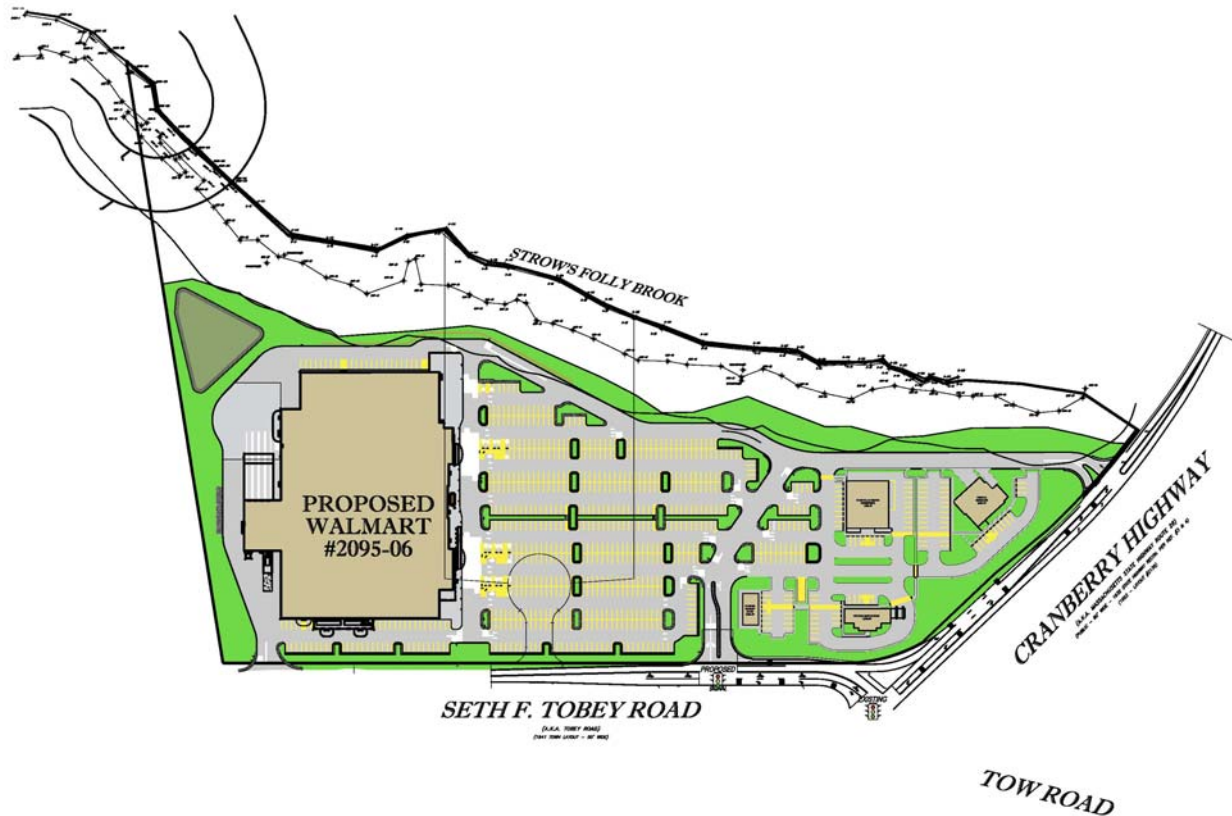


# ENVIRONMENTAL NOTIFICATION FORM

## PROPOSED RETAIL DEVELOPMENT WAREHAM, MASSACHUSETTS



SUBMITTED TO:  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
100 CAMBRIDGE STREET, SUITE 900  
BOSTON, MA 02114  
ATTN: MEPA UNIT

SUBMITTED BY:  
WAL-MART REAL ESTATE BUSINESS TRUST  
702 SW 8<sup>TH</sup> STREET  
BENTONVILLE, AR 72716

PREPARED BY:  
BOHLER ENGINEERING  
352 TURNPIKE ROAD  
SOUTHBOROUGH, MA 01772

IN ASSOCIATION WITH:  
VANASSE & ASSOCIATES, INC.  
10 NEW ENGLAND BUSINESS CENTER DRIVE  
SUITE 314  
ANDOVER, MA 01810

BARRY S. PORTER & ASSOCIATES, INC.  
400 FRANKLIN STREET, SUITE 202  
BRAINTREE, MA 02184

JULY 15, 2010



**BOHLER**  
ENGINEERING



## TABLE OF CONTENTS

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### ENF FORM

- APPENDIX I USGS SITE LOCATION MAP
- APPENDIX II EXISTING & PROPOSED  
CONDITION PLANS
- APPENDIX III TRANSPORTATION ANALYSIS
- APPENDIX IV WETLANDS & WATERWAYS
- APPENDIX V WATER & WASTEWATER
- APPENDIX VI STORMWATER MANAGEMENT  
ANALYSIS
- APPENDIX VII STATE LISTED RARE SPECIES
- APPENDIX VIII DISTRIBUTION LIST

# ENF Environmental Notification Form

*For Office Use Only*  
*Executive Office of Energy & Environmental Affairs*

EEA No.:  
 MEPA Analyst:  
 Phone: 617-626-

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Proposed Retail Development		
Street: Tobey Road & Cranberry Highway (Route 28)		
Municipality: Wareham	Watershed: Buzzards Bay	
Universal Transverse Mercator Coordinates:	Latitude: 41° 46' 48" Longitude: -70° 44' 44"	
Estimated commencement date: 11/2011	Estimated completion date: 10/2012	
Approximate cost: \$20,000,000.00	Status of project design: 25% complete	
Proponent: Wal-Mart Real Estate Business Trust		
Street: 702 SW 8 <sup>th</sup> Street		
Municipality: Bentonville	State: AR	Zip Code: 72716
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Matthew D. Smith, P.E.		
Firm/Agency: Bohler Engineering	Street: 352 Turnpike Road	
Municipality: Southborough	State: MA	Zip Code: 01772
Phone: 508-480-9900	Fax: 508-480-9080	E-mail: msmith@bohlereng.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?  
☒ Yes ☐ No

Has this project been filed with MEPA before?  
☐ Yes (EOEA No. \_\_\_\_\_) ☒ No

Has any project on this site been filed with MEPA before?  
☐ Yes (EOEA No. \_\_\_\_\_) ☒ No

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:  
 a Single EIR? (see 301 CMR 11.06(8)) ☐ Yes ☒ No  
 a Special Review Procedure? (see 301 CMR 11.09) ☐ Yes ☒ No  
 a Waiver of mandatory EIR? (see 301 CMR 11.11) ☐ Yes ☒ No  
 a Phase I Waiver? (see 301 CMR 11.11) ☐ Yes ☒ No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres):

Are you requesting coordinated review with any other federal, state, regional, or local agency?  
☐ Yes (Specify \_\_\_\_\_) ☒ No

List Local or Federal Permits and Approvals:  
 → State Highway Access Permit (MassHighway)  
 → Traffic Signal Permit (MassHighway)  
 → Massachusetts DEP Conservation and Management Permit

- Wareham Planning Board Site Plan Approval
- Wareham Building Permit
- Wareham Board of Appeals Special Permit for Retail and Signs
- Wareham Curb Cut Permit for Tobey Road
- Wareham Conservation Commission Order of Conditions
- Federal: NPDES Permit

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Land | <input checked="" type="checkbox"/> Rare Species | <input type="checkbox"/> Wetlands, Waterways, & Tidelands      |
| <input type="checkbox"/> Water           | <input type="checkbox"/> Wastewater              | <input checked="" type="checkbox"/> Transportation             |
| <input type="checkbox"/> Energy          | <input type="checkbox"/> Air                     | <input type="checkbox"/> Solid & Hazardous Waste               |
| <input type="checkbox"/> ACEC            | <input type="checkbox"/> Regulations             | <input type="checkbox"/> Historical & Archaeological Resources |

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals	
<b>LAND</b>				<input checked="" type="checkbox"/> Order of Conditions <input type="checkbox"/> Superseding Order of Conditions <input type="checkbox"/> Chapter 91 License <input type="checkbox"/> 401 Water Quality Certification <input checked="" type="checkbox"/> MHD or MDC Access Permit <input type="checkbox"/> Water Management Act Permit <input type="checkbox"/> New Source Approval <input type="checkbox"/> DEP or MWRA Sewer Connection/Extension Permit <input checked="" type="checkbox"/> Other Permits <i>(including Legislative Approvals) – Specify:</i>  Massachusetts DEP: Conservation and Management Permit	
Total site acreage	26.1+/-				
New acres of land altered		19.7			
Acres of impervious area	0	14.9	14.9		
Square feet of new bordering vegetated wetlands alteration		0			
Square feet of new other wetland alteration		0			
Acres of new non-water dependent use of tidelands or waterways		0			
<b>STRUCTURES</b>					
Gross square footage	0	176,500 +/-	176,500 +/-		
Number of housing units	0	0	0		
Maximum height (in feet)	0	40' +/-	40' +/-		
<b>TRANSPORTATION</b>					
Vehicle trips per day	0	11,532	11,532		
Parking spaces	0	766 +/-	766 +/-		
<b>WATER/WASTEWATER</b>					
Gallons/day (GPD) of water use	0	24,170	24,170		
GPD water withdrawal	0	24,170	24,170		
GPD wastewater generation/treatment		24,170	24,170		
Length of water/sewer mains (in miles)	0	0	0		

**CONSERVATION LAND:** Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☐ Yes (Specify \_\_\_\_\_) ☒ No

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐ Yes (Specify \_\_\_\_\_) ☒ No

**RARE SPECIES:** Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☒ Yes (Specify: Estimated Habitat of Rare Species) ☐ No

**HISTORICAL /ARCHAEOLOGICAL RESOURCES:** Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐ Yes (Specify \_\_\_\_\_) ☒ No\*

**\*Formal response from the Massachusetts Historical Commission has not been received at the time of this filing. However, review of the Massachusetts Cultural Resource Information System (MACRIS) database information indicates that no historic properties are present in the site vicinity.**

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☐ Yes (Specify \_\_\_\_\_) ☒ No

**AREAS OF CRITICAL ENVIRONMENTAL CONCERN:** Is the project in or adjacent to an Area of Critical Environmental Concern?

☐ Yes (Specify \_\_\_\_\_) ☒ No

**PROJECT DESCRIPTION:** The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary.*)

The proposed development is located on the north side of Tobey Road and the west side of Cranberry Highway (Route 28) in Wareham off Interstate 195's exit 21. The site also borders along the Strow's Folly Brook, which is an intermittent stream that becomes perennial approximately 100 feet inside the westernmost point of the property. Currently the property is undeveloped and wooded. The proposed development will realize a total building area of approximately 176,500 square feet. The southern portion of the property will consist of a single, one story building, a 158,000 square foot General Retail and Grocery Store (Walmart). Also, in the northern portion of the site, there is a 4 acre +/- outlot reserved for future development. The outlot is conceptually planned for a total of 18,500 square feet of space to be divided between four buildings and include Automotive Retail, Restaurant, Retail, and Bank uses.

The no-build alternative is not considered viable as the property is currently commercially zoned at the signalized intersection of two well-traveled roads. Should the site not be developed, the project's service and fiscal benefits to the community would not be realized. Walmart is proposing the smallest building that they can on the site to make it viable for their needs at this location. Given the shape of the property and the building size, the proposed site configuration is optimal to provide a customary retail site layout while minimizing disturbance to jurisdictional buffer areas onsite. All considered onsite alternatives have relatively similar potential environmental impacts associated with them including stormwater runoff, development within jurisdictional wetland areas and buffers, and impacts to traffic operations on the surrounding roadway network.

The proposed development is projected to generate approximately 8,414 new vehicle trips per day (4,207 entering and 4,207 exiting) on a typical weekday and 9,914 new vehicle trips per day (4,957 entering and 4,957 exiting) on a typical Saturday. Peak hour traffic increases are projected to amount to 710 new vehicle trips (361 entering and 349 exiting) during the weekday evening peak hour and 920 new vehicle trips (474 entering and 446 exiting) during the Saturday midday peak hour. In order to mitigate project-related traffic impacts, off-site improvements are proposed for portions of Cranberry Highway and Tobey Road, adjacent to the project site. A more detailed description of the project's traffic impacts and associated mitigation is provided in the traffic impact and access study attachment to this ENF filing.

As previously mentioned, this project directly abuts Strow's Folly Brook. Associated with this body of water are Bordering Vegetated Wetland and, to the west, Riverfront Area and Bank where the stream becomes perennial. The area of the property where the stream becomes perennial is narrow and comes to a point, and no work is proposed within the Riverfront Area. Further, project work is expected to be limited within jurisdictional buffers with no jurisdictional areas proposed to be filled. Project review will be conducted with the Wareham Conservation Commission through a Notice of Intent filing. The project design will be done in accordance with DEP's Stormwater Management Policy.

The property has been mapped as Priority Habitat and Estimated Habitat according to the Massachusetts Natural Heritage Atlas, 13<sup>th</sup> Edition. The Massachusetts Division of Fisheries and Wildlife has indicated that Eastern Box Turtles, a state-listed rare species, have been found in the vicinity of the subject property. A Preliminary Habitat Assessment was performed on April 17, 2009 in which no turtles were observed. However, the Wildlife Ecologist found that the site does provide habitat conditions that are recognized as suitable for support of the Eastern Box Turtle, particularly for overwintering and foraging habitat and unimpeded migration across the landscape. During pre-filing consultations with the Division of Fisheries and Wildlife, the Division has stated that they would like a full Eastern Box Turtle survey performed in order to determine whether or not the project will result in a "take". NHESP indicated that an acceptable alternative would be to work under a mutually agreed assumption that the project would result in a "take" of Eastern Box Turtle, and file for a Conservation and Management Permit (CMP) that would include appropriate mitigation measures. NHESP has also indicated that such mitigation could include funds for off-site land protection, as well as a turtle protection plan implemented during construction of the site. The Proponent intends to pursue this option, and is in the process of preparing a draft CMP for review by NHESP.

Walmart has an extensive program to minimize energy usage and maximize recycling and sustainable programs. Future project filings will analyze project Greenhouse Gas impacts in accordance with MEPA policy and building upon review and feedback received in discussions with MEPA and other state staff. All reasonable and feasible mitigation measures will be adopted by the Project.

## **LAND SECTION – all proponents must fill out this section**

### **I. Thresholds / Permits**

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1))

☒ Yes ☐ No; if yes, specify each threshold:

**Creation of 5 or more acres of impervious area.**

### **II. Impacts and Permits**

A. Describe, in acres, the current and proposed character of the project site, as follows:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Footprint of buildings	<u>0</u>	<u>+4.1 +/-</u>	<u>4.1 +/-</u>
Roadways, parking, and other paved areas	<u>0</u>	<u>+10.8 +/-</u>	<u>10.8 +/-</u>
Other altered areas (describe)	<u>0</u>	<u>+4.6 +/-</u>	<u>4.6 +/-</u>
Landscaping, slopes, stormwater basins, etc.			
Undeveloped areas	<u>26.1 +/-</u>	<u>-19.7 +/-</u>	<u>6.3 +/-</u>

B. Has any part of the project site been in active agricultural use in the last three years?

☐ Yes ☒ No; if yes, how many acres of land in agricultural use (with agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?

