TRAFFIC CALMING STUDY

FOR THE

EDGEWOOD NEIGHBORHOOD

CRANSTON, RHODE ISLAND

Prepared for:

City of Cranston
869 Park Avenue
Cranston, RI 02910

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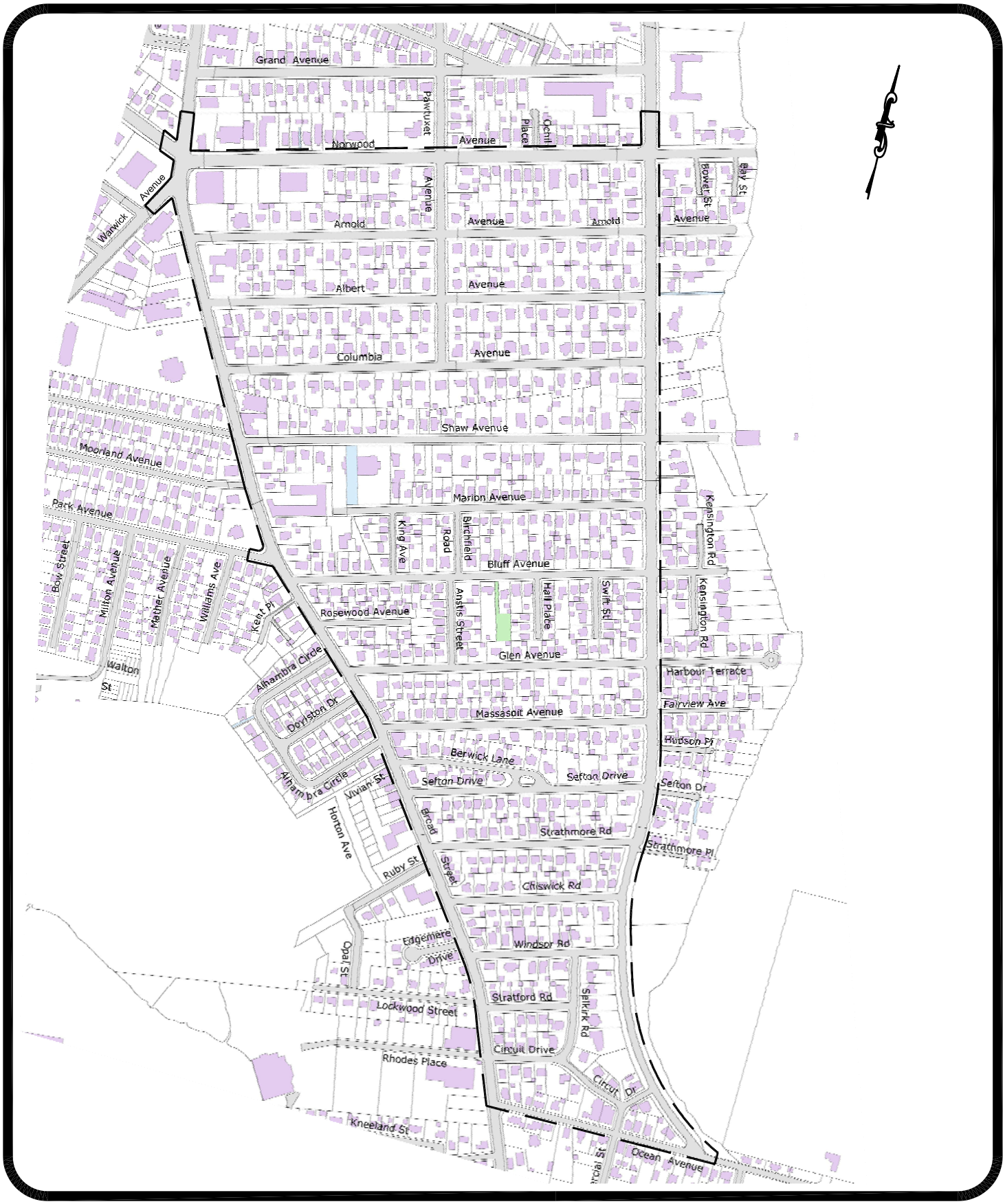
1.0 INTRODUCTION

It has been identified by the City of Cranston that excessive traffic volumes and speeds have been observed along local streets within the Edgewood neighborhood of the City. The study area is comprised of approximately 175 acres of moderately dense residential development consisting of mostly single family residences with a small percentage of multi-family residences. The neighborhood is indicative of early 20th century configuration with roadways exemplifying a grid layout pattern. The Edward S. Rhodes elementary school is also located within the study area limits.

Input from residents and local government representatives as well as field observations suggest that the primary cause of the problem is through traffic using neighborhood streets to bypass delays associated with the arterial roadway network. The City determined the need to effectively quantify traffic speeds and volumes within the neighborhood and along the surrounding arterial streets to establish the most practical and cost-effective solutions and to measure the impacts of potential solutions on the surrounding arterial roadway network. In this effort the City of Cranston has retained the services of *Garofalo & Associates, Inc.* to quantify and evaluate traffic conditions.

The objective of the this study is to analyze existing and future traffic operational characteristics of the roadway network in the Edgewood neighborhood located within the eastern portion of the city of Cranston, Rhode Island. This area is comprised of a series of 15 parallel east-west residential streets that provide direct access between Broad Street and Narragansett Boulevard which bound the eastern and western limits of the project. Norwood Avenue bounds the project to the north and Ocean Avenue at the southern end (*Figure 1*). Primary traffic flow



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EDGEWOOD TRAFFIC CALMING STUDY

CRANSTON, RHODE ISLAND

STUDY AREA
SCALE 1"=600'

Figure 1

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through this area consists of traffic originating from the western and southern areas of Cranston and northern sections of Warwick primarily utilizing Broad Street and Park Avenue destined for Providence in the morning and traffic leaving Providence destined for Cranston and Warwick in the evening. Several local streets in this neighborhood presently experience a high volume of cut-through vehicle trips at speeds in excess of their posted speeds. This report will identify existing peak hour traffic volumes and speeds along arterials and selected local streets within the study area and identify improvements targeted to reducing cut-through traffic volumes and associated speeds on local streets. The study will also examine the effect of any resulting traffic diversion to the arterial roadway network on the operation of the two signalized intersections in the study area.

2.0 EXISTING CONDITIONS

The Edgewood neighborhood is located at the eastern edge of the City of Cranston on Assessors Plats 2-2 and 2-3, bordering the City of Providence to the north, the City of Warwick to the south, and Narragansett Bay to the east. The neighborhood is residential in character and consists primarily of one- and two-family homes on one-eighth to one-half acre lots. This report examines the core of this section of the City which mainly consists of the area bounded by Norwood Avenue, Narragansett Boulevard, Broad Street and Ocean Avenue. To establish a traffic baseline from which to derive a scenario where proposed impacts can be developed, establishment of existing traffic conditions were obtained at key locations within the project area.

2.1 Arterial Roadway Characteristics

The Rhode Island Statewide Planning Technical Paper Number 155, has classified the roadways within the study area as follows.

- Narragansett Boulevard, north of Norwood Avenue – Principal Urban Arterial
- Narragansett Boulevard, south of Norwood Avenue – Urban Collector
- Norwood Avenue – Principal Urban Arterial
- Broad Street, north of Norwood Avenue – Principal Urban Arterial
- Broad Street, south of Norwood Avenue – Minor Urban Arterial
- Warwick Avenue – Principal Urban Arterial
- Park Avenue – Minor Urban Arterial
- Ocean Avenue – Urban Collector

All other study area roadways are classified as Local Roads.

Narragansett Boulevard within the project limits is a two lane roadway with a paved width of 50 feet north of Strathmore Road and 36 feet between Strathmore Road and Ocean Avenue. This width is divided into two 12-foot travel lanes, with two 5-foot bicycle lanes and two 8-foot parking lanes north of Strathmore Road and two 6-foot shoulders south of Strathmore Road. The pavement structure within the study area is in fair to good condition. Concrete curbing, concrete and bituminous sidewalks, drainage and street lighting exist on both sides of Narragansett Boulevard. All of these roadway elements are in fair to good condition. Narragansett Boulevard is designated U.S. Route 1A north of Norwood Avenue and extends north into Providence as Allens Avenue and provides a direct link from Edgewood to I-95 and downtown Providence. U.S. Route 1A then follows Norwood Avenue west to Warwick Avenue, then to Post Road.

Norwood Avenue (U.S. Route 1A) within the project limits is a two lane arterial roadway having a paved width of 60 feet. Although this width is sufficient to carry four 11-foot travel lanes, two eastbound and two westbound, and two 8-foot parking lanes, travel lanes are delineated by striping only along the westbound approach at the Broad Street intersection and the eastbound approach at the Narragansett Boulevard intersection. The remainder of Norwood Avenue therefore functions as a two-lane roadway. The pavement structure along Norwood Avenue, defining the northern limits of the project area, is in fair to poor condition. Concrete curbing, concrete sidewalks, drainage and street lighting exist on both sides of Norwood Avenue. All of these roadway elements are in fair to poor condition. West of Broad Street, Norwood Avenue continues as a local street with a 50 foot paved width. East of Narragansett Boulevard, Norwood Avenue is a dead-end local street with a paved width of 40 feet.

Broad Street within the project limits is a two lane bituminous roadway having a paved width of approximately 40 feet. This width is divided into two 12-foot travel lanes and two 8-foot parking lanes. The pavement structure within the study area is in fair to good condition. Concrete curbing, concrete sidewalks, drainage and street lighting exist on both sides of Broad Street. All of these roadway elements are in fair to good condition. Broad Street extends north into Providence, forming the border between the Elmwood neighborhood and South Providence, terminating in downtown Providence. To the south, Broad Street extends into the Pawtuxet neighborhood and into northeastern Warwick as Narragansett Parkway, providing connections with Post Road and Warwick Avenue.

Warwick Avenue (U.S. Route 1A/State Route 117) begins at the northwest corner of the study area and extends southwest into the City of Warwick. In the vicinity of the study area, Warwick Avenue is a two lane bituminous roadway having a paved width of 60 feet. This width is divided into four 11-foot travel lanes, two northbound and two southbound, and two 3-foot shoulders. The pavement structure of Warwick Avenue in the vicinity of the study area is in fair to good condition. Concrete curbing, concrete sidewalks, drainage and street lighting exist on both sides of Warwick Avenue. All of these roadway elements are in fair to good condition.

Park Avenue (State Route 12) begins at Broad Street at the western edge of the study area and extends west into the City of Cranston. In the vicinity of the study area, Park Avenue is a two lane bituminous roadway having a paved width of 40 feet and is the primary east-west corridor in the City of Cranston. This width is divided into two 12-foot travel lanes and two 8-foot parking lanes. The pavement structure in the vicinity of the study area is in fair to good condition. Concrete curbing, concrete sidewalks, drainage and street lighting exist on both sides

of Park Avenue. All of these roadway elements are in fair to good condition. At its western terminus with Broad Street, Park Avenue is offset from the intersection with Bluff Avenue by approximately 100 feet.

Local streets within the study area are typically two lane bituminous roadways having paved widths of 30 to 36 feet with parking permitted on both sides. All streets carry bidirectional traffic with no delineation of travel lanes or shoulders, with the exception of the block of Ocean Avenue between Commercial Street and Narragansett Boulevard, which is posted as one way eastbound between 7:00 AM and 1:00 PM Sundays. The pavement structure of local streets in the study area is in fair to good condition. Concrete curbing, concrete sidewalks, drainage and street lighting are provided on all local streets in the study area. All of these roadway elements are in fair to good condition.

Fourteen local streets in the study area provide east-west connectivity between Broad Street and Narragansett Parkway:

- Arnold Avenue
- Albert Avenue
- Columbia Avenue
- Shaw Avenue
- Bluff Avenue
- Glen Avenue
- Massasoit Avenue
- Sefton Drive/Berwick Lane
- Strathmore Road

- Chiswick Road
- Windsor Road
- Circuit Drive
- Ocean Avenue (except 7:00 AM to 1:00 PM Sundays)

Additionally, Pawtuxet Avenue provides north-south connectivity between Columbia Avenue in the Edgewood neighborhood and Narragansett Street in the City of Providence, approximately one-third of a mile north of the study area. This road bisects the local cross streets to its terminus at Columbia Avenue. Using a combination of local streets, a vehicle could travel up to a mile north into Providence via Pawtuxet Avenue.

There are two signalized intersections within the limits of this study, both under the jurisdiction of the City of Cranston. These intersections are:

- Broad Street at Norwood Avenue and Warwick Avenue
- Narragansett Boulevard at Norwood Avenue

The Broad Street, Norwood Avenue, and Warwick Avenue intersection is a five-leg intersection which is a major focal point of traffic in the Edgewood area. It is controlled by a fully actuated uncoordinated signal under the jurisdiction of the City of Cranston. This signal functions under an 80-second cycle length with three phases (Warwick Avenue eastbound, Broad Street northbound/southbound, and Norwood Avenue eastbound/westbound). Pedestrian signals are provided on all approaches, and pedestrians are permitted to cross concurrently with adjacent traffic. Warwick Avenue and the east leg of Norwood Avenue combine to form the major east-west traffic movement, while the west leg of Norwood Avenue is a local street with low traffic volumes. The southbound Broad Street, westbound Norwood Avenue, and northeast-bound

Warwick Avenue approaches are two lanes, while the northbound Broad Street and eastbound Norwood Avenue approaches are single lanes. There are no exclusive turning lanes on any approach.

The Narragansett Boulevard at Norwood Avenue intersection is a four-leg intersection controlled by a fully actuated uncoordinated signal under the jurisdiction of the City of Cranston. This signal functions under a 54-second cycle with two phases (Norwood Avenue eastbound/westbound and Narragansett Boulevard northbound/southbound). Pedestrian signals are provided on all approaches, and pedestrians are permitted to cross concurrently with adjacent traffic. The Narragansett Boulevard approaches are a single lane plus a 5-foot bicycle lane; there is also a 280-foot exclusive right turn lane (12 foot width) on the southbound approach. The eastbound Norwood Avenue approach is two lanes with no exclusive turn lanes, while the westbound approach is a single lane.

2.2 Existing Traffic Data

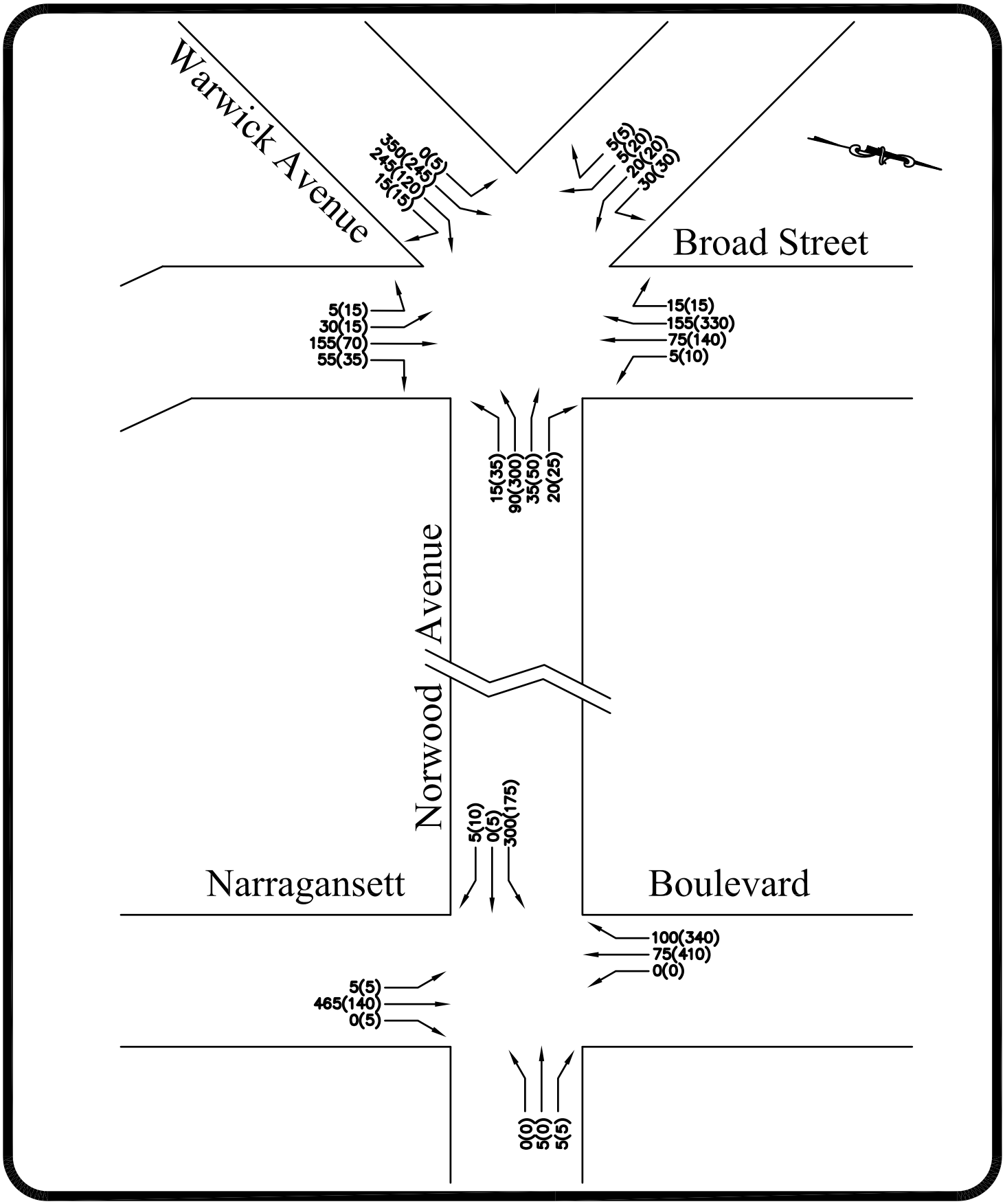
Existing traffic flow characteristics were developed for the study area roadway network utilizing manual turning movement counts. These turning movement counts were conducted at the following intersections during the AM (7:00 to 8:00 AM) and PM (4:00 to 5:00 PM) peak periods during March of 2009 and January 2010:

- Broad Street at Norwood Avenue/Warwick Avenue
- Broad Street at Columbia Avenue
- Broad Street at Shaw Avenue
- Broad Street at Park Avenue/Bluff Avenue
- Broad Street at Strathmore Road

- Broad Street at Chiswick Road
- Broad Street at Windsor Road
- Broad Street at Circuit Drive
- Broad Street at Ocean Avenue
- Narragansett Boulevard at Norwood Avenue
- Narragansett Boulevard at Columbia Avenue
- Narragansett Boulevard at Shaw Avenue
- Narragansett Boulevard at Bluff Avenue
- Narragansett Boulevard at Strathmore Road
- Narragansett Boulevard at Chiswick Road
- Narragansett Boulevard at Windsor Road
- Narragansett Boulevard at Circuit Drive
- Narragansett Boulevard at Ocean Avenue

The existing turning movement volumes at the two study area signalized intersections, Broad Street at Norwood Avenue/Warwick Avenue and Narragansett Boulevard at Norwood Avenue, are shown on *Figure 2.*

Cut-through traffic volumes in the southbound direction were estimated by determining and analyzing the southbound right turn volumes from Narragansett Boulevard to each local street and the corresponding westbound left turn movement from each local street to Broad Street during peak hours of operation. Similarly, northbound cut-through traffic volumes were estimated from northbound right turn movements from Broad Street onto local streets and eastbound left turn movements from local streets onto Narragansett Boulevard during the same time periods. Cut-through traffic along local streets estimated by comparing upstream and



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CRANSTON, RHODE ISLAND

TRAFFIC VOLUMES
2009 EXISTING AM(PM) PEAK HOUR
NOT TO SCALE

Figure 2

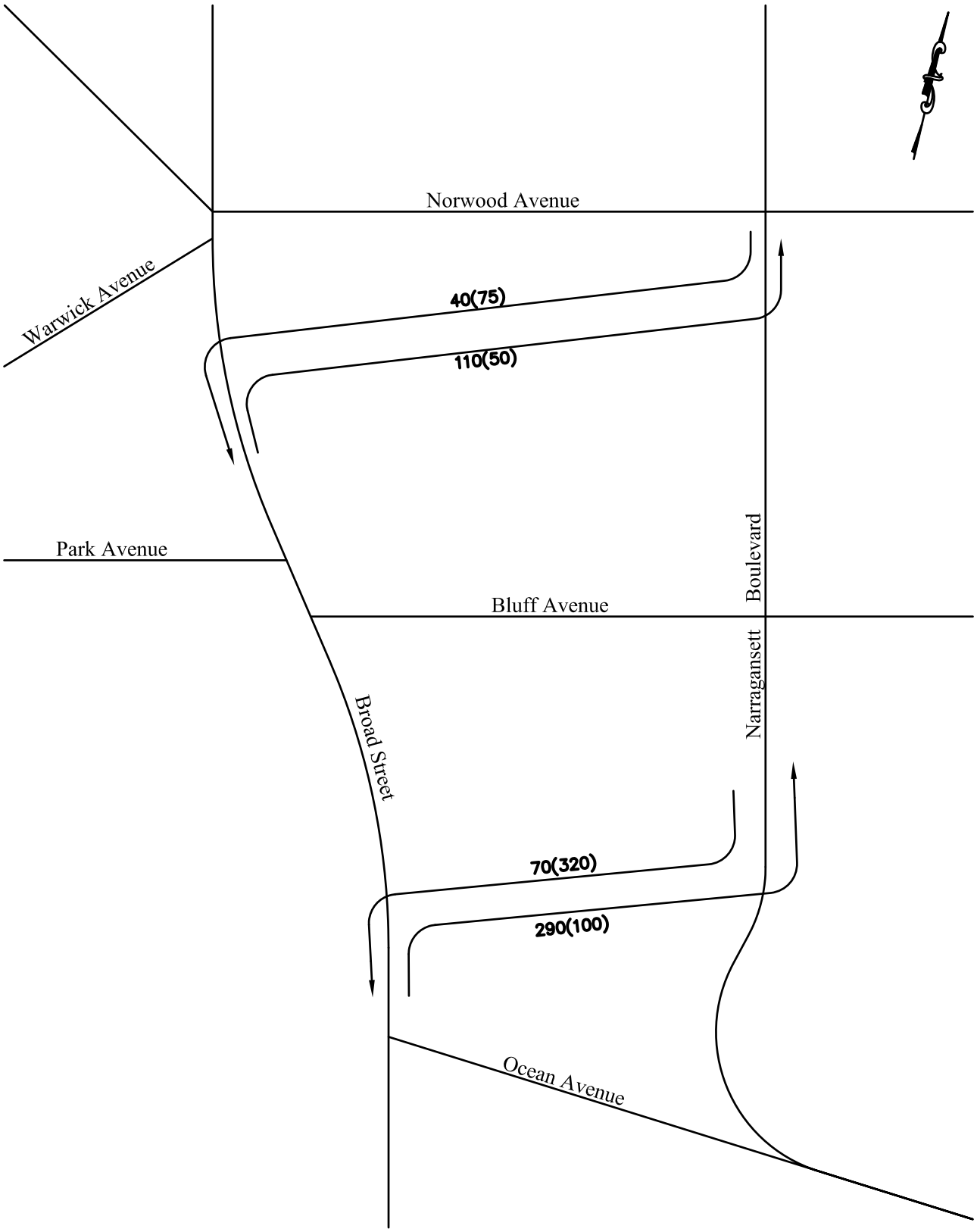
6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg

downstream traffic volumes along Broad Street and Narragansett Boulevard. Based on the traffic data and configuration of neighborhood streets relative to the "feeder" arterials, the overall project was divided into two distinct zones. The dividing roadway between these zones was determined to be Bluff Avenue, which bisects the Edgewood neighborhood into two relatively equivalent areas which do not function together. The northern zone provides a convenient cut-through for vehicles originating from Park Avenue during AM peak hours and returning during PM peak hours, while the southern zone affords cut-throughs for vehicles originating from areas along Broad Street south of the Park Avenue intersection.

The cut-through traffic volumes through each zone are shown in *Figure 3*. Complete count information can be found in Appendix A of this report.

2.3 Existing Traffic Speeds

Spot speed studies were also performed within the Edgewood neighborhood proper to establish the mean and 85th percentile speeds along selected east-west local streets in the study area, as well as along the arterial roadways. The 85th percentile speed is the fundamental value in the establishment of local and state traffic ordinances and the design of roadway geometrics. Studies were performed along Norwood Avenue, Columbia Avenue, Shaw Avenue, Bluff Avenue, Strathmore Road, Chiswick Road, Windsor Road, and Ocean Drive during off-peak times to ensure free-flowing conditions. Speed studies were also performed along Broad Street between Sefton Drive and Strathmore Road and along Narragansett Boulevard between Bluff Avenue and Glen Avenue. The 50th percentile (S_{50}), 85th percentile (S_{85}), and Mean speeds for each roadway are presented in Table 2.1. Details of the speed study are included in Appendix B of this report.



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EDGEWOOD TRAFFIC CALMING STUDY

CRANSTON, RHODE ISLAND

CUT-THROUGH TRAFFIC VOLUMES
2009 EXISTING AM(PM) PEAK HOUR
NOT TO SCALE

Figure 3

Table 2.1 Local and Arterial Roadway Speeds

Roadway	S_{50}	S_{85}	Mean	Observed Speed Range
Norwood Avenue	35 mph	38 mph	35 mph	38-32 mph
Columbia Avenue	29 mph	34 mph	30 mph	32-26 mph
Shaw Avenue	25 mph	30 mph	26 mph	28-22 mph
Bluff Avenue	27 mph	31 mph	28 mph	30-24 mph
Strathmore Road	22 mph	27 mph	23 mph	24-18 mph
Chiswick Road	24 mph	28 mph	25 mph	28-22 mph
Windsor Road	24 mph	26 mph	25 mph	26-20 mph
Ocean Avenue	24 mph	28 mph	25 mph	26-20 mph
Broad Street	32 mph	36 mph	33 mph	34-28 mph
Narragansett Boulevard	34 mph	38 mph	35 mph	35-28 mph

Note: The posted speed along each study area roadway is 25 mph.

As shown in Table 2.1, 85th percentile speeds along each street exceed the speed limit of 25 mph, and speeds on the three northernmost local streets in the study area, Columbia Avenue, Shaw Avenue, and Bluff Avenue, exceed 30 mph. In addition, although a detailed speed study was not performed along Pawtuxet Avenue, field observations indicated that vehicle speeds between Norwood Avenue and Columbia Avenue tended to be in excess of 35 miles per hour, with vehicles routinely failing to observe stop signs.

It should be noted that on several of the study area roadways, and predominantly along the arterials and collector roadways, that the prima fascie speeds, or the maximum speed that is reasonable and prudent based on geometric and traffic flow conditions, are much greater than the posted speed limits. Due to the straight roadway alignments, relatively wide pavement widths,

and low traffic volumes during off-peak travel times, prima fascie speeds within the study area can approach 40 mph without creating an adverse condition for the motorist.

2.4 Existing Conditions Arterial Street Capacity Analysis

As discussed in the previous section, manual turning movement counts were collected at selected study area intersections during the AM and PM peak hours. These counts were used to evaluate existing conditions and project future traffic operations at the two signalized intersections in the study area, Broad Street at Norwood Avenue/Warwick Avenue, and Narragansett Boulevard at Norwood Avenue.

A model was created using the Synchro® 6 traffic analysis software to determine observable delay experienced by vehicles at each signalized intersection during the peak hours of daily operation. This delay has been broken down into six "levels of service" (LOS). LOS for signalized intersections is defined by the 2000 Highway Capacity Manual (HCM) in terms of control delay per vehicle for a 15-minute analysis period. Level of Service "A" describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle), while LOS "F" describes operations with delay in excess of 80.0 seconds per vehicle. LOS "D" is generally considered the minimum acceptable level of service and a benchmark for a typical urban intersection. Queuing along each leg of the respective intersection was estimated using the SimTraffic® 6 traffic microsimulation software, which utilizes a car-following model to simulate and animate actual vehicle behavior. Detailed traffic analysis is provided in Appendix C of this report.

To develop a measure for analysis of additional progressive impacts resulting from traffic diversions associated with recommended traffic calming measures, the existing operational performance of the study area intersections was completed to determine base conditions. This analysis was performed for the weekday AM and PM peak hour periods, which represents the average peak use of the area roadways based upon the data developed for weekday traffic. Refer to *Figure 2* for existing peak hour traffic volumes. The results indicate that based upon the existing geometric conditions and traffic volumes, these intersections operate at the levels of service shown in Table 2.2.

Table 2.2 Arterial Capacity Analysis – 2009 Existing Conditions

Intersection	Roadway	Movement	Weekday AM LOS	Weekday PM LOS
Broad Street & Norwood Avenue/ Warwick Avenue	Broad St.	Northbound	C	B
		Southbound – Lt/Th	B	B
		Southbound – Rt	B	C
	Norwood Ave.	Eastbound	C	B
		Westbound - Lt	C	E
		Westbound – Th/Rt	B	B
	Warwick Ave.	Eastbound	B	C
Narragansett Boulevard & Norwood Avenue	Narragansett Blvd.	Northbound	A	A
		Southbound – Lt/Th	A	A
		Southbound – Rt	A	A
	Norwood Ave.	Eastbound - Lt	B	B
		Eastbound – Th/Rt	A	A
		Westbound	A	A

As shown in Table 2.2, the Norwood Avenue westbound left-turn movement at Broad Street operates at LOS E, indicating moderate congestion, during the PM peak hour. All movements at the two study area signalized intersections presently operate at acceptable LOS C or better during the AM and PM peak hours.

2.5 Existing Crash Data

Crash data for each intersection in the study area were obtained from the Cranston Police Department for the years 2006 to 2008, the most recent three years available. A total of 116 crashes occurred within the study area during this period, including 56 at or near the signalized intersections of Broad Street with Norwood Avenue/Warwick Avenue and Narragansett Boulevard with Norwood Avenue, and 60 at 23 unsignalized intersections. 8 crashes resulted in personal injury. No fatalities were reported in the data received. The crashes occurring in each year, and the number of property damage only (PDO) and injury crashes at each location are summarized in Table 2.3. Complete crash information, including types of crashes and lighting and pavement conditions, are included as Appendix D of this report.

Table 2.3 Intersection Crashes, 2006 to 2008

Intersection[1]	2006	2007	2008	PDO	Injury	Fatal	Total
Norwood Ave. & Broad St.	12	20	14	42	4	0	46
Norwood Ave. & Narragansett Blvd.	2	5	3	9	1	0	10
Arnold Ave. & Broad St.	0	1	0	1	0	0	1
Arnold Ave & Narragansett Blvd.	0	0	1	1	0	0	1
Albert Ave. & Broad St.	2	0	2	4	0	0	4
Albert Ave. & Narragansett Blvd.	0	0	0	0	0	0	0
Columbia Ave. & Broad St.	0	1	0	1	0	0	1
Columbia Ave. & Pawtuxet Ave.	1	1	1	3	0	0	3
Shaw Ave. & Broad St.	1	1	1	3	0	0	3
Shaw Ave. & Narragansett Blvd.	2	2	0	3	1	0	4
Marion Ave. & King Ave.	0	1	2	3	0	0	3
Bluff Ave. & Broad St.	1	3	0	4	0	0	4
Bluff Ave. & Narragansett Blvd.	1	0	1	2	0	0	2
Bluff Ave. & King Ave.	0	0	1	1	0	0	1
Massasoit Ave. & Broad St.	1	1	0	2	0	0	2
Sefton Dr. & Broad St.	2	1	0	3	0	0	3
Sefton Dr. & Narragansett Blvd.	2	0	1	3	0	0	3
Chiswick Rd. & Broad St.	0	0	1	1	0	0	1
Chiswick Rd. & Narragansett Blvd.	0	1	0	1	0	0	1
Circuit Dr. & Broad St.	0	0	1	0	1	0	1
Circuit Dr. & Narragansett Blvd.	1	0	1	2	0	0	2
Ocean Ave. & Broad St.	2	1	2	4	1	0	5
Ocean Ave. & Commercial St.	2	1	0	3	0	0	3
Ocean Ave. & Narragansett Blvd.	2	2	2	6	0	0	6
Ocean Ave. & Fort Ave.[2]	0	3	2	5	0	0	5
TOTALS	34	45	37	108	8	0	116

[1] Intersections where no crashes occurred within the three-year study period are not listed.
[2] Includes crashes that occurred in the Rhode Island Yacht Club parking lot.

The intersection experiencing the most crashes was the signalized intersection of Broad Street with Norwood Avenue and Warwick Avenue, with 46 crashes over the three-year study period including 4 resulting in injuries. Rear end crashes were most common at this intersection, with 15 crashes occurring during the study period. Other crashes occurring at this location were 11 sideswipe or angle crashes, 2 broadside or left turn crashes, 2 crashes involving pedestrians, and 9 crashes involving parked vehicles or a fixed object.

10 crashes occurred at the signalized intersection of Norwood Avenue with Narragansett Boulevard, including 1 crash resulting in injuries. Rear end crashes were most common at this intersection, with 4 crashes occurring during the study period.

The intersection of Ocean Avenue with Narragansett Boulevard had the highest number of crashes at unsignalized intersections in the study area, with 6 crashes occurring during the three-year period. Fixed object crashes accounted for 4 of the 6 crashes, likely involving the median located at the southern terminus of Narragansett Boulevard. Field observations have indicated that motorists traveling southbound on Narragansett Boulevard approach the intersection at excessive speed, including one vehicle reportedly traveling at an estimated 80 miles per hour, and may not anticipate the sight deflection to the right caused by the median. A flashing light was recently installed at this location; however, supplemental crash data obtained from the City of Cranston, included in Appendix D, indicate that four more fixed-object crashes occurred between September 2009 and January 2010. Although no injuries were reported as a result of crashes during the 2006 to 2008 study period, one crash included in the supplemental data resulted in injury. In addition, the supplemental data indicate numerous incidents involving

damage to private property, particularly the residence located at 92 Ocean Avenue, which has been involved in five crashes between 1993 and 2009.

At the remaining unsignalized intersections in the study area, 22 of the 54 crashes involved a parked vehicle or fixed object. These crashes are typically the result of vehicles backing out of residential driveways and striking parked vehicles or utility poles and are not indicative of a general safety problem along the roadways or at the intersections.

3.0 FUTURE NO-BUILD CONDITIONS

To determine the future need for traffic calming measures in the Edgewood neighborhood and the traffic impacts of the proposed measures on the arterial streets, a No-Build traffic network model for a five-year horizon was developed. The No-Build scenario uses existing parameters to establish a future baseline condition which can be used to make direct comparisons with future proposed alternatives. No-Build traffic for the year 2014 was developed by applying a growth factor of 1.0 percent per year to the 2009 Existing traffic volumes.

3.1 Transit Considerations

The Rhode Island Public Transit Authority (RIPTA) plans to extend its *Route #11 – Broad Street* through the study area, from its southern terminus at Broad Street and Montgomery Avenue in Providence to the Pawtuxet neighborhood in Warwick via Broad Street. Buses along Route #11 will be equipped with traffic signal preemption devices, potentially extending the northbound and southbound Broad Street phases of the signal at Norwood Avenue by up to five seconds. For this study, it was assumed that Route #11 would run through the study area at its current headway of 10 minutes, and as a conservative measure, the northbound/southbound Broad Street phase of signal at Norwood Avenue was assumed to be extended by five seconds for each bus trip through that intersection.

3.2 Future Development Projects

As of the writing of this document, there is a proposal to redevelop the existing parcel at the southeast corner of Broad Street and Norwood Avenue, currently Rite Aid pharmacy and Rocky's Ace hardware store, into a similar retail use. This project remains in the planning stages

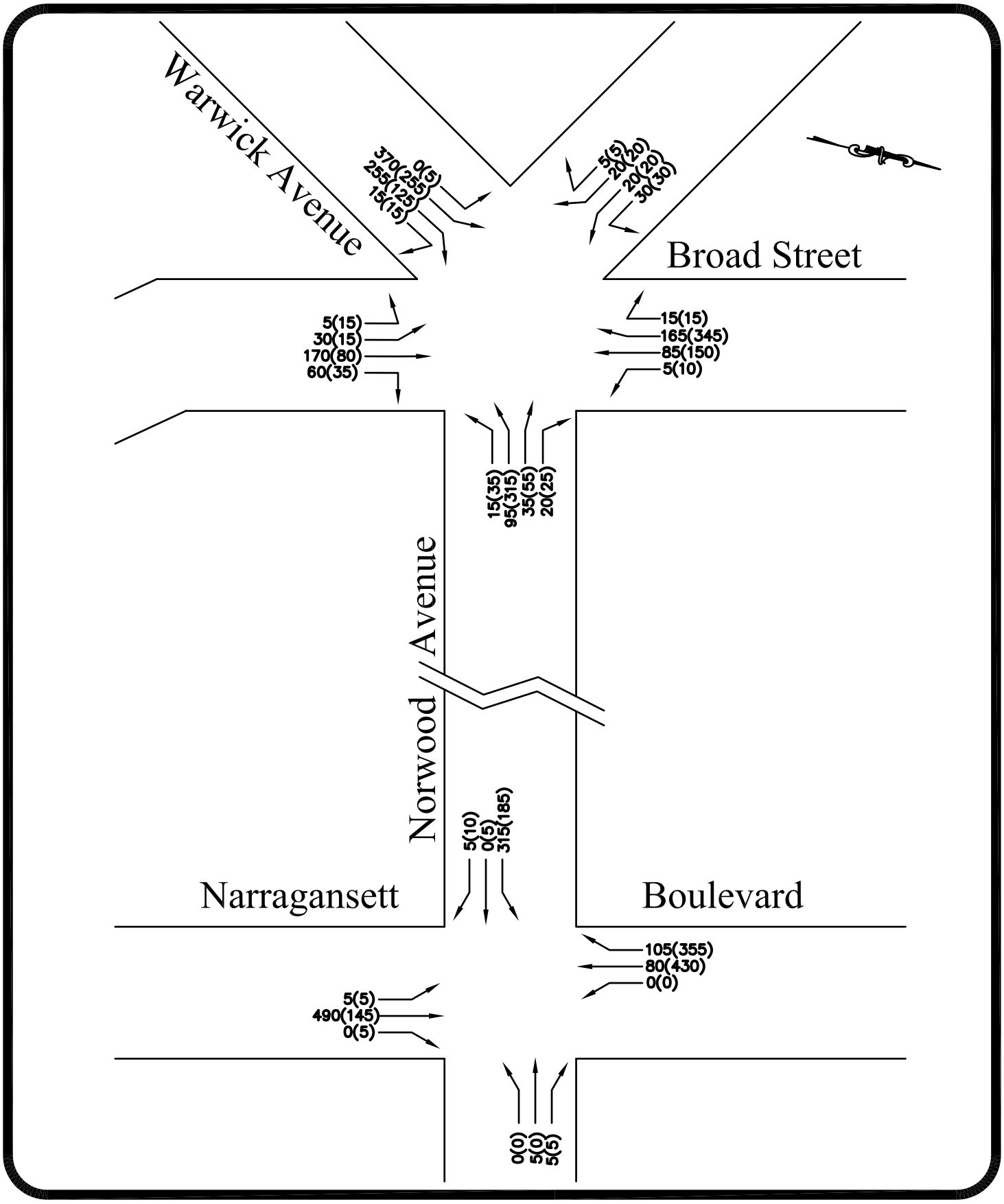
and has not received approval from the City of Cranston; therefore, the projected traffic demand generated by this project has not been included in this study.

