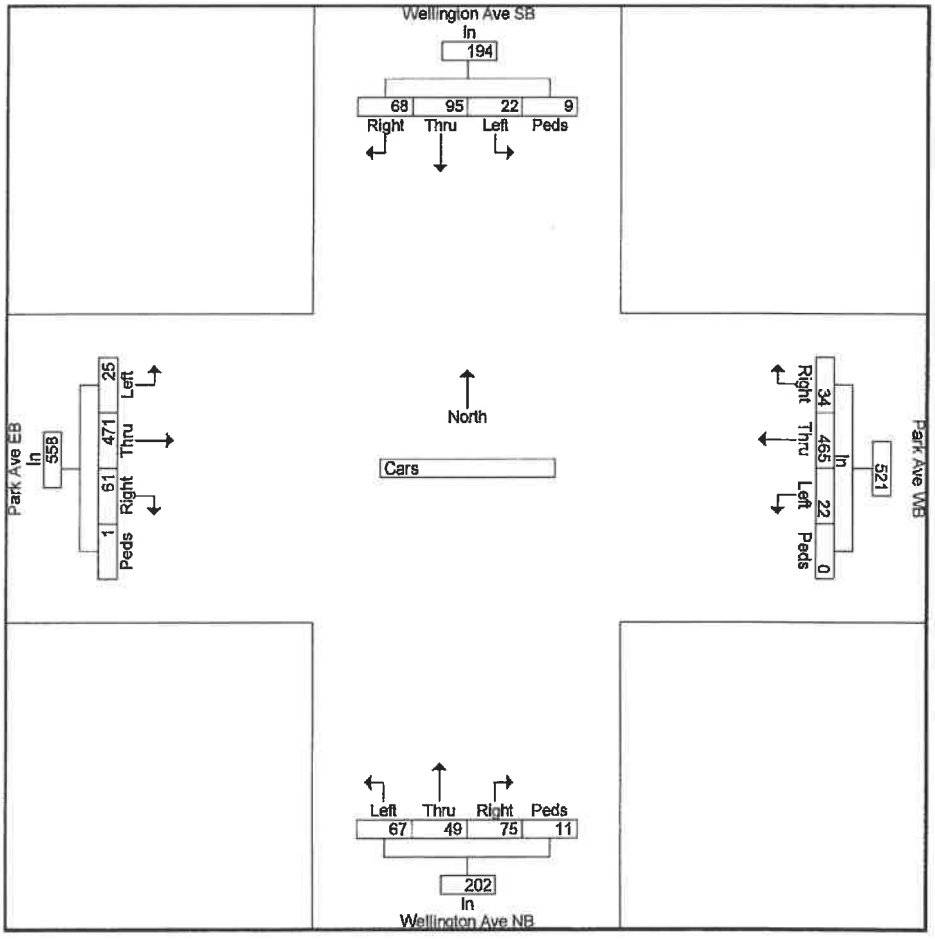


Commonwealth Engineers & Consultants, In
400 Smith Street
Providence, RI 02908
401-273-6600

PM Peak

File Name : Park-Wellington Ave (PM)
Site Code : 01002725
Start Date : 8/8/2018
Page No : 3

	Wellington Ave SB From North					Park Ave WB From East					Wellington Ave NB From South					Park Ave EB From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	04:15 PM					04:15 PM					04:00 PM					04:30 PM					
Volume	68	95	22	9	194	34	465	22	0	521	75	49	67	11	202	61	471	25	1	558	
Percent	35.1	49.0	11.3	4.6		6.5	89.3	4.2	0.0		37.1	24.3	33.2	5.4		10.9	84.4	4.5	0.2		
High Int.	04:45 PM					04:15 PM					04:00 PM					05:15 PM					
Volume	21	18	11	1	51	8	122	6	0	136	21	15	18	2	56	18	127	5	0	150	
Peak Factor					0.951					0.958					0.902					0.930	



APPENDIX B – Traffic Crash Data

January 2018 through December 2020

Park Avenue – Woodbine Street to Wellington Avenue

Crash Data Summary

	Year			Total	Average per Year
	2018	2019	2020		
Intersections					
Park Avenue at Woodbine Street	1	1	2	4	1
Park Avenue at S Clarendon Street	1	0	1	2	1
Park Avenue at Doric Avenue	2	2	2	6	2
Park Avenue at Wellington Avenue	9	10	15	34	11
Corridor					
Park Avenue - Woodbine Street to Wellington Avenue	2	0	0	2	1
Total	**15**	**13**	**20**	**48**	**16**

Park Avenue at Woodbine Street

	2018	2019	2020	Total	Percent
Collision Type					
Rear End	0	0	0	**0**	0%
Angle	1	1	0	**2**	50%
Head-On	0	0	0	**0**	0%
Pedestrian	0	0	0	**0**	0%
Sideswipe, Same Direction	0	0	0	**0**	0%
Sideswipe, Opposite Direction	0	0	0	**0**	0%
Collision with Object	0	0	0	**0**	0%
Collision with Pedestrian	0	0	2	**2**	50%
Collision with Bicycle	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Crash Severity					
Property	1	0	1	**2**	50%
Injury	0	1	1	**2**	50%
Light Condition					
Daylight	0	0	1	**1**	25%
Dawn	0	0	0	**0**	0%
Dusk	1	0	0	**1**	25%
Dark - Lighted	0	1	0	**1**	25%
Dark - Not Lighted	0	0	1	**1**	25%
Dark - Unknown Lighting	0	0	0	**0**	0%
Road Condition					
Dry	0	1	1	**2**	50%
Wet	1	0	1	**2**	50%
Snow	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Hour of Day					
6:00 AM - 9:00 AM	0	0	0	**0**	0%
9:00 AM - 3:00 PM	0	0	1	**1**	25%
3:00 PM - 6:00 PM	0	0	0	**0**	0%
6:00 PM - 6:00 AM	1	1	1	**3**	75%
Total Crashes:	**1**	**1**	**2**	**4**	

Park Avenue at S Clarendon Street

	2018	2019	2020	Total	Percent
Collision Type					
Rear End	1	0	0	**1**	50%
Angle	0	0	0	**0**	0%
Head-On	0	0	0	**0**	0%
Pedestrian	0	0	0	**0**	0%
Sideswipe, Same Direction	0	0	1	**1**	50%
Sideswipe, Opposite Direction	0	0	0	**0**	0%
Collision with Object	0	0	0	**0**	0%
Collision with Pedestrian	0	0	0	**0**	0%
Collision with Bicycle	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Crash Severity					
Property	1	0	1	**2**	100%
Injury	0	0	0	**0**	0%
Light Condition					
Daylight	0	0	0	**0**	0%
Dawn	0	0	1	**1**	50%
Dusk	0	0	0	**0**	0%
Dark - Lighted	0	0	0	**0**	0%
Dark - Not Lighted	1	0	0	**1**	50%
Dark - Unknown Lighting	0	0	0	**0**	0%
Road Condition					
Dry	0	0	1	**1**	50%
Wet	1	0	0	**1**	50%
Snow	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Hour of Day					
6:00 AM - 9:00 AM	0	0	0	**0**	0%
9:00 AM - 3:00 PM	0	0	0	**0**	0%
3:00 PM - 6:00 PM	1	0	1	**2**	100%
6:00 PM - 6:00 AM	0	0	0	**0**	0%
Total Crashes:	**1**	**0**	**1**	**2**	

Park Avenue at Doric Avenue

	2018	2019	2020	Total	Percent
Collision Type					
Rear End	0	0	1	**1**	17%
Angle	2	1	1	**4**	67%
Head-On	0	0	0	**0**	0%
Pedestrian	0	0	0	**0**	0%
Sideswipe, Same Direction	0	1	0	**1**	17%
Sideswipe, Opposite Direction	0	0	0	**0**	0%
Collision with Object	0	0	0	**0**	0%
Collision with Pedestrian	0	0	0	**0**	0%
Collision with Bicycle	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Crash Severity					
Property	1	2	2	**5**	83%
Injury	1	0	0	**1**	17%
Light Condition					
Daylight	1	2	2	**5**	83%
Dawn	0	0	0	**0**	0%
Dusk	0	0	0	**0**	0%
Dark - Lighted	1	0	0	**1**	17%
Dark - Not Lighted	0	0	0	**0**	0%
Dark - Unknown Lighting	0	0	0	**0**	0%
Road Condition					
Dry	2	2	2	**6**	100%
Wet	0	0	0	**0**	0%
Snow	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Hour of Day					
6:00 AM - 9:00 AM	0	0	0	**0**	0%
9:00 AM - 3:00 PM	0	1	2	**3**	50%
3:00 PM - 6:00 PM	1	0	0	**1**	17%
6:00 PM - 6:00 AM	1	1	0	**2**	33%
Total Crashes:	**2**	**2**	**2**	**6**	

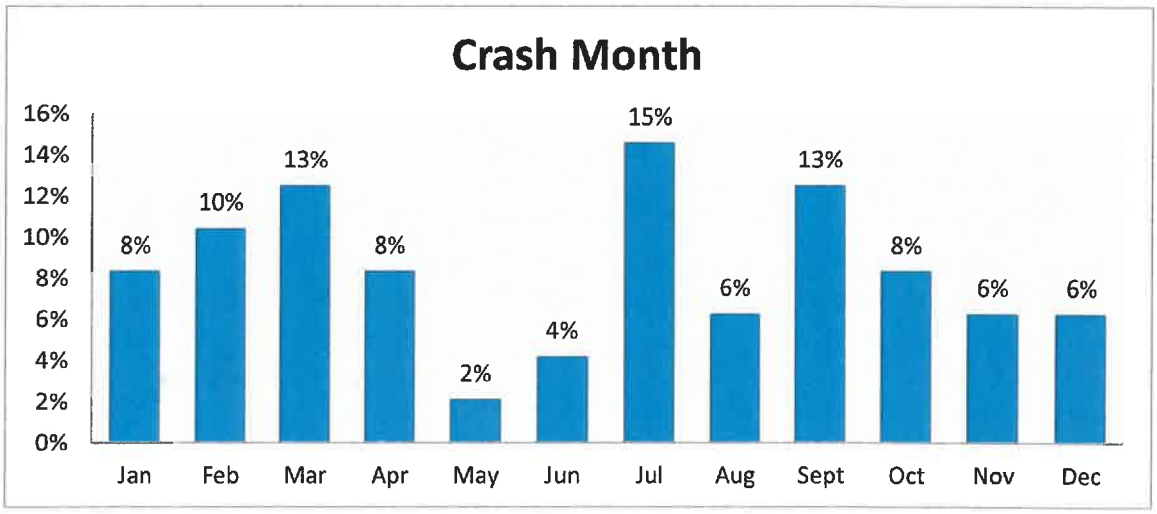
Park Avenue at Wellington Avenue

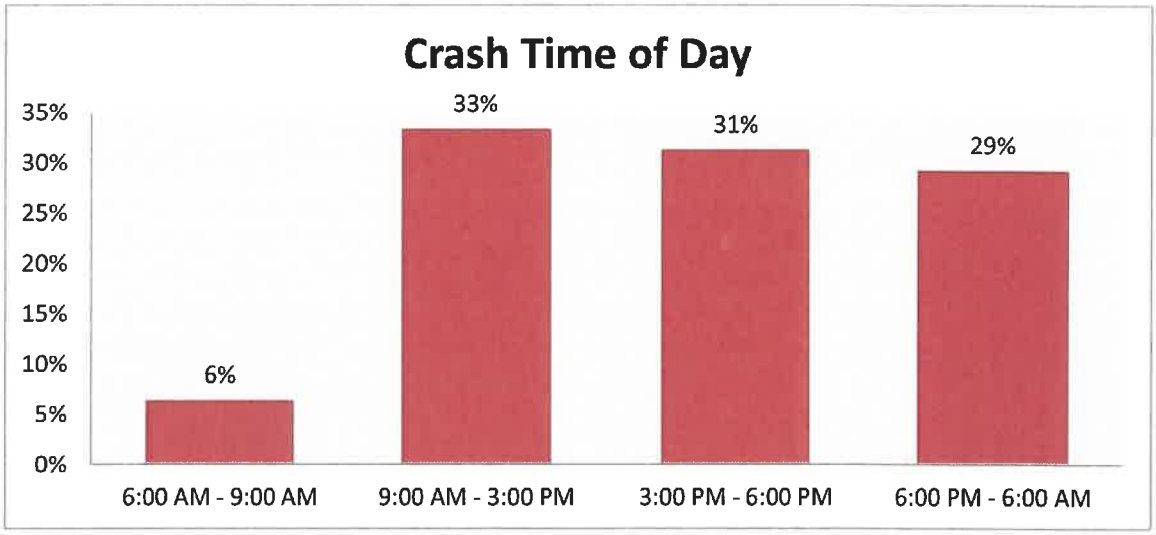
	2018	2019	2020	Total	Percent
Collision Type					
Rear End	3	3	3	**9**	26%
Angle	3	4	11	**18**	53%
Head-On	0	0	0	**0**	0%
Pedestrian	0	0	0	**0**	0%
Sideswipe, Same Direction	1	0	1	**2**	6%
Sideswipe, Opposite Direction	0	1	0	**1**	3%
Collision with Object	0	0	0	**0**	0%
Collision with Pedestrian	0	0	0	**0**	0%
Collision with Bicycle	2	2	0	**4**	12%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Crash Severity					
Property	8	7	9	**24**	71%
Injury	1	3	6	**10**	29%
Light Condition					
Daylight	7	8	14	**29**	85%
Dawn	0	0	0	**0**	0%
Dusk	0	0	0	**0**	0%
Dark - Lighted	2	1	1	**4**	12%
Dark - Not Lighted	0	1	0	**1**	3%
Dark - Unknown Lighting	0	0	0	**0**	0%
Road Condition					
Dry	8	9	11	**28**	82%
Wet	1	0	4	**5**	15%
Snow	0	1	0	**1**	3%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Hour of Day					
6:00 AM - 9:00 AM	1	2	0	**3**	9%
9:00 AM - 3:00 PM	4	3	4	**11**	32%
3:00 PM - 6:00 PM	2	2	7	**11**	32%
6:00 PM - 6:00 AM	2	3	4	**9**	26%
Total Crashes:	**9**	**10**	**15**	**34**	

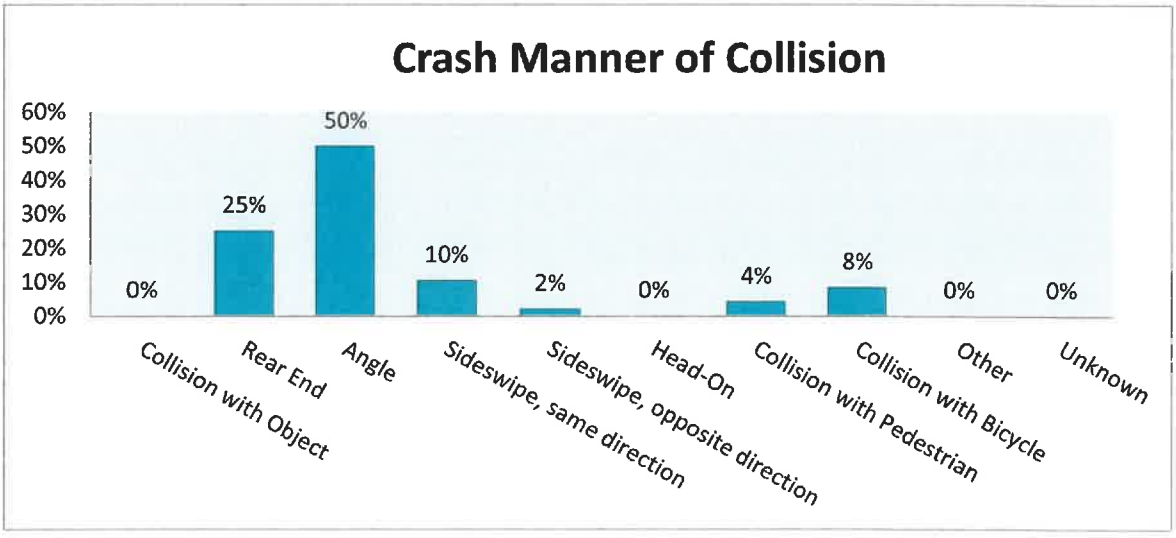
Park Avenue - Woodbine Street to Wellington Avenue