☐ Yes ☒ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a DEM-approved forest management plan:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ☐ Yes ☒ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ☐ Yes ☒ No; if yes, does the project involve the release or modification of such restriction? ☐ Yes ☐ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ☐ Yes ☒ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ☐ No ☒ ; if yes, describe:

H. Describe the project's stormwater impacts and, if applicable, measures that the project will take to comply with the standards found in DEP's Stormwater Management Policy:

**The project will be designed and developed in full compliance with the DEP's Stormwater Management Policy to mitigate the project's stormwater impacts.**

I. Is the project site currently being regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ☐ No ☒ ; if yes, what is the Release Tracking Number (RTN)?

J. If the project is site is within the Chicopee or Nashua watershed, is it within the Quabbin, Ware, or Wachusett subwatershed? ☐ Yes ☒ No; if yes, is the project site subject to regulation under the Watershed Protection Act? ☐ Yes ☐ No

K. Describe the project's other impacts on land: **No other impacts anticipated.**



### III.. Consistency

A. Identify the current municipal comprehensive land use plan and the open space plan and describe the consistency of the project and its impacts with that plan(s):

**The land proposed to be developed is split zoned with a portion of the property located within the Commercial Strip district and the remainder located within the Industrial district. The 2005 Zoning Bylaws govern site development given the Wareham Planning Board's approval of a Definitive Subdivision onsite on January 12, 2006. Per the 2005 Zoning Bylaw, retail use is allowed by Special Permit from the Zoning Board of Appeals (ZBA) in the Industrial district, while it is permitted by right in the Commercial Strip zone.**

**The current municipal comprehensive land use plan outlined in the Wareham Comprehensive Community Plan of 1998 states that the community goals for future land use include focusing commercial and industrial development into areas served by public water and sewer services. In addition, growth control recommendations include focusing commercial expansion near interstate highway interchanges of Routes 195 and 28 and along Route 28 from the Bypass to Depot Street. The property upon which the project is proposed is served by municipal water sewer and is located within ½ mile of the Route 28 and Route 195 interchange, attributes in which the community is seeking for commercial development.**

B. Identify the current Regional Policy Plan of the applicable Regional Planning Agency and describe the consistency of the project and its impacts with that plan:

**The Southeastern Regional Planning and Economic Development District (SRPEDD) through its Regional Land Use Policy Plan of June 1996 describes in its policies that land with the following characteristics as High Priority Development Areas: excellent transportation access (within ½ mile of a limited access highway), has public water service and has municipal sewer service. The subject property meets all of the above and, per the Regional Land Use Policy Plan, is a High Priority Development Area.**

C. Will the project require any approvals under the local zoning by-law or ordinance (i.e. text or map amendment, special permit, or variance)? Yes ☒ No ☐ ; if yes, describe:

**Site Plan Approval; Planning Board Special Permits; Building Permit; Special Permit for Signs; Curb Cut Permit for Tobey Road; Conservation Commission Order of Conditions**

D. Will the project require local site plan or project impact review?

☒ Yes ☐ No; if yes, describe:

**The project requires Site Plan Approval from the Wareham Planning Board.**

## **RARE SPECIES SECTION**

### **I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ☒ Yes ☐ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **rare species or habitat**? ☒ Yes ☐ No

C. If you answered "No" to both questions A and B, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

## II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ☒ Yes \_\_\_ No. If yes,

1. Which rare species are known to occur within the Priority or Estimated Habitat (contact: Environmental Review, Natural Heritage and Endangered Species Program, Route 135, Westborough, MA 01581, allowing 30 days for receipt of information): **Eastern Box Turtle**
2. Have you surveyed the site for rare species? ☒ Yes \_\_\_ No; if yes, please include the results of your survey.

**A Preliminary Habitat Assessment was performed on April 17, 2009 in which no turtles were observed. However, the Wildlife Ecologist found that the site does provide habitat conditions that are recognized as suitable for support of the Eastern Box Turtle, particularly for overwintering and foraging habitat and unimpeded migration across the landscape.**

3. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? \_\_\_ Yes ☒ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? \_\_\_ Yes \_\_\_ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ☒ Yes \_\_\_ No; if yes, describe:

**The Division of Fisheries and Wildlife has stated that they would like a full Eastern Box Turtle survey performed in order to determine whether or not the project will result in a "take". NHESP indicated that an acceptable alternative would be to work under a mutually agreed assumption that the project would result in a "take" of Eastern Box Turtle, and file for a Conservation and Management Permit (CMP) that would include appropriate mitigation measures. NHESP has also indicated that such mitigation could include funds for off-site land protection, as well as a turtle protection plan implemented during construction of the site. The Proponent intends to pursue this option, and is in the process of preparing a draft CMP for review by NHESP.**

C. Will the project alter "significant habitat" as designated by the Massachusetts Division of Fisheries and Wildlife in accordance with M.G.L. c.131A (see also 321 CMR 10.30)? \_\_\_ Yes ☒ No; if yes, describe:

D. Describe the project's other impacts on rare species including indirect impacts (for example, stormwater runoff into a wetland known to contain rare species or lighting impacts on rare moth habitat): **No other impacts anticipated.**

## **WETLANDS, WATERWAYS, AND TIDELANDS SECTION**

### I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? \_\_\_ Yes ☒ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? ☒ Yes \_\_\_ No; if yes, specify which permit: **An Order of Conditions subsequent to a NOI filing with the Wareham Conservation Commission.**

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

## II. Wetlands Impacts and Permits

A. Describe any wetland resource areas currently existing on the project site and indicate them on the site plan:

**Wetland resource areas identified on the subject parcel by AECOM biologists include BVW, Bank, and Riverfront Area. Limits of the BVW and Bank were delineated in the field in agreement with the recommended standards referenced in the MWPA and the local bylaw.**

B. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

**No direct filling or alteration of wetland resources is anticipated.**

<u>Coastal Wetlands</u>	<u>Area (in square feet) or Length (in linear feet)</u>
Land Under the Ocean	_____
Designated Port Areas	_____
Coastal Beaches	_____
Coastal Dunes	_____
Barrier Beaches	_____
Coastal Banks	_____
Rocky Intertidal Shores	_____
Salt Marshes	_____
Land Under Salt Ponds	_____
Land Containing Shellfish	_____
Fish Runs	_____
Land Subject to Coastal Storm Flowage	_____

<u>Inland Wetlands</u>	
Bank	_____
Bordering Vegetated Wetlands	_____
Land under Water	_____
Isolated Land Subject to Flooding	_____
Bordering Land Subject to Flooding	_____
Riverfront Area	_____

C. Is any part of the project

1. a limited project? \_\_\_\_ Yes ☒ No
2. the construction or alteration of a dam? \_\_\_\_ Yes ☒ No; if yes, describe:
3. fill or structure in a velocity zone or regulatory floodway? \_\_\_\_ Yes ☒ No
4. dredging or disposal of dredged material? \_\_\_\_ Yes ☒ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to Outstanding Resource Waters? \_\_\_\_ Yes ☒ No

**The site does not discharge directly to an ORW, however, Strow's Folly Brook eventually connects into the Wewantic River, which is an ORW, approximately 3,700 feet downstream of the site.**

6. subject to a wetlands restriction order? \_\_\_\_ Yes ☒ No; if yes, identify the area (in square feet):

D. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? ☒ Yes \_\_\_\_ No; if yes, has a Notice of Intent been filed or a local Order of Conditions issued? \_\_\_\_ Yes ☒ No; if yes, list the date and DEP file number: \_\_\_\_\_. Was the Order of Conditions appealed? \_\_\_\_ Yes \_\_\_\_ No. Will the project require a variance from the Wetlands regulations? \_\_\_\_ Yes \_\_\_\_ No.

- E. Will the project:
1. be subject to a local wetlands ordinance or bylaw? ☒ Yes ☐ No
  2. alter any federally-protected wetlands not regulated under state or local law?  
☐ Yes ☒ No; if yes, what is the area (in s.f.)?

F. Describe the project's other impacts on wetlands (including new shading of wetland areas or removal of tree canopy from forested wetlands): **No other impacts anticipated.**

### III. Waterways and Tidelands Impacts and Permits

A. Is any part of the project site waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ☐ Yes ☒ No; if yes, is there a current Chapter 91 license or permit affecting the project site? ☐ Yes ☐ No; if yes, list the date and number:

B. Does the project require a new or modified license under M.G.L.c.91? ☐ Yes ☒ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water dependent use?  
 Current  Change  Total

C. Is any part of the project

1. a roadway, bridge, or utility line to or on a barrier beach? ☐ Yes ☒ No; if yes, describe:
2. dredging or disposal of dredged material? ☐ Yes ☒ No; if yes, volume of dredged material
3. a solid fill, pile-supported, or bottom-anchored structure in flowed tidelands or other waterways? ☐ Yes ☒ No; if yes, what is the base area?
4. within a Designated Port Area? ☐ Yes ☒ No

D. Describe the project's other impacts on waterways and tidelands: **No impacts.**

### IV. Consistency:

A. Is the project located within the Coastal Zone? ☐ Yes ☒ No; if yes, describe the project's consistency with policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ☐ Yes ☒ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

## WATER SUPPLY SECTION

### I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ☐ Yes ☒ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ☐ Yes ☒ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

### II. Impacts and Permits

A. Describe, in gallons/day, the volume and source of water use for existing and proposed activities at the project site:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Withdrawal from groundwater	<input type="text"/>	<input type="text"/>	<input type="text"/>
Withdrawal from surface water	<input type="text"/>	<input type="text"/>	<input type="text"/>
Interbasin transfer	<input type="text"/>	<input type="text"/>	<input type="text"/>

Municipal or regional water supply \_\_\_\_\_

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ☐ Yes ☐ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source,

1. have you submitted a permit application? ☐ Yes ☐ No; if yes, attach the application
2. have you conducted a pump test? ☐ Yes ☐ No; if yes, attach the pump test report

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons/day)? \_\_\_\_\_ Will the project require an increase in that withdrawal? ☐ Yes ☐ No

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ☐ Yes ☐ No. If yes, describe existing and proposed water supply facilities at the project site:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Water supply well(s) (capacity, in gpd)	_____	_____	_____
Drinking water treatment plant (capacity, in gpd)	_____	_____	_____
Water mains (length, in miles)	_____	_____	_____

F. If the project involves any interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve

1. new water service by a state agency to a municipality or water district? ☐ Yes ☐ No
2. a Watershed Protection Act variance? ☐ Yes ☐ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ☐ Yes ☐ No

H. Describe the project's other impacts (including indirect impacts) on water resources, quality, facilities and services:

**III. Consistency** -- Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

## **WASTEWATER SECTION**

### **I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ☐ Yes ☒ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ☐ Yes ☒ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

### **II. Impacts and Permits**

A. Describe, in gallons/day, the volume and disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00):

<u>Existing</u>	<u>Change</u>	<u>Total</u>
Discharge to groundwater (Title 5)	_____	_____
Discharge to groundwater (non-Title 5)	_____	_____
Discharge to outstanding resource water	_____	_____
Discharge to surface water	_____	_____
Municipal or regional wastewater facility	_____	_____
<b>TOTAL</b>	_____	_____

B. \_\_\_\_\_ Is there sufficient capacity in the existing collection system to accommodate the project?  
 \_\_\_\_ Yes \_\_\_\_ No; if no, describe where capacity will be found:

C. Is there sufficient existing capacity at the proposed wastewater disposal facility? \_\_\_\_ Yes \_\_\_\_  
 No; if no, describe how capacity will be increased:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other  
 wastewater disposal facility, or will the project involve construction of a new facility? \_\_\_\_ Yes \_\_\_\_  
 No. If yes, describe as follows:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Wastewater treatment plant (capacity, in gpd)	_____	_____	_____
Sewer mains (length, in miles)	_____	_____	_____
Title 5 systems (capacity, in gpd)	_____	_____	_____

E. If the project involves any interbasin transfer of wastewater, which basins are involved, what is  
 the direction of the transfer, and is the interbasin transfer existing or proposed?

F. Does the project involve new sewer service by an Agency of the Commonwealth to a municipality  
 or sewer district? \_\_\_\_ Yes \_\_\_\_ No

G. Is there any current or proposed facility at the project site for the storage, treatment, processing,  
 combustion or disposal of sewage sludge, sludge ash, grit, screenings, or other sewage residual  
 materials? \_\_\_\_ Yes \_\_\_\_ No; if yes, what is the capacity (in tons per day):

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the project's other impacts (including indirect impacts) on wastewater generation and  
 treatment facilities:

**III. Consistency** -- Describe measures that the proponent will take to comply with federal, state,  
 regional, and local plans and policies related to wastewater management:

A. If the project requires a sewer extension permit, is that extension included in a comprehensive  
 wastewater management plan? \_\_\_\_ Yes \_\_\_\_ No; if yes, indicate the EOE number for the plan and  
 describe the relationship of the project to the plan

## **TRANSPORTATION -- TRAFFIC GENERATION SECTION**

### **I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR  
 11.03(6))? **X** Yes \_\_\_\_ No; if yes, specify, in quantitative terms:

**The proposed development will generate greater than 3,000 daily vehicle trips, which exceeds**

the MEPA review threshold requiring the preparation of an Environmental Impact Report (EIR).

B. Does the project require any state permits related to **state-controlled roadways**?

X Yes \_\_\_ No; if yes, specify which permit:

The proposed development abuts Cranberry Highway (Route 28) which is under the jurisdiction of the Massachusetts Department of Transportation (MassDOT). As such, the project will require a highway access permit from MassDOT.

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

## II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Number of parking spaces	<u>0</u>	<u>+766</u>	<u>766</u>
Number of vehicle trips per day	<u>0</u>	<u>+11,532</u>	<u>11,532</u>

ITE Land Use Code(s): **Land Use Code (LUC) 813 – Free Standing Discount Superstore, LUC 843 – Automotive Parts Sales, LUC 912 – Drive-In Bank, LUC 932 – High-Turnover Sit-Down Restaurant, LUC 933 – Fast Food Restaurant without Drive-Through**

B. What is the estimated average daily traffic on roadways serving the site?

	<u>Roadway</u>	<u>Existing</u>	<u>Change</u>	<u>Total</u>
1.	<u>Cranberry Highway (Route 28)</u>	<u>13,891</u>	<u>5,224</u>	<u>19,115</u>
2.	<u>Tobey Road</u>	<u>4,447</u>	<u>1,348</u>	<u>5,795</u>

C. Describe how the project will affect transit, pedestrian and bicycle transportation facilities and services:

As part of the proposed development, pedestrian improvements are proposed within the vicinity of the site, including the construction of new sidewalk along the Tobey Street site frontage, as well as a new pedestrian crosswalk with associated signal modifications at the intersection of Tobey Road and Route 28.

The study area is currently served by bus service operated by the Greater Attleboro – Taunton Regional transit Authority (GATRA). If deemed appropriate by the Authority, the proponent will work to have direct transit service provided to the project site.