3.3 Future No-Build Traffic Volumes and Arterial Street Capacity Analysis

The anticipated 2014 No-Build peak hour traffic volumes at the two study area signalized intersections are shown in *Figure 4*, with *Figure 5* showing the projected 2014 No-Build cut-through traffic. Synchro® traffic analysis results indicate that based upon the existing geometric conditions and future traffic volumes, the signalized intersections operate at the levels of service shown in Table 3.1. With the anticipated traffic growth, cut-through traffic would increase by approximately 5.1 percent throughout the study area.

Table 3.1 Arterial Capacity Analysis – 2014 No-Build Conditions

Intersection	Roadway	Movement	Weekday AM LOS	Weekday PM LOS
Broad Street & Norwood Avenue/ Warwick Avenue	Broad St.	Northbound	C	B
		Southbound – Lt/Th	B	B
		Southbound – Rt	B	C
	Norwood Ave.	Eastbound	C	C
		Westbound - Lt	C	**F**
		Westbound – Th/Rt	C	C
	Warwick Ave.	Eastbound	B	C
Narragansett Boulevard & Norwood Avenue	Narragansett Blvd.	Northbound	B	A
		Southbound – Lt/Th	A	A
		Southbound – Rt	A	A
	Norwood Ave.	Eastbound - Lt	B	B
		Eastbound – Th/Rt	A	A
		Westbound	A	A



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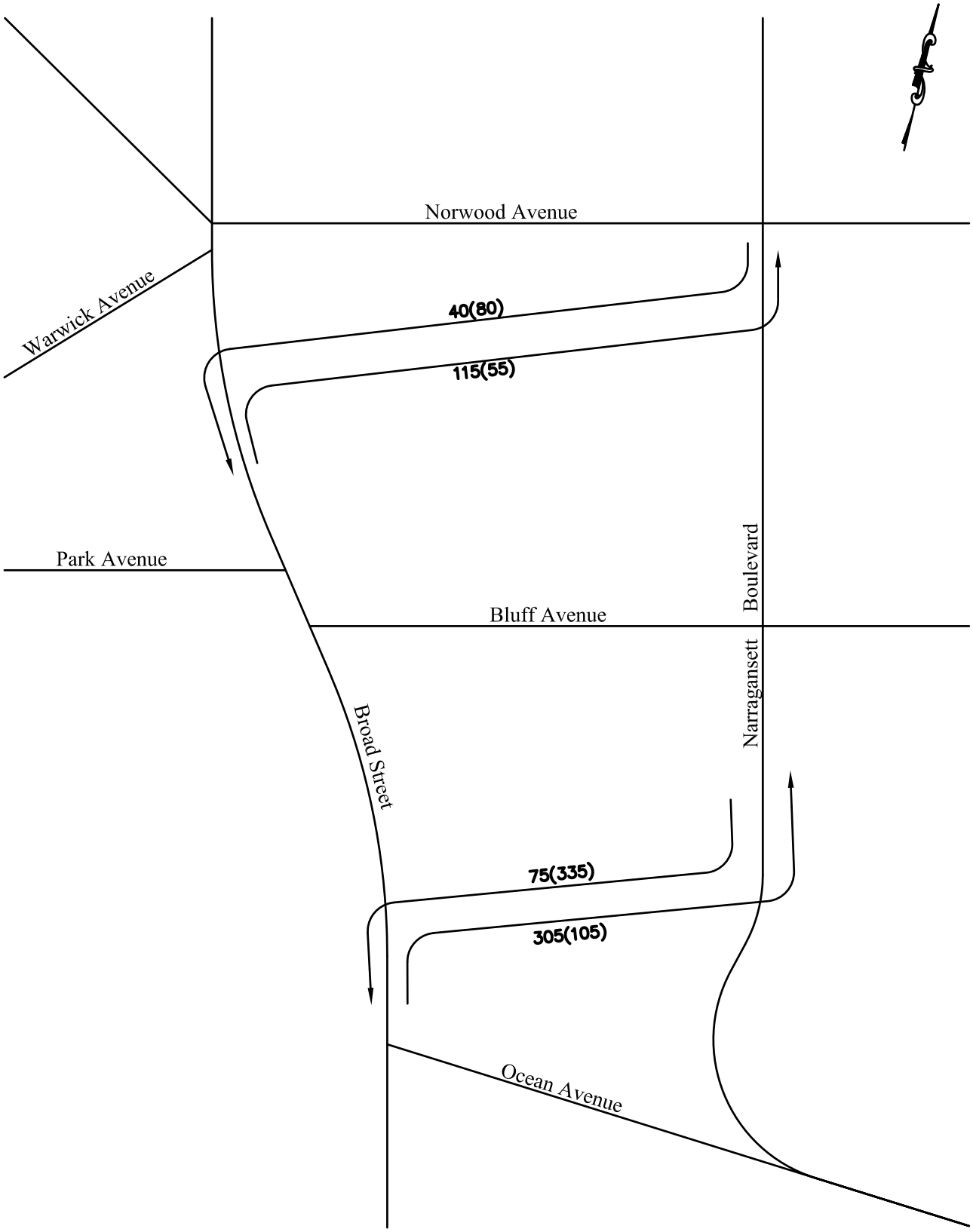
EDGEWOOD TRAFFIC CALMING STUDY

CRANSTON, RHODE ISLAND

TRAFFIC VOLUMES
2014 NO-BUILD AM(PM) PEAK HOUR
NOT TO SCALE

Figure 4

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg



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CUT-THROUGH TRAFFIC VOLUMES
2014 NO-BUILD AM(PM) PEAK HOUR
NOT TO SCALE

Figure 5

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg

As shown in Table 3.1, levels of service at the two study area signalized intersections would remain largely unchanged during the AM peak hour, with the Norwood Avenue westbound shared through/right-turn movement at Broad Street degrading from an existing LOS B to LOS C.

During the PM peak hour, the Norwood Avenue westbound left-turn movement would degrade from an existing LOS E to LOS F, indicating a capacity constraint for that movement. Traffic simulation modeling using SimTraffic® shows that westbound queues along Norwood Avenue would extend to the Pawtuxet Avenue intersection (approximately 1,200 feet). The Norwood Avenue eastbound approach and westbound shared through/right-turn movement would each degrade from an existing LOS B to LOS C in the future No-Build condition.

At the intersection of Narragansett Boulevard with Norwood Avenue, levels of service for all movements would remain unchanged from existing conditions in both peak hours.

4.0 TRAFFIC CALMING ALTERNATIVES

The objective of this study is to identify appropriate traffic calming measures to address identified traffic issues in the Edgewood neighborhood. Based on the existing and future traffic conditions described above, the following criteria were identified for improvements:

- Speeds on local streets
- Traffic volumes on local streets
- Speeds on arterials

To accomplish this, a variety of mitigating measures were examined to impede or deter the above stated issues. These mitigating measures or traffic calming tools will determine appropriate measures to reduce vehicle speeds and traffic volumes in the Edgewood neighborhood. Definitions and case studies published in the Institute of Transportation Engineers (ITE) *Traffic Calming Primer* (January, 1998) and *Traffic Calming State of the Practice* (January, 1999) were used extensively to measure the effectiveness of potential traffic calming measures.

ITE's *Traffic Calming State of the Practice* divides traffic calming measures into two basic groups: volume control measures and speed control measures. Although reduction of traffic volumes on local streets in the Edgewood neighborhood is a goal of this study, volume reducing measures typically result in out of direction travel or displacement for residents along the streets where they are implemented. Furthermore, case studies demonstrate that speed control measures on local streets have the residual effect of reducing traffic volumes by as much as 58 percent[1]. Therefore, this study will focus on speed control measures.

[1] Reid Ewing, *Traffic Calming State of the Practice* (Institute of Transportation Engineers, August 1999), 18.

Physical speed control measures can be further classified as vertical measures, horizontal measures, and narrowings[2]. To facilitate speed control on residential streets, vertical measures have been proven to be most effective. Vertical measures alter the profile of the roadway and use forces of vertical acceleration to lower vehicle speeds. Horizontal measures deflect a vehicle's travel path and use forces of angular acceleration to reduce speeds. These measures are best suited to roadways where the horizontal alignment can be altered sufficiently enough to force a reduction in traffic, which can be achieved by altering the traveled roadway width through narrowings. Narrowings reduce speeds by causing the driver to perceive a reduction in width of the traveled way. In addition to these physical measures, driver feedback devices may be used to discourage speeding without constructing roadway alterations. This alternative is best applied in the vicinity of schools and along minor arterials and collector roadways. Examples of each of these measures are given in the following sections.

4.1 Vertical Traffic Calming Measures

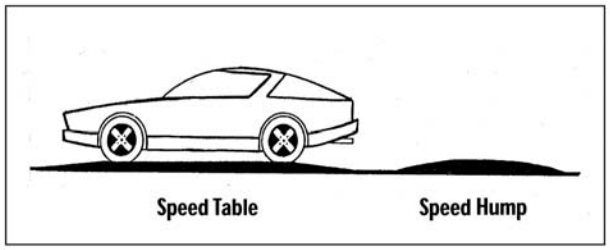
Speed Bumps are rounded raised pavement areas placed across a roadway. They are typically 6 feet or less in length and 3 to 4 inches high. While speed bumps require greatly reduced speed to pass over them, the greatest driver discomfort is experienced at the lowest speeds, and the vehicle's suspension absorbs most of the impact. Speed bumps also can cause damage to a vehicle's suspension or cause loss of control at higher speeds, and they require emergency vehicles to slow down along with through traffic. Therefore, speed bumps were not considered as a viable alternative for traffic calming in the Edgewood neighborhood.

[2] Ewing, 31.

Speed Humps, like speed bumps, are rounded raised areas of pavement, 3 to 4 inches high, placed across the entire width of a roadway. However, they are typically 12 feet or greater in length, their longer slopes allowing for higher speeds (typically 15 to 20 miles per hour) and less disturbance to the vehicle's occupants. Speed humps can have sinusoidal, circular, or parabolic profiles; the parabolic profile is recommended by ITE[2]. Although they allow for greater speeds than speed bumps, speed humps still create a rough ride for vehicle occupants and require emergency vehicles to slow down.

Speed Tables are a variant of speed humps with a modified profile. Speed tables are typically 22 feet long, with a 10 foot long flat field of pavement raised 3 to 4 inches above the roadway surface and 6 foot ramps on either side. Because the ramps tend to be more gently sloped than a speed hump, speed tables allow for greater speeds (typically 25 to 30 miles per hour)[3]. In addition, the flat pavement area is suitable for aesthetic treatment with stamped or textured pavement and serves well as a raised crosswalk in areas with high pedestrian conflicts. *Figure 6* illustrated the difference in profile between speed humps and speed tables.

Figure 6
Profile of Speed Table and Speed Hump



Source: Reid Ewing, *Traffic Calming State of the Practice* (ITE, August 1999), Figure 3.12 (p. 32).

[3] Ewing, 32.

Speed Lumps, illustrated in *Figure 7*, are another variant of speed humps with wheel cutouts about the centerline of the roadway designed to allow emergency vehicles to pass through with minimal slowing or rocking. Smaller vehicles and large vehicles that stay in their travel lane pass over at least one set of wheels up while passing over the outside lumps[4]. Additionally, while speed humps and speed tables give the driver a rising and lowering sensation, speed lumps result in a side-to-side motion that is more comfortable for a vehicle's occupants. Speed lumps are not generally well-suited to colder climates due to the difficulty in removing snow from the wheel cutouts.

Figure 7
Speed Lumps

Source: *Traffic Engineering Handbook* (ITE, 2009), Figure 15-15 (p.546).

4.2 Horizontal Traffic Calming Measures

Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves[5]. Chicanes reduce speeds by deflecting a vehicle's travel path. Because the curb extensions necessary to construct chicanes would impact roadway width and access to residential driveways, they were not considered for implementation in the Edgewood neighborhood due to the density of residential properties and use of on-street parking.

Lateral Shifts are curb extensions on otherwise straight streets that cause travel lanes to bend one way and then bend back the other way to the original direction of travel. They typically allow for

[4] *Traffic Engineering Handbook, 6th Ed.* (Institute of Transportation Engineers, 2009), 544
[5] Ewing, 38.

higher speeds than chicanes and have successfully been implemented along collectors and minor arterials[6]. Like chicanes, lateral shifts were not considered for the Edgewood neighborhood due to the effect of curb extensions on on-street parking and driveway access.

Roundabouts are circular intersections, typically 100 feet or greater in diameter, at which entering traffic must wait for a gap in the traffic flow before entering the intersection. Traffic must also deflect from a straight travel path to avoid the splitter island on the approach and the circle in the center[7]. Advantages to roundabouts over conventional signalized intersections include fewer conflict points for pedestrians, an increase in capacity of up to 30 percent, reduction in average delay per vehicle, reduction in maintenance costs due to elimination of signal equipment, and improved aesthetics through landscaping of the center island. As a traffic calming measure, speeds are reduced by the deflection of the travel path entering the roundabout and the requirement to yield to traffic in the roundabout. Because roundabouts limit vehicle speeds while increasing capacity and reducing delay, they are appropriate traffic calming measures for arterials.

Traffic Circles are smaller versions of roundabouts, where a circular island is placed in the center of a conventional unsignalized intersection. Traffic circulates about the center island as in a roundabout, but the diameter of the circle is much smaller and there is no deflection on the approach roadways. Speeds are limited by deflection of traffic within the intersection as it negotiates around the center island. While roundabouts are generally used as traffic calming measures on arterials, traffic circles are appropriate along collectors and local streets.

[6] Ewing, 39.
[7] Ewing, 178

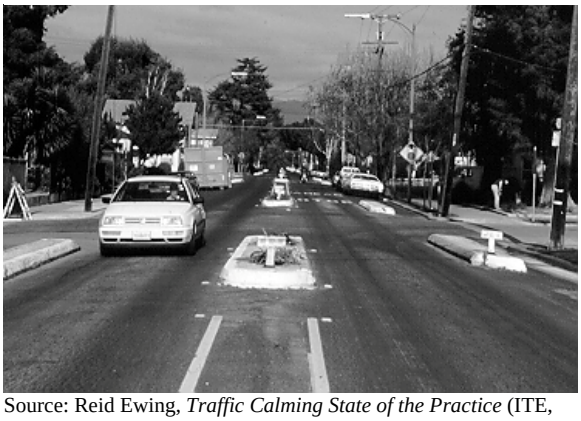
Realigned Intersections are changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles. The "straight through" movement along the top of the T becomes a turning movement, forcing through vehicles to slow down or stop to continue[8].

4.3 Narrowing Traffic Calming Measures

Neckdowns are curb extensions at intersections that reduce roadway width curb to curb. Their effect on vehicle speeds is limited by the absence of pronounced vertical or horizontal deflection. Instead, their primary purpose is to "pedestrianize" intersections by shortening crossing distances for pedestrians and drawing attention to pedestrians via raised peninsulas[9]. Neckdowns generally require shorter curb extensions than chicanes and lateral shifts and have less impact to on-street parking and access to driveways.

Medians are raised islands in the center of a roadway that reduce the width of the roadway at those locations. They may also be used to introduce slight deflections to deflection into travel paths on otherwise straight streets[10]. Medians can readily be used in conjunction with chicanes or curb extensions to further narrow the travel path. *Figure 8* shows a typical median installation in San Jose, California.

Figure 8
Median



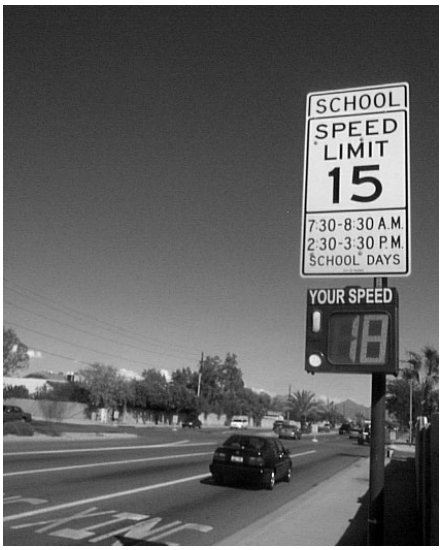
Source: Reid Ewing, *Traffic Calming State of the Practice* (ITE, August 1999), Figure 5.17 (p. 102).

[8] Ewing, 38-39.
[9] Ewing, 39.
[10] *Traffic Engineering Handbook*, 550.

4.4 Non-Physical Speed Control Measures

Driver Feedback Devices use radar to determine a drivers' speed and then display the current speed on a board for the driver to view. The intent of the signs is to have drivers adjust their speed as necessary simply by increasing awareness. These signs can also be equipped to record traffic volume and speed data, which can then be used to evaluate the effectiveness of traffic calming measures.[11] A typical drive feedback device in Phoenix, Arizona is shown in *Figure 9*.

Figure 9
Driver Feedback Device



Source: Parsons Brinckerhoff, *Improving the Pedestrian Environment through Innovative Transportation Design* (ITE, 2005),p.8.

[11] City of Denver, (June 6, 2007), "New Interactive "Driver Feedback" Signs Installed at three Denver locations" <http://www.denvergov.org/NewInteractiveDriverFeedbackSigns/tabid/427049/Default.aspx >

5.0 RECOMMENDED IMPROVEMENTS

As discussed above, the focus of implemented traffic calming measures is to deter the following characteristics:

- Excessive speeds on local streets
- Excessive traffic volumes on local streets
- Excessive speeds on arterials and collectors

Each of the traffic calming alternatives considered was evaluated for its effectiveness in obtaining these objectives within the constraints of the existing roadway geometrics and traffic patterns.

5.1 Reducing Speeds on Local Streets

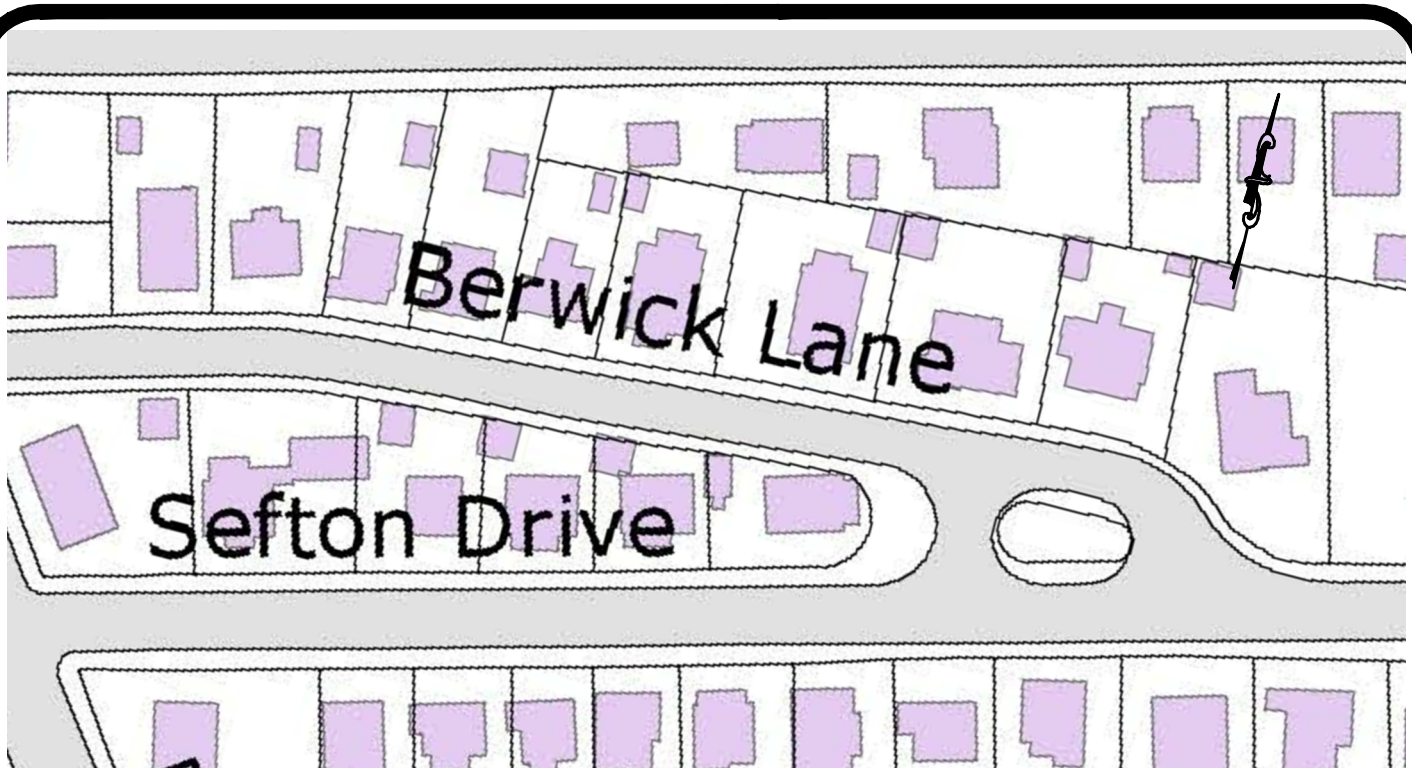
Of the alternatives described previously, speed humps, traffic circles, and medians were selected as the most appropriate measures to apply in the Edgewood neighborhood, depending on the characteristics of each individual roadway. Various types of vertical deflection were evaluated against roadway constraints and characteristics. Through coordination with the City of Cranston it was decided that speed humps with a 3 inch vertical deflection would be used along local streets. These humps will also be accompanied by roadway neckdowns at key intersections. These neckdowns will also be used at midblock areas where crosswalks are evident.

Speed humps would be placed approximately every 400 to 450 feet across each local street from Arnold Avenue to Ocean Avenue, except Marion Avenue, Berwick Lane and Sefton Drive. The number of speed humps on each street would vary based on the length of the roadway. Four speed humps would be placed along Arnold Avenue, Albert Avenue, and Columbia Avenue, with one between Broad Street and Pawtuxet Avenue and one pair between

Pawtuxet Avenue and Narragansett Boulevard. Similarly, three speed humps would be placed equidistantly along Shaw Avenue and Bluff Avenue. Along Glen Avenue, Massasoit Avenue, Strathmore Road, and Ocean Avenue, two speed humps could be placed equidistantly between Broad Street and Narragansett Boulevard. With the implementation of these measures, the 85th percentile speed along these streets would be reduced to approximately 20 to 25 mph.

Although a speed study was not conducted along Pawtuxet Avenue, field observations indicated that travel speeds between Norwood Avenue and Columbia Avenue were excessive, and vehicles routinely failed to stop at stop signs. To reduce speeds along Pawtuxet Avenue, speed humps would be constructed between Grand Avenue and Norwood Avenue and between Arnold Avenue and Albert Avenue.

The intersection of Sefton Drive and Berwick Lane would be realigned to discourage through movements. Presently, Sefton Drive is a continuous east-west street between Broad Street and Narragansett Boulevard. Berwick Lane runs northwest-southeast between Broad Street at Sefton Drive, terminating approximately halfway between Broad Street and Narragansett Boulevard. At the intersection with Sefton Drive, the northwest-bound lane and southeast-bound lane of Berwick Lane are separated by a circular traffic island. The proposed realignment would consist of constructing a curb extension along the south side of Sefton Drive in the intersection area to shift the east and west approaches to the north and replacing the existing traffic island with a smaller traffic circle. This improvement would reduce travel speeds by forcing all traffic at the intersection to make a turning movement. The existing and proposed conditions at Sefton Drive and Berwick Lane are shown in *Figure 10.*



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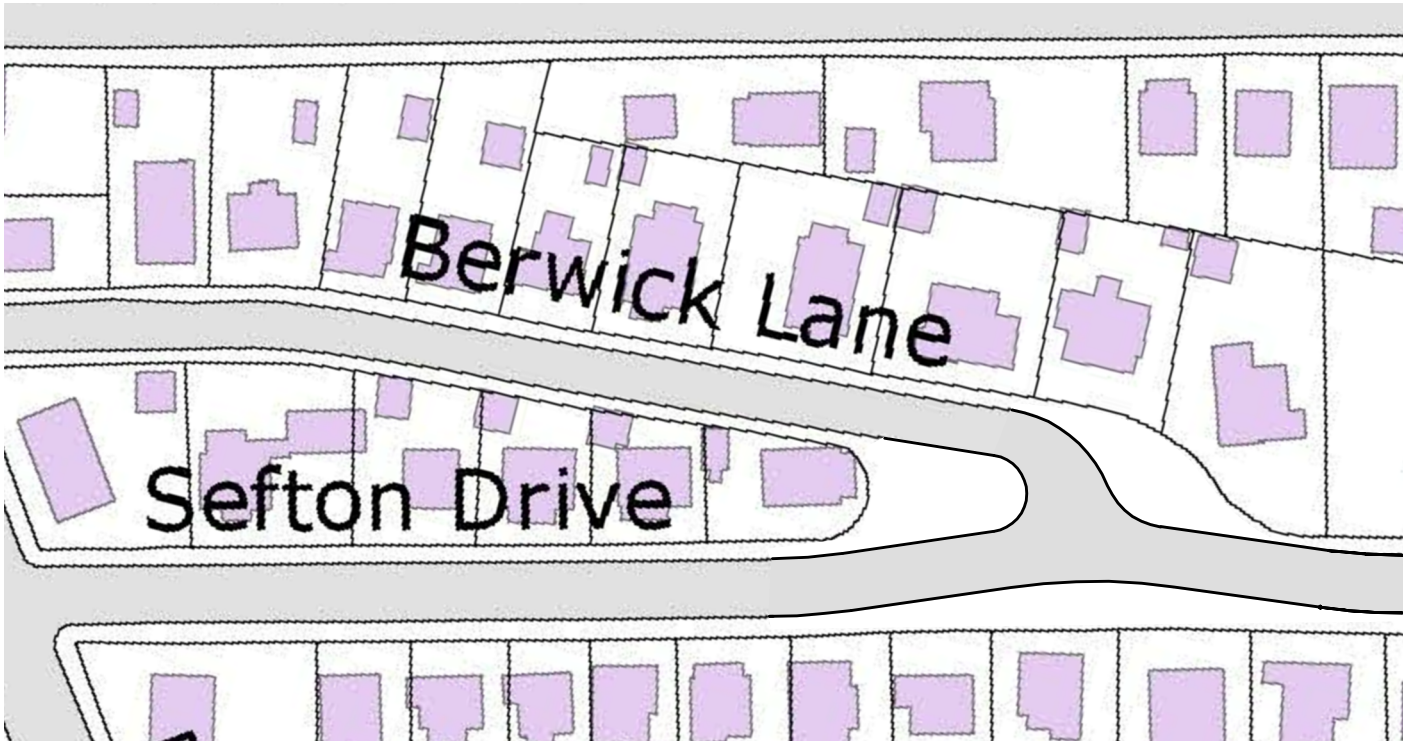

PROPOSED

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EDGEWOOD TRAFFIC CALMING STUDY

CRANSTON, RHODE ISLAND

PROPOSED IMPROVEMENTS
BERWICK LANE & SEFTON DRIVE
SCALE 1"=100'

Figure 10

5.2 Reducing Traffic Volumes on Local Streets

As previously stated, traffic calming measures geared mainly to reducing traffic volumes were not considered for implementation in the Edgewood neighborhood, since the primarily goal was the reduction of travel speeds on local streets. While volume reduction measures typically have little impact on vehicle speeds, case studies have demonstrated that speed reduction measures have the added benefit of reducing traffic volumes by up to 58 percent[12]. Therefore, the speed reduction measures described in the previous section will potentially reduce traffic volumes on Edgewood's local streets. Traffic calming measures must be implemented on each east-west through street in the neighborhood, or cut-through traffic will instead divert to those local streets that are not calmed, resulting in a significant increase of cut-through traffic on those streets without measures. Redistribution of traffic resulting from the implementation of these traffic calming measures are discussed in Section 6.0, *Impacts of Traffic Calming Measures*.

As discussed in Section 2.0, *Existing Conditions*, the Edgewood neighborhood was divided into two distinct zones for the purpose of this study, with the dividing roadway between these zones at Bluff Avenue. The northern zone provides a convenient cut-through for vehicles originating from Park Avenue during AM peak hours and returning during PM peak hours, while the southern zone affords cut-throughs for vehicles originating from areas along Broad Street south of the Park Avenue intersection. These two zones have been chosen to represent two phases for implementation of the recommended improvements.

[12] *Traffic Calming State of the Practice* (Institute of Transportation Engineers, 1999), Table 3.2, p.18

5.3 Reducing Speeds on Narragansett Boulevard

Narragansett Boulevard changes functional classification upon entering the study area from the north, from a Principal Arterial north of Norwood Avenue to a Collector south of Norwood Avenue, and land use along the corridor changes from a mixture of commercial, industrial, and medium-density residential to low-density residential. However, the roadway cross-section does not perceptibly change until it narrows from 50 feet to 36 feet at Strathmore Road. This results in through traffic, including trucks, continuing into the neighborhood south of Norwood Avenue, despite advance signage indicating Norwood Avenue as Route 1A and a truck route. Spot speed studies performed by Garofalo & Associates revealed that the 85th percentile speed is 38 mph along Narragansett Boulevard south of Norwood Avenue.

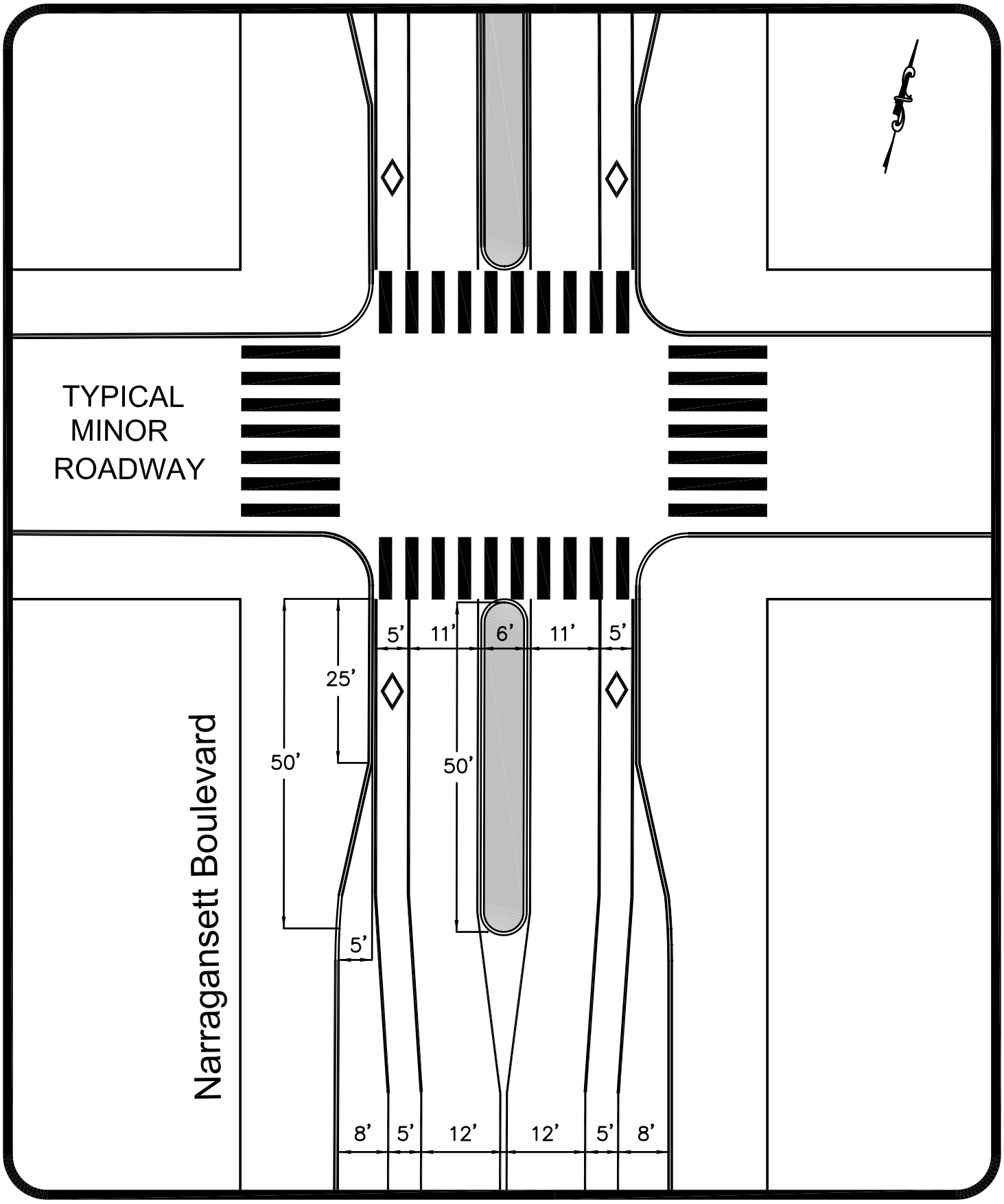
A roundabout was considered at the intersection of Narragansett Boulevard with Norwood Avenue to potentially channelize southbound through traffic to Norwood Avenue more efficiently than a traditional signalized intersection and to also serve as a gateway feature to the Edgewood neighborhood. Preliminary investigation indicates that a roundabout capable of accommodating a WB-50 design vehicle would fit within the existing right-of-way. A roundabout at this location would cost an estimated $350,000 to $400,000 and is not economically feasible at this time; however, this alternative should be considered as a long term solution when funding becomes available.

In addition to the proposed roundabout alternative at the Norwood Avenue intersection, horizontal calming measures, including roadway narrowing and raised medians, along Narragansett Boulevard south of Norwood Avenue would communicate to motorists that this segment of Narragansett Boulevard is different in function from the arterial to the north. A

typical neckdown would extend 5 feet from the existing curb line on either side of Narragansett Boulevard, while the typical median would be 6 feet wide. These treatments would shift the alignment of the Narragansett Boulevard travel lanes 3 feet toward the edge of the roadway for a distance of 50 feet from the intersection and narrow the travel lanes from 12 feet wide to 11 feet. Proposed traffic calming measures at a typical local street intersection are illustrated in *Figure 11*, while *Figure 12* shows the proposed configuration at the Norwood Avenue intersection.

Neckdowns and medians would be placed along Narragansett Boulevard at the intersections with Albert Avenue, Shaw Avenue, Bluff Avenue, and Massasoit Avenue, as well as on the north side of the Strathmore Road intersection. Neckdowns and a median would also be constructed on the south side of the intersection of Narragansett Boulevard with Norwood Avenue as an interim measure until funding could be secured to construct a roundabout at that location. As a result of the neckdown, the existing two-lane northbound approach would be reduced to a single lane, and the existing northbound bicycle lane would be extended to the intersection. Between Strathmore Road and Ocean Avenue, where the paved width of Narragansett Boulevard reduces from 50 feet to 36 feet and the greatest number of speed-related crashes occur, two 3 inch speed humps would be placed along Narragansett Boulevard.

This combination of traffic calming measures would potentially reduce the 85th percentile speed along Narragansett Boulevard to approximately 25 mph and would discourage through traffic from the north from entering the Edgewood neighborhood proper.



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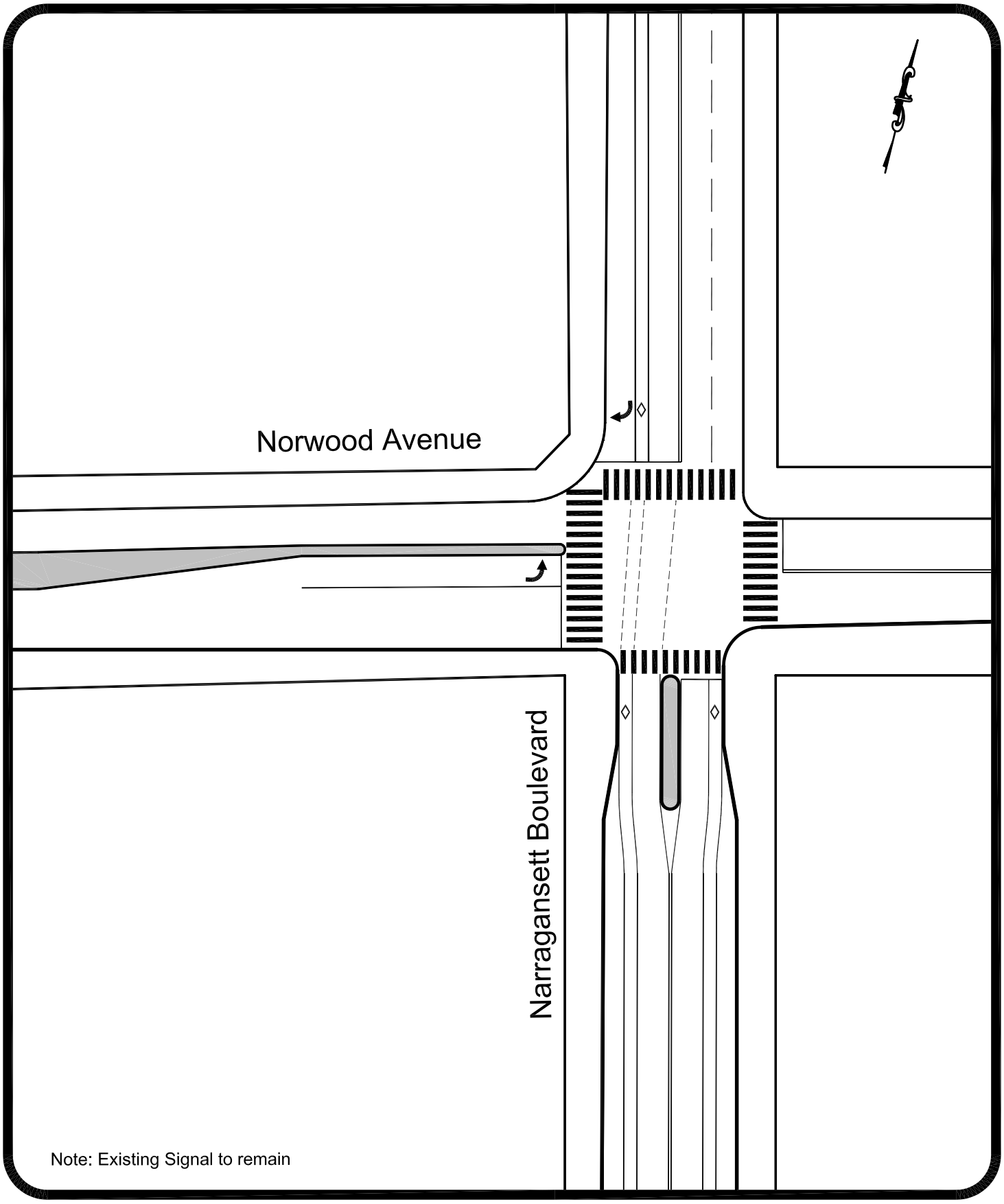
CRANSTON, RHODE ISLAND

PROPOSED MEDIANS AND NECKDOWNS
NARRAGANSETT BLVD

SCALE 1"=20'

Figure 11

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg



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PROPOSED INTERSECTION IMPROVEMENT
NARRAGANSETT BLVD
AT NORWOOD AVE
SCALE 1"=50'

Figure 12

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg

5.4 Reducing Speeds on Arterials

In addition to reducing travel speeds and traffic volumes on local streets in the Edgewood neighborhood, it was the goal of this study to reduce speeds along Norwood Avenue and Broad Street to be more appropriate for the land uses along those corridors. Spot speed studies performed by Garofalo & Associates revealed that the 85th percentile speed is 36 mph along Broad Street, which is zoned commercial and experiences a high volume of on-street parking turnover and pedestrian activity, and 38 mph along Norwood Avenue , which is predominantly residential in nature with some low-density commercial uses and exhibits relatively low parking turnover and pedestrian activity.

