

**PEDESTRIAN WARRANT
FOR
MID BLOCK CROSSING
PEDESTRIAN LIGHT
139 HATHAWAY ROAD
NEW BEDFORD, MASSACHUSETTS**

**PLANNING
OCT 14 2015
DEPARTMENT
CASE 16-15**

SITEC

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Land Use Planning

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INTRODUCTION

S. B. Realty limited Partnership is proposing to construct a 7,200 sf Auto Parts store at its 10 acre site at 139 Hathaway Road, New Bedford, MA. Access to the site is from two driveways on Hathaway Road. The City of New Bedford's Department of Public Infrastructure recommended, during Site Plan Review, that a Mid Block Pedestrian light be installed at the existing uncontrolled Mid Block crosswalk between Walker Street and Shawmut Avenue. Before any traffic light can be installed in Massachusetts, MUTCD Warrants must be fulfilled to justify the traffic light. A warrant is a condition that an intersection or mid block signal must meet to justify the signal installation. In order for the warrant to be fulfilled, the pedestrian volume crossing the street for any four hours on a normal day must be 100 or more. As such, manual counts of pedestrians crossing Hathaway Road at this cross walk were counted between the hours of 7:30 – 8:30 AM and 4:00 – 5:00 Pm (peak hours), 10:00 – 11:00 AM and 2:00 – 3:00 PM during a normal week day. The peak hour traffic times were gleaned from the Memorandum to the New Bedford Planning Board dated December 27, 2003. In this report traffic counts on this road were adjusted for seasonal variation, future conditions, future roadway improvements, historic traffic growth and site-specific growth. The traffic volume was projected into the year 2018.

Roadway Characteristics

Hathaway Road is an east west urban arterial under the jurisdiction of the City of New Bedford. The roadway is 44 feet wide at the existing cross walk and consists of two lanes of traffic divided by double yellow lines. Land uses in the vicinity of the cross walk are a mixed retail shopping center across from the Brikenwood housing development. The cross walk is 8' wide with 12" wide white painted lines. A pedestrian warning sign is located 27' west of the cross walk on the northerly side of Hathaway Road and warns the east bound traffic. The speed limit in the vicinity of the site is 30 miles per hour. East and west bound traffic are influenced by the phasing of the traffic light at the intersection of Hathaway Road and Shawmut Avenue. Gaps are created in the traffic streams that allow pedestrians to safely cross Hathaway Road.

Both sides of Hathaway Road have concrete sidewalks with vertical granite cubing at the roadway. The sidewalk on the southerly side of Hathaway Road adjacent to the housing development has a 5 foot high chain link fence with three openings for access from the housing development. The existing cross walk is located at the middle access point. The sight distance at the cross walk is at least 260 feet in either direction of Hathaway Road (see the attached Mid Block Cross Walk Safety Upgrade Plan).

Peak Hour Pedestrian Volumes

Peak hour pedestrian volumes were determined based on Manual Pedestrian counts conducted on Wednesday September 23, 2015 for the roadway peak hours of 7:30 – 8:30 AM and 4:00-5:00 PM. Traffic volume vehicles per hour (VPH) were also collected. Tabulated and graphical data for these hours are presented in the Appendix. An analysis of this data is presented below.

Field Observations

During the time of the data collection it was noted that there was no serious delays of more than 2 minutes for pedestrians to cross the street. Sufficient gaps in the traffic were created by the phasing of the traffic signal at Shawmut Avenue and the normal ingress and egress of vehicles entering and exiting the shopping center at both driveways. It was also noted that most drivers did yield to allow pedestrians to cross. It was also noted that only a small portion of the pedestrians (30%) crossing actually used the crosswalk. Most pedestrians chose to cross on either side of it, which coincides with the access points from the housing development.

ANALYSIS OF DATA COLLECTED

PEDESTRIAN VOLUMES

As noted in figure 1 the actual number of pedestrians that used the cross walk is very low. This figure is still very low when the pedestrians that went to the left and right of the cross walk are included. Based upon the total of 32 pedestrians counted in the four hours, traffic signal warrants cannot be met. However, a safety improvement plan has been prepared that will improve existing conditions and provide safer crossing for pedestrians.