**III. Consistency** -- Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

The proposed site access will be designed in accordance with MassDOT and Town of Wareham design regulations. All proposed pedestrian infrastructure, including proposed sidewalks and crosswalks will be designed in accordance with Americans with Disabilities Act (ADA) and Commonwealth of Massachusetts Architectural Access Board (AAB) design guidelines.

## ROADWAYS AND OTHER TRANSPORTATION FACILITIES SECTION

### I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? \_\_\_ Yes X No; if yes, specify, in quantitative

terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? \_\_\_\_ Yes **X** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

## II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities at the project site:

	Existing	Change	Total
Length (in linear feet) of new or widened roadway	_____	_____	_____
Width (in feet) of new or widened roadway	_____	_____	_____

Other transportation facilities:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? \_\_\_\_\_
2. Cutting of living public shade trees (number)? \_\_\_\_\_
3. Elimination of stone wall (in linear feet)? \_\_\_\_\_

**III. Consistency --** Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

## ENERGY SECTION

### I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? \_\_\_\_ Yes **X** No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? \_\_\_\_ Yes **X** No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

### II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? \_\_\_\_ Yes \_\_\_\_ No; if yes, please describe:



D. Describe the project's other impacts on energy facilities and services:

**III. Consistency** -- Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

## **AIR QUALITY SECTION**

### **I. Thresholds**

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ☐ Yes ☒ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ☐ Yes ☒ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

### **II. Impacts and Permits**

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ☐ Yes ☐ No; if yes, describe existing and proposed emissions (in tons per day) of:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

### **III. Consistency**

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

## **SOLID AND HAZARDOUS WASTE SECTION**

### **I. Thresholds / Permits**

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ☐ Yes ☒ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ☐ Yes ☒ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

### **II. Impacts and Permits**

A. Is there any current or proposed facility at the project site for the storage, treatment, processing,

combustion or disposal of solid waste? ☐ Yes ☐ No; if yes, what is the volume (in tons per day) of the capacity:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ☐ Yes ☐ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	<u>Existing</u>	<u>Change</u>	<u>Total</u>
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?

☐ Yes ☐ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

**III. Consistency**--Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

## **HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION**

### **I. Thresholds / Impacts**

A. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ☐ Yes ☒ No\*; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ☐ Yes ☐ No; if yes, please describe:

**\*Formal response from the Massachusetts Historical Commission has not been received at the time of this filing. However, review of the Massachusetts Cultural Resource Information System (MACRIS) database information indicates that no historic properties are present in the site vicinity.**

B. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ☐ Yes ☒ No\*; if yes, does the project involve the destruction of all or any part of such archaeological site? ☐ Yes ☐ No; if yes, please describe:

**\*Formal response from the Massachusetts Historical Commission has not been received at the time of this filing. However, review of the Massachusetts Cultural Resource Information System (MACRIS) database information indicates that no historic properties are present in the site vicinity.**

C. If you answered "No" to all parts of both questions A and B, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out

the remainder of the Historical and Archaeological Resources Section below.

D. Have you consulted with the Massachusetts Historical Commission? \_\_\_\_ Yes \_\_\_\_ No; if yes, attach correspondence

E. Describe and assess the project's other impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

**II. Consistency** -- Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

**ATTACHMENTS:**

1. Plan, at an appropriate scale, of existing conditions of the project site and its immediate context, showing all known structures, roadways and parking lots, rail rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
2. Plan of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
3. **Original** U.S.G.S. map or good quality **color** copy (8-½ x 11 inches or larger) indicating the project location and boundaries
4. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
5. Other:

**CERTIFICATIONS:**

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

(Name)

Wareham Courier

(Date)

July 15, 2010

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

7.14.10

Date

Signature of Responsible Officer  
or ProponentSteven L. Mitchael

Name (print or type)

Firm/Agency Wal-Mart Real Estate  
Business TrustStreet 702 SW 8th StreetMunicipality/State/Zip Bentonville, ARPhone 727167.14.10

Date

Signature of person preparing  
ENF (if different from above)Matthew D. Smith

Name (print or type)

Firm/Agency Bohler EngineeringStreet 352 Turnpike RoadMunicipality/State/Zip Southborough, MA 01772Phone 508-480-9900

APPENDIX I

USGS SITE LOCATION MAP





352 TURNPIKE ROAD  
SOUTHBOROUGH, MA 01772  
PH: (508) 480-9900  
FX: (508) 480-9080  
www.BohlerEngineering.com



# BOHLER

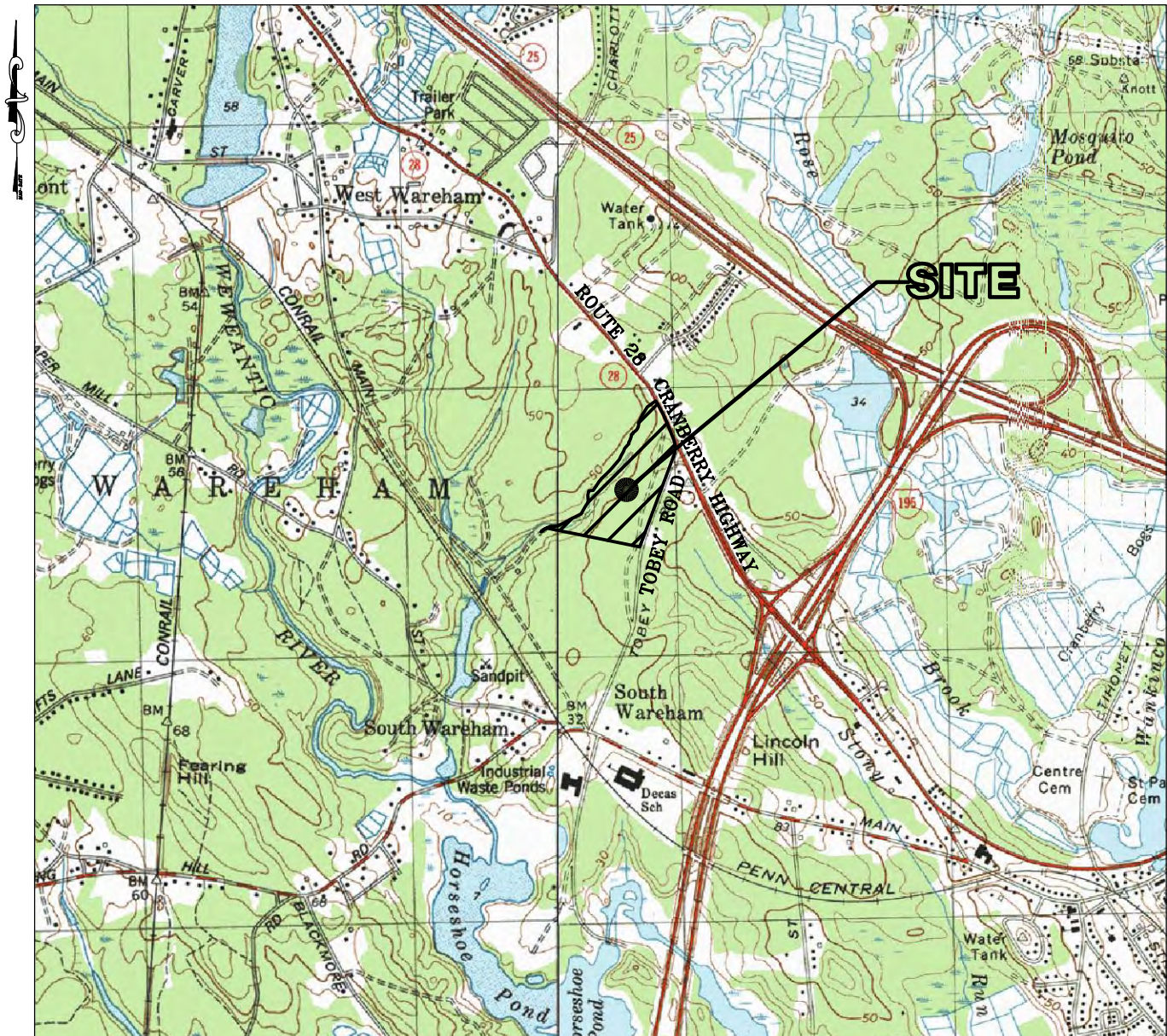
## ENGINEERING

CORPORATE OFFICE:  
♦ WARREN, NJ

CIVIL & CONSULTING ENGINEERS • SURVEYORS • PROJECT MANAGERS  
ENVIRONMENTAL CONSULTANTS • LANDSCAPE ARCHITECTS

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- ♦ STERLING, VA
- ♦ WARRENTON, VA
- ♦ FORT LAUDERDALE, FL



USGS MAP  
1"=2000'±

### ROBERTSON'S CORNER

SETH F. TOBEY ROAD & CRANBERRY HIGHWAY (RTE 28)  
TOWN OF WAREHAM, PLYMOUTH COUNTY  
COMMONWEALTH OF MASSACHUSETTS





APPENDIX II

EXISTING & PROPOSED CONDITION PLANS

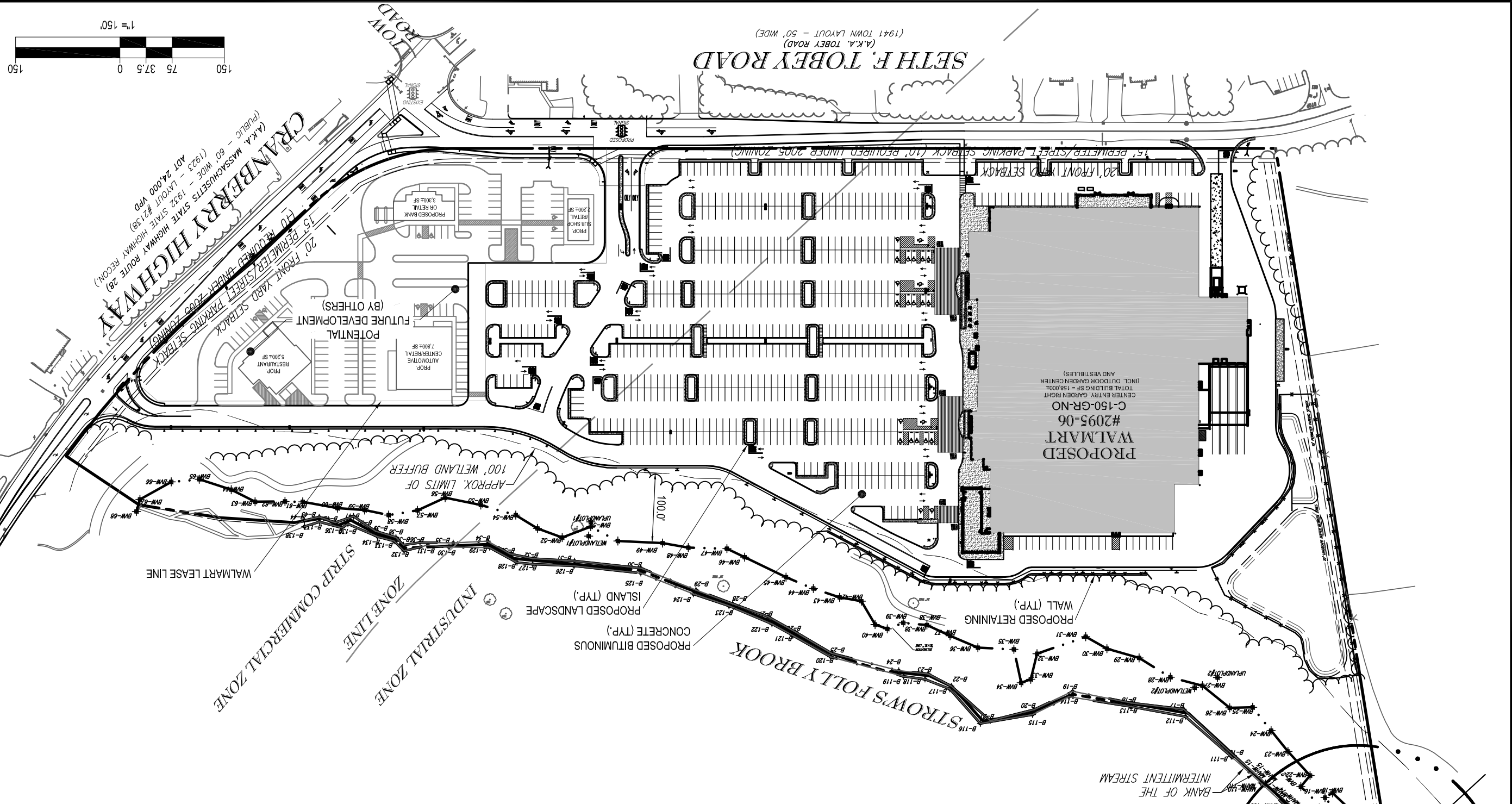




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GENERAL SITE NOTES

1. THIS PLAN REFERENCES A SURVEY PREPARED BY:  
CONTROL POINT ASSOCIATES, INC.  
35 TECHNOLOGY DRIVE  
WARREN, NJ 07059  
(DATED 12/09/08, REVISED AS OF 1/13/09)
2. SPECIFIC RESOURCES, TECHNICAL REPORTS, DESIGN DOCUMENTS, E.T., AL, RELATED TO THIS PROJECT INCLUDE (BUT MAY NOT BE LIMITED TO) THE FOLLOWING:  
SURVEY: "TOPOGRAPHIC AND UTILITY SURVEY, SETH F. TOBEY ROAD @ CRANBERRY HIGHWAY LOTS 1000-A14, 1000-A18 & 1000-A1C TOWN OF WARREN, PLUMOUTH COUNTY, COMMONWEALTH OF MASSACHUSETTS", PREPARED BY CONTROL POINT ASSOCIATES, INC. DATED 12-09-2008 AND SCALED 1"=40'.  
3. PARCEL DATA: LOT IS SHOWN AS  
4. ALL PROPOSED BUILDING STRUCTURES WILL BE LESS THAN FOURTY (40) FEET IN HEIGHT.  
5. THIS PLAN DEPICTS A GENERAL SITE LAYOUT AND IS TO BE USED FOR ZONING PURPOSES ONLY. FORMAL SITE DESIGN DOCUMENTS, WHICH MAY RESULT IN MINOR CHANGES, WILL BE PREPARED AND FURTHER PERMITTED WITH THE TOWN OF WARREN PRIOR TO CONSTRUCTION.



# BOHLER

## ENGINEERING

CIVIL & CONSULTING ENGINEERS

SURVEYORS

PROJECT MANAGERS

ENVIRONMENTAL CONSULTANTS

LANDSCAPE ARCHITECTS

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REVISIONS		REV	DATE	COMMENT	BY
9					
8					
7					
6					
5					
4					
3					
2					
1					

MEPA PLAN

PROJECT NO.: W07064  
DRAWN BY: KRS/JAK  
CHECKED BY: MDS/JAK  
DATE: 07/15/2010  
SCALE: AS NOTED  
CADD: W07064.mxd

PROJECT: SITE DEVELOPMENT FOR WALMART STORE # 2095-06  
SETH F. TOBEY ROAD & CRANBERRY HIGHWAY (RTE #20)  
TOWN OF WARREN, MA  
PLUMOUTH COUNTY, MA

## BOHLER

### ENGINEERING

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M.D. SMITH  
PROFESSIONAL ENGINEER  
MASSACHUSETTS LICENSE NO. 45496  
CONNECTICUT LICENSE NO. 24567  
NAME LICENSE NO. 11023  
NEW HAMPSHIRE LICENSE NO. 4591

SHEET TITLE: PROPOSED CONDITIONS PLAN  
SHEET NUMBER: 1 OF 1  
REV 0 - 07/15/2010

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APPENDIX III

TRANSPORTATION ANALYSIS





# TRAFFIC IMPACT AND ACCESS STUDY

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## PROPOSED WALMART STORE WAREHAM, MASSACHUSETTS

*Prepared for:*

BOHLER ENGINEERING, P.C.

