



*The City of Quincy
Office of the Mayor
Traffic and Parking Department
April 2012*

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INTRODUCTION

Mayor Koch commissioned a group of engaged citizens and government officials to develop a series of recommendations for potential short and long-term solutions to pervasive speeding and pedestrian safety problems along the Sea Street corridor between Quincy Shore Drive and Palmer Street.

This report provides an identification of the traffic characteristics of the roadway along with an assessment of existing traffic levels and an identification of potential improvements. Existing traffic volumes were obtained by use of an automatic traffic recorder (ATR) and from observing and recording turning movement counts as well as utilizing data compiled by Earth Tech, Inc. for the Southern Artery / Sea Street intersection.

EXISTING TRAFFIC CONDITIONS

Sea Street basically serves as the prime arterial for traffic destined or originated within the peninsula which separates Quincy Bay on the north from Hingham Bay to the south and east. Therefore, traffic volumes and roadway pavement widths are greater to the western end of the corridor.

Traffic Setting - Sea Street represents a variety mix of land use with Mt. Wollaston Cemetery, the Police Department, and Department of Public Works located on the westerly end and a heavy concentration of residential properties sporadically separated with commercial establishments toward the east. This arterial is oriented in the east-west direction with major north-south roads intersecting at signalized intersections. These roadways include Quincy Shore Drive, Norton Road, and Palmer Street (Figure 1).

Functional Classification - Sea Street is included in the Federal-Aid Highway System. This roadway is classified as an "Urban" street. These roadways are composed of arterials with statewide significance whose basic function is to move large numbers of people and vehicles by way of long distance travel corridors. Other neighborhood collector type streets include Palmer Street, Norton Road, Curlew Road, Babcock Street, Manet Avenue, and Sea Avenue. This corridor along with all intersecting roadways is under the jurisdiction of the City of Quincy with one exception. Quincy Shore Drive is maintained by the Department of Conservation and Recreation which is an agency of the Commonwealth of Massachusetts.

Existing Traffic Volumes - An automatic traffic recorder (ATR) was placed on Sea Street just east of Norton Road to obtain hourly and daily traffic volumes in both directions. As can be seen on Figure 2, Sea Street carries almost 24,000 vehicles per day on an average weekday. The directional flow represents commuter patterns out of the peninsula in the morning and back home again at night (Figure 3). Manual turning movement counts were obtained at major intersections on a weekday between 7:00 to 9:00 am and between 4:00 to 6:00 pm. These counts were conducted to assess operational deficiencies and quantify potential benefits which may be gained from changes in either traffic signal timing or major geometric improvements. These existing traffic volumes during weekday morning and evening peak hours are provided on Figures 4 and 5 respectively. Updated turning movement counts in 2011 and 2012 are provided in the Appendix of this report.

Operational Analysis - This section of the report provides a quantitative analysis of traffic operational characteristics for existing and improvement scenarios. These series of capacity analyses were conducted for weekday morning and evening peak hours to determine the potential operating conditions.

The analysis is based on the "Highway Capacity Manual" for signalized intersections. This manual (HCM 2000) has been published by the Transportation Research Board of the National Research Council and approved by the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine.

At signalized intersections, delay is calculated based on through and turning volumes, lane-use, green time, and signal phasing. These periods of delay are generally categorized in "Levels of Service" (LOS) ranging from "A" for very short or no delays through "F" for extensive delays.

As can be seen on the Intersection Levels of Service table (Figure 6) as well as in calculations provided herein, with the phasing and timing proposed, most intersections can operate at acceptable levels of service. The exception to this exercise is Sea Street at Quincy Shore Drive which currently operates at an unacceptable "E" level of service during the critical morning peak hour.

Speed Characteristics - A speed survey was conducted on Sea Street during non-peak hours when motorists were free to travel at speeds they felt were comfortable and when their speed is unrestricted by other vehicles. The vehicle speed of all vehicles observed ranged from a low of 29 through a high of 46 mph. The average speed was recorded as 36 miles per hour (mph). The 85th percentile (or design speed) of this roadway was calculated as 41 mph (Figure 7). Of the 129 vehicles observed, the ten-mile per hour pace ranged from 32 through 41 mph with almost 81 percent of all vehicles observed in this category. Based on the prima facie speed limit

of 30 miles per hour in the residential area, ninety-seven percent were traveling faster and fifteen percent were traveling faster than forty mph.

Accident Evaluation - The Massachusetts Department of Transportation (MassDOT) has provided this office with a magnetic disk of all the accidents which occurred in the Sea Street corridor during a recent year. As can be seen on the summary provided on Figure 8, this roadway had 73 accidents in one year with over a quarter of these crashes involving serious injury. Most crashes occurred during daylight hours on dry pavement. The majority of crashes involved angle or cross-collision type maneuvers which are usually a result of a high degree of conflicting movements. There were also four hit and run type accidents recorded during the year.

POSSIBLE IMPROVEMENTS

Sea Street may benefit with improvements to roadway sections and/or links within the corridor as well as with changes to many intersections.

Sea Street from Manet Avenue to Macy Street - This section of Sea Street is relatively narrow considering it facilitates two-way traffic and parking on the southerly side. A few years ago a contractor re-paved this street and painted a double yellow center line down the middle of the roadway. This is both confusing and dangerous for motorists who must cross over the center line to avoid hitting the parked cars. This section of roadway should have the existing yellow line removed and a new line should be installed in the middle of the travel way after accounting for the parked vehicles on the southerly side.

Sea Street at Quincy Shore Drive - This intersection operates quite poorly during the morning peak hour. If a westbound right-turn lane were installed, this movement not only would move during the Sea Street westbound signal phase but could run simultaneously with the Quincy Shore Drive left-turn phase towards Houghs Neck. As can be seen on Figure 9, this lane could be constructed without the need of land taking or approval from DCR. As can be seen on Figure 6, this additional lane could improve the morning level of service from "E" to a "C".

Sea Street at Samoset Avenue / Narragansett Road - This intersection is wide open and consequently accommodates high speed while motorists on side streets are not in a good position to see oncoming traffic. Moreover, motorists emerging from Quincy Youth Hockey

Arena on Murphy Memorial Drive have very poor sight distance and quite often there are not enough gaps in the Sea Street traffic stream for this heavy movement. Figure 10 shows how the existing pedestrian traffic signal could be re-located to this re-aligned intersection making it safer for both motorists and pedestrians. If this improvement is made, the pedestrian signal at the adjacent church could be synchronized with the new installation.

Sea Street Connecting Road Between DPW and Murphy Memorial Drive - It is almost impossible to enter Sea Street traffic flow from the Police Department / DPW driveway from mid afternoon through late evening. At least three accidents per year occur at this location. However, a new traffic control signal could not be installed at this driveway without causing extreme gridlock at both Southern Artery and Quincy Shore Drive intersections. This connecting roadway, as shown on Figure 11, could improve operations and safety at the City facilities. In addition, the new signal on Sea Street at Murphy Memorial Drive would ensure maximum benefits for these motorists as well.