Mid Block Crossing Safety Improvements

Pedestrians often cross roadways by using the shortest most direct route. Offering a better safer crossing and more highly visible crossing can help to guide the pedestrians to the crossing. As noted above there are three points of access available for pedestrians to cross Hathaway Road from the Brikenwood housing development. The existing mid block crosswalk is located at the middle crossing point with a distance of 262 feet to the signalized crossing at Shawmut Avenue and 300 feet to the un-controlled crossing at Walker Road. As noted in the pedestrian counts, few people use the existing mid block cross walk and seek the fastest route available to cross Hathaway Road.

There are several options available to help direct pedestrian traffic to the existing mid block cross walk. One would be to block the access from the two points between the mid block crossing, forcing pedestrians to use the uncontrolled mid-block crossing. This approach would be the most direct and cost effective. The other option would be to make the roadway crossing safer by increasing the advance warning time and visibility of the cross walk, making motorists more aware of pedestrian traffic.

The crossing of Hathaway Road could be made safer for pedestrians to cross by giving more advanced warning to motorists that pedestrians could be in the roadway and cross walk. The existing crosswalk has only one advance warning of the crossing on the north side of the approximately 25 feet west of the cross walk. Only eastbound traffic is warned. Westbound traffic has a pedestrian sign at the crossing.

By adding more and higher reflectivity advance warning signs, yield line with signs and painting the cross walk with fluorescent yellow thermoplastic reflective paint, both pedestrians and motorists will become more aware of the mid block crossing. Pedestrians may be more likely to use the crosswalk since motorists will now be aware of their crossing in the roadway and will use slower speeds. As such SITEC has prepared a Midblock Crossing Safety Improvement Plan to upgrade the crossing safety for pedestrians. The following improvements are proposed:

- Add Yield to Pedestrian Ahead advanced warning signs approximately 200 feet prior to the crosswalk alerting motorists that pedestrians may be in the roadway.
- Add a dragons tooth yield line and Yield to Pedestrian Here signs, 25 feet before the cross walk in either direction to allow distance for motorists to safely stop for pedestrians.
- Change the crosswalk striping to diagonal and use yellow fluorescent paint for increased visibility
- Add high visibility Pedestrian Crossing Signs with Arrows pointing at the cross walk.

CONCLUSION

Based on our pedestrian count analysis the existing uncontrolled midblock crosswalk does not warrant a pedestrian signal. Implementing the Midblock Crossing Safety Improvement Plan included with this report will make safer conditions for pedestrians crossing Hathaway Road from the housing development.

APPENDIX

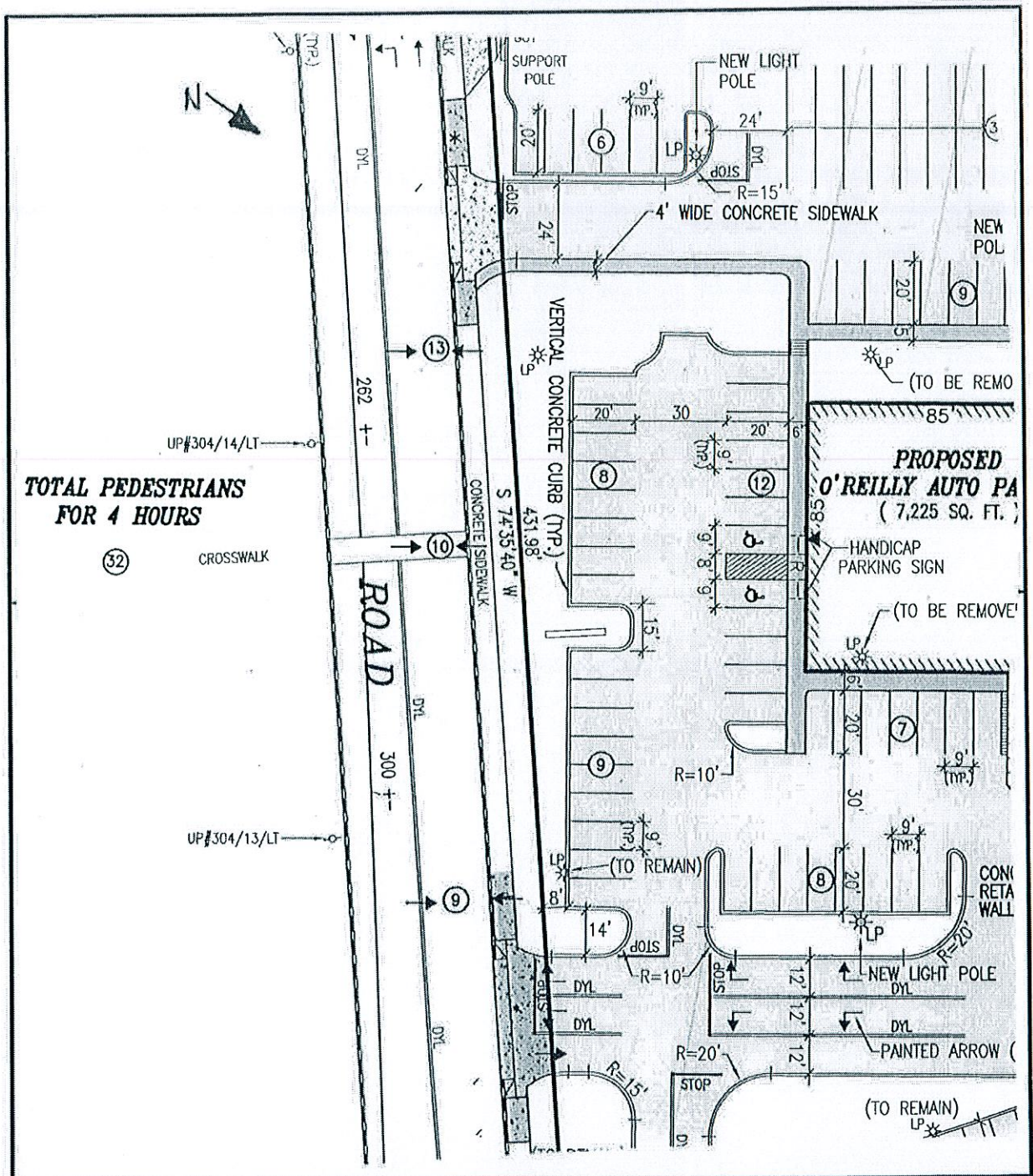
Mid Block Cross Walk Safety Upgrade Plan

