



Boardwalk Residences at Marina Bay

Traffic Impact and Access Study

Prepared for
Flagship Marina Bay LLC

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Introduction

Project Description

Flagship Marina Bay LLC (“the Proponent”) is currently pursuing a residential development opportunity known as “Boardwalk Residences at Marina Bay” (“the Project”) at Marina Bay in Quincy, Massachusetts.

The Project site consists of several parcels of land occupied by two warehouse buildings, a night club, and surface parking. The site is generally bounded by Dorchester Bay to the north; a commercial warehouse to the south; surface parking and commercial uses to the east, and land owned by Boston Scientific Corporation and by the Department of Conservation and Recreation (“DCR”) to the west. The proposed Project would consist of the development of two new buildings containing up to 382 residential apartment units, and approximately 18,500 square feet (sf) of ground floor retail space. Parking for approximately 668 vehicles would be provided on-site, including 556 structured parking spaces and 112 spaces on-street and within surface parking lots. Vehicular access to the site would be provided along the proposed improvements and extensions to the private driveway known as “Haul Road” and Victory Road Extension. The site plan is illustrated in **Figure 1**.

Howard/Stein-Hudson Associates (“HSH”) has been retained to prepare this Traffic Impact and Access Study (“TIAS”) to analyze and present the traffic impacts of the proposed development. First, existing (2012) traffic and intersection operating conditions are described, followed by analysis of long-term impacts for 2017, assuming a five-year planning horizon from the 2012 base year. The future conditions analysis includes a 2017 No-Build Conditions scenario, which reflects conditions if the Project were not built, and a 2017 Build Conditions scenario, which incorporates the full build-out of the Project and proposed transportation improvements and transportation demand management measures (TDM) to mitigate the impacts of the Project.

Study Area

A study area, for which a detailed traffic analysis was conducted, was developed in consultation with the City of Quincy planning staff and the City’s independent peer review consultant. The study area includes the following ten (10) intersections (see **Figure 2**):

1. Quincy Shore Drive/East Squantum Street (signalized);
2. Victory Road Extension/Haul Road (unsignalized);
3. Victory Road/Haul Road/Tilden Commons Drive (unsignalized);
4. Victory Road/Seaport Drive (unsignalized rotary);
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway (unsignalized);
6. Victory Road/East Squantum Street (unsignalized);
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps (unsignalized);
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps (unsignalized);
9. Victory Road/Victory Road Extension (unsignalized); and
10. Victory Road/Marina Drive (unsignalized).

Figure 1. Site Plan

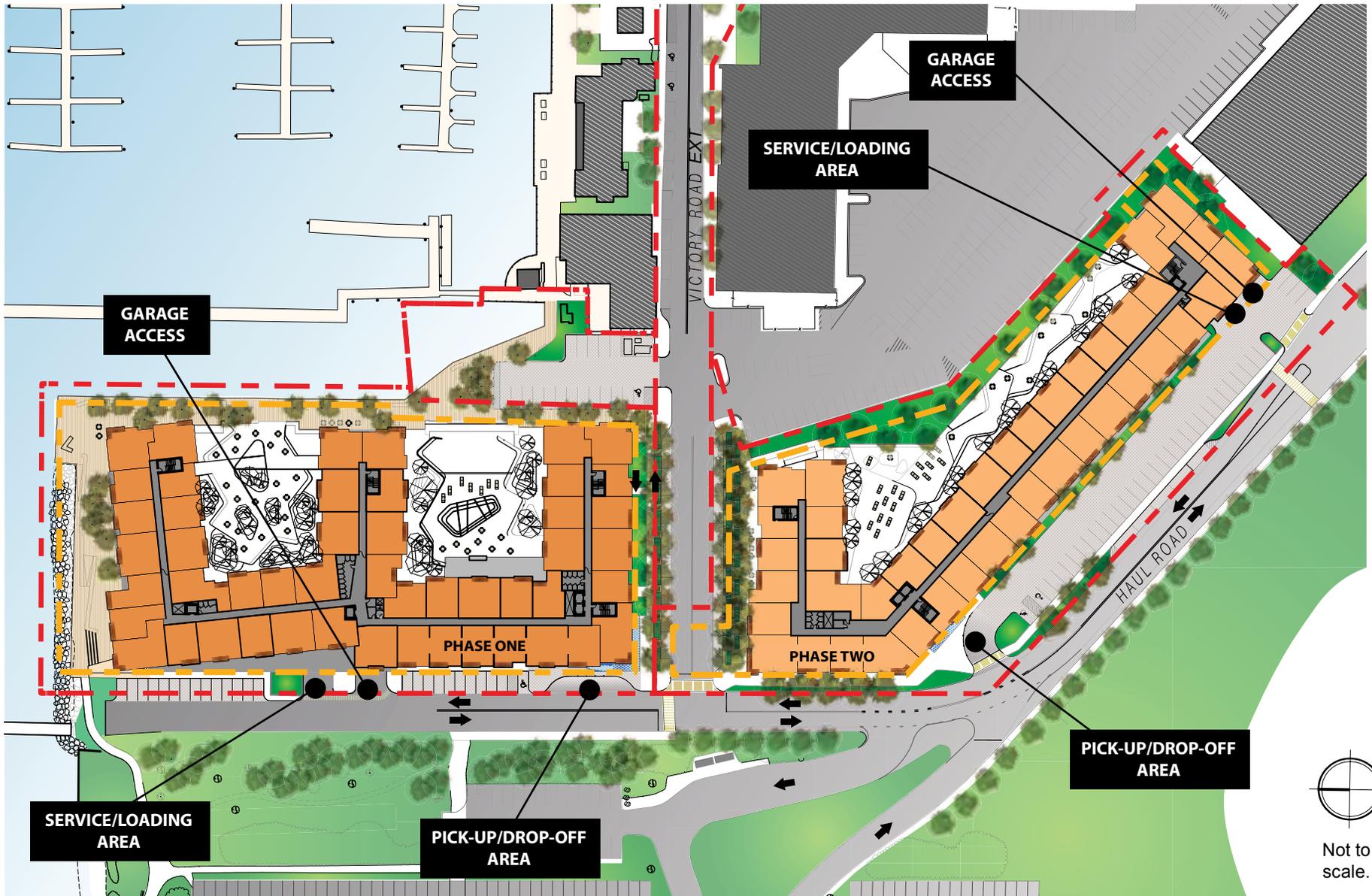


Figure 2. Study Area Intersections



Existing Transportation Conditions

This section describes the study area roadway conditions, intersection geometry, traffic conditions, intersection operations, crash history, pedestrian and bicycle conditions, and availability of public transportation alternatives.

Roadway Conditions

The study area includes the following roadways, which are categorized according to the Massachusetts Department of Transportation (“MassDOT”) Office of Transportation Planning functional classifications:

Quincy Shore Drive is a minor urban arterial and falls under DCR jurisdiction. Quincy Shore Drive generally runs east-west through the study area between Sea Street to the east and Hancock Street/Neponset River Bridge to the west. Within the study area, Quincy Shore Drive generally consists of three lanes in each direction to the west of East Squantum Street, and two lanes in each direction to the east of East Squantum Street. Sidewalks are provided along the north side of the roadway with discontinuous sidewalks on the south side of the roadway. Travel directions on Quincy Shore Drive are typically separated by a landscaped median. On-street parking is prohibited along this roadway.

East Squantum Street is a minor urban arterial that falls under the jurisdiction of the City of Quincy. East Squantum Street generally runs north-south through the study area between Dorchester Street to the north and Hancock Street to the south. Within the study area, East Squantum Street consists of one lane in each direction with additional turning lanes provided at most intersection approaches. The pavement is in fair condition, but pavement markings are worn in some locations. Sidewalks are provided on along the west side of the roadway and on-street parking is not permitted.

Victory Road is a private roadway. Victory Road generally runs northwest-southeast between Victory Road Extension to the northwest and East Squantum Street to the southeast. Victory Road consists of one lane in each direction, separated by a landscaped median. Sidewalks are generally provided along the roadway and on-street parking is generally not permitted.

Victory Road Extension is a private roadway that runs east-west between the Squantum Point Park parking lot to the west and Victory Road to the east. Victory Road Extension consists of one travel lane in each direction, with sidewalks provided on the north side of the roadway. On-street parking on the north side of Victory Road Extension is by permit only.

Haul Road is a private roadway. Haul Road runs north-south between Victory Road Extension to the north and Victory Road to the south. The road consists of one lane in each direction, separated by a landscaped median. The road is in fair condition but pavement markings are generally faded. On-street parking is not permitted.

Tilden Commons Drive is a private residential roadway. Tilden Commons Drive runs east-west between Victory Road and Marina Drive to the west. The road consists of one travel lane in each direction, separated by a landscaped median. Sidewalks are provided along both sides of the road. On-street parking is not permitted.

Seaport Drive is a private roadway. Seaport Drive runs east-west between Commander Shea Boulevard and Victory Road. Seaport Drive consists of one lane in each direction, separated by a landscaped median. Sidewalks are provided along the north side of the road. On-street parking is not permitted.

Commander Shea Boulevard is an urban collector. Commander Shea runs north-south between the entrance of Boston Scientific Corporation and Hancock Street to the south. The road consists of one lane in each direction. Commander Shea Boulevard provides connections between Hancock Street and Quincy Shore Drive. The road has generally faded pavement markings and does not have sidewalks. On-street parking is not permitted.

Marina Drive is a private roadway and generally runs in a north-south direction within the study area. Marina Drive intersects with Victory Road at two locations; one approximately 1,200 feet west of East Squantum Street, and another approximately 230 feet south of Victory Road Extension. Marina Drive generally consists of one travel lane in each direction. Sidewalks are generally provided on both sides of the roadway. On-street parking is not permitted.

Intersection Conditions

Quincy Shore Drive/East Squantum Street is a signalized intersection with four approaches. The Quincy Shore Drive eastbound approach consists of one 10-foot exclusive left-turn lane with a storage length of approximately 135 feet, two 11-foot through lanes, and a 10-foot exclusive right-turn lane. The Quincy Shore Drive westbound approach consists of one 11-foot shared left-turn/through lane, one 10-foot through lane, and one 22-foot channelized right-turn lane with a storage length of 175 feet. The East Squantum Street northbound approach consists of one 12-foot shared left-turn/through/right-turn lane. The East Squantum Street southbound approach consists of one 10-foot exclusive left-turn lane, one 11-foot exclusive through lane; and one 10-foot exclusive right turn lane with a storage length of 125 feet.

On East Squantum Street northbound, a 45-foot wide driveway for CVS Pharmacy is located 30-feet south of the intersection of Quincy Shore Drive and East Squantum Street. A Dunkin Donuts is located at the northwest corner of the intersection. A 25-foot driveway is located at the East Squantum Street southbound approach.

Sidewalks are provided along all four approaches to the intersection, and range from 4 feet to 7 feet. There are four crosswalks at the intersection: a 10-foot wide, 100-foot long crosswalk across Quincy Shore Drive to the west of the intersection, a 8-foot wide, 100 foot long crosswalk with a pedestrian refugee island across Quincy Shore Drive to the east of the intersection, one 10-foot wide, 40-foot long crosswalk across East Squantum Street to the south of the intersection, and one 10-foot wide, 70-foot long crosswalk across East Squantum Street to the north of the intersection. All crosswalks provide plunger-actuated pedestrian indications. Pavement markings were in good condition in the vicinity of the intersection.

Field observations by HSH indicate that at the East Squantum Street northbound approach, the 12-foot left-turn/through/right-turn lane sometimes acts as two lanes directly past the stop line due to the geometry of the intersection. For the purposes of analysis, this approach was treated as a single lane. At the time of this study, the Neponset River Bridge Rehabilitation Project was underway. This construction reduced the three-lane cross-section of Quincy Shore Drive westbound to just one lane in the vicinity of the westbound on-ramp from Commander Shea Boulevard. An alternate route around the construction area directed vehicles turning left from Quincy Shore Drive westbound onto East Squantum Street southbound; however, turning movement counts indicate that very few vehicles used this alternate route.

Victory Road Extension/Haul Road is an unsignalized intersection with three approaches. The Victory Road Extension westbound approach is stop-controlled and consists of one 12-foot shared left-turn/right-turn lane. The Haul Road northbound approach consists of one 22-foot shared through/right-turn lane. The Haul Road southbound approach consists of one 20-foot shared left-turn/through lane. Both approaches on Haul Road allow free movement through the intersection. Upon closer inspection during field observation conducted by

HSH, the Haul Road southbound approach was at one time striped as two lanes; however, these markings are faded and unnoticeable to motorists. No sidewalks or crosswalks are located at the intersection.

Victory Road/Haul Road/Tilden Commons Drive is an unsignalized intersection with four approaches. The Haul Road eastbound approach consists of one 18-foot shared left-turn/through lane and one 28-foot exclusive channelized right turn-lane. Both lanes are stop-controlled. The Tilden Commons Drive westbound approach is stop controlled and consists of one 16-foot shared left-turn/through/right-turn lane. Tilden Commons Drive intersects Victory Road from the east approximately 30 feet north of Haul Road, resulting in a slightly skewed intersection alignment. The Victory Road northbound approach consists of one 20-foot left-turn/through/right-turn lane. The Victory Road southbound approach consists of one 21-foot left-turn/through/right-turn lane.

Sidewalks at the intersection are provided along all approaches, with the exception of the north side of Haul Road, and are five feet wide. There are two 7-foot wide crosswalks at the intersection, including a 60-foot long crosswalk and pedestrian refugee island across Haul Road to the west of the intersection and a 60-foot long crosswalk across Tilden Commons Drive to the east of the intersection. Pavement markings are in good condition.

Victory Road/Seaport Drive is a single-lane rotary with three approaches. The Seaport Drive eastbound approach consists of a single 22-foot travel lane. The Victory Road northbound and southbound approaches each consist of a single 21-foot travel lane. The Victory Road southbound approach consists of a single 21-foot travel lane. All approaches are separated from departure lanes by 16-foot landscaped medians. The rotary itself consists of a single 22-foot travel lane around a landscaped island approximately 120 feet in diameter.

There are no crosswalks across any of the approaches at this intersection. Sidewalks are provided along both sides of Victory Road north of the intersection, along the east side of Victory Road south of the intersection, and along the north side of Seaport Drive, and are approximately 5 feet wide.

Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway is an unsignalized intersection with three approaches. The Seaport Drive westbound approach is stop-controlled and consists of one 22-foot shared left-turn/through/right-turn lane. The Commander Shea Boulevard northbound approach consists of one 21-foot lane. The Commander Shea Boulevard southbound approach consists of one 34-foot lane. Both approaches on Commander Shea Boulevard allow free movement through the intersection. Boston Scientific's driveway intersects Commander Shea Boulevard opposite Seaport Drive. During field observations, HSH noted that the driveway is gated and generally closed; however, traffic count data indicates minor activity at the driveway. Faded yellow pavement markings at the driveway suggest that the driveway, in the past, channelized traffic toward Commander Shea Boulevard southbound; however, today the driveway forms a traditional intersection with Commander Shea Boulevard.

There are 5-foot sidewalks provided along the northern side of Seaport Drive and the eastern side of Commander Shea Boulevard.

Victory Road/East Squantum Street is an unsignalized intersection with three approaches. The Victory Road eastbound approach is consists of an unmarked 22-foot lane. This approach is assumed to operate as a 11-foot right-turn lane and an 11-foot left-turn lane with a storage length of approximately 100 feet. The East Squantum northbound approach consists of one 11-foot exclusive left-turn lane and one 12-foot through lane. The East Squantum Street southbound approach consists of one 22-foot shared through/right-turn lane.

A 5-foot sidewalk is located along the north side of Victory Road. There is one 6-foot wide crosswalk spanning 100 feet across Victory Road. The road is in fair condition, with the exception of faded pavement markings along East Squantum Street, specifically the left-turn lane at the northbound approach to the intersection.

Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramp is an unsignalized intersection with three approaches. The Quincy Shore Drive westbound off-ramp westbound approach consists of one 13-foot shared left-turn/through/right-turn lane. The Commander Shea Boulevard eastbound approach consists of one 14-foot through/right-turn lane. The Commander Shea Boulevard westbound approach consists of one 13-foot left-turn/through lane. A partial sidewalk is located along the northern side of Quincy Shore Drive eastbound off-ramp and the eastern side of Commander Shea Boulevard. Field observations show there are no pavement markings at the intersection, with the exception of a faded double yellow centerline along Commander Shea Boulevard.

The reconstruction of the Neponset River Bridge has resulted in significant temporary capacity reductions, including a reduction in the three-lane cross section of Quincy Shore Drive westbound to just one lane in the vicinity of the westbound on-ramp from Commander Shea Boulevard and a reduction in the number of lanes on the Neponset River Bridge from three travel lanes to just two. As such, Quincy Shore Drive westbound and Commander Shea Boulevard experience periodic queuing conditions, particularly during the weekday morning peak hour. During this time period, HSH observed vehicle queues along the Quincy Shore Drive westbound on-ramp that extend approximately 100 to 200 feet north of the westbound on-ramp along the Commander Shea Boulevard westbound shared left-turn/through approach. During this time period, a police officer was also observed directing traffic on Quincy Shore Drive at the westbound on-ramp. The construction is expected to be completed by August, 2013.

Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramp is an unsignalized intersection with three approaches. The Commander Shea Boulevard northbound approach consists of one 20-foot through/right-turn lane and the southbound approach consists of one 19-foot left-turn/through lane. There are no sidewalks or crosswalks at the intersection. Count data indicates vehicles taking prohibited turning movements from the eastbound on-ramp, possibly due to the complex route area residents would otherwise need to take in order to access Commander Shea Boulevard.

Victory Road/Victory Road Extension is an unsignalized intersection with three approaches. The Victory Road Extension eastbound and westbound approaches each consist of a single 12-foot multi-purpose travel lane. The Victory Road northbound approach operates under stop control and consists of a single 15-foot shared left-turn/right-turn lane. The Victory Road northbound and southbound travel lanes are separated by a small triangular park, resulting in an approximately 150-foot separation between the northbound and southbound travel lanes at the intersection with Victory Road Extension. The intersection is known locally as the “teardrop” due to this geometry.

Victory Road/Marina Drive is an unsignalized intersection with three approaches. The Victory Road eastbound approach is stop-controlled and consists of a single 20-foot travel lane. The Victory Road westbound approach is an uncontrolled movement and consists of a single 24-foot travel lane. The Marina Drive southbound approach is stop-controlled and consists of a single 20-foot travel lane. Field observations by HSH indicate that vehicles often do not stop at the Victory Road stop sign and tend to “roll” through

Traffic Conditions

Since the proposed Project is predominantly residential, with only a small commercial component, the most critical combination of site-generated traffic would occur during the weekday commuter peak periods. As such, the traffic study focuses on these peak periods as the “worst case” scenarios for analysis purposes. HSH collected manual turning movement counts (vehicles, pedestrians, and bicycles) at the majority of study area

intersections during the weekday morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) commuter peak periods on Tuesday, June 5, 2012. Turning movement count data was collected at Victory Road/Seaport Drive on Tuesday, August 14, 2012, and at Victory Road/Victory Road Extension and Victory Road/Marina Drive on Tuesday, January 8, 2013. The intersections counted after June 5, 2012 were balanced with adjacent intersections. The volumes collected on January 8, 2013 were also increased by a seasonal adjustment of 13%, based on data from MassDOT permanent count station #691 (see **Appendix A**, before volume balancing. According to the count data, the peak period at the study area intersections varies depending on location, but generally occurs from 7:30 AM to 8:30 AM and 5:00 PM to 6:00 PM.

At the time of the June and August counts, the number of travel lanes along Quincy Shore Drive westbound was temporarily reduced from three lanes to one in the vicinity of the westbound on-ramp from Commander Shea Boulevard due to the on-going Neponset River Bridge Phase II Rehabilitation Project. The rehabilitation project was substantially completed on Thursday, October 25, 2012 at which time all lane restrictions were removed.

Based on a comparison of construction-period traffic count data with historic data (pre-construction) from the *Phase II Construction Traffic Report*, February 2009, and consistent with comments received by the community, it is believed that as many as 150 to 200 vehicles during the morning peak hour may have been cutting through the Marina during the weekday morning peak period to avoid construction congestion along Quincy Shore Drive westbound, which could potentially result in slightly higher traffic volumes, and delays, on roadways within Marina Bay. Therefore, the following analysis of the AM Peak Hour period under all conditions may potentially depict slightly higher traffic volumes within the Marina than those anticipated following completion of this project. However, to provide a conservative estimate of traffic conditions within the Marina, no adjustments were made to the traffic patterns for the future conditions analysis. The potential for redistribution of these “cut through” trips back onto Quincy Shore Drive is not expected to significantly alter travel times over the Neponset Bridge.

The Existing Conditions (2012) weekday AM and PM peak hour vehicle turning movement volumes for the study area intersections illustrated in **Figure 3** and **Figure 4**, respectively. Complete traffic count data can be found in **Appendix A**.

Figure 3. Existing Conditions (2012) Traffic Volumes, Weekday AM Peak Hour (7:30-8:30 AM)

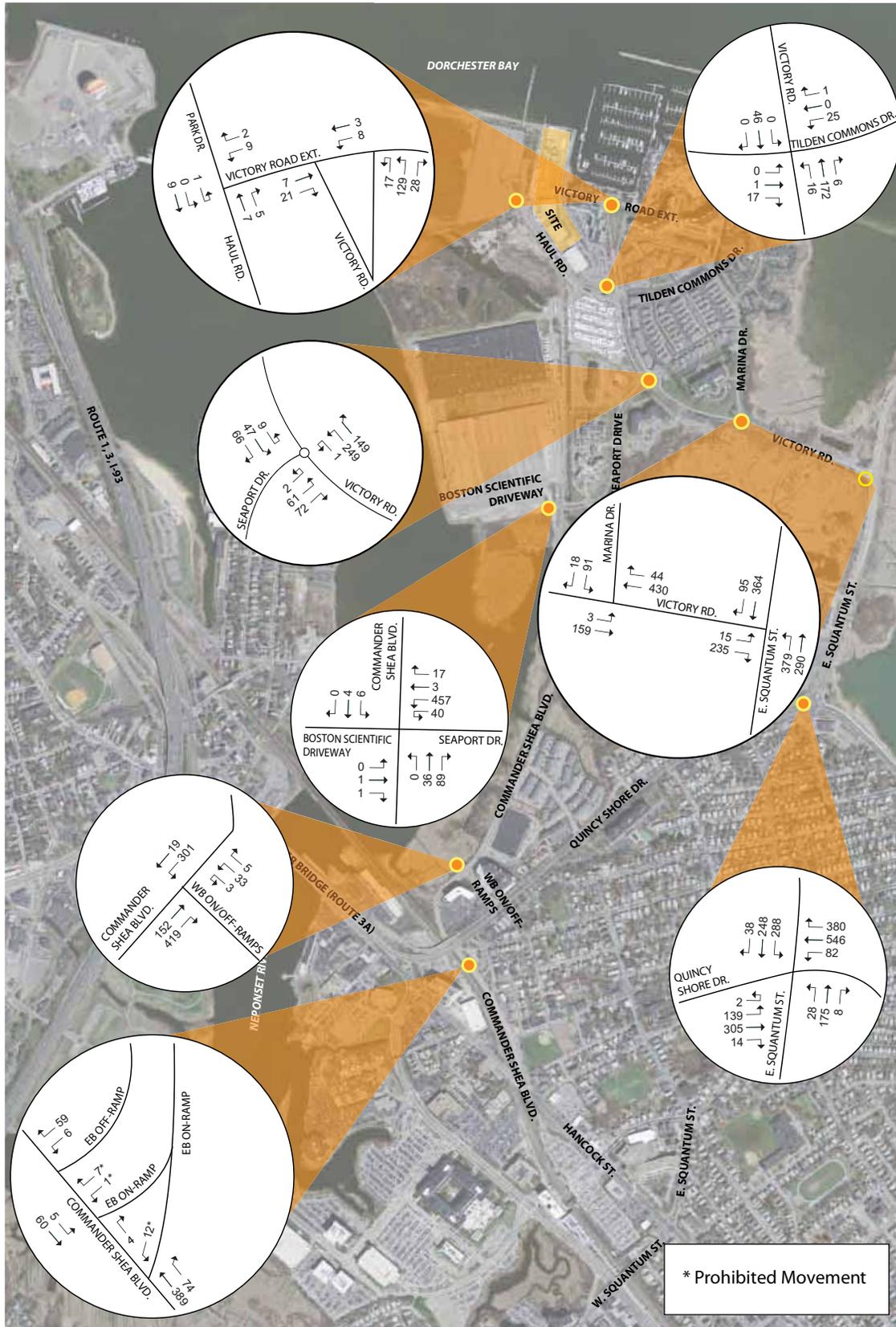
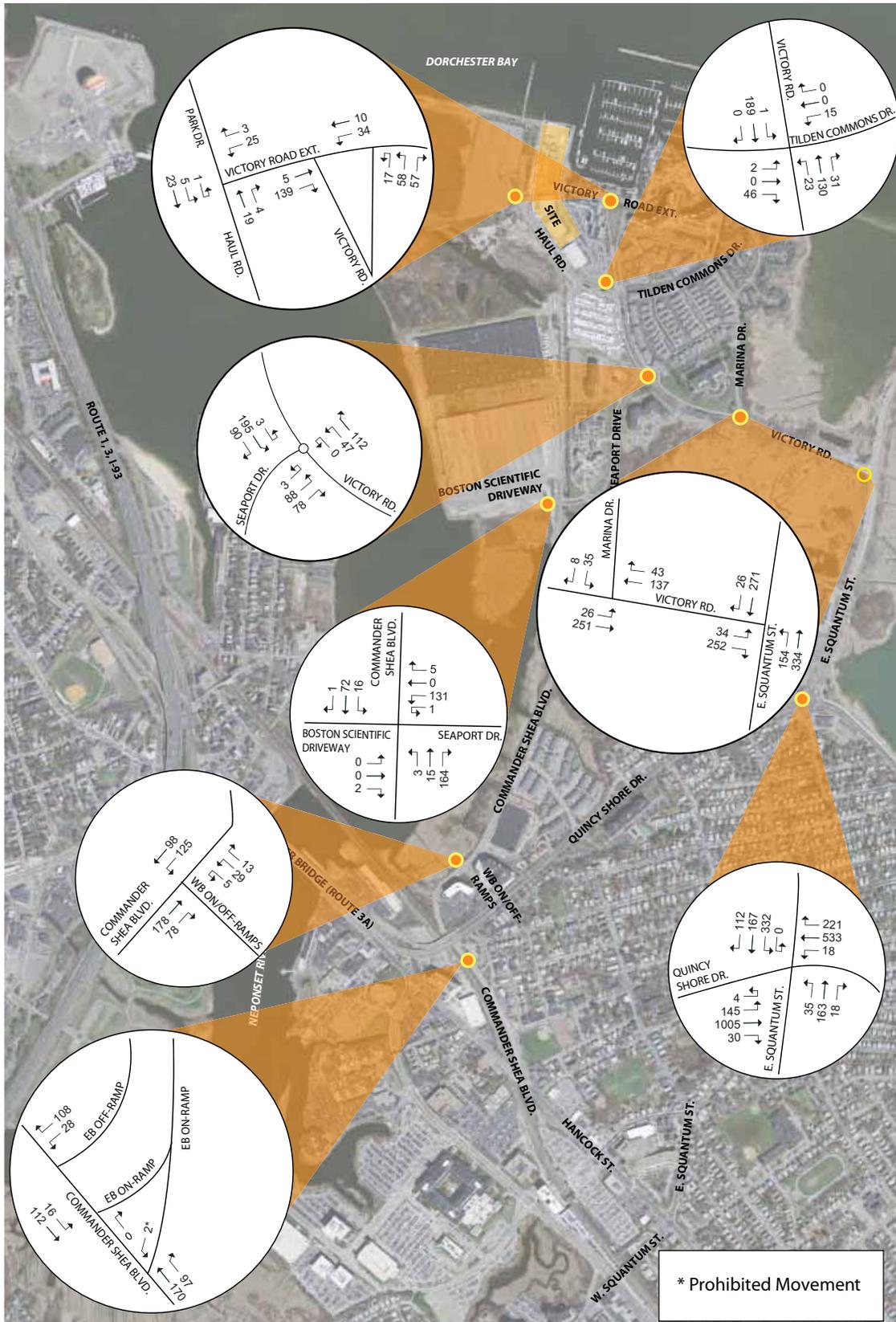


Figure 4. Existing Conditions (2012) Traffic Volumes, Weekday PM Peak Hour (5:00-6:00 PM)



Intersection Operations

HSH used Trafficware's Synchro 6 software to analyze traffic operations at all study area intersections except for Victory Road/Seaport Drive, based on the methodology of the Transportation Research Board's 2000 Highway Capacity Manual (HCM). HCM methods analyze the capacity of an intersection by determining the Level of Service (LOS), delay (in seconds per vehicle), volume-to-capacity ratio (v/c), and 95th percentile queue length (in feet), based on the intersection geometry, traffic control, and available traffic data for each intersection.