June 2010

*Prepared by:*

VANASSE & ASSOCIATES, INC.  
Transportation Engineers & Planners  
10 New England Business Center Drive  
Suite 314  
Andover, MA 01810

## FIGURES

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Number	Title
1	Site Location Map
2	Study Area Intersections
3	2010 Existing Weekday Evening Peak Hour Traffic Volumes
4	2010 Existing Saturday Midday Peak Hour Traffic Volumes
5	2015 No-Build Weekday Evening Peak Hour Traffic Volumes
6	2015 No-Build Saturday Midday Peak Hour Traffic Volumes
7	Trip Distribution Map
8	Weekday Evening Site-Generated Peak Hour Traffic Volumes
9	Saturday Midday Site-Generated Peak Hour Traffic Volumes
10	2015 Build Weekday Evening Peak Hour Traffic Volumes
11	2015 Build Saturday Midday Peak Hour Traffic Volumes
12	Conceptual Improvement Plan

## **TABLES**

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Number	Title
1	Existing Roadway Traffic-Volume Summary
2	Motor Vehicle Crash Summary – 2006 through 2008
3	Trip-Generation Summary
4	Trip-Distribution Summary
5	Level-of-Service Criteria for Signalized Intersections
6	Level-of-Service Criteria for Unsignalized Intersections
7	Signalized Intersection Capacity Analysis Summary – Weekday Evening Peak Hour
8	Signalized Intersection Capacity Analysis Summary – Saturday Midday Peak Hour
9	Unsignalized Intersection Capacity Analysis Summary – Weekday Evening Peak Hour
10	Unsignalized Intersection Capacity Analysis Summary – Saturday Midday Peak Hour
11	Signalized Intersection Capacity Analysis Summary – Weekday Evening Peak Hour with Mitigation
12	Signalized Intersection Capacity Analysis Summary – Saturday Midday Peak Hour with Mitigation

## **EXECUTIVE SUMMARY**

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Vanasse & Associates, Inc. (VAI) has prepared this Traffic Impact and Access Study (TIAS) to assess the traffic impacts and evaluate the access and egress requirements associated with the development of a proposed Walmart store off Cranberry Highway (Route 28) in Wareham, Massachusetts. This report identifies existing traffic parameters within the study area, identifies the impact of traffic generated by the proposed development, and evaluates project-related impacts with regard to capacity and roadway requirements. This report was prepared in accordance with guidelines for preparation of traffic impact assessments, as required by the Executive Office of Energy and Environmental Affairs/Executive Office of Transportation (EOEEA/EOT).

### **PROPOSED PROJECT**

The proposed development entails the construction of an approximate 158,000 square foot (sf) Walmart store on a parcel of land located in the northwest quadrant of the intersection of Cranberry Highway with Tobey Road and Tow Road. The proposed development also includes an additional 18,500 sf of retail space on the eastern portion of the site, adjacent to Cranberry Highway. As currently proposed, this space would serve a mix of retail uses including a proposed restaurant, drive-through bank and automotive parts store. The project site is currently wooded and vacant of any developed properties. Access to the project site is proposed via a full access driveway onto Tobey Road and a full-access/right-turn only egress driveway onto Cranberry Highway.

### **STUDY AREA**

This transportation evaluation focuses on roadways and intersections that are expected to accommodate the majority of project-related traffic. In summary, the study area includes portions of the Cranberry Highway and Tobey Road corridors, including the following intersections:

- Cranberry Highway (Route 28) at Tobey Road and Tow Road
- Cranberry Highway at Wareham Crossing plaza driveway/Kendrick Road
- Cranberry Highway at Interstate 195 (I-195) Westbound Ramp
- Cranberry Highway at I-195 Eastbound Ramp

- Cranberry Highway at Site Driveway (Proposed)
- Tobey Road at Main Street
- Tobey Road at Site Driveway (Proposed)

## **EXISTING TRAFFIC VOLUMES**

In order to determine existing traffic demands and flow patterns within the study area, traffic counts were recorded at study area intersections and along study area roadways in March of 2010. In order to document existing traffic conditions over an extended time period, automatic traffic recorder (ATR) counts were conducted along Cranberry Highway and Tobey Road, adjacent to the project site. Additionally, peak hour turning movement counts (TMCs) were conducted at each study area intersection during the weekday evening (4:00 to 6:00 PM) and Saturday midday (11:00 AM and 2:00 PM) time periods to determine peak traffic flow conditions within the study area. These time periods correspond to the peak hours of retail related traffic. Based on a review of this data, the peak hours of roadway traffic generally occurred from 4:45 to 5:45 PM during the weekday evening peak and from 12:30 PM to 1:30 PM during the Saturday midday peak.

## **FUTURE CONDITIONS**

### **Background Traffic Growth**

Background traffic includes demand generated by other planned development projects in the area as well as demand increases caused by historic area growth trends. Area growth trends account for general increases in traffic not attributable to a specific development and are determined using historical data. Both planned development projects and area growth trends were used to develop future year traffic volumes.

### **Historical Area Growth**

To determine an appropriate growth rate in area traffic over the five-year planning horizon, MassDOT count data were examined. Based on a review of this data it was determined that traffic volumes have grown by approximately 2 percent per year within the study area over the past several years. In order to account for unforeseen growth in traffic over the five-year planning horizon, a 2.0 percent per year compounded growth rate has been applied to existing traffic volumes. This growth rate is consistent with the background growth rate utilized for other recently completed area traffic studies.

### **Site-Specific Growth**

In order to ensure that future traffic conditions reflect planned and approved development projects within the study area, future year traffic conditions include traffic volumes associated with the following development projects:

- ***ADM Mixed-Use Development – Wareham/Carver/Plymouth, Massachusetts.*** The ADM mixed-use development project includes the phased development of a large mixed-use project that includes a mix of office, manufacturing and commercial space.

Phase A of the project, which is divided into two separate sub-phases, Phase A1 and Phase A2, includes a mix of office, manufacturing and medical office space. Specifically, Phase A1 includes approximately 8,000 sf of office space and 72,000 sf of light manufacturing space. Phase A2 includes approximately 65,850 sf of medical office space that will be located off a proposed Route 28-Tihonet Road connector that will link Route 28 with Tihonet Road by way of an extension of Lou Avenue. Additional traffic volumes associated with Phase A of this project were obtained from the Notice of Project Change (NPC) prepared for this development, and have been included in the analysis of future traffic conditions.

It is noted that subsequent phases of the ADM Mixed-Use Development have undergone review as part of the Massachusetts Environmental Policy Act (MEPA) review process. Specifically, Phase B of the project, as reviewed through the MEPA process, includes the potential for an additional 40,000 sf of retail space; 343,600 sf of manufacturing space; 150,000 sf of warehouse space; 525,00 sf of light industrial space; 201,200 sf of general office space; 80,000 sf of medical-dental office space, 290,000 sf of research and development space; and a 225 room hotel. Development of this phase of the project also entails significant transportation improvements, including the Route 28 interchange with I-195. As it is not anticipated that the Phase B development will be constructed prior to the 2015 horizon year analyzed as part of this study, future year 2015 traffic conditions do not include the additional traffic or corresponding mitigation associated with Phase B of this development.

No other developments were identified at this time that are expected to impact future traffic volumes beyond the general background traffic growth rate.

### **Planned Roadway Improvements**

The Town of Wareham and MassDOT were contacted to determine if there are any planned roadway improvements in the area that would have an impact on future traffic operations. Based on these discussions the following roadway improvement project was identified.

- ***Cranberry Road Traffic Improvements*** – As mitigation for Phase A of the proposed ADM mixed-use development project, roadway and traffic signal improvements are proposed at a number of locations along the Cranberry Highway corridor. Within the study area, proposed improvements include optimizing the traffic signal operations of coordinated Route 28 traffic signal system.

Future year 2015 No-Build and Build condition traffic analyses reflect proposed improvements at the identified locations.

### **Project-Related Traffic Volumes**

In order to estimate the trip generation characteristics of the proposed development, trip generation data published by the Institute of Transportation Engineers (ITE) were utilized. The proposed development is expected to generate 710 new vehicle trips (361 entering and 349 exiting) during the weekday evening peak hour and 920 new vehicle trips (474 entering and 446 exiting) during the Saturday midday peak hour. On a daily basis, the proposed development is projected to generate 8,414 new trips (4,207 entering and 4,207 exiting) on a typical weekday and 9,914 new trips (4,957 entering and 4,957 exiting) on a typical Saturday.

### **Trip Distribution**

Trip distribution patterns for the proposed development are based on observed traffic patterns to existing retail uses within the study area. In summary, it is expected that 40 percent of project-related traffic will be oriented to and from Cranberry Highway, south of the site; 22 percent to and from Cranberry Highway north of the site; 11 percent to and from I-195 east of the site; 11 percent to and from I-195 west of the site; and 16 percent to and from Tobey Road south of the site.

### **Build Traffic Volumes**

To represent future traffic-volume conditions with the proposed development project by the 2015 design year, site-generated traffic volumes were superimposed onto the 2015 No-Build traffic volumes. These volumes were used as the basis for all analysis as well as to identify potential mitigation measures to mitigate the project's impacts and/or anticipation of future operational deficiencies.

## **TRAFFIC MITIGATION**

As documented in this report, project-related traffic increases are not projected to have a significant impact on area traffic operations, with project-related traffic resulting in minimal increases to overall delay as compared to future No-Build conditions. In order to enhance future traffic operations within the study area, the proponent is committed to implementing a comprehensive mitigation plan aimed at minimizing project-related impacts. A brief summary of these improvements is as follows:

### **Route 28 at Tobey Road and Tow Road**

As mitigation for the proposed development, roadway and traffic signal improvements are proposed for the intersection of Route 28 with Tobey Road and Tow Road. Specifically, it is recommended that the southbound Route 28 approach at this intersection be widened from a two lane approach to a three lane approach in order to accommodate an exclusive right-turn lane onto Tobey Road. In addition, it is recommended that the eastbound Tobey Road approach is widened to extend both the shared left-turn/through lane and exclusive right-turn lane in order to provide additional vehicle storage. Modifications to the existing traffic signal timing are also proposed to optimize future traffic operations at this location. If deemed appropriate by MassDOT, the applicant is also committed to signalizing the proposed site driveway onto Tobey Road, and coordinating that new traffic signal with the signal at Route 28 and Tobey Road. Additionally, if deemed appropriate by MassDOT, the proponent is committed to constructing a crosswalk across Cranberry Highway at the intersection with Tobey Road to allow for pedestrian crossings from the opposite side of Cranberry Highway to the project site.

### **Tobey Road at Site Driveway**

Primary access to and egress from the project site is proposed via a full access and egress driveway onto Tobey Road. In order to accommodate project-related traffic at this location it is recommended that the Tobey Road corridor be widened to provide a two-lane approach in the northbound direction, consisting of a shared left-turn/through lane and through lane. Proposed improvements also entail the widening of the Tobey Road southbound approach to provide a through lane and exclusive right-turn lane into the project site. It is recommended that the

proposed site driveway approach provide both an exclusive left-turn and right-turn lane onto Tobey Road. While the results of the capacity analyses indicate that this location can operate under STOP-sign control, if deemed appropriate by the MassDOT, the proponent is committed to signalizing this location to operate in conjunction with the existing traffic signal at Route 28 and Tobey Road.

### **TRANSPORTATION DEMAND MANAGEMENT (TDM)**

In an effort to promote the use of public transit as a means to access the site, and to reduce peak hour trip generation for the project, the proponent will commit to the following measures:

- ***Flex-time Work Schedules.*** To the extent possible, the proponent will implement flex-time work schedules for project employees to reduce vehicular traffic during peak commuter periods. It is noted that due to the retail nature of the development, employees of the project will not typically arrive or depart during typical commuter hours.
- ***Transit Service.*** The project site is currently served by a bus route operated by the Greater Attleboro – Taunton Regional Transit Authority. In order to promote the use of transit by employees and customers of the store, the proponent will post transit maps and schedules in conspicuous areas of the store. If deemed feasible by the GATRA, the proponent will work with the authority in an effort to provide direct bus service to and from the project site.

### **CONCLUSION**

As documented in this study, project-related traffic increases are not expected to result in a significant impact to traffic operations within the study area. The proponent is committed to working with the Town of Wareham and MassDOT to implement proposed mitigation measures to minimize the impacts of traffic associated with the proposed project. With these measures in place, safe and efficient access and egress to the development can be provided, and the development can be safely constructed with minimal impact to the surrounding transportation system.



## **INTRODUCTION**

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Vanasse & Associates, Inc. (VAI) has prepared this Traffic Impact and Access Study (TIAS) to assess the traffic impacts and evaluate the access and egress requirements associated with the development of a proposed shopping center including a Walmart store off Cranberry Highway (Route 28) and Tobey Road in Wareham, Massachusetts. This report identifies existing traffic parameters within the study area, identifies the impact of traffic generated by the proposed development, and evaluates project-related impacts with regard to capacity and roadway requirements. This report was prepared in accordance with guidelines for preparation of traffic impact assessments, as required by the Executive Office of Energy and Environmental Affairs/Executive Office of Transportation (EOEEA/EOT).

## **PROPOSED PROJECT**

The proposed development entails the construction of an approximate 158,000 square foot (sf) Walmart store on a parcel of land located in the northwest quadrant of the intersection of Cranberry Highway with Tobey Road and Tow Road. The proposed development also includes an additional 18,500 sf of retail space including a bank, sit-down restaurant, automotive parts store and another retail building. The project site is currently wooded and vacant of any developed properties. Access to the project site is proposed via a full access driveway onto Tobey Road and a full access/right-turn only egress driveway onto Cranberry Highway. The proximity of the project site in relation to the regional roadway system is shown in Figure 1.

## **STUDY METHODOLOGY**

This transportation impact and access evaluation is conducted in several stages. The first phase documents existing conditions in the transportation study area including an inventory of roadway geometry, observed traffic volumes, and historic motor vehicle crash characteristics. Next, future year traffic conditions are forecast that account for other planned area development projects, planned transportation improvement projects, normal area growth, and project-related traffic increases. The third phase quantifies operating characteristics of study intersections to identify existing and future year deficiencies for which improvements are warranted. Specific attention is given to the incremental impacts of the proposed project. Finally, recommendations are made to ensure the proposed access design allows for safe and efficient traffic flow to and from the site.