The width of Broad Street and high curbside parking turnover make most physical traffic calming measures infeasible. Driver feedback devices installed near Park Avenue and near Ocean Avenue, approximately one-half mile apart, would discourage speeding without impacting roadway capacity, curbside parking, or access to driveways along the corridor. Studies of the effectiveness of driver feedback devices in Washington, D.C. have shown that when installed on two-lane arterials with minimal additional sign clutter, these devices reduce vehicle speeds by approximately 7 percent[13]. Therefore, the 85th percentile speed along Broad Street would be expected to decrease from 36 mph to 33 mph.

The width and straight alignment of Norwood Avenue contributes greatly to excessive vehicle speeds. At its present curb-to-curb width, 60 feet, Norwood Avenue has sufficient width to carry four lanes of traffic; however, it is not striped as such and functions primarily as two 22-foot travel lanes with parking on both sides. Based on existing traffic counts, Norwood Avenue

[13] KLS Engineering, *Driver Feedback Signs Final Report* (Howard University Transportation Research Center, Washington D.C., April 28, 2006), 28.

carries approximately 325 vehicles eastbound in the AM peak hour and approximately 410 vehicles westbound in the PM peak hour, well below the approximately 1,700 vehicle per hour capacity of a single 12-foot-wide lane. The installation of a 14-foot-wide planted median along Norwood Avenue would reduce the travel lanes to 12 feet with a 2-foot-wide left shoulder and a 9-foot-wide parking lane in each direction. Median breaks and left turn refuge areas would be provided at selected locations to allow for U-turns to access businesses and residential driveways. The median would extend through the Pawtuxet Avenue intersection to prevent northbound and southbound through traffic movements. These proposed improvements would provide access management along Norwood Avenue, reducing vehicle conflicts and creating a more aesthetically pleasing and pedestrian- and bicycle-friendly environment.

Prior studies of the effects of narrowings, including medians, on vehicle speed indicate that such measures reduce the 85th percentile speed by an average of 7 percent[14]. With the cumulative effect of narrowing the roadway and installing driver feedback devices, the 85th percentile speed along Norwood Avenue is expected to decrease from 38 mph to 33 mph.

[14] Ewing, 104.

6.0 IMPACTS OF TRAFFIC CALMING MEASURES

To determine the traffic impacts of the proposed traffic calming measures, estimates of the anticipated cut-through traffic to be diverted were calculated. The projected percentage of traffic diversion was estimated based on data published in the ITE *Traffic Calming State of the Practice* for similar traffic calming applications in Eugene, Oregon, Berkeley, California, and San Diego, California. At each of these locations, 12- to 14-foot speed humps were placed on local streets carrying between 3,000 and 6,000 vehicles per day (vpd), resulting in traffic diversion to a nearby parallel street. Table 6.1 summarizes the changes in traffic volumes along a representative street in each study area, which ranged from approximately 40 to 50 percent diversion of existing traffic volumes.

Table 6.1 Traffic Calming Impact Examples

Location	Traffic Volume Before (vpd)	Traffic Volume After (vpd)	% Change
Derby Street, Eugene, OR	3,600	1,800	-50%
Friendly Street, Berkeley, CA	3,995	2,340	-41%
Aquarius Drive, San Diego, CA	5,939	3,254	-45%

Source: Compiled from *Traffic Calming State of the Practice* (ITE, January 1999), Appendix A.

6.1 Diverted Traffic Volumes

For the purpose of this study, it was assumed that 50 percent of cut-through traffic volumes between Arnold Avenue and Bluff Avenue would be diverted to Norwood Avenue. Although the studies in Berkeley and San Diego presented in Table 6.1 suggest a smaller traffic diversion, the higher number observed in Eugene was chosen to conservatively measure the impact to Norwood Avenue and Broad Street. South of Bluff Avenue, the local streets are farther

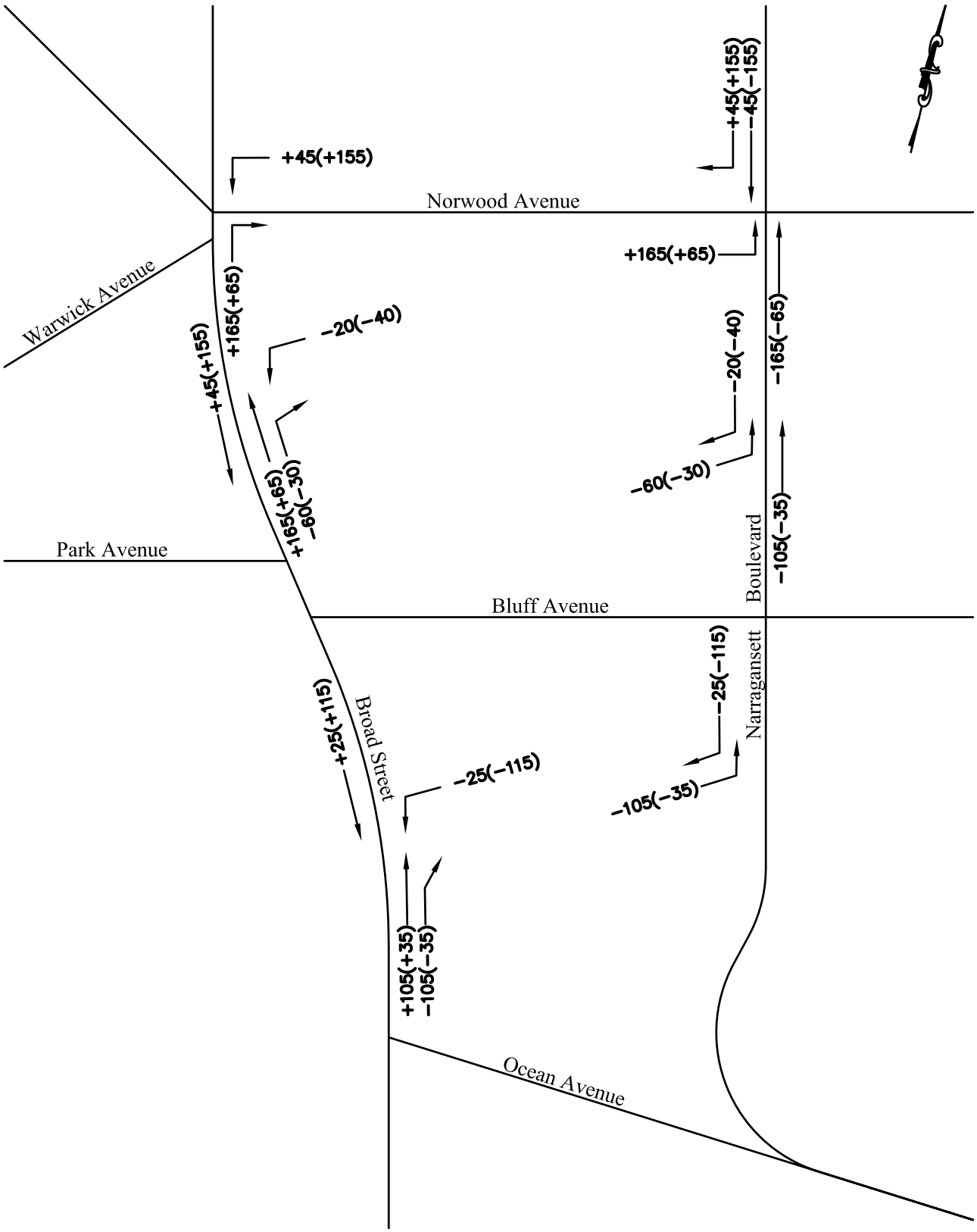
from Norwood Avenue and there is less distance between Narragansett Boulevard and Broad Street. It was therefore assumed that only 35 percent of cut-through traffic between Glen Avenue and Ocean Avenue would be diverted to Norwood Avenue. *Figure 13* illustrates the estimated volume of traffic diverted north and south of Bluff Avenue, while the projected traffic volumes along Norwood Avenue at the intersections with Broad Street and Narragansett Boulevard are given in *Figure 14*.

6.2 Build Conditions Arterial Street Capacity Analysis

Using the diverted traffic volumes, capacity analyses were conducted using the Synchro 6 traffic analysis software for the intersections of Broad Street at Norwood Avenue/Warwick Avenue and Narragansett Boulevard at Norwood Avenue. The results indicate that based upon the existing geometric conditions and proposed traffic volumes, these intersections would operate at the levels of service shown in Table 6.2.

Traffic would continue to operate at acceptable levels of service during the AM peak hour in the Build scenario, with each movement in the two study area signalized intersections operating at LOS C or better.

During the PM peak hour, all movements at the two intersections would operate at the same levels of service in the Build scenario as in the No-Build condition. At the intersection of Broad Street with Norwood Avenue/Warwick Avenue, SimTraffic simulation shows that queues from the Norwood Avenue westbound left-turn would extend almost to the Narragansett Boulevard intersection (approximately 2,000 feet) due to the volume of traffic diverted from local streets, causing additional congestion along southbound Narragansett Boulevard.



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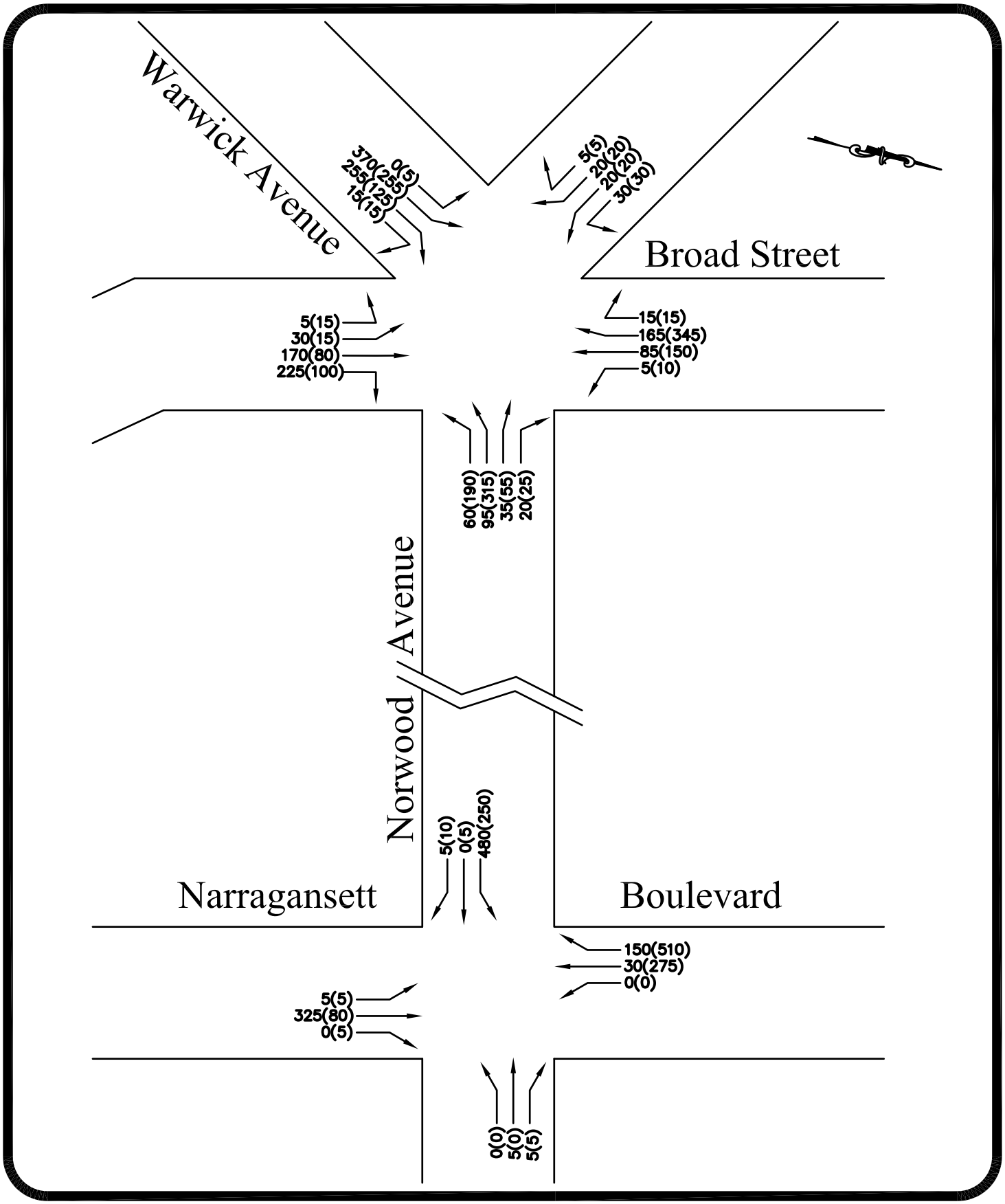
CRANSTON, RHODE ISLAND

TRAFFIC DIVERSION
AM(PM) PEAK HOUR
NOT TO SCALE

Figure 13

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg



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TRAFFIC VOLUMES
2014 BUILD AM(PM) PEAK HOUR
NOT TO SCALE

Figure 14

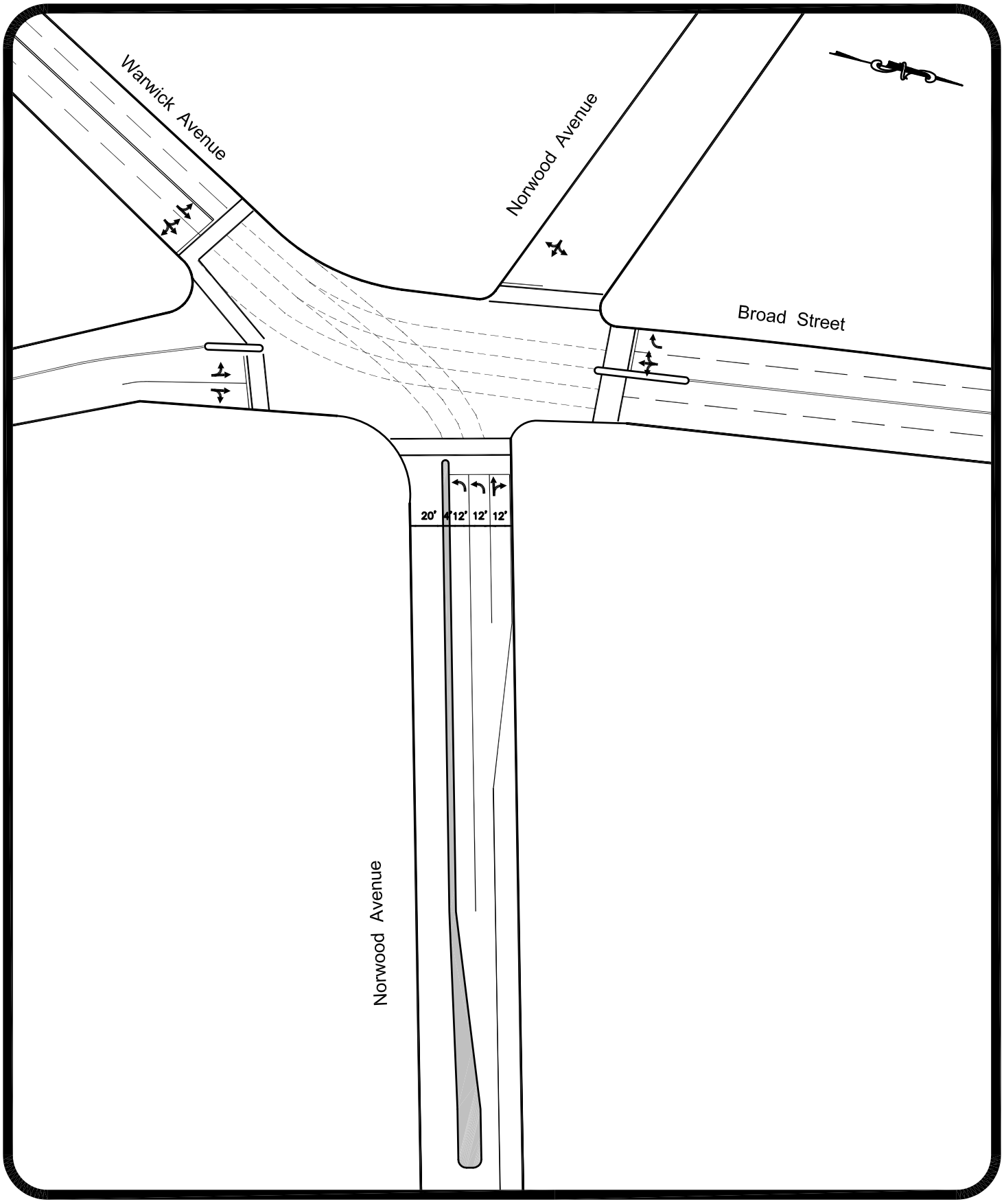
6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg

Table 6.2 Proposed Intersection Level of Service – 2014 Conditions with Diverted Traffic

Intersection	Roadway	Movement	Weekday AM LOS	Weekday PM LOS
Broad Street & Norwood Avenue/ Warwick Avenue	Broad St.	Northbound	C	B
		Southbound – Lt/Th	B	B
		Southbound – Rt	B	C
	Norwood Ave.	Eastbound	C	C
		Westbound - Lt	C	**F**
		Westbound – Th/Rt	C	C
	Warwick Ave.	Eastbound	C	C
Narragansett Boulevard & Norwood Avenue	Narragansett Blvd.	Northbound	B	A
		Southbound – Lt/Th	A	A
		Southbound – Rt	A	A
	Norwood Ave.	Eastbound - Lt	C	B
		Eastbound – Th/Rt	A	A
		Westbound	A	A

To mitigate the increased congestion along Norwood Avenue, changes in signal phasing and lane utilization at the intersection of Broad Street with Norwood Avenue/Warwick Avenue were investigated. The following improvements, illustrated in *Figure 15*, are recommended to improve intersection operations:

- The northbound Broad Street approach would be restriped to provide one shared left-turn/through lane and one through/right-turn lane. Parking along this approach would be eliminated north of the existing retail driveway, providing approximately



GAROFALO
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PROVIDENCE , RHODE ISLAND 02940
(401) 273-6000

EDGEWOOD TRAFFIC CALMING STUDY

CRANSTON, RHODE ISLAND

PROPOSED INTERSECTION IMPROVEMENT
BROAD ST AT
NORWOOD AVE/WARWICK AVE
SCALE 1"=80'

Figure 15

6615\dwg\01-Current\6615-TRAFFIC CALMING FIGURES.dwg

75 feet of storage for the through/right-turn lane. As noted in Section 3.0, *Future No-Build Conditions*, there is a proposal to redevelop the existing retail property at the southeast corner of Broad Street and Norwood Avenue, and this improvement would need to be coordinated with that plan.

- The southbound Broad Street approach would be restriped to allow a dual right-turn to Warwick Avenue.
- The eastbound Norwood Avenue approach would remain unchanged.
- The westbound Norwood Avenue approach would be restriped as a three lane approach, consisting of one shared left-turn lane to Broad Street southbound and Warwick Avenue with 275 feet of storage, one exclusive left-turn lane to Warwick Avenue, and one shared through/right-turn lane to Norwood Avenue westbound and Broad Street northbound. Parking would be eliminated along the north side of Norwood Avenue to create 100 feet of storage for the proposed shared through/right-turn lane.
- The eastbound Warwick Avenue approach would be restriped to allow a dual left-turn to Broad Street.
- Exclusive signal phases would be provided for the Norwood Avenue eastbound approach, the Norwood Avenue westbound approach, and the Warwick Avenue eastbound approach.

The levels of service at the intersection of Broad Street with Norwood Avenue/Warwick Avenue with the proposed improvements are given in Table 6.3.

Table 6.3 Proposed Intersection Level of Service – 2014 Conditions with Diverted Traffic and Intersection Improvements at Broad Street & Norwood Ave./Warwick Ave.

Intersection	Roadway	Movement	Weekday AM LOS	Weekday PM LOS
Broad Street & Norwood Avenue/ Warwick Avenue	Broad St.	Northbound	C	C
		Southbound – Lt/Th/Rt	C	D
		Southbound – Rt	C	D
	Norwood Ave.	Eastbound	D	D
		Westbound - Lt	C	D
		Westbound – Th/Rt	C	C
	Warwick Ave.	Eastbound	D	D

At the intersection of Broad Street with Norwood Avenue/Warwick Avenue, all movements would operate at acceptable LOS D or better during the AM and PM peak hours. The eastbound left-turn movement from Norwood Avenue, which is projected to operate at LOS F in the PM peak hour in the 2014 Build condition without the intersection improvement, would improve to LOS D.

7.0 CONSTRUCTION COST ESTIMATE

The cost of implementing the proposed traffic calming measures described above was estimated using recent weighted average unit prices obtained from the Rhode Island Department of Transportation (RIDOT) and from similar neighborhood traffic calming projects elsewhere in the United States.

7.1 Speed Humps

The City of Phoenix, Arizona's Speed Hump Program cites the cost of speed humps, including all associated roadway work, signage, and pavement markings, to be $1,200 as of June, 2009[15]. As a conservative measure to allow for regional cost difference, the cost of each speed hump was estimated to be $1,500 for this study.

As outlined in Section 5.0, *Recommended Improvements*, four speed humps would be placed along Arnold Avenue, Albert Avenue, and Columbia Avenue; three speed humps would be placed along Shaw Avenue and Bluff Avenue; and two speed humps would be placed along Glen Avenue, Massasoit Avenue, Strathmore Road, and Ocean Avenue, as well as the southern portion of Narragansett Boulevard between Strathmore Road and Ocean Avenue. The total estimated cost for these 28 proposed speed humps is $42,000, including $39,000 for speed humps on local streets and $3,000 for speed humps on Narragansett Boulevard.

[15] City of Phoenix, (June 26, 2009), "Speed Hump Program" <http://www.phoenix.gov/STREETS/speedhmp.html>

7.2 Medians

The cost of the proposed 14-foot-wide planted median along Norwood Avenue and proposed 6-foot-wide medians along Narragansett Boulevard were estimated using RIDOT weighted average unit prices for contracts awarded in fiscal year 2009. Table 7.1 lists the RIDOT standard items and associated unit costs assumed in preparing the estimate.

Table 7.1 Estimated Unit Costs – Proposed Norwood Avenue Median

Item Code	Item	Unit	2009 WAUP
201.0409	Remove and Dispose Flexible Pavement	SY	$3.27
906.0210	Cement Concrete Curb Straight Standard 7.1.0	LF	$20.15
932.0200	Full Depth Sawcut of Bituminous Pavement	LF	$1.22
L01.0102	Loam Borrow 4 Inches Deep	SY	$0.29
L02.0102	Residential Seeding Type 2	SY	$1.47

These unit costs were increased by 25 percent to include engineering, pavement markings, signage, and contingency costs. Based on these assumptions, the proposed Norwood Avenue median is anticipated to cost approximately $135,000.

Along Narragansett Boulevard, the proposed medians would be placed on the south leg of the Norwood Avenue intersection, both the north and south legs of the Albert Avenue, Shaw Avenue, Bluff Avenue, and Massasoit Avenue intersections, and on the north leg of the Strathmore Road intersection. Each 50-foot-long median along Narragansett Boulevard would cost an estimated $4,000, for a total cost of $40,000 for the ten proposed medians.

7.3 Neckdowns

Each proposed neckdown would consist of a 5-foot curb extension on either side of the roadway, including two wheelchair ramps with detectable warning systems, extending 25 feet from the intersection and tapering back to the existing curb line for another 25 feet. Granite curb would be used for consistency with the adjacent existing curb. Table 7.2 lists the RIDOT standard items and associated unit costs assumed in preparing the estimate.

Table 7.2 Estimated Unit Costs – Proposed Neckdowns

Item Code	Item	Unit	2009 WAUP
201.0401	Remove and Dispose Granite Curb	LF	$5.00
201.0409	Remove and Dispose Flexible Pavement	SY	$3.27
202.0100	Earth Excavation	CY	$0.40
204.0100	Trimming and Fine Grading	SY	$1.10
302.0100	Gravel Borrow Subbase Course	CY	$16.32
905.0110	Portland Cement Concrete Monolithic Standard 43.1.0	CY	$42.60
906.0110	Granite Curb, Quarry Split Circular, Standard 7.3.0	LF	$32.09
906.0119	3 Inch Granite Transition Curb Standard 7.3.1	EA	$144.00
906.0120	Granite Wheelchair Ramp Curb Standards 7.3.3, 43.3.0, 43.3.1	EA	$336.59
932.0200	Full Depth Sawcut of Bituminous Pavement	LF	$1.22
942.0100	Detectable Warning System	SF	$36.32

These unit costs were increased by 25 percent to include engineering, pavement markings, signage, and contingency costs. Based on these assumptions, neckdowns at each intersection would cost an estimated $12,000 per approach, plus an additional $5,000 projectwide for potential drainage improvements. Neckdowns would be constructed at the same locations as the

proposed medians outlined above, for a total estimated cost of $125,000. The realignment of the intersection of Berwick Lane and Sefton Drive would consist of similar work and would cost an estimated $25,000, including potential drainage improvements.

7.4 Driver Feedback Signs

The RIDOT 2009 weighted average unit price for driver feedback signs is $7,850.00. The estimated cost of these devices for this study was assumed to be $8,000. The total cost for the two proposed driver feedback signs on Norwood Avenue and the four proposed signs on Broad Street would be $48,000.

8.0 CONCLUSION

It has been demonstrated that there is a noticeable level of cut-through traffic volume traversing the 15 east-west residential streets within the Edgewood neighborhood proper at various points of entry. Speed studies within the area have revealed that 85th percentile travel speeds along each of these local streets exceeds the posted speed. The purpose of this study has been to establish the most practical traffic calming solutions and to measure the impacts of these potential solutions, in the form of diverted traffic, on the surrounding arterial roadway network.

8.1 Recommended Improvements and Cost

A variety of traffic calming measures were explored to mitigate excessive speeds and traffic volumes along local streets within the Edgewood neighborhood proper, as well as reduce speeds along the area's arterial roadways. Recommended alternatives were selected based on the practicality of their application within the constraints of the existing roadway geometry and local travel patterns, effectiveness as demonstrated in published before-and-after studies, and cost effectiveness. These proposed improvements are summarized in Table 8.1.

Table 8.1 Proposed Traffic Calming Measures

Existing Problem	Proposed Solution	Result	Estimated Cost
Excessive speed and cut-through traffic on local streets	Install 3-inch speed humps Realign the intersection of Berwick Lane and Sefton Drive	Reduce 85th percentile speed to approximately 25 mph and traffic volumes by 35 to 50 percent	$64,000
Excessive traffic volumes and speed on Narragansett Boulevard south of Norwood Avenue	Diverted alignment at Norwood Avenue intersection Install 6-foot-wide medians and neckdowns at key intersections Install 3-inch speed humps between Strathmore Road and Ocean Avenue	Channelize through traffic to Norwood Avenue Identify Narragansett Boulevard as a local street and reduce speed Reduce 85th percentile speed from 38 mph to approximately 25 mph	$167,000
Excessive speed on Broad Street	Install driver feedback devices	Reduce 85th percentile speed from 36 mph to 33 mph	$32,000
Excessive speed on Norwood Avenue	Construct median to reduce width of traveled way Install driver feedback devices	Reduce 85th percentile speed from 38 mph to 33 mph	$151,000

Additionally, the impact of these proposed traffic calming measures on the local arterial roadway network was analyzed. It was determined that signal and striping improvements would be necessary to accommodate the additional traffic diverted to Norwood Avenue and Broad Street as a result of traffic calming. As discussed, modification to the Norwood Avenue/Narragansett Boulevard intersections can be made to deflect the northbound traffic approaching the intersection through the use of a combination of an offset median and neckdowns to act as a horizontal deflection for vehicles approaching the intersection from the south and a deflection for those entering the neighborhood from the north. A roundabout option was also considered from this intersection as a traffic calming alternative. A median along Norwood Avenue was also considered as a means of reducing overall pavement width and constricting the roadway to reduce traffic speeds as well as provide segregation of the opposing traffic flow. With these recommended traffic control improvement, the major intersections

would adequately accommodate the projected 5-year horizon 2014 traffic demand during peak hours of operation.

8.2 Phasing

The proposed improvements discussed above could potentially be implemented in three phases – short term, intermediate, and long term – to allow for minor incremental improvements as budgetary considerations allow. Phased implementation would also allow the City to evaluate the effectiveness and popularity of selected measures prior to a large-scale implementation.

As previously noted, the study area is bisected by Bluff Avenue, which separates the Edgewood neighborhood into two functionally distinct zones, with the northern zone providing a convenient cut-through for vehicles originating from Park Avenue during AM peak hours and returning during PM peak hours and the southern zone affording cut-throughs for vehicles originating from areas along Broad Street south of the Park Avenue intersection. The proposed traffic calming measures along the local streets in the northern zone, between Norwood Avenue and Bluff Avenue, are best suited for implementation as short term improvements, as the existing cut-through traffic is more likely to be diverted to Norwood Avenue than to unimproved local streets to the south. Implementation of traffic calming measures in the southern zone would more likely result in diversion of cut-through trips to local streets in the northern zone. In addition, the proposed speed humps along Narragansett Boulevard between Strathmore Road and Ocean Avenue are recommended for short term implementation to reduce the frequency and severity of speed related crashes on that portion of roadway.

Driver feedback signs along Broad Street and Norwood Avenue are also recommended as short term improvements due to their relatively low cost and ease of installation. Additionally, temporary striping could potentially be used in the short term to evaluate the effectiveness of the proposed Norwood Avenue median.

In the second or intermediate phase of implementation, the remaining traffic calming devices in the southern zone would be constructed, as would the proposed Norwood Avenue median and the neckdowns and medians along Narragansett Boulevard.

In the long term, traffic volumes at the intersection of Broad Street with Norwood Avenue and Warwick Avenue should be closely monitored, and the recommended mitigation measures should be implemented when traffic congestion is observed to warrant improvement. Additionally, the proposed roundabout alternative for the intersection of Narragansett Boulevard and Norwood Avenue should be considered for implementation when funding is available.

REFERENCES

1. *2000 Highway Capacity Manual*. Washington, D.C.: Transportation Research Board, 2000, revisions through November 14, 2007.
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3. Ewing, Reid H. *Traffic Calming State of the Practice*. Washington, D.C.: Institute of Transportation Engineers, August 1999.
4. *Traffic Engineering Handbook*, 6th Edition. Washington, D.C.: Institute of Transportation Engineers, 2009.
5. Parsons Brinckerhoff *Improving the Pedestrian Environment through Innovative Transportation Design*. Washington, D.C.: Institute of Transportaton Engineers, 2005.
6. KLS Engineering *Evaluation of Driver Feedback Signs Final Report.* Washington D.C.: Howard University Transportation Research Center, April 28, 2006.
7. "New Interactive "Driver Feedback" Signs Installed at three Denver locations." *City of Denver*. June 6, 2007 <http://www.denvergov.org/NewInteractiveDriverFeedbackSigns/tabid/427049/Default.aspx>.
8. "Speed Hump Program." *City of Phoenix.* June 26, 2009 <http://www.phoenix.gov/STREETS/speedhmp.html>.

APPENDIX A

TRAFFIC COUNT DATA

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090305 - Broad - Norwood
Site Code : 00000000
Start Date : 3/5/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Norwood Avenue From East					Broad Street From South					Norwood Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	30	1	2	35	2	1	14	1	18	2	4	2	1	9	2	3	0	0	5	67
07:15 AM	4	48	2	6	60	2	6	14	2	24	2	14	0	2	18	1	5	2	0	8	110
07:30 AM	3	47	0	4	54	4	9	19	8	40	1	12	1	1	15	2	6	3	2	13	122
07:45 AM	3	55	1	6	65	4	12	19	2	37	3	12	1	2	18	2	4	2	0	8	128
Total	12	180	4	18	214	12	28	66	13	119	8	42	4	6	60	7	18	7	2	34	427
08:00 AM	4	64	1	4	73	1	6	29	4	40	4	26	3	3	36	5	4	4	0	13	162
08:15 AM	3	61	2	4	70	0	6	33	8	47	4	22	2	2	30	2	8	6	0	16	163
08:30 AM	6	59	1	4	70	8	6	27	8	49	4	19	3	2	28	6	3	6	0	15	162
08:45 AM	6	58	2	4	70	4	6	32	6	48	0	25	5	5	35	6	1	4	1	12	165
Total	19	242	6	16	283	13	24	121	26	184	12	92	13	12	129	19	16	20	1	56	652
04:00 PM	0	51	0	1	52	1	1	27	1	30	1	13	0	0	14	1	2	2	0	5	101
04:15 PM	5	120	5	3	133	10	7	80	1	98	3	39	5	2	49	7	3	8	0	18	298
04:30 PM	4	114	1	1	120	3	18	84	1	106	11	26	6	0	43	10	5	7	0	22	291
04:45 PM	4	111	4	1	120	9	14	84	2	109	7	39	4	1	51	5	6	7	0	18	298
Total	13	396	10	6	425	23	40	275	5	343	22	117	15	3	157	23	16	24	0	63	988
05:00 PM	3	124	0	2	129	2	10	84	1	97	12	34	4	1	51	4	7	8	1	20	297
05:15 PM	3	130	3	3	139	8	10	67	2	87	6	25	7	1	39	9	7	7	0	23	288
05:30 PM	6	137	8	2	153	4	9	63	3	79	3	42	4	2	51	6	9	7	0	22	305
05:45 PM	2	107	8	1	118	7	10	70	3	90	10	23	7	1	41	11	4	11	0	26	275
Total	14	498	19	8	539	21	39	284	9	353	31	124	22	5	182	30	27	33	1	91	1165
Grand Total	58	1316	39	48	1461	69	131	746	53	999	73	375	54	26	528	79	77	84	4	244	3232
Apprch %	4	90.1	2.7	3.3		6.9	13.1	74.7	5.3		13.8	71	10.2	4.9		32.4	31.6	34.4	1.6		
Total %	1.8	40.7	1.2	1.5	45.2	2.1	4.1	23.1	1.6	30.9	2.3	11.6	1.7	0.8	16.3	2.4	2.4	2.6	0.1	7.5	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
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401-273-6000

File Name : 6615.00 - 090305 - Broad - Warwick
Site Code : 00000000
Start Date : 3/5/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Warwick Avenue From East					Broad Street From South					Warwick Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	0	2	1	3	0	0	1	0	1	6	21	2	1	30	37	51	0	1	89	123
07:15 AM	0	0	0	0	0	0	0	1	1	2	5	18	3	1	27	42	68	0	2	112	141
07:30 AM	0	0	2	0	2	0	0	1	0	1	15	36	5	4	60	61	84	0	3	148	211
07:45 AM	0	0	0	0	0	0	0	13	0	13	15	30	16	2	63	63	99	0	2	164	240
Total	0	0	4	1	5	0	0	16	1	17	41	105	26	8	180	203	302	0	8	513	715
08:00 AM	0	0	3	0	3	0	0	12	4	16	13	52	3	1	69	62	76	0	6	144	232
08:15 AM	0	0	2	0	2	0	0	2	0	2	13	34	7	1	55	61	92	0	3	156	215
08:30 AM	0	0	1	0	1	0	0	2	0	2	17	35	2	2	56	51	55	0	4	110	169
08:45 AM	0	0	3	1	4	0	0	0	0	0	13	35	5	0	53	56	70	2	1	129	186
Total	0	0	9	1	10	0	0	16	4	20	56	156	17	4	233	230	293	2	14	539	802
04:00 PM	0	0	2	0	2	0	0	2	0	2	13	24	6	1	44	27	58	0	2	87	135
04:15 PM	0	0	5	0	5	0	0	2	0	2	9	18	4	2	33	29	67	1	3	100	140
04:30 PM	0	0	4	1	5	0	0	1	0	1	9	19	3	2	33	28	63	2	3	96	135
04:45 PM	0	0	2	0	2	0	0	1	0	1	11	15	3	2	31	34	59	2	2	97	131
Total	0	0	13	1	14	0	0	6	0	6	42	76	16	7	141	118	247	5	10	380	541
05:00 PM	0	0	4	0	4	0	0	12	0	12	7	17	3	2	29	29	49	0	4	82	127
05:15 PM	0	0	6	0	6	0	0	4	0	4	9	17	8	1	35	26	57	0	1	84	129
05:30 PM	0	0	1	0	1	0	0	3	0	3	6	14	1	1	22	44	66	3	1	114	140
05:45 PM	0	0	5	1	6	0	0	2	0	2	12	13	1	0	26	33	65	1	3	102	136
Total	0	0	16	1	17	0	0	21	0	21	34	61	13	4	112	132	237	4	9	382	532
Grand Total	0	0	42	4	46	0	0	59	5	64	173	398	72	23	666	683	1079	11	41	1814	2590
Apprch %	0	0	91.3	8.7		0	0	92.2	7.8		26	59.8	10.8	3.5		37.7	59.5	0.6	2.3		
Total %	0	0	1.6	0.2	1.8	0	0	2.3	0.2	2.5	6.7	15.4	2.8	0.9	25.7	26.4	41.7	0.4	1.6	70	

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85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090226 - Narragansett - Norwood
Site Code : 00000000
Start Date : 2/26/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					Norwood Avenue From East					Narragansett Boulevard From South					Norwood Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
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07:15 AM	18	24	0	3	45	1	0	0	0	1	0	83	0	0	83	0	0	61	5	66	195
07:30 AM	18	10	0	2	30	1	0	0	0	1	1	112	0	0	113	1	0	83	1	85	229
07:45 AM	22	19	0	3	44	2	3	0	0	5	0	126	2	2	130	0	0	63	3	66	245
Total	78	65	0	10	153	5	3	0	0	8	1	401	2	2	406	1	0	256	10	267	834
08:00 AM	30	21	0	6	57	0	0	0	0	0	0	123	0	2	125	0	0	77	3	80	262
08:15 AM	28	27	0	4	59	1	0	0	0	1	0	102	2	2	106	2	1	74	2	79	245
08:30 AM	27	22	0	6	55	0	2	3	0	5	1	85	1	0	87	1	0	72	3	76	223
08:45 AM	35	27	0	2	64	1	1	1	0	3	1	93	2	0	96	1	0	75	2	78	241
Total	120	97	0	18	235	2	3	4	0	9	2	403	5	4	414	4	1	298	10	313	971
04:00 PM	69	65	0	1	135	0	0	0	0	0	0	24	5	1	30	0	0	44	2	46	211
04:15 PM	93	83	0	5	181	0	0	2	0	2	1	26	1	0	28	1	0	43	2	46	257
04:30 PM	82	101	0	2	185	0	1	1	0	2	3	34	0	3	40	3	1	49	4	57	284
04:45 PM	86	106	1	4	197	0	0	0	0	0	0	40	3	0	43	0	2	38	5	45	285
Total	330	355	1	12	698	0	1	3	0	4	4	124	9	4	141	4	3	174	13	194	1037
05:00 PM	80	80	0	3	163	0	1	0	0	1	0	29	0	1	30	3	1	39	1	44	238
05:15 PM	93	122	0	2	217	0	0	0	0	0	0	37	2	0	39	2	2	46	3	53	309
05:30 PM	74	100	0	2	176	0	2	0	0	2	1	34	2	0	37	1	0	53	2	56	271
05:45 PM	73	90	4	3	170	1	2	0	0	3	0	43	0	0	43	2	0	46	0	48	264
Total	320	392	4	10	726	1	5	0	0	6	1	143	4	1	149	8	3	184	6	201	1082
Grand Total	848	909	5	50	1812	8	12	7	0	27	8	1071	20	11	1110	17	7	912	39	975	3924
Apprch %	46.8	50.2	0.3	2.8		29.6	44.4	25.9	0		0.7	96.5	1.8	1		1.7	0.7	93.5	4		
Total %	21.6	23.2	0.1	1.3	46.2	0.2	0.3	0.2	0	0.7	0.2	27.3	0.5	0.3	28.3	0.4	0.2	23.2	1	24.8	