Sea Street at Curlew Road - This intersection is characterized with both a horizontal and vertical curve compounded with the minor street intersecting Sea Street at an angle much less than sixty degrees which is often used as the minimum. The intersection could be re-configured to intersect Sea Street at a ninety degree angle which would slow traffic down as it enters the Adams Shore neighborhood. More over, this improvement would position traffic emerging from Curlew Road with much better sight distance due to alignment and grading changes. As the vehicle is shifted to the east, the Sea Street elevations increase and the emerging motorists can see further over the vertical curve. Westbound Sea Street traffic would also benefit with better curb alignment through the horizontal curve making it less likely for a vehicle to float off the intended travel lane.

Sea Street Roadway Width Treatment - The roadway pavement width is over 60 feet for a good section of this corridor. It appears there were trolley tracks running down the center of this roadway earlier and this pavement cross-section was necessary. However, only two travel lanes are currently needed in each direction of Sea Street for capacity purposes, leaving the extra fourteen feet or so both unnecessary and dangerous. The roadway could be narrowed by either widening sidewalks, installing a raised median or a combination of the two alternatives. Figure 13 shows a very conceptual rendering of how the raised median could introduce a sense of traffic calming without sacrificing capacity. Although this concept is much safer for pedestrians who only have to look one way at a time and can enjoy refuge half way across the street, some residents have objected to losing full access to their driveway if the median would

prohibit such a movement. In these areas, the sidewalks could be widened and planted to emphasize the residential qualities of the roadway.

Sea Street at Braintree Avenue - This intersection is extremely dangerous for pedestrians but strict criteria for installing a traffic control signal had not been met in the past. As can be seen on Figure 14, it takes most pedestrians over 15 seconds to cross Sea Street but seven vehicles will cross the path of the pedestrian during this same time period.

In the past, it was recommended that a raised center median could be installed as an interim solution until signals could be warranted, installed, and become operational (Figure 15). The median would allow pedestrians to take advantage of gaps in one direction of traffic and enjoy refuge while awaiting a gap in the other direction.

Manuals have changed since this Sea Street Corridor report was first compiled and now the intersection of Sea Street at Braintree Avenue would be eligible for traffic signals under a "Systems Warrant". This option would require the through vehicle movements on Sea Street to be synchronized between Braintree Avenue and Palmer Street (Figure 16).

Sea Street at Manet Avenue - This intersection is wide open and Manet Avenue intersects Sea Street at less than Sixty degrees. The entrance to Manet Avenue should be re-aligned to both shorten the pedestrian crossing length and improve the sight distance of motorists exiting Manet Avenue (Figure 17). Moreover, this improvement would slow traffic down both entering and exiting Manet Avenue.