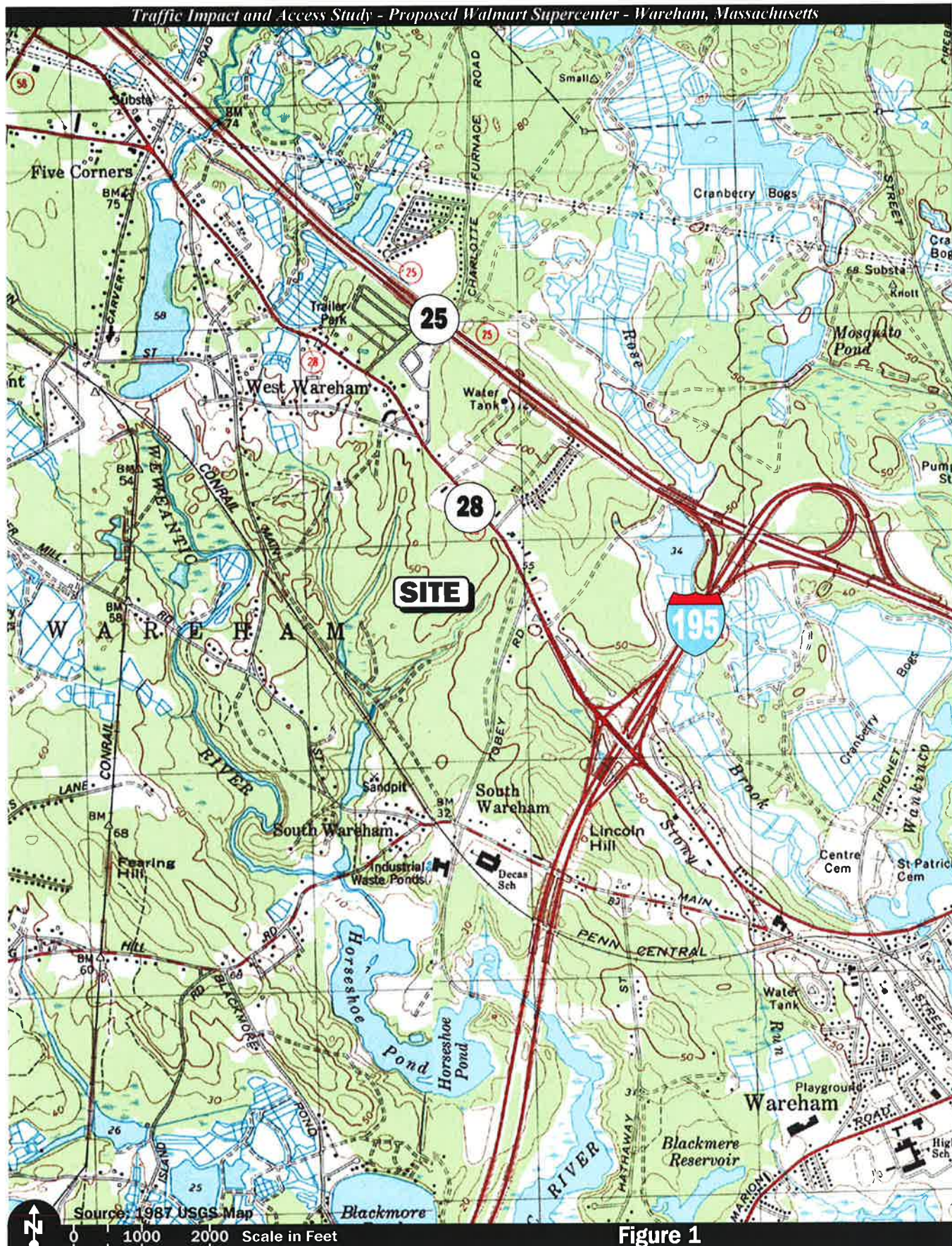


Figure 1

Site Location Map



## **STUDY AREA**

This transportation evaluation focuses on roadways and intersections that are expected to accommodate the majority of project-related traffic. In summary, the study area includes portions of the Cranberry Highway and Tobey Road corridors, including the following intersections:

- Cranberry Highway (Route 28) at Tobey Road and Tow Road
- Cranberry Highway at Wareham Crossing plaza driveway/Kendrick Road
- Cranberry Highway at Interstate 195 (I-195) Westbound Ramp
- Cranberry Highway at I-195 Eastbound Ramp
- Cranberry Highway at Site Driveway (Proposed)
- Tobey Road at Main Street
- Tobey Road at Site Driveway (Proposed)

## **EXISTING CONDITIONS**

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As a basis for quantifying the transportation impacts of the project, the existing roadway system and the existing traffic operations within the study area were reviewed. This chapter describes the existing traffic characteristics and operations of roadways and intersections within the study area. Sections of this chapter present an overview of the data collection program, existing traffic volumes, and reported motor vehicle collision histories.

### **STUDY AREA ROADWAY NETWORK**

The study area roadways and intersections are described in this section. A general description of the physical roadway and intersection features is provided. The study area includes roadways under jurisdiction of both the Town of Wareham and the Massachusetts Department of Transportation (MassDOT).

#### **Roadways**

##### **Cranberry Highway**

Cranberry Highway (Route 28) is a two-lane arterial roadway under the jurisdiction of the Massachusetts Department of Transportation (MassDOT) that traverses the study area in a general north-south orientation. South of the project site, Cranberry Highway provides access to Interstate 195. Within the study area, Cranberry Highway provides one to two lanes of travel in each direction, with additional turning lanes provided at signalized intersections along the corridor. Directional travel along Cranberry Road is separated by a double-yellow centerline in the vicinity of the site, and by a raised median in the vicinity of the I-195 ramps. Sidewalk is provided along the east side of the corridor in the vicinity of the I-195 interchange. Illumination along the corridor is provided by way of overhead street lights. Land use along Cranberry Highway, in the vicinity of the project site, consists primarily of commercial properties, and areas of open and wooded space.

##### **Tobey Road**

Tobey Road is a two-lane local roadway under the jurisdiction of the Town of Wareham that traverses the study area in a general east-west orientation between its eastern terminus at Cranberry Highway and its western terminus at Main Street. Tobey Road provides a single lane of travel in each direction separated by a painted centerline. Tobey Road provides access to a

number of commercial uses, including the Wareham Crossing shopping center. Sidewalks are not provided along the corridor.

### **Intersections**

#### **Cranberry Highway at Tobey Road and Tow Road**

Tow Road and Tobey Road intersect Cranberry Highway from the east and west, respectively to form a four-way intersection under traffic signal control. The Tow Road westbound approach provides a single approximate 12-foot general purpose travel lane. The Tobey Road eastbound approach provides an approximate 11-foot shared left-turn/through lane and an approximate 16-foot exclusive right-turn lane. The Cranberry Highway northbound and southbound approaches provide an approximate 12-foot exclusive left-turn lane and an approximate 12-foot shared through/right-turn lane. The traffic signal at this location operates under a four-phase signal operation, with a lead phase for northbound traffic on Cranberry Highway and Tobey Road and Tow Road operating under split-phased signal operations.

#### **Cranberry Road at Wareham Crossing driveway and Kendrick Road**

Kendrick Road and the Wareham Crossing driveway intersect Cranberry Highway from the east and west, respectively, to form a four-way intersection under traffic signal control. The Wareham Crossing eastbound approach provides an approximate 12-foot shared left-turn/through lane and two approximate 12-foot exclusive right-turn lanes. The Kendrick Road westbound approach provides a 12-foot general purpose travel lane. The Cranberry Highway southbound approach provides an approximate 12-foot exclusive left-turn lane, two approximate 12-foot through lanes and an approximate 11-foot exclusive right-turn lane. The Cranberry Highway northbound approach provides two approximate 12-foot exclusive left-turn lanes, a 12-foot through lane and a 12-foot shared through/right-turn lane. The traffic signal at this location operates under a four-phase traffic signal operation, with protected left-turn phases provided for northbound and southbound traffic on Cranberry Highway and the Wareham Crossing driveway and Kendrick Road operating under split phasing.

#### **Cranberry Highway at the I-195 Westbound Ramps**

The I-195 westbound ramps intersect Route 28 from the east and west to form a four legged intersection under traffic signal control. The I-195 westbound off-ramp intersects Cranberry Highway from the east, providing an approximate 12-foot wide left-turn lane and two 12-foot wide right-turn lanes, which are separated by a delta island. The Cranberry Highway southbound approach provides two approximate 12-foot wide travel lanes, with right-turns onto the I-195 westbound on-ramp provided via a channelized right-turn lane located outside of the intersection's traffic signal. The Cranberry Highway northbound approach provides an approximate 12-foot exclusive left-turn lane and two approximate 12-foot wide through lanes. The traffic signal at this location operates under a three-phase signal operation, with a protected left-turn phase provided for southbound left-turns onto the I-195 westbound on-ramp.

#### **Cranberry Highway at the I-195 Eastbound Ramps**

The I-195 eastbound ramps intersect Cranberry Highway from the east and west to form a four-way intersection under traffic signal control. The I-195 eastbound off-ramp intersects Cranberry Highway from the west, providing two approximate 12-foot wide exclusive left-turn lanes and an approximate 18-foot wide exclusive right-turn lane which are separated by a delta island. The

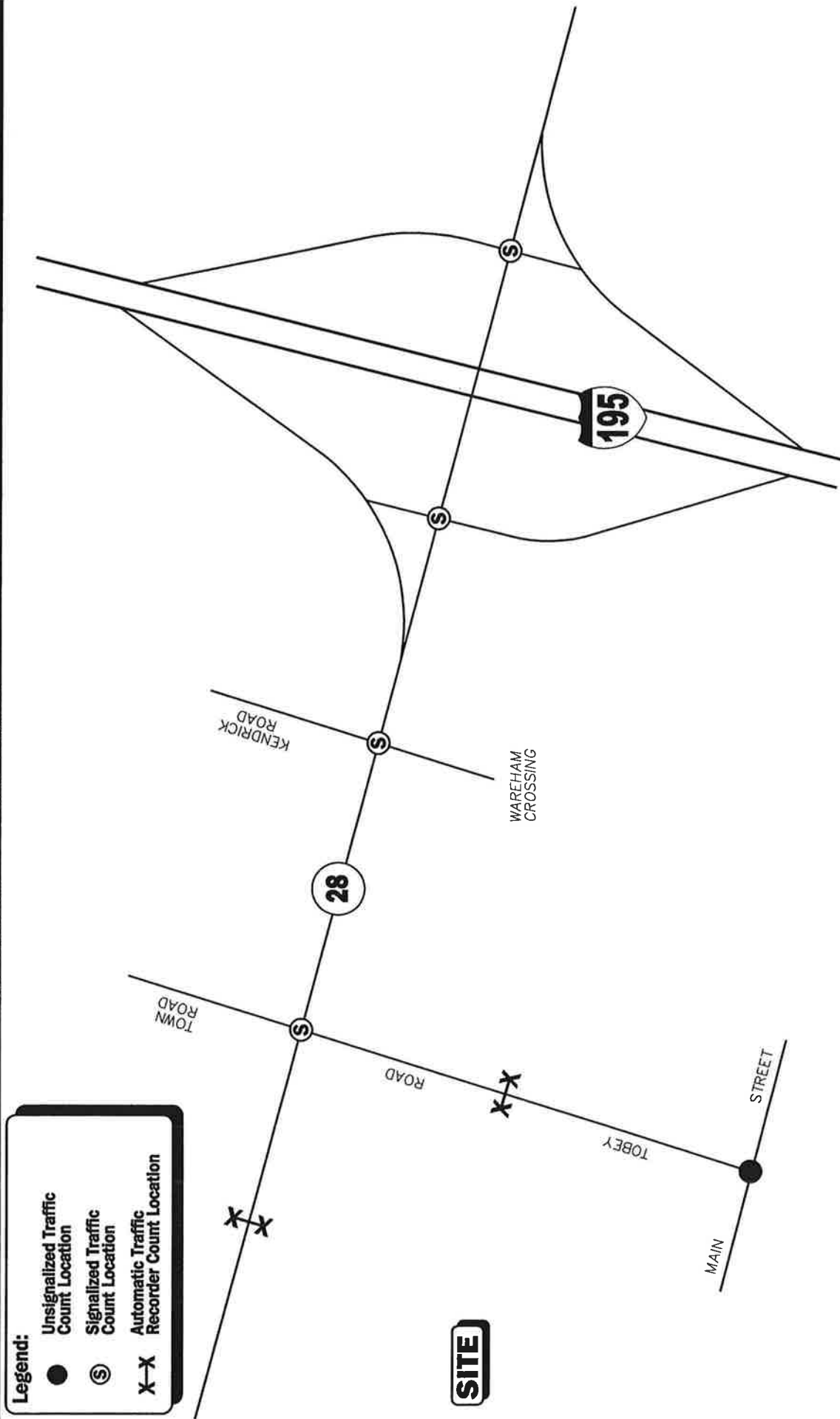
Cranberry Highway southbound approach provides an approximate 12-foot wide exclusive left-turn lane and two approximate 12-foot wide through lanes. The Cranberry Road northbound approach provides two approximate 12-foot wide through lanes, with right-turns onto the I-195 eastbound on-ramp provided via a channelized right-turn lane located outside of the intersection's traffic signal. The traffic signal at this location operates under a three-phase signal operation, with a protected left-turn phase provided for southbound left-turns onto the I-195 eastbound on-ramp.

### **Tobey Road at Main Street**

Tobey Road intersects Main Street from the east to form a three-way intersection under traffic signal control. The Main Street northbound and southbound approaches provide a single approximate 12-foot travel lane in each direction. The Tobey Road westbound approach provides a single travel lane that flares to approximately 38 feet at its intersection with Main Street, allowing right-turn traffic to bypass a vehicle waiting to turn left onto Main Street. The Tobey Road southbound approach operates under STOP-sign control.

### **EXISTING TRAFFIC VOLUMES**

Traffic volumes were recorded at study area intersections and along study area roadways in March 2010. In order to document existing traffic conditions over an extended time period, automatic traffic recorder (ATR) counts were conducted along Cranberry Highway and Tobey Road, adjacent to the project site. Additionally, peak hour turning movement counts (TMCs) were conducted at each study area intersection during the weekday evening (4:00 to 6:00 PM) and Saturday midday (11:00 AM and 2:00 PM) time periods to determine peak traffic flow conditions within the study area. These time periods correspond to the peak hours of retail related traffic. Based on a review of this data, the peak hours of roadway traffic generally occurred from 4:45 to 5:45 PM during the weekday evening peak and from 12:30 PM to 1:30 PM during the Saturday midday peak. A summary of existing daily traffic volumes is provided in Table 1. Study area intersections and traffic count locations are depicted in Figure 2.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

Figure 2

## Study Area Intersections

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**Table 1**  
**EXISTING ROADWAY TRAFFIC-VOLUME SUMMARY**

Location	Daily Volume (vpd) <sup>a</sup>	Saturday Daily Volume (vpd)	Weekday Evening Peak Hour			Saturday Midday Peak Hour		
			Volume (vph) <sup>b</sup>	Percent of Daily Traffic <sup>c</sup>	Predominant Flow	Volume (vph)	Percent of Daily Traffic	Predominant Flow
Cranberry Road (Route 28)	13,891	11,357	1,152	9.0	55% NB	1,059	9.3	53% SB
Tobey Road	4,447	3,120	402	9.0	54% WB	262	8.4	51% EB

Source: Automatic traffic recorder counts conducted in March 2010.