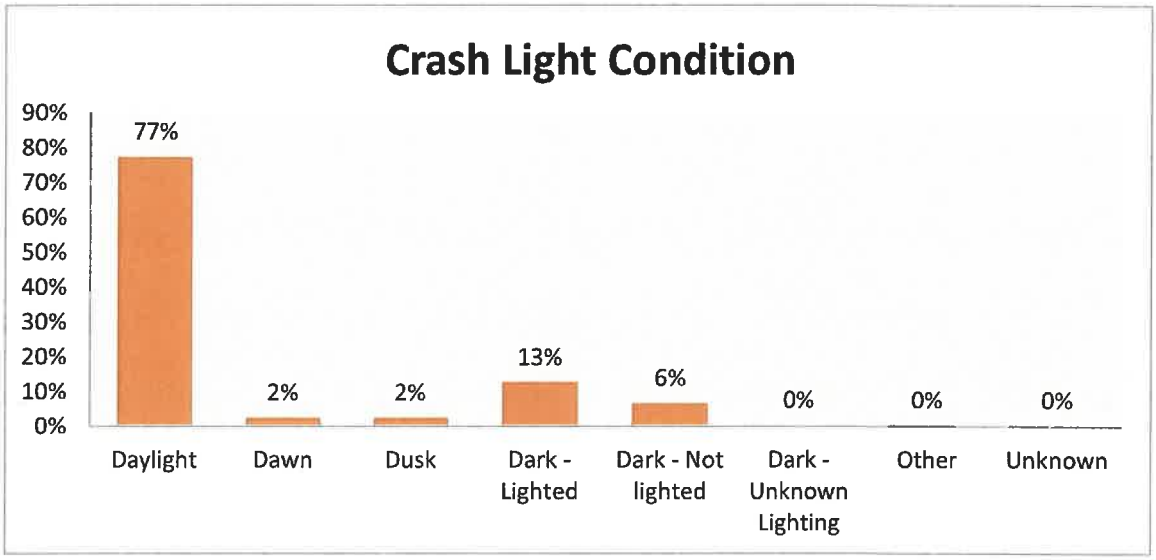
	2018	2019	2020	Total	Percent
Collision Type					
Rear End	1	0	0	**1**	50%
Angle	0	0	0	**0**	0%
Head-On	0	0	0	**0**	0%
Pedestrian	0	0	0	**0**	0%
Sideswipe, Same Direction	1	0	0	**1**	50%
Sideswipe, Opposite Direction	0	0	0	**0**	0%
Collision with Object	0	0	0	**0**	0%
Collision with Pedestrian	0	0	0	**0**	0%
Collision with Bicycle	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Crash Severity					
Property	1	0	0	**1**	50%
Injury	1	0	0	**1**	50%
Light Condition					
Daylight	2	0	0	**2**	100%
Dawn	0	0	0	**0**	0%
Dusk	0	0	0	**0**	0%
Dark - Lighted	0	0	0	**0**	0%
Dark - Not Lighted	0	0	0	**0**	0%
Dark - Unknown Lighting	0	0	0	**0**	0%
Road Condition					
Dry	1	0	0	**1**	50%
Wet	1	0	0	**1**	50%
Snow	0	0	0	**0**	0%
Other	0	0	0	**0**	0%
Unknown	0	0	0	**0**	0%
Hour of Day					
6:00 AM - 9:00 AM	0	0	0	**0**	0%
9:00 AM - 3:00 PM	1	0	0	**1**	50%
3:00 PM - 6:00 PM	1	0	0	**1**	50%
6:00 PM - 6:00 AM	0	0	0	**0**	0%
Total Crashes:	**2**	**0**	**0**	**2**	

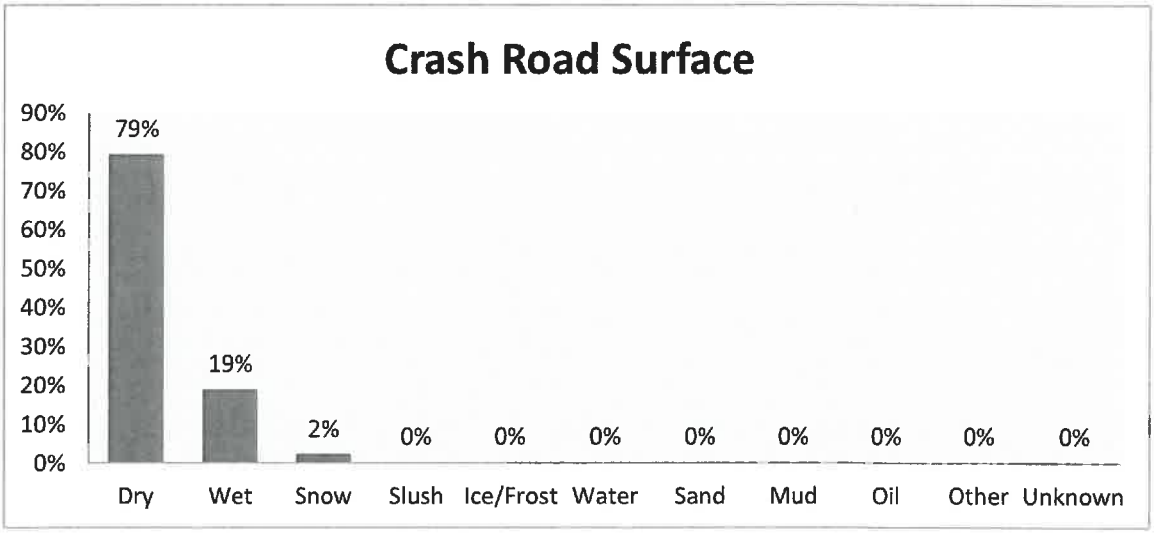
Crash Data Summary Charts








Crash Light Condition
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
77%
2%
2%
13%
6%
0%
0%
0%
Daylight
Dawn
Dusk
Dark - Lighted
Dark - Not lighted
Dark - Unknown Lighting
Other
Unknown


Crash Road Surface
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
79%
19%
2%
0%
0%
0%
0%
0%
0%
0%
0%
Dry
Wet
Snow
Slush
Ice/Frost
Water
Sand
Mud
Oil
Other
Unknown

APPENDIX C – Trip Generation

ITE Trip Generation Summary

Site Trip Distribution

ITE Land Use Code

ITE Land Use Code 221 – Multifamily Housing (Mid-Rise)

ITE Land Use Code 822 – Strip Commercial (<40k)

C

ITE Trip Generation Summary

Trip Generation Summary

Summary;

	Description	Enter	Exit	Total
Weekday AM Peak Hour of Generator				
ITE Land Use Code 221	Multifamily Housing (Mid-Rise)	6	20	26
ITE Land Use Code 822	Strip Retail Plaza (<40k)	4	12	16
		10	32	42
Weekday PM Peak Hour				
ITE Land Use Code 221	Multifamily Housing (Mid-Rise)	20	9	29
ITE Land Use Code 822	Strip Retail Plaza (<40k)	9	5	14
		29	14	43

Calculations;

ITE Land Use Code 221 — Multifamily Housing (Mid-Rise) — (74 Dwelling Units)

Independent Variable (X) = Dwelling Units — X = 74

AM Peak — *Directional Distribution:* — *23% Entering* — *77% Exiting*

T	=	0.35 x (X)	Enter:	6
T	=	0.35 x 74	Exit:	20
T	=	26	Total:	26

PM Peak — *Directional Distribution:* — *71% Entering* — *29% Exiting*

T	=	0.39 x (X)	Enter:	20
T	=	0.39 x 74	Exit:	9
T	=	29	Total:	29

ITE Land Use Code 822 — Strip Retail Plaza (<40k) — (2,000 SF)

Independent Variable (X) = 1,000 SF GLA — X = 2

AM Peak — *Directional Distribution:* — *23% Entering* — *77% Exiting*

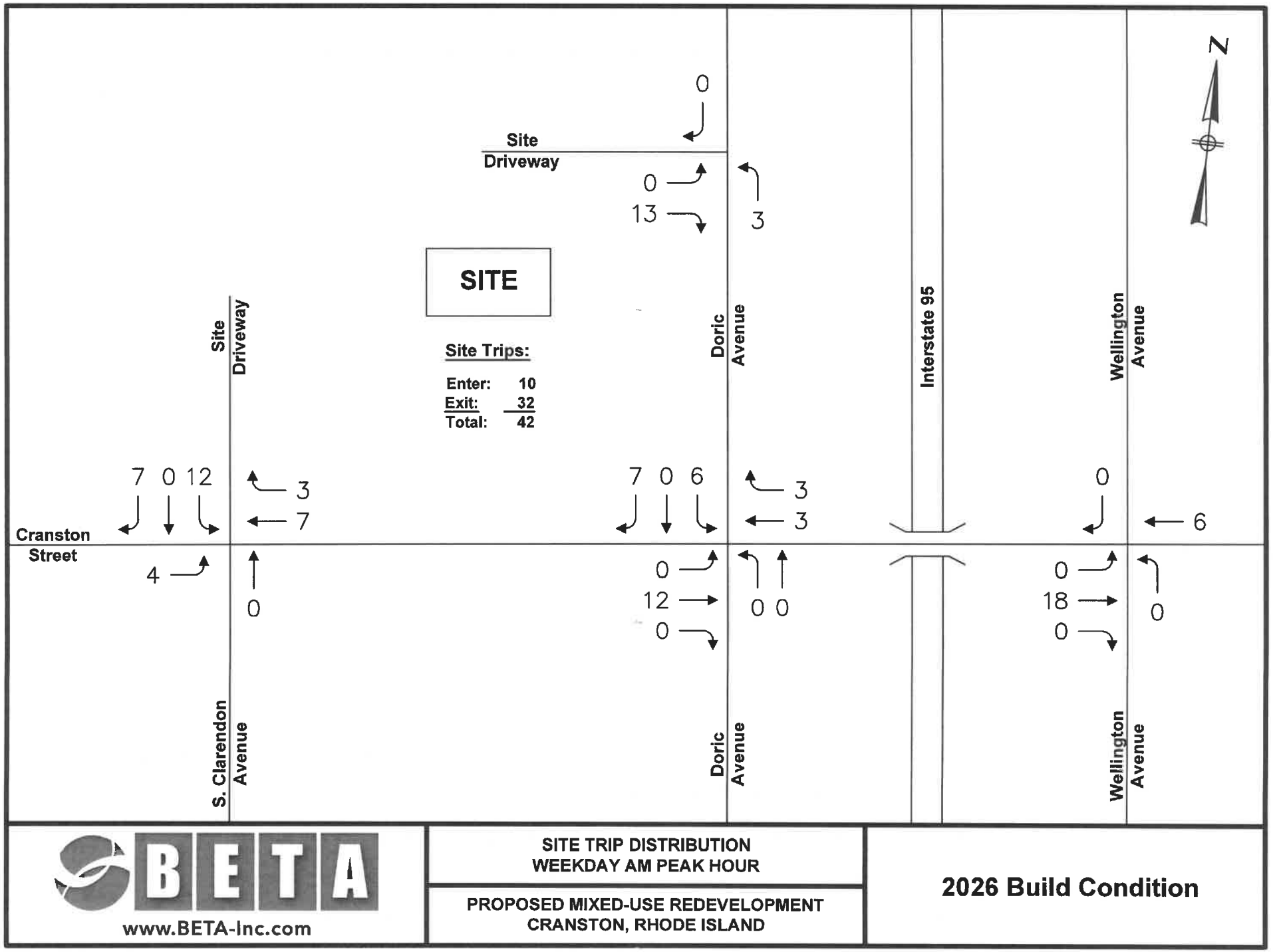
T	=	7.60 x (X)	Enter:	4
T	=	7.6 x 2	Exit:	12
T	=	16	Total:	16

PM Peak — *Directional Distribution:* — *71% Entering* — *29% Exiting*

T	=	6.59 x (X)	Enter:	9
T	=	6.59 x 2	Exit:	5
T	=	14	Total:	14

C

Site Trip Distribution



BETA

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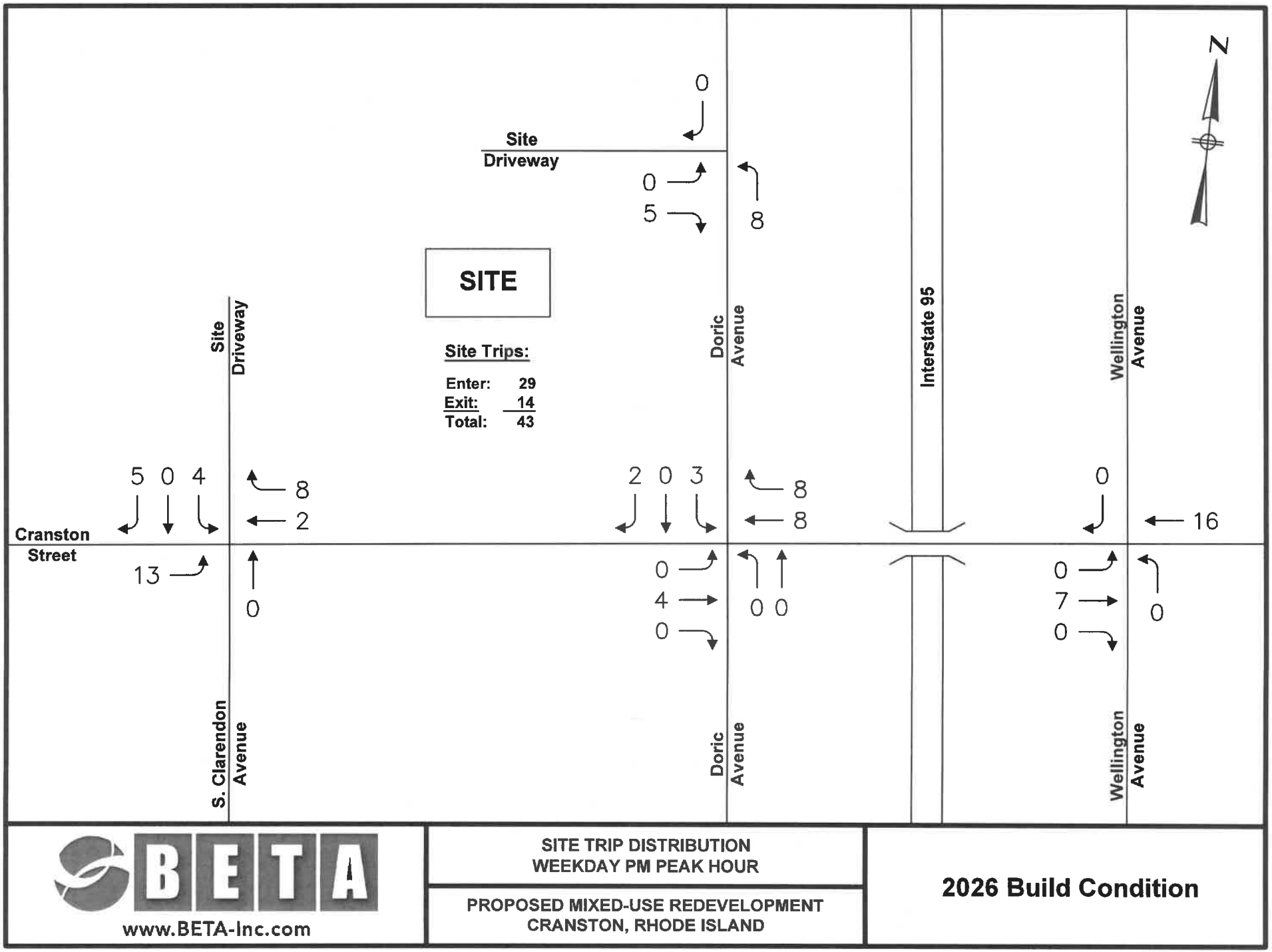
SITE TRIP DISTRIBUTION
WEEKDAY AM PEAK HOUR

PROPOSED MIXED-USE REDEVELOPMENT
CRANSTON, RHODE ISLAND

2026 Build Condition



BETA

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SITE TRIP DISTRIBUTION
WEEKDAY PM PEAK HOUR

PROPOSED MIXED-USE REDEVELOPMENT
CRANSTON, RHODE ISLAND

2026 Build Condition

C

ITE Land Use Code

ITE Land Use Code 221 – Multifamily Housing (Mid-Rise)

ITE Land Use Code 822 – Strip Commercial (<40k)

ITE Land Use Code 221 – Multifamily Housing (Mid-Rise)

Land Use: 221
Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments and condominiums located in a building that has between four and 10 floors of living space. Access to individual dwelling units is through an outside building entrance, a lobby, elevator, and a set of hallways.

Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (mid-rise) (Land Use 226), and mid-rise residential with ground-floor commercial (Land Use 231) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.5 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Alberta (CAN), California, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New York, Ontario (CAN), Oregon, Utah, and Virginia.