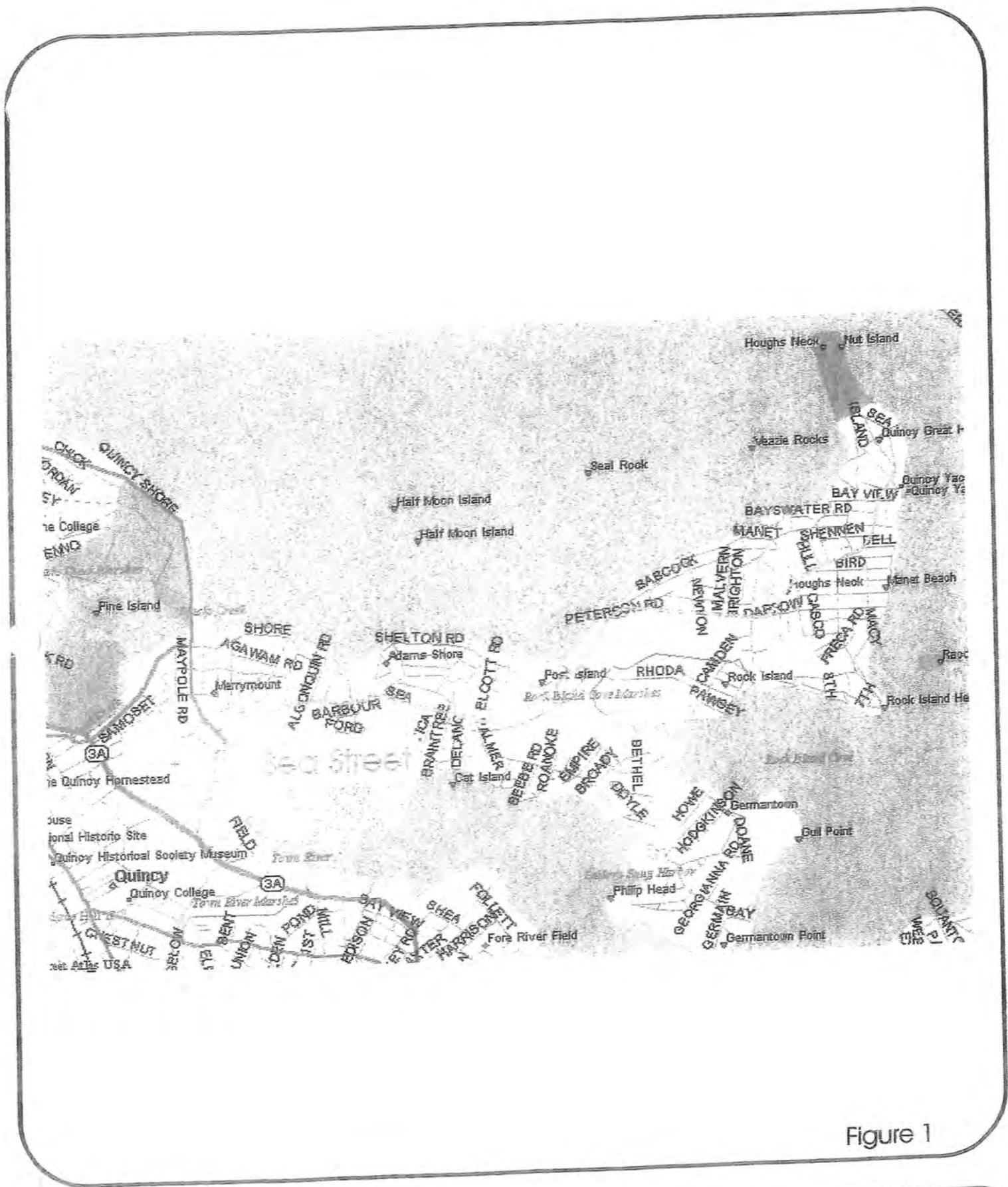


Figure 1

Sea Street Corridor



City of Quincy
Traffic & Parking
Department

	Sea Street East of Norton Street		Two-Way
	Eastbound	Westbound	
Midnight - 1:00am	146	67	213
1:00-2:00	73	40	113
2:00-3:00	49	21	70
3:00-4:00	26	34	61
4:00-5:00	31	90	120
5:00-6:00	60	370	430
6:00-7:00	160	856	1017
7:00-8:00	482	1250	1732
8:00-9:00	449	963	1412
9:00-10:00	400	687	1087
10:00-11:00	476	580	1056
11:00-Noon	581	637	1219
Noon - 1:00pm	635	580	1215
1:00-2:00	625	592	1216
2:00-3:00	749	783	1532
3:00-4:00	875	623	1498
4:00-5:00	1049	642	1691
5:00-6:00	1162	679	1841
6:00-7:00	946	724	1670
7:00-8:00	854	630	1484
8:00-9:00	681	439	1120
9:00-10:00	562	360	922
10:00-11:00	422	282	704
11:00-Midnight	261	173	433
	11752	12101	23853

Figure 2

Existing Sea Street Weekday Hourly Traffic Volume



City of Quincy
Traffic & Parking
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Sea Street Hourly Traffic Volume