<sup>a</sup>Two-way daily traffic expressed in vehicles per day.

<sup>b</sup>Two-way peak-hour volume expressed in vehicles per hour.

<sup>c</sup>The percent of daily traffic that occurs during the peak hour.

<sup>d</sup>WB = westbound; SB = southbound.

As presented in Table 1, daily traffic flow on Cranberry Highway ranges from approximately 13,891 vehicles per day (vpd) on a weekday to 11,357 vpd on a Saturday. Traffic flow during peak hours is approximately 1,152 vehicles per hour (vph) during the weekday evening peak hour and 1,059 vph during the Saturday midday peak hour. Peak-hour directional flow is split approximately 55 northbound during the weekday evening peak hour to 53 percent southbound during the Saturday midday peak hour.

Daily traffic flow on Tobey Road ranges from approximately 4,447 vpd on a typical weekday to 3,120 vpd on a Saturday. Traffic flow during peak hours is approximately 402 vph during the weekday evening peak hour and 262 vph during the Saturday midday peak. Peak-hour directional flow is split approximately 54 percent westbound during the weekday evening peak hour to 51 percent eastbound during the Saturday midday peak hour.

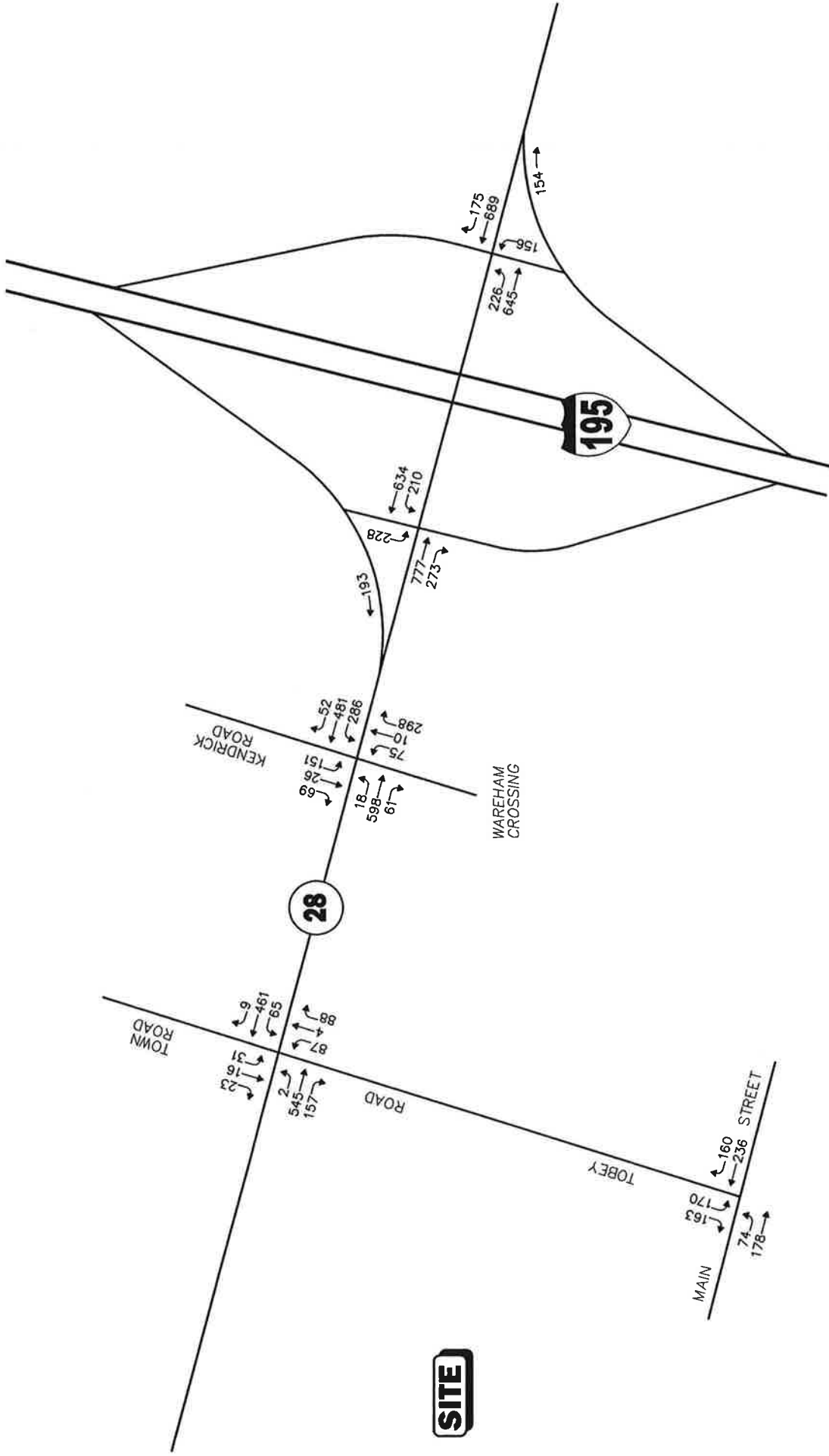
### **Seasonal Adjustment**

In order to determine whether traffic volumes collected in March are representative of average annual conditions, historical traffic data collected by the Massachusetts Department of Transportation (MassDOT) were examined. MassDOT collects traffic count data at a number of permanent count stations in communities located in proximity of the Town of Wareham. Based on review of count data for the nearest MassDOT permanent count stations to the Project<sup>1</sup>, it was determined that traffic volumes for the months of March are approximately 12 percent lower than average-month conditions.

In order to reflect average annual conditions, traffic count data collected along Cranberry Highway and Tobey Road in March 2010 were adjusted upwards by 12 percent. The 2010 Existing weekday evening and Saturday midday peak hour traffic volumes are displayed in Figure 3 and Figure 4.

<sup>1</sup> MassDOT Traffic Volumes for Permanent Count Station 7 located on Route I-195, west of North Street, in Mattapoisett; Permanent Count Station 617 located on Route 140, north of the New Bedford City Line, in Freetown; and Permanent Count Station 707 located on Route 28, north of the Bourne Bridge, in Bourne.





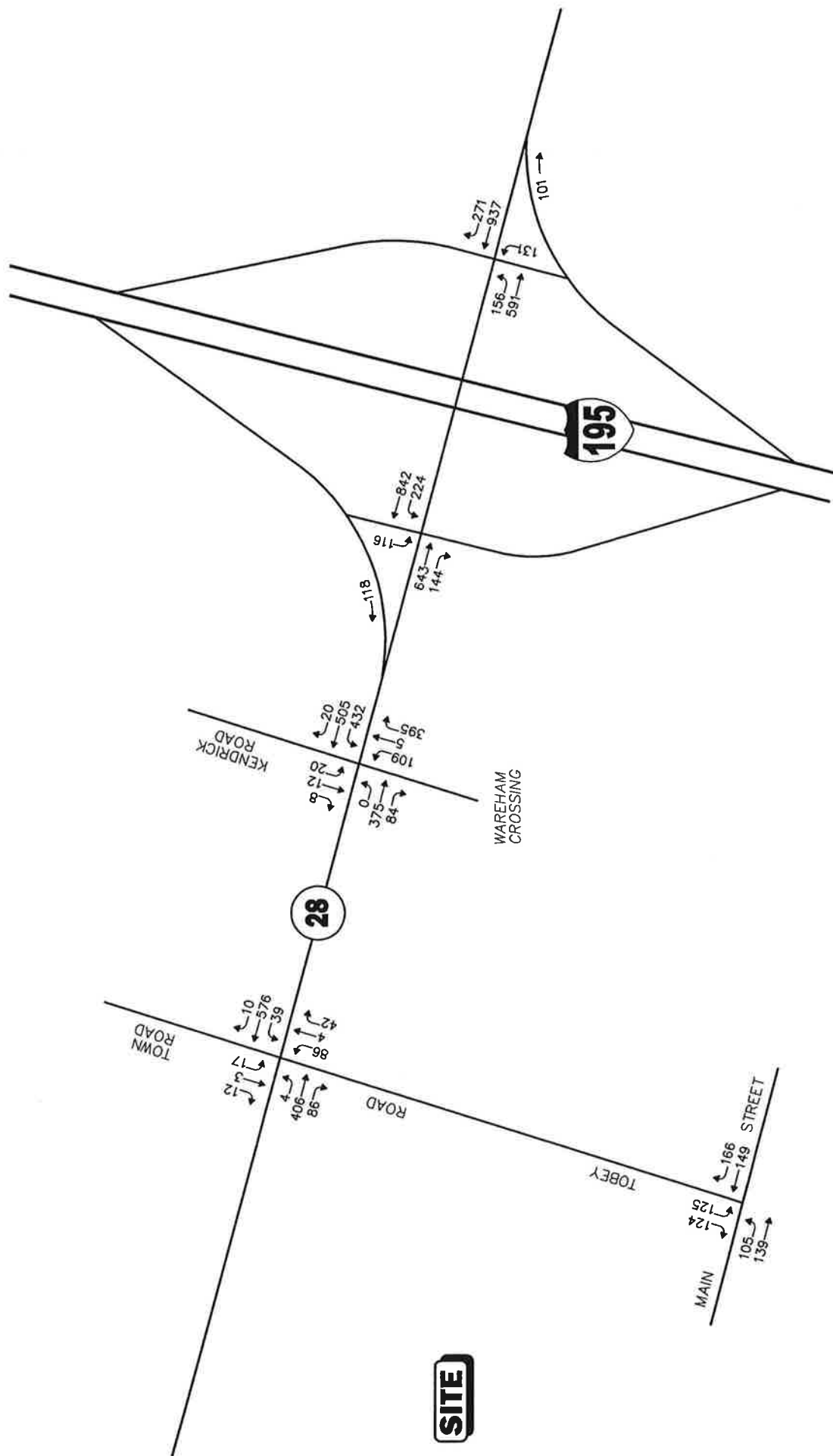
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

Figure 3

2010 Existing  
Weekday Evening  
Peak Hour Traffic Volumes

**Vanasse & Associates, Inc.**  
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Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 4

**Vanasse & Associates, Inc.**  
Transportation Engineers & Planners

**2010 Existing  
Saturday MIDDAY  
Peak Hour Traffic Volumes**

## **EXISTING PUBLIC TRANSIT**

Public transportation services within the study area are currently provided by the Greater Attleboro – Taunton Regional Transit Authority (GATRA). GATRA provides bus service within the study area via the Onset-Wareham Link (OWL) bus routes. Service along Cranberry Highway is provided via the Cranberry Plaza to West Wareham Link (Link 4), which stops at the nearby Wareham Crossing shopping center. Link 4 operates Monday through Friday from 7:25 AM to 5:45 PM.

## **Safety**

Motor vehicle crash data were obtained from MassDOT for the three most recent years of data available (2006 to 2008) in order to identify reported motor vehicle crash trends and/or safety deficiencies within the study area. Motor vehicle crash data for each location were researched to determine the type of collision, severity, and roadway conditions for each incident. In addition, motor vehicle crash rates were determined for each location. These rates quantify the number of motor vehicle collisions per million entering vehicles and provide a basis for comparing reported motor vehicle crash rates to statewide averages. MassDOT motor vehicle crash rates for signalized and unsignalized intersections in District 5 are 0.77 and 0.62, respectively. A summary of the motor vehicle crash data is provided in Table 2 and is described below.

As indicated in Table 2, the intersections that experienced the greatest number of motor vehicle collisions between 2006 and 2008 were the intersections of Route 28 with the I-195 eastbound and westbound ramps. A total of 26 collisions were reported over this time period, 19 at the eastbound ramps and 7 at the westbound ramps. It is also noted that an additional 22 collisions were reported that did not specify whether the collision occurred at the Route 28 intersections with the ramp or within the interchange itself. The majority of reported collisions resulted in property damage only. Most collisions at these locations involved either rear-end or angle collisions, and occurred during clear roadway conditions during daylight hours. There was a single fatality reported at the I-195 westbound ramps in 2007 involving an angle collision between a northbound and westbound vehicle. The crash rate for both locations falls below MassDOT's official crash rate for signalized locations.

For the remaining study area intersections there were significantly fewer motor vehicle collisions reported over the three year review period. In all instances the motor vehicle crash rate fell below the official state average.

**Table 2**  
**MOTOR VEHICLE CRASH DATA SUMMARY<sup>a</sup>**

	Route 28/ Tobey Road	Route 28/ Kendrick Road	Route 28/ I-195 Eastbound Ramp	Route 28/ I-195 Westbound Ramp	Route 28/ I-195 Ramp	Main Street/ Tobey Road
<i>Year</i>						
2006	5	3	9	3	10	2
2007	3	6	5	2	3	2
<u>2008</u>	<u>5</u>	<u>1</u>	<u>5</u>	<u>2</u>	<u>9</u>	<u>4</u>
Total	13	10	19	7	22	7
Average Rate <sup>b</sup>	0.72	0.39	0.76	0.25	NA	0.59
Significant? <sup>c</sup>	No	No	No	No	NA	No
<i>Type</i>						
Angle	4	8	8	3	3	1
Rear-End	7	2	7	3	5	0
Head-On	0	0	0	0	0	0
Sideswipe	2	0	2	0	2	2
Fixed Object	0	0	2	1	8	4
<u>Unknown/Other</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>
Total	13	10	19	7	22	7
<i>Severity</i>						
Property Damage	8	10	15	4	13	5
Personal Injury	5	0	4	2	8	1
<u>Fatal</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	13	10	19	7	22	7
<i>Conditions</i>						
Clear	9	4	13	4	16	3
Cloudy	2	3	4	2	1	0
Rain	1	3	1	0	0	0
Snow/Ice	1	0	0	1	5	4
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	13	10	19	7	22	7
<i>Lighting</i>						
Daylight	10	8	17	5	14	3
Dawn/Dusk	1	0	1	0	3	0
Dark (Road Lit)	0	2	0	0	1	3
Dark (Road Unlit)	1	0	1	2	4	0
<u>Other/Unknown</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	13	10	19	7	22	7

<sup>a</sup>Source: MassDOT Safety Management/Traffic Operations Unit Records, 2006 through 2008.

<sup>b</sup>Crash rate per million vehicles entering the intersection.

<sup>c</sup>The intersection crash rate is significant if it is found to exceed 0.77 crashes per million vehicles entering the intersection for signalized intersections and 0.62 for unsignalized intersections as defined by MassDOT for the MassDOT District in which the project is located.

## **FUTURE CONDITIONS**

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Evaluation of the project impacts requires the establishment of a future baseline analysis condition. This section estimates future roadway and traffic conditions with and without the project.

To determine the impact of site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to a future year condition. Traffic volumes on the roadway network at that time, in the absence of the project (that is, the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific development by others, and currently under review at the local and/or state level. Consideration of these factors resulted in the development of No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop future Build conditions.