Source Numbers

168, 188, 204, 305, 306, 321, 818, 857, 862, 866, 901, 904, 910, 949, 951, 959, 963, 964, 966, 967, 969, 970, 1004, 1014, 1022, 1023, 1025, 1031, 1032, 1035, 1047, 1056, 1057, 1058, 1071, 1076

Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

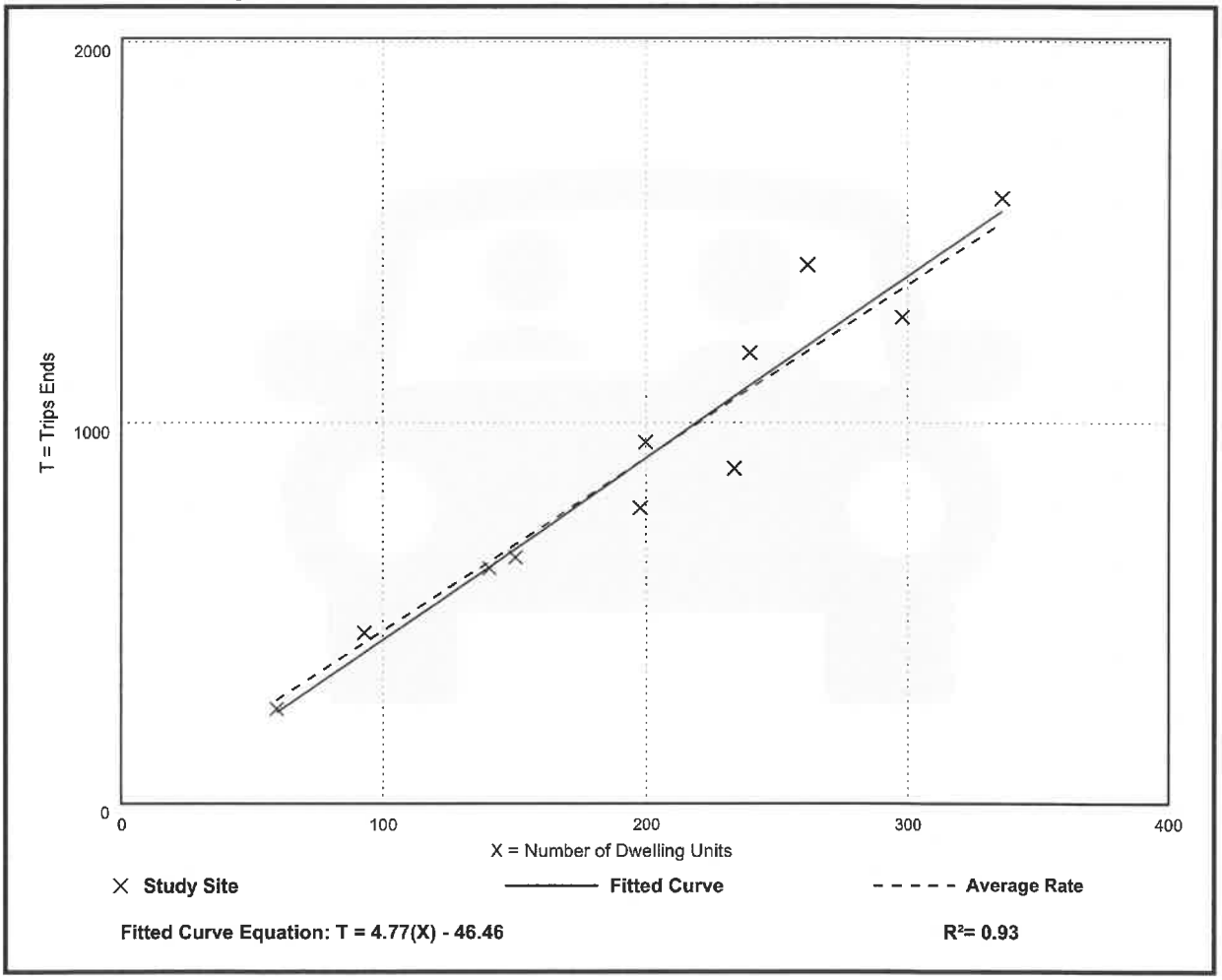
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 11
Avg. Num. of Dwelling Units: 201
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.54	3.76 - 5.40	0.51

Data Plot and Equation



Fitted Curve Equation: T = 4.77(X) - 46.46

R^2= 0.93

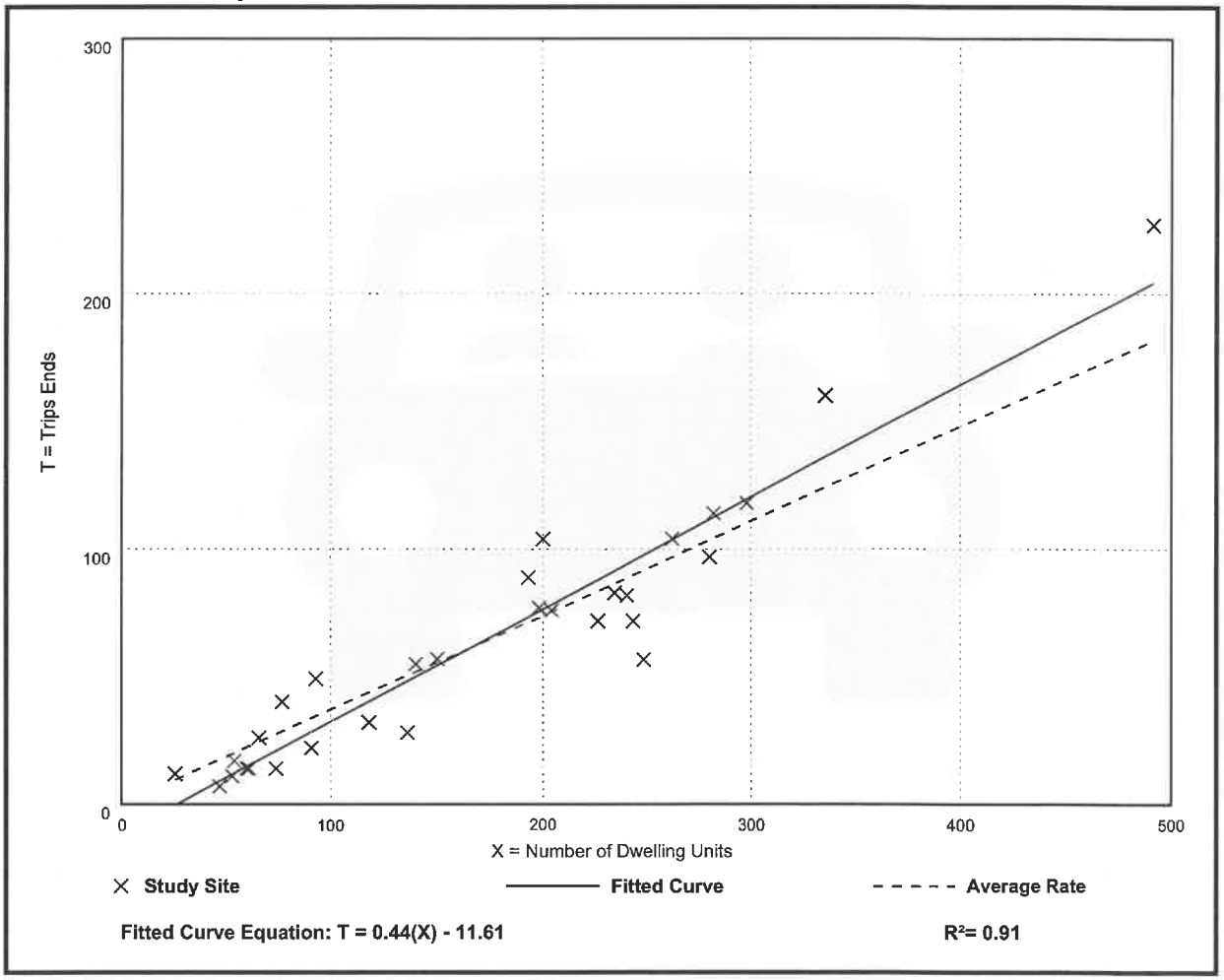
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

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: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Fitted Curve Equation: T = 0.44(X) - 11.61

R^2= 0.91

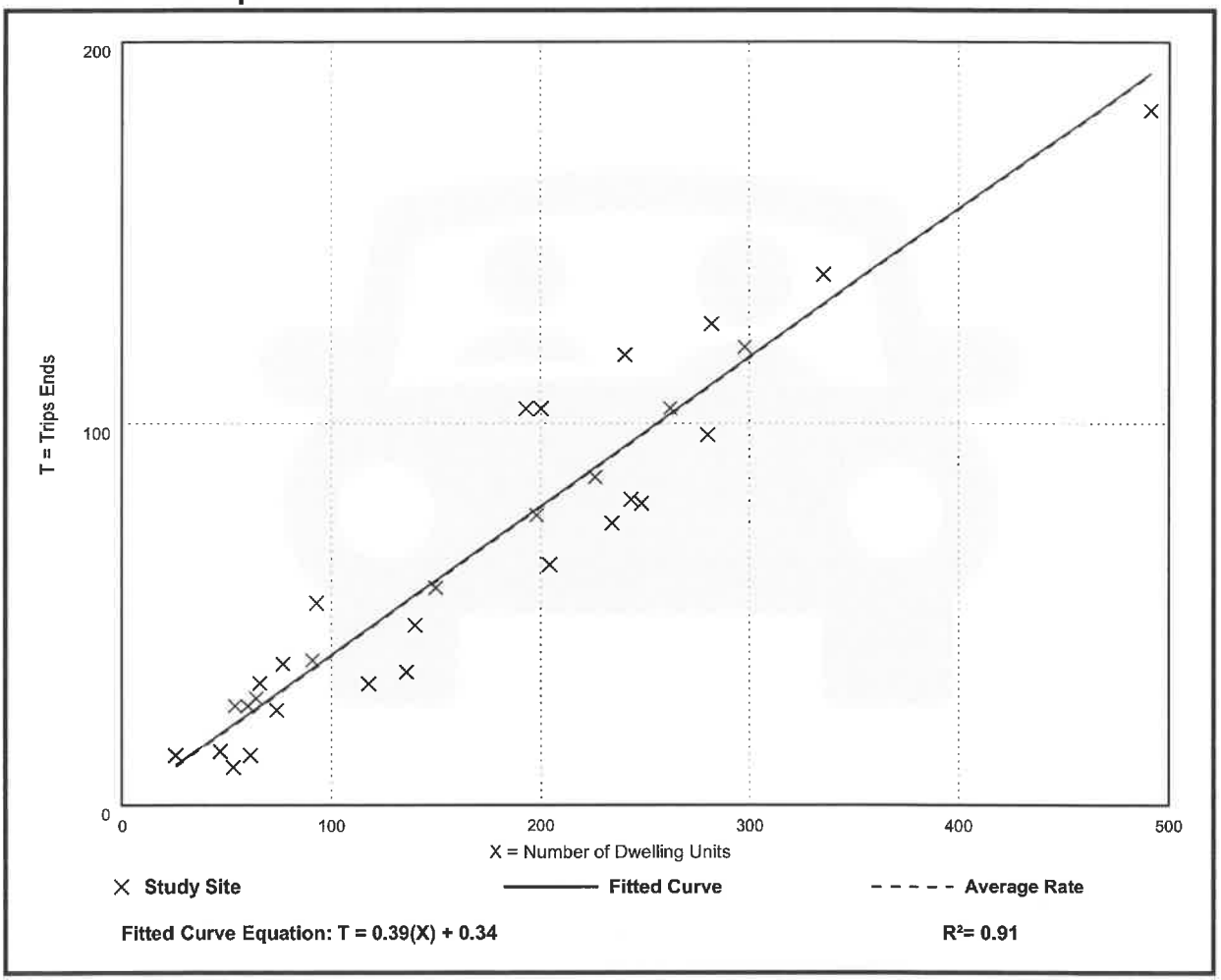
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

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: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

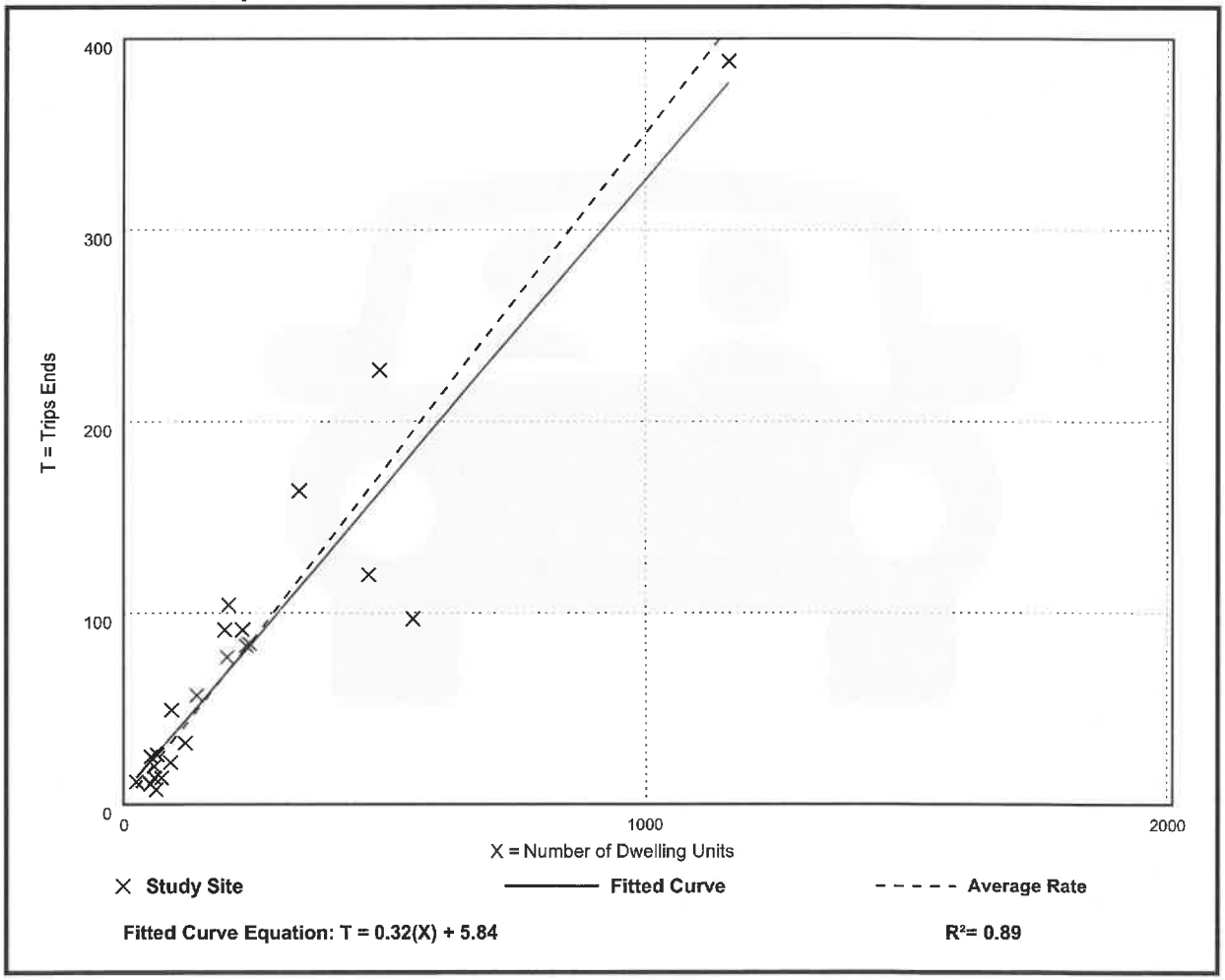
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 23
Avg. Num. of Dwelling Units: 226
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.35	0.13 - 0.53	0.11

Data Plot and Equation



Fitted Curve Equation: T = 0.32(X) + 5.84

R^2= 0.89

Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

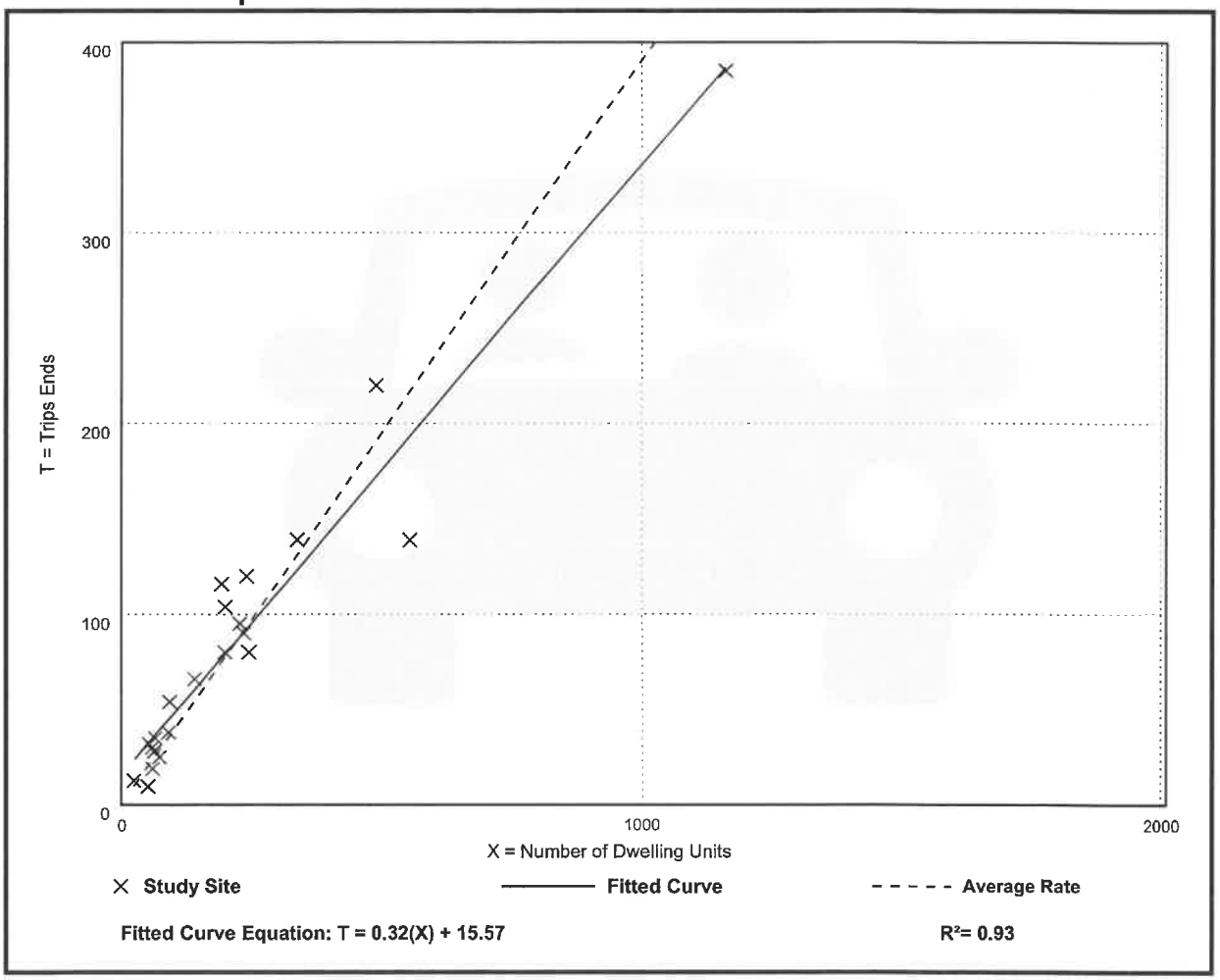
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 221
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.60	0.10