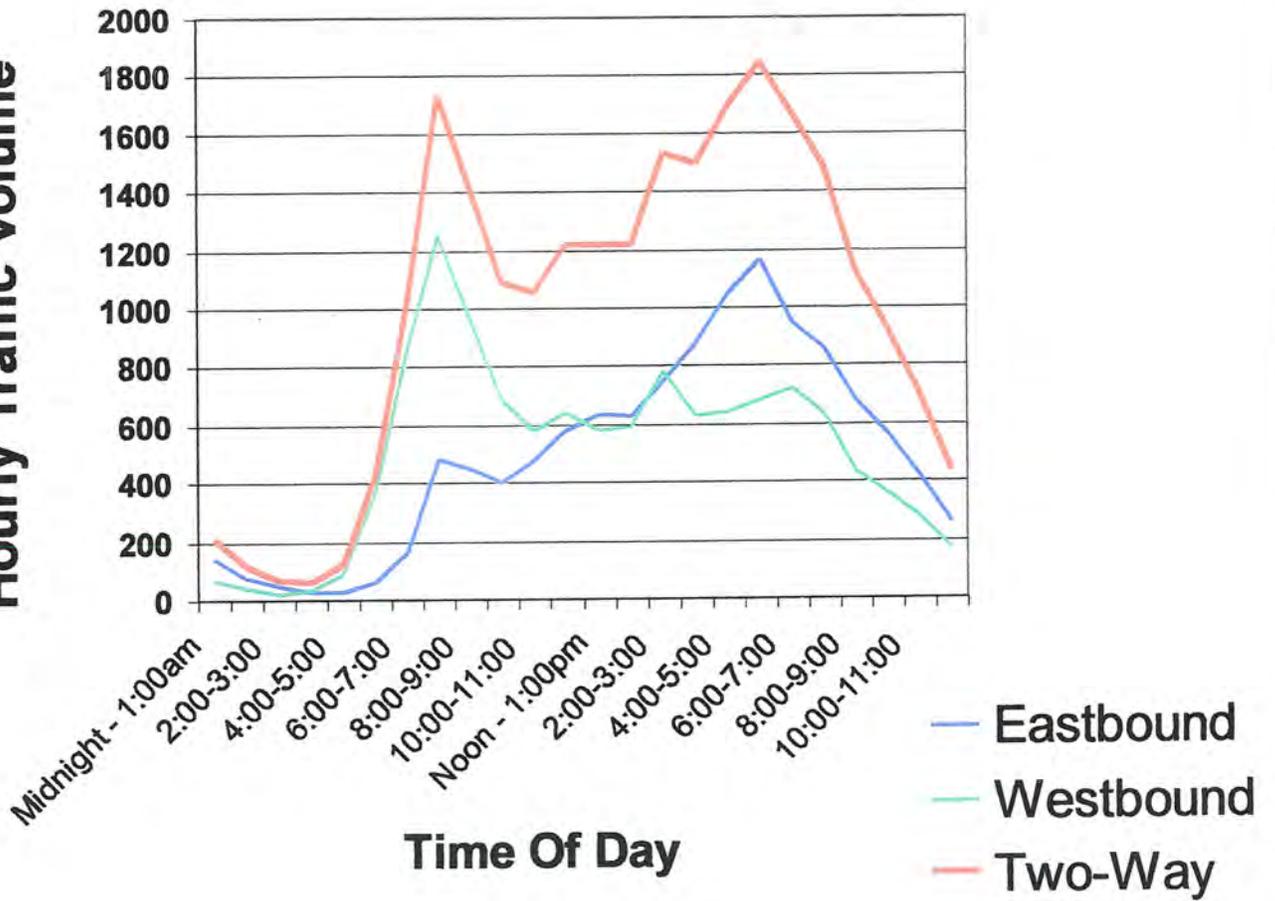


Figure 3



N

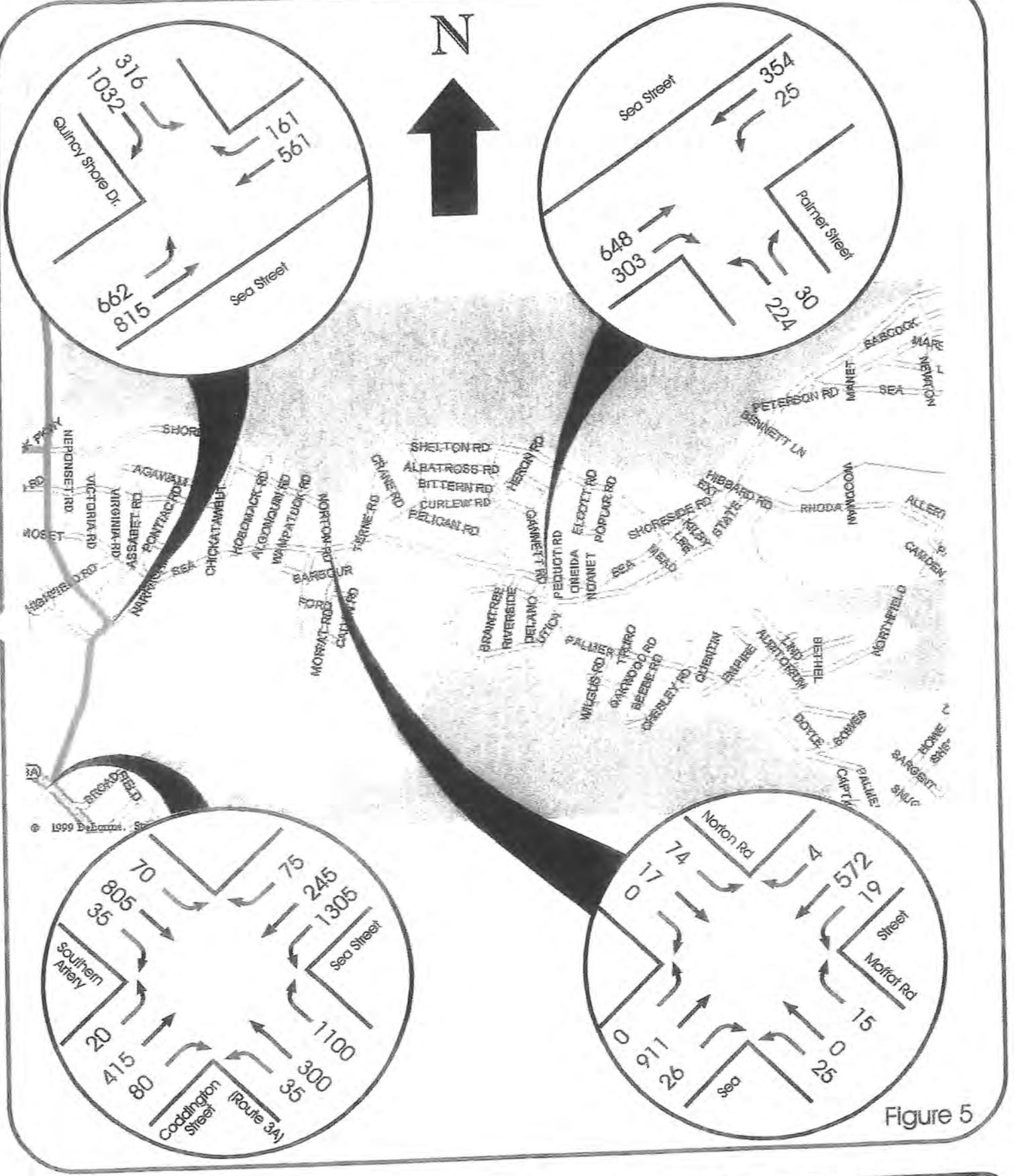


Figure 5

Existing Sea Street PM Peak Hour Traffic Volumes



Traffic & Parking Department

INTERSECTION	AM Peak Hour		PM Peak Hour	
	<u>LOS</u>	<u>Delay</u>	<u>LOS</u>	<u>Delay</u>
Sea Street at Southern Artery	D	35.9 sec	D	50.9 sec
Sea Street at Quincy Shore Drive With Existing Lane Use	E	60.9 sec	C	34.8 sec
Sea Street at Quincy Shore Drive With Additional Westbound Left-Turn Lane	C	35.0 sec	C	25.5 sec
Sea Street at Norton Road	B	12.0 sec	B	10.1 sec
Sea Street at Palmer Street Northbound	C	32.4 sec	C	23.9 sec
West/East bound	B	15.8 sec	B	11.0 sec

Figure 6



LIMITS..... Algonquin Rd to Wampatuck Rd

DIRECTION(S).....both
 DATE.....May 10, 2000
 TIME.....1:00pm
 POSTED SPEED LIMIT...30

50TH PERCENTILE SPEED.....36
 85TH PERCENTILE SPEED.....41
 10 MPH PACE SPEED.....32 through 41
 PERCENT IN PACE SPEED.....80.6
 PERCENT OVER PACE SPEED.....8.5
 PERCENT UNDER PACE SPEED.....10.9
 RANGE OF SPEEDS.....29 to 46
 VEHICLES OBSERVED.....129
 AVERAGE SPEED.....36.3

SPEED NO.	PCT.	CUM. PCT.	
29	4	3.1	3.1
30	5	3.9	7.0
31	5	3.9	10.9
32	4	3.1	14.0
33	14	10.9	24.8
34	12	9.3	34.1
35	13	10.1	44.2
36	17	13.2	57.4
37	12	9.3	66.7
38	6	4.7	71.3
39	11	8.5	79.8
40	6	4.7	84.5
41	9	7.0	91.5
42	1	0.8	92.2
43	3	2.3	94.6
44	4	3.1	97.7
45	2	1.6	99.2
46	1	0.8	100.0