The following sections provide an overview of planned roadway improvements in the study area, the future No-Build traffic volumes, and projected Build traffic volumes.

### **BACKGROUND TRAFFIC GROWTH**

Background traffic includes demand generated by other planned projects in the area as well as demand increases caused by historic area growth trends. Area growth trends account for general increases in traffic not attributable to a specific development and are determined using historical data. Both planned development projects and area growth trends were used to develop future year traffic volumes.

#### **Historical Area Growth**

To determine an appropriate growth rate in area traffic over the five-year planning horizon, MassDOT count data were examined. Based on a review of this data it was determined that traffic volumes have grown by approximately 2 percent per year within the study area over the past several years. In order to account for unforeseen growth in traffic over the five-year planning horizon, a 2.0 percent per year compounded growth rate has been applied to existing traffic volumes. This growth rate is consistent with the background growth rate utilized for other recently completed area traffic studies.

### **Site-Specific Growth**

The Town of Wareham and MassDOT were contacted in order to determine if there are any planned or approved development projects within the study area that would be expected to influence future traffic volumes within the study area. Based on these discussions, the following projects were identified and have been included as specific background developments:

- ***ADM Mixed-Use Development – Wareham/Carver/Plymouth, Massachusetts.*** The ADM mixed-use development project includes the phased development of a large mixed-use project that includes a mix of office, manufacturing and commercial space.

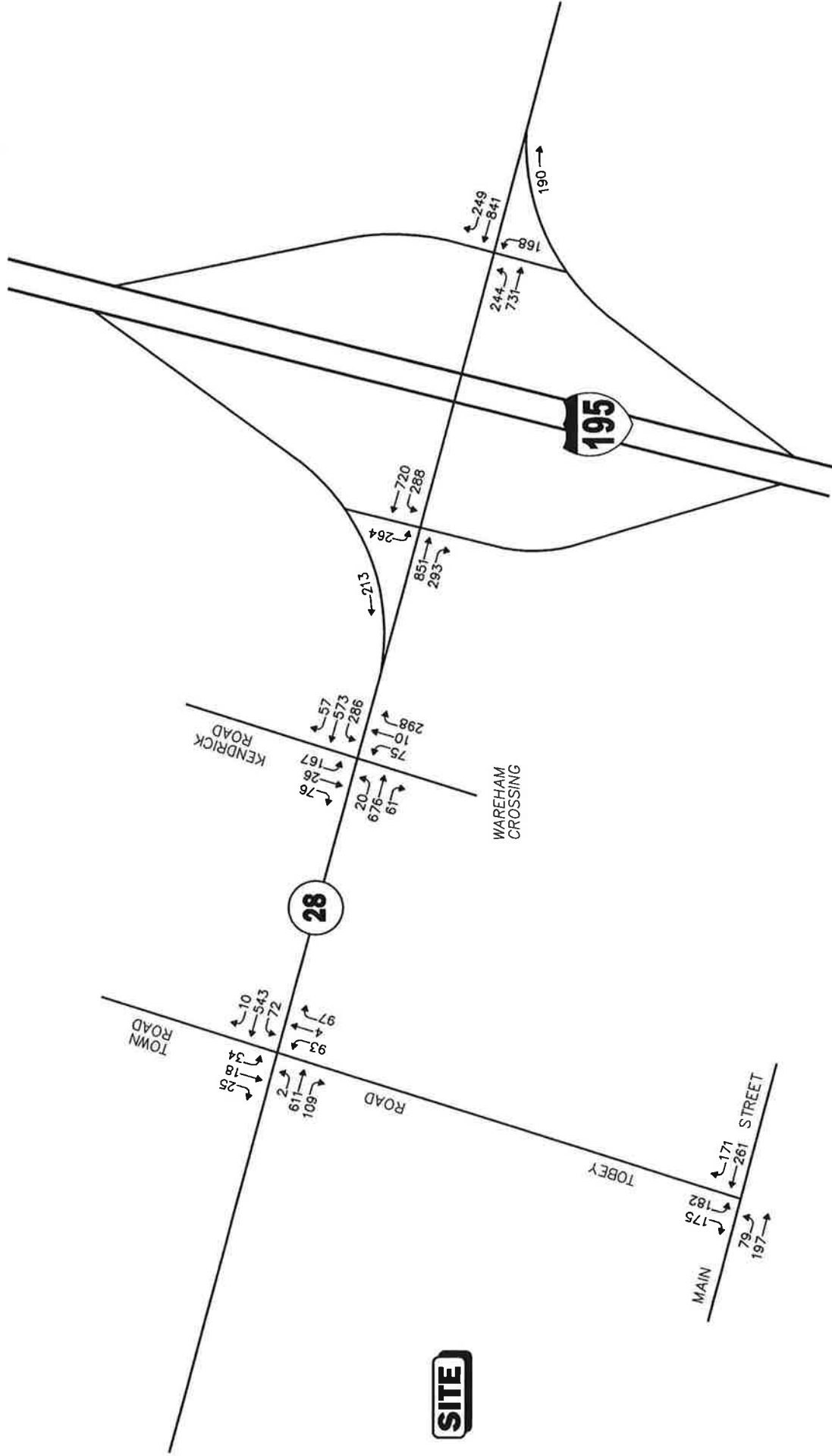
Phase A of the project, which is divided into two separate sub-phases, Phase A1 and Phase A2, includes a mix of office, manufacturing and medical office space. Specifically, Phase A1 includes approximately 8,000 sf of office space and 72,000 sf of light manufacturing space. Phase A2 includes approximately 65,850 sf of medical office space that will be located off a proposed Route 28-Tihonet Road connector that will link Route 28 with Tihonet Road by way of an extension of Lou Avenue. Additional traffic volumes associated with Phase A of this project were obtained from the Notice of Project Change (NPC) prepared for this development, and have been included in the analysis of future traffic conditions.

It is noted that subsequent phases of the ADM Mixed-Use Development have undergone review as part of the Massachusetts Environmental Policy Act (MEPA) review process. Specifically, Phase B of the project, as reviewed through the MEPA process, includes the potential for an additional 40,000 sf of retail space; 343,600 sf of manufacturing space; 150,000 sf of warehouse space; 525,00 sf of light industrial space; 201,200 sf of general office space; 80,000 sf of medical-dental office space, 290,000 sf of research and development space; and a 225 room hotel. Development of this phase of the project also entails significant transportation improvements, including the Route 28 interchange with I-195. As it is not anticipated that the Phase B development will be constructed prior to the 2015 horizon year analyzed as part of this study, future year 2015 traffic conditions do not include the additional traffic or corresponding mitigation associated with Phase B of this development.

No other developments were identified at this time that are expected to impact future traffic volumes beyond the general background traffic growth rate.

### **No-Build Traffic Volumes**

The 2015 weekday evening and Saturday midday volumes were developed by applying a compounded 2.0 percent annual growth rate, as well as traffic associated with Phase A of the aforementioned ADM mixed-use development to the 2010 Existing peak-hour traffic volume networks. Future year 2015 No-Build peak-hour traffic volumes for the weekday evening and Saturday midday peak hours are displayed on Figure 5 and Figure 6.

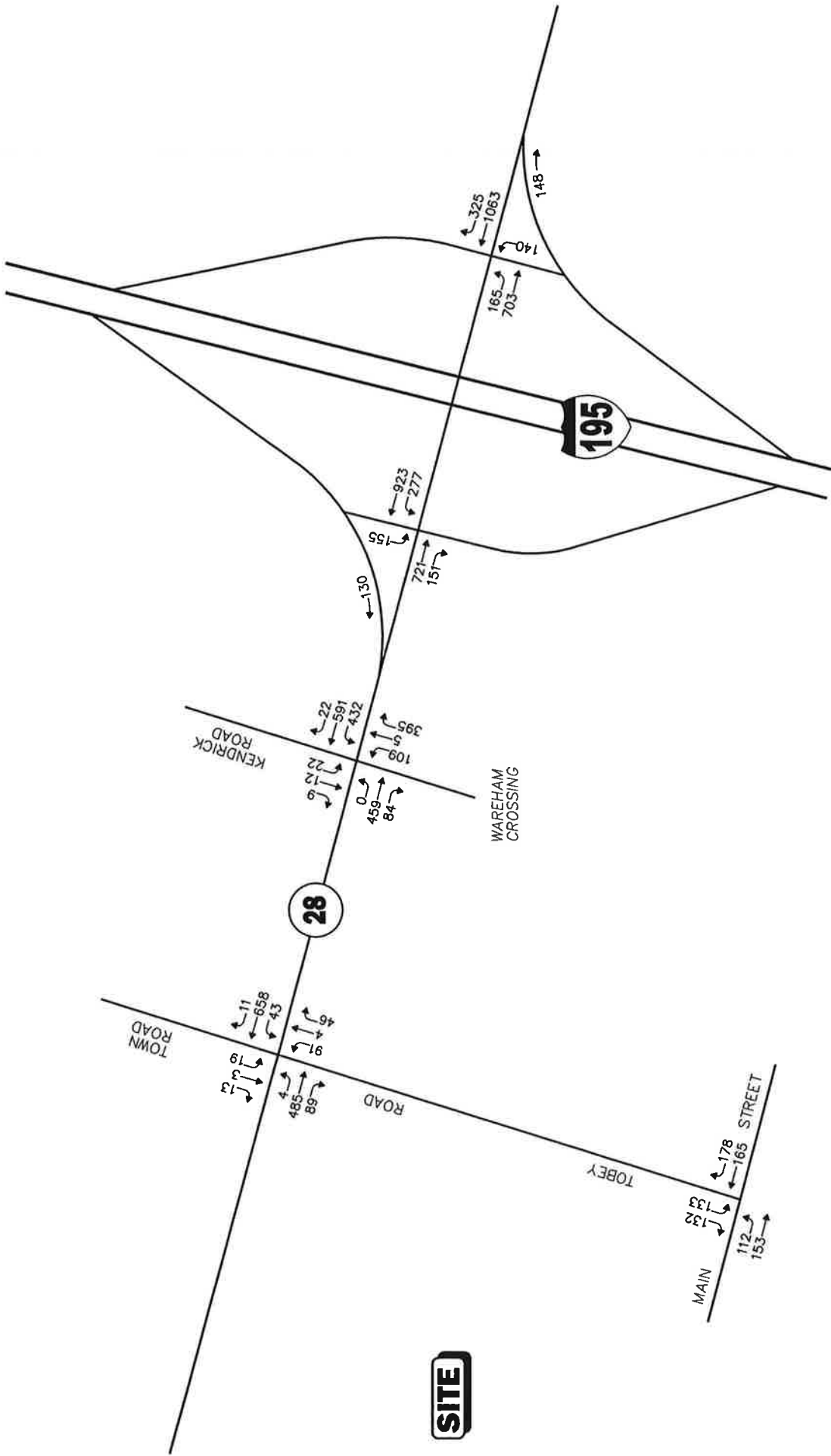


Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

Figure 5

2015 No-Build  
Weekday Evening  
Peak Hour Traffic Volumes

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Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

**Figure 6**  
**2015 No-Build**  
**Saturday Midday**  
**Peak Hour Traffic Volumes**



## **Planned Roadway Improvements**

The Town of Wareham and MassDOT were contacted to determine if there are any planned roadway improvements in the area that would have an impact on future traffic operations. Based on these discussions the following roadway improvement projects were identified.

***Cranberry Road Traffic Improvements*** – As mitigation for Phase A of the proposed ADM mixed-use development project, roadway and traffic signal improvements are proposed at a number of locations along the Cranberry Highway corridor. Within the study area, proposed improvements include optimizing the traffic signal operations of coordinated Route 28 traffic signal system.

Future year 2015 No-Build and Build condition traffic analyses reflect proposed improvements along the Route 28 corridor.

## **SITE-GENERATED TRAFFIC**

The proposed development includes the construction of a shopping center than includes an approximate 158,000 sf Walmart store. The proposed Walmart store will include a grocery store component. Additionally, the center will also include an additional 18,500 sf of commercial space including a 5,200 sf sit-down restaurant, a 7,800 sf automotive parts store, a 3,300 sf drive-through bank with three drive-through lanes and a 2,200 sf building that may accommodate general retail space or a restaurant without drive-through. For the purpose of this analysis it was conservatively assumed that the 2,200 sf building would accommodate a restaurant as this use has higher trip generation characteristics than general retail space.

In order to estimate the trip generation characteristics of the proposed development, trip generation data published by the Institute of Transportation Engineers (ITE) for Land Use Codes (LUC) 813 – Free Standing Discount Superstore, LUC 843 – Automotive Parts Sales, LUC 912 – Drive-In Bank, LUC 932 – High-Turnover Sit-Down Restaurant and LUC 933- Fast Food Restaurant without Drive-Through, were utilized. These land use codes represent the most appropriate categories for the proposed development.

The trip-generation estimates for the project are provided for the weekday evening and Saturday midday peak hours, which traditionally correspond to the critical impact periods for retail developments. The trip estimates were also adjusted to reflect common characteristics associated with retail developments: pass-by trips and diverted-linked trips. A more detailed description of this adjustment is as follows:

- ***Pass-By Trips.*** ITE-recommended practice recognizes that a varying proportion of retail trips are drawn from the adjacent traffic stream and do not represent new trips on area roadways (referred to as “pass-by” trips). Pass-by data for LUC 813 – Free-Standing Discount Superstore published by ITE<sup>2</sup> includes surveys of shopping centers throughout the United States. This data indicates that the average pass-by trip percentage for all surveyed sites is approximately 28 percent, and ranges as high as 40 percent for all surveyed sites. In order to provide a conservative assessment of project-related impacts, a

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<sup>2</sup>*Trip Generation Handbook*, Institute of Transportation Engineers; Washington, DC; June 2004; Table 5.2 Pass-By Trips and Diverted Linked Trips, Weekday Evening Peak Period, LUC 813 – Free Standing Discount Superstore.

**Table 3**  
**TRIP GENERATION SUMMARY – PROPOSED WALMART SHOPPING CENTER**

	Proposed Walmart <sup>a</sup>	Sit-Down Restaurant <sup>b</sup>	Drive-In Bank <sup>c</sup>	Retail/ Restaurant <sup>d</sup>	Automotive Parts Store <sup>e</sup>	Total	Internal <sup>f</sup>	Pass-By <sup>g</sup>	New Trips
<i>Weekday Evening</i>									
<i>Peak Hour:</i>									
Entering	357	35	40	30	30	492	-12	-119	361
Exiting	<u>371</u>	<u>22</u>	<u>42</u>	<u>28</u>	<u>17</u>	<u>480</u>	<u>-12</u>	<u>-119</u>	<u>349</u>
Total	728	57	82	47	47	972	-24	-238	710
<i>Saturday Midday</i>									
<i>Peak Hour:</i>									
Entering	446	66	44	59	32	647	-19	-154	474
Exiting	<u>445</u>	<u>38</u>	<u>46</u>	<u>61</u>	<u>29</u>	<u>619</u>	<u>-19</u>	<u>-154</u>	<u>446</u>
Total	891	104	90	120	61	1,266	-38	-308	920
<i>Weekday Daily:</i>	8,394	662	418	1,576	482	11,532	-314	-2,804	8,414
<i>Saturday Daily:</i>	10,124	860	456	1,532	626	13,562	-344	-3,304	9,914

Source: ITE *Trip Generation* manual, Eighth Edition, 2008.