Data Plot and Equation



ITE Land Use Code 822 – Strip Commercial (<40k)

Land Use: 822
Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

Strip Retail Plaza (<40k)
(822)

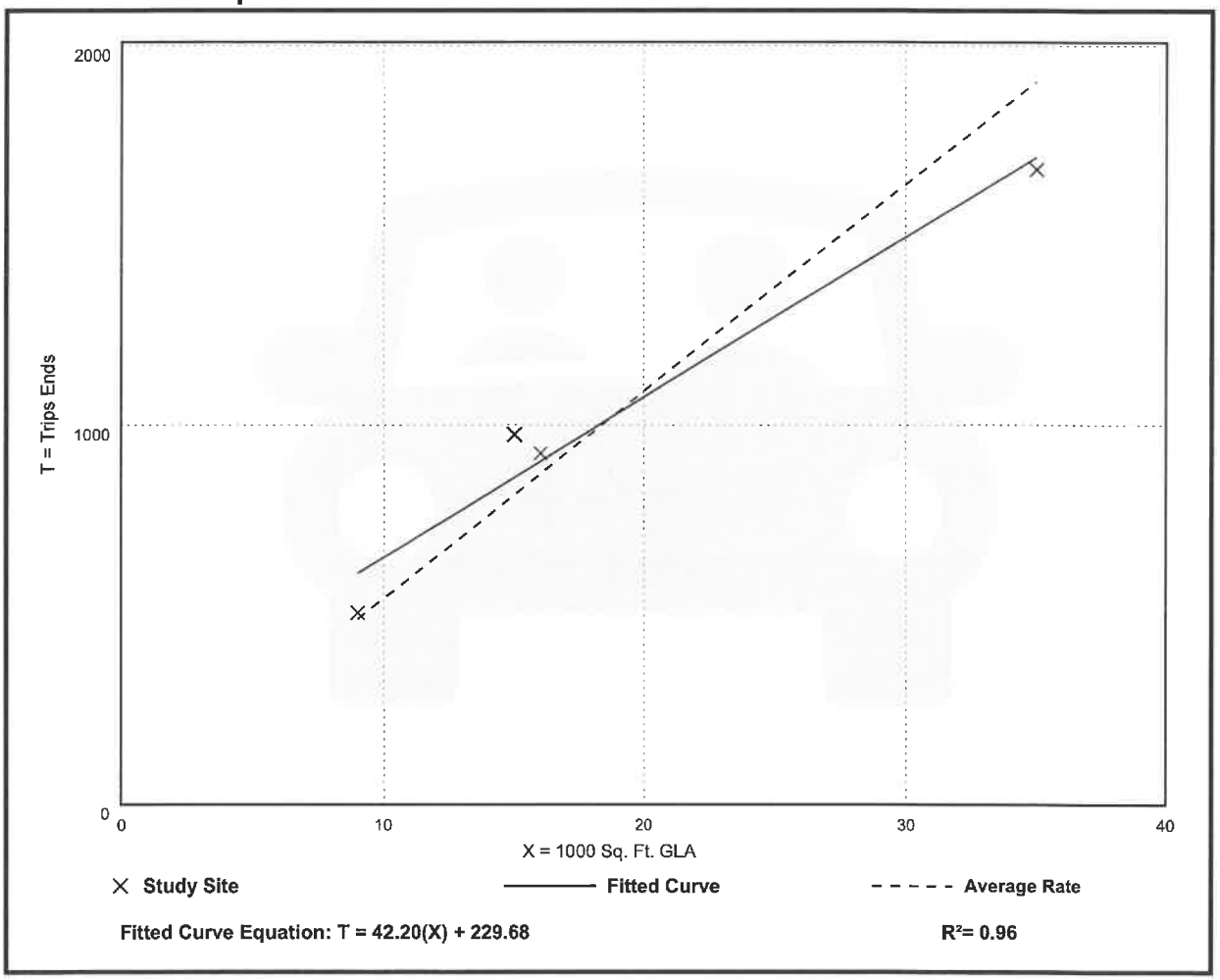
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



Fitted Curve Equation: T = 42.20(X) + 229.68

R^2= 0.96

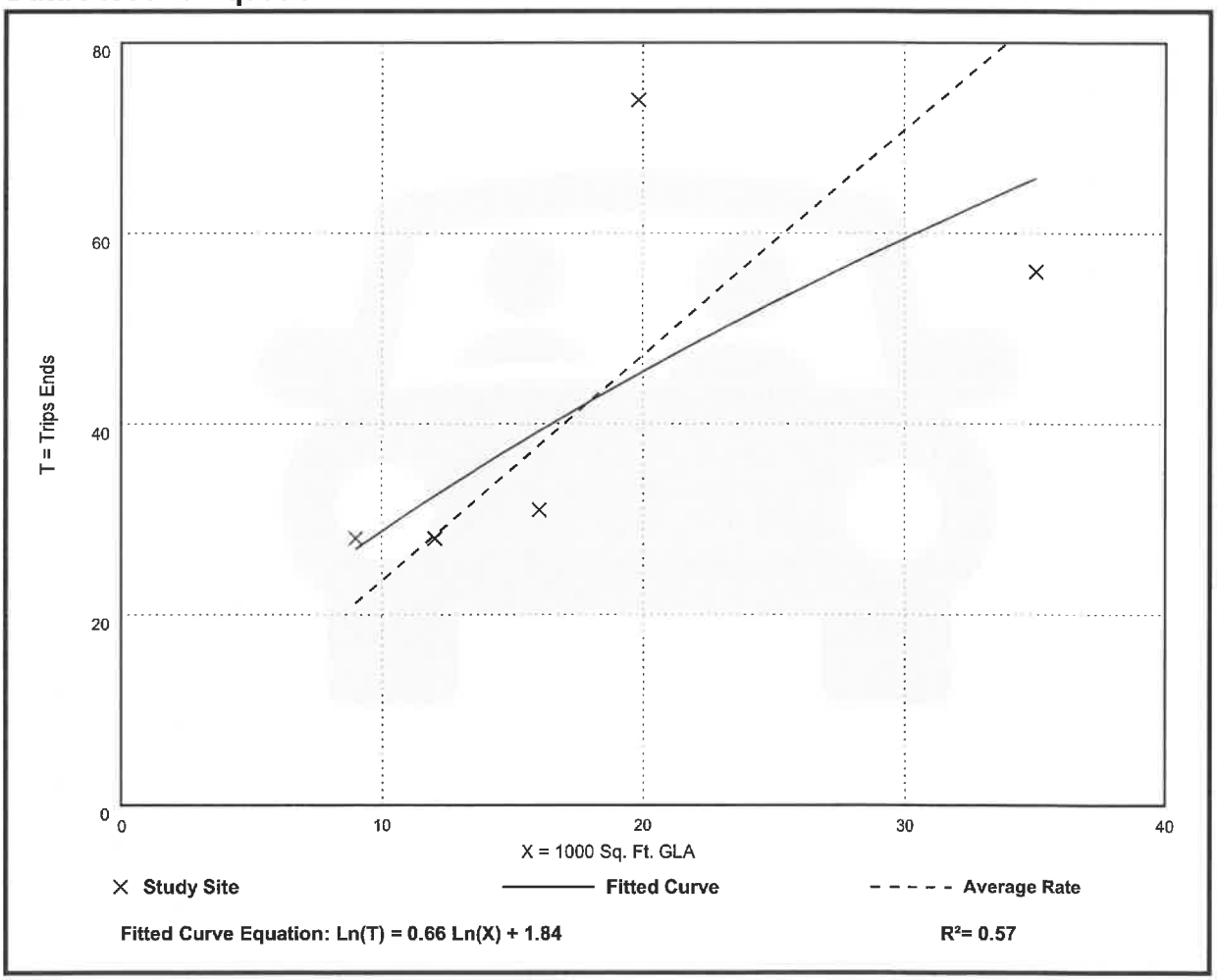
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
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: 5
Avg. 1000 Sq. Ft. GLA: 18
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 1.84

R^2= 0.57

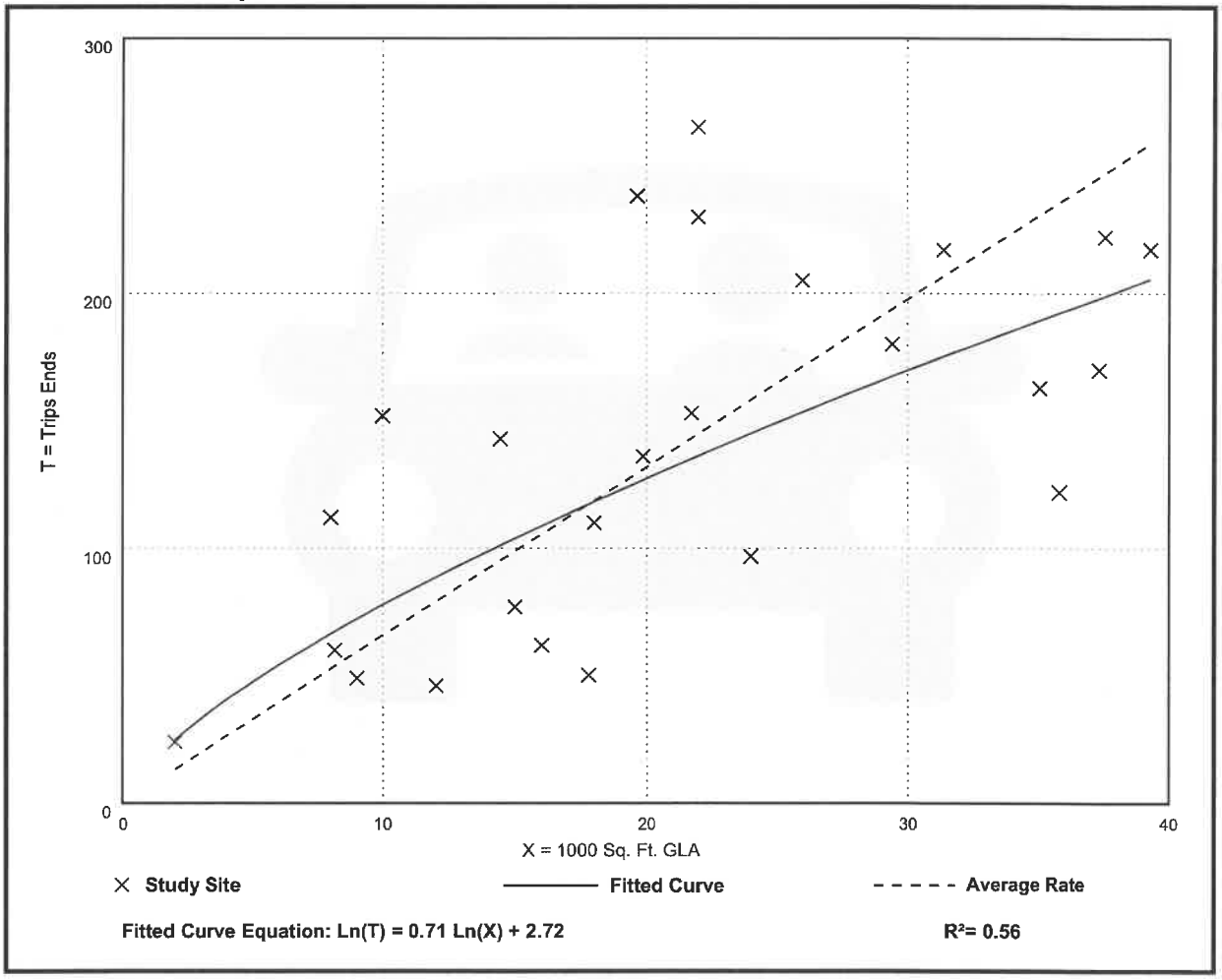
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
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: 25
Avg. 1000 Sq. Ft. GLA: 21
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

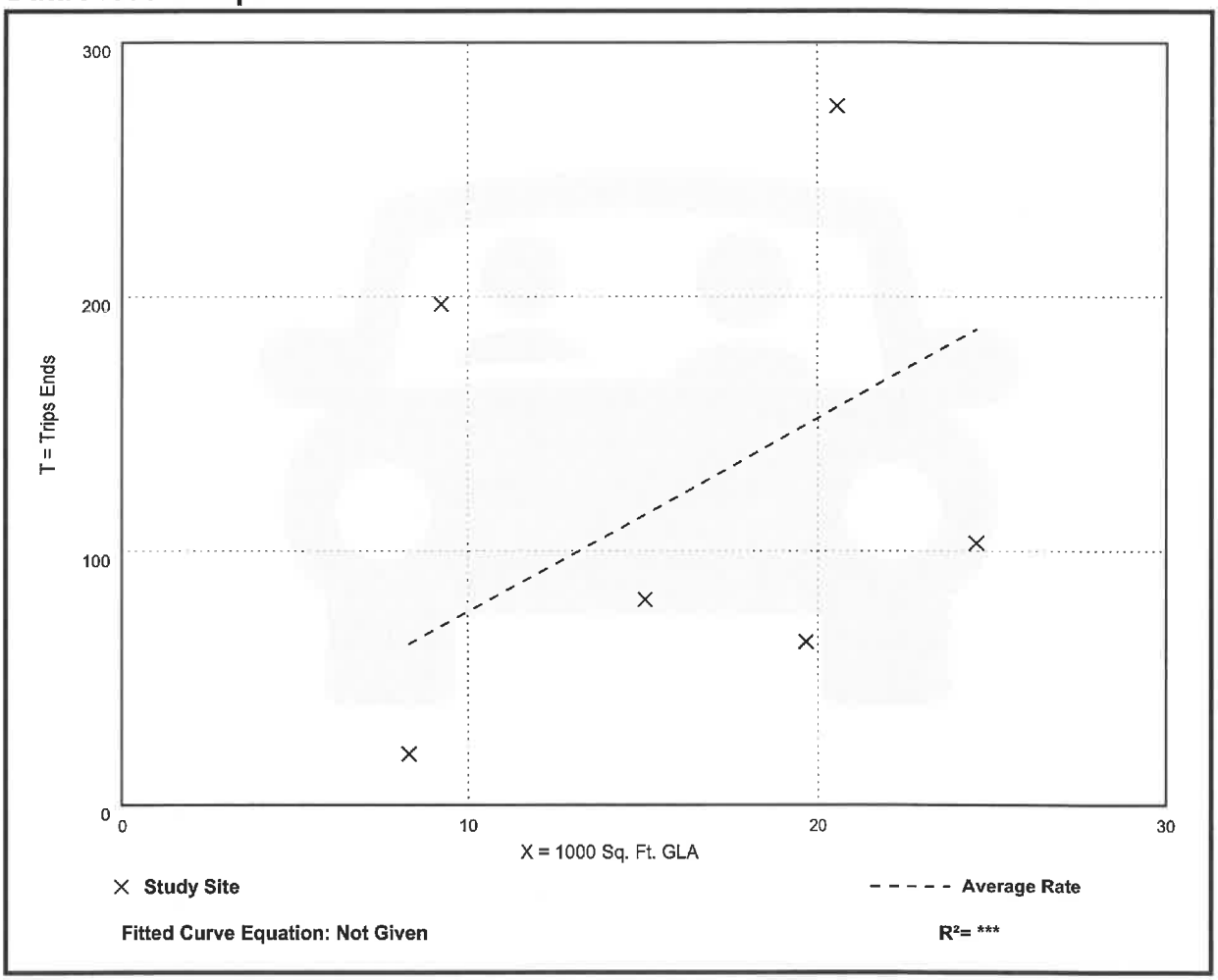
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
7.60	2.40 - 21.30	6.45

Data Plot and Equation



Strip Retail Plaza (<40k)
(822)