Summary of Manual Pedestrian Counts Graphic

Tabulated Summary of Manual Pedestrian Counts

Excerpt from MUTCD Warrants

Cumberland Farms Peak Hour Traffic 2018



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project: 139 HATHAWAY ROAD
 NEW BEDFORD, MASSACHUSETTS
 client: S.B. LIMITED REALTY PARTNERSHIP
 drawing title: SUMMARY OF MANUAL PEDESTRIAN COUNT

scale: NOT TO SCALE
 date: OCTOBER 8, 2015
 drawn: JK
 checked: SDG
 approved: SDG
 acad no. MTC-07-3977
 MANUAL PED COUNT
 drawing number: DET-1

Pedestrian Counts
 139 Hathaway Road
 9/25/2015
 Page 1 of 2

	AM Peak Hour		7:30 - 8:30 AM		<u>Vehicles</u>
	<u>Walker</u>	<u>between</u>	<u>Crossing</u>	<u>between</u>	
7:30	2	0	1	1	315
7:45	1	1	0	0	250
8:00	3	0	1	1	325
8:15	3	1	0	2	300
Totals =	9	2	2	4	1190
VPH =					

Total pedestrians crossing = 8
 VPH = 1190

	PM Peak Hour		4:00 - 5:00 PM		<u>Vehicles</u>
	<u>Walker</u>	<u>between</u>	<u>Crossing</u>	<u>between</u>	
4:00 Vehicles	4	2	2	2	367
4:15 Vehicles	3	0	1	1	343
4:30 Vehicles	0	0	0	2	396
4:45 Vehicles	2	1	1	1	412
Totals =	9	3	4	6	1518
VPH =					

Total pedestrians crossing = 13
 VPH = 1518

Figure 1.

Pedestrian Counts
139 Hathaway Road
9/25/2015
Page 2 of 2

10:00 -11:00 AM

	<u>Walker</u>	<u>between</u>	<u>crossing</u>	<u>between</u>
Pedestrians	6	2	2	1
Total =		5		

2:00 -3:00 PM

	<u>Walker</u>	<u>between</u>	<u>crossing</u>	<u>between</u>
Pedestrians	8	2	2	2
Total =		6		

Total pedestrians for four hours = 32

Engineers evaluate the level of pedestrian activity at an intersection to see if a signal is warranted. The MUTCD describes Warrant 4 as "The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street." (MUTCD, 4C.05)

As currently written, the warrant requires a fairly large volume of pedestrians crossing at a location.