The intersection of Victory Road/Seaport Drive was analyzed using SIDRA, a program which uses HCM methods to find LOS, v/c , and 95th percentile queue lengths at rotaries and modern roundabouts.

The v/c ratio (volume-to-capacity ratio) is a measure of congestion at an intersection approach. A v/c ratio of 1.00 or greater indicates that the intersection approach exceeds capacity.

The intersections of Victory Road/Victory Road Extension and Victory Road/Marina Drive were counted on January 8th, 2013. According to MassDOT permanent count station #691, it was determined that traffic volumes in January are typically 13% lower than average month conditions. Therefore, to provide a conservative estimate of traffic conditions, the January traffic volumes were increased by a seasonal adjustment factor of 13%. The volumes were further increased/adjusted to balance with adjacent intersections.

The intersection Victory Road/Victory Road Extension was analyzed as two separate intersections due to its "teardrop" geometry.

At the intersection of Victory Road/Marina Drive, the Victory Road eastbound approach and the Marina Drive southbound approach operate under stop-controlled while the Victory Road westbound approach allows for free movement through the intersection. Synchro does not recognize this as valid sign control for an unsignalized intersection and does not provide analysis with this configuration. Therefore, HSH analyzed the Victory Road westbound approach and the Marina Drive southbound approach as if both approaches on Victory Road allowed for free movement through the intersection, and then analyzed the Victory Road eastbound approach as if the intersection had all-way stop control. The highest delays from each method were then reported in the LOS tables. This method provides a conservative analysis that is generally consistent with the actual configuration of the roadway. It should be noted that HSH observations at the Victory Road eastbound approach indicate that motorists often "roll" through the stop sign, potentially causing uncertainty for motorists at the Marina Drive southbound approach.

The **95th percentile queue length** represents the farthest extent of the vehicle queue (to the last stopped vehicle), in feet, upstream from the stop line during 5% of all signal cycles. One passenger vehicle generally represents 20 feet of queue length, so a queue length of 200 feet equates to about 10 passenger vehicles. The 95th percentile queue does not occur during each cycle. Typically, queues will be shorter than the 95th percentile queue length 95% of the time and will be longer 5% of the time. These queues typically would not be seen during off-peak hours.

HSH obtained signal timings and phasing information from DCR for the intersection of Quincy Shore Drive/East Squantum Street. HSH also conducted field observations of existing traffic conditions to confirm signal timing and phasing, verify model accuracy, and to calibrate the model as necessary. **Table 1** summarizes the delay and LOS thresholds for signalized and unsignalized intersections, as defined in the HCM. LOS A defines the most favorable condition, with minimum traffic delay. LOS F represents the worst condition.

Table 1. Intersection Level of Service Criteria

Level of Service	Average Stopped Delay (seconds/vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	> 10 and ≤20	> 10 and ≤15
C	> 20 and ≤35	> 15 and ≤25
D	> 35 and ≤55	> 25 and ≤35
E	> 55 and ≤80	> 35 and ≤50
F	> 80	> 50

Source: 2000 Highway Capacity Manual, Transportation Research Board

The threshold at LOS E/LOS F indicates that the intersection, or intersection approach, is theoretically at capacity. LOS D generally is acceptable in an environment such as the Project study area, and below theoretical operating capacity.

Table 2 and Table 3 summarize the existing weekday AM peak hour and PM peak hour level of service results for the study area intersections. Capacity analysis reports are located in **Appendix B**.

Table 2. Existing Conditions (2012) Level of Service Summary: AM Peak Hour

Intersection/Approach	LOS	Delay (seconds per vehicle)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	F	> 80.0	—	—
Quincy Shore EB left*	E	70.7	0.75	216
Quincy Shore EB thru thru	B	13.6	0.17	127
Quincy Shore EB right	A	5.1	0.04	0
Quincy Shore WB left+	F	> 80.0	> 1.00	#221
Quincy Shore WB thru	D	44.8	0.82	#843
Quincy Shore WB right*	A	0.4	0.28	0
E Squantum NB left/thru/right	F	> 80.0	0.94	#378
E Squantum SB left	F	> 80.0	> 1.00	#578
E Squantum SB thru	D	39.6	0.52	324
E Squantum SB right*	A	9.1	0.13	6
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	8.7	0.02	2
Haul Road NB thru/right	A	0.0	0.01	0
Haul SB left/thru	A	0.0	0.00	0
3. Victory Road/Haul Road/Tilden Commons Drive	—	—	—	—
Haul Road EB left/thru	B	11.5	0.01	1
Haul Road EB right*	A	8.8	0.03	2
Tilden WB left/thru/right	B	11.5	0.06	5
Victory NB left/thru/right	A	0.8	0.02	1
Victory SB left/thru/right	A	0.0	0.00	0
4. Seaport Drive/Victory Road	A	8.8	—	—
Seaport EB left/right	A	6.1	0.22	22
Victory NB left/thru	B	10.4	0.54	84
Victory SB thru/right	A	7.3	0.25	25
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	—	—	—	—
Seaport EB left/thru/right	A	9.3	0.01	1
Seaport WB left/thru/right	C	20.5	0.74	167
Commander NB left/thru/right	A	0.0	0.00	0
Commander SB left/thru/right	A	5.1	0.01	1

Table 2. Existing Conditions (2012) Level of Service Summary: AM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds per vehicle)	V/C Ratio	95th Percentile Queue Length (feet)
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left*	F	> 50.0	0.48	42
Victory EB right	C	19.3	0.53	76
E Squantum NB left	B	12.0	0.47	63
E Squantum NB thru	A	0.0	0.22	0
E Squantum SB thru/right	A	0.0	0.37	0
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB thru/right	A	0.0	0.39	0
Commander WB left/thru	B	10.8	0.38	46**
Quincy NB left/right	E	45.3	0.41	45
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	B	14.2	0.28	29
Commander NB thru/right	A	0.0	0.35	0
Commander SB left/thru	A	0.5	0.00	0
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.01	0
Victory NB left/right	A	9.4	0.19	17
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.02	0
Victory Extension WB left/thru	A	1.3	0.02	1
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	A	10.0	0.27	—
Victory WB thru/right	A	0.0	0.33	0
Marina SB left/right	B	14.9	0.26	26

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown are maximum after 2 cycles.

* denotes storage lane

+ = de facto turn lane.

**Queuing conditions at the Commander Shea Boulevard westbound shared left-turn/through lane were observed to be approximately 100 to 200 feet in length in August, 2012 due to downstream queuing conditions associated with the Neponset River Bridge Rehabilitation Project. Observations in January, 2013 indicate that the reported queues are consistent with current conditions (post-construction).

Table 3. Existing Conditions (2012) Level of Service Summary: PM Peak Hour

Intersection/Approach	LOS	Delay (seconds per vehicle)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	E	59.3	—	—
Quincy Shore EB left*	E	67.0	0.65	#256
Quincy Shore EB thru thru	C	23.9	0.57	532
Quincy Shore EB right	A	8.8	0.05	20
Quincy Shore WB left/thru thru	D	51.4	0.82	#440
Quincy Shore WB right*	A	0.2	0.15	0
E Squantum NB left/thru/right	E	70.5	0.79	341
E Squantum SB left	F	>80.0	>1.00	#683
E Squantum SB thru	D	38.0	0.31	214
E Squantum SB right*	A	6.8	0.25	24
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	9.1	0.06	5
Haul Road NB thru/right	A	0.0	0.02	0
Haul Road SB left/thru	A	2.0	0.01	1
3. Victory Road/Haul Road/Tilden Commons Drive	—	—	—	—
Haul Road EB left/thru	B	12.5	0.01	1
Haul Road EB right*	B	10.1	0.09	8
Tilden WB left/thru/right	B	13.6	0.05	4
Victory NB left/thru/right	A	1.0	0.02	1
Victory SB left/thru/right	A	0.1	0.00	0
4. Seaport Drive/Victory Road	A	6.5	—	—
Seaport EB left/right	A	6.6	0.23	22
Victory NB left/thru	A	5.3	0.18	18
Victory SB thru/right	A	7.0	0.34	42
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	—	—	—	—
Driveway EB left/thru/right	A	8.8	0.00	0
Seaport WB left/thru/right	B	13.1	0.27	27
Commander NB left/thru/right	A	0.3	0.01	0
Commander SB left/thru/right	A	2.1	0.03	2

Table 3. Existing Conditions (2012) Level of Service Summary: PM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds per vehicle)	V/C Ratio	95th Percentile Queue Length (feet)
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left*	C	24.9	0.18	16
Victory EB right	C	15.2	0.50	72
E Squantum NB left	A	8.5	0.14	12
E Squantum NB thru	A	0.0	0.21	0
E Squantum SB thru/right	A	0.0	0.21	0
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB thru/right	A	0.0	0.20	0
Commander WB left/thru	A	5.7	0.16	15
Quincy NB left/right	C	16.9	0.16	15
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	B	12.8	0.37	43
Commander NB thru/right	A	0.0	0.19	0
Commander SB left/thru	A	0.9	0.01	1
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.02	0
Victory NB left/right	A	9.1	0.14	12
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.09	0
Victory Extension WB left/thru	A	3.4	0.04	3
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	A	9.6	0.36	—
Victory WB thru/right	A	0.0	0.12	0
Marina SB left/right	B	11.2	0.07	6

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is maximum after 2 cycles.

* denotes storage lane

+ = de facto turn lane

During the AM peak hour, the intersection of Quincy Shore Drive/East Squantum Street operates at an overall LOS F. The Quincy Shore Drive eastbound left turn lane operates at LOS E. The Quincy Shore Drive westbound shared left/thru lane operates as a de facto left-turn lane due to the relatively heavy volume of left turns during the AM peak hour (79 vehicles/hour); this approach operates at LOS F. The East Squantum Street northbound shared left/through/right approach and the southbound left turns also operate at LOS F during the AM peak hour.

During the PM peak hour, the intersection of Quincy Shore Drive/East Squantum Street operates at an overall LOS E. The Quincy Shore Drive eastbound left-turn lane operates at LOS E, the East Squantum Street

northbound shared left/through/right lane operates at LOS E, and the East Squantum Street southbound left-turn lane operates at LOS F.

All individual approaches of the unsignalized intersections operate at LOS D or better, with the following exceptions:

- Victory Road/East Squantum Street – In the AM peak hour, the Victory Road eastbound stop-controlled left turn lane operates at LOS F; however, this level of operation is typical for a stop-controlled side street that intersects a major roadway.
- Commander Shea Boulevard/Quincy Shore Drive westbound on/off-ramps – During the AM peak hour, the Quincy Shore Drive westbound off-ramp northbound approach operates at LOS E, which is typical for a stop controlled approach that intersects a major roadway. During the AM peak hour, the Commander Shea Boulevard westbound shared left-turn/through lane is reported to operate at LOS B with a queue length of approximately 46 feet in length; however, we note that the delay and queuing conditions at this approach were observed to be worse than reported in the Existing Conditions analysis due to downstream queuing conditions caused by the Neponset River Bridge Rehabilitation Project. Field observations by HSH indicate that, during the AM peak hour, the Quincy Shore Drive westbound on-ramp experiences long queues that back up onto Commander Shea Boulevard westbound. Queues on Commander Shea Boulevard westbound were observed to be between 100 and 200 feet from the Quincy Shore Drive westbound on-ramp. A police officer was observed directing traffic on Quincy Shore Drive at the on-ramp. The queuing is due to temporary reductions in roadway capacity associated with the Neponset River Bridge Rehabilitation Project, which reduces the number of travel lanes on Quincy Shore Drive westbound from three lanes to one, and the number of lanes on the Neponset River Bridge from three lanes to two. The project is expected to be completed by August 2013, when the lanes will be restored. The restored capacity on Quincy Shore Drive and the Neponset River Bridge is expected to alleviate the queuing conditions on the Quincy Shore Drive westbound on-ramp and on Commander Shea Boulevard.

Crash History

HSH compiled motor vehicle crash data from the MassDOT Crash Records System for the most recent three-year period for which they are available (2007–09). Crash rates were then calculated for each study area intersection based on the number of crashes per million vehicles entering and compared to the MassDOT district average. **Table 4** summarizes the data for the eight study area intersections; detailed crash data and crash rate worksheets are included in **Appendix C**. As shown in the table, 33 crashes occurred at the study area intersections over the three-year period, with no reported fatalities. Most of the crashes were either single-vehicle (48%) or angle crashes (18%). Of the crashes reported in the study area, most occurred on weekdays (75%) between 6:00 PM and 9:00 AM (67%) on a dry roadway surface (70%).

The crash rate at the signalized intersection of Quincy Shore Drive/East Squantum Street is below the district average (0.77 crashes per million vehicles entering the intersection), at 0.69.

The crash rates at all of the studied unsignalized intersections are below the district average (0.57 crashes per million vehicles entering the intersection).

Table 4. MassDOT Crash Data Summary

Scenario	Intersection/# of Crashes									
	Quincy Shore/ East Squantum	Victory Extension/ Haul Road	Victory/ Haul Road/Tilden Commons	Seaport/ Victory	Seaport/ Commander Shea	East Squantum/ Victory	Commander Shea/Quincy Shore WB ramp	Commander Shea/Quincy Shore EB ramp	Victory/ Victory Ext.	Victory/ Marina
Year										
2007	7	-	0	0	0	2	-	-	-	0
2008	3	-	1	2	1	2	-	-	-	1
2009	11	-	0	2	1	1	-	-	-	1
Total	21	-	1	4	2	5	-	-	-	2
Type										
Single Vehicle	11	-	0	3	2	0	-	-	-	1
Angle	4	-	0	0	0	2	-	-	-	0
Rear-end	5	-	0	0	0	2	-	-	-	1
Head-on	0	-	1	1	0	0	-	-	-	0
Sideswipe	1	-	0	0	0	0	-	-	-	0
Unknown/Other	0	-	0	0	0	1	-	-	-	0
Total	21	-	1	4	2	5	-	-	-	2
Severity										
Property damage only	14	-	1	3	2	2	-	-	-	1
Personal injury	6	-	0	1	0	2	-	-	-	1
Fatality	0	-	0	0	0	0	-	-	-	0
Hit-and-run	0	-	0	0	0	0	-	-	-	0
Unknown	1	-	0	0	0	1	-	-	-	0
Total	21	-	1	4	2	5	-	-	-	2
Light Conditions										
Day	12	-	1	1	0	4	-	-	-	2
Dusk/Dawn	0	-	0	1	0	0	-	-	-	0
Dark (road lit)	9	-	0	2	2	1	-	-	-	0
Dark (road unlit)	0	-	0	0	0	0	-	-	-	0
Unknown	0	-	0	0	0	0	-	-	-	0
Total	21	-	1	4	2	5	-	-	-	2

Table 4. MassDOT Crash Summary (cont.)