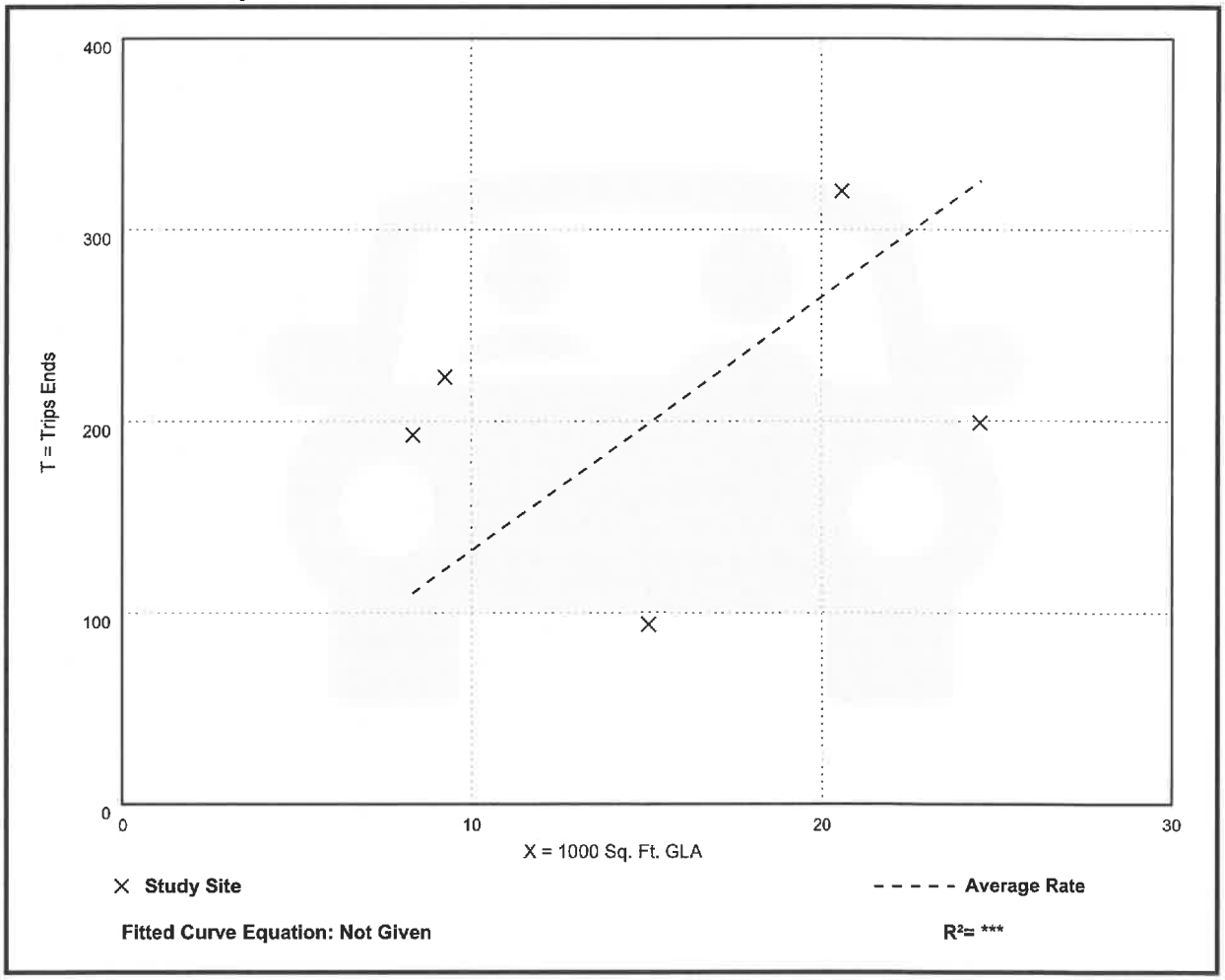
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. 1000 Sq. Ft. GLA: 16
Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
13.24	6.27 - 24.11	7.40

Data Plot and Equation



APPENDIX D – Operational Analysis

Existing Conditions

Park Avenue at South Clarendon Street

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

Future Build Conditions

Park Avenue at South Clarendon Street/Site Driveway

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

D

Existing Weekday AM / PM Peak Hour

Park Avenue at South Clarendon Street

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

Park Avenue at South Clarendon Street

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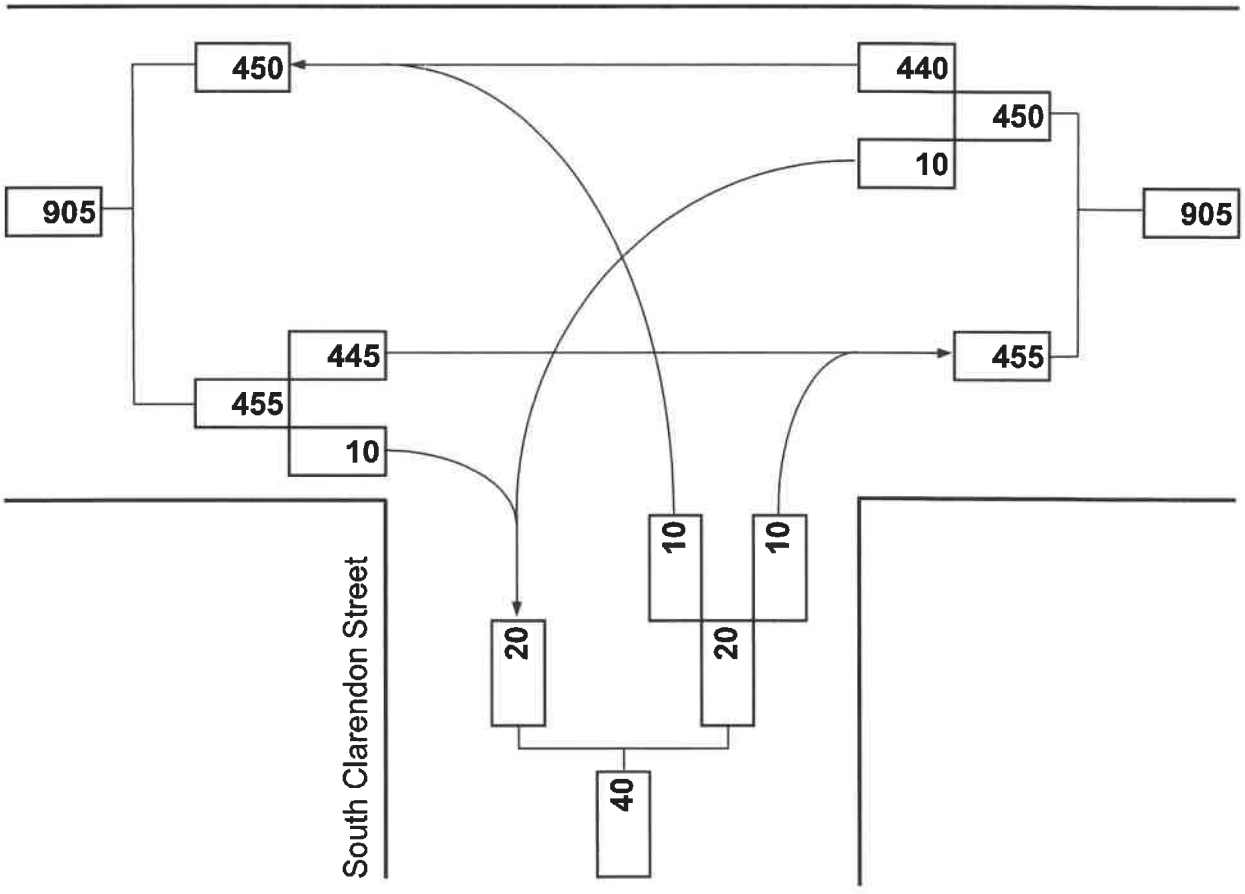
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	South Clarendon Street
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	11:00 AM - 12:00 PM
Existing:	AM Peak Hour	**Future:**	n/a

NORTH



Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	445	10	10	440	10	10
Future Vol, veh/h	445	10	10	440	10	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	478	11	11	473	11	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	489	0	979	484
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1085	-	280	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	617	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1085	-	276	587
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	608	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	375	-	-	1085	-
HCM Lane V/C Ratio	0.057	-	-	0.01	-
HCM Control Delay (s)	15.2	-	-	8.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

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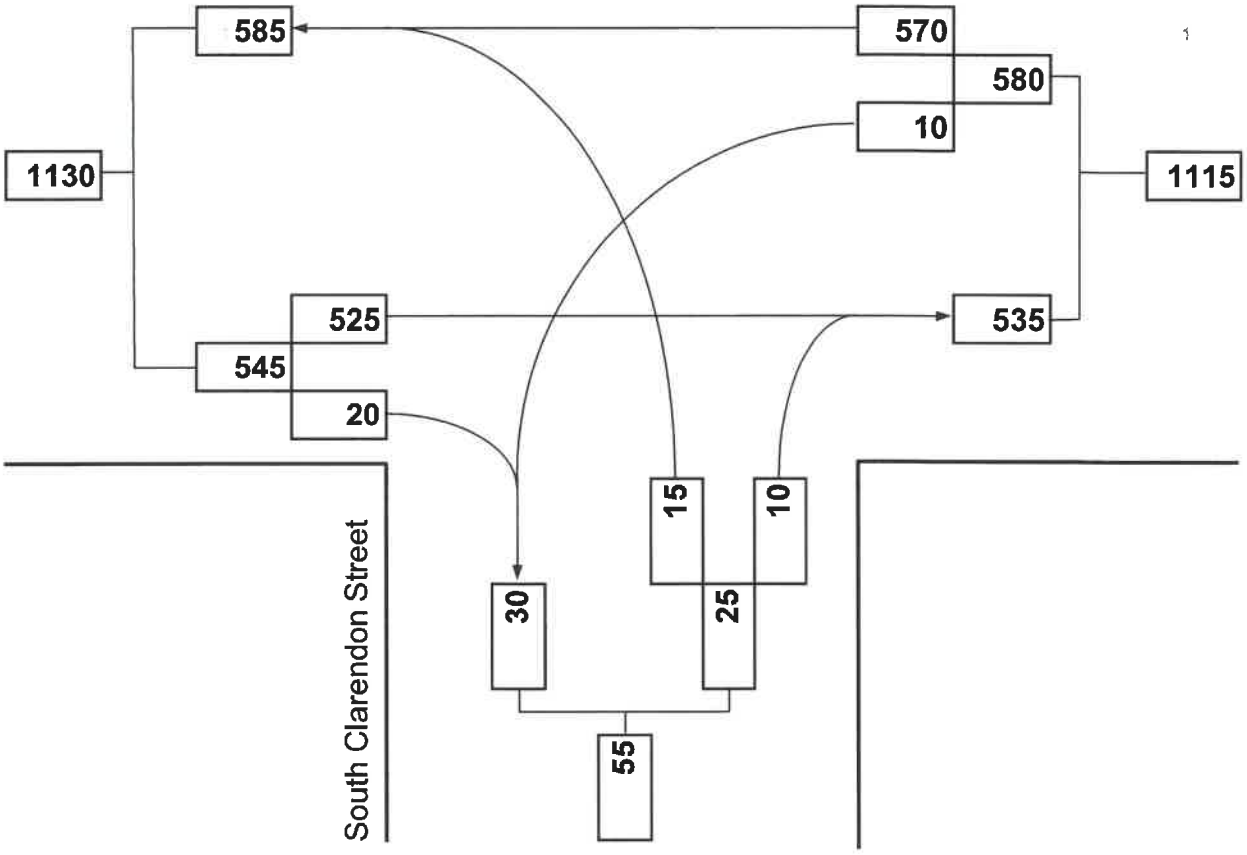
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	South Clarendon Street
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	4:30 PM - 5:30 PM
Existing:	PM Peak Hour	**Future:**	n/a

NORTH



Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	525	20	10	570	15	10
Future Vol, veh/h	525	20	10	570	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	571	22	11	620	16	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	593	0	1224	582
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	642	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	993	-	200	517
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	993	-	197	517
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	519	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	262	-	-	993	-
HCM Lane V/C Ratio	0.104	-	-	0.011	-
HCM Control Delay (s)	20.3	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Park Avenue at Doric Avenue

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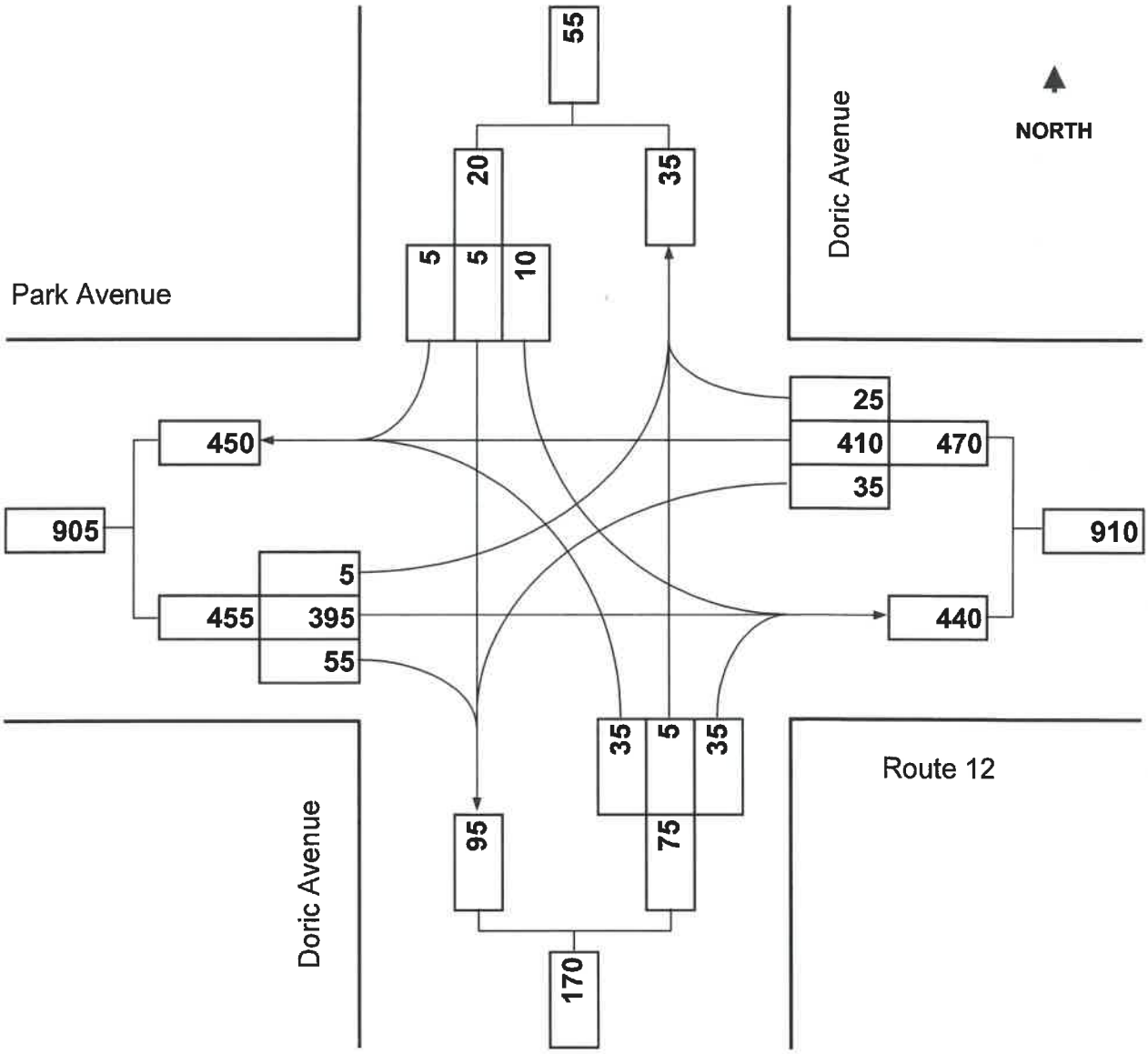
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Doric Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	11:00 AM - 12:00 PM
Existing:	AM Peak Hour	**Future:**	n/a



Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	5	395	55	35	410	25	35	5	35	10	5	5
Future Vol, veh/h	5	395	55	35	410	25	35	5	35	10	5	5
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	5	420	59	37	436	27	37	5	37	11	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	463	0	0	479	0	0	989	997	450	1005	1013	450
Stage 1	-	-	-	-	-	-	460	460	-	524	524	-
Stage 2	-	-	-	-	-	-	529	537	-	481	489	-
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	1109	-	-	1094	-	-	228	246	613	222	241	613
Stage 1	-	-	-	-	-	-	585	569	-	540	533	-
Stage 2	-	-	-	-	-	-	537	526	-	570	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1109	-	-	1094	-	-	213	233	613	197	228	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	233	-	197	228	-
Stage 1	-	-	-	-	-	-	581	566	-	537	508	-
Stage 2	-	-	-	-	-	-	503	502	-	527	550	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	20.7	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	309	1109	-	-	1094	-	-	247
HCM Lane V/C Ratio	0.258	0.005	-	-	0.034	-	-	0.086
HCM Control Delay (s)	20.7	8.3	0	-	8.4	0	-	20.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.3