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85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090210 - Broad - Columbia
Site Code : 00000000
Start Date : 2/10/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Columbia Avenue From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	13	1	1	15	1	0	5	2	8	1	34	0	0	35	0	0	0	0	0	58
07:30 AM	0	24	0	2	26	1	0	3	0	4	4	57	0	2	63	0	0	0	0	0	93
07:45 AM	0	22	0	1	23	3	0	2	0	5	2	80	0	2	84	0	0	0	0	0	112
Total	0	59	1	4	64	5	0	10	2	17	7	171	0	4	182	0	0	0	0	0	263
08:15 AM	0	40	1	1	42	1	0	6	1	8	6	58	0	1	65	0	0	0	0	0	115
08:30 AM	0	36	1	3	40	2	0	13	0	15	5	61	0	0	66	0	0	0	0	0	121
08:45 AM	0	33	1	1	35	1	0	5	0	6	0	53	0	0	53	0	0	0	0	0	94
Total	0	109	3	5	117	4	0	24	1	29	11	172	0	1	184	0	0	0	0	0	330
04:00 PM	0	37	3	1	41	1	0	4	0	5	3	43	0	1	47	0	0	0	0	0	93
04:15 PM	0	42	0	1	43	1	0	5	0	6	1	51	0	1	53	0	0	0	0	0	102
04:30 PM	0	56	1	1	58	1	0	3	0	4	5	44	0	1	50	0	0	0	0	0	112
04:45 PM	0	64	0	0	64	1	0	4	0	5	2	42	0	0	44	0	0	0	0	0	113
Total	0	199	4	3	206	4	0	16	0	20	11	180	0	3	194	0	0	0	0	0	420
05:00 PM	0	54	0	2	56	3	0	6	0	9	6	46	0	1	53	0	0	0	0	0	118
05:15 PM	0	61	0	0	61	1	0	8	0	9	5	42	0	1	48	0	0	0	0	0	118
05:30 PM	0	55	0	1	56	0	0	6	0	6	6	32	0	0	38	0	0	0	0	0	100
05:45 PM	0	45	1	2	48	1	0	2	0	3	4	35	0	0	39	0	0	0	0	0	90
Total	0	215	1	5	221	5	0	22	0	27	21	155	0	2	178	0	0	0	0	0	426
Grand Total	0	582	9	17	608	18	0	72	3	93	50	678	0	10	738	0	0	0	0	0	1439
Apprch %	0	95.7	1.5	2.8		19.4	0	77.4	3.2		6.8	91.9	0	1.4		0	0	0	0		
Total %	0	40.4	0.6	1.2	42.3	1.3	0	5	0.2	6.5	3.5	47.1	0	0.7	51.3	0	0	0	0	0	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090210 - Narragansett - Columbia
Site Code : 00000000
Start Date : 2/10/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					From East					Narragansett Boulevard From South					Columbia Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	18	0	1	21	0	0	0	0	0	0	76	2	2	80	0	0	2	0	2	103
07:15 AM	1	18	0	0	19	0	0	0	0	0	0	79	1	1	81	2	0	3	0	5	105
07:30 AM	1	19	1	0	21	0	0	0	0	0	0	108	0	1	109	0	0	9	0	9	139
Total	4	55	1	1	61	0	0	0	0	0	0	263	3	4	270	2	0	14	0	16	347
08:00 AM	0	19	0	0	19	0	0	0	0	0	0	104	0	0	104	0	0	5	0	5	128
08:30 AM	1	19	0	0	20	0	0	0	0	0	0	72	3	0	75	1	0	7	0	8	103
Total	1	38	0	0	39	0	0	0	0	0	0	176	3	0	179	1	0	12	0	13	231
04:00 PM	1	73	0	0	74	0	0	0	0	0	0	22	0	0	22	1	0	1	0	2	98
04:15 PM	2	81	0	2	85	0	0	0	0	0	0	30	1	0	31	2	0	3	0	5	121
04:30 PM	2	85	0	1	88	0	0	0	0	0	0	36	0	1	37	1	0	2	0	3	128
04:45 PM	6	83	0	0	89	0	0	0	0	0	0	37	1	0	38	1	0	1	0	2	129
Total	11	322	0	3	336	0	0	0	0	0	0	125	2	1	128	5	0	7	0	12	476
05:00 PM	7	89	0	1	97	0	0	0	0	0	0	33	0	0	33	2	0	2	0	4	134
05:15 PM	7	83	0	1	91	0	0	0	0	0	0	25	1	0	26	0	0	3	0	3	120
05:30 PM	5	94	0	0	99	0	0	0	0	0	0	25	3	0	28	2	0	2	0	4	131
05:45 PM	2	82	0	0	84	0	0	0	0	0	0	25	0	0	25	1	0	2	0	3	112
Total	21	348	0	2	371	0	0	0	0	0	0	108	4	0	112	5	0	9	0	14	497
Grand Total	37	763	1	6	807	0	0	0	0	0	0	672	12	5	689	13	0	42	0	55	1551
Apprch %	4.6	94.5	0.1	0.7		0	0	0	0		0	97.5	1.7	0.7		23.6	0	76.4	0		
Total %	2.4	49.2	0.1	0.4	52	0	0	0	0	0	0	43.3	0.8	0.3	44.4	0.8	0	2.7	0	3.5	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090211 - Broad - Shaw
Site Code : 00000000
Start Date : 2/11/2009
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Groups Printed- Vehicles

	Broad Street From North					Shaw Avenue From East					Broad Street From South					Ferncrest Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	16	0	2	20	1	0	2	0	3	1	29	0	1	31	2	3	1	2	8	62
07:15 AM	1	16	1	2	20	2	0	2	0	4	2	44	1	4	51	0	0	2	0	2	77
07:30 AM	0	13	3	1	17	4	1	2	0	7	3	48	0	0	51	2	1	4	0	7	82
07:45 AM	0	26	3	1	30	2	0	3	0	5	12	71	1	1	85	4	2	2	0	8	128
Total	3	71	7	6	87	9	1	9	0	19	18	192	2	6	218	8	6	9	2	25	349
08:00 AM	2	38	3	5	48	4	0	4	0	8	21	69	3	1	94	3	0	1	0	4	154
08:15 AM	3	33	12	1	49	4	2	3	0	9	23	64	1	2	90	0	3	2	0	5	153
08:30 AM	5	30	11	1	47	6	4	2	1	13	30	65	1	0	96	4	4	4	1	13	169
08:45 AM	1	18	3	2	24	1	1	4	0	6	7	60	2	0	69	3	1	3	0	7	106
Total	11	119	29	9	168	15	7	13	1	36	81	258	7	3	349	10	8	10	1	29	582
04:00 PM	2	61	1	0	64	3	3	3	0	9	6	33	4	0	43	3	2	1	0	6	122
04:15 PM	2	57	5	1	65	4	1	4	0	9	3	50	2	2	57	2	1	1	0	4	135
04:30 PM	0	61	1	1	63	1	2	6	0	9	6	43	1	1	51	3	0	0	0	3	126
04:45 PM	3	68	3	1	75	2	2	5	0	9	5	43	2	0	50	6	3	2	0	11	145
Total	7	247	10	3	267	10	8	18	0	36	20	169	9	3	201	14	6	4	0	24	528
05:00 PM	2	61	4	0	67	3	1	11	0	15	9	46	1	1	57	3	2	1	0	6	145
05:15 PM	3	60	2	1	66	2	1	7	0	10	3	39	2	1	45	1	2	0	0	3	124
05:30 PM	2	57	2	1	62	1	0	4	0	5	9	54	3	0	66	4	1	0	0	5	138
05:45 PM	3	52	2	2	59	2	2	4	0	8	5	38	2	0	45	6	2	2	0	10	122
Total	10	230	10	4	254	8	4	26	0	38	26	177	8	2	213	14	7	3	0	24	529
Grand Total	31	667	56	22	776	42	20	66	1	129	145	796	26	14	981	46	27	26	3	102	1988
Apprch %	4	86	7.2	2.8		32.6	15.5	51.2	0.8		14.8	81.1	2.7	1.4		45.1	26.5	25.5	2.9		
Total %	1.6	33.6	2.8	1.1	39	2.1	1	3.3	0.1	6.5	7.3	40	1.3	0.7	49.3	2.3	1.4	1.3	0.2	5.1	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090211 - Narragansett - Shaw
Site Code : 00000000
Start Date : 2/11/2009
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Groups Printed- Vehicles

	Narragansett Boulevard From North					Shaw Avenue From East					Narragansett Boulevard From South					Shaw Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	14	0	0	16	0	0	0	0	0	0	70	1	2	73	1	0	4	1	6	95
07:15 AM	0	15	0	0	15	1	0	0	0	1	0	77	0	1	78	0	0	2	0	2	96
07:30 AM	2	14	1	3	20	0	1	0	0	1	0	102	1	1	104	0	1	4	0	5	130
07:45 AM	1	11	1	0	13	0	0	0	0	0	1	97	0	1	99	0	0	6	0	6	118
Total	5	54	2	3	64	1	1	0	0	2	1	346	2	5	354	1	1	16	1	19	439
08:00 AM	3	20	0	0	23	1	0	0	0	1	0	88	3	1	92	3	0	12	1	16	132
08:15 AM	4	17	0	0	21	0	0	0	0	0	0	74	5	0	79	7	0	7	2	16	116
08:30 AM	5	18	0	1	24	0	0	0	0	0	0	70	7	1	78	7	0	7	1	15	117
08:45 AM	4	14	0	1	19	0	0	0	0	0	0	59	0	1	60	5	0	9	0	14	93
Total	16	69	0	2	87	1	0	0	0	1	0	291	15	3	309	22	0	35	4	61	458
04:00 PM	3	75	0	0	78	0	0	1	0	1	1	32	3	3	39	2	0	2	0	4	122
04:15 PM	3	83	0	0	86	0	0	0	0	0	0	24	2	0	26	1	0	5	0	6	118
04:30 PM	9	82	0	3	94	0	0	0	0	0	0	25	1	1	27	1	0	3	0	4	125
04:45 PM	5	71	0	1	77	0	0	0	0	0	0	28	1	0	29	2	1	4	0	7	113
Total	20	311	0	4	335	0	0	1	0	1	1	109	7	4	121	6	1	14	0	21	478
05:00 PM	12	100	0	0	112	0	0	0	0	0	0	31	1	0	32	2	0	3	0	5	149
05:15 PM	1	82	1	1	85	0	0	0	0	0	1	27	3	0	31	1	0	7	0	8	124
05:30 PM	2	108	2	3	115	0	0	0	0	0	2	25	0	0	27	0	0	6	0	6	148
05:45 PM	5	70	5	0	80	1	0	0	0	1	0	25	0	0	25	3	1	4	0	8	114
Total	20	360	8	4	392	1	0	0	0	1	3	108	4	0	115	6	1	20	0	27	535
Grand Total	61	794	10	13	878	3	1	1	0	5	5	854	28	12	899	35	3	85	5	128	1910
Apprch %	6.9	90.4	1.1	1.5		60	20	20	0		0.6	95	3.1	1.3		27.3	2.3	66.4	3.9		
Total %	3.2	41.6	0.5	0.7	46	0.2	0.1	0.1	0	0.3	0.3	44.7	1.5	0.6	47.1	1.8	0.2	4.5	0.3	6.7	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090212 - Broad - Bluff - Park
Site Code : 00000000
Start Date : 2/12/2009
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Groups Printed- Vehicles

	Broad Street From North					Bluff Avenue From East					Broad Street From South					Park Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	11	17	1	3	32	0	9	2	0	11	1	26	27	1	55	8	3	8	2	21	119
07:15 AM	9	10	0	1	20	1	3	2	0	6	1	43	35	4	83	9	6	9	2	26	135
07:30 AM	11	15	1	1	28	2	10	2	1	15	3	51	29	2	85	15	7	9	3	34	162
07:45 AM	12	22	0	1	35	3	9	4	0	16	3	61	25	0	89	17	5	14	0	36	176
Total	43	64	2	6	115	6	31	10	1	48	8	181	116	7	312	49	21	40	7	117	592
08:00 AM	17	20	2	4	43	6	6	3	0	15	2	54	21	1	78	16	7	22	0	45	181
08:15 AM	26	13	1	1	41	4	14	7	0	25	1	58	38	3	100	20	7	28	1	56	222
08:30 AM	16	25	1	1	43	6	20	8	0	34	3	55	31	0	89	19	6	34	0	59	225
08:45 AM	11	16	2	1	30	2	13	3	0	18	1	26	22	0	49	26	3	15	1	45	142
Total	70	74	6	7	157	18	53	21	0	92	7	193	112	4	316	81	23	99	2	205	770
04:00 PM	18	43	3	1	65	5	5	4	0	14	0	28	30	0	58	47	12	18	3	80	217
04:15 PM	11	56	3	1	71	6	4	3	0	13	3	35	21	2	61	42	3	12	1	58	203
04:30 PM	14	36	5	2	57	0	5	2	0	7	3	31	22	3	59	23	7	18	0	48	171
04:45 PM	17	42	4	2	65	1	8	5	0	14	5	30	24	1	60	42	7	20	2	71	210
Total	60	177	15	6	258	12	22	14	0	48	11	124	97	6	238	154	29	68	6	257	801
05:00 PM	19	50	1	1	71	1	5	7	0	13	3	36	36	4	79	31	5	16	0	52	215
05:15 PM	23	37	0	3	63	3	3	3	0	9	2	31	20	1	54	31	8	25	0	64	190
05:30 PM	19	53	0	2	74	1	4	4	0	9	1	31	28	1	61	36	3	11	1	51	195
05:45 PM	17	59	0	2	78	7	2	5	0	14	4	36	20	0	60	32	13	13	1	59	211
Total	78	199	1	8	286	12	14	19	0	45	10	134	104	6	254	130	29	65	2	226	811
Grand Total	251	514	24	27	816	48	120	64	1	233	36	632	429	23	1120	414	102	272	17	805	2974
Apprch %	30.8	63	2.9	3.3		20.6	51.5	27.5	0.4		3.2	56.4	38.3	2.1		51.4	12.7	33.8	2.1		
Total %	8.4	17.3	0.8	0.9	27.4	1.6	4	2.2	0	7.8	1.2	21.3	14.4	0.8	37.7	13.9	3.4	9.1	0.6	27.1	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090212 - Narragansett - Bluff
Site Code : 00000000
Start Date : 2/12/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					Bluff Avenue From East					Narragansett Boulevard From South					Bluff Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	20	0	1	23	0	0	0	0	0	0	70	1	1	72	0	0	6	1	7	102
07:15 AM	1	15	1	1	18	2	0	0	0	2	0	78	3	1	82	0	0	7	0	7	109
07:30 AM	1	19	0	1	21	3	0	0	0	3	0	82	0	2	84	0	0	10	0	10	118
07:45 AM	1	17	0	1	19	1	0	0	0	1	0	77	0	0	77	0	0	7	1	8	105
Total	5	71	1	4	81	6	0	0	0	6	0	307	4	4	315	0	0	30	2	32	434
08:00 AM	4	15	0	0	19	2	0	0	0	2	1	95	2	0	98	0	0	6	0	6	125
08:15 AM	6	15	0	2	23	1	0	0	0	1	0	83	2	1	86	2	0	10	0	12	122
08:30 AM	7	21	0	1	29	1	0	0	0	1	0	73	1	0	74	2	0	6	0	8	112
08:45 AM	3	23	1	0	27	2	0	0	1	3	0	46	1	0	47	1	1	6	1	9	86
Total	20	74	1	3	98	6	0	0	1	7	1	297	6	1	305	5	1	28	1	35	445
04:00 PM	6	65	1	0	72	0	0	0	0	0	1	18	0	0	19	5	1	5	1	12	103
04:15 PM	4	65	1	1	71	1	0	0	0	1	0	28	2	0	30	1	0	4	0	5	107
04:30 PM	5	63	0	0	68	0	0	0	0	0	0	28	0	0	28	3	0	2	0	5	101
04:45 PM	9	69	1	0	79	0	1	0	0	1	0	21	1	0	22	1	0	2	0	3	105
Total	24	262	3	1	290	1	1	0	0	2	1	95	3	0	99	10	1	13	1	25	416
05:00 PM	9	68	1	1	79	0	0	0	0	0	0	12	2	0	14	3	0	3	0	6	99
05:15 PM	3	95	0	1	99	0	0	1	0	1	0	29	1	0	30	1	0	2	0	3	133
05:30 PM	9	71	1	0	81	3	0	0	0	3	0	24	1	0	25	0	0	2	0	2	111
05:45 PM	12	61	1	0	74	0	0	0	0	0	0	28	1	0	29	1	2	4	0	7	110
Total	33	295	3	2	333	3	0	1	0	4	0	93	5	0	98	5	2	11	0	18	453
Grand Total	82	702	8	10	802	16	1	1	1	19	2	792	18	5	817	20	4	82	4	110	1748
Apprch %	10.2	87.5	1	1.2		84.2	5.3	5.3	5.3		0.2	96.9	2.2	0.6		18.2	3.6	74.5	3.6		
Total %	4.7	40.2	0.5	0.6	45.9	0.9	0.1	0.1	0.1	1.1	0.1	45.3	1	0.3	46.7	1.1	0.2	4.7	0.2	6.3	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090213 - Broad - Strathmore
Site Code : 00000000
Start Date : 2/13/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Strathmore Road From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	36	1	1	38	2	0	1	0	3	2	63	0	2	67	0	0	0	0	0	108
07:15 AM	0	30	1	3	34	3	0	1	0	4	5	52	0	2	59	0	0	0	0	0	97
07:30 AM	0	43	1	2	46	2	0	1	0	3	5	78	0	2	85	0	0	0	0	0	134
07:45 AM	0	34	2	1	37	2	0	1	0	3	6	78	0	1	85	0	0	0	0	0	125
Total	0	143	5	7	155	9	0	4	0	13	18	271	0	7	296	0	0	0	0	0	464
08:00 AM	0	44	0	0	44	0	0	2	0	2	6	87	0	4	97	0	0	0	0	0	143
08:15 AM	0	52	0	2	54	1	0	0	0	1	3	82	0	2	87	0	0	0	0	0	142
08:30 AM	0	62	1	1	64	2	0	1	0	3	1	69	0	0	70	0	0	0	0	0	137
08:45 AM	0	56	2	3	61	1	0	1	0	2	1	69	0	1	71	0	0	0	0	0	134
Total	0	214	3	6	223	4	0	4	0	8	11	307	0	7	325	0	0	0	0	0	556
04:00 PM	0	90	1	1	92	4	0	3	0	7	1	81	0	0	82	0	0	0	0	0	181
04:15 PM	0	101	3	2	106	1	0	4	0	5	1	75	0	3	79	0	0	0	0	0	190
04:30 PM	0	102	3	2	107	0	0	2	0	2	5	57	0	2	64	0	0	0	0	0	173
04:45 PM	0	116	4	1	121	2	0	3	0	5	3	68	0	1	72	0	0	0	0	0	198
Total	0	409	11	6	426	7	0	12	0	19	10	281	0	6	297	0	0	0	0	0	742
05:00 PM	0	102	1	2	105	0	0	4	0	4	4	74	0	3	81	0	0	0	0	0	190
05:15 PM	0	92	3	0	95	2	0	2	0	4	3	65	0	2	70	0	0	0	0	0	169
05:30 PM	0	90	2	2	94	0	0	2	0	2	2	54	0	0	56	0	0	0	0	0	152
05:45 PM	0	86	0	1	87	2	0	3	0	5	1	60	0	0	61	0	0	0	0	0	153
Total	0	370	6	5	381	4	0	11	0	15	10	253	0	5	268	0	0	0	0	0	664
Grand Total	0	1136	25	24	1185	24	0	31	0	55	49	1112	0	25	1186	0	0	0	0	0	2426
Apprch %	0	95.9	2.1	2		43.6	0	56.4	0		4.1	93.8	0	2.1		0	0	0	0		
Total %	0	46.8	1	1	48.8	1	0	1.3	0	2.3	2	45.8	0	1	48.9	0	0	0	0	0	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090213 - Narragansett - Strathmore
Site Code : 00000000
Start Date : 2/13/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					Strathmore Place From East					Narragansett Boulevard From South					Strathmore Road From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	1	14	0	0	15	0	0	0	0	0	0	37	0	0	37	0	0	1	0	1	53
07:15 AM	1	10	0	1	12	0	0	0	0	0	0	49	1	1	51	0	0	8	2	10	73
07:30 AM	1	14	0	0	15	0	0	0	0	0	0	53	1	1	55	1	0	5	0	6	76
07:45 AM	0	12	0	0	12	0	0	0	0	0	0	54	1	1	56	0	0	7	0	7	75
Total	3	50	0	1	54	0	0	0	0	0	0	193	3	3	199	1	0	21	2	24	277
08:00 AM	1	12	0	0	13	0	0	0	0	0	0	48	0	0	48	0	0	8	0	8	69
08:15 AM	0	12	0	0	12	0	0	0	0	0	0	63	0	0	63	1	0	5	0	6	81
08:30 AM	2	11	0	0	13	0	0	0	0	0	0	47	0	0	47	0	0	4	0	4	64
08:45 AM	0	17	0	0	17	0	0	0	0	0	0	37	1	0	38	0	0	4	0	4	59
Total	3	52	0	0	55	0	0	0	0	0	0	195	1	0	196	1	0	21	0	22	273
04:00 PM	4	52	0	0	56	0	0	0	0	0	0	22	1	0	23	0	0	1	0	1	80
04:15 PM	4	52	0	0	56	0	0	0	0	0	0	21	0	0	21	0	0	1	0	1	78
04:30 PM	1	79	0	1	81	0	0	0	0	0	0	27	0	0	27	0	0	3	0	3	111
04:45 PM	5	56	0	1	62	0	0	0	0	0	0	30	1	0	31	0	0	2	0	2	95
Total	14	239	0	2	255	0	0	0	0	0	0	100	2	0	102	0	0	7	0	7	364
05:00 PM	3	56	0	0	59	0	0	0	0	0	0	17	0	0	17	0	0	2	0	2	78
05:15 PM	1	56	0	1	58	0	0	0	0	0	0	20	0	0	20	1	0	2	0	3	81
05:30 PM	1	61	0	0	62	0	0	0	0	0	0	18	1	0	19	0	0	1	1	2	83
05:45 PM	3	39	0	0	42	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	61
Total	8	212	0	1	221	0	0	0	0	0	0	74	1	0	75	1	0	5	1	7	303
Grand Total	28	553	0	4	585	0	0	0	0	0	0	562	7	3	572	3	0	54	3	60	1217
Apprch %	4.8	94.5	0	0.7		0	0	0	0		0	98.3	1.2	0.5		5	0	90	5		
Total %	2.3	45.4	0	0.3	48.1	0	0	0	0	0	0	46.2	0.6	0.2	47	0.2	0	4.4	0.2	4.9	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090224 - Broad - Chiswick
Site Code : 00000000
Start Date : 2/24/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Chiswick Road From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	33	0	5	38	2	0	2	0	4	9	59	0	1	69	0	0	0	0	0	111
07:15 AM	0	22	1	2	25	4	0	1	1	6	7	67	0	3	77	0	0	0	0	0	108
07:30 AM	0	38	0	5	43	1	0	4	0	5	12	99	0	0	111	0	0	0	0	0	159
07:45 AM	0	35	1	2	38	1	0	5	0	6	12	77	0	1	90	0	0	0	0	0	134
Total	0	128	2	14	144	8	0	12	1	21	40	302	0	5	347	0	0	0	0	0	512
08:00 AM	0	49	0	2	51	0	0	1	0	1	7	88	0	1	96	0	0	0	0	0	148
08:15 AM	0	52	0	1	53	1	0	5	0	6	7	90	0	2	99	0	0	0	0	0	158
08:30 AM	0	62	1	5	68	3	0	0	0	3	6	89	0	1	96	0	0	0	0	0	167
08:45 AM	0	49	0	3	52	0	0	1	0	1	5	56	0	3	64	0	0	0	0	0	117
Total	0	212	1	11	224	4	0	7	0	11	25	323	0	7	355	0	0	0	0	0	590
04:00 PM	0	95	0	1	96	1	0	5	1	7	0	63	0	0	63	0	0	0	0	0	166
04:15 PM	0	86	1	3	90	3	0	2	0	5	0	59	0	3	62	0	0	0	0	0	157
04:30 PM	0	97	2	1	100	1	0	4	0	5	2	60	0	2	64	0	0	0	0	0	169
04:45 PM	0	92	0	2	94	0	0	3	0	3	3	77	0	1	81	0	0	0	0	0	178
Total	0	370	3	7	380	5	0	14	1	20	5	259	0	6	270	0	0	0	0	0	670
05:00 PM	0	86	1	1	88	3	0	6	1	10	1	52	0	2	55	0	0	0	0	0	153
05:15 PM	0	106	0	1	107	0	0	9	0	9	4	56	0	2	62	0	0	0	0	0	178
05:30 PM	0	89	0	1	90	3	0	6	0	9	2	54	0	0	56	0	0	0	0	0	155
05:45 PM	0	77	0	1	78	0	0	8	0	8	1	63	0	0	64	0	0	0	0	0	150
Total	0	358	1	4	363	6	0	29	1	36	8	225	0	4	237	0	0	0	0	0	636
Grand Total	0	1068	7	36	1111	23	0	62	3	88	78	1109	0	22	1209	0	0	0	0	0	2408
Apprch %	0	96.1	0.6	3.2		26.1	0	70.5	3.4		6.5	91.7	0	1.8		0	0	0	0		
Total %	0	44.4	0.3	1.5	46.1	1	0	2.6	0.1	3.7	3.2	46.1	0	0.9	50.2	0	0	0	0	0	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090224 - Narragansett - Chiswick
Site Code : 00000000
Start Date : 2/24/2009
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Groups Printed- Vehicles

	Narragansett Boulevard From North					From East					Narragansett Boulevard From South					Chiswick Road From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	3	15	0	0	18	0	0	0	0	0	0	40	0	1	41	0	0	10	0	10	69
07:15 AM	1	11	0	0	12	0	0	0	0	0	0	39	2	0	41	0	0	8	1	9	62
07:30 AM	4	9	0	0	13	0	0	0	0	0	0	46	0	1	47	0	0	13	0	13	73
07:45 AM	1	9	0	0	10	0	0	0	0	0	0	55	0	0	55	0	0	12	0	12	77
Total	9	44	0	0	53	0	0	0	0	0	0	180	2	2	184	0	0	43	1	44	281
08:00 AM	2	14	0	0	16	0	0	0	0	0	0	44	0	0	44	0	0	9	0	9	69
08:15 AM	4	14	0	1	19	0	0	0	0	0	0	61	0	0	61	0	0	7	0	7	87
08:30 AM	0	15	0	0	15	0	0	0	0	0	0	39	0	0	39	0	0	6	0	6	60
08:45 AM	1	10	0	0	11	0	0	0	0	0	0	40	0	1	41	0	0	4	1	5	57
Total	7	53	0	1	61	0	0	0	0	0	0	184	0	1	185	0	0	26	1	27	273
04:00 PM	6	49	0	1	56	0	0	0	0	0	0	26	0	0	26	0	0	2	0	2	84
04:15 PM	4	52	0	0	56	0	0	0	0	0	0	13	2	0	15	1	0	1	0	2	73
04:30 PM	6	55	0	0	61	0	0	0	0	0	0	21	0	0	21	0	0	2	0	2	84
04:45 PM	2	61	0	0	63	0	0	0	0	0	0	16	1	1	18	0	0	2	0	2	83
Total	18	217	0	1	236	0	0	0	0	0	0	76	3	1	80	1	0	7	0	8	324
05:00 PM	6	47	0	0	53	0	0	0	0	0	0	22	0	0	22	0	0	1	0	1	76
05:15 PM	9	50	0	0	59	0	0	0	0	0	0	27	0	0	27	0	0	2	0	2	88
05:30 PM	11	47	0	0	58	0	0	0	0	0	0	21	0	0	21	1	0	2	0	3	82
05:45 PM	9	49	0	0	58	0	0	0	0	0	0	16	0	0	16	0	0	1	0	1	75
Total	35	193	0	0	228	0	0	0	0	0	0	86	0	0	86	1	0	6	0	7	321
Grand Total	69	507	0	2	578	0	0	0	0	0	0	526	5	4	535	2	0	82	2	86	1199
Apprch %	11.9	87.7	0	0.3		0	0	0	0		0	98.3	0.9	0.7		2.3	0	95.3	2.3		
Total %	5.8	42.3	0	0.2	48.2	0	0	0	0	0	0	43.9	0.4	0.3	44.6	0.2	0	6.8	0.2	7.2	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090327 - Broad - Windsor
Site Code : 00000000
Start Date : 3/27/2009
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Groups Printed- Vehicles

	Broad Street From North					Windsor Road From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	32	0	3	35	1	0	3	0	4	6	83	0	2	91	0	0	0	0	0	130
07:15 AM	0	45	2	3	50	0	0	1	0	1	9	64	0	2	75	0	0	0	0	0	126
07:30 AM	0	38	0	2	40	0	0	3	0	3	12	81	0	0	93	0	0	0	0	0	136
07:45 AM	0	48	0	4	52	0	0	3	0	3	9	70	0	2	81	0	0	0	0	0	136
Total	0	163	2	12	177	1	0	10	0	11	36	298	0	6	340	0	0	0	0	0	528
08:00 AM	0	58	2	0	60	0	0	2	1	3	8	98	0	1	107	0	0	0	0	0	170
08:15 AM	0	56	0	2	58	2	0	0	0	2	5	89	0	3	97	0	0	0	0	0	157
08:30 AM	0	60	0	3	63	1	0	2	0	3	7	78	0	0	85	0	0	0	0	0	151
08:45 AM	0	67	2	4	73	1	0	1	0	2	5	68	0	2	75	0	0	0	0	0	150
Total	0	241	4	9	254	4	0	5	1	10	25	333	0	6	364	0	0	0	0	0	628
Grand Total	0	404	6	21	431	5	0	15	1	21	61	631	0	12	704	0	0	0	0	0	1156
Apprch %	0	93.7	1.4	4.9		23.8	0	71.4	4.8		8.7	89.6	0	1.7		0	0	0	0		
Total %	0	34.9	0.5	1.8	37.3	0.4	0	1.3	0.1	1.8	5.3	54.6	0	1	60.9	0	0	0	0	0	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090326 - Broad - Windsor
Site Code : 00000000
Start Date : 3/26/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Windsor Road From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
04:00 PM	0	76	0	1	77	3	0	7	1	11	1	74	0	0	75	0	0	0	0	0	163
04:15 PM	0	96	0	1	97	0	0	11	0	11	0	53	0	3	56	0	0	0	0	0	164
04:30 PM	0	106	2	2	110	2	0	10	0	12	3	66	0	1	70	0	0	0	0	0	192
04:45 PM	0	100	0	1	101	0	0	9	0	9	2	76	0	1	79	0	0	0	0	0	189
Total	0	378	2	5	385	5	0	37	1	43	6	269	0	5	280	0	0	0	0	0	708
05:00 PM	0	104	1	2	107	1	0	7	0	8	3	65	0	0	68	0	0	0	0	0	183
05:15 PM	0	118	2	1	121	0	0	7	0	7	2	62	0	0	64	0	0	0	0	0	192
05:30 PM	0	183	1	3	187	1	0	6	0	7	4	63	0	1	68	0	0	0	0	0	262
05:45 PM	0	172	1	3	176	1	0	7	0	8	4	53	0	1	58	0	0	0	0	0	242
Total	0	577	5	9	591	3	0	27	0	30	13	243	0	2	258	0	0	0	0	0	879
Grand Total	0	955	7	14	976	8	0	64	1	73	19	512	0	7	538	0	0	0	0	0	1587
Apprch %	0	97.8	0.7	1.4		11	0	87.7	1.4		3.5	95.2	0	1.3		0	0	0	0		
Total %	0	60.2	0.4	0.9	61.5	0.5	0	4	0.1	4.6	1.2	32.3	0	0.4	33.9	0	0	0	0	0	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090327 - Narragansett - Windsor
Site Code : 00000000
Start Date : 3/27/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					From East					Narragansett Boulevard From South					Windsor Road From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	2	7	0	0	9	0	0	0	0	0	0	27	0	0	27	0	0	6	1	7	43
07:15 AM	2	9	0	0	11	0	0	0	0	0	0	28	0	0	28	0	0	15	1	16	55
07:30 AM	1	8	0	0	9	0	0	0	0	0	0	39	1	0	40	0	0	14	1	15	64
07:45 AM	2	8	0	0	10	0	0	0	0	0	0	32	0	0	32	0	0	15	0	15	57
Total	7	32	0	0	39	0	0	0	0	0	0	126	1	0	127	0	0	50	3	53	219
08:00 AM	3	12	0	0	15	0	0	0	0	0	0	40	0	0	40	0	0	12	0	12	67
08:15 AM	2	12	0	1	15	0	0	0	0	0	0	29	0	0	29	0	0	9	0	9	53
08:30 AM	2	10	0	0	12	0	0	0	0	0	0	35	1	1	37	0	0	6	0	6	55
08:45 AM	1	17	0	1	19	0	0	0	0	0	0	32	0	0	32	0	0	11	0	11	62
Total	8	51	0	2	61	0	0	0	0	0	0	136	1	1	138	0	0	38	0	38	237
Grand Total	15	83	0	2	100	0	0	0	0	0	0	262	2	1	265	0	0	88	3	91	456
Apprch %	15	83	0	2		0	0	0	0		0	98.9	0.8	0.4		0	0	96.7	3.3		
Total %	3.3	18.2	0	0.4	21.9	0	0	0	0	0	0	57.5	0.4	0.2	58.1	0	0	19.3	0.7	20	

Garofalo & Associates, Inc.
85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090326 - Narragansett - Windsor
Site Code : 00000000
Start Date : 3/26/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					From East					Narragansett Boulevard From South					Windsor Road From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
04:00 PM	11	41	0	0	52	0	0	0	0	0	0	13	0	1	14	0	0	1	0	1	67
04:15 PM	11	34	0	0	45	0	0	0	0	0	0	13	1	0	14	0	0	0	0	0	59
04:30 PM	10	43	0	0	53	0	0	0	0	0	0	14	1	0	15	1	0	3	1	5	73
04:45 PM	12	48	0	0	60	0	0	0	0	0	0	23	0	0	23	0	0	5	0	5	88
Total	44	166	0	0	210	0	0	0	0	0	0	63	2	1	66	1	0	9	1	11	287
05:00 PM	6	46	0	0	52	0	0	0	0	0	0	18	0	0	18	0	0	3	0	3	73
05:15 PM	9	42	0	0	51	0	0	0	0	0	0	17	0	0	17	0	0	5	0	5	73
05:30 PM	5	43	0	1	49	0	0	0	0	0	0	19	1	0	20	1	0	4	0	5	74
05:45 PM	10	50	0	0	60	0	0	0	0	0	0	25	0	0	25	0	0	7	0	7	92
Total	30	181	0	1	212	0	0	0	0	0	0	79	1	0	80	1	0	19	0	20	312
Grand Total	74	347	0	1	422	0	0	0	0	0	0	142	3	1	146	2	0	28	1	31	599
Apprch %	17.5	82.2	0	0.2		0	0	0	0		0	97.3	2.1	0.7		6.5	0	90.3	3.2		
Total %	12.4	57.9	0	0.2	70.5	0	0	0	0	0	0	23.7	0.5	0.2	24.4	0.3	0	4.7	0.2	5.2	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090225 - Broad - Circuit
Site Code : 00000000
Start Date : 2/25/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Circuit Drive From East					Broad Street From South					Rhodes Place From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	34	1	1	36	0	0	0	0	0	2	68	0	2	72	0	0	0	0	0	108
07:15 AM	0	27	0	2	29	0	0	0	0	0	1	73	2	2	78	0	0	0	0	0	107
07:30 AM	2	38	1	3	44	0	0	1	0	1	1	102	0	0	103	0	0	0	0	0	148
07:45 AM	0	49	0	3	52	0	0	3	0	3	1	68	0	0	69	1	0	0	1	2	126
Total	2	148	2	9	161	0	0	4	0	4	5	311	2	4	322	1	0	0	1	2	489
08:00 AM	2	41	0	0	43	0	1	0	0	1	1	96	1	1	99	1	0	0	0	1	144
08:15 AM	1	59	0	2	62	4	0	2	1	7	2	105	1	1	109	2	0	1	1	4	182
08:30 AM	2	55	1	0	58	0	1	2	0	3	4	88	3	0	95	0	1	0	0	1	157
08:45 AM	1	60	4	3	68	0	0	1	0	1	3	75	3	1	82	1	0	1	0	2	153
Total	6	215	5	5	231	4	2	5	1	12	10	364	8	3	385	4	1	2	1	8	636
04:00 PM	1	88	1	1	91	1	0	3	1	5	1	62	2	1	66	0	0	1	0	1	163
04:15 PM	3	91	1	2	97	2	0	1	0	3	3	65	1	1	70	1	0	1	0	2	172
04:30 PM	6	104	1	1	112	0	0	1	0	1	0	79	2	1	82	3	0	3	0	6	201
04:45 PM	4	108	1	0	113	0	0	5	0	5	0	77	3	0	80	1	0	1	0	2	200
Total	14	391	4	4	413	3	0	10	1	14	4	283	8	3	298	5	0	6	0	11	736
05:00 PM	0	123	0	1	124	2	1	3	0	6	2	81	5	1	89	3	0	1	0	4	223
05:15 PM	7	101	1	0	109	1	0	1	0	2	5	65	3	2	75	2	0	1	0	3	189
05:30 PM	5	114	2	2	123	0	1	2	0	3	0	63	6	1	70	1	0	1	0	2	198
05:45 PM	5	87	0	0	92	2	2	2	0	6	2	53	8	0	63	3	1	1	0	5	166
Total	17	425	3	3	448	5	4	8	0	17	9	262	22	4	297	9	1	4	0	14	776
Grand Total	39	1179	14	21	1253	12	6	27	2	47	28	1220	40	14	1302	19	2	12	2	35	2637
Apprch %	3.1	94.1	1.1	1.7		25.5	12.8	57.4	4.3		2.2	93.7	3.1	1.1		54.3	5.7	34.3	5.7		
Total %	1.5	44.7	0.5	0.8	47.5	0.5	0.2	1	0.1	1.8	1.1	46.3	1.5	0.5	49.4	0.7	0.1	0.5	0.1	1.3	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090225 - Narragansett - Circuit
Site Code : 00000000
Start Date : 2/25/2009
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					From East					Narragansett Boulevard From South					Circuit Drive From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	3	7	0	0	10	0	0	0	0	0	0	17	0	0	17	0	0	14	0	14	41
07:15 AM	1	10	0	0	11	0	0	0	0	0	0	19	0	0	19	0	0	14	0	14	44
07:30 AM	2	8	0	0	10	0	0	0	0	0	0	22	0	0	22	0	0	22	1	23	55
07:45 AM	2	5	0	0	7	0	0	0	0	0	0	19	0	1	20	0	0	22	0	22	49
Total	8	30	0	0	38	0	0	0	0	0	0	77	0	1	78	0	0	72	1	73	189
08:00 AM	1	9	0	0	10	0	0	0	0	0	0	19	0	0	19	1	0	13	0	14	43
08:15 AM	3	7	0	0	10	0	0	0	0	0	0	26	1	0	27	0	0	17	0	17	54
08:30 AM	5	9	0	1	15	0	0	0	0	0	0	14	0	0	14	0	0	9	0	9	38
08:45 AM	4	12	0	0	16	0	0	0	0	0	0	20	0	0	20	0	0	11	0	11	47
Total	13	37	0	1	51	0	0	0	0	0	0	79	1	0	80	1	0	50	0	51	182
04:00 PM	16	20	0	0	36	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	46
04:15 PM	12	28	0	0	40	0	0	0	0	0	0	17	0	0	17	0	0	5	0	5	62
04:30 PM	10	39	0	0	49	0	0	0	0	0	0	10	0	0	10	0	0	6	0	6	65
04:45 PM	11	33	0	1	45	0	0	0	0	0	0	5	0	0	5	0	0	4	0	4	54
Total	49	120	0	1	170	0	0	0	0	0	0	42	0	0	42	0	0	15	0	15	227
05:00 PM	12	30	0	0	42	0	0	0	0	0	0	6	0	0	6	0	0	7	0	7	55
05:15 PM	14	34	0	0	48	0	0	0	0	0	0	11	0	0	11	0	0	4	0	4	63
05:30 PM	14	28	0	0	42	0	0	0	0	0	0	6	1	0	7	0	0	5	0	5	54
05:45 PM	15	31	0	0	46	0	0	0	0	0	0	9	0	0	9	0	0	4	0	4	59
Total	55	123	0	0	178	0	0	0	0	0	0	32	1	0	33	0	0	20	0	20	231
Grand Total	125	310	0	2	437	0	0	0	0	0	0	230	2	1	233	1	0	157	1	159	829
Apprch %	28.6	70.9	0	0.5		0	0	0	0		0	98.7	0.9	0.4		0.6	0	98.7	0.6		
Total %	15.1	37.4	0	0.2	52.7	0	0	0	0	0	0	27.7	0.2	0.1	28.1	0.1	0	18.9	0.1	19.2	

Garofalo & Associates, Inc.