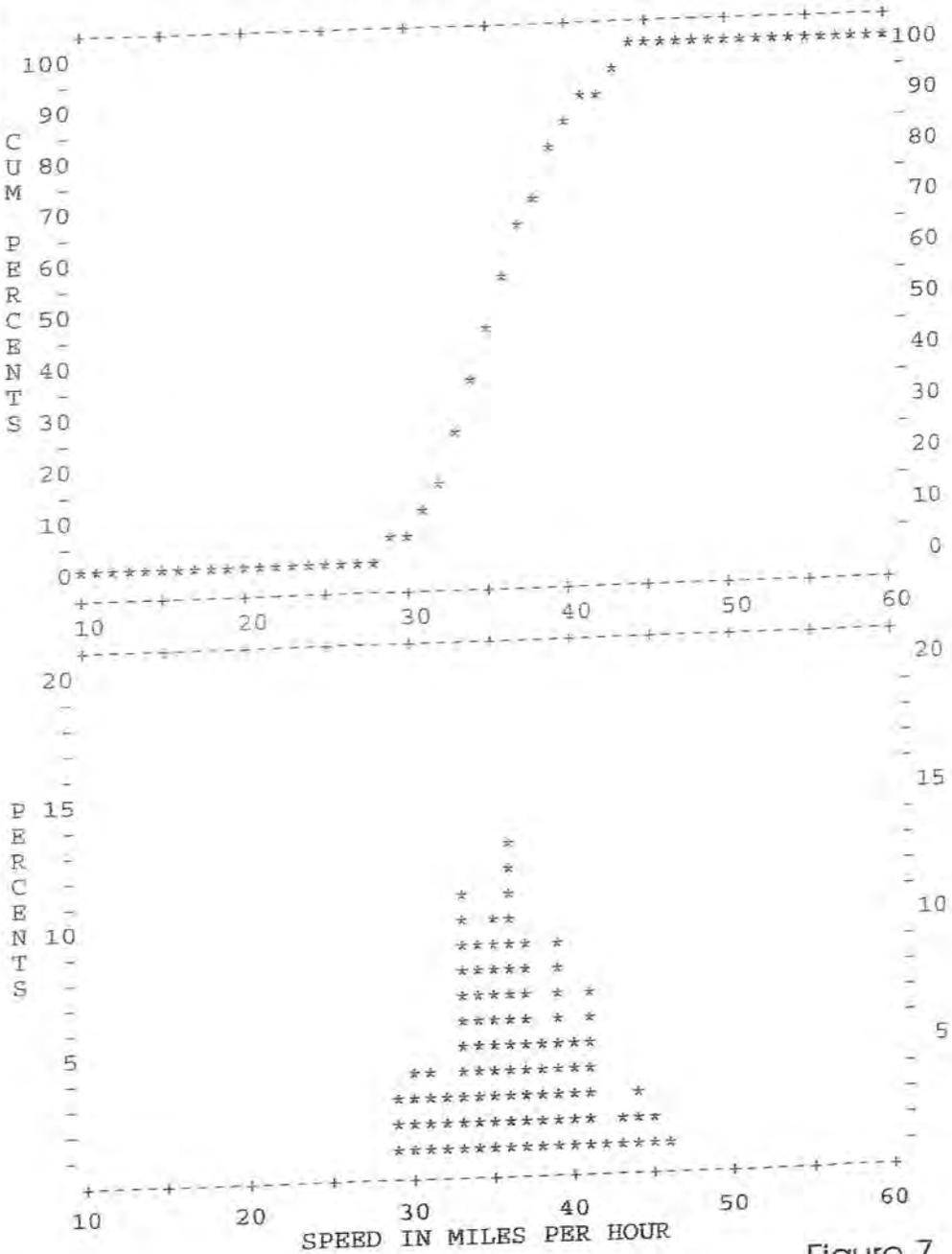


Figure 7



Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration
30-Apr-2009	6:29 PM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported
08-Jan-2009	1:20 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2: Parked / V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Not reported / V2: Not reported	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires / V2: Not reported
14-Sep-2009	2:25 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Not reported
13-Apr-2009	4:27 PM	Non-fatal injury	3	3	0	Angle	V1: Travelling straight ahead / V2: Slowing or stopped in traffic / V3: Slowing or stopped in traffic	V1: Eastbound / V2: Eastbound / V3: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires / V2: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires / V3: Passenger car
19-Nov-2009	5:30 PM	Non-fatal injury	1	1	0	Unknown	V1: Travelling straight ahead	V1: Eastbound	V1: Collision with pedestrian	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires
24-Oct-2009	00:00 AM	Property damage only (none injured)	1	0	0	Head-on	V1: Travelling straight ahead	V1: Eastbound	V1: Collision with fence	V1: Passenger car
28-Oct-2009	4:24 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Southbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported
28-May-2009	11:26 PM	Non-fatal injury	2	1	0	Rear-end	V1: Travelling straight ahead / V2: Slowing or stopped in traffic	V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
12-May-2009	5:19 PM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Eastbound / V2: Westbound	V1: Collision with other movable object / V2: Collision with other movable object	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires / V2: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires
03-Jul-2009	4:40 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Travelling straight ahead / V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Single-unit truck (2-axle, 6-tire)
10-Aug-2009	9:29 PM	Non-fatal injury	2	1	0	Rear-end	V1: Travelling straight ahead	V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
02-Sep-2009	1:15 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1: Westbound	V1: Collision with light pole or other post/support	V1: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires
29-May-2009	8:02 AM	Non-fatal injury	2	2	0	Angle	V1: Turning right / V2: Travelling straight ahead / V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
12-Jan-2009	8:10 PM	Unknown	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck/van, mini-van, panel, pickup, sport utility) with only four tires
30-Jun-2009	8:02 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Turning left / V2: Turning left	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported
23-Jul-2009	8:45 PM	Non-fatal injury	2	1	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
30-Sep-2009	7:15 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported

Sea Street Crash Data - 2009



Figure 8a
Department of
Traffic & Parking

Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration
11-Feb-2008	7:29 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2: Turning left	V1: Eastbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
16-Feb-2008	2:14 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
01-Apr-2008	11:26 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
20-May-2008	6:30 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
11-Nov-2008	11:33 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Northbound / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
14-Sep-2008	11:39 AM	Non-fatal injury	2	1	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
06-Sep-2008	5:37 AM	Non-fatal injury	2	2	0	Rear-end	V1: Travelling straight ahead / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
05-Apr-2008	4:59 PM	Property damage only (none injured)	3	0	0	Rear-end	V1: Travelling straight ahead / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1: Eastbound / V2: Eastbound / V3: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported / V3: Not reported
11-Oct-2008	2:28 PM	Property damage only (none injured)	3	0	0	Head-on	V1: Travelling straight ahead / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1: Eastbound / V2: Westbound / V3: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2: Motorcycle / V3: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
18-Jun-2008	1:44 PM	Property damage only (none injured)	3	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Westbound / V3: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car / V3: Passenger car
12-Dec-2008	7:54 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
04-Jan-2008	00:00 AM	Non-fatal injury	2	3	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
15-Mar-2008	7:30 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Changing lanes	V1: Northbound / V2: Northbound	V1: Not reported / V2: Not reported	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
08-Jun-2008	3:17 AM	Not Reported	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1: Westbound	V1: Collision with other movable object	V1: Passenger car
29-Jul-2008	7:30 AM	Not Reported	2	0	0	Rear-end	V1: Travelling straight ahead / V2: Not reported	V1: Not reported / V2: Not reported	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
31-Aug-2008	2:20 AM	Property damage only (none injured)	2	0	0	Not reported	V1: Turning left / V2: Travelling straight ahead	V1: Not reported / V2: Not reported	V1: Not reported / V2: Not reported	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car

Sea Street Crash Data - 2008



Figure 8b
Department of
Traffic & Parking

Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration
06-Feb-2007	9:45 AM	Unknown	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Unknown	V1: Northbound / V2: Northbound	V1: Not reported / V2: Not reported	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
15-Feb-2007	7:45 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Turning left / V2: Turning left	V1: Southbound / V2: Southbound	Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car
22-Jun-2007	12:23 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Turning left / V2: Travelling straight ahead	V1: Northbound / V2: Eastbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported
02-Aug-2007	2:11 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Southbound / V2: Southbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Not reported
02-Oct-2007	5:45 PM	Non-fatal injury	2	2	0	Angle	V1: Slowing or stopped in traffic / V2: Other	V1: Southbound / V2: Eastbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car
28-Dec-2007	9:35 PM	Unknown	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1: Southbound	Collision with other moveable object	V1: Not reported / V2: Not reported
29-Mar-2007	8:51 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires
31-Jul-2007	5:01 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2: Slowing or stopped in traffic	V1: Eastbound / V2: Eastbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Passenger car
03-Jun-2007	3:03 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Turning left / V2: Travelling straight ahead	V1: Eastbound / V2: Eastbound	Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2: Not reported