Scenario	Intersection/# of Crashes									
	Quincy Shore/ East Squantum	Victory Extension/ Haul Road	Victory/ Haul Road/Tilden Commons	Seaport/ Victory	Seaport Dr./ Commander Shea	East Squantum/ Victory	Commander Shea/Quincy Shore WB ramp	Commander Shea/Quincy Shore EB ramp	Victory/ Victory Ext.	Victory/ Marina
Road Conditions										
Dry	13	-	1	4	0	5	-	-	-	1
Wet	5	-	0	0	2	0	-	-	-	1
Snow	1	-	0	0	0	0	-	-	-	0
Ice	2	-	0	0	0	0	-	-	-	0
Total	21	-	1	1	2	5	-	-	-	2
Hour of Day										
6:00-9:00 AM	8	-	0	0	0	0	-	-	-	0
9:00 AM-3:00 PM	3	-	1	0	0	1	-	-	-	1
3:00-6:00 PM	1	-	0	1	0	3	-	-	-	0
6:00 PM-6:00 AM	8	-	0	3	2	1	-	-	-	1
Unknown	1	-	0	0	0	0	-	-	-	0
Total	21	-	1	3	2	5	-	-	-	2
Day of Week										
Monday	2	-	0	1	0	1	-	-	-	0
Tuesday	2	-	1	0	0	1	-	-	-	0
Wednesday	3	-	0	0	0	0	-	-	-	0
Thursday	2	-	0	2	1	1	-	-	-	1
Friday	6	-	0	0	1	1	-	-	-	0
Saturday	4	-	0	0	0	1	-	-	-	0
Sunday	2	-	0	1	0	0	-	-	-	1
Total	21	-	1	4	2	5	-	-	-	2
Crash Rate	0.69	-	0.23	0.52	0.31	0.37	-	-	-	0.26
District 6 Average¹	0.77	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57

¹ Average crash rates for District 6 are 0.77 crashes per million entering vehicles at signalized intersections and 0.57 crashes per million vehicles at unsignalized intersections.

Pedestrian and Bicycle Conditions

According to pedestrian and bicycle count data collected by HSH on Tuesday, June 5, 2012; Tuesday, August 14, 2012; and Tuesday, January 8, 2013 from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM, pedestrian and bicycle activity within the study area is extremely low. Pedestrian and bicycle count data are summarized in **Figure 5** and **Figure 6**. Detailed count data is provided in **Appendix A**.

Pedestrian activity in close proximity to the Project site is generally very low. Within the vicinity of the study area, East Squantum Street has 5 to 7-foot sidewalks along the west side of the street, Quincy Shore Drive has 5 to 7-foot sidewalks along both sides of the street, and Seaport Drive and Victory Road both have 5-foot sidewalks. Sidewalks appear to be in good condition, but are discontinuous in some areas.

Bicycle accommodations in the study area are limited to the provision of a wide shoulder along some of the roadways. Bicycle racks are not currently provided on-site.

Public Transportation

The North Quincy MBTA station is located approximately two miles south of the Project site. While not within a convenient walking distance, North Quincy Station provides access to downtown Boston, Cambridge, Somerville, and Braintree via the Red Line, and access to Dorchester, Quincy Center, and local destinations via the 210, 211, and 212 MBTA buses.

The Massachusetts Bay Transportation Authority (MBTA) operates the #211 bus service along East Squantum Street, approximately one-half to three-quarters of a mile from the Project site (an approximately 15 to 20 minute walk) – a quarter-mile (a 5- to 10-minute walk) is typically considered a convenient walking distance. The #211 service runs between the Quincy Center MBTA station and the Squantum neighborhood and provides connection to North Quincy MBTA station, Red Line rapid transit service, and several other MBTA bus routes. The # 211 bus service operates with a peak period headway of approximately 30 minutes on weekdays and up to 60 minutes on weekends.

A private shuttle service is currently provided within close walking distance to the Project site that operates between the Marina Bay area and North Quincy Station. The shuttle is a free service available to those who live or work in the Marina Bay area and currently stops at Boston Scientific, Nursing Home Facility, Metro, Atlantic, Sea Port, Harbor side, 1001 Marina Drive, 2001 Marina Drive, Chapman's Reach, and 500 Victory Road. The shuttle runs every 15 minutes on weekdays between 6:00 AM and 11:00 PM. Observations indicate that the shuttle is generally well utilized during the commuter peak periods.

Figure 5. Existing Conditions (2012) Pedestrian Volumes, Weekday AM and PM Peak Hours

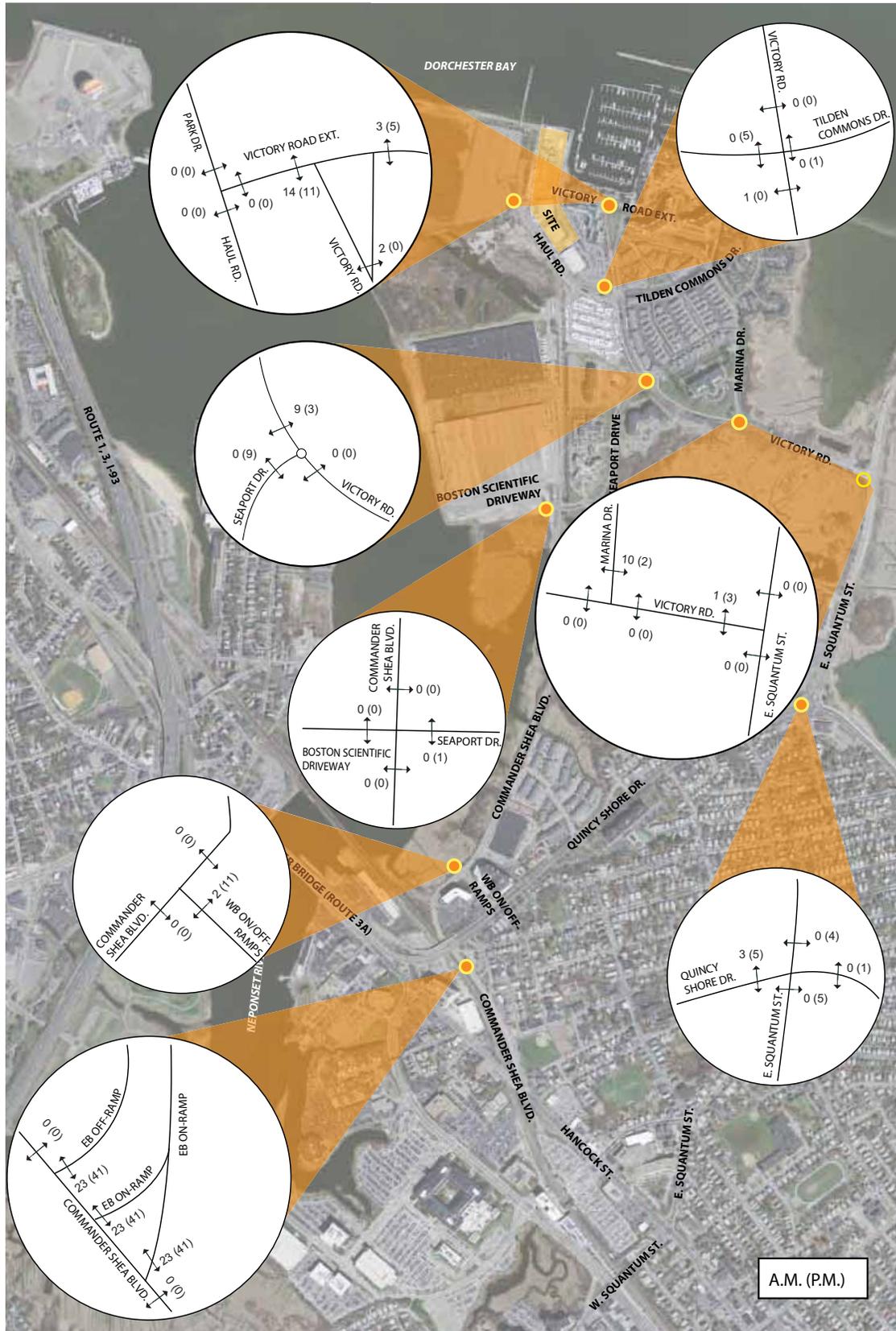


Figure 6. Existing Conditions (2012) Bicycle Volumes, Weekday AM and PM Peak Hours



Evaluation of Long-Term Impacts

For the transportation impact analyses, it is standard practice to evaluate two future conditions: a No-Build Condition (without the Proposed Project) and a Build Condition (with the Proposed Project). Typically, these conditions are projected to a future date, 5 years from the Existing Conditions year. For this evaluation, the future year is 2017.

No-Build Conditions

Background Traffic Growth

Two procedures are generally used in combination to determine background traffic growth. The first procedure is to estimate traffic generated by planned new major developments and anticipated roadway changes. According to discussions with the City of Quincy Planning office, there are no other current development projects planned within the immediate study area.

The second part of the procedure is to apply a general growth rate to account for other smaller planned/approved development projects and changes in demographics, auto usage, and auto ownership. Review of historical traffic data collected by MassDOT's Statewide Traffic Data Collection Section at nearby count stations indicate that traffic volumes in the area have either remained relatively constant and/or decreased in recent years. For this study, a conservative background growth rate of approximately one-half percent per year was selected to be consistent with other recent planning studies.

Background Transportation Improvements and Planning Initiatives

One transportation improvement project was identified within the study area that may impact future transportation conditions.

Neponset River Bridge Phase II Rehabilitation Project – is a MassDOT Accelerated Bridge Project aimed at improving the bridge's structural integrity and enhancing accessibility. The rehabilitation project began in February 2010 and was substantially completed on Thursday, October 25, 2012 at which time all lane restrictions were removed. According to the MassDOT website, the project will be completed in March 2013, five months ahead of the original scheduled completion date of August 2013. Some minor finish work and punch-list items remain, however any lane restrictions will be done during off-peak travel periods and are not expected to affect normal commuting hours.

The project had significant traffic impacts during construction due to the need for reduction in the number of lanes on Neponset River Bridge from three lanes to two lanes, and at times, one lane in the off-peak direction. The project had also resulted in a temporary lane reduction along Quincy Shore Drive westbound, from three lanes to one lane in the vicinity of the access road to Commander Shea Boulevard; at times the access road to Commander Shea Boulevard is periodically closed to accommodate the construction activities. The reduction in capacity along Quincy Shore Drive westbound and on the bridge had resulted in increased queuing conditions, particularly during the weekday morning peak hour, along Quincy Shore Drive westbound and the Commander Shea Boulevard southbound on-ramp to Quincy Shore Drive westbound. However; since capacity was restored in October 2012, queuing on Quincy Shore Drive westbound and Commander Shea Boulevard has decreased substantially.

Field observations from October, 2012 indicated that, during the morning peak period, queues were observed to extend approximately 100 to 200 feet north of the westbound on-ramp along Commander Shea Boulevard

southbound. Since bridge construction was completed, these queues were observed by HSH in January 2013 appear to have returned to their pre-construction conditions based on information detailed in the February 2009 *Phase II Construction Traffic Report*, prepared by Dewberry for the Department of Conservation and Recreation (DCR) prior to the rehabilitation project.

No-Build Traffic Operations

The 2017 No-Build Conditions traffic operations analysis uses the same methodology described in the Existing Conditions analysis. Future No-Build traffic volumes, taking into account the general background growth rate, shown in **Figure 7** and **Figure 8** for the AM and PM peak hours, respectively. The resulting intersection operations results are shown in **Table 5** and **Table 6**. **Appendix B** provides capacity analysis reports.

Figure 7. No-Build Conditions (2017) Traffic Volumes, Weekday AM Peak Hour (7:30-8:30 AM)

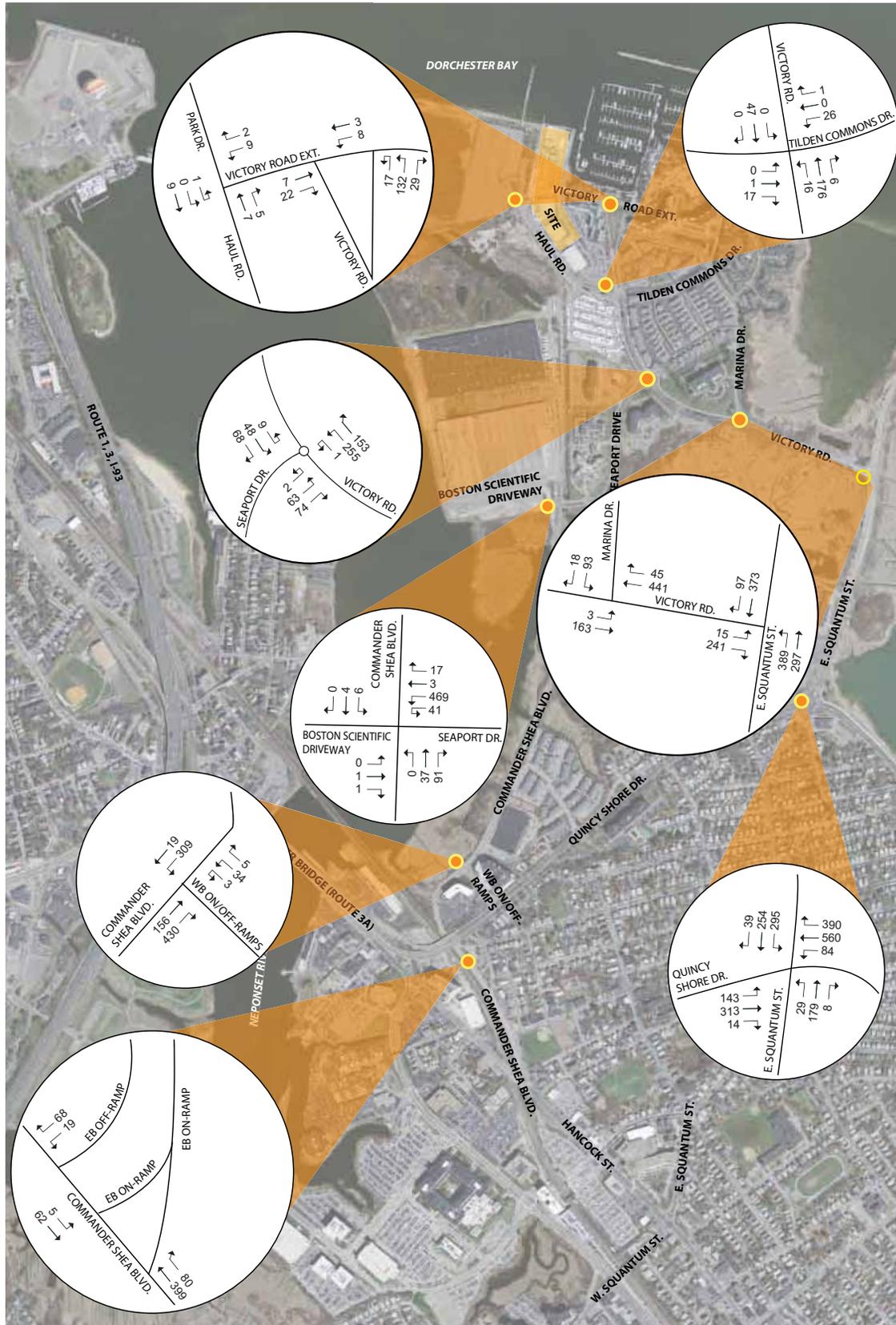


Figure 8. No-Build Conditions (2017) Traffic Volumes, Weekday PM Peak Hour (5:00-6:00 PM)