85 Corliss Street - P.O. Box 6145
Providence, RI 02940
401-273-6000

File Name : 6615.00 - 090226 - Broad - Ocean
Site Code : 00000000
Start Date : 2/26/2009
Page No : 1

Groups Printed- Vehicles

	Broad Street From North					Ocean Avenue From East					Broad Street From South					From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	0	40	0	1	41	1	0	7	0	8	21	76	0	1	98	0	0	0	0	0	147
07:15 AM	0	31	1	1	33	0	0	10	0	10	20	70	0	2	92	0	0	0	0	0	135
07:30 AM	0	34	1	3	38	0	0	3	0	3	36	113	0	1	150	0	0	0	0	0	191
07:45 AM	0	49	1	3	53	1	0	6	0	7	34	107	0	1	142	0	0	0	0	0	202
Total	0	154	3	8	165	2	0	26	0	28	111	366	0	5	482	0	0	0	0	0	675
08:00 AM	0	48	0	0	48	1	0	6	0	7	22	111	0	1	134	0	0	0	0	0	189
08:15 AM	0	46	5	4	55	0	0	9	0	9	33	91	0	2	126	0	0	0	0	0	190
08:30 AM	0	60	3	2	65	3	0	9	0	12	21	106	0	0	127	0	0	0	0	0	204
08:45 AM	0	56	4	2	62	3	0	12	0	15	21	77	0	1	99	0	0	0	0	0	176
Total	0	210	12	8	230	7	0	36	0	43	97	385	0	4	486	0	0	0	0	0	759
04:00 PM	0	84	4	0	88	2	0	32	0	34	13	50	0	1	64	0	0	0	0	0	186
04:15 PM	0	95	2	1	98	0	0	30	0	30	13	63	0	1	77	0	0	0	0	0	205
04:30 PM	0	105	2	2	109	5	0	32	0	37	12	57	0	0	69	0	0	0	0	0	215
04:45 PM	0	116	0	1	117	2	0	42	0	44	18	80	0	1	99	0	0	0	0	0	260
Total	0	400	8	4	412	9	0	136	0	145	56	250	0	3	309	0	0	0	0	0	866
05:00 PM	0	117	3	0	120	2	0	32	0	34	10	68	0	1	79	0	0	0	0	0	233
05:15 PM	0	128	2	1	131	2	0	43	1	46	16	67	0	2	85	0	0	0	0	0	262
05:30 PM	0	114	2	3	119	2	0	44	0	46	14	66	0	0	80	0	0	0	0	0	245
05:45 PM	0	94	1	2	97	1	0	37	0	38	11	63	0	0	74	0	0	0	0	0	209
Total	0	453	8	6	467	7	0	156	1	164	51	264	0	3	318	0	0	0	0	0	949
Grand Total	0	1217	31	26	1274	25	0	354	1	380	315	1265	0	15	1595	0	0	0	0	0	3249
Apprch %	0	95.5	2.4	2		6.6	0	93.2	0.3		19.7	79.3	0	0.9		0	0	0	0		
Total %	0	37.5	1	0.8	39.2	0.8	0	10.9	0	11.7	9.7	38.9	0	0.5	49.1	0	0	0	0	0	

Garofalo & Associates, Inc.

85 Corliss Street, P.O. Box 6145
Providence, Rhode Island 02940
(401) 273-6000

File Name : 6615.00 - 100113 - Narragansett - Ocean
Site Code : 00000000
Start Date : 1/13/2010
Page No : 1

Groups Printed- Vehicles

	Narragansett Boulevard From North					Ocean Avenue From East					From South					Ocean Avenue From West					
Start Time	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Right	Thru	Left	Trucks	App. Total	Int. Total
07:00 AM	3	0	1	0	4	4	1	0	0	5	0	0	0	0	0	0	1	8	0	9	18
07:15 AM	8	0	5	0	13	5	1	0	0	6	0	0	0	0	0	0	2	12	0	14	33
07:30 AM	6	0	4	0	10	5	4	0	0	9	0	0	0	0	0	0	4	20	0	24	43
07:45 AM	3	0	2	0	5	11	3	0	0	14	0	0	0	0	0	0	2	17	0	19	38
Total	20	0	12	0	32	25	9	0	0	34	0	0	0	0	0	0	9	57	0	66	132
08:00 AM	9	0	5	0	14	6	6	0	0	12	0	0	0	0	0	0	1	12	0	13	39
08:15 AM	5	0	2	0	7	2	0	0	0	2	0	0	0	0	0	0	2	16	0	18	27
08:30 AM	10	0	2	0	12	3	0	0	0	3	0	0	0	0	0	0	1	14	0	15	30
08:45 AM	11	0	5	0	16	9	0	0	0	9	0	0	0	0	0	0	0	17	0	17	42
Total	35	0	14	0	49	20	6	0	0	26	0	0	0	0	0	0	4	59	0	63	138
04:00 PM	19	0	6	0	25	6	1	0	0	7	0	0	0	0	0	0	3	9	0	12	44
04:15 PM	25	0	8	0	33	6	1	0	0	7	0	0	0	0	0	0	2	7	0	9	49
04:30 PM	19	0	5	0	24	5	1	0	0	6	0	0	0	0	0	0	2	8	0	10	40
04:45 PM	22	0	7	0	29	4	1	0	0	5	0	0	0	0	0	0	4	5	0	9	43
Total	85	0	26	0	111	21	4	0	0	25	0	0	0	0	0	0	11	29	0	40	176
05:00 PM	30	0	6	0	36	5	1	0	0	6	0	0	0	0	0	0	3	14	0	17	59
05:15 PM	28	0	3	0	31	1	0	0	0	1	0	0	0	0	0	0	2	2	0	4	36
05:30 PM	12	0	3	0	15	1	1	0	0	2	0	0	0	0	0	0	1	6	0	7	24
05:45 PM	18	0	2	0	20	5	1	0	0	6	0	0	0	0	0	0	3	4	0	7	33
Total	88	0	14	0	102	12	3	0	0	15	0	0	0	0	0	0	9	26	0	35	152
Grand Total	228	0	66	0	294	78	22	0	0	100	0	0	0	0	0	0	33	171	0	204	598
Apprch %	77.6	0	22.4	0		78	22	0	0		0	0	0	0		0	16.2	83.8	0		
Total %	38.1	0	11	0	49.2	13	3.7	0	0	16.7	0	0	0	0	0	0	5.5	28.6	0	34.1	

APPENDIX B

SPOT SPEED STUDY

Job No. 6615
3/25/09
Norwood Avenue
Cranston, RI
2:30 - 3:10 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
26-27	1	0	1	0	2.00	0.00
28-29	0	3	1	3	2.00	6.00
30-31	2	5	3	8	6.00	16.00
32-33	11	7	14	15	28.00	30.00
34-35	11	10	25	25	50.00	50.00
36-37	16	13	41	38	82.00	76.00
38-39	5	2	46	40	92.00	80.00
40-41	2	5	48	45	96.00	90.00
42-43	1	5	49	50	98.00	100.00
44-45	1	0	50	50	100.00	100.00
Total	50	50				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/20/09
Columbia Avenue @ Stop sign
Cranston, RI
11:30 AM - 12:30 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
22-23	0	2	0	2	0.00	12.50
24-25	2	0	2	2	12.50	12.50
26-27	3	3	5	5	31.25	31.25
28-29	3	0	8	5	50.00	31.25
30-31	3	5	11	10	68.75	62.50
32-33	3	2	14	12	87.50	75.00
34-35	0	2	14	14	87.50	87.50
36-37	0	2	14	16	87.50	100.00
38-39	1	0	15	16	93.75	100.00
40-41	0	0	15	16	93.75	100.00
42-43	0	0	15	16	93.75	100.00
44-45	1	0	16	16	100.00	100.00
Total	16	16				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/23/09
Shaw Avenue
Cranston, RI
11:10 AM - 12:10 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
14-15	1	0	1	0	7.69	0.00
16-17	1	0	2	0	15.38	0.00
18-19	1	1	3	1	23.08	5.88
20-21	1	0	4	1	30.77	5.88
22-23	0	4	4	5	30.77	29.41
24-25	2	2	6	7	46.15	41.18
26-27	2	3	8	10	61.54	58.82
28-29	2	4	10	14	76.92	82.35
30-31	1	1	11	15	84.62	88.24
32-33	1	2	12	17	92.31	100.00
34-35	1	0	13	17	100.00	100.00
Total	13	17				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/20/09
Bluff Avenue
Cranston, RI
1:10 - 2:10 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
18-19	2	0	2	0	13.33	0.00
20-21	0	1	2	1	13.33	6.67
22-23	2	0	4	1	26.67	6.67
24-25	1	2	5	3	33.33	20.00
26-27	3	1	8	4	53.33	26.67
28-29	6	3	14	7	93.33	46.67
30-31	0	4	14	11	93.33	73.33
32-33	1	3	15	14	100.00	93.33
34-35	0	0	15	14	100.00	93.33
36-37	0	1	15	15	100.00	100.00
Total	15	15				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/20/09
Strathmore Road
Cranston, RI
2:15 - 3:15 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
14-15	0	1	0	1	0.00	8.33
16-17	0	0	0	1	0.00	8.33
18-19	2	2	2	3	15.38	25.00
20-21	2	2	4	5	30.77	41.67
22-23	5	2	9	7	69.23	58.33
24-25	0	2	9	9	69.23	75.00
26-27	2	1	11	10	84.62	83.33
28-29	1	1	12	11	92.31	91.67
30-31	1	1	13	12	100.00	100.00
Total	13	12				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/20/09 and 3/23/09
Chiswick Road
Cranston, RI
3:55 - 4:55 PM and 12:15 - 1:15 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
18-19	2	0	2	0	25.00	0.00
20-21	1	1	3	1	37.50	3.70
22-23	1	7	4	8	50.00	29.63
24-25	2	5	6	13	75.00	48.15
26-27	1	4	7	17	87.50	62.96
28-29	0	7	7	24	87.50	88.89
30-31	0	2	7	26	87.50	96.30
32-33	1	1	8	27	100.00	100.00
Total	8	27				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/27/09
Windsor Road
Cranston, RI
9:10 - 10:10 AM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
20-21	0	2	0	2	0.00	28.57
22-23	3	1	3	3	20.00	42.86
24-25	3	3	6	6	40.00	85.71
26-27	8	0	14	6	93.33	85.71
28-29	0	1	14	7	93.33	100.00
30-31	1	0	15	7	100.00	100.00
Total	15	7				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/23/09
Ocean Avenue
Cranston, RI
1:20 - 2:20 PM

Speed (MPH)	Vehicles Eastbound	Vehicles Westbound	Total Vehicles Eastbound	Total Vehicles Westbound	Cumulative % Eastbound	Cumulative % Westbound
16-17	2	2	2	2	4.76	2.99
18-19	5	2	7	4	16.67	5.97
20-21	4	9	11	13	26.19	19.40
22-23	7	12	18	25	42.86	37.31
24-25	12	11	30	36	71.43	53.73
26-27	5	12	35	48	83.33	71.64
28-29	4	12	39	60	92.86	89.55
30-31	1	4	40	64	95.24	95.52
32-33	1	1	41	65	97.62	97.01
34-35	0	0	41	65	97.62	97.01
36-37	1	1	42	66	100.00	98.51
38-39	0	1	42	67	100.00	100.00
Total	42	67				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/23/09
Broad Street @ Strathmore Road
Cranston, RI
3:00 - 3:30 PM

Speed (MPH)	Vehicles Northbound	Vehicles Southbound	Total Vehicles Northbound	Total Vehicles Southbound	Cumulative % Northbound	Cumulative % Southbound
20-21	0	1	0	1	0.00	1.79
22-23	0	0	0	1	0.00	1.79
24-25	0	1	0	2	0.00	3.57
26-27	0	3	0	5	0.00	8.93
28-29	3	10	3	15	6.00	26.79
30-31	7	9	10	24	20.00	42.86
32-33	13	13	23	37	46.00	66.07
34-35	9	10	32	47	64.00	83.93
36-37	11	5	43	52	86.00	92.86
38-39	4	4	47	56	94.00	100.00
40-41	1	0	48	56	96.00	100.00
42-43	2	0	50	56	100.00	100.00
Total	50	56				

= Modal Speed

= 10 MPH Pace

Job No. 6615
3/23/09
Narragansett Boulevard @ Marion Avenue
Cranston, RI
3:40 - 4:20 PM

Speed (MPH)	Vehicles Northbound	Vehicles Southbound	Total Vehicles Northbound	Total Vehicles Southbound	Cumulative % Northbound	Cumulative % Southbound
24-25	1	0	1	0	1.82	0.00
26-27	0	0	1	0	1.82	0.00
28-29	7	3	8	3	14.55	5.00
30-31	7	6	15	9	27.27	15.00
32-33	12	10	27	19	49.09	31.67
34-35	12	11	39	30	70.91	50.00
36-37	9	14	48	44	87.27	73.33
38-39	2	5	50	49	90.91	81.67
40-41	3	8	53	57	96.36	95.00
42-43	1	3	54	60	98.18	100.00
44-45	0	0	54	60	98.18	100.00
46-47	0	0	54	60	98.18	100.00
48-49	1	0	55	60	100.00	100.00
Total	55	60				

= Modal Speed

= 10 MPH Pace

Job No. 6615

Roadway	P50 High	P50 Low	P85 High	P85 Low	S50 Add-on	S85 Add-on
Columbia EB	0.5000	0.3125	0.8750	0.6875	2.50	2.23
Columbia WB	0.6250	0.3125	0.8750	0.7500	1.70	2.10
Coulmbia Total	0.6563	0.4063	0.8750	0.8125	1.25	1.70
Bluff EB	0.5333	0.3333	0.9333	0.5333	2.17	2.08
Bluff WB	0.7333	0.4667	0.9333	0.7333	0.75	1.67
Bluff Total	0.7000	0.4000	0.9667	0.8333	1.17	0.75
Strathmore EB	0.6923	0.3077	0.9231	0.8462	1.50	0.60
Strathmore WB	0.5833	0.4167	0.9167	0.8333	1.50	0.90
Strathmore Total	0.6400	0.3600	0.9200	0.8400	1.50	0.75
Chiswick EB	0.5000	0.3750	0.8750	0.7500	2.50	2.10
Chiswick WB	0.6296	0.4815	0.8889	0.6296	0.75	2.20
Chiswick Total	0.5429	0.3429	0.8857	0.6857	2.07	2.14
Shaw EB	0.6154	0.4615	0.9231	0.8462	1.00	0.60
Shaw WB	0.5882	0.4118	0.8824	0.8235	1.50	1.40
Shaw Total	0.6000	0.4333	0.8667	0.8000	1.30	2.00
Ocean EB	0.7143	0.4286	0.9286	0.8333	1.00	0.85
Ocean WB	0.5373	0.3731	0.8955	0.7164	2.05	1.99
Ocean Total	0.6055	0.3945	0.9083	0.7615	1.50	1.71
Norwood EB	0.5000	0.2800	0.9200	0.8200	2.50	1.10
Norwood WB	0.5000	0.3000	0.9000	0.8000	2.50	1.50
Norwood Total	0.5000	0.2900	0.8600	0.7900	2.50	2.21
Windsor EB	0.9333	0.4000	0.9333	0.4000	0.88	2.19
Windsor WB	0.8571	0.4286	0.8571	0.4286	0.83	2.47
Windsor Total	0.5455	0.2727	0.9091	0.5455	2.17	2.17
Broad NB	0.6400	0.4600	0.8600	0.6400	0.94	2.41
Broad SB	0.6607	0.4286	0.9286	0.8393	1.12	0.74
Broad Total	0.5660	0.3208	0.8962	0.7453	1.96	1.89
Narragansett NB	0.7091	0.4909	0.8727	0.7091	0.58	2.22
Narragansett SB	0.5000	0.3167	0.9500	0.8167	2.50	1.00
Narragansett Total	0.6000	0.4000	0.8609	0.8000	1.50	2.14

Job No. 6615

Roadway	S50	S85	Mean	Median	Mode	Speed Limit Range
Columbia EB	28.50	32.23	30.38	30	29	30-24
Columbia WB	29.70	34.10	30.25	31	31	32-26
Coulmbia Total	29.25	33.70	30.31	30	30	32-26
Bluff EB	26.17	28.08	25.97	27	28	28-22
Bluff WB	28.75	31.67	29.17	30	30	30-24
Bluff Total	27.17	30.75	27.57	28	29	30-24
Strathmore EB	21.50	26.60	23.27	23	23	24-18
Strathmore WB	21.50	26.90	22.67	23	23	24-18
Strathmore Total	21.50	26.75	22.98	23	23	24-18
Chiswick EB	22.50	26.10	23.50	24	24	24-18
Chiswick WB	24.75	28.20	25.91	26	28	28-22
Chiswick Total	24.07	28.14	25.36	25	23	28-22
Shaw EB	25.00	30.60	25.12	26	28	30-24
Shaw WB	25.50	29.40	26.26	27	28	28-22
Shaw Total	25.30	30.00	25.77	27	28	28-22
Ocean EB	23.00	26.85	23.93	24	24	24-18
Ocean WB	24.05	27.99	25.13	25	26	26-20
Ocean Total	23.50	27.71	24.67	25	25	26-20
Norwood EB	34.50	37.10	35.38	35	36	38-32
Norwood WB	34.50	39.50	35.54	35	36	37-28
Norwood Total	34.50	38.21	35.46	35	36	38-32
Windsor EB	24.88	26.19	25.57	26	26	28-22
Windsor WB	22.83	24.47	23.64	24	24	26-20
Windsor Total	24.17	26.17	24.95	25	26	26-20
Broad NB	32.94	36.41	34.26	34	33	36-30
Broad SB	31.12	34.74	31.93	32	32	34-28
Broad Total	31.96	35.89	33.03	33	33	34-28
Narragansett NB	32.58	36.22	33.81	34	34	34-28
Narragansett SB	34.50	39.00	35.47	35	36	38-32
Narragansett Total	33.50	38.14	34.67	35	35	35-28

APPENDIX C

TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0	4.0				4.0	
Lane Util. Factor		1.00				1.00	1.00				1.00	
Frt		0.95				1.00	0.94				0.97	
Flt Protected		0.98				0.95	1.00				0.99	
Satd. Flow (prot)		1761				1770	1760				1776	
Flt Permitted		0.85				0.83	1.00				0.94	
Satd. Flow (perm)		1532				1554	1760				1686	
Volume (vph)	30	20	20	5	15	90	35	20	5	30	155	55
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	18	106	41	24	5	33	168	60
RTOR Reduction (vph)	0	4	0	0	0	0	20	0	0	0	15	0
Lane Group Flow (vph)	0	79	0	0	0	124	45	0	0	0	251	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm				Perm	Perm			Perm	Perm		
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		8.1				8.1	8.1				10.9	
Effective Green, g (s)		9.1				9.1	9.1				11.9	
Actuated g/C Ratio		0.17				0.17	0.17				0.22	
Clearance Time (s)		5.0				5.0	5.0				5.0	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		261				265	300				376	
v/s Ratio Prot							0.03					
v/s Ratio Perm		0.05				c0.08					c0.15	
v/c Ratio		0.30				0.47	0.15				0.67	
Uniform Delay, d1		19.4				20.0	18.9				18.9	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		0.7				1.3	0.2				4.5	
Delay (s)		20.0				21.3	19.1				23.4	
Level of Service		C				C	B				C	
Approach Delay (s)		20.0					20.5				23.4	
Approach LOS		C					C				C	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		
Lane Util. Factor		1.00	1.00			0.97		
Frt		1.00	0.85			0.94		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1857	1571			3256		
Flt Permitted		0.98	1.00			0.81		
Satd. Flow (perm)		1824	1571			2721		
Volume (vph)	5	75	155	15	1	350	245	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	85	176	17	1	368	258	16
RTOR Reduction (vph)	0	0	5	0	0	2	0	0
Lane Group Flow (vph)	0	91	188	0	0	641	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	2	0	0	0	3	0
Turn Type	Perm		Perm		Perm			
Protected Phases		2				1		
Permitted Phases	2		2		1			
Actuated Green, G (s)		10.9	10.9			19.4		
Effective Green, g (s)		11.9	11.9			20.4		
Actuated g/C Ratio		0.22	0.22			0.38		
Clearance Time (s)		5.0	5.0			5.0		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		406	350			1039		
v/s Ratio Prot								
v/s Ratio Perm		0.05	0.12			c0.24		
v/c Ratio		0.22	0.54			0.62		
Uniform Delay, d1		17.0	18.3			13.3		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		0.3	1.6			1.1		
Delay (s)		17.3	19.9			14.4		
Level of Service		B	B			B		
Approach Delay (s)		19.1				14.4		
Approach LOS		B				B		

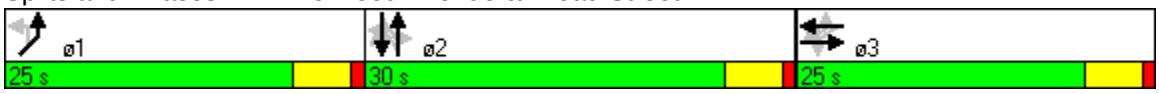
Intersection Summary

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	15	90	35	5	30	155	5	75	155	1
Lane Group Flow (vph)	0	83	0	124	65	0	0	266	0	91	193	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	30.0	30.0	30.0	30.0	30.0	30.0	25.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	31.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.24		0.41	0.16			0.56		0.18	0.45	
Control Delay		22.6		27.3	16.4			25.0		18.9	23.2	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		22.6		27.3	16.4			25.0		18.9	23.2	
Queue Length 50th (ft)		24		39	12			77		26	57	
Queue Length 95th (ft)		65		91	42			159		61	118	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		555		478	627			710		750	649	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.15		0.26	0.10			0.37		0.12	0.30	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 53.1
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	350
Lane Group Flow (vph)	643
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	31.3%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.60
Control Delay	22.0
Queue Delay	0.0
Total Delay	22.0
Queue Length 50th (ft)	96
Queue Length 95th (ft)	#240
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	1172
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.55

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.87			0.94			1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1547			1741			3515			1862	1564
Flt Permitted	0.74	1.00			0.98			0.95			0.99	1.00
Satd. Flow (perm)	1311	1547			1722			3350			1849	1564
Volume (vph)	300	1	5	1	5	5	5	465	1	1	75	100
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	345	1	6	3	13	13	6	528	1	1	85	114
RTOR Reduction (vph)	0	3	0	0	8	0	0	0	0	0	0	73
Lane Group Flow (vph)	345	4	0	0	21	0	0	535	0	0	86	41
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	14.1	14.1			14.1			11.9			11.9	11.9
Effective Green, g (s)	15.1	15.1			15.1			12.9			12.9	12.9
Actuated g/C Ratio	0.42	0.42			0.42			0.36			0.36	0.36
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	550	649			722			1200			663	560
v/s Ratio Prot		0.00										
v/s Ratio Perm	c0.26				0.01			c0.16			0.05	0.03
v/c Ratio	0.63	0.01			0.03			0.45			0.13	0.07
Uniform Delay, d1	8.2	6.1			6.1			8.8			7.8	7.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.2	0.0			0.0			0.3			0.1	0.1
Delay (s)	10.5	6.1			6.2			9.1			7.9	7.7
Level of Service	B	A			A			A			A	A
Approach Delay (s)		10.4			6.2			9.1			7.7	
Approach LOS		B			A			A			A	

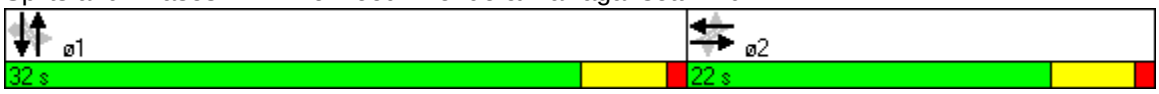
Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	300	1	1	5	5	465	1	75	100
Lane Group Flow (vph)	345	7	0	29	0	535	0	86	114
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.63	0.01		0.04		0.45		0.13	0.18
Control Delay	16.6	5.7		6.1		10.5		8.8	3.1
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	16.6	5.7		6.1		10.5		8.8	3.1
Queue Length 50th (ft)	48	0		2		44		12	0
Queue Length 95th (ft)	#146	5		4		72		30	19
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)									280
Base Capacity (vph)	607	720		806		1841		1019	910
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.57	0.01		0.04		0.29		0.08	0.13

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 36.4
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Norwood Avenue & Narragansett Blvd



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0	4.0				4.0	
Lane Util. Factor		1.00				1.00	1.00				1.00	
Frt		0.95				1.00	0.95				0.96	
Flt Protected		0.98				0.95	1.00				0.99	
Satd. Flow (prot)		1761				1770	1771				1761	
Flt Permitted		0.88				0.75	1.00				0.92	
Satd. Flow (perm)		1584				1403	1771				1629	
Volume (vph)	30	20	20	5	35	300	50	25	15	15	70	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	41	353	59	29	16	16	76	38
RTOR Reduction (vph)	0	4	0	0	0	0	20	0	0	0	16	0
Lane Group Flow (vph)	0	79	0	0	0	394	68	0	0	0	130	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm				Perm	Perm			Perm	Perm		
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		20.3				20.3	20.3				21.1	
Effective Green, g (s)		21.3				21.3	21.3				22.1	
Actuated g/C Ratio		0.30				0.30	0.30				0.31	
Clearance Time (s)		5.0				5.0	5.0				5.0	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		468				414	523				499	
v/s Ratio Prot							0.04					
v/s Ratio Perm		0.05				c0.28					0.08	
v/c Ratio		0.17				0.95	0.13				0.26	
Uniform Delay, d1		18.8				24.9	18.6				18.8	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		0.2				31.9	0.1				0.3	
Delay (s)		19.0				56.8	18.7				19.1	
Level of Service		B				E	B				B	
Approach Delay (s)		19.0					49.9				19.1	
Approach LOS		B					D				B	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		
Lane Util. Factor		1.00	1.00			0.97		
Frt		1.00	0.85			0.95		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1857	1564			3284		
Flt Permitted		0.98	1.00			0.73		
Satd. Flow (perm)		1828	1564			2482		
Volume (vph)	10	140	330	15	5	245	120	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	159	375	17	5	258	126	16
RTOR Reduction (vph)	0	0	2	0	0	4	0	0
Lane Group Flow (vph)	0	170	390	0	0	401	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	3	0	0	0	3	0
Turn Type	Perm		Perm		Perm			
Protected Phases		2				1		
Permitted Phases	2		2		1			
Actuated Green, G (s)		21.1	21.1			15.7		
Effective Green, g (s)		22.1	22.1			16.7		
Actuated g/C Ratio		0.31	0.31			0.23		
Clearance Time (s)		5.0	5.0			5.0		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		560	479			575		
v/s Ratio Prot								
v/s Ratio Perm		0.09	c0.25			c0.16		
v/c Ratio		0.30	0.81			0.70		
Uniform Delay, d1		19.1	23.1			25.4		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		0.3	10.2			3.7		
Delay (s)		19.4	33.3			29.1		
Level of Service		B	C			C		
Approach Delay (s)		29.1				29.1		
Approach LOS		C				C		

Intersection Summary

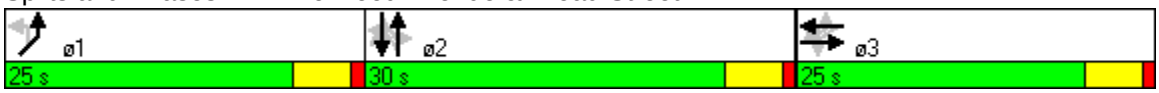
Queues
1: Norwood Avenue & Broad Street 9/4/2009

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	35	300	50	15	15	70	10	140	330	5
Lane Group Flow (vph)	0	83	0	394	88	0	0	146	0	170	392	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	30.0	30.0	30.0	30.0	30.0	30.0	25.0
Total Split (%)	31.3%	31.3%	31.3%	31.3%	31.3%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	31.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.18		0.97	0.16			0.28		0.30	0.82	
Control Delay		22.2		69.6	17.0			18.0		21.3	38.8	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		22.2		69.6	17.0			18.0		21.3	38.8	
Queue Length 50th (ft)		29		~210	21			42		59	162	
Queue Length 95th (ft)		66		#360	53			89		108	#297	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		468		405	542			575		627	539	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.18		0.97	0.16			0.25		0.27	0.73	

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 72.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	245
Lane Group Flow (vph)	405
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	31.3%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.68
Control Delay	31.8
Queue Delay	0.0
Total Delay	31.8
Queue Length 50th (ft)	90
Queue Length 95th (ft)	135
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	712
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.57

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.90			0.91			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1603			1677			3493			1863	1564
Flt Permitted	0.75	1.00			0.96			0.94			1.00	1.00
Satd. Flow (perm)	1323	1603			1630			3289			1862	1564
Volume (vph)	175	5	10	1	1	5	5	140	5	1	410	340
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	201	6	11	3	3	13	6	159	6	1	466	386
RTOR Reduction (vph)	0	8	0	0	9	0	0	3	0	0	0	192
Lane Group Flow (vph)	201	9	0	0	10	0	0	168	0	0	467	194
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	8.5	8.5			8.5			16.6			16.6	16.6
Effective Green, g (s)	9.5	9.5			9.5			17.6			17.6	17.6
Actuated g/C Ratio	0.27	0.27			0.27			0.50			0.50	0.50
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	358	434			441			1649			934	784
v/s Ratio Prot		0.01										
v/s Ratio Perm	c0.15				0.01			0.05			c0.25	0.12
v/c Ratio	0.56	0.02			0.02			0.10			0.50	0.25
Uniform Delay, d1	11.0	9.4			9.4			4.6			5.8	5.0
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.0	0.0			0.0			0.0			0.4	0.2
Delay (s)	13.0	9.4			9.4			4.6			6.2	5.1
Level of Service	B	A			A			A			A	A
Approach Delay (s)		12.7			9.4			4.6			5.7	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	175	5	1	1	5	140	1	410	340
Lane Group Flow (vph)	201	17	0	19	0	171	0	467	386
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.48	0.03		0.04		0.10		0.50	0.39
Control Delay	16.7	8.2		8.0		6.1		9.4	2.3
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	16.7	8.2		8.0		6.1		9.4	2.3
Queue Length 50th (ft)	32	1		1		8		59	0
Queue Length 95th (ft)	96	11		4		24		144	29
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)									280
Base Capacity (vph)	561	686		707		2069		1168	1124
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.36	0.02		0.03		0.08		0.40	0.34

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 35.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Norwood Avenue & Narragansett Blvd

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0	4.0				4.0	
Lane Util. Factor		1.00				1.00	1.00				1.00	
Frt		0.95				1.00	0.94				0.97	
Flt Protected		0.98				0.95	1.00				0.99	
Satd. Flow (prot)		1761				1770	1760				1777	
Flt Permitted		0.86				0.80	1.00				0.95	
Satd. Flow (perm)		1541				1494	1760				1699	
Volume (vph)	30	20	20	5	15	95	35	20	5	30	170	60
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	18	112	41	24	5	33	185	65
RTOR Reduction (vph)	0	3	0	0	0	0	20	0	0	0	14	0
Lane Group Flow (vph)	0	80	0	0	0	130	45	0	0	0	274	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	9
Turn Type	Perm				Perm	Perm			Perm	Perm		
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		9.1				9.1	9.1				14.9	
Effective Green, g (s)		10.1				10.1	10.1				15.9	
Actuated g/C Ratio		0.17				0.17	0.17				0.27	
Clearance Time (s)		5.0				5.0	5.0				5.0	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		262				254	300				456	
v/s Ratio Prot							0.03					
v/s Ratio Perm		0.05				c0.09					c0.16	
v/c Ratio		0.30				0.51	0.15				0.60	
Uniform Delay, d1		21.5				22.4	20.9				18.9	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		0.7				1.7	0.2				2.2	
Delay (s)		22.2				24.1	21.2				21.2	
Level of Service		C				C	C				C	
Approach Delay (s)		22.2					23.1				21.2	
Approach LOS		C					C				C	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		
Lane Util. Factor		1.00	1.00			0.97		
Frt		1.00	0.85			0.94		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1857	1533			3258		
Flt Permitted		0.98	1.00			0.82		
Satd. Flow (perm)		1820	1533			2736		
Volume (vph)	5	85	165	15	1	370	255	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	97	188	17	1	389	268	16
RTOR Reduction (vph)	0	0	4	0	0	2	0	0
Lane Group Flow (vph)	0	103	201	0	0	672	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	8	0	0	0	3	0
Turn Type	Perm		Perm		Perm			
Protected Phases		2				1		
Permitted Phases	2		2		1			
Actuated Green, G (s)		14.9	14.9			20.3		
Effective Green, g (s)		15.9	15.9			21.3		
Actuated g/C Ratio		0.27	0.27			0.36		
Clearance Time (s)		5.0	5.0			5.0		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		488	411			983		
v/s Ratio Prot								
v/s Ratio Perm		0.06	0.13			c0.25		
v/c Ratio		0.21	0.49			0.68		
Uniform Delay, d1		16.8	18.3			16.1		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		0.2	0.9			2.0		
Delay (s)		17.1	19.2			18.1		
Level of Service		B	B			B		
Approach Delay (s)		18.5				18.1		
Approach LOS		B				B		

Intersection Summary

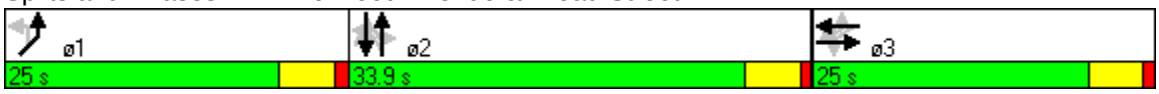
Queues
1: Norwood Avenue & Broad Street 9/4/2009

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	15	95	35	5	30	170	5	85	165	1
Lane Group Flow (vph)	0	83	0	130	65	0	0	288	0	103	205	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	33.9	33.9	33.9	33.9	33.9	33.9	25.0
Total Split (%)	29.8%	29.8%	29.8%	29.8%	29.8%	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%	29.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.26		0.49	0.18			0.60		0.21	0.49	
Control Delay		23.9		30.2	16.9			24.5		19.3	23.3	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		23.9		30.2	16.9			24.5		19.3	23.3	
Queue Length 50th (ft)		25		43	12			87		30	62	
Queue Length 95th (ft)		67		97	43			174		68	127	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		488		417	555			732		773	651	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.17		0.31	0.12			0.39		0.13	0.31	

Intersection Summary

Cycle Length: 83.9
Actuated Cycle Length: 58.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	370
Lane Group Flow (vph)	674
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	29.8%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.68
Control Delay	25.1
Queue Delay	0.0
Total Delay	25.1
Queue Length 50th (ft)	107
Queue Length 95th (ft)	#272
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	1019
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.66

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.87			0.94			1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1547			1741			3515			1862	1564
Flt Permitted	0.74	1.00			0.98			0.95			0.99	1.00
Satd. Flow (perm)	1311	1547			1723			3350			1850	1564
Volume (vph)	315	1	5	1	5	5	5	490	1	1	80	105
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	362	1	6	3	13	13	6	557	1	1	91	119
RTOR Reduction (vph)	0	3	0	0	7	0	0	0	0	0	0	76
Lane Group Flow (vph)	362	4	0	0	22	0	0	564	0	0	92	43
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	14.8	14.8			14.8			12.4			12.4	12.4
Effective Green, g (s)	15.8	15.8			15.8			13.4			13.4	13.4
Actuated g/C Ratio	0.42	0.42			0.42			0.36			0.36	0.36
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	557	657			732			1207			666	563
v/s Ratio Prot		0.00										
v/s Ratio Perm	c0.28				0.01			c0.17			0.05	0.03
v/c Ratio	0.65	0.01			0.03			0.47			0.14	0.08
Uniform Delay, d1	8.5	6.2			6.2			9.2			8.0	7.8
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.6	0.0			0.0			0.3			0.1	0.1
Delay (s)	11.1	6.2			6.2			9.4			8.1	7.9
Level of Service	B	A			A			A			A	A
Approach Delay (s)		11.0			6.2			9.4			8.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	37.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	315	1	1	5	5	490	1	80	105
Lane Group Flow (vph)	362	7	0	29	0	564	0	92	119
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.65	0.01		0.04		0.47		0.14	0.19
Control Delay	17.9	5.8		6.3		10.9		8.9	3.0
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	17.9	5.8		6.3		10.9		8.9	3.0
Queue Length 50th (ft)	54	0		2		49		13	0
Queue Length 95th (ft)	#176	5		4		76		32	19
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)									280
Base Capacity (vph)	600	712		797		1817		1005	902
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.60	0.01		0.04		0.31		0.09	0.13

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 37.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Norwood Avenue &