Sea Street Crash Data - 2007



Figure 8c
Department of
Traffic & Parking

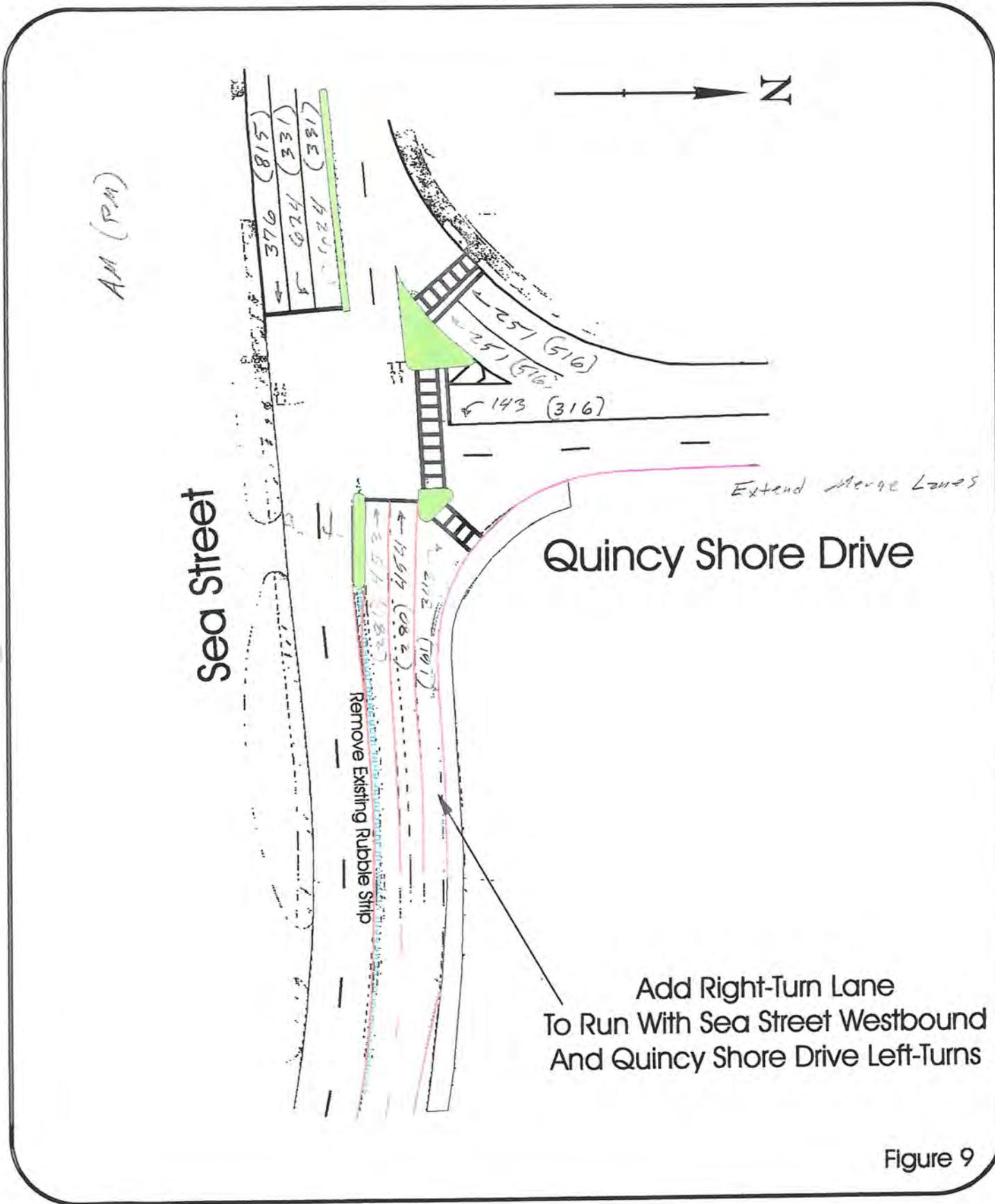


Figure 9



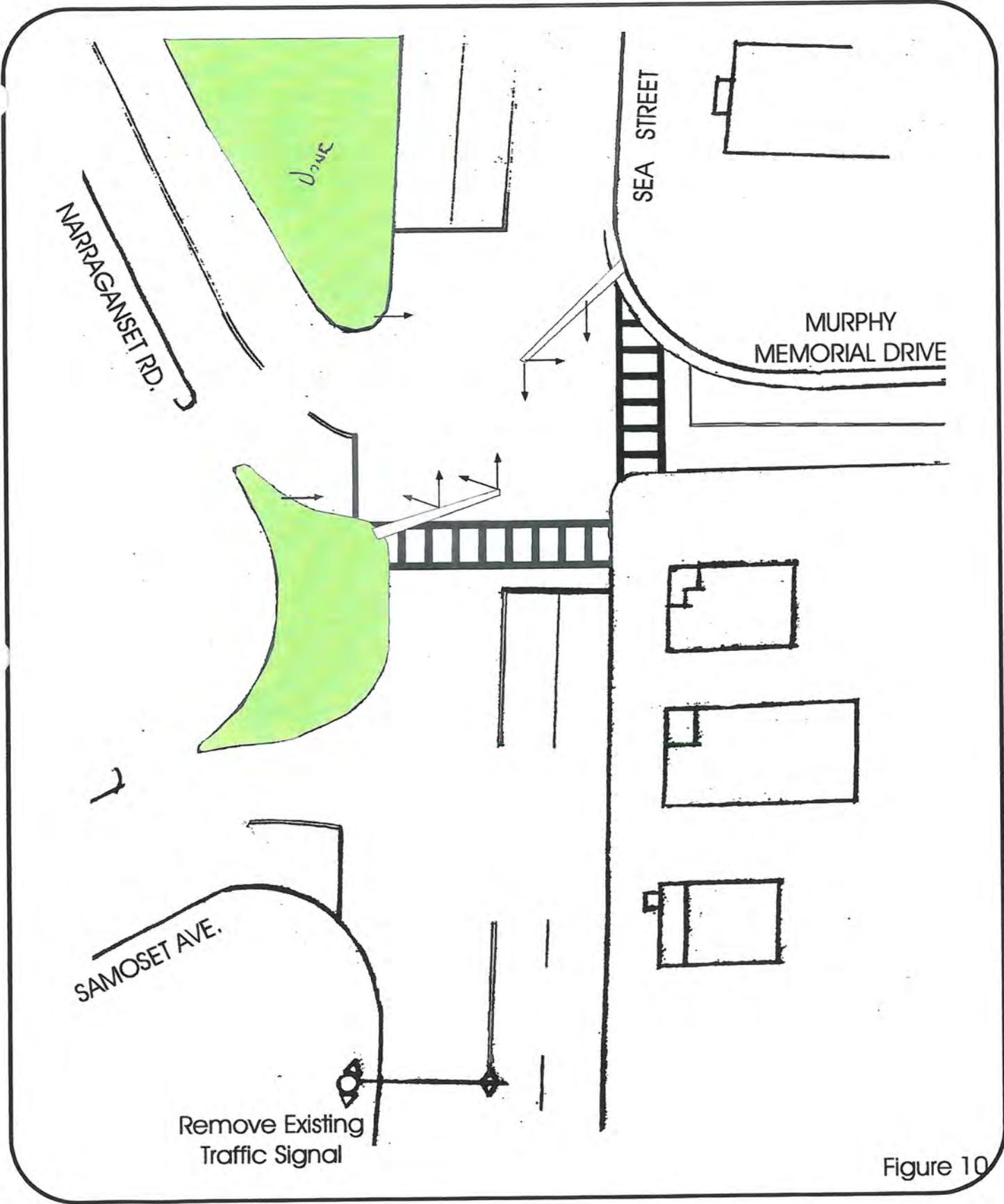


Figure 10

Proposed Improvements
 Sea Street At Narragansett Road and Samoset Avenue



City of Quincy
 Traffic & Parking
 Department

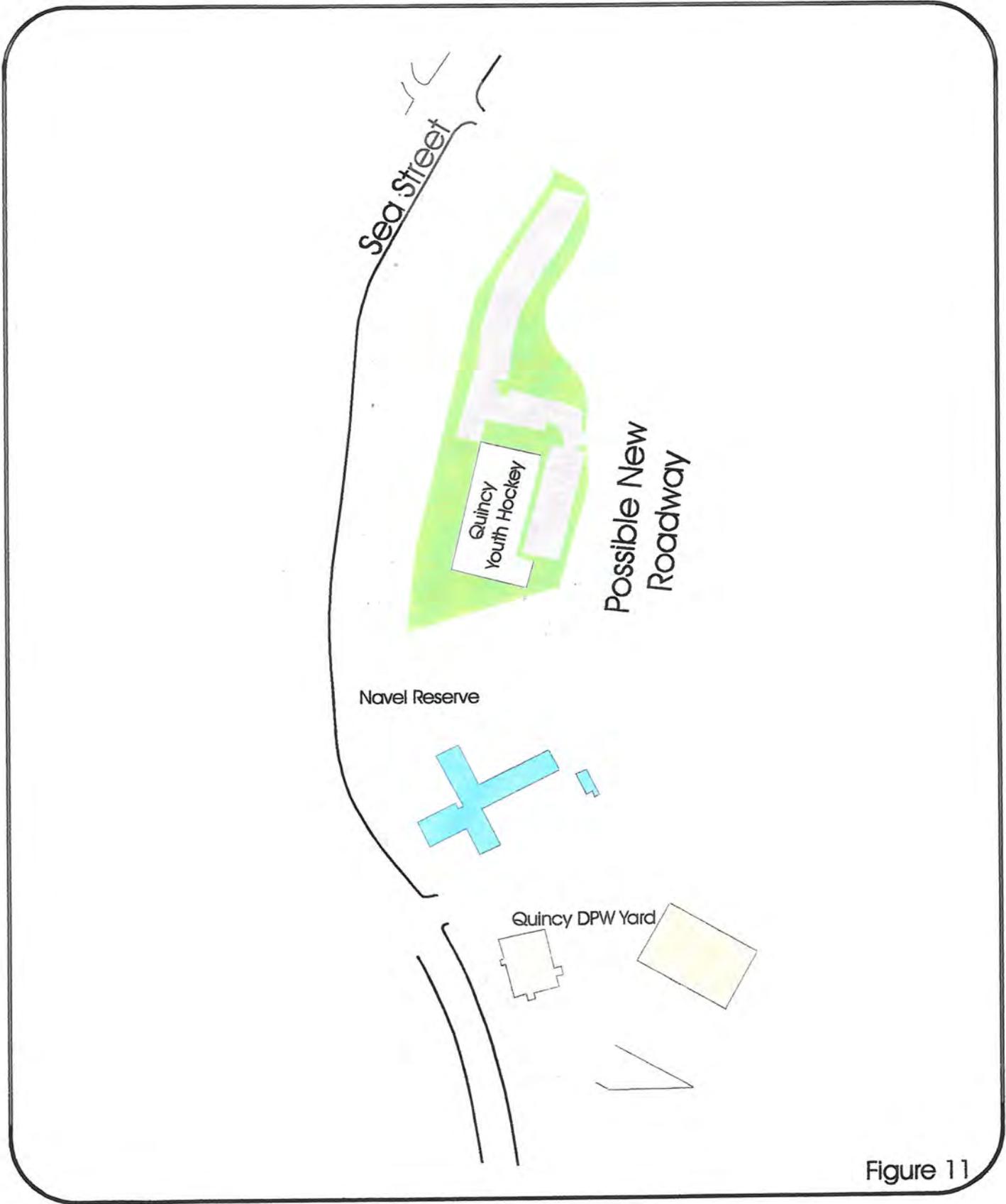


Figure 11

Sea Street - DPW to Murphy Memorial Drive
Possible Connecting Road



City of Quincy
Traffic & Parking
Department

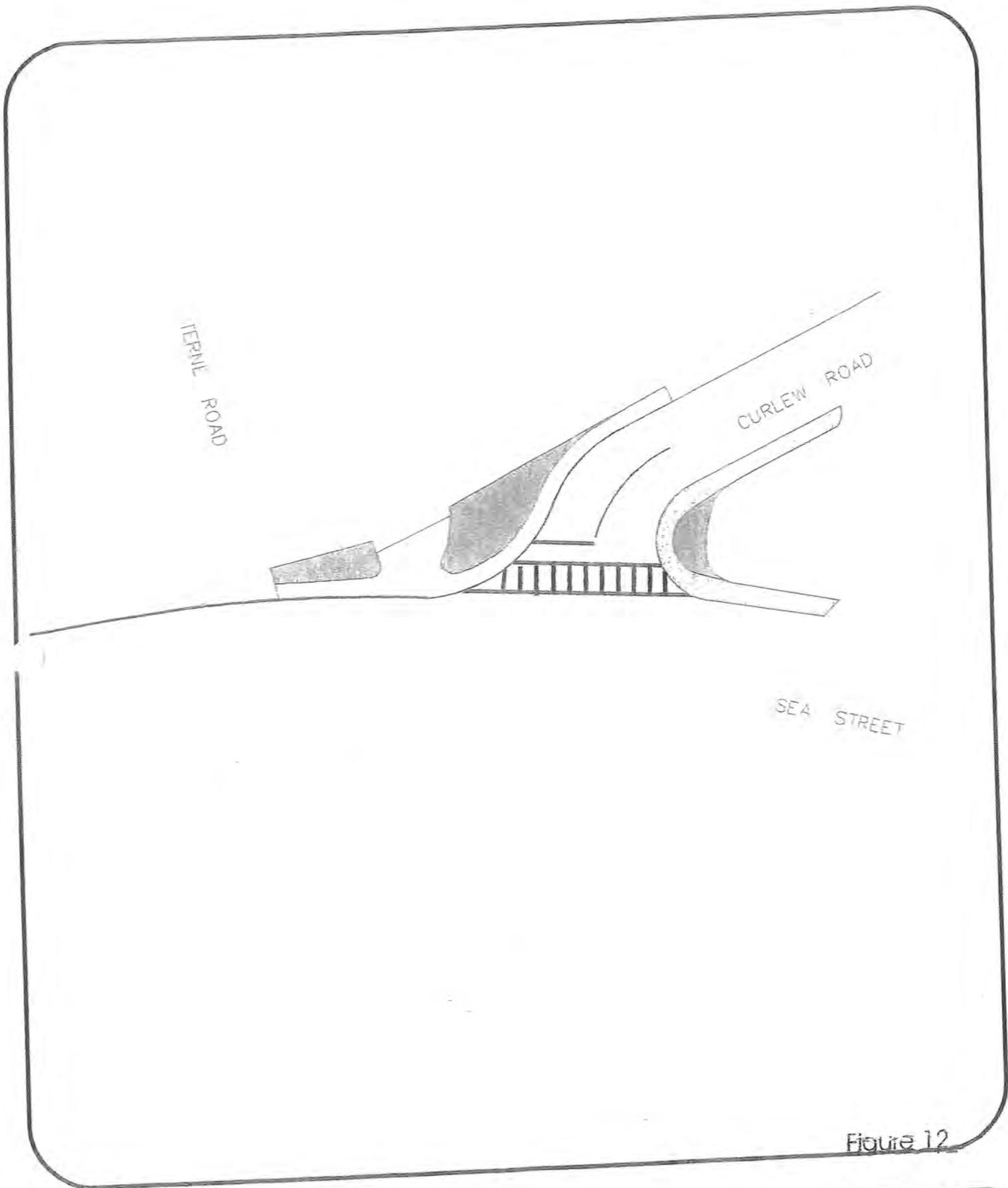