"The need for a traffic control signal at an intersection or mid-block crossing shall be considered if an engineering study finds that both of the following criteria are met:

- The pedestrian volume crossing the major street at an intersection or mid-block location during an average day is 100 or more for each of any 4 hours or 190 or more during any 1 hour; and
- There are fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian volume criterion is satisfied. Where there is a divided street having a median of sufficient width for pedestrians to wait, the requirement applies separately to each direction of vehicular traffic." (MUTCD, 4C.05)

In addition:

- "The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 90 m (300 ft), unless the proposed traffic control signal will not restrict the progressive movement of traffic." (MUTCD, 4C.05)

However:

- "The criterion for the pedestrian volume crossing the major roadway may be reduced as much as 50 percent if the average crossing speed of pedestrians is less than 1.2 m/sec (4 ft/sec)." (MUTCD, 4C.05)

For more information

The current MUTCD can be downloaded from the following website:

<http://mutcd.fhwa.dot.gov/>

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SCHMATIC-
NOT TO SCALE

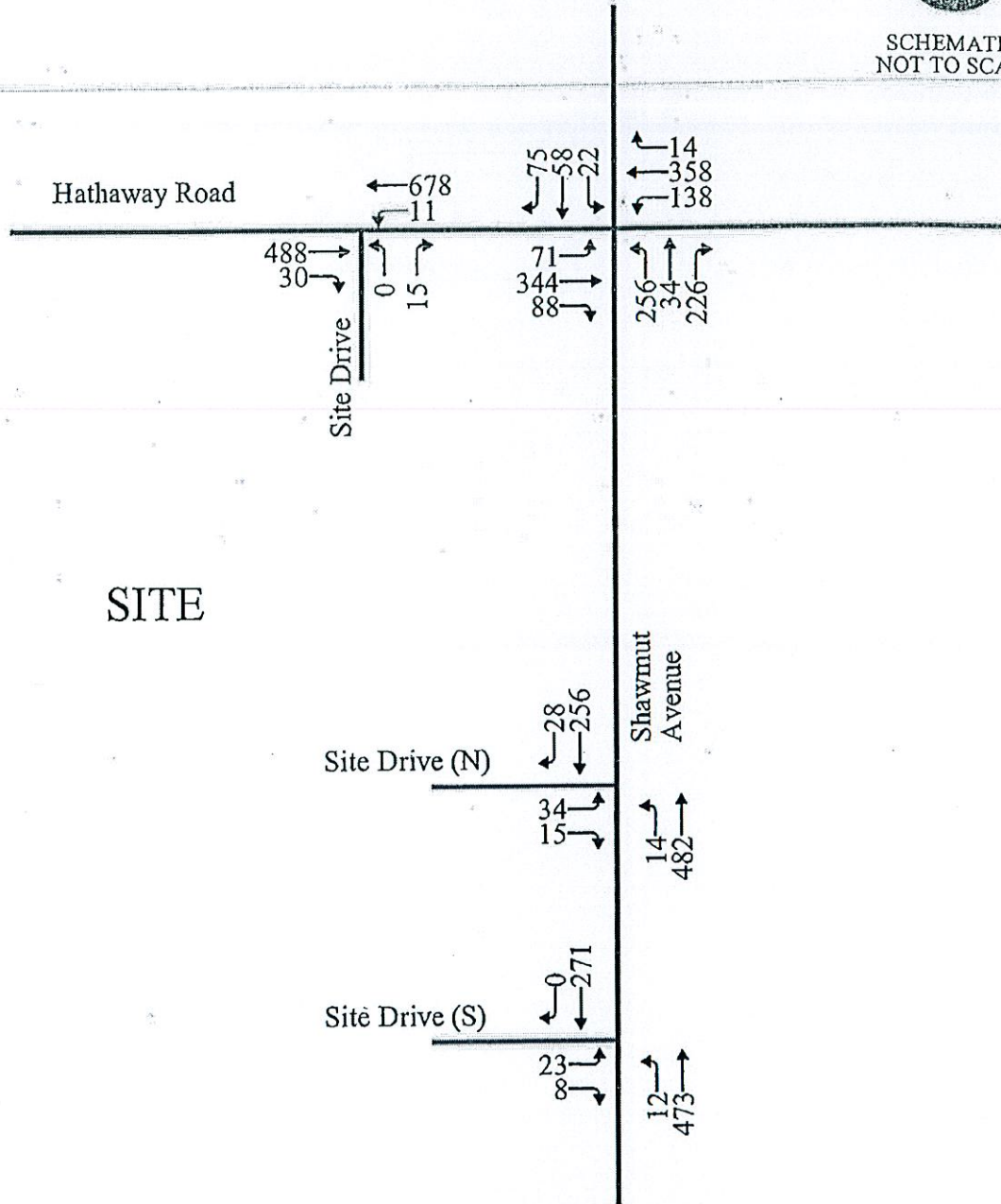
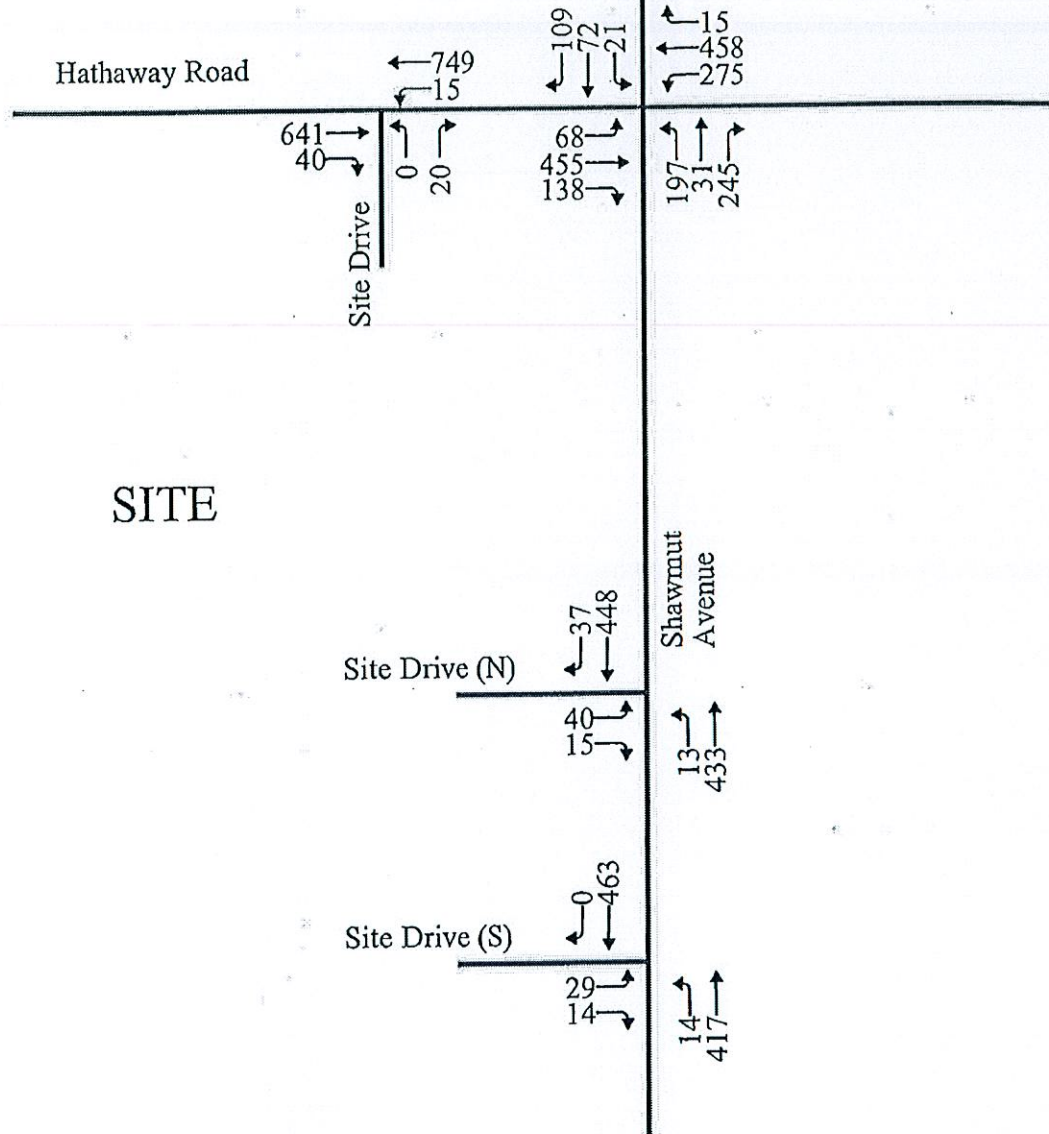


Figure 3
2018 Build Weekday Morning
Peak Hour Traffic Volumes
Cumberland Farms
New Bedford, MA





SCHEMATIC-
NOT TO SCALE



SITE

Figure 4
2018 Build Weekday Afternoon
Peak Hour Traffic Volumes
Cumberland Farms
New Bedford, MA