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0	4.0				4.0	
Lane Util. Factor		1.00				1.00	1.00				1.00	
Frt		0.95				1.00	0.95				0.97	
Flt Protected		0.98				0.95	1.00				0.99	
Satd. Flow (prot)		1761				1770	1777				1766	
Flt Permitted		0.88				0.75	1.00				0.92	
Satd. Flow (perm)		1579				1392	1777				1641	
Volume (vph)	30	20	20	5	35	315	55	25	15	15	80	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	41	371	65	29	16	16	87	38
RTOR Reduction (vph)	0	3	0	0	0	0	19	0	0	0	14	0
Lane Group Flow (vph)	0	80	0	0	0	412	75	0	0	0	143	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	9
Turn Type	Perm				Perm	Perm			Perm	Perm		
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		20.4				20.4	20.4				23.4	
Effective Green, g (s)		21.4				21.4	21.4				24.4	
Actuated g/C Ratio		0.28				0.28	0.28				0.32	
Clearance Time (s)		5.0				5.0	5.0				5.0	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		450				397	506				533	
v/s Ratio Prot							0.04					
v/s Ratio Perm		0.05				c0.30					0.09	
v/c Ratio		0.18				1.04	0.15				0.27	
Uniform Delay, d1		20.2				26.8	20.1				18.7	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		0.2				55.3	0.1				0.3	
Delay (s)		20.4				82.1	20.2				19.0	
Level of Service		C				F	C				B	
Approach Delay (s)		20.4					70.6				19.0	
Approach LOS		C					E				B	

Intersection Summary			
HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		
Lane Util. Factor		1.00	1.00			0.97		
Frt		1.00	0.85			0.95		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1857	1526			3283		
Flt Permitted		0.98	1.00			0.74		
Satd. Flow (perm)		1830	1526			2492		
Volume (vph)	10	150	345	15	5	255	125	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	170	392	17	5	268	132	16
RTOR Reduction (vph)	0	0	2	0	0	4	0	0
Lane Group Flow (vph)	0	181	407	0	0	417	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	9	0	0	0	3	0
Turn Type	Perm		Perm		Perm			
Protected Phases		2				1		
Permitted Phases	2		2		1			
Actuated Green, G (s)		23.4	23.4			16.3		
Effective Green, g (s)		24.4	24.4			17.3		
Actuated g/C Ratio		0.32	0.32			0.23		
Clearance Time (s)		5.0	5.0			5.0		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		595	496			574		
v/s Ratio Prot								
v/s Ratio Perm		0.10	c0.27			c0.17		
v/c Ratio		0.30	0.82			0.73		
Uniform Delay, d1		19.0	23.3			26.7		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		0.3	10.5			4.6		
Delay (s)		19.3	33.8			31.3		
Level of Service		B	C			C		
Approach Delay (s)		29.3				31.3		
Approach LOS		C				C		

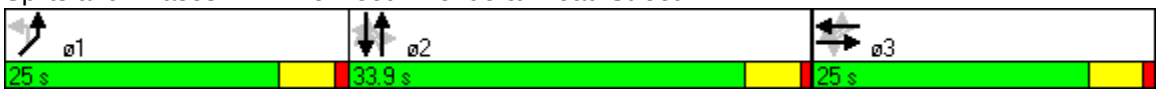
Intersection Summary

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	35	315	55	15	15	80	10	150	345	5
Lane Group Flow (vph)	0	83	0	412	94	0	0	157	0	181	409	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	33.9	33.9	33.9	33.9	33.9	33.9	25.0
Total Split (%)	29.8%	29.8%	29.8%	29.8%	29.8%	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%	29.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.18		1.06	0.18			0.29		0.31	0.82	
Control Delay		24.3		95.6	19.4			18.0		20.8	38.8	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		24.3		95.6	19.4			18.0		20.8	38.8	
Queue Length 50th (ft)		31		~250	26			48		64	178	
Queue Length 95th (ft)		70		#406	61			95		114	#293	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		449		387	524			625		683	571	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.18		1.06	0.18			0.25		0.27	0.72	

Intersection Summary

Cycle Length: 83.9
Actuated Cycle Length: 75.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	255
Lane Group Flow (vph)	421
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	29.8%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.71
Control Delay	34.5
Queue Delay	0.0
Total Delay	34.5
Queue Length 50th (ft)	98
Queue Length 95th (ft)	151
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	689
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: Norwood Avenue & Narragansett Blvd

1/22/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.90			0.91			1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1603			1677			1851			1863	1583
Flt Permitted	0.75	1.00			0.96			0.98			1.00	1.00
Satd. Flow (perm)	1323	1603			1631			1823			1862	1583
Volume (vph)	185	5	10	1	1	5	5	145	5	1	430	355
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	213	6	11	3	3	13	6	165	6	1	489	403
RTOR Reduction (vph)	0	8	0	0	10	0	0	2	0	0	0	197
Lane Group Flow (vph)	213	9	0	0	9	0	0	175	0	0	490	206
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	8.7	8.7			8.7			17.5			17.5	17.5
Effective Green, g (s)	9.7	9.7			9.7			18.5			18.5	18.5
Actuated g/C Ratio	0.27	0.27			0.27			0.51			0.51	0.51
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	355	430			437			932			952	809
v/s Ratio Prot		0.01										
v/s Ratio Perm	c0.16				0.01			0.10			c0.26	0.13
v/c Ratio	0.60	0.02			0.02			0.19			0.51	0.25
Uniform Delay, d1	11.6	9.8			9.8			4.8			5.9	5.0
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.7	0.0			0.0			0.1			0.5	0.2
Delay (s)	14.3	9.8			9.8			4.9			6.3	5.1
Level of Service	B	A			A			A			A	A
Approach Delay (s)		14.0			9.8			4.9			5.8	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	36.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	185	5	1	1	5	145	1	430	355
Lane Group Flow (vph)	213	17	0	19	0	177	0	490	403
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.51	0.03		0.04		0.17		0.45	0.37
Control Delay	17.4	8.4		8.1		6.7		9.0	2.1
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	17.4	8.4		8.1		6.7		9.0	2.1
Queue Length 50th (ft)	35	1		1		19		66	0
Queue Length 95th (ft)	101	11		4		51		154	30
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)									280
Base Capacity (vph)	555	679		700		1191		1213	1171
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.38	0.03		0.03		0.15		0.40	0.34

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 36.5
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Norwood Avenue & Narragansett Blvd

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0				4.0	4.0				4.0	
Lane Util. Factor		1.00				1.00	1.00				1.00	
Frt		0.95				1.00	0.94				0.93	
Flt Protected		0.98				0.95	1.00				1.00	
Satd. Flow (prot)		1761				1770	1760				1707	
Flt Permitted		0.87				0.77	1.00				0.97	
Satd. Flow (perm)		1558				1426	1760				1664	
Volume (vph)	30	20	20	5	60	95	35	20	5	30	170	225
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	71	112	41	24	5	33	185	245
RTOR Reduction (vph)	0	3	0	0	0	0	20	0	0	0	50	0
Lane Group Flow (vph)	0	80	0	0	0	183	45	0	0	0	418	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	9
Turn Type	Perm				Perm	Perm			Perm	Perm		
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		11.5				11.5	11.5				20.8	
Effective Green, g (s)		12.5				12.5	12.5				21.8	
Actuated g/C Ratio		0.18				0.18	0.18				0.32	
Clearance Time (s)		5.0				5.0	5.0				5.0	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		287				263	324				534	
v/s Ratio Prot							0.03					
v/s Ratio Perm		0.05				c0.13					c0.25	
v/c Ratio		0.28				0.70	0.14				0.78	
Uniform Delay, d1		23.8				25.9	23.2				20.9	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		0.5				7.8	0.2				7.4	
Delay (s)		24.3				33.7	23.4				28.3	
Level of Service		C				C	C				C	
Approach Delay (s)		24.3					31.0				28.3	
Approach LOS		C					C				C	

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			4.0		
Lane Util. Factor		1.00	1.00			0.97		
Frt		1.00	0.85			0.94		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1857	1533			3258		
Flt Permitted		0.97	1.00			0.82		
Satd. Flow (perm)		1816	1533			2734		
Volume (vph)	5	85	165	15	1	370	255	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	97	188	17	1	389	268	16
RTOR Reduction (vph)	0	0	4	0	0	2	0	0
Lane Group Flow (vph)	0	103	201	0	0	672	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	8	0	0	0	3	0
Turn Type	Perm		Perm		Perm			
Protected Phases		2				1		
Permitted Phases	2		2		1			
Actuated Green, G (s)		20.8	20.8			20.6		
Effective Green, g (s)		21.8	21.8			21.6		
Actuated g/C Ratio		0.32	0.32			0.32		
Clearance Time (s)		5.0	5.0			5.0		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		583	492			870		
v/s Ratio Prot								
v/s Ratio Perm		0.06	0.13			c0.25		
v/c Ratio		0.18	0.41			0.77		
Uniform Delay, d1		16.6	18.0			20.9		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		0.1	0.6			4.3		
Delay (s)		16.7	18.6			25.2		
Level of Service		B	B			C		
Approach Delay (s)		18.0				25.2		
Approach LOS		B				C		

Intersection Summary

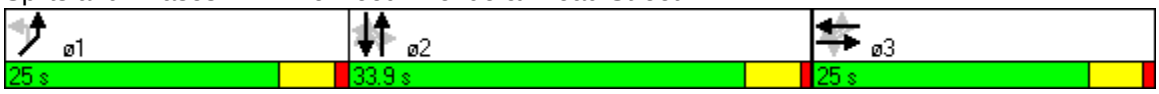
Queues
1: Norwood Avenue & Broad Street 9/4/2009

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	60	95	35	5	30	170	5	85	165	1
Lane Group Flow (vph)	0	83	0	183	65	0	0	468	0	103	205	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	33.9	33.9	33.9	33.9	33.9	33.9	25.0
Total Split (%)	29.8%	29.8%	29.8%	29.8%	29.8%	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%	29.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.25		0.64	0.17			0.80		0.18	0.41	
Control Delay		25.8		37.8	18.2			29.9		18.9	21.6	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		25.8		37.8	18.2			29.9		18.9	21.6	
Queue Length 50th (ft)		30		76	15			160		33	68	
Queue Length 95th (ft)		70		139	44			295		69	130	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		451		385	515			723		742	630	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.18		0.48	0.13			0.65		0.14	0.33	

Intersection Summary

Cycle Length: 83.9
Actuated Cycle Length: 67.7
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	370
Lane Group Flow (vph)	674
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	29.8%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.77
Control Delay	33.8
Queue Delay	0.0
Total Delay	33.8
Queue Length 50th (ft)	150
Queue Length 95th (ft)	#298
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	905
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.74

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: Norwood Avenue & Narragansett Blvd

1/21/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.87			0.94			1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1547			1741			1838			1860	1564
Flt Permitted	0.74	1.00			0.99			1.00			0.99	1.00
Satd. Flow (perm)	1311	1547			1725			1834			1845	1564
Volume (vph)	480	1	5	1	5	5	5	325	1	1	35	150
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	552	1	6	3	13	13	6	369	1	1	40	170
RTOR Reduction (vph)	0	3	0	0	7	0	0	0	0	0	0	109
Lane Group Flow (vph)	552	4	0	0	22	0	0	376	0	0	41	61
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	3
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	17.2	17.2			17.2			13.6			13.6	13.6
Effective Green, g (s)	18.2	18.2			18.2			14.6			14.6	14.6
Actuated g/C Ratio	0.45	0.45			0.45			0.36			0.36	0.36
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	585	690			769			656			660	560
v/s Ratio Prot		0.00										
v/s Ratio Perm	c0.42				0.01			c0.21			0.02	0.04
v/c Ratio	0.94	0.01			0.03			0.57			0.06	0.11
Uniform Delay, d1	10.8	6.3			6.3			10.6			8.6	8.8
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	23.9	0.0			0.0			1.2			0.0	0.1
Delay (s)	34.8	6.3			6.4			11.8			8.6	8.8
Level of Service	C	A			A			B			A	A
Approach Delay (s)		34.4			6.4			11.8			8.8	
Approach LOS		C			A			B			A	

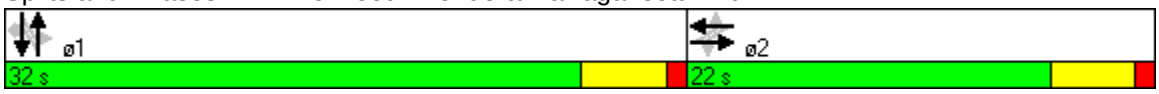
Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	40.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	480	1	1	5	5	325	1	35	150
Lane Group Flow (vph)	552	7	0	29	0	376	0	41	170
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.95	0.01		0.04		0.57		0.06	0.25
Control Delay	44.9	6.5		6.8		14.1		8.1	2.9
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	44.9	6.5		6.8		14.1		8.1	2.9
Queue Length 50th (ft)	106	0		2		66		6	0
Queue Length 95th (ft)	#325	6		5		116		17	22
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)	100								280
Base Capacity (vph)	584	693		775		953		960	893
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.95	0.01		0.04		0.39		0.04	0.19

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 40.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Norwood Avenue & Narragansett Blvd

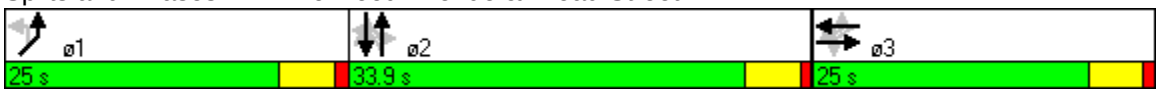


Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	190	315	55	15	15	80	10	150	345	5
Lane Group Flow (vph)	0	83	0	595	94	0	0	228	0	181	409	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	33.9	33.9	33.9	33.9	33.9	33.9	25.0
Total Split (%)	29.8%	29.8%	29.8%	29.8%	29.8%	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%	29.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.19		1.54	0.18			0.40		0.30	0.82	
Control Delay		24.4		282.0	19.5			16.6		20.8	38.4	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		24.4		282.0	19.5			16.6		20.8	38.4	
Queue Length 50th (ft)		31		~445	26			60		64	178	
Queue Length 95th (ft)		70		#620	61			121		114	#293	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		448		386	522			645		680	570	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.19		1.54	0.18			0.35		0.27	0.72	

Intersection Summary

Cycle Length: 83.9
Actuated Cycle Length: 75.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	255
Lane Group Flow (vph)	421
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	29.8%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.71
Control Delay	34.7
Queue Delay	0.0
Total Delay	34.7
Queue Length 50th (ft)	98
Queue Length 95th (ft)	151
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	687
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.61

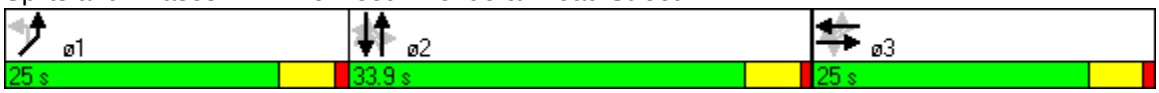
Intersection Summary

Lane Group	EBL	EBT	WBL2	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL2
Lane Configurations												
Volume (vph)	30	20	190	315	55	15	15	80	10	150	345	5
Lane Group Flow (vph)	0	83	0	595	94	0	0	228	0	181	409	0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm		Perm	Perm
Protected Phases		3			3			2		2		
Permitted Phases	3		3	3		2	2		2		2	1
Detector Phases	3	3	3	3	3	2	2	2	2	2	2	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0	33.9	33.9	33.9	33.9	33.9	33.9	25.0
Total Split (%)	29.8%	29.8%	29.8%	29.8%	29.8%	40.4%	40.4%	40.4%	40.4%	40.4%	40.4%	29.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag						Lag	Lag	Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio		0.19		1.54	0.18			0.40		0.30	0.82	
Control Delay		24.4		282.0	19.5			16.6		20.8	38.4	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		24.4		282.0	19.5			16.6		20.8	38.4	
Queue Length 50th (ft)		31		~445	26			60		64	178	
Queue Length 95th (ft)		70		#620	61			121		114	#293	
Internal Link Dist (ft)		756			1687			1885		634		
Turn Bay Length (ft)												
Base Capacity (vph)		448		386	522			645		680	570	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.19		1.54	0.18			0.35		0.27	0.72	

Intersection Summary

Cycle Length: 83.9
Actuated Cycle Length: 75.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



Lane Group	NEL
Lane Configurations	
Volume (vph)	255
Lane Group Flow (vph)	421
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phases	1
Minimum Initial (s)	4.0
Minimum Split (s)	21.0
Total Split (s)	25.0
Total Split (%)	29.8%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
v/c Ratio	0.71
Control Delay	34.7
Queue Delay	0.0
Total Delay	34.7
Queue Length 50th (ft)	98
Queue Length 95th (ft)	151
Internal Link Dist (ft)	973
Turn Bay Length (ft)	
Base Capacity (vph)	687
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.61

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.90			0.91			1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1687	1603			1677			1851			1862	1583
Flt Permitted	0.75	1.00			0.96			0.99			1.00	1.00
Satd. Flow (perm)	1323	1603			1630			1829			1861	1583
Volume (vph)	185	5	10	1	1	5	5	145	5	1	275	510
Peak-hour factor, PHF	0.87	0.87	0.87	0.38	0.38	0.38	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	213	6	11	3	3	13	6	165	6	1	312	580
RTOR Reduction (vph)	0	8	0	0	9	0	0	3	0	0	0	309
Lane Group Flow (vph)	213	9	0	0	10	0	0	174	0	0	313	271
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		1
Actuated Green, G (s)	8.4	8.4			8.4			14.3			14.3	14.3
Effective Green, g (s)	9.4	9.4			9.4			15.3			15.3	15.3
Actuated g/C Ratio	0.29	0.29			0.29			0.47			0.47	0.47
Clearance Time (s)	5.0	5.0			5.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	380	461			469			856			871	741
v/s Ratio Prot		0.01										
v/s Ratio Perm	c0.16				0.01			0.10			0.17	c0.17
v/c Ratio	0.56	0.02			0.02			0.20			0.36	0.37
Uniform Delay, d1	9.9	8.3			8.4			5.1			5.6	5.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.9	0.0			0.0			0.1			0.3	0.3
Delay (s)	11.8	8.4			8.4			5.2			5.8	5.9
Level of Service	B	A			A			A			A	A
Approach Delay (s)		11.5			8.4			5.2			5.9	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	185	5	1	1	5	145	1	275	510
Lane Group Flow (vph)	213	17	0	19	0	177	0	313	580
Turn Type	Perm		Perm		Perm		Perm		Perm
Protected Phases		2		2		1		1	
Permitted Phases	2		2		1		1		1
Detector Phases	2	2	2	2	1	1	1	1	1
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	40.7%	40.7%	40.7%	40.7%	59.3%	59.3%	59.3%	59.3%	59.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
v/c Ratio	0.48	0.03		0.03		0.18		0.31	0.51
Control Delay	14.7	7.3		7.1		7.2		8.1	2.8
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	14.7	7.3		7.1		7.2		8.1	2.8
Queue Length 50th (ft)	28	1		1		18		35	0
Queue Length 95th (ft)	94	10		3		52		92	36
Internal Link Dist (ft)		1687		387		951		570	
Turn Bay Length (ft)	100								280
Base Capacity (vph)	594	726		750		1206		1222	1238
Starvation Cap Reductn	0	0		0		0		0	0
Spillback Cap Reductn	0	0		0		0		0	0
Storage Cap Reductn	0	0		0		0		0	0
Reduced v/c Ratio	0.36	0.02		0.03		0.15		0.26	0.47

Intersection Summary

Cycle Length: 54
Actuated Cycle Length: 32.9
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Norwood Avenue & Narragansett Boulevard

HCM Signalized Intersection Capacity Analysis
1: Norwood Avenue & Broad Street

9/4/2009

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0				7.0	7.0				7.0	
Lane Util. Factor		1.00				0.95	0.95				0.95	
Frt		0.95				1.00	0.97				0.92	
Flt Protected		0.98				0.95	0.98				1.00	
Satd. Flow (prot)		1761				1681	1678				3217	
Flt Permitted		0.81				0.95	0.98				0.89	
Satd. Flow (perm)		1458				1681	1678				2880	
Volume (vph)	30	20	20	5	60	95	35	20	5	30	170	225
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	71	112	41	24	5	33	185	245
RTOR Reduction (vph)	0	3	0	0	0	0	9	0	0	0	197	0
Lane Group Flow (vph)	0	80	0	0	0	123	116	0	0	0	271	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	9
Turn Type	Perm				Split	Split			Perm	Perm		
Protected Phases		9			2	2	2				8	
Permitted Phases	9								8	8		
Actuated Green, G (s)		3.0				11.2	11.2				13.5	
Effective Green, g (s)		6.5				14.7	14.7				17.0	
Actuated g/C Ratio		0.07				0.17	0.17				0.20	
Clearance Time (s)		10.5				10.5	10.5				10.5	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		109				284	283				562	
v/s Ratio Prot						c0.07	0.07					
v/s Ratio Perm		c0.06									0.09	
v/c Ratio		0.74				0.43	0.41				0.48	
Uniform Delay, d1		39.5				32.5	32.3				31.1	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		22.5				1.1	1.0				0.7	
Delay (s)		62.0				33.5	33.3				31.8	
Level of Service		E				C	C				C	
Approach Delay (s)		62.0					33.4				31.8	
Approach LOS		E					C				C	

Intersection Summary			
HCM Average Control Delay	37.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	28.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0			7.0		
Lane Util. Factor		0.95	0.95			0.97		
Frt		0.94	0.85			0.94		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1668	1456			3258		
Flt Permitted		0.93	1.00			0.97		
Satd. Flow (perm)		1550	1456			3258		
Volume (vph)	5	85	165	15	1	370	255	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	97	188	17	1	389	268	16
RTOR Reduction (vph)	0	0	5	0	0	2	0	0
Lane Group Flow (vph)	0	164	139	0	0	672	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	8	0	0	0	3	0
Turn Type	Perm		Perm		Split			
Protected Phases		4			6	6		
Permitted Phases	4		4					
Actuated Green, G (s)		13.5	13.5			17.4		
Effective Green, g (s)		17.0	17.0			20.9		
Actuated g/C Ratio		0.20	0.20			0.24		
Clearance Time (s)		10.5	10.5			10.5		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		303	284			782		
v/s Ratio Prot						c0.21		
v/s Ratio Perm		c0.11	0.10					
v/c Ratio		0.54	0.49			0.86		
Uniform Delay, d1		31.5	31.2			31.7		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		2.0	1.3			9.4		
Delay (s)		33.5	32.5			41.1		
Level of Service		C	C			D		
Approach Delay (s)		33.1				41.1		
Approach LOS		C				D		

Intersection Summary

Queues

1: Norwood Avenue & Broad Street 9/4/2009

Lane Group	EBL	EBT	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL
Lane Configurations											
Volume (vph)	30	20	95	35	5	30	170	5	85	165	370
Lane Group Flow (vph)	0	83	123	125	0	0	468	0	164	144	674
Turn Type	Perm		Split		Perm	Perm		Perm		Perm	
Protected Phases		9	2	2			8		4		6
Permitted Phases	9				8	8		4		4	
Detector Phases	9	9	2	2	8	8	8	4	4	4	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.5	14.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	14.5	14.5	26.6	26.6	30.4	30.4	30.4	30.4	30.4	30.4	27.4
Total Split (%)	14.7%	14.7%	26.9%	26.9%	30.7%	30.7%	30.7%	30.7%	30.7%	30.7%	27.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None	Min	Min	None	None	None	None	None	None	Min
v/c Ratio		0.65	0.42	0.42			0.60		0.51	0.49	0.84
Control Delay		65.3	38.4	35.1			18.3		37.8	36.5	44.4
Queue Delay		0.0	0.0	0.0			0.0		0.0	0.0	0.0
Total Delay		65.3	38.4	35.1			18.3		37.8	36.5	44.4
Queue Length 50th (ft)		44	65	60			57		87	72	189
Queue Length 95th (ft)		#130	120	114			112		154	135	#343
Internal Link Dist (ft)		756		1687			1885		634		973
Turn Bay Length (ft)			350								
Base Capacity (vph)		128	371	380			937		420	381	803
Starvation Cap Reductn		0	0	0			0		0	0	0
Spillback Cap Reductn		0	0	0			0		0	0	0
Storage Cap Reductn		0	0	0			0		0	0	0
Reduced v/c Ratio		0.65	0.33	0.33			0.50		0.39	0.38	0.84

Intersection Summary

Cycle Length: 98.9

Actuated Cycle Length: 85.3

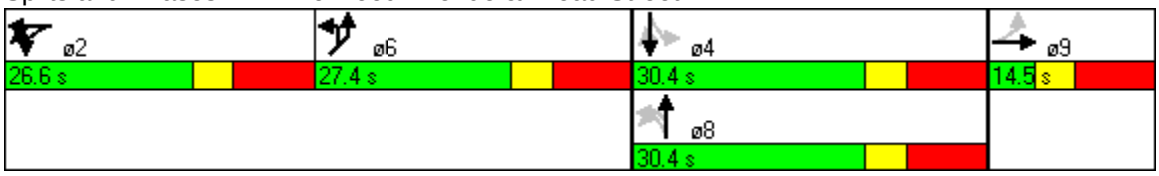
Natural Cycle: 95

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



HCM Signalized Intersection Capacity Analysis
1: Norwood Avenue & Broad Street

9/4/2009

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0				7.0	7.0				7.0	
Lane Util. Factor		1.00				0.95	0.95				0.95	
Frt		0.95				1.00	0.99				0.93	
Flt Protected		0.98				0.95	0.96				0.99	
Satd. Flow (prot)		1761				1681	1686				3231	
Flt Permitted		0.71				0.95	0.96				0.71	
Satd. Flow (perm)		1281				1681	1686				2322	
Volume (vph)	30	20	20	5	190	315	55	25	15	15	80	100
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	22	22	6	224	371	65	29	16	16	87	109
RTOR Reduction (vph)	0	3	0	0	0	0	3	0	0	0	82	0
Lane Group Flow (vph)	0	80	0	0	0	342	344	0	0	0	146	0
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	3	0	0	0	9
Turn Type	Perm				Split	Split			Perm	Perm		
Protected Phases		9			2	2	2				8	
Permitted Phases	9								8	8		
Actuated Green, G (s)		6.2				24.2	24.2				24.3	
Effective Green, g (s)		9.7				27.7	27.7				27.8	
Actuated g/C Ratio		0.09				0.25	0.25				0.25	
Clearance Time (s)		10.5				10.5	10.5				10.5	
Vehicle Extension (s)		3.0				3.0	3.0				3.0	
Lane Grp Cap (vph)		111				416	418				577	
v/s Ratio Prot						0.20	c0.20					
v/s Ratio Perm		c0.06									0.06	
v/c Ratio		0.72				0.82	0.82				0.25	
Uniform Delay, d1		49.7				39.7	39.7				33.7	
Progression Factor		1.00				1.00	1.00				1.00	
Incremental Delay, d2		20.6				12.3	12.3				0.2	
Delay (s)		70.4				52.1	52.1				33.9	
Level of Service		E				D	D				C	
Approach Delay (s)		70.4					52.1				33.9	
Approach LOS		E					D				C	

Intersection Summary			
HCM Average Control Delay	49.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	28.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0			7.0		
Lane Util. Factor		0.95	0.95			0.97		
Frt		0.94	0.85			0.95		
Flt Protected		1.00	1.00			0.97		
Satd. Flow (prot)		1652	1450			3283		
Flt Permitted		0.98	1.00			0.97		
Satd. Flow (perm)		1625	1450			3283		
Volume (vph)	10	150	345	15	5	255	125	15
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	170	392	17	5	268	132	16
RTOR Reduction (vph)	0	0	2	0	0	3	0	0
Lane Group Flow (vph)	0	319	269	0	0	418	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	9	0	0	0	3	0
Turn Type	Perm		Perm		Split			
Protected Phases		4			6	6		
Permitted Phases	4		4					
Actuated Green, G (s)		24.3	24.3			15.1		
Effective Green, g (s)		27.8	27.8			18.6		
Actuated g/C Ratio		0.25	0.25			0.17		
Clearance Time (s)		10.5	10.5			10.5		
Vehicle Extension (s)		3.0	3.0			3.0		
Lane Grp Cap (vph)		404	361			546		
v/s Ratio Prot						c0.13		
v/s Ratio Perm		c0.20	0.19					
v/c Ratio		0.79	0.74			0.77		
Uniform Delay, d1		39.3	38.7			44.5		
Progression Factor		1.00	1.00			1.00		
Incremental Delay, d2		9.9	8.1			6.4		
Delay (s)		49.1	46.8			50.9		
Level of Service		D	D			D		
Approach Delay (s)		48.1				50.9		
Approach LOS		D				D		

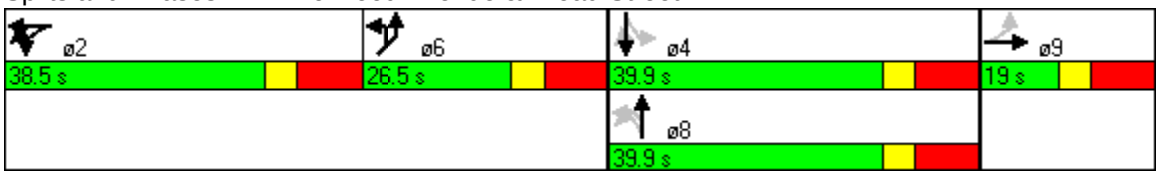
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL2	NBL	NBT	SBL	SBT	SBR	NEL
Lane Configurations											
Volume (vph)	30	20	315	55	15	15	80	10	150	345	255
Lane Group Flow (vph)	0	83	342	347	0	0	228	0	319	271	421
Turn Type	Perm		Split		Perm	Perm		Perm		Perm	
Protected Phases		9	2	2			8		4		6
Permitted Phases	9				8	8		4		4	
Detector Phases	9	9	2	2	8	8	8	4	4	4	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.5	14.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Total Split (s)	19.0	19.0	38.5	38.5	39.9	39.9	39.9	39.9	39.9	39.9	26.5
Total Split (%)	15.3%	15.3%	31.1%	31.1%	32.2%	32.2%	32.2%	32.2%	32.2%	32.2%	21.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None	Min	Min	Min	Min	Min	Min	Min	Min	Min
v/c Ratio		0.62	0.81	0.81			0.33		0.78	0.73	0.75
Control Delay		72.5	57.2	56.9			20.3		54.4	52.6	56.1
Queue Delay		0.0	0.0	0.0			0.0		0.0	0.0	0.0
Total Delay		72.5	57.2	56.9			20.3		54.4	52.6	56.1
Queue Length 50th (ft)		63	271	272			38		247	204	168
Queue Length 95th (ft)		#139	#368	#371			75		351	303	#242
Internal Link Dist (ft)		756		1687			1885		634		973
Turn Bay Length (ft)			350								
Base Capacity (vph)		140	476	480			773		475	425	601
Starvation Cap Reductn		0	0	0			0		0	0	0
Spillback Cap Reductn		0	0	0			0		0	0	0
Storage Cap Reductn		0	0	0			0		0	0	0
Reduced v/c Ratio		0.59	0.72	0.72			0.29		0.67	0.64	0.70

Intersection Summary

Cycle Length: 123.9
Actuated Cycle Length: 110.9
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Norwood Avenue & Broad Street



APPENDIX D

CRASH DATA

INTERSECTION OF BROAD STREET & NORWOOD & WARWICK AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	10	2	10	2	12
2007	15	5	17	3	20
2008	9	5	7	7	14
	34	12	34	12	46

TYPE	NUMBER
BACKING	4
PED	2
PARKED VEH	7
FIXED OBJECT	2
REAR END	15
HEAD ON	
ROLLOVER	
ANGLE	6
BROADSIDE	1
LEFT TURN	1
SIDESWIPE	5
OTHER	3

INJURIES 4

INTERSECTION OF NORWOOD AVENUE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	2	0	2	0	2
2007	3	2	4	1	5
2008	1	2	2	1	3
	6	4	8	2	10

TYPE	NUMBER
BACKING	1
PED	2
PARKED VEH	
FIXED OBJECT	1
REAR END	4
HEAD ON	
ROLLOVER	
BROADSIDE	1
LEFT TURN	
SIDESWIPE	1
OTHER	

INJURIES 1

INTERSECTION OF BROAD STREET & ALBERT AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	1	1	1	2
2007	0	0	0	0	0
2008	2	0	1	1	2
	3	1	2	2	4

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	4
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF COLUMBIA AVENUE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	0	1	0	1	1
2008	0	0	0	0	0
	0	1	0	1	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF COLUMBIA AVENUE & PAWTUXET AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	0	1	0	1
2007	0	1	1	0	1
2008	0	1	1	0	1
	1	2	3	0	3

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	2
FIXED OBJECT	1
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF SHAW AVENUE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	0	1	0	1
2007	1	0	1	0	1
2008	1	0	1	0	1
	3	0	3	0	3

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	2
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	1
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF SHAW AVENUE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	1	1	1	2
2007	0	2	2	0	2
2008	0	0	0	0	0
	1	3	3	1	4

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	3
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 1

INTERSECTION OF MARION AVENUE & KING STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	1	0	1	0	1
2008	1	1	1	1	2
	2	1	2	1	3

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	2
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF BLUFF AVENUE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	0	0	1	1
2007	3	0	2	1	3
2008	0	0	0	0	0
	4	0	2	2	4

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	2
HEAD ON	
ROLLOVER	
BROADSIDE	1
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF BLUFF AVENUE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	0	1	0	1
2007	0	0	0	0	0
2008	1	0	1	1	1
	2	0	2	1	2

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	1
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF BLUFF AVENUE & KING AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	1	0	1	0	1
	1	0	1	0	1

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF MASSASOIT AVENUE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	0	1	0	1
2007	1	0	1	0	1
2008	0	0	0	0	0
	2	0	2	0	2

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	1
OTHER	1

INJURIES 0

INTERSECTION OF SEFTON DRIVE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	1	2	0	2
2007	0	1	0	1	1
2008	0	0	0	0	0
	1	2	2	1	3

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	2
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF SEFTON DRIVE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	2	0	1	1	2
2007	0	0	0	0	0
2008	0	1	1	0	1
	2	1	2	1	3

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	1
FIXED OBJECT	1
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF STRATHMORE ROAD & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	0	1	1	0	1
	0	1	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	1

INJURIES 0

INTERSECTION OF CHISWICK ROAD & BROAD STREET

YR	TIME DAY	TIME NIGHT	ROAD CONDITIONS DRY	ROAD CONDITIONS WET	TOTAL
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	1	0	1	0	1
	1	0	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF CHISWICK ROAD & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	1	0	1	0	1
2008	0	0	0	0	0
	1	0	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF CIRCUIT DRIVE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	1	1	2	0	2
	1	1	2	0	2

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	1
HEAD ON	
ROLLOVER	
BROADSIDE	1
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 1

INTERSECTION OF CIRCUIT DRIVE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	1	1	0	1
2007	0	0	0	0	0
2008	0	1	0	1	1
	0	2	1	1	2

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	
REAR END	1
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	1

INJURIES 0

INTERSECTION OF OCEAN AVENUE & BROAD STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	1	2	0	2
2007	0	1	0	1	1
2008	2	0	1	1	2
	3	2	3	2	5

TYPE	NUMBER
BACKING	1
PED	
PARKED VEH	
FIXED OBJECT	1
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	1
LEFT TURN	
SIDESWIPE	1
OTHER	1

INJURIES 1

INTERSECTION OF OCEAN AVENUE & COMMERICAL STREET

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	1	1	2	0	2
2007	1	0	1	0	1
2008	0	0	0	0	0
	2	1	3	0	3

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	2
OTHER	

INJURIES 0

INTERSECTION OF BROAD STREET & ARNOLD AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	1	0	1	0	1
2008	0	0	0	0	0
	1	0	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF BROAD STREET & ARNOLD AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	1	0	1	0	1
2008	0	0	0	0	0
	1	0	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF NARRAGANSETT BOULEVARD & ARNOLD AVENUE

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	0	0	0	0	0
2007	0	0	0	0	0
2008	1	0	1	0	1
	1	0	1	0	1

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF OCEAN AVENUE & NARRAGANSETT BOULEVARD

	TIME		ROAD CONDITIONS		
YR	DAY	NIGHT	DRY	WET	TOTAL
2006	2	0	2	0	2
2007	1	0	1	0	2
2008	0	2	1	1	2
	3	2	4	1	6

TYPE	NUMBER
BACKING	
PED	
PARKED VEH	
FIXED OBJECT	4
REAR END	1
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	
OTHER	

INJURIES 0

INTERSECTION OF OCEAN AVENUE & FORT AVENUE

YR	TIME DAY	TIME NIGHT	ROAD CONDITIONS DRY	ROAD CONDITIONS WET	TOTAL
2006	0	0	0	0	0
2007	2	1	3	0	3
2008	2	0	2	0	2
	4	1	5	0	5

TYPE	NUMBER
BACKING	2
PED	
PARKED VEH	1
FIXED OBJECT	
REAR END	
HEAD ON	
ROLLOVER	
BROADSIDE	
LEFT TURN	
SIDESWIPE	2
OTHER	

INJURIES 0

Incident Number (Police Report Number)	Damage Description	Date of Occurrence	Time of Occurrence	DUI Y/N	Estimated Cost
1 (93-005225)	Extensive property damage to house and yard at 92 Ocean Avenue Damage to traffic island Vehicular damage	04/16/93	12:01 AM	Y	~20,000
2 (94-004489)	Damage to road signage Telephone pole damage Damage to fence, landscaping, lamp post and front lawn of 92 Ocean Avenue Damage to traffic island pilings and landscaping Vehicular damage	03/22/94	10:26 PM	Y	~10,000
3 (01-23622)	Extensive property damage to house and yard at 92 Ocean Avenue Vehicular damage	07/13/01	01:18 AM	Y	~25,000
4 (01-41068)	Extensive property damage to house and yard at 92 Ocean Avenue Damage to yard of 96 Ocean Avenue Vehicular damage	11/20/01	11:52 PM	Y	~30,000
5 (05-20023)	Damage to fence and landscaping of 88 Ocean Avenue	05/03/05	01:13 AM	Unknown	~5,000
6 (07-04929)	Damage to traffic island pilings and landscaping Vehicular damage	01/27/07	03:05 AM	Unknown	~5,000
7 (08-37859)	Damage to road signage Vehicular damage	07/28/08	01:10 AM	Unknown	~500
8 (08-63830)	Damage to traffic island pilings and landscaping Vehicular damage	12/13/08	02:40 AM	Y	~500

Accident Status Report

From: 01/01/2009 Thru: 01/21/2010

01/21/2010

Location: (ALL)
Street(s): 402 > OCEAN AV (All odd numbers All even numbers Blanks Included)
Zones: (ALL)
Weekday(s): (ALL)

	Officer	State Rpt/Acc. Date & Time	Location / Street Names
9-49807-AC	459	Yes 09/26/2009 0220	OCEAN AV @ NARRAGANSETT BV

Exported> 09/30/2009

Vehicle Owner>	JANELAS DAVID	Veh# 1
Operator>	JANELAS DAVID	Veh# 1

Submission > Transaction	Status	Created Date/Time	Submission Date/Time
Insert	Success	09/27/2009 @ 2003	09/27/2009 @ 2003
Update	Success	09/30/2009 @ 1657	09/30/2009 @ 1657
Update	Success	09/30/2009 @ 1706	09/30/2009 @ 1706

	Officer	State Rpt/Acc. Date & Time	Location / Street Names
9-56332-AC	442	Yes 11/01/2009 0137	OCEAN AV @ NARRAGANSETT BV

Exported> 12/15/2009

Vehicle Owner>	VIVEIROS JOHN	Veh# 1	**Injured**
Operator>	VIVEIROS JOHN	Veh# 1	**Injured**
Passenger>	MASCIARELLI DOUGLAS	Veh# 1	**Injured**
Passenger>	FARIA MATHEW	Veh# 1	**Injured**
Passenger>	VIVEIROS STEPHANIE	Veh# 1	**Injured**
Passenger>	VALLANTE ASHLEY	Veh# 1	**Injured**

Submission > Transaction	Status	Created Date/Time	Submission Date/Time
Insert	Success	11/02/2009 @ 0739	11/02/2009 @ 0739
Update	Success	11/05/2009 @ 1210	11/05/2009 @ 1210
Update	Success	11/11/2009 @ 0949	11/11/2009 @ 0949
Update	Success	11/11/2009 @ 1059	11/11/2009 @ 1059
Update	Success	11/11/2009 @ 1125	11/11/2009 @ 1125
Update	Success	11/11/2009 @ 1126	11/11/2009 @ 1126
Update	Success	11/13/2009 @ 0939	11/13/2009 @ 0939
Update	Success	12/15/2009 @ 0710	12/15/2009 @ 0710

	Officer	State Rpt/Acc. Date & Time	Location / Street Names
)9-60830-AC	457	Yes 11/28/2009 0652	OCEAN AV @ NARRAGANSETT BV

Exported> 11/30/2009

Submission > Transaction	Status	Created Date/Time	Submission Date/Time
Insert	Success	11/30/2009 @ 0757	11/30/2009 @ 0757

	Officer	State Rpt/Acc. Date & Time	Location / Street Names
.0-223-AC	418	Yes 01/02/2010 2038	NARRAGANSETT BV @ OCEAN AV

Exported> 01/04/2010

Operator>	FARIAS ERICA	Veh# 1
Vehicle Owner>	FARIAS HUMBERTO	Veh# 1
Passenger>	MEDEIROS MATTHEW	Veh# 1

Submission > Transaction	Status	Created Date/Time	Submission Date/Time
Insert	Success	01/04/2010 @ 0145	01/04/2010 @ 0145

State Reports Required: 4
State Reports Not Required: 0

STATE OF RHODE ISLAND UNIFORM CRASH REPORT

Reporting Agency Name	Report Number	Crash Date	Crash Time	Walk In Report	Parking Lot
Cranston	09-49807-AC	09/26/2009	0220	☐	☐

City or Town Name	Street or Highway		Exit #	# of Lanes	Posted Speed Limit
CRANSTON	96 OCEAN AV	☐ On Ramp ☐ Off Ramp		2	25 ☐ N/A ☐ Unk

Nearest Intersection Street	Direction From Nearest Intersection to Crash Site	Distance From Nearest Inter.	Latitude	Longitude
1561 NARRAGANSETT BV	☒ At Inter. ☐ North ☐ South ☐ East ☐ West	☐ Feet ☐ Miles		

Unit ID	Driver's Last Name	First Name	M.I.	DOB
1	JANELAS	DAVID	C	08/13/1978

Address	City
14 CHAMBERS ST	CUMBERLAND

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02864	303-365-2713		

Driver's License #		Lic. State
9472367	☐ CDL	RI

M/V Violation	M/V Violation	M/V Violation	M/V Violation
31-27-2.1	31-14-1	31-27-2	

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☒	JANELAS	DAVID	C

Address	City
14 CHAMBERS ST	CUMBERLAND

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02864	303-365-2713		

Insurance Company Name	Insurance Policy Number
NATIONWIDE ☐ No Ins.	5138E071225

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☒ No ☐ Unk

Registration #		State	Yr Reg.	VIN
DCJ1	☐ Not Reg.	RI	2010	WDBRF40J55F644022

Veh Yr.	Make	Model	Color	Plate Type
2005	MERCEDES BENZ	300M	GRAY	PC

Veh Travel Direction: ☐ Northbound ☒ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☒ Yes ☐ No	ACTION AUTO	☐ Yes ☒ No

Unit ID	Last Name First Name	M.I.	DOB

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Driver's License #		Lic. State
	☐ CDL	

M/V Violation	M/V Violation	M/V Violation	M/V Violation

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☐			

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Insurance Company Name	Insurance Policy Number
☐ No Ins.	