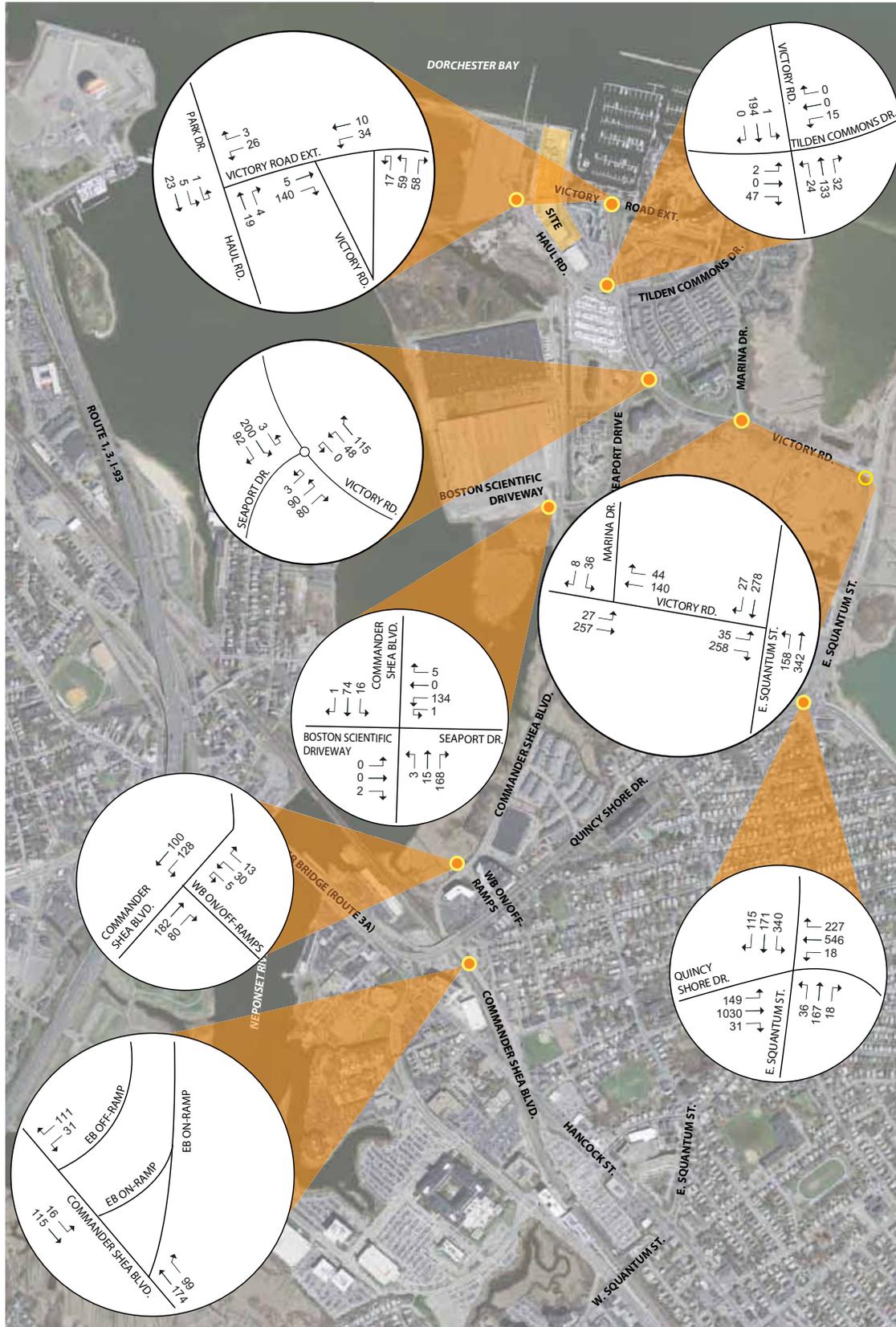


Table 5. No-Build Conditions (2017) Level of Service Summary: AM Peak Hour

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	F	> 80.0	—	—
Quincy EB left*	E	71.2	0.76	222
Quincy EB thru thru	B	13.7	0.18	130
Quincy EB right	A	5.1	0.04	0
Quincy WB left+	F	> 80.0	> 1.00	#227
Quincy WB thru	D	46.8	0.85	#875
Quincy WB right*	A	0.4	0.28	0
E Squantum NB left/thru/right	F	> 80.0	0.97	#392
E Squantum SB left	F	> 80.0	> 1.00	#594
E Squantum SB thru	D	40.2	0.53	333
E Squantum SB right*	A	9.0	0.13	5
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	8.7	0.02	2
Haul Road NB thru/right	A	0.0	0.01	0
Haul Road SB left/thru	A	0.0	0.00	0
3. Victory Road/Haul Road/Tilden Commons Drive			—	—
Haul Road EB left/thru	B	11.5	0.01	1
Haul Road EB right*	A	8.8	0.03	2
Tilden WB left/thru/right	B	11.6	0.06	5
Victory NB left/thru/right	A	0.8	0.02	1
Victory SB left/thru/right	A	0.0	0.00	0
4. Seaport Drive/Victory Road	A	9.1	—	—
Seaport EB left/right	A	6.2	0.23	23
Victory NB left/thru	B	10.8	0.55	89
Victory SB thru/right	A	1.0	0.26	26
5. Seaport Drive/Commander Shea Boulevard	—	—	—	—
Driveway EB left/thru/right	A	9.3	0.01	1
Seaport WB left/thru/right	C	21.7	0.76	181
Commander NB left/thru/right	A	0.0	0.00	0
Commander SB left/thru/right	A	5.1	0.01	1

Table 5. No-Build Conditions (2017) Level of Service Summary: AM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95 th Percentile Queue Length (feet)
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left*	F	> 50.0	0.53	46
Victory EB right	C	20.2	0.55	82
E Squantum NB left	B	12.4	0.49	68
E Squantum NB thru	A	0.0	0.23	0
E Squantum SB thru/right	A	0.0	0.38	0
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB thru/right	A	0.0	0.40	0
Commander WB left/thru	B	11.1	0.40	49
Quincy NB left/right	F	> 50.0	0.45	51
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	B	14.5	0.29	30
Commander NB thru/right	A	0.0	0.36	0
Commander SB left/thru	A	0.5	0.00	0
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.01	0
Victory NB left/right	A	9.4	0.19	18
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.02	0
Victory Extension WB left/thru	A	1.3	0.02	1
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	B	10.1	0.28	—
Victory WB thru/right	A	0.0	0.34	0
Marina SB left/right	C	15.2	0.27	27

Shading indicates drop in service from Existing Conditions

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is the maximum after 2 cycles.

* denotes storage lane

+ = de facto turn lane

Table 6. No-Build Conditions (2017) Level of Service Summary: PM Peak Hour

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	E	62.9	—	—
Quincy EB left*	E	68.8	0.68	#267
Quincy EB thru thru	C	24.3	0.58	550
Quincy EB right	A	8.9	0.05	20
Quincy WB left/thru thru	D	51.7	0.83	#456
Quincy WB right*	A	0.2	0.16	0
E Squantum NB left/thru/right	E	71.9	0.81	349
E Squantum SB left	F	> 80.0	> 1.00	#557
E Squantum SB thru	D	38.4	0.32	219
E Squantum SB right*	A	6.7	0.26	23
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	9.1	0.06	5
Haul Road NB thru/right	A	0.0	0.02	0
Haul Road SB left/thru	A	2.0	0.01	1
3. Victory Road/Haul Road/Tilden Commons Drive	—	—	—	—
Haul Road EB left/thru	B	12.7	0.01	1
Haul Road EB right*	B	10.2	0.10	8
Tilden WB left/thru/right	B	13.9	0.05	4
Victory NB left/thru/right	A	1.1	0.02	2
Victory SB left/thru/right	A	0.1	0.00	0
4. Seaport Drive/Victory Road	A	6.8	—	—
Seaport EB left/right	A	6.9	0.24	24
Victory NB left/thru	A	5.4	0.19	18
Victory SB thru/right	A	7.5	0.38	48
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	—	—	—	—
Driveway EB left/thru/right	A	8.8	0.00	0
Seaport WB left/thru/right	B	13.2	0.28	28
Commander NB left/thru/right	A	0.3	0.01	0
Commander SB left/thru/right	A	2.0	0.03	2

Table 6. No-Build Conditions (2017) Level of Service Summary: PM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (feet)
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left*	D	26.3	0.20	18
Victory EB right	C	15.7	0.52	76
E Squantum NB left	A	8.5	0.15	13
E Squantum NB thru	A	0.0	0.21	0
E Squantum SB thru/right	A	0.0	0.22	0
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB thru/right	A	0.0	0.20	0
Commander WB left/thru	A	5.8	0.17	15
Quincy NB left/right	C	17.4	0.17	16
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	B	13.2	0.39	47
Commander NB thru/right	A	0.0	0.19	0
Commander SB left/thru	A	0.9	0.01	1
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.02	0
Victory NB left/right	A	9.2	0.15	13
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.09	0
Victory Extension WB left/thru	A	3.4	0.04	3
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	A	9.8	0.37	—
Victory WB thru/right	A	0.0	0.12	0
Marina SB left/right	B	11.3	0.08	6

Shading indicates drop in service from Existing Conditions

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is the maximum after 2 cycles.

* denotes storage lane

As shown in **Table 5** and **Table 6**, the LOS at all study area intersections will remain unchanged under No-Build conditions, with the exception of four individual approaches.

- At the intersection of **Commander Shea Boulevard/Quincy Shore Drive Westbound On/Off Ramps**, the Quincy Shore Off-Ramp northbound stop-controlled left/right approach decreases from a LOS E to LOS F during the AM peak hour. The change in LOS is a result of the background traffic growth, which increased the delay at this approach from 45.3 seconds to just over 50.0 seconds, which is the threshold for LOS F. This level of operation is typical for a stop-controlled minor street approach that intersects a major roadway. The Neponset River Bridge Rehabilitation Project is currently causing long delays and queues on Commander Shea Boulevard and on the Quincy Shore Drive westbound on-ramp due to the reduction in travel lanes on Quincy Shore Drive and the Neponset River Bridge. When the reconstruction project is completed by August 2013, these lanes will be reopened, and the

Commander Shea Boulevard westbound left turns are expected to operate at LOS B in the AM peak hour and at LOS A in the PM peak hour. As such, queuing conditions at the Commander Shea Boulevard westbound approach would improve from those noted in field observations under Existing Conditions.

- At the intersection of **Victory Road/East Squantum Street**, the Victory Road eastbound stop-controlled left turn lane decreases from LOS C to LOS D during the PM peak hour. The change in LOS is a result of the background traffic growth on Victory Road and East Squantum Street. LOS D is generally considered acceptable in an environment such as the Project study area, and below theoretical operating capacity.
- At the intersection of **Victory Road/Marina Drive**, the Victory Road eastbound stop-controlled approach worsens from LOS A to LOS B during the PM peak hour. The Marina Drive southbound stop-controlled approach decreases from LOS B to LOS C in the PM peak hour.

Build Conditions

The Project consists of construction of two new buildings containing a total of up to 382 residential apartment units and approximately 18,500 sf of ground-floor retail space on two parcels of land, including:

- The Phase I site, located just north of Victory Road Extension, that will include the construction of up to 217 residential units and approximately 14,900 sf of retail space;
- The Phase II site, located just south of Victory Road Extension, that will include the construction of up to 165 residential units and approximately 3,600 sf of retail space; and
- Parking for approximately 668 vehicles between the two sites, including 556 structured parking spaces and 112 spaces on-street and within surface parking lots.

Site Access and Circulation

Vehicular access to the Phase I site will occur on Haul Road Extension and Victory Road Extension. Just north of Victory Road Extension, a pick-up/drop-off area will be provided to accommodate short-term activity such as taxis and/or deliveries. Curb cuts providing access to the parking garage and dedicated loading/service area will be provided the Phase I Driveway approximately 200 feet north of Victory Road Extension. A curb will also be provided on Victory Road Extension, approximately 180 feet east of Haul Road Extension, to provide access to the proposed surface parking area. Several on-street parking spaces will also be provided along Haul and Victory Road Extension adjacent to the site.

Vehicular access to the site for Phase II will be provided on Haul Road via two new curb cuts located roughly 200 and 600 feet south of Victory Road. The new driveways will provide access to surface and structured parking for residents and patrons of the retail uses as well as to the dedicated loading/service area. The Phase II South Driveway will provide two-way access, while the Phase II North Driveway will be restricted to exiting vehicles only.

All loading, trash pick-up, and move-in/move-out activities will occur on-site at the locations mentioned above for each phase.

Parking

The proposed parking supply is consistent with the City of Quincy Zoning requirements (1.5 parking spaces per residential unit and 1 parking space per 400 sf of retail).

The Project will provide approximately 668 parking spaces on-site, including 556 structured parking spaces for residential use and 112 surface parking spaces (on-street and within parking lots) to meet the retail ratio (46 spaces required), for residential use, and to otherwise contribute to the publicly available parking pool.

In conjunction with the construction of Phase I of the project, the proponent will improve the Rear Boat Storage Parking Lot as shown on sheet C2.03 to provide an additional 225 parking spaces open for use by the general public during the summer season (May to October) and 100 parking spaces for use by the general public in the winter season (October to April).