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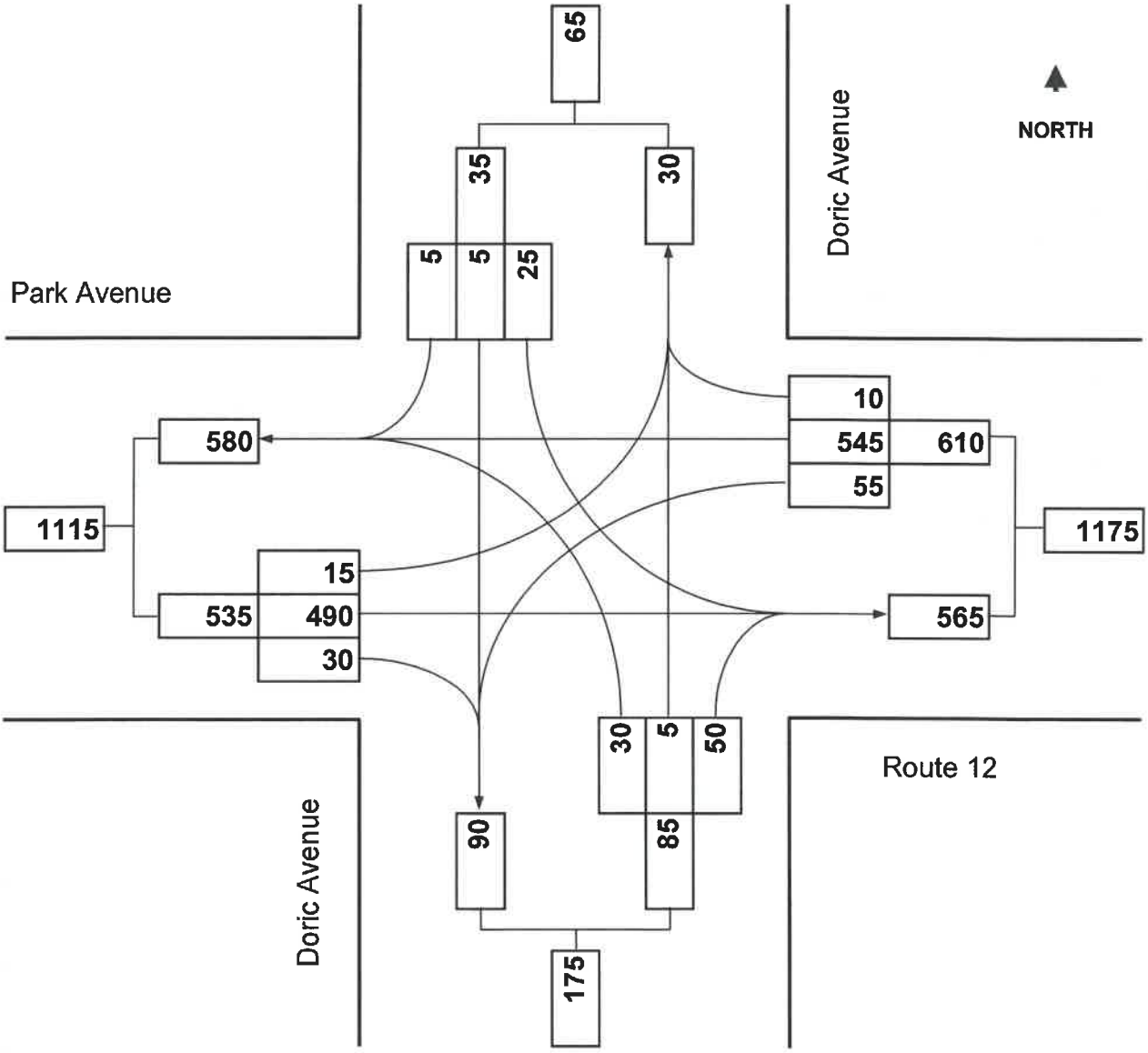
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Doric Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	4:30 PM - 5:30 PM
Existing:	PM Peak Hour	**Future:**	n/a



Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	490	30	55	545	10	30	5	50	25	5	5
Future Vol, veh/h	15	490	30	55	545	10	30	5	50	25	5	5
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	16	538	33	60	599	11	33	5	55	27	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	610	0	0	571	0	0	1317	1317	555	1342	1328	605
Stage 1	-	-	-	-	-	-	587	587	-	725	725	-
Stage 2	-	-	-	-	-	-	730	730	-	617	603	-
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	979	-	-	1012	-	-	136	159	535	131	157	501
Stage 1	-	-	-	-	-	-	499	500	-	420	433	-
Stage 2	-	-	-	-	-	-	417	431	-	481	492	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	979	-	-	1012	-	-	119	141	535	104	139	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	141	-	104	139	-
Stage 1	-	-	-	-	-	-	487	488	-	410	394	-
Stage 2	-	-	-	-	-	-	370	392	-	416	480	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.8	32.3	47.5
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	223	979	-	-	1012	-	-	122
HCM Lane V/C Ratio	0.419	0.017	-	-	0.06	-	-	0.315
HCM Control Delay (s)	32.3	8.7	0	-	8.8	0	-	47.5
HCM Lane LOS	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.9	0.1	-	-	0.2	-	-	1.2

Park Avenue at Wellington Avenue

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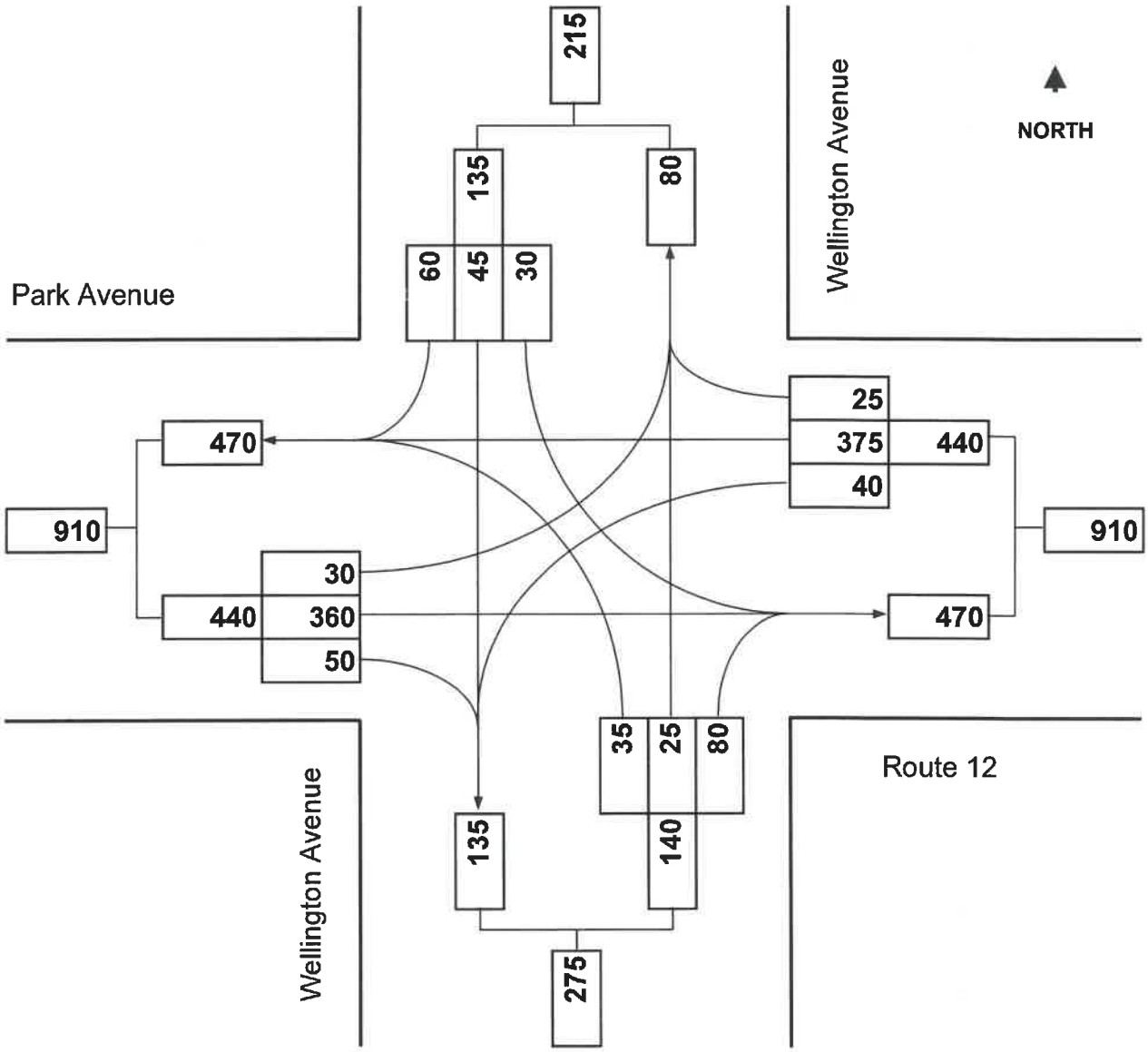
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street**:	Wellington Avenue
City/Town:	Cranston, RI	**Day of Week**:	Weekday
Reference No.:	7583	**Peak Period**:	11:00 AM - 12:00 PM
Existing:	AM Peak Hour	**Future**:	n/a

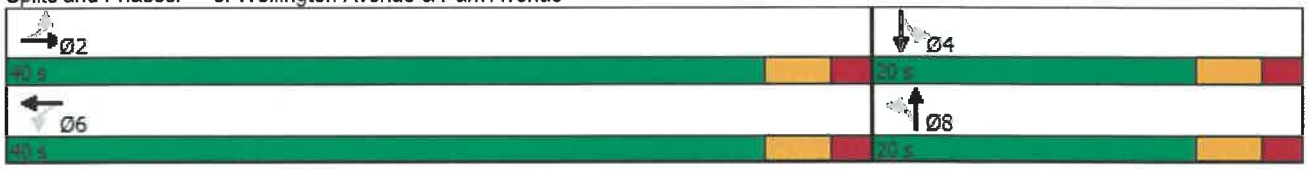


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	360	40	375	35	25	30	45
Future Volume (vph)	30	360	40	375	35	25	30	45
Lane Group Flow (vph)	0	500	0	499	0	159	0	153
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.0		5.0		5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	Min	None	None	None	None
v/c Ratio		0.50		0.51		0.38		0.35
Control Delay		9.4		9.6		15.3		14.9
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		9.4		9.6		15.3		14.9
Queue Length 50th (ft)		62		63		23		22
Queue Length 95th (ft)		152		153		76		73
Internal Link Dist (ft)		172		429		339		313
Turn Bay Length (ft)								
Base Capacity (vph)		1606		1582		672		695
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.31		0.32		0.24		0.22

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 36.2
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Wellington Avenue & Park Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	360	50	40	375	25	35	25	80	30	45	60
Future Volume (veh/h)	30	360	50	40	375	25	35	25	80	30	45	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	409	57	45	426	28	40	28	91	34	51	68
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	160	582	78	173	613	38	224	118	242	212	187	193
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	59	1527	204	86	1606	101	240	453	927	209	718	742
Grp Volume(v), veh/h	500	0	0	499	0	0	159	0	0	153	0	0
Grp Sat Flow(s),veh/h/ln	1790	0	0	1793	0	0	1621	0	0	1669	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	0.0	6.4	0.0	0.0	2.1	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.07		0.11	0.09		0.06	0.25		0.57	0.22		0.44
Lane Grp Cap(c), veh/h	820	0	0	824	0	0	584	0	0	593	0	0
V/C Ratio(X)	0.61	0.00	0.00	0.61	0.00	0.00	0.27	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	2316	0	0	2302	0	0	1013	0	0	1035	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	7.3	0.0	0.0	8.4	0.0	0.0	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	1.6	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	0.0	0.0	8.0	0.0	0.0	8.7	0.0	0.0	8.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		500			499			159			153	
Approach Delay, s/veh		8.1			8.0			8.7			8.6	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.7		12.3		15.7		12.3				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		8.5		4.0		8.4		4.1				
Green Ext Time (p_c), s		2.2		0.4		2.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

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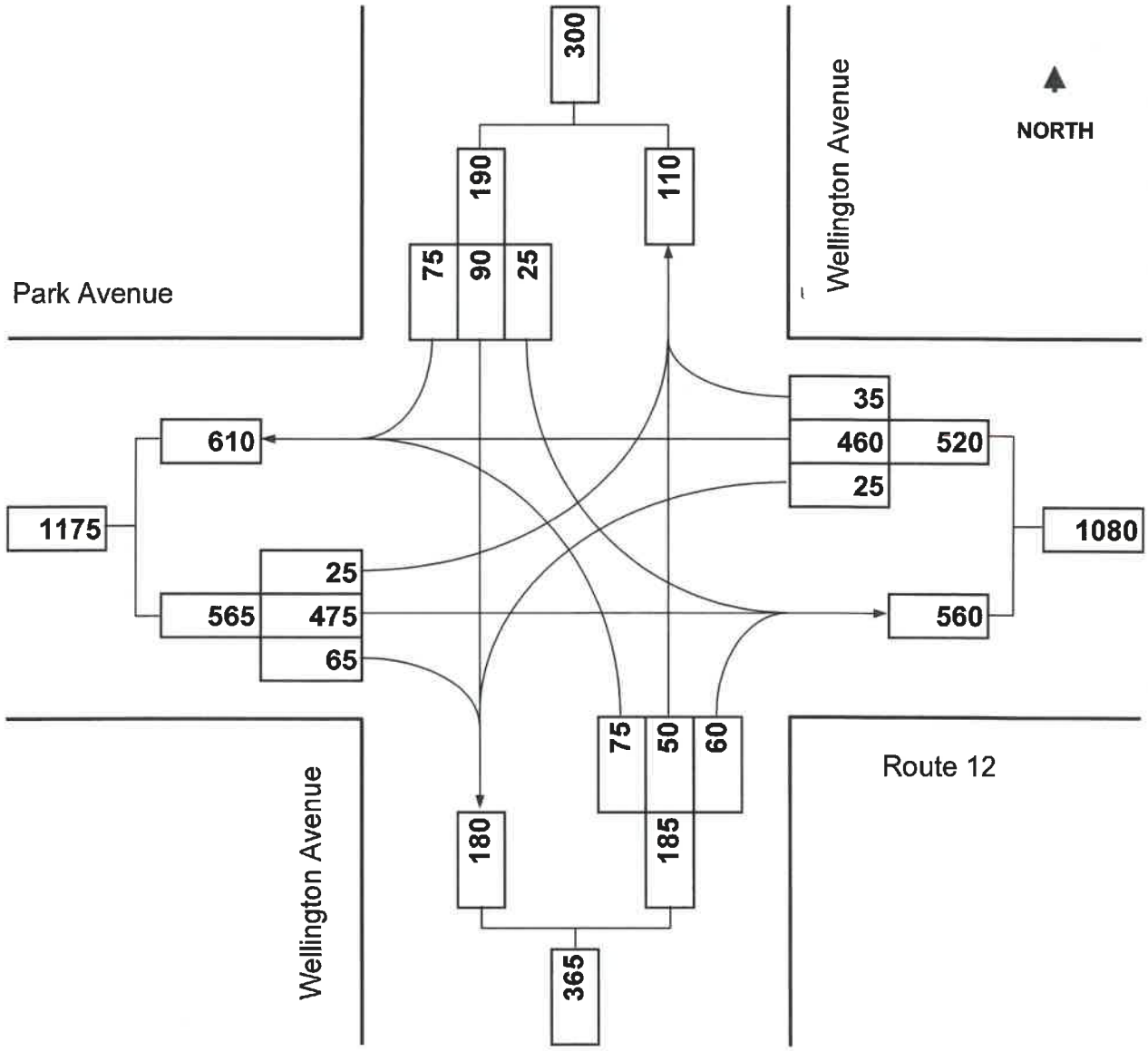
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Wellington Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	4:30 PM - 5:30 PM
Existing:	PM Peak Hour	**Future:**	n/a

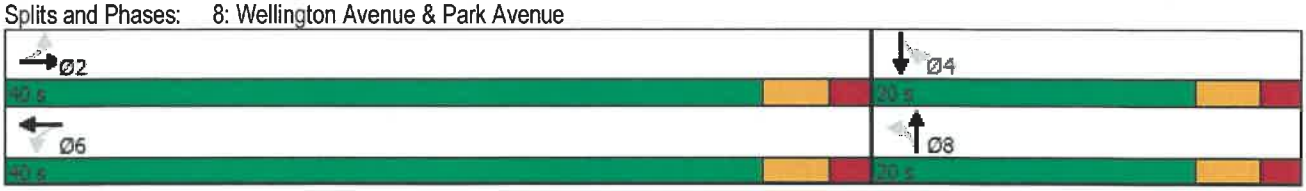


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	475	25	460	75	50	25	90
Future Volume (vph)	25	475	25	460	75	50	25	90
Lane Group Flow (vph)	0	571	0	525	0	188	0	192
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.0		5.0		5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	Min	None	None	None	None
v/c Ratio		0.55		0.50		0.46		0.42
Control Delay		10.1		9.5		18.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		10.1		9.5		18.0		16.8
Queue Length 50th (ft)		82		73		32		32
Queue Length 95th (ft)		193		170		99		98
Internal Link Dist (ft)		172		429		339		313
Turn Bay Length (ft)								
Base Capacity (vph)		1551		1553		603		674
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.37		0.34		0.31		0.28

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 39.7
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Wellington Avenue & Park Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	475	65	25	460	35	75	50	60	25	90	75
Future Volume (veh/h)	25	475	65	25	460	35	75	50	60	25	90	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	25	480	66	25	465	35	76	51	61	25	91	76
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	138	648	86	140	690	50	283	159	132	164	234	173
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	33	1556	208	37	1657	121	459	626	521	117	924	682
Grp Volume(v), veh/h	571	0	0	525	0	0	188	0	0	192	0	0
Grp Sat Flow(s),veh/h/ln	1797	0	0	1815	0	0	1606	0	0	1723	0	0
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.1	0.0	0.0	7.0	0.0	0.0	2.6	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.04		0.12	0.05		0.07	0.40		0.32	0.13		0.40
Lane Grp Cap(c), veh/h	872	0	0	880	0	0	574	0	0	571	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.60	0.00	0.00	0.33	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	2167	0	0	2175	0	0	935	0	0	977	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	0.0	7.2	0.0	0.0	9.4	0.0	0.0	9.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.7	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	1.8	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3	0.0	0.0	7.9	0.0	0.0	9.8	0.0	0.0	9.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		571			525			188			192	
Approach Delay, s/veh		8.3			7.9			9.8			9.8	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.6		12.7		17.6		12.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		10.1		4.7		9.0		4.6				
Green Ext Time (p_c), s		2.5		0.5		2.3		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									