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☐ No ☐ Unk

Registration #		State	Yr Reg.	VIN
	☐ Not Reg.			

Veh Yr.	Make	Model	Color	Plate Type

Veh Travel Direction: ☐ Northbound ☐ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☐ Yes ☐ No		☐ Yes ☐ No

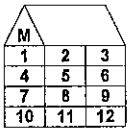
Person Type

1 Driver
2 Passenger
3 Pedestrian
4 Bicyclist
5 Other Cyclist
6 Witness
7 Other Ped. (Wheelchair, Person in Building, Skater, Ped. conveyance, etc.)
8 Occupant of Motor Veh. Not in Transport (Parked, etc.)
9 Occupant of a Non-Motor Veh Transportation Device
10 Unknown Type of Non-Motorist
11 Unknown

Unit ID: 1 Unit 1, 2 Unit 2, 3 (etc.) or N/A

Sex: M Male, F Female, U Unk

Seat Position



13 Other Row (Bus)
14 Unk Row
15 Other Seat
16 Unk Seat

Other Location: 17 N/A, 18 Sleeper, 19 Other Enclosed Area, 20 Other Unenclosed Area, 21 Towed Unit, 22 Unk

Air Bag Deployed: 1 N/A, 2 No, 3 Front, 4 Side, 5 Other, 6 Comb, 7 Unk

Ejected: 1 No, 2 Partially, 3 Totally, 4 N/A, 5 Unk

Protection System: 1 N/A, 2 None Used, 3 Shoulder & Lap, 4 Shoulder Only, 5 Lap Only, 6 Type Unk, 7 Child - Forw Facing, 8 Child - Rear Facing, 9 Booster Seat, 10 Child - Unk, 11 Helmet Used, 12 Other, 13 Unk

Injury: 1 Complains of Pain, 2 Non-Incapacitating, 3 Incapacitating, 4 Fatal, 5 No Injury, 6 Unk

Name: Occupants - Witnesses - Pedestrians - Bicyclists	Person Type	Unit ID	Sex	DOB	Seat Pos.	Air Bag Deployed	Ejected	Prot. System	Injury	Trans by Rescue
DAVID C JANELAS	1	1	M	08/13/1978	1	3	1	13	5	☐ Y ☒ N
										☐ Y ☐ N
										☐ Y ☐ N

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☐ Private Property

Owner	Address

Home Phone	Cell Phone	Work Phone	Damage Description

Reporting Officer Name	Reporting Officer Badge Number	Report Date	Prohibit Public Release
Officer JEREMY MACHADO	459	09/26/2009	No

Report Number
09-49807-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

[1] **Type of Roadway**
1 Two-Way, Not Divided (No Median or Barrier)
2 Two-Way, Not Divided With a Continuous Left Turn Lane
3 Two-Way, Divided, Unprotected (painted >4 feet) Median
4 Two-Way, Divided, Positive Median Barrier
5 One-Way Trafficway
6 Unknown

[1] **Road Surface Condition (Prevailing)**
1 Dry
2 Wet
3 Snow
4 Slush
5 Ice/Frost
6 Water (Standing, Moving)
7 Sand
8 Mud, Dirt, Gravel
9 Oil
10 Other
11 Unknown

[4] **Light Condition (Prevailing)**
1 Daylight
2 Dawn
3 Dusk
4 Dark - Lighted
5 Dark - Not Lighted
6 Dark - Unknown Lighting
7 Other
8 Unknown

[1] **Weather Condition (Prevailing)**
1 Clear
2 Cloudy
3 Fog, Smog, Smoke
4 Rain
5 Sleet, Hail (Freezing Rain or Drizzle)
6 Snow
7 Blowing Snow
8 Severe Crosswinds

[1] **Manner of Impact**
1 Not a Collision Between Two Motor Vehicles in Transport
2 Rear End (Front-to-Rear)
3 Head-On (Front-to-Front)
4 Angle (Front-to-Side) Same Direction
5 Angle (Front-to-Side) Opposite Direction
6 Angle (Front-to-Side) Right Angle (Includes Broadside)
7 Angle-direction Not Specified
8 Sideswipe, Same Direction
9 Sideswipe, Opposite Direction
10 Rear-to-Side
11 Rear-to-Rear
12 Other
13 Unknown

School Bus Related Crash?
(Directly Involved Indicates Contact was Made)

☐ Yes, Directly Involved ☒ No
☐ Yes, Indirectly Involved

Traffic Controls [6]
1 No Controls
2 Person
3 Traffic Control Signal
4 Flashing Traffic Control Sig.
5 School Zone Signs
6 Stop Signs
7 Yield Signs
8 Warning Signs
9 Railway Crossing Device
10 Pavement Markings
11 Other
12 Unknown

Pre-Crash Traffic Controls Malfunctioning, Damaged or Missing?
☐ Yes ☒ No ☐ N/A

Construction Zone Crash?
(Crash Occurs in or Related to Construction, Maintenance, or Utility Work Zone. May include Vehicles Slowed or Stopped because of Work Zone)

☐ Yes ☒ No

Construction Workers Present?
☐ Yes ☒ No

Contributing Circumstances Environment
1 None
2 Weather Conditions
3 Physical Obstructions
4 Glare
5 Animal(s) in Roadway
6 Other
7 Unknown

1st [1]
2nd [ ]
3rd [ ]

Contributing Circumstances Road
1 None
2 Road Surface Condition (Wet, Icy, Snow, Slush, etc.)
3 Debris
4 Rut, Holes, Bumps
5 Work Zones (Construction/Maintenance/Utility)
6 Worn, Travel-Polished Surface
7 Obstruction in Roadway
8 Traffic Control Device Inoperative, Missing or Obscured
9 Shoulders (None, Low, Soft, High)
10 Non-Highway Work
11 Other
12 Unknown

1st [1]
2nd [ ]
3rd [ ]

---

[1] **Vehicle #1**

Unit Types

1 Passenger Car
2 (Sport) Utility Vehicle
3 Passenger Van
4 Cargo Van (10K lbs[4,536 kg] or Less)
5 Pickup
6 Motor Home
7 School Bus
8 Transit Bus
9 Motor Coach
10 Other Bus
11 Motorcycle
12 Moped
13 Low Speed Vehicle
14 Other Light Trucks (10K lbs [4,536 kg] or Less)
15 Tractor Trailer or Combination (More than 10K lbs [4,536 kg])
16 Medium/Heavy Trucks (More than 10K lbs [4,536 kg])
17 Tow Truck
18 Pedestrian
19 Bicyclist
20 Witness
21 Other

Vehicle #1
☐ Yes ☒ No — **Does this Vehicle have Seats to Transport 9 or more people, including the Driver's Seat?** ☐ Yes ☐ No

Vehicle #1
☐ Yes ☒ No — **Was this Vehicle in Tow?** ☐ Yes ☐ No

[1] **Vehicle #1**

Special Function Vehicle

1 No Special Function
2 Taxi
3 Vehicle Used as School Bus
4 Vehicle Used as Other Bus
5 Military
6 Police
7 Ambulance
8 Fire Truck
9 Unknown

Report Number
09-49807-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

Vehicle #1
☐ Yes ☒ No ☐ Unk — **Police, Ambulance or Fire Truck Responding to a Call?** — ☐ Yes ☐ No ☐ Unk

1 — Vehicle #1 — **Motor Vehicle Position**

1 Motor Vehicle on Roadway 2 Motor Vehicle Parked 3 Working Vehicle/Equipment

4 — Vehicle #1 — **Extent of Damage**

1 No Damage Observed 2 Minor damage (less than or equal to $1000) 3 Functional Damage (greater than $1000) 4 Disabling Damage (greater than $1000)

30 — Vehicle #1 — **Most Harmful Event**

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equip. Loss or Shift
6 Fell/Jumped from Motor Veh.
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Most Harmful Event

1 — Vehicle #1 — **Vehicle Action Prior**

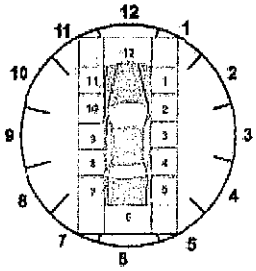
1 Movements Essentially Straight Ahead
2 Backing
3 Changing Lanes
4 Overtaking/Passing
5 Turning Right
6 Turning Left
7 Making U-Turn
8 Leaving Traffic Lane
9 Entering Traffic Lane
10 Slowing
11 Negotiating a Curve
12 Parked
13 Stopped in Traffic
14 Other
15 Unknown

12 — Vehicle #1

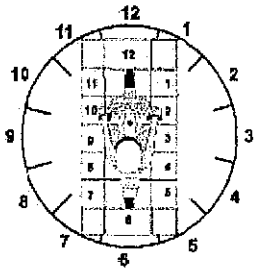
Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

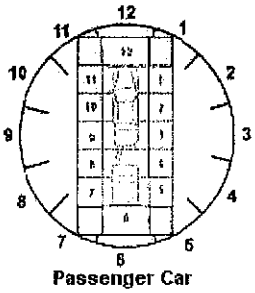
12 — Vehicle #1



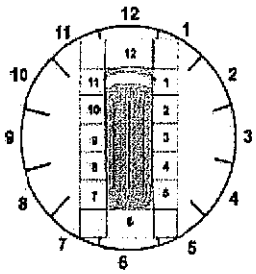
Passenger Car



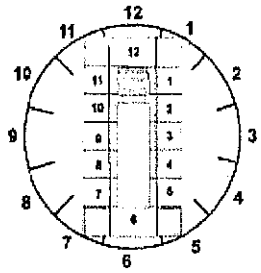
Motorcycle



Passenger Car W/Trailer



Bus



Tractor Trailer

Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

Report Number
09-49807-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

Vehicle #1 — Sequence of Events

1st: 21
2nd: 39
3rd: 30
4th: 29

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equipment Loss or Shift
6 Fell/Jumped from Motor Vehicle
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Sequence of Events

Driver Vehicle #1 — Driver Distracted

1

1 Not Distracted
2 Electronic Communication Devices (Cell Phone, Pager, etc.)
3 Other Electronic Devices (Navigation Device, Palm Pilot, etc.)
4 Other Inside the Vehicle
5 Other Outside the Vehicle
6 Unknown

Driver Vehicle #1 — Physical Condition of Driver

5

1 Apparently Normal
2 Emotional (Depressed, Angry, Disturbed, etc.)
3 Ill (Sick)
4 Fell Asleep, Fainted, Fatigued, etc.
5 Under the Influence of Medications/Drugs/Alcohol
6 Other

Vehicle #1 / Vehicle #1 — Non-Motorist Safety Equipment

1st
2nd

1 None
2 Helmet
3 Protective Pads Used (Elbows, Knees, Shins, etc.)
4 Reflective Clothing (Jacket, Backpack, etc.)
5 Lighting
6 Other
7 N/A
8 Unknown

Alcohol and/or Drug Testing

Driver Vehicle #1 — Chemical Test

Alcohol	Drug		Alcohol	Drug
☐	☐	None Given	☐	☐
☒	☒	Test Refused	☐	☐
	☐	Unknown if Tested		☐
☐	☐	Blood	☐	☐
☐	☐	Urine	☐	☐
☐	☐	Serum	☐	☐
☐	☐	Other	☐	☐
☐		Breath	☐	

Driver Vehicle #1 — Alcohol Test Result

	BAC	
☐	Pending	☐
☐	Unknown	☐

Driver Vehicle #1 — Drug Test Result

☐	Positive	☐
☐	Negative	☐
☐	Awaiting Test Result	☐

Report Number
09-49807-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
Narrative/Diagram Supplemental

Please see the Narrative Supplemental

Indicates North

Crash Diagram (NOT TO SCALE)

Printed on	Cranston Police Department	Page Number
01/21/2010	**Operator Information Sheet** 09-49807-AC [State Report Required: Y]	1 of 1

General

Accident Date	Time	Reporting Officer
09/26/2009	0220	Officer JEREMY MACHADO

Location	City	State	ZIP
96 OCEAN AV @ 1561 NARRAGANSETT BV	CRANSTON	RI	

Operator

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☐ Injured ☐ Fatality
JANELAS	DAVID	COSTA		1	

Number	Street	Suffix	Apt	City	State	ZIP
14	CHAMBERS	ST	APT2	CUMBERLAND	RI	02864

DOB	Home Phone	Work Phone	License State/Number
08/13/1978	303-365-2713		RI 9472367

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone
JANELAS	DAVID	COSTA		303-365-2713	

Number	Street	Suffix	Apt	City	State	ZIP
14	CHAMBERS	ST	APT2	CUMBERLAND	RI	02864

Insurance Company	Policy Number
NATIONWIDE	5138E071225

VEH

Year	Make	Model	VIN
2005	MERCEDES-BENZ	300M	WDBRF40J55F644022

Registration State/Number	Towed By	Towed To
RI DCJ1	ACTION AUTO	ACTION

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☐ Injured ☐ Fatality

Number	Street	Suffix	Apt	City	State	ZIP

DOB	Home Phone	Work Phone	License State/Number

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone

Number	Street	Suffix	Apt	City	State	ZIP

Insurance Company	Policy Number

VEH

Year	Make	Model	VIN

Registration State/Number	Towed By	Towed To

Entered: 09/26/2009 @ 0621 Entry ID: 459
Modified: 09/30/2009 @ 1706 Modified ID: 915
Approved: 09/27/2009 @ 2003 Approval ID: 325

ACCIDENT NARRATIVE
09-49807-AC
Officer Jeremy Machado, # 459
Date/Time Report:09/26/2009 0621

==========

On 09/26/09 at approximately 0220 hours myself and other Officers were dispatched to 96 Ocean Av. for a report of an accident of a car into a telephone pole. I arrived on scene and observed a gray Mercedes, bearing RI passenger reg DCJ1, with heavy front end damage. The vehicle was facing south bound on Ocean Av. next to a telephone pole (pole #9-50 1/2). I observed that the telephone pole had damage to it and appeared to have been moved by the force of the impact. I observed three pilons in the middle of Ocean Av. which had been uprooted from the median at the intersection of Narragansett Blvd. and Ocean Av. I observed that the median had been driven through. I also observed damage to the front yard of 96 Ocean Av., owned by Richard Finlay DOB 03/26/69. National Grid was notified about the pole.

I met with Lt. Loiselle who was already on scene. He informed me that the operator of the vehicle, David Janelas DOB 08/13/78, was being treated by Cranston Rescue. He stated that he spoke to a witness, John Stey DOB 11/23/45, who came outside as Janelas was exiting the vehicle. Stey reported that he was awakened by a loud bang and saw a flash. He ran to call 911. He went outside to see a car and saw a man standing near the drivers side and between the door and the seat. He asked Janelas if anyone else was in the car. Janelas told him he was alone. Janelas stated that he was ok. Janelas asked Stey if he was in East Providence. Stey informed him he was in Cranston and informed him he had called 911. Janelas asked him if he could cancel it. He stated a few minutes later Cranston Police and Fire arrived on scene. Stey spoke with Officer DeCosta and completed a statement form describing the incident. Officer Rocchio arrived on scene and photographed the scene.

Janelas was seated in the back of Cranston Rescue. As he spoke to Cranston Rescue personnel his speach was slurred and he was mumbling his words. After speaking to them he refused to be transported by Cranston rescue. At that time I requested that Janelas step from the rescue. I observed Janelas hold onto the side of rescue door clinging to it as he stepped from the rescue. As I spoke to Janelas I observed that his eyes were bloodshot and he was continuing to slur his speach. As Janelas spoke to me I detected a strong odor of an alcoholic beverage coming from his breath.

I requested that Janelas walk to the flat well lit area near the median located at the intersection of Narragansett Blvd. and Ocean Av. As Janelas began to walk to that location he began to sway back and forth. Officer DeCosta and I both took hold of Janelas in order to prevent him form falling over. As he continued to walk Officer DeCosta and I had to prevent him from falling several times.

At that location I continued to speak to Janelas. I asked him where he was coming from. He informed me that he was in Providence at club Desire. I asked him where he was going, he reported that he was going home to Cumberland. When asked what town he was in, Janelas looked around and then said, "I think I'm in Lincoln." He then asked me if I was from Cumberland.

I requested that Janelas perform field sobriety tests. As I began to explained the instructions for the Horizontal Gaze Nystagmus Janelas stated "why do the tests, I'm done". I was continuing to explain the test when Janelas turned around and put his hands behind his back. When asked if he was refusing to take the tests he mumbled. I asked him again if he was refusing to take the tests, Janelas informed me that he was refusing.

Entered: 09/26/2009 @ 0621 Entry ID: 459
Modified: 09/30/2009 @ 1706 Modified ID: 915
Approved: 09/27/2009 @ 2003 Approval ID: 325

At that time based on witness statements and observations made on scene Janelas was placed in custody for suspicion of driving under the influence of alcohol. During a search incident to arrest I felt wetness on his legs. In looking at his legs it was apparent that Janelas had urinated on his pants. He was seated in the rear of my patrol car. I then read Janelas rights for use at the scene from a card I keep in my right shirt pocket at 0243 hours. I then transported him to HQ.

Upon arrival Janelas was brought to the Breathalyzer room where I began a fifteen minute observation period. I read Janelas his rights for use at the station. Janelas stated that he wished to refuse a chemical test and signed the form indicating this at 0316 hours,

Janelas was printed and processed and placed in cell #1 for holding. I later completed all necessary DUI paperwork. The vehicle was towed from the scene by Action Auto. A vehicle hold and release form was later completed and placed in the locker with his belongings.

Janelas was issued summons #07402017985 and charged with refusal to submit to a chemical test RIGL 31-27-2.1 and failure to maintain control of motor vehicle RIGL 31-14-1. He was given a RITT court date of 10/07/09. He was also issued summons 3 07402017986 and charged with driving under the influence first offense/BAC unknown RIGL 31/27-2. He was given a District Court date of 9/26/09.

NFTR

STATE OF RHODE ISLAND UNIFORM CRASH REPORT

Reporting Agency Name	Report Number	Crash Date	Crash Time	Walk In Report	Parking Lot
Cranston	09-56332-AC	11/01/2009	0137	☐	☐

City or Town Name	Street or Highway		Exit #	# of Lanes	Posted Speed Limit
CRANSTON	100 OCEAN AV	☐ On Ramp ☐ Off Ramp		2	25 ☐ N/A ☐ Unk

Nearest Intersection Street	Direction From Nearest Intersection to Crash Site	Distance From Nearest Inter.	Latitude	Longitude
1561 NARRAGANSETT BV	☒ At Inter. ☐ North ☐ South ☐ East ☐ West	☐ Feet ☐ Miles		

Unit ID	Driver's Last Name	First Name	M.I.	DOB
1	VIVEIROS	JOHN	J	08/07/1989

Address	City
47 DUNCAN	PROVIDENCE

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02906		401-598-6833	

Driver's License #		Lic. State
2612714	☐ CDL	RI

M/V Violation	M/V Violation	M/V Violation	M/V Violation
31-27-2	31-27-2.1	31-47-9	31-22-22(g

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☒	VIVEIROS	JOHN	J

Address	City
47 DUNCAN	PROVIDENCE

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02906		401-598-6833	

Insurance Company Name	Insurance Policy Number
☒ No Ins.	

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☒ No ☐ Unk

Registration #		State	Yr Reg.	VIN
TH306	☐ Not Reg.	RI	2009	2G2WP552361170979

Veh Yr.	Make	Model	Color	Plate Type
2006	PONTIAC	GRAND PRIX	TAN	PC

Veh Travel Direction: ☐ Northbound ☒ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☒ Yes ☐ No	ACTION AUTO	☐ Yes ☒ No

Unit ID	Driver's Last Name	First Name	M.I.	DOB

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Driver's License #		Lic. State
	☐ CDL	

M/V Violation	M/V Violation	M/V Violation	M/V Violation

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☐			

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Insurance Company Name	Insurance Policy Number
☐ No Ins.	

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☐ No ☐ Unk

Registration #		State	Yr Reg.	VIN
	☐ Not Reg.			

Veh Yr.	Make	Model	Color	Plate Type

Veh Travel Direction: ☐ Northbound ☐ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☐ Yes ☐ No		☐ Yes ☐ No

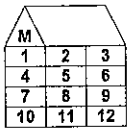
Person Type

1 Driver
2 Passenger
3 Pedestrian
4 Bicyclist
5 Other Cyclist
6 Witness
7 Other Ped. (Wheelchair, Person in Building, Skater, Ped. conveyance, etc.)
8 Occupant of Motor Veh. Not in Transport (Parked, etc.)
9 Occupant of a Non-Motor Veh Transportation Device
10 Unknown Type of Non-Motorist
11 Unknown

Unit ID: 1 Unit 1, 2 Unit 2, 3 (etc.) or N/A

Sex: M Male, F Female, U Unk

Seat Position



13 Other Row (Bus)
14 Unk Row
15 Other Seat
16 Unk Seat

Other Location: 17 N/A, 18 Sleeper, 19 Other Enclosed Area, 20 Other Unenclosed Area, 21 Towed Unit, 22 Unk

Air Bag Deployed: 1 N/A, 2 No, 3 Front, 4 Side, 5 Other, 6 Comb, 7 Unk

Ejected: 1 No, 2 Partially, 3 Totally, 4 N/A, 5 Unk

Protection System: 1 N/A, 2 None Used, 3 Shoulder & Lap, 4 Shoulder Only, 5 Lap Only, 6 Type Unk, 7 Child - Forw Facing, 8 Child - Rear Facing, 9 Booster Seat, 10 Child - Unk, 11 Helmet Used, 12 Other, 13 Unk

Injury: 1 Complains of Pain, 2 Non-Incapacitating, 3 Incapacitating, 4 Fatal, 5 No Injury, 6 Unk

Name: Occupants - Witnesses - Pedestrians - Bicyclists	Person Type	Unit ID	Sex	DOB	Seat Pos.	Air Bag Deployed	Ejected	Prot. System	Injury	Trans by Rescue
JOHN J VIVEIROS	1	1	M	08/07/1989	1	3	1	13	2	☒ Y ☐ N
DOUGLAS MASCIARELLI	2	1	M	03/02/1984	3	3	1	13	3	☒ Y ☐ N
MATHEW FARIA	2	1	M	06/19/1984	4	2	1	3	3	☒ Y ☐ N

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☒ Private Property

Owner	Address
RICHARD FINLAY	92 OCEAN AV CRANSTON RI

Home Phone	Cell Phone	Work Phone	Damage Description
401-523-4689			HOME AND LANDSCAPING

Reporting Officer Name	Reporting Officer Badge Number	Report Date	Prohibit Public Release
OFFICER DERIK B BRAGA	442	11/01/2009	No

Report Number
09-56332-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

4 — **Type of Roadway**
1 Two-Way, Not Divided (No Median or Barrier)
2 Two-Way, Not Divided With a Continuous Left Turn Lane
3 Two-Way, Divided, Unprotected (painted >4 feet) Median
4 Two-Way, Divided, Positive Median Barrier
5 One-Way Trafficway
6 Unknown

2 — **Road Surface Condition (Prevailing)**
1 Dry
2 Wet
3 Snow
4 Slush
5 Ice/Frost
6 Water (Standing, Moving)
7 Sand
8 Mud, Dirt, Gravel
9 Oil
10 Other
11 Unknown

4 — **Light Condition (Prevailing)**
1 Daylight
2 Dawn
3 Dusk
4 Dark - Lighted
5 Dark - Not Lighted
6 Dark - Unknown Lighting
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8 Unknown

2 — **Weather Condition (Prevailing)**
1 Clear
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3 Fog, Smog, Smoke
4 Rain
5 Sleet, Hail (Freezing Rain or Drizzle)
6 Snow
7 Blowing Snow
8 Severe Crosswinds

1 — **Manner of Impact**
1 Not a Collision Between Two Motor Vehicles in Transport
2 Rear End (Front-to-Rear)
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7 Angle-direction Not Specified
8 Sideswipe, Same Direction
9 Sideswipe, Opposite Direction
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11 Rear-to-Rear
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13 Unknown

School Bus Related Crash?
(Directly Involved Indicates Contact was Made)

☐ Yes, Directly Involved ☒ No
☐ Yes, Indirectly Involved

Traffic Controls — 6
1 No Controls
2 Person
3 Traffic Control Signal
4 Flashing Traffic Control Sig.
5 School Zone Signs
6 Stop Signs
7 Yield Signs
8 Warning Signs
9 Railway Crossing Device
10 Pavement Markings
11 Other
12 Unknown

Pre-Crash Traffic Controls Malfunctioning, Damaged or Missing?
☐ Yes ☒ No ☐ N/A

Construction Zone Crash?
(Crash Occurs In or Related to Construction, Maintenance, or Utility Work Zone. May include Vehicles Slowed or Stopped because of Work Zone)

☐ Yes ☒ No

Construction Workers Present?
☐ Yes ☒ No

Contributing Circumstances Environment
1st: 1
2nd:
3rd:
1 None
2 Weather Conditions
3 Physical Obstructions
4 Glare
5 Animal(s) in Roadway
6 Other
7 Unknown

Contributing Circumstances Road
1st: 1
2nd:
3rd:
1 None
2 Road Surface Condition (Wet, Icy, Snow, Slush, etc.)
3 Debris
4 Rut, Holes, Bumps
5 Work Zones (Construction/Maintenance/Utility)
6 Worn, Travel-Polished Surface
7 Obstruction in Roadway
8 Traffic Control Device Inoperative, Missing or Obscured
9 Shoulders (None, Low, Soft, High)
10 Non-Highway Work
11 Other
12 Unknown

---

1 — **Vehicle #1**

Unit Types
1 Passenger Car
2 (Sport) Utility Vehicle
3 Passenger Van
4 Cargo Van (10K lbs[4,536 kg] or Less)
5 Pickup
6 Motor Home
7 School Bus
8 Transit Bus
9 Motor Coach
10 Other Bus
11 Motorcycle
12 Moped
13 Low Speed Vehicle
14 Other Light Trucks (10K lbs [4,536 kg] or Less)
15 Tractor Trailer or Combination (More than 10K lbs [4,536 kg])
16 Medium/Heavy Trucks (More than 10K lbs [4,536 kg])
17 Tow Truck
18 Pedestrian
19 Bicyclist
20 Witness
21 Other

Vehicle #1
☐ Yes ☒ No — **Does this Vehicle have Seats to Transport 9 or more people, including the Driver's Seat?** — ☐ Yes ☐ No

Vehicle #1
☐ Yes ☒ No — **Was this Vehicle in Tow?** — ☐ Yes ☐ No

1 — **Vehicle #1**

Special Function Vehicle
1 No Special Function
2 Taxi
3 Vehicle Used as School Bus
4 Vehicle Used as Other Bus
5 Military
6 Police
7 Ambulance
8 Fire Truck
9 Unknown

Report Number
09-56332-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

Vehicle #1
☐ Yes ☒ No ☐ Unk — **Police, Ambulance or Fire Truck Responding to a Call?** — ☐ Yes ☐ No ☐ Unk

1 — Vehicle #1 — **Motor Vehicle Position**

1 Motor Vehicle on Roadway | 2 Motor Vehicle Parked | 3 Working Vehicle/Equipment

4 — Vehicle #1 — **Extent of Damage**

1 No Damage Observed | 2 Minor damage (less than or equal to $1000) | 3 Functional Damage (greater than $1000) | 4 Disabling Damage (greater than $1000)

39 — Vehicle #1 — **Most Harmful Event**

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equip. Loss or Shift
6 Fell/Jumped from Motor Veh.
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Most Harmful Event

1 — Vehicle #1 — **Vehicle Action Prior**

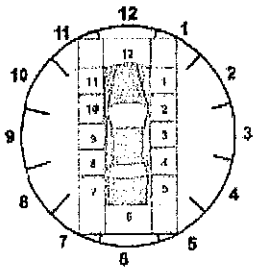
1 Movements Essentially Straight Ahead
2 Backing
3 Changing Lanes
4 Overtaking/Passing
5 Turning Right
6 Turning Left
7 Making U-Turn
8 Leaving Traffic Lane
9 Entering Traffic Lane
10 Slowing
11 Negotiating a Curve
12 Parked
13 Stopped in Traffic
14 Other
15 Unknown

11 — Vehicle #1

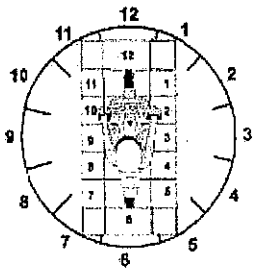
Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

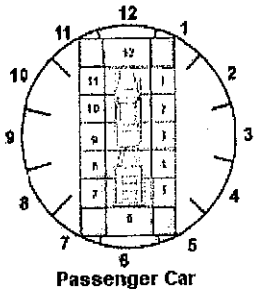
12 — Vehicle #1



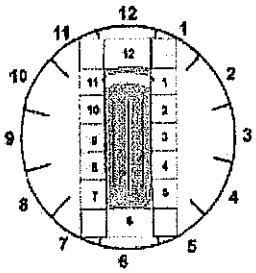
Passenger Car



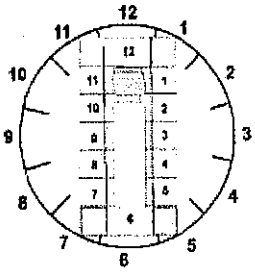
Motorcycle



Passenger Car W/Trailer



Bus



Tractor Trailer

Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

Report Number
09-56332-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

1st: 27 — Vehicle #1

2nd: 39

3rd:

4th:

Sequence of Events

1st

2nd

3rd

4th

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equipment Loss or Shift
6 Fell/Jumped from Motor Vehicle
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Sequence of Events

---

6 — Driver Vehicle #1 — **Driver Distracted**

1 Not Distracted
2 Electronic Communication Devices (Cell Phone, Pager, etc.)
3 Other Electronic Devices (Navigation Device, Palm Pilot, etc.)
4 Other Inside the Vehicle
5 Other Outside the Vehicle
6 Unknown

5 — Driver Vehicle #1 — **Physical Condition of Driver**

1 Apparently Normal
2 Emotional (Depressed, Angry, Disturbed, etc.)
3 Ill (Sick)
4 Fell Asleep, Fainted, Fatigued, etc.
5 Under the Influence of Medications/Drugs/Alcohol
6 Other

1st: Vehicle #1

2nd: Vehicle #1

Non-Motorist Safety Equipment

1 None
2 Helmet
3 Protective Pads Used (Elbows, Knees, Shins, etc.)
4 Reflective Clothing (Jacket, Backpack, etc.)
5 Lighting
6 Other
7 N/A
8 Unknown

1st

2nd

Alcohol and/or Drug Testing

Driver Vehicle #1 — **Chemical Test**

Alcohol	Drug		Alcohol	Drug
☐	☐	None Given	☐	☐
☒	☒	Test Refused	☐	☐
	☐	Unknown if Tested		☐
☐	☐	Blood	☐	☐
☐	☐	Urine	☐	☐
☐	☐	Serum	☐	☐
☐	☐	Other	☐	☐
☐		Breath	☐	

Driver Vehicle #1 — **Alcohol Test Result**

	BAC	
☐	Pending	☐
☐	Unknown	☐

Driver Vehicle #1 — **Drug Test Result**

☐	Positive	☐
☐	Negative	☐
☐	Awaiting Test Result	☐

Report Number
09-56332-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
Additional Persons Supplemental

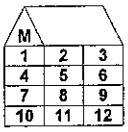
Person Type

1 Driver
2 Passenger
3 Pedestrian
4 Bicyclist
5 Other Cyclist
6 Witness
7 Other Ped. (Wheelchair, Person in Building, Skater, Ped. conveyance, etc.)
8 Occupant of Motor Veh. Not in Transport (Parked, etc.)
9 Occupant of a Non-Motor Veh Transportation Device
10 Unknown Type of Non-Motorist
11 Unknown

Unit ID: 1 Unit 1, 2 Unit 2, 3 (etc.) or N/A

Sex: M Male, F Female, U Unk

Seat Position



13 Other Row (Bus)
14 Unk Row
15 Other Seat
16 Unk Seat

Other Location: 17 N/A, 18 Sleeper, 19 Other Enclosed Area, 20 Other Unenclosed Area, 21 Towed Unit, 22 Unk

Air Bag Deployed: 1 N/A, 2 No, 3 Front, 4 Side, 5 Other, 6 Comb, 7 Unk

Ejected: 1 No, 2 Partially, 3 Totally, 4 N/A, 5 Unk

Protection System: 1 N/A, 2 None Used, 3 Shoulder & Lap, 4 Shoulder Only, 5 Lap Only, 6 Type Unk, 7 Child - Forw Facing, 8 Child - Rear Facing, 9 Booster Seat, 10 Child - Unk, 11 Helmet Used, 12 Other, 13 Unk

Injury: 1 Complains of Pain, 2 Non-Incapacitating, 3 Incapacitating, 4 Fatal, 5 No Injury, 6 Unk

Name: Occupants - Witnesses - Pedestrians - Bicyclists	Person Type	Unit ID	Sex	DOB	Seat Pos.	Air Bag Deployed	Ejected	Prot. System	Injury	Trans by Rescue
STEPHANIE VIVEIROS	2	1	F	12/19/1984	5	2	1	13	3	☒ Y ☐ N
ASHLEY VALLANTE	2	1	F	02/26/1990	6	2	1	13	3	☒ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☒ Private Property

Owner	Address		
JOHN STEY	96 OCEAN AV		
Home Phone	Cell Phone	Work Phone	Damage Description
401-270-4961			LANDSCAPING

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☐ Private Property

Owner	Address		
Home Phone	Cell Phone	Work Phone	Damage Description

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☐ Private Property

Owner	Address		
Home Phone	Cell Phone	Work Phone	Damage Description

Printed on	Cranston Police Department	Page Number
01/21/2010	**Operator Information Sheet** 09-56332-AC [State Report Required: Y]	1 of 1

General

Accident Date	Time	Reporting Officer		
11/01/2009	0137	OFFICER DERIK B BRAGA		
Location		**City**	**State**	**ZIP**
100 OCEAN AV @ 1561 NARRAGANSETT BV		CRANSTON	RI	

Operator

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☒ Injured ☐ Fatality
VIVEIROS	JOHN	J		1	

Number	Street	Suffix	Apt	City	State	ZIP
47	DUNCAN			PROVIDENCE	RI	02906

DOB	Home Phone	Work Phone	License State/Number
08/07/1989			RI 2612714

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone
VIVEIROS	JOHN	J			

Number	Street	Suffix	Apt	City	State	ZIP
47	DUNCAN			PROVIDENCE	RI	02906

Insurance Company	Policy Number

VEH

Year	Make	Model	VIN
2006	PONTIAC	GRAND PRIX	2G2WP552361170979

Registration State/Number	Towed By	Towed To
RI TH306	ACTION AUTO	ACTION

[redacted]

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☐ Injured ☐ Fatality

Number	Street	Suffix	Apt	City	State	ZIP

DOB	Home Phone	Work Phone	License State/Number

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone

Number	Street	Suffix	Apt	City	State	ZIP

Insurance Company	Policy Number

VEH

Year	Make	Model	VIN

Registration State/Number	Towed By	Towed To

Entered: 11/01/2009 @ 1025 Entry ID: 442
Modified: 11/01/2009 @ 1032 Modified ID: 442
Approved: 11/02/2009 @ 0739 Approval ID: 325

OFFICER'S FIRST REPORT
09-56332-AC
OFFICER DERIK BRAGA, #442
Date/Time Report: Nov. 1, 2009 @ 1027hrs.