Vehicle Trip Generation

Vehicle trip generation for the Project was derived from data contained in the *Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition*, manual. The following ITE Land Use Codes (LUC) were used to estimate the Project-generated trips:

LUC 220 – Apartment. Apartments (rental dwelling units) are units located in rental buildings of various sizes. Calculations of the residential AM and PM peak hour generated trips use ITE’s fitted curve equation. Daily trips were calculated using the average trip generation rate.

LUC 820 – Shopping Center. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. The average rates were used to estimate the person trips associated with the proposed retail space. The trip generation characteristics of this LUC are expected to provide a conservative estimate for the proposed retail space.

While private shuttle bus and MBTA bus service is available within a ¼ mile to ¾ mile of the Project site, respectively, it was assumed that all project-generated trips will occur via passenger vehicles in order to provide the most conservative estimate. Given the mixed-use nature of the Project, a 25% internal capture rate was applied to the Weekday Daily retail trips to account for residents of the proposed apartments that will utilize the Project’s retail uses; however, in order to provide a conservative estimate during peak periods, no internal capture rate was used for analysis of the AM and PM Peak periods.

The resulting Project-generated vehicle trips are summarized in **Table 7**, with detailed trip generation information provided in **Appendix D**.

Table 7. Project Trip Generation – Weekday

Land Use			
	Residential (382 units)	Retail (18,500 SF)	Total
Weekday Daily			
Total	2,540	592	3,132
In	1,270	296	1,566
Out	1,270	296	1,566
Weekday AM Peak			
Total	191	18	209
In	38	11	49
Out	153	7	159
Weekday PM Peak			
Total	228	69	297
In	148	33	181
Out	80	36	116

As shown in **Table 7**, the Project will generate approximately 3,132 new vehicle trips per day, including 209 (49 entering and 160 exiting) in the AM peak hour, and 297 (181 entering and 116 exiting) in the PM peak hour. This equates to about 0.8 trips per minute entering and about 2.7 trips per minute exiting in the AM peak hour, and about 3.0 trips per minute entering and about 2.0 trips per minute exiting in the PM peak hour.

Comparison to Existing Uses

It should be noted that not all of these trips will be new trips, since the Project will replace the existing, occupied uses currently on-site: two industrial/commercial warehouse buildings containing a combined total of approximately 40,000 sf and an approximately 62,000 sf night club. Vehicle trips associated with the existing

uses on-site are already on the adjacent roadway network. The warehouses are primarily used for boat repair, which is generally considered a low intensity use in terms of vehicle trip generation. The night club, which has a capacity for as many as 1,600 people, currently operates Friday through Sunday night, from 7:00 PM to 1:00 AM. As such, the peak periods for this type of use are off-peak, during the evening and early-morning hours. In order to provide conservative estimate of Project-generated vehicle trip generation no credit was taken for any of the existing uses on-site.

Saturday Trip Generation Estimate

A trip generation estimate was also performed for the Saturday Daily and Saturday Midday Peak period. As in the Weekday Daily trip generation, a 25% capture rate was applied to the Saturday Daily retail trips; however, no capture rate was applied to the Saturday Midday retail trips to provide a conservative estimate for project-generated vehicle trips. **Table 8** shows the trip generation estimate for Saturday.

Table 8. Project Trip Generation – Saturday

Land Use			
	Residential (382 units)	Retail (18,500 SF)	Total
Saturday Daily			
Total	2,440	694	3,134
In	1,220	347	1,567
Out	1,220	347	1,567
Saturday Peak			
Total	198	89	287
In	113	46	159
Out	85	43	128

As shown in **Table 8**, the estimated number of the total daily vehicle trips on Saturday is similar to that on a weekday; however, vehicle trips are generally more spread out throughout the day with less intense peak periods. Specifically vehicle trip generation during the Saturday midday peak hour is slightly lower than during the weekday midday peak hour (287 vehicle trips per hour on a Saturday vs. 297 vehicle trips per hour on a weekday evening) and both project-generated vehicle trips and the vehicle trips on the adjacent roadway network are generally more evenly dispersed in terms of directionality on a Saturday versus on a weekday. For example, during the weekday morning peak period, nearly 80% of project-generated vehicle trips will be exiting the site (commuting to work, etc.), while on a Saturday only approximately 50% of project-generated vehicles will be exiting the site during the peak period which reduces the overall impact on the adjacent roadway network. As detailed above, the Project will be replacing an approximately 62,000 sf night club, which has a capacity for as many as 1,600 people. Thus, the net traffic generation on a Saturday will actually be less than that shown in **Table 8** as the vehicle trips associated with the existing use (patrons, employees, deliveries, etc.) will no longer be on the roadway network.

Vehicle Trip Distribution

A trip distribution pattern identifies the various travel paths for vehicles arriving at a destination and the corresponding departure travel paths. The vehicular trip distribution for the Project was developed based on existing traffic patterns, US Census Journey-to-Work data, and knowledge of the local roadway network. The resulting vehicular trip distribution is illustrated in **Figure 9**. As shown, approximately 70% of the vehicle trips will enter or exit the general study area via Interstate 93 and/or other local destinations to the north and west of the site, while the remaining 30% will enter or exit to points south and east of the study area via East Squantum Street or Commander Shea Boulevard. The Project-generated vehicle trips were then added to the 2017 No Build Conditions volumes according to the vehicle trip distribution patterns. The new Project-generated trips in the study area are shown in **Figure 10** and **Figure 11** for the AM peak hour and PM peak hour, respectively. The 2017 Build Conditions intersection volumes are shown in **Figure 12** and **Figure 13** for the AM and PM peak hours, respectively.

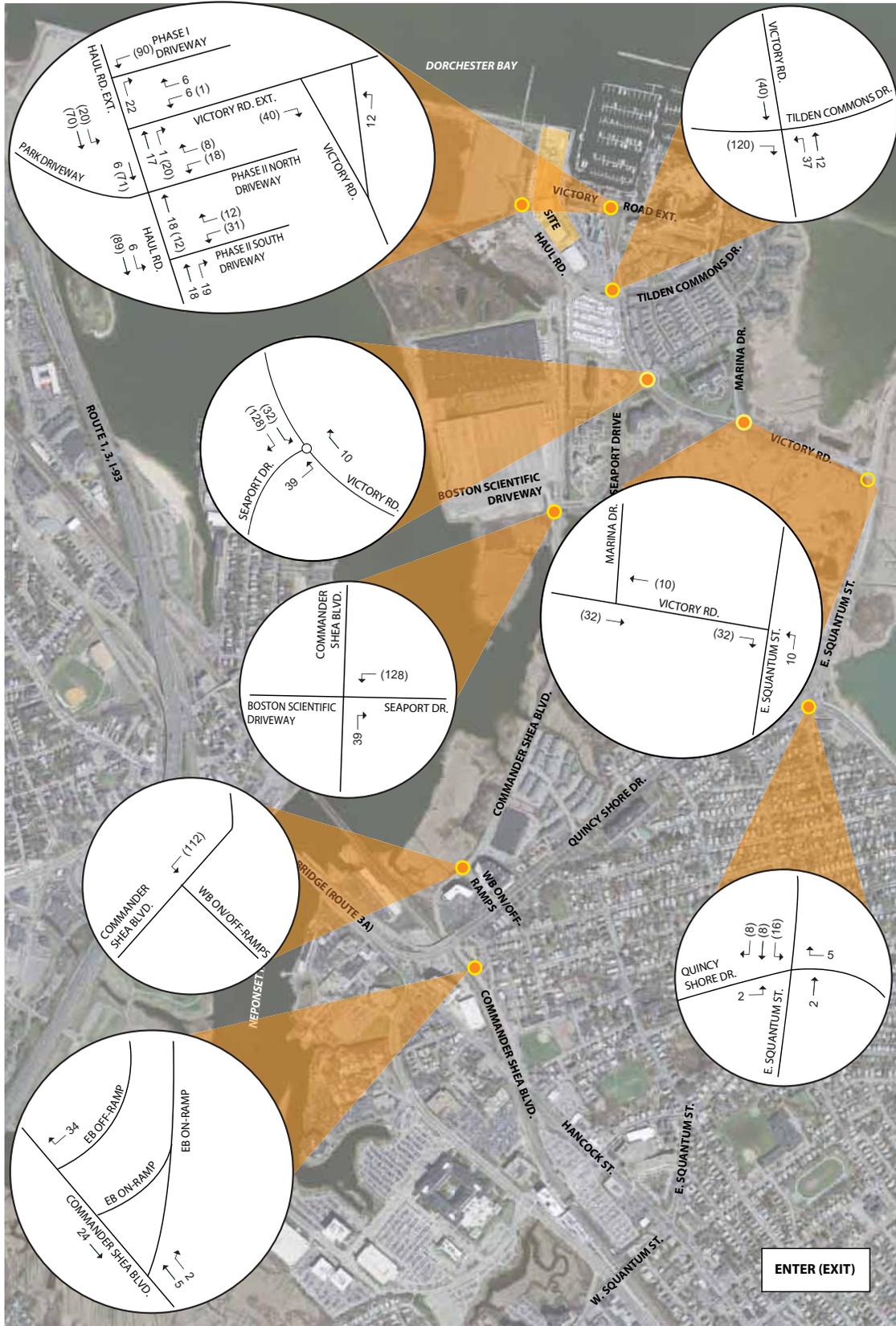
Build Traffic Operations

Intersection capacity analysis was conducted for the 2017 Build Condition traffic volumes at the study area intersections using the same methodology described above for Existing and No-Build Conditions. The resulting traffic operations in the 2017 Build year are presented in **Table 9** and **Table 10**. Capacity analysis reports are provided in **Appendix B**.