D

Future 2026 Build Weekday AM / PM Peak Hour

Park Avenue at South Clarendon Street/Site Driveway

Park Avenue at Doric Avenue

Park Avenue at Wellington Avenue

Park Avenue at South Clarendon Street/Site Driveway

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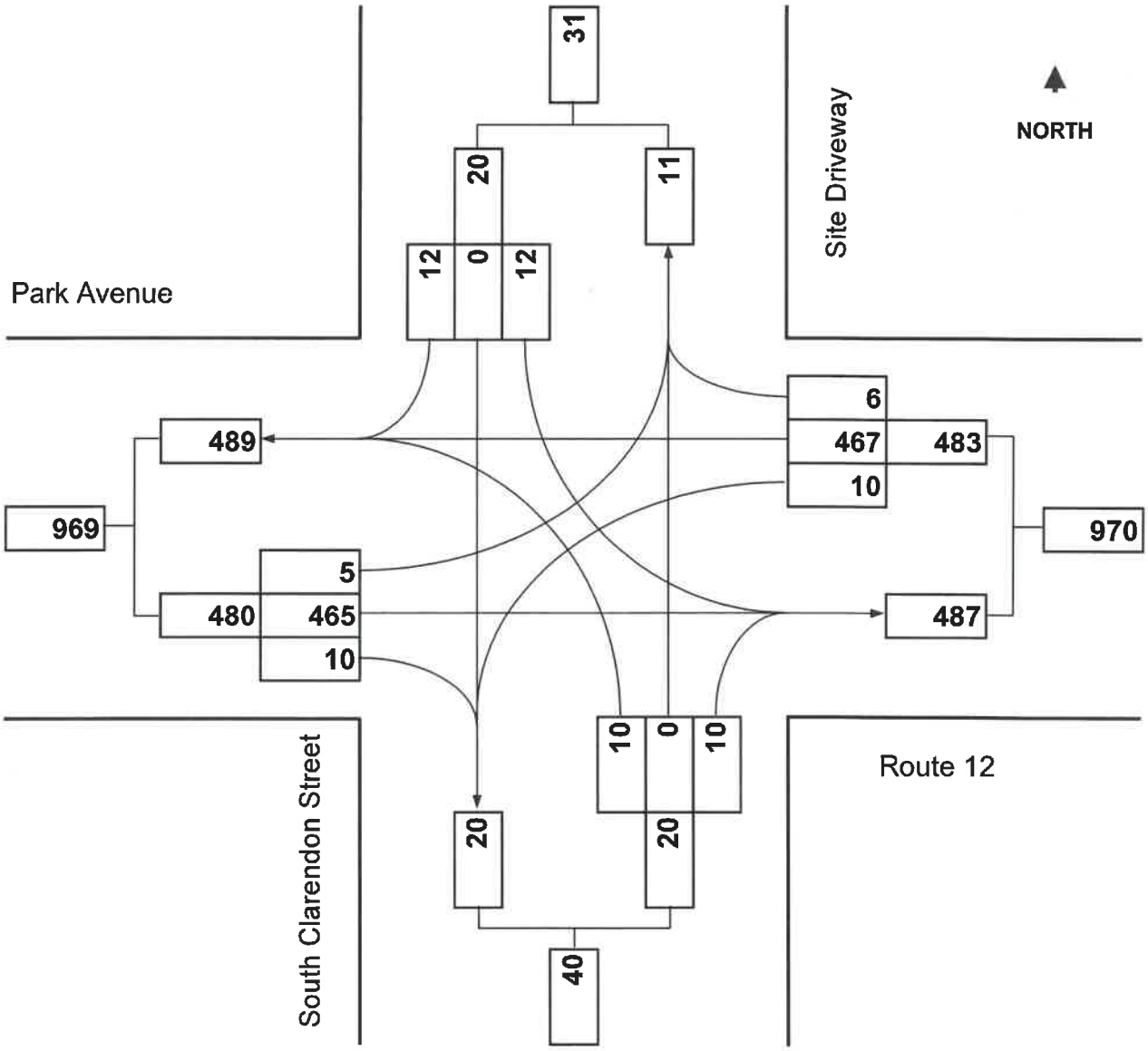
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	S. Clarendon St./Site Dwy.
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	AM Peak Hour
Existing:	n/a	**Future:**	2026 Build



Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	465	10	10	467	6	10	0	10	12	0	12
Future Vol, veh/h	5	465	10	10	467	6	10	0	10	12	0	12
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	92	93	93	93	93	92	93	92	93	93	93	93
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	5	500	11	11	502	7	11	0	11	13	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	509	0	0	511	0	0	1050	1047	506	1049	1049	506
Stage 1	-	-	-	-	-	-	516	516	-	528	528	-
Stage 2	-	-	-	-	-	-	534	531	-	521	521	-
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	1066	-	-	1065	-	-	207	230	570	207	229	570
Stage 1	-	-	-	-	-	-	546	538	-	538	531	-
Stage 2	-	-	-	-	-	-	534	529	-	542	535	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1066	-	-	1065	-	-	199	225	570	200	224	570
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	225	-	200	224	-
Stage 1	-	-	-	-	-	-	542	534	-	534	524	-
Stage 2	-	-	-	-	-	-	515	522	-	528	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	18.2	18.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	295	1066	-	-	1065	-	-	296
HCM Lane V/C Ratio	0.073	0.005	-	-	0.01	-	-	0.087
HCM Control Delay (s)	18.2	8.4	0	-	8.4	0	-	18.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.3

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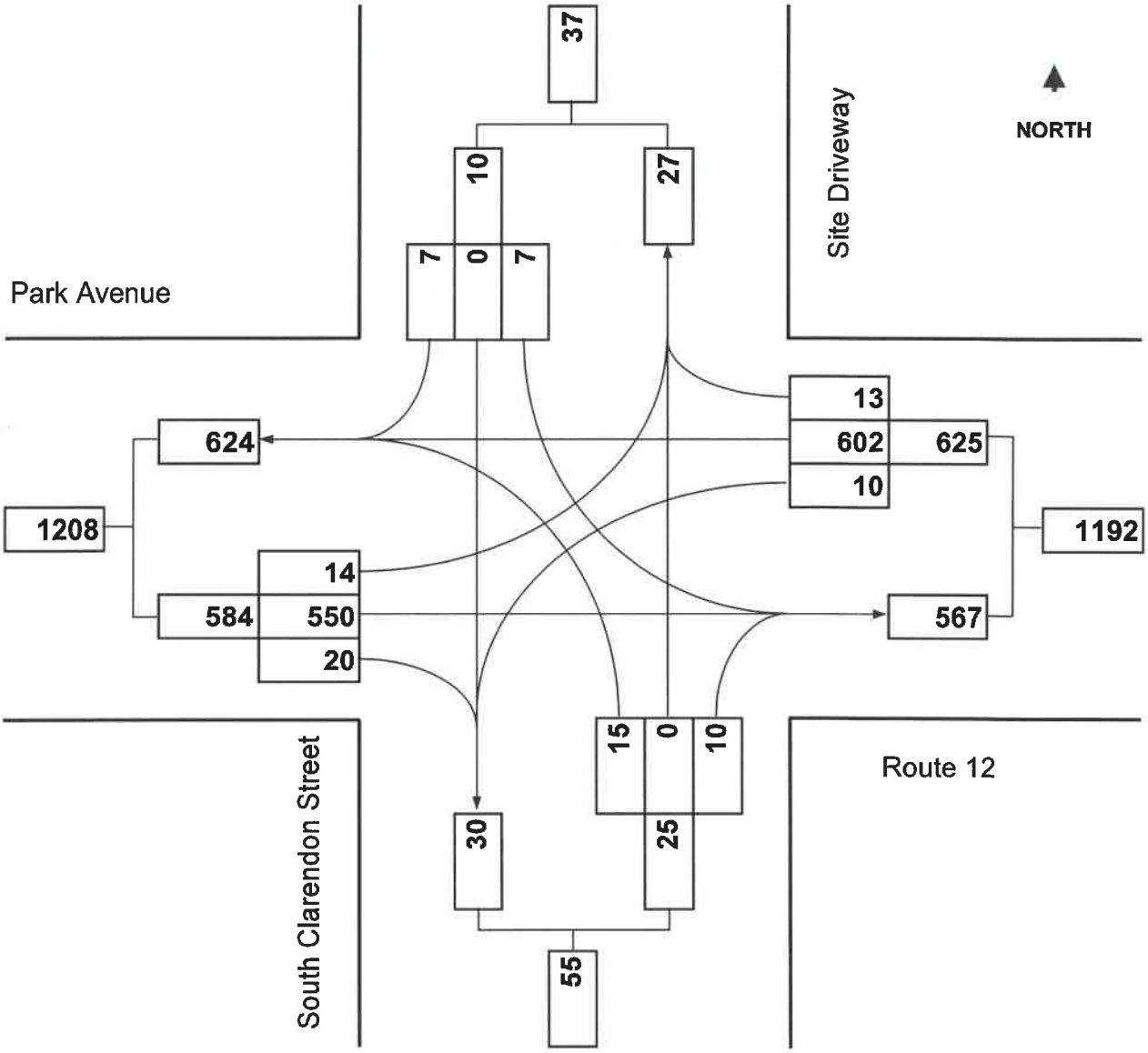
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	S. Clarendon St./Site Dwy.
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	PM Peak Hour
Existing:	n/a	**Future:**	2026 Build



Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	14	550	20	10	602	13	15	0	10	7	0	7
Future Vol, veh/h	14	550	20	10	602	13	15	0	10	7	0	7
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	15	598	22	11	654	14	16	0	11	8	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	668	0	0	620	0	0	1326	1329	609	1328	1333	661
Stage 1	-	-	-	-	-	-	639	639	-	683	683	-
Stage 2	-	-	-	-	-	-	687	690	-	645	650	-
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	931	-	-	970	-	-	134	156	499	133	155	466
Stage 1	-	-	-	-	-	-	468	474	-	442	452	-
Stage 2	-	-	-	-	-	-	440	449	-	464	468	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	931	-	-	970	-	-	128	149	499	126	148	466
Mov Cap-2 Maneuver	-	-	-	-	-	-	128	149	-	126	148	-
Stage 1	-	-	-	-	-	-	456	462	-	431	444	-
Stage 2	-	-	-	-	-	-	425	441	-	443	456	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	28.2	24.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	182	931	-	-	970	-	-	198
HCM Lane V/C Ratio	0.149	0.016	-	-	0.011	-	-	0.077
HCM Control Delay (s)	28.2	8.9	0	-	8.8	0	-	24.7
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.2

Park Avenue at Doric Avenue

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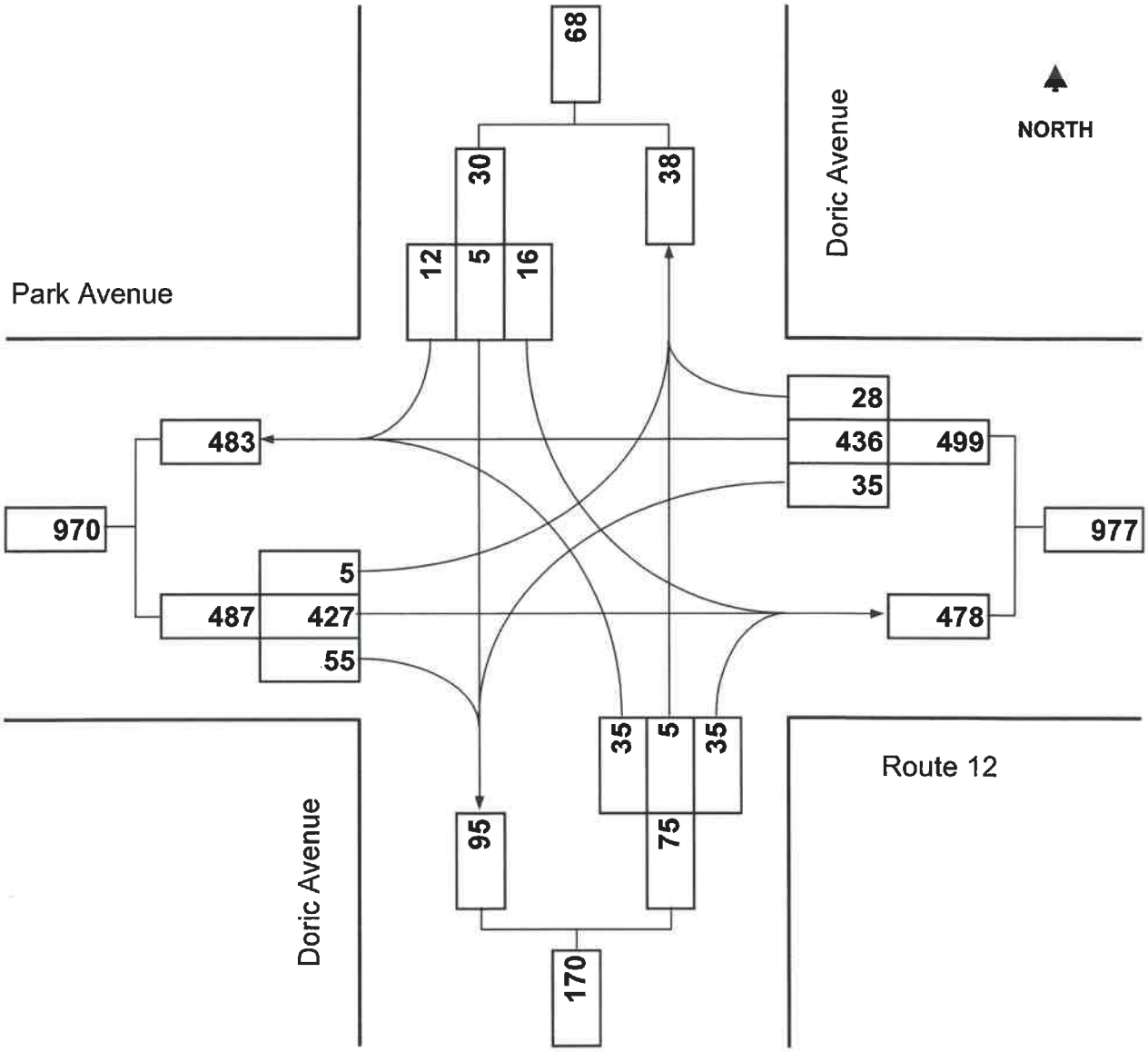
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Doric Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	AM Peak Hour
Existing:	n/a	**Future:**	2026 Build



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	5	427	55	35	436	28	35	5	35	16	5	12
Future Vol, veh/h	5	427	55	35	436	28	35	5	35	16	5	12
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	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	5	454	59	37	464	30	37	5	37	17	5	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	494	0	0	513	0	0	1056	1062	484	1068	1076	479
Stage 1	-	-	-	-	-	-	494	494	-	553	553	-
Stage 2	-	-	-	-	-	-	562	568	-	515	523	-
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	1080	-	-	1063	-	-	205	225	587	201	221	591
Stage 1	-	-	-	-	-	-	561	550	-	521	518	-
Stage 2	-	-	-	-	-	-	515	510	-	546	534	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1080	-	-	1063	-	-	188	213	587	177	209	591
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	213	-	177	209	-
Stage 1	-	-	-	-	-	-	557	546	-	517	493	-
Stage 2	-	-	-	-	-	-	475	486	-	503	530	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.6	23	22.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	279	1080	-	-	1063	-	-	245
HCM Lane V/C Ratio	0.286	0.005	-	-	0.035	-	-	0.143
HCM Control Delay (s)	23	8.3	0	-	8.5	0	-	22.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	0.5