==========

Vehicle #1 was traveling south on Narragansett Blvd. As veh. #1 reached the end of Narragansett Blvd. at the intersection of Ocean Ave., it struck and mounted the center media, then continued forward and also struck the house/structure of 92 Ocean Ave, where it came to final rest.

All five occupants were taken RI hospital by Cranston Fire Rescue with injuries. Operator #1 was taken into custody and charged with DWI.

Refer to Cranston Police Arrest Report 09-56332-AR.

NFTR

Cranston Police Department

SUPPLEMENTAL NARRATIVE FOR OFFICER ALAN R DAVIS

Ref: 09-56332-AC

Entered: 11/05/2009 @ 1209 Entry ID: 325
Modified: 11/11/2009 @ 0949 Modified ID: 325
Approved: 12/15/2009 @ 0710 Approval ID: 325

During the course of searching the vehicle 2 cell phones were located. Attempts to positively identify the owners have failed so they were placed in BCI for safe keeping and proof of ownership.

Entered: 11/01/2009 @ 0631 Entry ID: 433
Modified: 11/01/2009 @ 0631 Modified ID: 433
Approved: 11/02/2009 @ 0739 Approval ID: 325

OFFICER'S SUPPLEMENTAL REPORT
09-56332-AR/AC
Off. Daniel Lee, #433
Date/Time Report: 11/1/09 0411 hrs.

==========

On 11/1/09 at approx. 0137 hrs., I responded with other patrol units to the intersection of Ocean Ave. and Narragansett Blvd. for a motor vehicle crash with injuries; it was reported that the crash involved a car striking a house.

I arrived on scene and met with Officer Braga, who had arrived moments prior; Cranston Fire Dept. personnel were also arriving at this time. My attention was drawn to the property at 92 Ocean Ave., where a sedan had crashed into the lower portion of the residence on the west side, causing extensive damage to both the house and the vehicle. There were numerous individuals, some later determined to be witness and vehicle occupants, standing around the scene. While Off. Braga was speaking to several involved subjects in order to identify the operator, I began to speak to several by-standers to determine if anyone had witnessed the crash.

During the course of the investigation, I did speak with the resident, and property owner, of 92 Ocean Ave., Richard Finlay (3/26/69). I obtained a written statement from Mr. Finlay. in which he identifies himself as the property owner of 92 Ocean Ave. He further states that during the time of the crash, he was asleep. He was awoken by a loud bang/crash, and felt the house shudder. He jumped out of bed and looked out the side window and observed a car partially embedded in the house. He then called 9-1-1 and ran down stairs to investigate.

While on scene, I also spoke to two witnesses: Darmendra Ramcharran (10/30/77) and Michael Lamiano (2/28/74). Mr. Ramcharran states that he and Lamiano were outside walking his dog in the area of Narragansett Blvd. and Ocean Ave. when he heard an engine rev. He looked back and saw the vehicle run through the intersection and into 92 Ocean Ave. He states that he called 9-1-1 and started walking towards the car. When he got to the car, he states that he observed two males and one female standing outside of the car, and an unconscious female and a male holding her inside the rear of the car. He heard one of the males outside of the car, whom he described as the smaller male wearing a costume with a green tie, say to the other male and female who were outside of the car, "I'm sorry . . . I'm gonna get arrested tonight."

Mr. Lamiano states that he and Ramcharran were walking the dog in the area of Narragansett Blvd. and Ocean Ave. He turned around to see a car jump the fork in the road at the intersection of Narragansett Blvd. and Ocean Ave. and drive into the house at 92 Ocean Ave. He states that it appeared that the car did not brake, and that the driver was using the accelerator through the incident. As he was walking towards the house that the the car crashed into, he observed three individuals outside walking, and two more inside the vehicle. One of the subjects inside the vehicle appeared to be injured and losing consciousness.

While on scene, Lt. Saccoccia requested that I respond to R.I. Hospital where several of the occupants had been transported. I did subsequently respond where I met with the four passengers of the vehicle: Ashley Vallante (2/26/90), Douglas Masciarelli (3/2/84), Mathew Faria (6/19/84), and Stephanie Viveiros (12/19/84). Upon speaking with the R.I. Hospital E.R. staff, who were under the supervision of E.R. Attending Physician Dr. Rachael Fowler, I was advised that, pending the results of CAT scans, it appeared that none of the occupants had sustained life threatening or serious bodily injuries, although most had sustained some form of non-life threatening, non-serious injury from the crash; I was informed that after the CAT scan and x-rays, the hospital

Entered: 11/01/2009 @ 0631 Entry ID: 433
Modified: 11/01/2009 @ 0631 Modified ID: 433
Approved: 11/02/2009 @ 0739 Approval ID: 325

would have a better idea of the extent of these injuries.

I did speak to each occupant individually while at the hospital. Mathew Faria (6/19/84), who was positively identified by R.I. i.d. card #1272293, and who initial reports indicate as the rear driver's side passenger, provided me the following statement: He states that the group was at Club Hell, and ultimately left after John Viveiros (8/7/89), whom Mathew refers to as "Johnny", and his girlfriend Ashley Vallante had an argument about leaving. Ashley tried to take the keys from Johnny but he refused and got into the driver's seat of the car, and everybody else got into the other seats. They were traveling back to Stephanie Viveiros' house, and all the passengers were arguing with Johnny about him driving, but he ignored them. Mathew then states that the car hit the median. lost control, then hit the house. He states that he observed the speedometer to be at 70 MPH at some point shortly before the crash. This statement was dictated to me, due to Mathew currently being treated, and I transcribed it. It was read back to Mathew to ensure accuracy and he signed the statement form. (Note that Mathew provided additional contact information as Pam McGurn, 723-3941, of Brookdale Blvd., Pawtucket).

Stephanie Viveiros (12/19/84), who was positively identified by R.I. driver's license #2113060, also dictated a statement that was, due to medical attention, transcribed onto a statement form by myself. She states that they were at Club Hell and wanted to leave. John, whom Stephanie also refers to as "Johnny", was the only one who wanted to stay, and this caused an argument, specifically between Ashley and Johnny. They all did end up leaving the club and got into the car, with Johnny driving. The argument continued and Johnny kept speeding up and Stephanie states that they all yelled at him to stop speeding up and to slow down. She states that the car ended up going at a high rate of speed (fast enough "to scare her") and that is when they hit the house. Stephanie then states that Johnny stated, "I'm sorry . . . I was mad at Ashley." Stephanie's transcribed statement was read back to her to ensure accuracy and she signed the statement form. (Note that Stephanie provided additional contact information as John Viveiros, 323-4700, 47 Duncan Ave., Prov.) Initial reports indicate that Stephanie was the middle, rear seat passenger.

Ashley Vallante (2/26/90), positively identified by R.I. i.d. card #2271167, was asked, but ultimately unable to give a statement at this time. (She provided additional contact information as Denise Vallante, 270-2618, 1003 Atwells Ave., 2nd fl., Prov). Initial reports indicate that Ashley was the rear, passenger side occupant of the vehicle.

Douglas Masciarelli (3/24/84), positively identified by R.I. driver's license #2902520, was uncooperative at the hospital, and would not give a statement. Initial reports indicate that he seated in the front passenger seat. He provided additional contact information as Susan Masciarelli, 508-481-4342, 415 Berlin Rd., Marlborough, MA.

NFTR

STATE OF RHODE ISLAND UNIFORM CRASH REPORT

Reporting Agency Name	Report Number	Crash Date	Crash Time	Walk In Report	Parking Lot
Cranston	09-60830-AC	11/28/2009	0652	☐	☐

City or Town Name	Street or Highway		Exit #	# of Lanes	Posted Speed Limit
CRANSTON	96 OCEAN AV	☐ On Ramp ☐ Off Ramp		2	25 ☐ N/A ☐ Unk

Nearest Intersection Street	Direction From Nearest Intersection to Crash Site	Distance From Nearest Inter.	Latitude	Longitude
1561 NARRAGANSETT BV	☒ At Inter. ☐ North ☐ South ☐ East ☐ West	0 ☒ Feet ☐ Miles		

Unit ID	Driver's Last Name First Name M.I.	DOB	Unit ID	Last Name First Name M.I.	DOB
1					

Address	City	Address	City

State	Zip	Home Phone	Cell Phone	Work Phone	State	Zip	Home Phone	Cell Phone	Work Phone

Driver's License #	☐ CDL	Lic. State	Driver's License #	☐ CDL	Lic. State

M/V Violation	M/V Violation	M/V Violation	M/V Violation	M/V Violation	M/V Violation	M/V Violation	M/V Violation

Driver & Owner are Same	Owner's Last Name First Name M.I.	Driver & Owner are Same	Owner's Last Name First Name M.I.
☐		☐	

Address	City	Address	City

State	Zip	Home Phone	Cell Phone	Work Phone	State	Zip	Home Phone	Cell Phone	Work Phone

Insurance Company Name	Insurance Policy Number	Insurance Company Name	Insurance Policy Number
☐ No Ins.		☐ No Ins.	

Hit And Run	Hit And Run
☒ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☐ No ☐ Unk	☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☐ No ☐ Unk

Registration #	State	Yr Reg.	VIN	Registration #	State	Yr Reg.	VIN
unknown ☐ Not Reg.				☐ Not Reg.			

Veh Yr.	Make	Model	Color	Plate Type	Veh Yr.	Make	Model	Color	Plate Type
	TOYOTA	UNKNOWN	GOLD						

Veh Travel Direction	Veh Travel Direction
☐ Northbound ☒ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk	☐ Northbound ☐ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?	Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☐ Yes ☒ No		☐ Yes ☒ No	☐ Yes ☐ No		☐ Yes ☐ No

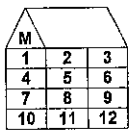
Person Type

1 Driver
2 Passenger
3 Pedestrian
4 Bicyclist
5 Other Cyclist
6 Witness
7 Other Ped. (Wheelchair, Person in Building, Skater, Ped. conveyance, etc.)
8 Occupant of Motor Veh. Not in Transport (Parked, etc.)
9 Occupant of a Non-Motor Veh Transportation Device
10 Unknown Type of Non-Motorist
11 Unknown

Unit ID: 1 Unit 1, 2 Unit 2, 3 (etc.) or N/A

Sex: M Male, F Female, U Unk

Seat Position



Other Location: 13 Other Row (Bus), 14 Unk Row, 15 Other Seat, 16 Unk Seat, 17 N/A, 18 Sleeper, 19 Other Enclosed Area, 20 Other Unenclosed Area, 21 Towed Unit, 22 Unk

Air Bag Deployed: 1 N/A, 2 No, 3 Front, 4 Side, 5 Other, 6 Comb, 7 Unk

Ejected: 1 No, 2 Partially, 3 Totally, 4 N/A, 5 Unk

Protection System: 1 N/A, 2 None Used, 3 Shoulder & Lap, 4 Shoulder Only, 5 Lap Only, 6 Type Unk, 7 Child - Forw Facing, 8 Child - Rear Facing, 9 Booster Seat, 10 Child - Unk, 11 Helmet Used, 12 Other, 13 Unk

Injury: 1 Complains of Pain, 2 Non-Incapacitating, 3 Incapacitating, 4 Fatal, 5 No Injury, 6 Unk

Name: Occupants - Witnesses - Pedestrians - Bicyclists	Person Type	Unit ID	Sex	DOB	Seat Pos.	Air Bag Deployed	Ejected	Prot. System	Injury	Trans by Rescue
										☐ Y ☐ N
										☐ Y ☐ N
										☐ Y ☐ N

Non-Vehicle Property Damage ☐ State Property ☐ City/Town Property ☐ Private Property

Owner	Address

Home Phone	Cell Phone	Work Phone	Damage Description

Reporting Officer Name	Reporting Officer Badge Number	Report Date	Prohibit Public Release
Officer JAMES MCQUINN	457	11/30/2009	No

Report Number
09-60830-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

[1]

Type of Roadway
1 Two-Way, Not Divided (No Median or Barrier)
2 Two-Way, Not Divided With a Continuous Left Turn Lane
3 Two-Way, Divided, Unprotected (painted >4 feet) Median
4 Two-Way, Divided, Positive Median Barrier
5 One-Way Trafficway
6 Unknown

[2]

Road Surface Condition (Prevailing)
1 Dry
2 Wet
3 Snow
4 Slush
5 Ice/Frost
6 Water (Standing, Moving)
7 Sand
8 Mud, Dirt, Gravel
9 Oil
10 Other
11 Unknown

[2]

Light Condition (Prevailing)
1 Daylight
2 Dawn
3 Dusk
4 Dark - Lighted
5 Dark - Not Lighted
6 Dark - Unknown Lighting
7 Other
8 Unknown

[1]

Weather Condition (Prevailing)
1 Clear
2 Cloudy
3 Fog, Smog, Smoke
4 Rain
5 Sleet, Hail (Freezing Rain or Drizzle)
6 Snow
7 Blowing Snow
8 Severe Crosswinds

[1]

Manner of Impact
1 Not a Collision Between Two Motor Vehicles in Transport
2 Rear End (Front-to-Rear)
3 Head-On (Front-to-Front)
4 Angle (Front-to-Side) Same Direction
5 Angle (Front-to-Side) Opposite Direction
6 Angle (Front-to-Side) Right Angle (Includes Broadside)
7 Angle-direction Not Specified
8 Sideswipe, Same Direction
9 Sideswipe, Opposite Direction
10 Rear-to-Side
11 Rear-to-Rear
12 Other
13 Unknown

School Bus Related Crash?
(Directly Involved Indicates Contact was Made)

☐ Yes, Directly Involved ☒ No
☐ Yes, Indirectly Involved

Traffic Controls [1]
1 No Controls
2 Person
3 Traffic Control Signal
4 Flashing Traffic Control Sig.
5 School Zone Signs
6 Stop Signs
7 Yield Signs
8 Warning Signs
9 Railway Crossing Device
10 Pavement Markings
11 Other
12 Unknown

Pre-Crash Traffic Controls Malfunctioning, Damaged or Missing?
☐ Yes ☐ No ☒ N/A

Construction Zone Crash?
(Crash Occurs in or Related to Construction, Maintenance, or Utility Work Zone. May include Vehicles Slowed or Stopped because of Work Zone)

☐ Yes ☒ No

Construction Workers Present?
☐ Yes ☒ No

Contributing Circumstances Environment
1 None
2 Weather Conditions
3 Physical Obstructions
4 Glare
5 Animal(s) in Roadway
6 Other
7 Unknown

1st [1]
2nd [ ]
3rd [ ]

Contributing Circumstances Road
1 None
2 Road Surface Condition (Wet, Icy, Snow, Slush, etc.)
3 Debris
4 Rut, Holes, Bumps
5 Work Zones (Construction/Maintenance/Utility)
6 Worn, Travel-Polished Surface
7 Obstruction in Roadway
8 Traffic Control Device Inoperative, Missing or Obscured
9 Shoulders (None, Low, Soft, High)
10 Non-Highway Work
11 Other
12 Unknown

1st [1]
2nd [ ]
3rd [ ]

---

[1] **Vehicle #1** — **Unit Types** [ ]

1 Passenger Car
2 (Sport) Utility Vehicle
3 Passenger Van
4 Cargo Van (10K lbs[4,536 kg] or Less)
5 Pickup
6 Motor Home
7 School Bus
8 Transit Bus
9 Motor Coach
10 Other Bus
11 Motorcycle
12 Moped
13 Low Speed Vehicle
14 Other Light Trucks (10K lbs [4,536 kg] or Less)
15 Tractor Trailer or Combination (More than 10K lbs [4,536 kg])
16 Medium/Heavy Trucks (More than 10K lbs [4,536 kg])
17 Tow Truck
18 Pedestrian
19 Bicyclist
20 Witness
21 Other

Vehicle #1
☐ Yes ☒ No — **Does this Vehicle have Seats to Transport 9 or more people, including the Driver's Seat?** ☐ Yes ☐ No

Vehicle #1
☐ Yes ☒ No — **Was this Vehicle in Tow?** ☐ Yes ☐ No

[1] **Vehicle #1** — **Special Function Vehicle** [ ]

1 No Special Function
2 Taxi
3 Vehicle Used as School Bus
4 Vehicle Used as Other Bus
5 Military
6 Police
7 Ambulance
8 Fire Truck
9 Unknown

Report Number
09-60830-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

Vehicle #1
☐ Yes ☒ No ☐ Unk — **Police, Ambulance or Fire Truck Responding to a Call?** — ☐ Yes ☐ No ☐ Unk

1 — Vehicle #1 — **Motor Vehicle Position**

1 Motor Vehicle on Roadway
2 Motor Vehicle Parked
3 Working Vehicle/Equipment

3 — Vehicle #1 — **Extent of Damage**

1 No Damage Observed
2 Minor damage (less than or equal to $1000)
3 Functional Damage (greater than $1000)
4 Disabling Damage (greater than $1000)

27 — Vehicle #1 — **Most Harmful Event**

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equip. Loss or Shift
6 Fell/Jumped from Motor Veh.
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Most Harmful Event

1 — Vehicle #1 — **Vehicle Action Prior**

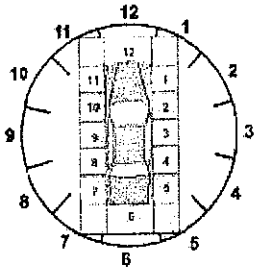
1 Movements Essentially Straight Ahead
2 Backing
3 Changing Lanes
4 Overtaking/Passing
5 Turning Right
6 Turning Left
7 Making U-Turn
8 Leaving Traffic Lane
9 Entering Traffic Lane
10 Slowing
11 Negotiating a Curve
12 Parked
13 Stopped in Traffic
14 Other
15 Unknown

12 — Vehicle #1

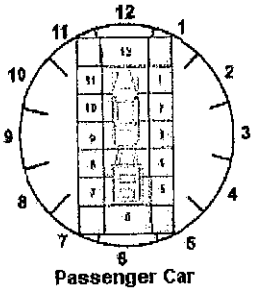
Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

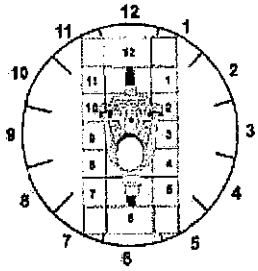
12 — Vehicle #1



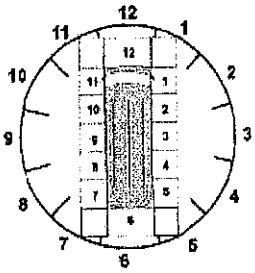
Passenger Car



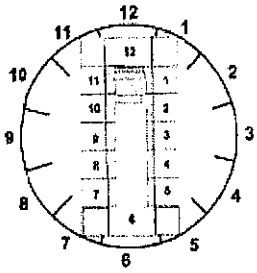
Passenger Car W/Trailer



Motorcycle



Bus



Tractor Trailer

Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

Report Number
09-60830-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

1st: 27 — Vehicle #1 — Sequence of Events — 1st

2nd

3rd

4th

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equipment Loss or Shift
6 Fell/Jumped from Motor Vehicle
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
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30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Sequence of Events

Driver Vehicle #1 — **Driver Distracted**

1 Not Distracted
2 Electronic Communication Devices (Cell Phone, Pager, etc.)
3 Other Electronic Devices (Navigation Device, Palm Pilot, etc.)
4 Other Inside the Vehicle
5 Other Outside the Vehicle
6 Unknown

Driver Vehicle #1 — **Physical Condition of Driver**

1 Apparently Normal
2 Emotional (Depressed, Angry, Disturbed, etc.)
3 Ill (Sick)
4 Fell Asleep, Fainted, Fatigued, etc.
5 Under the Influence of Medications/Drugs/Alcohol
6 Other

1st: Vehicle #1 — **Non-Motorist Safety Equipment** — 1st

2nd: Vehicle #1 — 2nd

1 None
2 Helmet
3 Protective Pads Used (Elbows, Knees, Shins, etc.)
4 Reflective Clothing (Jacket, Backpack, etc.)
5 Lighting
6 Other
7 N/A
8 Unknown

Alcohol and/or Drug Testing

Driver Vehicle #1 — **Chemical Test**

Alcohol	Drug		Alcohol	Drug
☐	☐	None Given	☐	☐
☐	☐	Test Refused	☐	☐
	☐	Unknown if Tested		☐
☐	☐	Blood	☐	☐
☐	☐	Urine	☐	☐
☐	☐	Serum	☐	☐
☐	☐	Other	☐	☐
☐		Breath	☐	

Driver Vehicle #1 — **Alcohol Test Result**

☐ — BAC — ☐

☐ — Pending — ☐

☐ — Unknown — ☐

Driver Vehicle #1 — **Drug Test Result**

☐ — Positive — ☐

☐ — Negative — ☐

☐ — Awaiting Test Result — ☐

Report Number
09-60830-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
Narrative/Diagram Supplemental

Please see the Narrative Supplemental

Indicates North

Crash Diagram (NOT TO SCALE)

Cranston Police Department
NARRATIVE FOR OFFICER JAMES MCQUINN
Ref: 09-60830-AC

Entered: 11/30/2009 @ 0608 Entry ID: 457
Modified: 11/30/2009 @ 0616 Modified ID: 457
Approved: 11/30/2009 @ 0757 Approval ID: 325

ACCIDENT NARRATIVE
09-60830-AC
Officer MC QUINN, #457
Date/Time Report: 11/28/2009 0652

==========

On the above date and time, I was dispatched to the intersection of Ocean Ave. and Narragansett Blvd. for a report of a hit and run traffic accident.

Upon arrival, I observed a cluster of wooden boat tie-ons piled in the roadway. Upon further observation, I observed that the tie-on poles were used as a traffic barrier in the median of the intersection. Due to the position of the poles and dirt marks on the roadway, it appeared that a vehicle had struck the median and knocked the poles into the roadway. The poles were in tact. I notified Sgt. Dygon of the situation and was advised to remove the barrier from the roadway. I was able to place the barrier back onto the median. I requested that dispatch make note of incident for City highway to inspect the barrier. I also responded to RI Yacht CLub and asked management if they may own the median/barrier. They stated that they were unsure. I informed them of the situation and told them there would be a report on file if they discovered that they owned the property. I then cleared the scene without further incident.

STATE OF RHODE ISLAND UNIFORM CRASH REPORT

Reporting Agency Name	Report Number	Crash Date	Crash Time	Walk In Report	Parking Lot
Cranston	10-223-AC	01/02/2010	2038	☐	☐

City or Town Name	Street or Highway		Exit #	# of Lanes	Posted Speed Limit
CRANSTON	1561 NARRAGANSETT BV	☐ On Ramp ☐ Off Ramp		2	25 ☐ N/A ☐ Unk

Nearest Intersection Street	Direction From Nearest Intersection to Crash Site	Distance From Nearest Inter.	Latitude	Longitude
100 OCEAN AV	☒ At Inter. ☐ North ☐ South ☐ East ☐ West	☐ Feet ☐ Miles		

Unit ID	Driver's Last Name	First Name	M.I.	DOB
1	FARIAS	ERICA	L	05/08/1992

Address	City
30 RUTLAND ST	EAST PROVIDENCE

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02914	401-434-0032		

Driver's License #		Lic. State
2892718	☐ CDL	RI

M/V Violation	M/V Violation	M/V Violation	M/V Violation

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☐	FARIAS	HUMBERTO	M

Address	City
30 RUTLAND ST	EAST PROVIDENCE

State	Zip	Home Phone	Cell Phone	Work Phone
RI	02914			

Insurance Company Name		Insurance Policy Number
ALLSTATE	☐ No Ins.	919730651 11/15

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☒ No ☐ Unk

Registration #		State	Yr Reg.	VIN
881001	☐ Not Reg.	RI	2011	1N4AL11D96C215456

Veh Yr.	Make	Model	Color	Plate Type
2006	NISSAN	ALTIMA S/SL	GOLD	PC

Veh Travel Direction: ☐ Northbound ☒ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☒ Yes ☐ No	CRANSTON COLLISION	☐ Yes ☒ No

Unit ID	Last Name First Name	M.I.	DOB

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Driver's License #		Lic. State
	☐ CDL	

M/V Violation	M/V Violation	M/V Violation	M/V Violation

Driver & Owner are Same	Owner's Last Name	First Name	M.I.
☐			

Address	City

State	Zip	Home Phone	Cell Phone	Work Phone

Insurance Company Name		Insurance Policy Number
	☐ No Ins.	

Hit And Run: ☐ Yes, M/V & Driver left Scene ☐ Yes, Driver left Scene ☐ No ☐ Unk

Registration #		State	Yr Reg.	VIN
	☐ Not Reg.			

Veh Yr.	Make	Model	Color	Plate Type

Veh Travel Direction: ☐ Northbound ☐ Southbound ☐ Eastbound ☐ Westbound ☐ Not on Roadway ☐ Unk

Vehicle Towed?	Towing Company Name	Haz Mat Placard?
☐ Yes ☐ No		☐ Yes ☐ No

Person Type

1 Driver
2 Passenger
3 Pedestrian
4 Bicyclist
5 Other Cyclist
6 Witness
7 Other Ped. (Wheelchair, Person in Building, Skater, Ped. conveyance, etc.)
8 Occupant of Motor Veh. Not in Transport (Parked, etc.)
9 Occupant of a Non-Motor Veh Transportation Device
10 Unknown Type of Non-Motorist
11 Unknown

Unit ID: 1 Unit 1, 2 Unit 2, 3 (etc.) or N/A

Sex: M Male, F Female, U Unk

Seat Position

M		
1	2	3
4	5	6
7	8	9
10	11	12

Other Location: 13 Other Row (Bus), 14 Unk Row, 15 Other Seat, 16 Unk Seat, 17 N/A, 18 Sleeper, 19 Other Enclosed Area, 20 Other Unenclosed Area, 21 Towed Unit, 22 Unk

Air Bag Deployed: 1 N/A, 2 No, 3 Front, 4 Side, 5 Other, 6 Comb, 7 Unk

Ejected: 1 No, 2 Partially, 3 Totally, 4 N/A, 5 Unk

Protection System: 1 N/A, 2 None Used, 3 Shoulder & Lap, 4 Shoulder Only, 5 Lap Only, 6 Type Unk, 7 Child - Forw Facing, 8 Child - Rear Facing, 9 Booster Seat, 10 Child - Unk, 11 Helmet Used, 12 Other, 13 Unk

Injury: 1 Complains of Pain, 2 Non-Incapacitating, 3 Incapacitating, 4 Fatal, 5 No Injury, 6 Unk

Name: Occupants - Witnesses - Pedestrians - Bicyclists	Person Type	Unit ID	Sex	DOB	Seat Pos.	Air Bag Deployed	Ejected	Prot. System	Injury	Trans by Rescue
ERICA L FARIAS	1	1	F	05/08/1992	1	2	1	3	5	☐ Y ☒ N
MATTHEW MEDEIROS	2	1	M	10/10/1986	3	2	1	3	5	☐ Y ☒ N
										☐ Y ☐ N

Non-Vehicle Property Damage ☐ State Property ☒ City/Town Property ☐ Private Property

Owner	Address
CITY OF CRANSTON	869 PARK AV CRANSTON RI

Home Phone	Cell Phone	Work Phone	Damage Description
		401-461-1000	CENTER MEDIAN/LANDSCAPE DAMAGE

Reporting Officer Name	Reporting Officer Badge Number	Report Date	Prohibit Public Release
OFFICER JAMES E JENNINGS	418	01/02/2010	No

Report Number
10-223-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT
CODING GUIDE

4

Type of Roadway
1 Two-Way, Not Divided (No Median or Barrier)
2 Two-Way, Not Divided With a Continuous Left Turn Lane
3 Two-Way, Divided, Unprotected (painted >4 feet) Median
4 Two-Way, Divided, Positive Median Barrier
5 One-Way Trafficway
6 Unknown

5

Road Surface Condition (Prevailing)
1 Dry
2 Wet
3 Snow
4 Slush
5 Ice/Frost
6 Water (Standing, Moving)
7 Sand
8 Mud, Dirt, Gravel
9 Oil
10 Other
11 Unknown

4

Light Condition (Prevailing)
1 Daylight
2 Dawn
3 Dusk
4 Dark - Lighted
5 Dark - Not Lighted
6 Dark - Unknown Lighting
7 Other
8 Unknown

7

Weather Condition (Prevailing)
1 Clear
2 Cloudy
3 Fog, Smog, Smoke
4 Rain
5 Sleet, Hail (Freezing Rain or Drizzle)
6 Snow
7 Blowing Snow
8 Severe Crosswinds

1

Manner of Impact
1 Not a Collision Between Two Motor Vehicles in Transport
2 Rear End (Front-to-Rear)
3 Head-On (Front-to-Front)
4 Angle (Front-to-Side) Same Direction
5 Angle (Front-to-Side) Opposite Direction
6 Angle (Front-to-Side) Right Angle (Includes Broadside)
7 Angle-direction Not Specified
8 Sideswipe, Same Direction
9 Sideswipe, Opposite Direction
10 Rear-to-Side
11 Rear-to-Rear
12 Other
13 Unknown

School Bus Related Crash?
(Directly Involved Indicates Contact was Made)

☐ Yes, Directly Involved ☒ No
☐ Yes, Indirectly Involved

Traffic Controls 6
1 No Controls
2 Person
3 Traffic Control Signal
4 Flashing Traffic Control Sig.
5 School Zone Signs
6 Stop Signs
7 Yield Signs
8 Warning Signs
9 Railway Crossing Device
10 Pavement Markings
11 Other
12 Unknown

Pre-Crash Traffic Controls Malfunctioning, Damaged or Missing?
☐ Yes ☒ No ☐ N/A

Construction Zone Crash?
(Crash Occurs in or Related to Construction, Maintenance, or Utility Work Zone. May include Vehicles Slowed or Stopped because of Work Zone)

☐ Yes ☒ No

Construction Workers Present?
☐ Yes ☒ No

Contributing Circumstances Environment
1st 2
2nd
3rd
1 None
2 Weather Conditions
3 Physical Obstructions
4 Glare
5 Animal(s) in Roadway
6 Other
7 Unknown

Contributing Circumstances Road
1st 2
2nd
3rd
1 None
2 Road Surface Condition (Wet, Icy, Snow, Slush, etc.)
3 Debris
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5 Work Zones (Construction/Maintenance/Utility)
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7 Obstruction in Roadway
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9 Shoulders (None, Low, Soft, High)
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11 Other
12 Unknown

---

1 Vehicle #1

Unit Types
1 Passenger Car
2 (Sport) Utility Vehicle
3 Passenger Van
4 Cargo Van (10K lbs[4,536 kg] or Less)
5 Pickup
6 Motor Home
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8 Transit Bus
9 Motor Coach
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16 Medium/Heavy Trucks (More than 10K lbs [4,536 kg])
17 Tow Truck
18 Pedestrian
19 Bicyclist
20 Witness
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Vehicle #1
☐ Yes ☒ No **Does this Vehicle have Seats to Transport 9 or more people, including the Driver's Seat?** ☐ Yes ☐ No

Vehicle #1
☐ Yes ☒ No **Was this Vehicle in Tow?** ☐ Yes ☐ No

1 Vehicle #1

Special Function Vehicle
1 No Special Function
2 Taxi
3 Vehicle Used as School Bus
4 Vehicle Used as Other Bus
5 Military
6 Police
7 Ambulance
8 Fire Truck
9 Unknown

Report Number
10-223-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

Vehicle #1
☐ Yes ☒ No ☐ Unk — **Police, Ambulance or Fire Truck Responding to a Call?** — ☐ Yes ☐ No ☐ Unk

1 — Vehicle #1 — **Motor Vehicle Position**

1 Motor Vehicle on Roadway 2 Motor Vehicle Parked 3 Working Vehicle/Equipment

2 — Vehicle #1 — **Extent of Damage**

1 No Damage Observed 2 Minor damage (less than or equal to $1000) 3 Functional Damage (greater than $1000) 4 Disabling Damage (greater than $1000)

29 — Vehicle #1 — **Most Harmful Event**

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equip. Loss or Shift
6 Fell/Jumped from Motor Veh.
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

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10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
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Collision with Fixed Object:

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5 Turning Right
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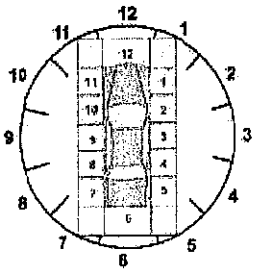
9 Entering Traffic Lane
10 Slowing
11 Negotiating a Curve
12 Parked
13 Stopped in Traffic
14 Other
15 Unknown

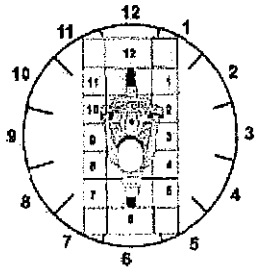
12 — Vehicle #1

Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

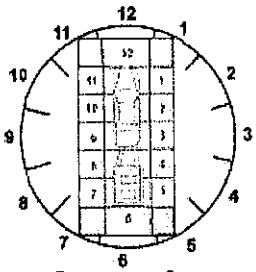
Most Damaged Area



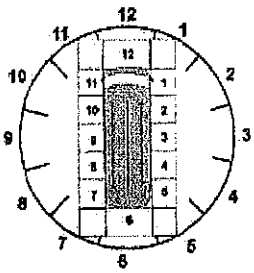
Passenger Car



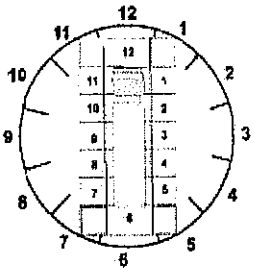
Motorcycle



Passenger Car W/Trailer



Bus



Tractor Trailer

12 — Vehicle #1

Initial Impact Area
Clock Diagram
Or
13 Top (Roof)
14 Undercarriage
15 Non-Collision
16 Unknown

Most Damaged Area

Report Number
10-223-AC

STATE OF RHODE ISLAND UNIFORM CRASH REPORT CODING GUIDE

Sequence of Events

Vehicle #1

1st: 21

2nd: 29

3rd:

4th:

Non-Collision:

1 Overturn/Rollover
2 Fire/Explosion
3 Immersion
4 Jackknife
5 Cargo/Equipment Loss or Shift
6 Fell/Jumped from Motor Vehicle
7 Thrown or Falling Object
8 Other Non-Collision

Collision with Person, Motor Veh, or Non-fixed Obj:

9 Pedestrian
10 Pedalcycle
11 Railway Vehicle (Train, Engine)
12 Animal
13 Motor Vehicle in Transport
14 Work Zone/Maintenance Equipment
15 Other Non-Fixed Object

Collision with Fixed Object:

16 Impact Attenuator/Crash Cushion
17 Bridge Overhead Structure
18 Bridge Pier or Support
19 Bridge Rail
20 Culvert
21 Curb
22 Ditch
23 Embankment
24 Guardrail Face
25 Guardrail End
26 Jersey/Concrete Traffic Barrier
27 Other Traffic Barrier
28 Tree (Standing)
29 Landscaping
30 Utility Pole (Elec/Tele)/Light Support
31 Highway Lighting/Light Standard
32 Traffic Sign/Support
33 Traffic Signal/Support
34 Traffic Control Box
35 Variable Message Board/Arrow Board
36 Other Post, Pole, or Support
37 Fence
38 Mailbox
39 Other Fixed Obj. (Wall, Building, Tunnel, etc.)

40 Unknown - Sequence of Events

1st
2nd
3rd
4th

Driver Distracted

Driver Vehicle #1: 1

1 Not Distracted
2 Electronic Communication Devices (Cell Phone, Pager, etc.)
3 Other Electronic Devices (Navigation Device, Palm Pilot, etc.)
4 Other Inside the Vehicle
5 Other Outside the Vehicle
6 Unknown

Physical Condition of Driver

Driver Vehicle #1: 1

1 Apparently Normal
2 Emotional (Depressed, Angry, Disturbed, etc.)
3 Ill (Sick)
4 Fell Asleep, Fainted, Fatigued, etc.
5 Under the Influence of Medications/Drugs/Alcohol
6 Other

Non-Motorist Safety Equipment

1st: Vehicle #1

2nd: Vehicle #1

1 None
2 Helmet
3 Protective Pads Used (Elbows, Knees, Shins, etc.)
4 Reflective Clothing (Jacket, Backpack, etc.)
5 Lighting
6 Other
7 N/A
8 Unknown

1st
2nd

Alcohol and/or Drug Testing

Driver Vehicle #1

Chemical Test

Alcohol	Drug		Alcohol	Drug
☒	☒	None Given	☐	☐
☐	☐	Test Refused	☐	☐
	☐	Unknown if Tested		☐
☐	☐	Blood	☐	☐
☐	☐	Urine	☐	☐
☐	☐	Serum	☐	☐
☐	☐	Other	☐	☐
☐		Breath	☐	

Driver Vehicle #1

Alcohol Test Result

BAC	
Pending	☐
Unknown	☐

Driver Vehicle #1

Drug Test Result

Positive	☐
Negative	☐
Awaiting Test Result	☐

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01/21/2010	**Operator Information Sheet** 10-223-AC [State Report Required: Y]	1 of 1

General

Accident Date	Time	Reporting Officer
01/02/2010	2038	OFFICER JAMES E JENNINGS

Location	City	State	ZIP
1561 NARRAGANSETT BV @ 100 OCEAN AV	CRANSTON	RI	

Operator

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☐ Injured ☐ Fatality
FARIAS	ERICA	L		1	

Number	Street	Suffix	Apt	City	State	ZIP
30	RUTLAND	ST		EAST PROVIDENCE	RI	02914

DOB	Home Phone	Work Phone	License State/Number
05/08/1992	401-434-0032		RI 2892718

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone
FARIAS	HUMBERTO	M			

Number	Street	Suffix	Apt	City	State	ZIP
30	RUTLAND	ST		EAST PROVIDENCE	RI	02914

Insurance Company	Policy Number
ALLSTATE	919730651 11/15

VEH

Year	Make	Model	VIN
2006	NISSAN	ALTIMA S/SL	1N4AL11D96C215456

Registration State/Number	Towed By	Towed To
RI 881001	CRANSTON COLLISION	CRANSTON COLLISION

OPERATOR

Last Name	First	Middle	Suffix	Veh/Unit	☐ Injured ☐ Fatality

Number	Street	Suffix	Apt	City	State	ZIP

DOB	Home Phone	Work Phone	License State/Number

Insurance Company	Policy Number

OWNER

Last Name	First	Middle	Suffix	Home Phone	Work Phone

Number	Street	Suffix	Apt	City	State	ZIP

Insurance Company	Policy Number

VEH

Year	Make	Model	VIN

Registration State/Number	Towed By	Towed To

Entered: 01/02/2010 @ 2244 Entry ID: 418
Modified: 01/02/2010 @ 2252 Modified ID: 418
Approved: 01/04/2010 @ 0145 Approval ID: 325

OFFICER'S FIRST REPORT
10-223-AC
OFFICER JAMES E JENNINGS, #418
Date/Time Report: 01/02/2010 2244

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On 1/2/10 at about 2038 hrs, I was dispatched to Narragansett Blvd at Ocean Ave for a one car crash. Upon my arrival, I observed V1 on the center median. The vehicle was resting, with its front wheels off the ground, on the cut telephone poles that were used for a landscaping feature. It sustained front end and possible undercarriage damage. No injuries were reported.

O1 stated that she was attempting to stop for the stop sign when V1 slid on the icy road and onto the median. Cranston DAW was notified of the road condition.

After I inventoried V1, Cranston Collision towed it from the scene. I gave O1 a CPD release form.

Ptlm. James Jennings #418