Figure 9. Trip Distribution



**Figure 10. Project-Generated Trips (2017),
 Weekday AM Peak Hour**



**Figure 11. Project-Generated Trips (2017),
 Weekday PM Peak Hour**

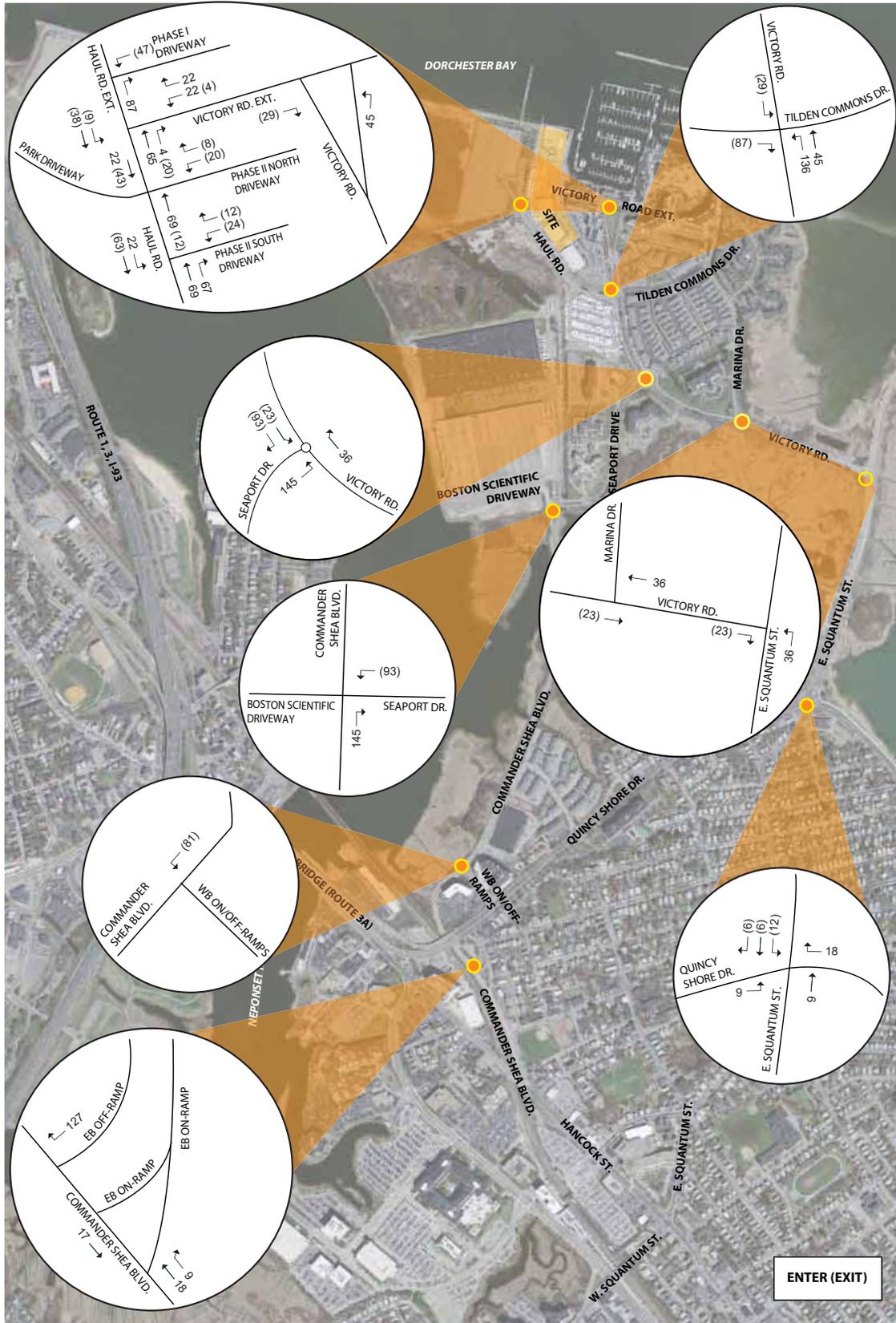


Figure 12. Build Conditions (2017) Traffic Volumes, Weekday AM Peak Hour

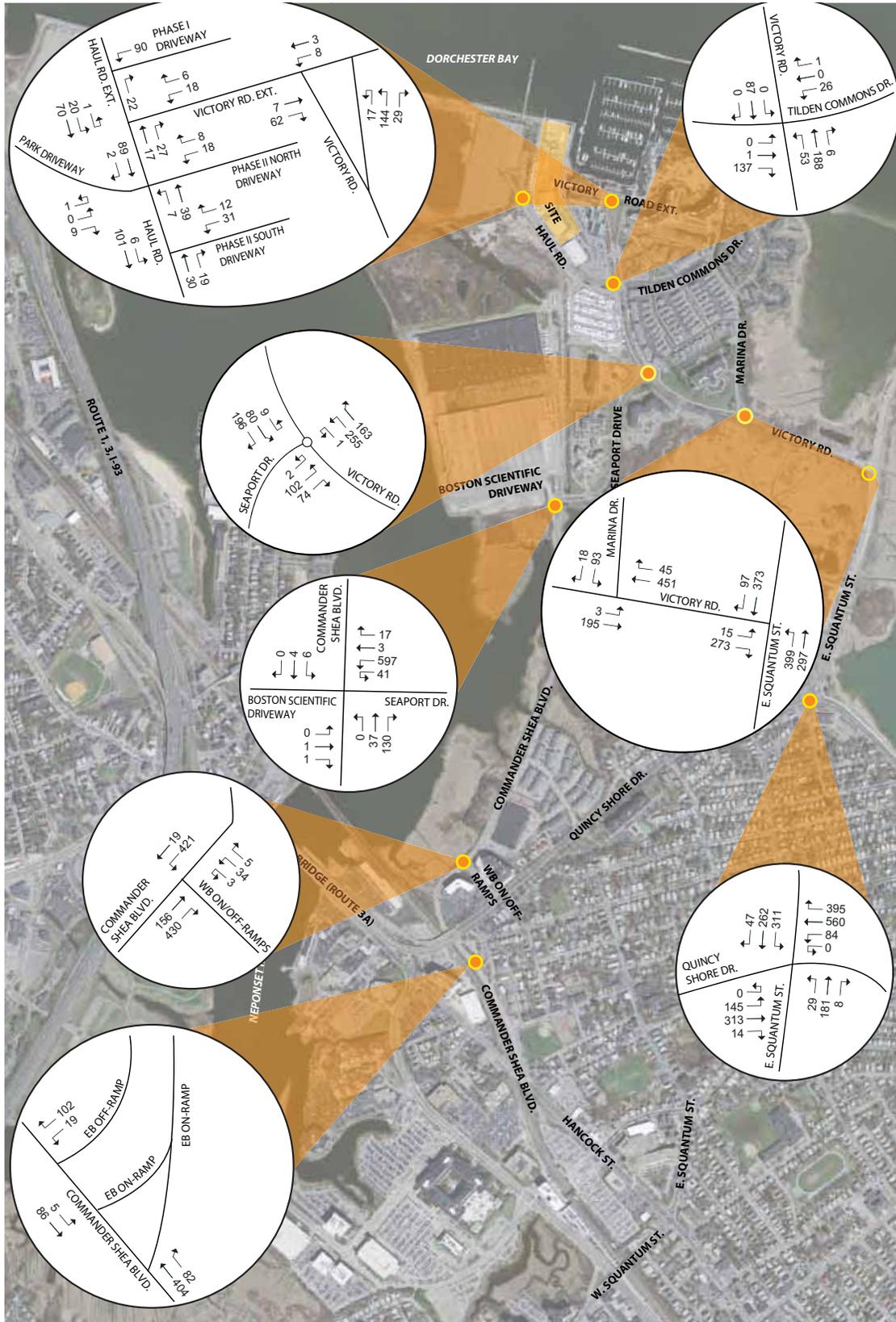


Figure 13. Build Conditions (2017) Traffic Volumes, Weekday PM Peak Hour

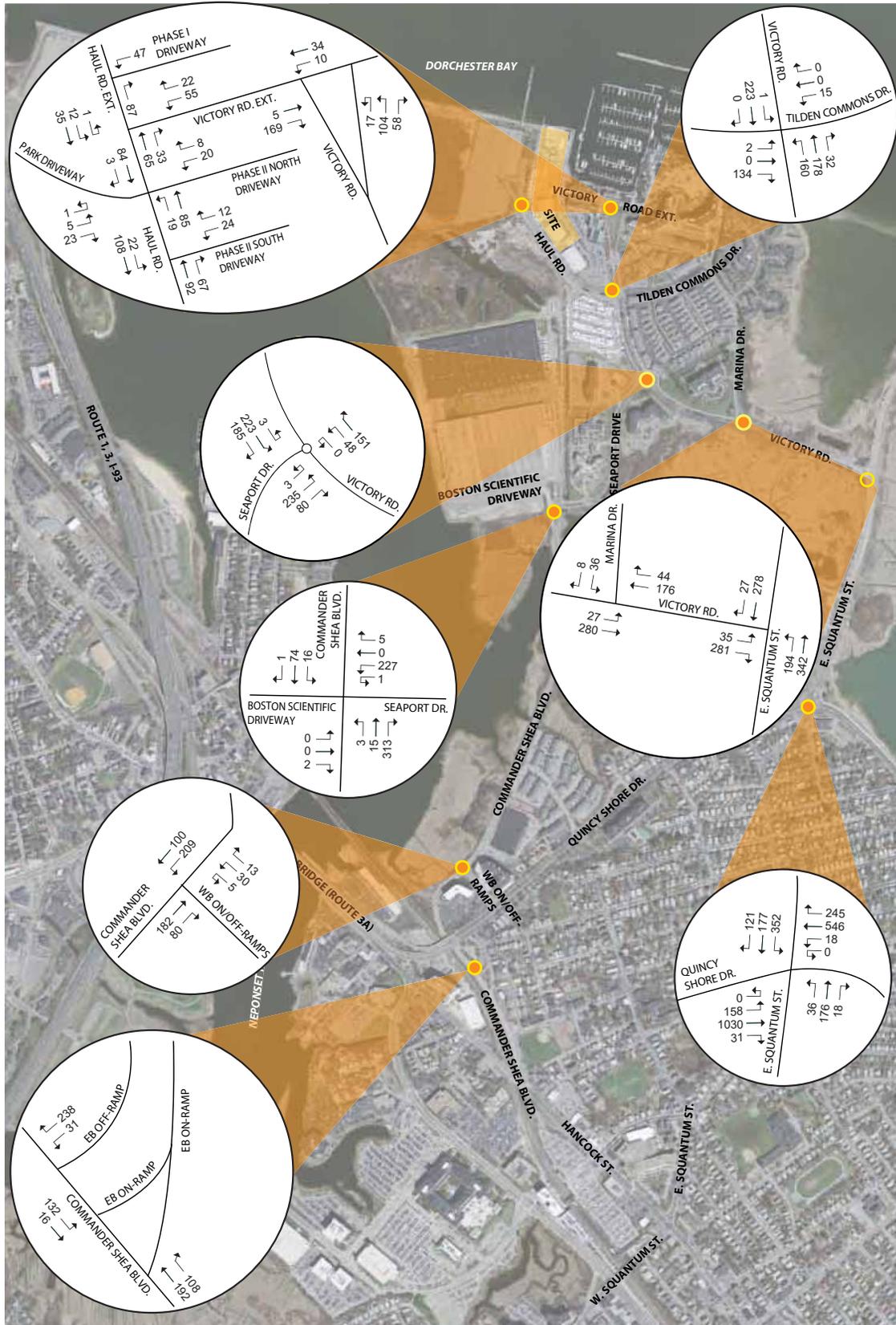


Table 9. Build Conditions (2017) Level of Service Summary: AM Peak Hour

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	F	> 80.0	—	—
Quincy Shore EB left*	E	71.7	0.77	#228
Quincy Shore EB thru thru	B	13.6	0.18	130
Quincy Shore EB right	A	5.1	0.04	0
Quincy Shore WB left	F	> 80.0	> 1.00	#227
Quincy Shore WB thru	D	47.1	0.85	#875
Quincy Shore WB right*	A	0.5	0.29	0
E Squantum NB left/thru/right	F	> 80.0	> 1.00	#409
E Squantum SB left	F	> 80.0	> 1.00	#626
E Squantum SB thru	D	40.6	0.55	342
E Squantum SB right*	A	8.5	0.15	4
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	7.4	0.03	—
Haul Road NB thru/right	A	6.9	0.05	—
Haul Road SB left/thru	A	7.6	0.11	—
3. Victory Road/Haul Road/Tilden Commons Drive	—	—	—	—
Haul Road EB left/thru	B	13.1	0.00	0
Haul Road EB right*	A	9.5	0.13	11
Tilden WB left/thru/right	B	14.2	0.09	7
Victory NB left/thru/right	A	1.6	0.04	3
Victory SB left/thru/right	A	0	0.00	0
4. Seaport Drive/Victory Road	B	11.7	—	—
Seaport EB left/right	A	7.3	0.30	1
Victory NB left/thru	B	12.4	0.60	4
Victory SB thru/right	B	13.4	0.57	4
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	—	—	—	—
Driveway EB left/thru/right	A	9.4	0.01	1
Seaport WB left/thru/right	F	> 50.5	0.99	410
Commander NB left/thru/right	A	0.0	0.00	0
Commander SB left/thru/right	A	5.2	0.01	1
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left*	F	> 50.0	0.56	48
Victory EB right	C	22.9	0.62	106
E Squantum NB left	B	12.6	0.50	71
E Squantum NB thru	A	0.0	0.23	0
E Squantum SB thru/right	A	0.0	0.38	0

Table 9. Build Conditions (2017) Level of Service Summary: AM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (feet)
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB thru/right	A	0.0	0.40	0
Commander WB left/thru	B	13.3	0.55	85
Quincy NB left/right	F	> 50.0	0.85	104
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	C	16.6	0.42	52
Commander NB thru/right	A	0.0	0.36	0
Commander SB left/thru	A	0.4	0.00	0
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.01	0
Victory NB left/right	A	9.5	0.21	19
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.04	0
Victory Extension WB left/thru	A	1.2	0.02	1
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	A	10.0	0.29	—
Victory WB thru/right	A	0.0	0.32	0
Marina SB left/right	C	17.5	0.30	31
11. Phase I Driveway/Haul Road	—	—	—	—
Phase I WB left	A	8.9	0.10	8
Haul Road NB right	A	0.0	0.01	0
12. Phase II North Driveway/Haul Road/Squantum Point Park Driveway	—	—	—	—
Squantum Point u-turn/left/right	A	8.8	0.01	1
Phase II WB left/right	A	9.4	0.03	3
Haul Road NB thru	A	1.3	0.01	0
Haul Road SB thru	A	0.0	0.06	0
13. Phase II South Driveway/Haul Road	—	—	—	—
Phase II WB left/right	A	9.4	0.05	4
Haul Road NB thru/right	A	0.0	0.03	0
Haul Road SB left/thru	A	0.4	0.00	0

Shading indicates drop in service from No-Build (2017) Conditions
 # = 95th percentile volume exceeds capacity; queue may be longer. Queue shown is the maximum after 2 cycles.
 * denotes storage lane

Table 10. Build Conditions (2017) Level of Service Summary: PM Peak Hour

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95 th Percentile Queue Length (feet)
Signalized Intersections				
1. Quincy Shore Drive/East Squantum Street	E	67.3	—	—
Quincy EB left*	E	71.5	0.72	#292
Quincy EB thru thru	C	24.5	0.58	550
Quincy EB right	A	8.9	0.05	20
Quincy WB left/thru thru	D	52.2	0.83	#456
Quincy WB right*	A	0.2	0.17	0
E Squantum NB left/thru/right	E	72.5	0.82	#376
E Squantum SB left	F	> 80.0	> 1.00	#599
E Squantum SB thru	D	38.4	0.33	226
E Squantum SB right*	A	6.6	0.27	23
Unsignalized Intersections				
2. Victory Road Extension/Haul Road	—	—	—	—
Victory Extension WB left/right	A	7.7	0.10	—
Haul Road NB thru/right	A	7.5	0.12	—
Haul Road SB left/thru	A	7.6	0.06	—
3. Victory Road/Haul Road/Tilden Commons Drive	—	—	—	—
Haul Road EB left/thru	C	20.8	0.01	1
Haul Road EB right*	B	11.3	0.20	19
Tilden WB left/thru/right	D	27.1	0.12	10
Victory NB left/thru/right	A	4.3	0.14	12
Victory SB left/thru/right	A	0.1	0.00	0
4. Seaport Drive/Victory Road	A	9.5	—	—
Seaport EB left/right	B	10.2	0.45	2.1
Victory NB left/thru	A	7.2	0.27	1.1
Victory SB thru/right	B	10.1	0.53	3.2
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	—	—	—	—
Driveway EB left/thru/right	A	8.8	0.00	0
Seaport WB left/thru/right	C	19.5	0.53	78
Commander NB left/thru/right	A	0.2	0.01	0
Commander SB left/thru/right	A	2.2	0.03	2
6. Victory Road/East Squantum Street	—	—	—	—
Victory EB left/right	D	30.7	0.23	21
Victory EB right	C	16.8	0.57	90
E Squantum NB left	A	8.7	0.18	16
E Squantum NB thru	A	0.0	0.21	0
E Squantum SB thru/right	A	0.0	0.22	0

Table 10. Build Conditions (2017) Level of Service Summary: PM Peak Hour (cont.)

Intersection/Approach	LOS	Delay (seconds)	V/C Ratio	95th Percentile Queue Length (feet)
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps	—	—	—	—
Commander EB left/right	A	0.0	0.20	0
Commander WB thru/right	A	7.3	0.28	28
Quincy NB left/right	D	26.3	0.27	26
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps	—	—	—	—
Quincy WB left/right	C	23.0	0.74	169
Commander NB thru/right	A	0.0	0.21	0
Commander SB left/thru	A	0.8	0.01	1
9a. Victory Road NB/Victory Road Extension	—	—	—	—
Victory Extension EB thru	A	0.0	0.00	0
Victory Extension WB thru	A	0.0	0.02	0
Victory NB left/right	A	9.5	0.20	18
9b. Victory Road SB/Victory Road Extension	—	—	—	—
Victory Extension EB thru/right	A	0.0	0.11	0
Victory Extension WB left/thru	A	2.6	0.04	3
10. Victory Road/Marina Drive	—	—	—	—
Victory EB left/thru	B	10.2	0.40	—
Victory WB thru/right	A	0.0	0.14	0
Marina SB left/right	B	12.8	0.09	8
11. Phase I Driveway/Haul Road Extension	—	—	—	—
Phase I WB left	A	8.9	0.09	8
Haul Road NB thru/right	A	0.0	0.03	0
12. Phase II North Driveway /Haul Road/Squantum Point Park Driveway	—	—	—	—
Squantum Point Drive u-turn/left/right	A	9.1	0.03	3
Phase II WB left/thru/right	B	10.1	0.04	3
Haul Road NB left/thru	A	1.4	0.01	1
Haul Road SB thru/right	A	0.0	0.06	0
13. Phase II South Driveway/Haul Road	—	—	—	—
Phase II WB left/right	B	10.1	0.05	4
Haul Road NB thru/right	A	0.0	0.10	0
Haul Road SB left/thru	A	1.4	0.02	1

Shading indicates drop in service from No-Build (2017) Conditions

= 95th percentile volume exceeds capacity; queue may be longer. Queue shown is the maximum after 2 cycles.