Figure 12

Possible Sea Street at Curlew Road Improvements



Traffic & Parking
Department



Possible Sea Street Improvement



Figure 13
Department of
Traffic & Parking

Sea Street has a roadway pavement width of about 62 feet.

Pedestrians walk at a pace of about 4 feet per second.

It takes about $15 \frac{1}{2}$ seconds to walk across Sea Street.

There are about 1595 vehicles traveling on Sea Street in the evening peak hour. This is equivalent to 26.6 vehicles per minute or 0.44 vehicles per second.

During the time it takes to cross Sea Street ($15 \frac{1}{2}$ seconds), there are 7 vehicles encountered by the pedestrian.

Figure 14

Crosswalk Lighting System



City scope to
Fall Signal
Synchronized with
Palmer St

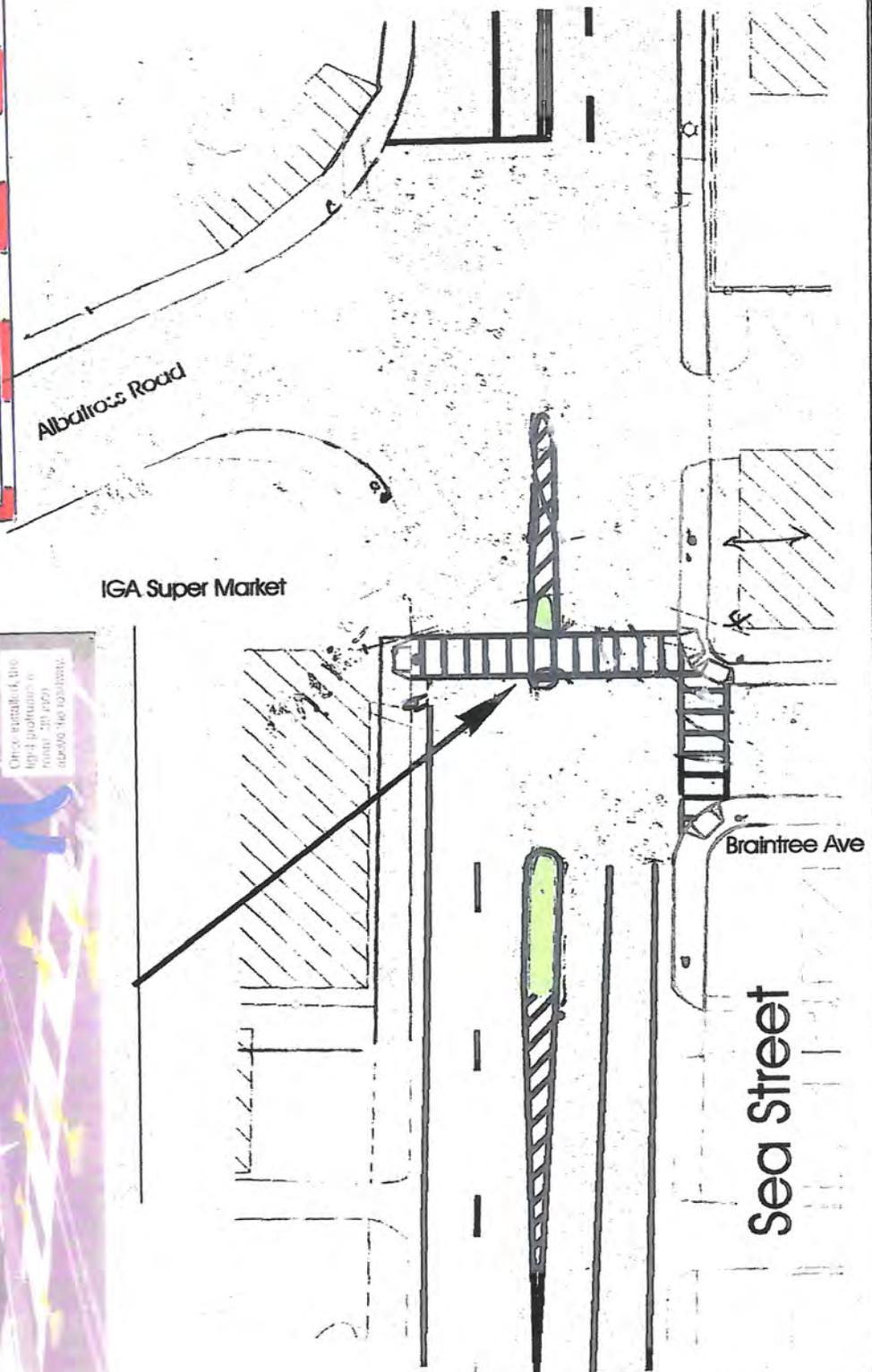


Figure 15





Possible Sea Street Traffic Signals
At Braintree Avenue



Figure 16
Department of
Traffic & Parking



Scale: 1" = 100' - 0"

The Bit at
The Willows, Houghs Neck



Figure 17
Department of
Traffic & Parking