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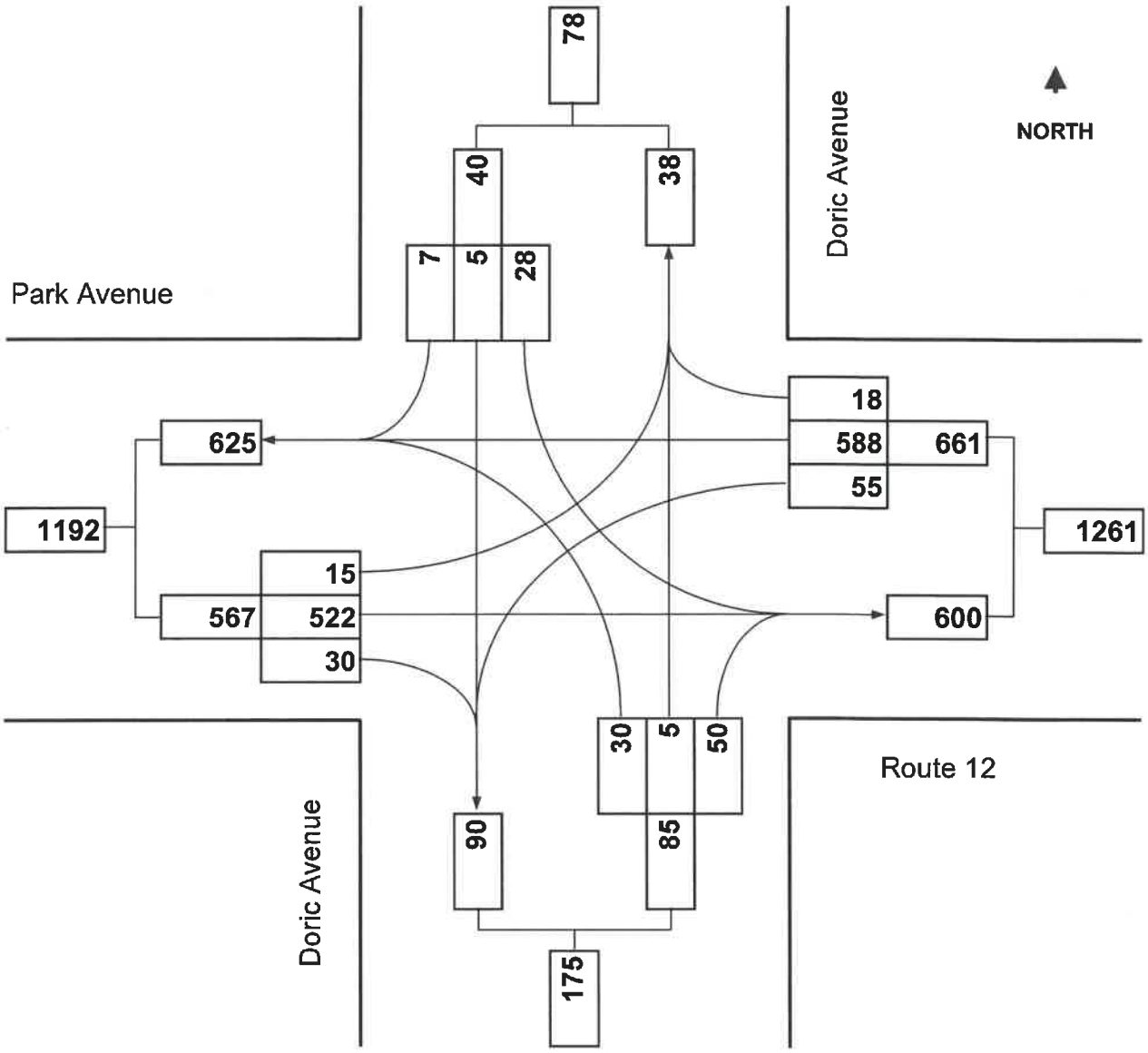
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Doric Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	PM Peak Hour
Existing:	n/a	**Future:**	2026 Build



Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	522	30	55	588	18	30	5	50	28	5	7
Future Vol, veh/h	15	522	30	55	588	18	30	5	50	28	5	7
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	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	16	574	33	60	646	20	33	5	55	31	5	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	666	0	0	607	0	0	1406	1409	591	1429	1415	656
Stage 1	-	-	-	-	-	-	623	623	-	776	776	-
Stage 2	-	-	-	-	-	-	783	786	-	653	639	-
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	933	-	-	981	-	-	118	140	511	114	139	469
Stage 1	-	-	-	-	-	-	477	481	-	393	410	-
Stage 2	-	-	-	-	-	-	390	406	-	460	474	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	933	-	-	981	-	-	102	123	511	89	122	469
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	123	-	89	122	-
Stage 1	-	-	-	-	-	-	465	468	-	383	370	-
Stage 2	-	-	-	-	-	-	341	367	-	395	462	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	39	59.5
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	196	933	-	-	981	-	-	108
HCM Lane V/C Ratio	0.477	0.018	-	-	0.062	-	-	0.407
HCM Control Delay (s)	39	8.9	0	-	8.9	0	-	59.5
HCM Lane LOS	E	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.3	0.1	-	-	0.2	-	-	1.7

Park Avenue at Wellington Avenue

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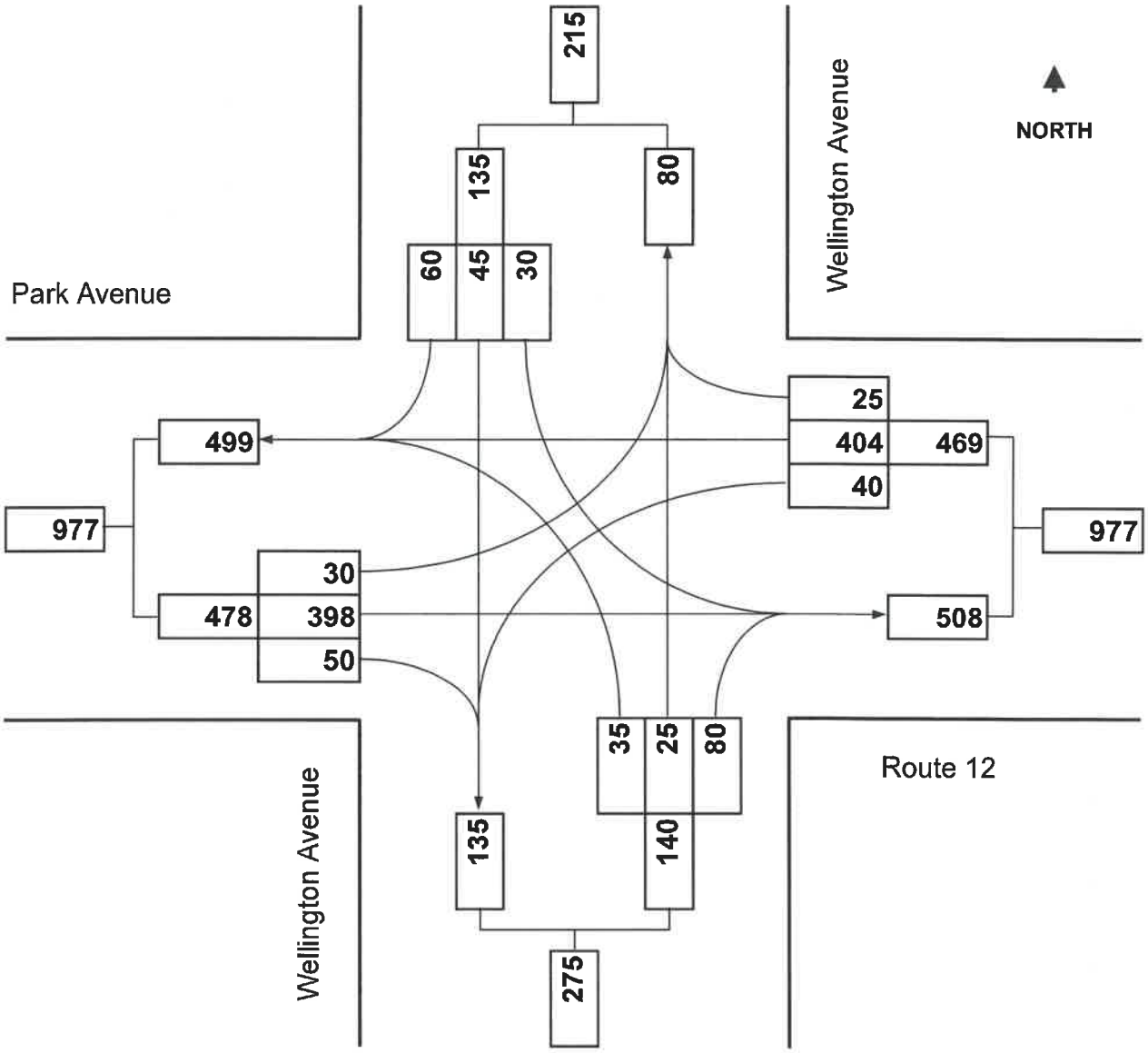
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Wellington Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	AM Peak Hour
Existing:	n/a	**Future:**	2026 Build

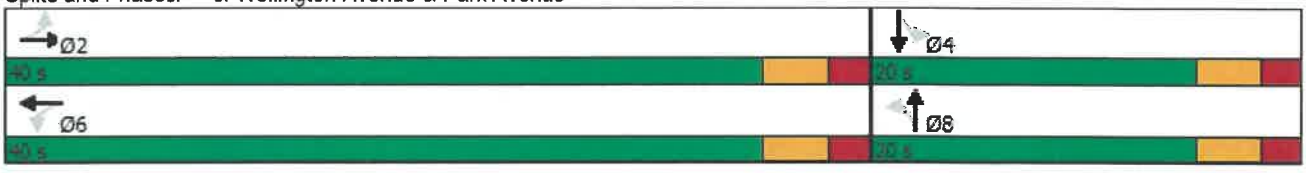


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	398	40	404	35	25	30	45
Future Volume (vph)	30	398	40	404	35	25	30	45
Lane Group Flow (vph)	0	543	0	532	0	159	0	153
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.0		5.0		5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	Min	None	None	None	None
v/c Ratio		0.53		0.53		0.38		0.35
Control Delay		9.7		9.7		16.2		15.7
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		9.7		9.7		16.2		15.7
Queue Length 50th (ft)		71		69		25		23
Queue Length 95th (ft)		172		168		80		76
Internal Link Dist (ft)		172		429		339		313
Turn Bay Length (ft)								
Base Capacity (vph)		1580		1554		656		677
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.34		0.34		0.24		0.23

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 37.6
Natural Cycle: 40
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Wellington Avenue & Park Avenue



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	398	50	40	404	25	35	25	80	30	45	60
Future Volume (veh/h)	30	398	50	40	404	25	35	25	80	30	45	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	452	57	45	459	28	40	28	91	34	51	68
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	153	625	76	166	654	38	216	114	235	204	181	188
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	53	1551	188	79	1622	94	241	451	927	210	717	741
Grp Volume(v), veh/h	543	0	0	532	0	0	159	0	0	153	0	0
Grp Sat Flow(s),veh/h/ln	1793	0	0	1795	0	0	1620	0	0	1668	0	0
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.3	0.0	0.0	7.0	0.0	0.0	2.2	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.06		0.10	0.08		0.05	0.25		0.57	0.22		0.44
Lane Grp Cap(c), veh/h	854	0	0	858	0	0	565	0	0	573	0	0
V/C Ratio(X)	0.64	0.00	0.00	0.62	0.00	0.00	0.28	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	2234	0	0	2216	0	0	974	0	0	995	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	7.3	0.0	0.0	8.9	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.7	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	1.8	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	0.0	0.0	8.0	0.0	0.0	9.2	0.0	0.0	9.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		543			532			159			153	
Approach Delay, s/veh		8.1			8.0			9.2			9.1	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		12.4		16.7		12.4				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		9.3		4.1		9.0		4.2				
Green Ext Time (p_c), s		2.4		0.4		2.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

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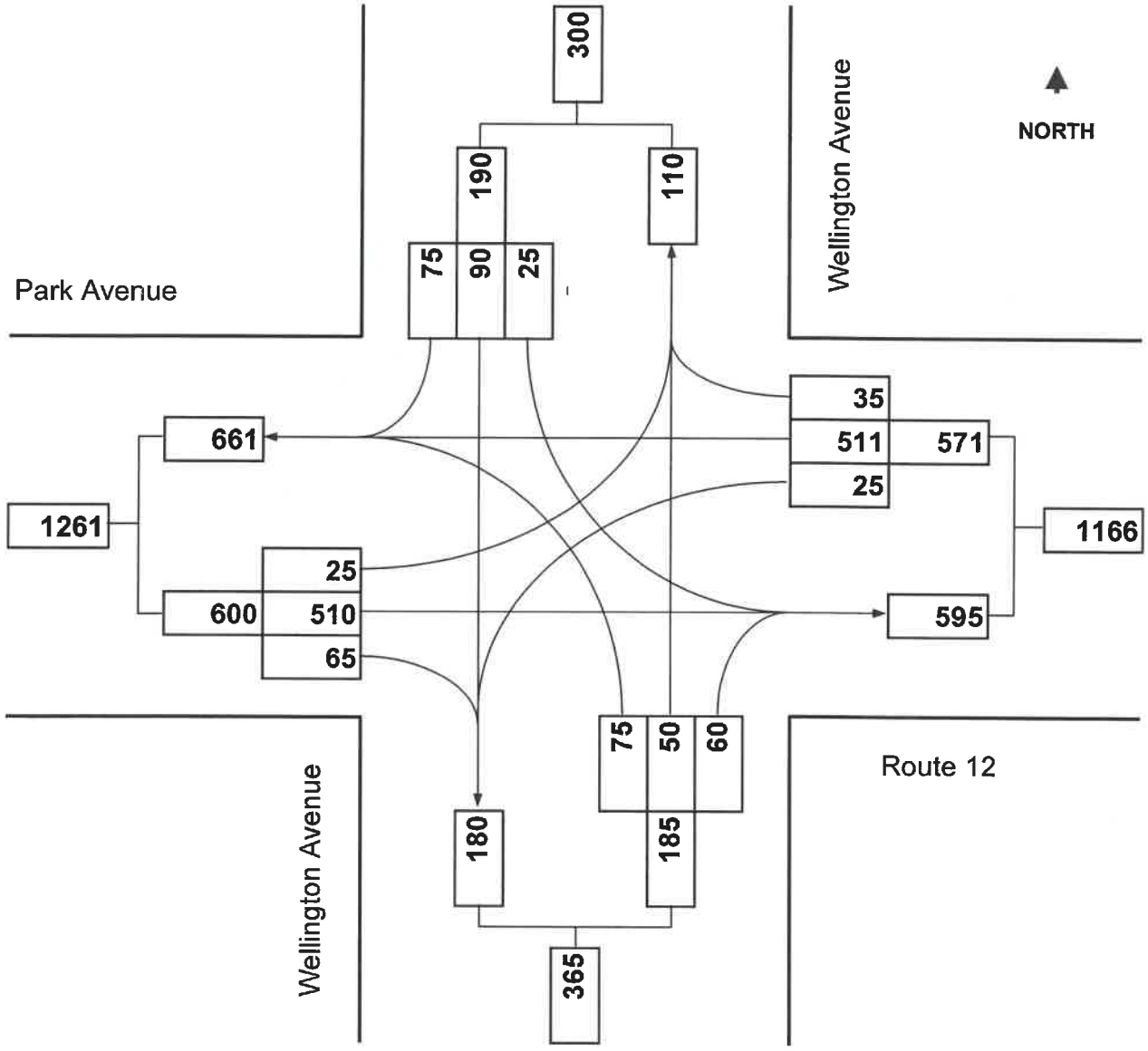
Turning Movement Diagram

Major Street:	Park Avenue (Route 12)	**Minor Street:**	Wellington Avenue
City/Town:	Cranston, RI	**Day of Week:**	Weekday
Reference No.:	7583	**Peak Period:**	PM Peak Hour
Existing:	n/a	**Future:**	2026 Build



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	510	25	511	75	50	25	90
Future Volume (vph)	25	510	25	511	75	50	25	90
Lane Group Flow (vph)	0	606	0	576	0	188	0	192
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (s)	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.0		5.0		5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Min	Min	Min	Min	None	None	None	None
v/c Ratio		0.57		0.54		0.47		0.43
Control Delay		10.2		9.7		19.5		18.1
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		10.2		9.7		19.5		18.1
Queue Length 50th (ft)		92		85		35		35
Queue Length 95th (ft)		207		191		107		106
Internal Link Dist (ft)		172		429		339		313
Turn Bay Length (ft)								
Base Capacity (vph)		1508		1513		576		650
Starvation Cap Reductn		0		0		0		0
Spillback Cap Reductn		0		0		0		0
Storage Cap Reductn		0		0		0		0
Reduced v/c Ratio		0.40		0.38		0.33		0.30

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 41.4
Natural Cycle: 45
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Wellington Avenue & Park Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	25	510	65	25	511	35	75	50	60	25	90	75
Future Volume (veh/h)	25	510	65	25	511	35	75	50	60	25	90	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1900	1870	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	25	515	66	25	516	35	76	51	61	25	91	76
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0	0	2	0	0	0	0	0	0	0
Cap, veh/h	133	682	85	135	726	48	277	154	129	159	228	168
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	31	1574	196	33	1675	110	465	623	523	118	923	682
Grp Volume(v), veh/h	606	0	0	576	0	0	188	0	0	192	0	0
Grp Sat Flow(s),veh/h/ln	1801	0	0	1818	0	0	1611	0	0	1723	0	0
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	0.0	8.0	0.0	0.0	2.7	0.0	0.0	2.9	0.0	0.0
Prop In Lane	0.04		0.11	0.04		0.06	0.40		0.32	0.13		0.40
Lane Grp Cap(c), veh/h	900	0	0	908	0	0	559	0	0	555	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.63	0.00	0.00	0.34	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	2103	0	0	2115	0	0	907	0	0	948	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	0.0	0.0	7.3	0.0	0.0	9.9	0.0	0.0	9.9	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.7	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	2.1	0.0	0.0	0.9	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	0.0	0.0	8.0	0.0	0.0	10.2	0.0	0.0	10.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		606			576			188			192	
Approach Delay, s/veh		8.4			8.0			10.2			10.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.5		12.7		18.5		12.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		35.0		15.0		35.0		15.0				
Max Q Clear Time (g_c+I1), s		10.8		4.9		10.0		4.7				
Green Ext Time (p_c), s		2.8		0.5		2.6		0.5				

Intersection Summary												
HCM 6th Ctrl Delay			8.7									
HCM 6th LOS			A									