* denotes storage lane

Under 2017 Build Conditions, all intersections and individual approaches will continue to operate at the same LOS as the 2017 No-Build Conditions with the following exceptions:

- At the intersection of **Victory Road/Haul Road/Tilden Commons Drive**, the Haul Road EB left/thru lane drops from LOS B to LOS C in the PM peak hour. The Tilden Commons Drive approach drops from LOS B to LOS D in the PM peak hour.
- At the intersection of **Seaport Drive/Victory Road**, the overall LOS drops from LOS A to LOS B in the AM peak period. The Seaport Drive approach drops from LOS A to LOS B in the PM peak hour, and the Victory Road southbound approach drops from LOS A to LOS B in both the AM and PM peak hours.
- At the intersection of **Seaport Drive/Commander Shea Boulevard**, the Seaport Drive stop-controlled left/through/right westbound approach decreases from a LOS C to LOS F during the AM peak hour. It has been anecdotally noted by the community that some motorists are cutting through the Marina during the weekday morning peak period to avoid construction congestion along Quincy Shore Drive westbound, which could potentially result in slightly higher traffic volumes at the Seaport Drive westbound approach; however, construction has completed on the Neponset River Bridge, some cut-through traffic is expected to return to Quincy Shore Drive, which would improve operations at this approach.
- At the intersection of **Commander Shea Boulevard/Quincy Shore Drive WB Off-ramps**, the Quincy Shore Drive WB off-ramp northbound approach decreases from LOS C to LOS D in the PM peak hour. The Neponset River Bridge Rehabilitation Project had been causing long delays and queues on Commander Shea Boulevard and on the Quincy Shore Drive westbound on-ramp due to the reduction in travel lanes on Quincy Shore Drive and the Neponset River Bridge. Since capacity was restored in October, 2012, these lanes have been reopened and queuing conditions along the Commander Shea Boulevard westbound left turn approach have improved.
- At the intersection of **Commander Shea Boulevard/Quincy Shore Drive EB Off-ramps**, the Quincy Shore Drive EB off-ramp westbound approach decreases from LOS B to LOS C in both the AM and PM peak hours.
- At the intersection of **Victory Road/Marina Drive**, the Victory Road eastbound approach decreases from LOS A to LOS B in the PM peak hour.

As previously noted, LOS D generally is accepted in an environment such as the Project study area, and below theoretical operating capacity, and LOS E is typical for a stop-controlled approach at an intersection with a major roadway.

The Project site's driveways are expected to operate at a good LOS (LOS B or better) during the AM and PM peak periods.

The intersection of Quincy Shore Drive/East Squantum Street will continue to operate at LOS F during the AM peak hour and LOS E during the PM peak hour, as it does under Existing Conditions. The project is not expected to significantly impact this intersection as only approximately 20% of site-generated traffic is expected to be routed through this location. The project will only add approximately 41 vehicle trips during the AM peak hour and 60 vehicle trips during the PM peak hour to this intersection, an increase of less than 3% in both cases.

Table 11 and compares the LOS of the 2012 Existing Conditions, the 2017 No-Build Conditions, and the 2017 Build Conditions.

Table 11. Level of Service Comparison Summary, AM and PM Peak Hours

Intersection/Approach	Existing		No-Build		Build	
	AM	PM	AM	PM	AM	PM
1. Quincy Shore Drive/East Squantum Street	F	E	F	E	F	E
Quincy EB left*	E	E	E	E	E	E
Quincy EB thru thru	B	C	B	C	B	C
Quincy EB right	A	A	A	A	A	A
Quincy WB left+	F	-	F	-	F	-
Quincy WB left/thru thru	-	D	-	D	-	D
Quincy WB thru	D	-	D	-	D	-
Quincy WB right*	A	A	A	A	A	A
E Squantum NB left/thru/right	F	E	F	E	F	E
E Squantum SB left	F	F	F	F	F	F
E Squantum SB thru	D	D	D	D	D	D
E Squantum SB right*	A	A	A	A	A	A
2. Victory Road Extension/Haul Road						
Victory Extension WB left/right	A	A	A	A	A	A
Haul Road NB thru/right	A	A	A	A	A	A
Haul Road SB left/thru	A	A	A	A	A	A
3. Victory Road/Haul Road/Tilden Commons Drive						
Haul Road EB left/thru	B	B	B	B	B	C
Haul Road EB right*	A	B	A	B	A	B
Tilden WB left/thru/right	B	B	B	B	B	D
Victory NB left/thru/right	A	A	A	A	A	A
Victory SB left/thru/right	A	A	A	A	A	A
4. Seaport Drive/Victory Road	A	A	A	A	B	A
Seaport EB left/right	A	A	A	A	A	B
Victory NB left/thru	B	A	B	A	B	A
Victory SB thru/right	A	A	A	A	B	B
5. Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway						
Driveway EB left/thru/right	A	A	A	A	A	A
Seaport WB left/thru/right	C	B	C	B	E	C
Commander NB left/thru/right	A	A	A	A	A	A
Commander SB left/thru/right	A	A	A	A	A	A
6. Victory Road/East Squantum Street						
Victory EB left*	F	C	F	D	F	D
Victory EB right	C	C	C	C	C	C
E Squantum NB left	B	A	B	A	B	A
E Squantum NB thru	A	A	A	A	A	A
E Squantum SB thru/right	A	A	A	A	A	A

Table 11. Level of Service Comparison Summary, AM and PM Peak Hours (cont.)

Intersection/Approach	Existing		No-Build		Build	
	AM	PM	AM	PM	AM	PM
7. Commander Shea Boulevard/Quincy Shore Drive Westbound on/off-ramps						
Commander EB left/right	A	A	A	A	A	A
Commander WB thru/right	B	A	B	A	B	A
Quincy NB left/thru	E	C	F	C	F	D
8. Commander Shea Boulevard/Quincy Shore Drive Eastbound on/off-ramps						
Quincy WB left/right	B	B	B	B	C	C
Commander NB thru/right	A	A	A	A	A	A
Commander SB left/thru	A	A	A	A	A	A
9a. Victory Road NB/Victory Road Extension						
Victory Extension EB thru	A	A	A	A	A	A
Victory Extension WB thru	A	A	A	A	A	A
Victory NB left/right	A	A	A	A	A	A
9b. Victory Road SB/Victory Road Extension						
Victory Extension EB thru/right	A	A	A	A	A	A
Victory Extension WB left/thru	A	A	A	A	A	A
10. Victory Road/Marina Drive						
Victory EB left/thru	A	A	B	A	A	B
Victory WB thru/right	A	A	A	A	A	A
Marina SB left/right	B	B	C	B	C	B
9. Phase I Driveway/Haul Road Extension						
Phase I WB left/right	-	-	-	-	A	A
Haul Road NB thru/right	-	-	-	-	A	A
10. Phase II North Driveway/Haul Road/Squantum Point Park Driveway						
Squantum Point Drive u-turn/left/right	-	-	-	-	A	A
Phase II North WB left/right	-	-	-	-	A	B
Haul Road NB thru/right	-	-	-	-	A	A
Haul Road SB left/thru	-	-	-	-	A	A
11. Phase II South Driveway/Haul Road						
Phase II South WB left/right	-	-	-	-	A	B
Haul Road NB thru/right	-	-	-	-	A	A
Haul Road SB left/thru	-	-	-	-	A	A

Shading indicates drop in service from No-Build (2017) Conditions
 # = 95th percentile volume exceeds capacity; queue may be longer. Queue shown is the maximum after 2 cycles.
 * denotes storage lane
 + denotes de facto turn lane

Loading and Service

All loading, trash pick-up, and move-in/move-out activities for the Project will occur on-site. Each of the new buildings will be provided with a dedicated, enclosed loading and service area that can accommodate a vehicle as large as SU-36 (e.g., large box truck or trash truck) - (see **Figure 1**).

A Transportation Coordinator will be appointed by the Project to manage loading activity, the removal of trash and recyclables, and to coordinate residential move-in/move-out activities. Where possible, these activities will be scheduled during off-peak hours. Permanent "No Idling" signs will be posted in the loading and parking areas.

Transportation Demand Management

The Proponent is committed to implementing a Transportation Demand Management (TDM) program for Project residents in an effort to minimize the Project's vehicular impacts on the adjacent transportation network. TDM measures will promote the use of public transportation (including private shuttle service and MBTA service), walking, and bicycling, and other options to reduce single occupant vehicle trips. TDM measures may include, but are not limited to, the following:

- **Transportation Coordinator** – The Project will designate a transportation coordinator to manage all transportation issues associated with the Project. The transportation coordinator will oversee transportation issues, including parking, service, loading, and move-in/move-out activity and, where possible, schedule these activities during off-peak hours. The transportation coordinator will work with residents as they move in and to raise awareness of public transportation alternatives, such as private shuttle service and MBTA rapid transit and bus, and vanpool/carpool alternatives and incentives.
- **Tenant and Resident Orientation Packets** – These packets will provide all new tenants and residents with information about available transportation demand management programs and public transportation options (such as the, private shuttle bus service, MBTA bus and rapid transit services, etc.), including program information, route schedules, maps, and fare information. While residents may need to drive, bike, or be dropped off, to take advantage of some of these options, their use can reduce the overall impact on the local and regional transportation network.
- **Private Public Transit Alternatives** – The Project Proponent is exploring opportunities to provide or expand shuttle bus or water shuttle service.
- **Shared Car Service** – The Proponent will investigate the feasibility of providing shared cars (e.g., Zipcar) on-site in an effort to reduce vehicle ownership among building residents.
- **Secure Bicycle Storage** – The Project proposes to construct on-site secure bicycle storage for up to 15% of building tenants in accordance with current LEED standards. Bicycle storage would be located in service, covered locations either within the buildings parking garages and/or within dedicated bicycle storage rooms. Additional bicycle racks would be placed near the primary entrance of each building for visitors and other short-term users.

The possibility of reintroducing ferry service to Marina Bay has long been discussed; however, there has not been sufficient demand at this location to support such as service. It is possible that the addition of the Project's approximately 401 residential units could potentially increase future demand to the point that such a ferry service would one day be more feasible; however, the success/attractiveness of such a service would largely depend on service frequency as well as other factors such as cost, etc. In the event that ferry service to the Marina is established in the future, the Project's Transportation Coordinator would take an active role at encouraging ridership among Project residents as it would help reduce Project-generated vehicle trips during the peak commuter periods on the adjacent roadway network.

Transportation Mitigation

Transportation mitigation measures proposed to improve traffic and pedestrian conditions in the vicinity of the site include the following:

- Victory Road Extension – The Project will improve Victory Road Extension, providing an enhanced vehicular and pedestrian connection for Project residents as well as for residents and visitors of the Marina Bay area. The new roadway would include new sidewalks, crosswalks, on-street parking, and other streetscape elements to enhance the pedestrian environment.
- Haul Road Improvements – The Project will improve Haul Road and the connection to Victory Road Extension. The improvements will provide access to the Project’s parking garage as well as other on-street parking. In addition, the improvements will include a new sidewalk along the eastern side, new pedestrian crossings, and provide an improved pedestrian connection to the Harbor Walk.
- Marina Bay Harborwalk Extension – The Project will construct an extension of the Marina Bay Harborwalk that will provide the missing link between the existing Harbor Walk and the Squantum Point Park. The extension will also provide public access to water views that are currently inaccessible.
- Boat Storage Lot Improvements – In conjunction with the construction of Phase I of the project, the proponent will improve the Rear Boat Storage Parking Lot to provide an additional 225 parking spaces open for use by the general public during the summer season (May to October) and 100 parking spaces for use by the general public in the winter season (October to April).
- Transportation Demand Management (TDM) Program – the Proponent is committed to implementing a TDM program aimed at reducing the Project’s vehicular impacts on the adjacent transportation network. TDM measures may include, but are not limited to, promotion of public transportation alternatives, provision of secure bicycle storage, and provision of shared car services on-site (e.g., Zipcar).
- Traffic and Parking Monitoring Program – If desired by the City of Quincy, the Project Proponent will conduct a traffic and parking monitoring program for the Project in order to document the actual traffic characteristics and parking demands associated with the Project once it is constructed and occupied. The monitoring program will include automatic traffic recorder counts conducted at the driveways serving the Project site over a continuous 24-hour, 7-day, week-long period, and an inventory of parking demands conducted during the weekday morning (6:00 to 8:00 AM), weekday evening (5:00 to 7:00PM) and Saturday midday (11:00 to 1:00 PM) peak periods. The monitoring program will commence following 80 percent occupancy of each phase of the Project and continue for a period not to exceed 2-years after submission of the as-built drawings to the City. If the monitoring program indicates that the Project is generating in excess of 110 percent of the traffic volumes projected in the Revised January 2013 TIAS, or that the parking demands are exceeding the available supply, the Applicant will define corrective measures to be designed and implemented at the sole cost of the Applicant. The results of the monitoring program will be provided to the City of Quincy Department of Planning and Community Development within 2-months of the completion of the data collection effort.
- Private Public Transit Alternatives – The Project Proponent is exploring opportunities to provide or expand shuttle bus or water shuttle service.
- Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway – Subject to private third-party approval, the Project proposes to formalize travel lanes within the existing roadway on Seaport Drive (a Private Roadway) westbound and on Commander Shea Boulevard (a Private Roadway) northbound. On Seaport Drive westbound, the 22-foot travel lane will be converted into an 11-foot

shared left-turn/through lane and an 11-foot right-turn lane. The two lanes will have a storage length of approximately 100 feet. On Commander Shea Boulevard northbound, the existing 23-foot travel lane will be converted into an 11-foot shared left-turn/through lane and a 12-foot right-turn lane. These changes reduce delay by allowing right-turning traffic to flow through the intersection, even if left-turning vehicles are queued. The proposed modifications will improve the LOS at the Seaport Drive westbound approach LOS F to LOS D during the morning peak hour and from LOS C to LOS B during the evening peak hour (see table **Table 12**). A concept drawing is provided in **Appendix E**.

Table 12. Level of Service Comparison Summary with Mitigation, AM and PM Peak Hours

Intersection/Approach	AM				PM			
	Build		Build with Mitigation		Build		Build with Mitigation	
	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Seaport Drive/Commander Shea Boulevard/Boston Scientific Driveway	-	-	-	-	-	-	-	-
Driveway EB left/thru/right	A	9.4	A	9.4	A	8.8	A	8.8
Seaport WB left/thru/right	F	> 50.0	-	-	C	19.5	-	-
Seaport WB left/thru	-	-	D	28.0	-	-	B	13.3
Seaport WB right	-	-	A	8.7	-	-	A	9.4
Commander NB left/thru/right	A	0.0	-	-	A	0.2	-	-
Commander NB left/thru	-	-	A	0.0	-	-	A	1.9
Commander NB right	-	-	A	0.0	-	-	A	0.0
Commander SB left/thru/right	A	5.2	A	5.2	A	2.2	A	2.2



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