<sup>a</sup>Based on ITE LUC 813 trip generation data for 158,000 sf store

<sup>b</sup>Based on ITE LUC 932 trip generation data for 5,200 sf restaurant

<sup>c</sup>Based on ITE LUC 912 trip generation data for 3,300 sf bank

<sup>d</sup>Based on ITE LUC 933 trip generation data for 2,200 sf restaurant

<sup>e</sup>Based on LUC 843 for 7,800 sf automotive parts store

<sup>f</sup>Internal trip factor of 10 percent applied to outparcel trips.

<sup>g</sup>Pass-by trip factor of 25 percent applied to external retail trips based on ITE *Trip Generation Handbook*, June 2004.

25 percent pass-by trip percentage was applied for both the weekday evening and Saturday midday peak periods for all project-generated trips.

- **Internal Trips.** ITE-recommended practice recognizes that a proportion of retail trips within a multi-tenant center occur between the individual retail uses in the center, not resulting in new trips on the adjacent roadway network. Based on data published by the ITE, it is assumed that 10 percent of the traffic arriving and departing the outparcel uses will be drawn from the customer traffic arriving and departing the Walmart store, and not represent new trips on the surrounding roadway network.

Project-related trip generation projections are summarized in Table 3.

As indicated in Table 3, the proposed development is expected to generate 710 new vehicle trips (361 entering and 349 exiting) during the weekday evening peak hour and 920 new vehicle trips (474 entering and 446 exiting) during the Saturday midday peak hour. On a daily basis, the proposed development is projected to generate 8,414 new trips (4,207 entering and 4,207 exiting) on a typical weekday and 9,914 new trips (4,957 entering and 4,957 exiting) on a typical Saturday.

### **TRIP DISTRIBUTION AND ASSIGNMENT**

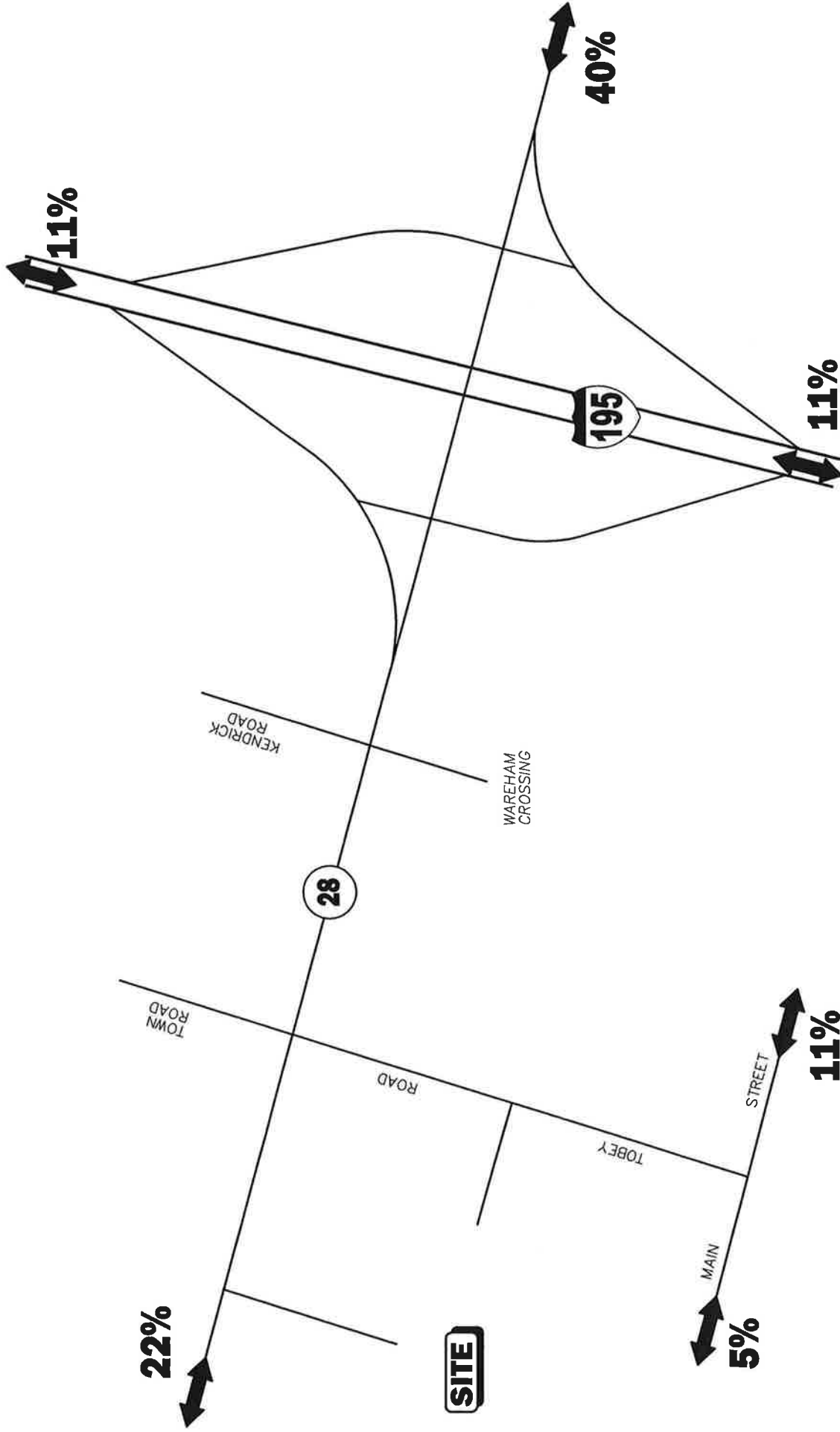
Development of the Build traffic-volume networks requires that site-generated traffic volumes previously described be assigned to area roadways based on projected regional distribution patterns. The trip-distribution patterns for retail development sites is a function of several variables that include population densities within an assumed market area, location of competing retail sites, and characteristics of the local roadway system. As the proposed development is located immediately north of the existing and operational Wareham Crossing shopping center, and it expected to draw from the same customer base as the existing center, trip distribution patterns were developed based on observed traffic patterns to and from the existing store, including its driveways onto both Cranberry Highway and Tobey Road. Trip-distribution patterns for the proposed development are summarized in Table 4 and displayed on Figure 7.

**Table 4**  
**TRIP-DISTRIBUTION SUMMARY**

Roadway	Direction (To/From)	To/From Site (Percent)
Route 28	South	40%
Route 28	North	22%
I-195	East	11%
I-195	West	11%
Tobey Road	South	16%
TOTAL		100%

Source: Observed traffic patterns at the existing Wareham Crossing shopping center.

Using the trip-generation and distribution estimates project-related trips were assigned to the roadway network. Figure 8 and Figure 9 display the new and pass-by project-generated trips at



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

Figure 7

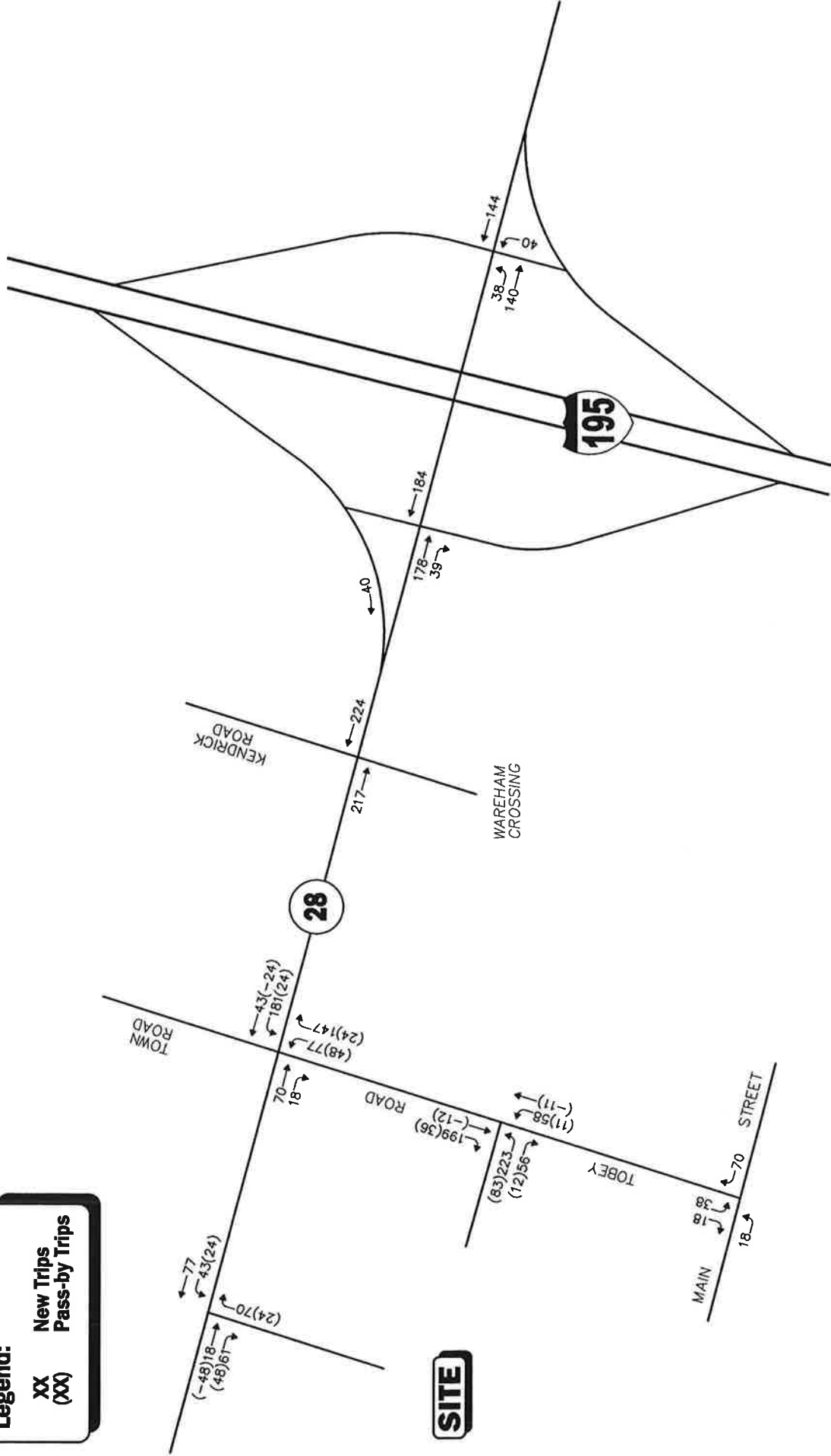
Trip Distribution Map

**Vanasse & Associates, Inc.**  
Transportation Engineers & Planners



**Legend:**

XX New Trips  
(XX) Pass-by Trips



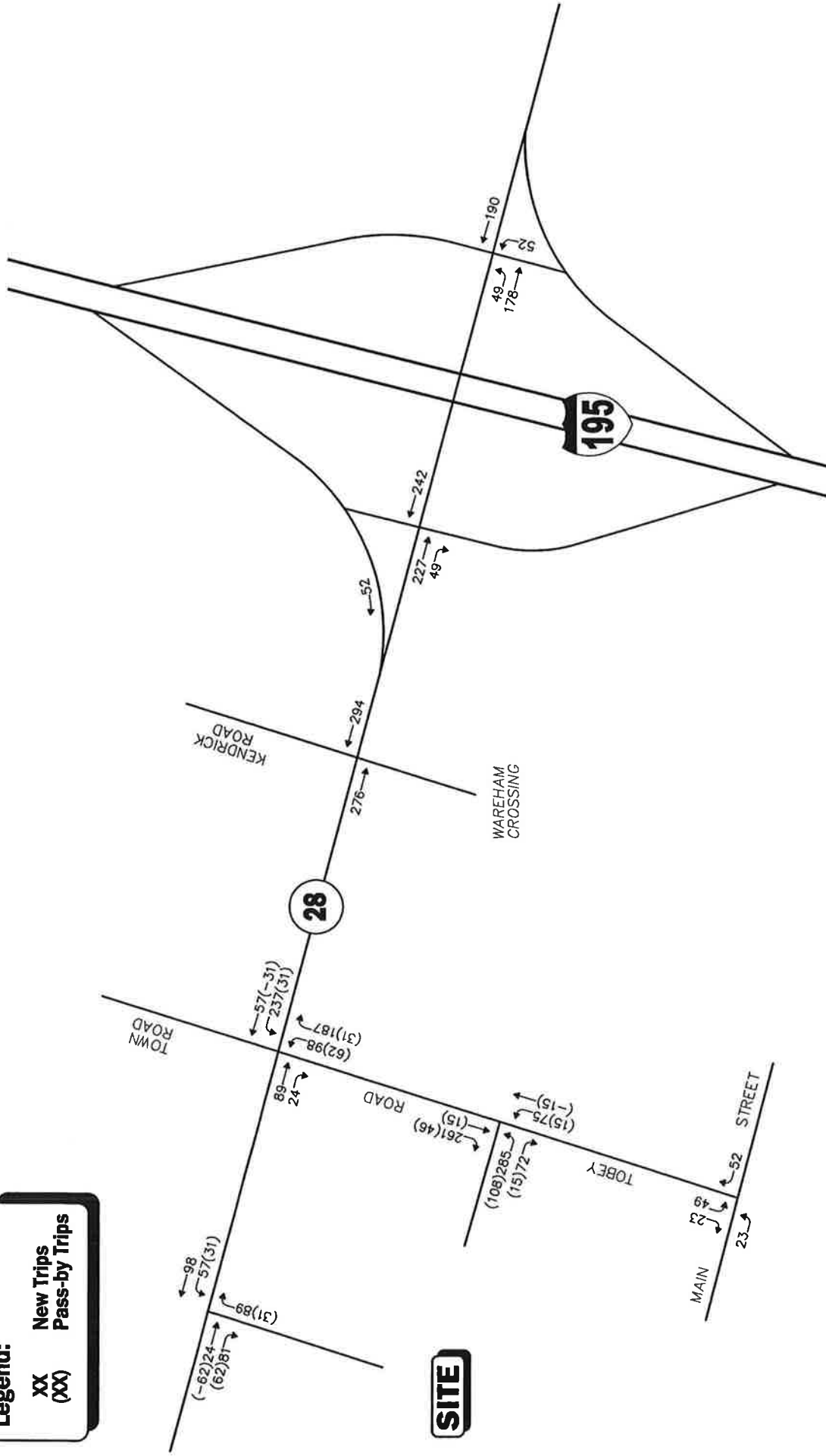
Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

**Figure 8**  
Weekday Evening  
Site-Generated  
Peak Hour Traffic Volumes

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**Legend:**

XX New Trips  
(XX) Pass-by Trips



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

**Figure 9**

**Saturday Midday  
Site-Generated  
Peak Hour Traffic Volumes**

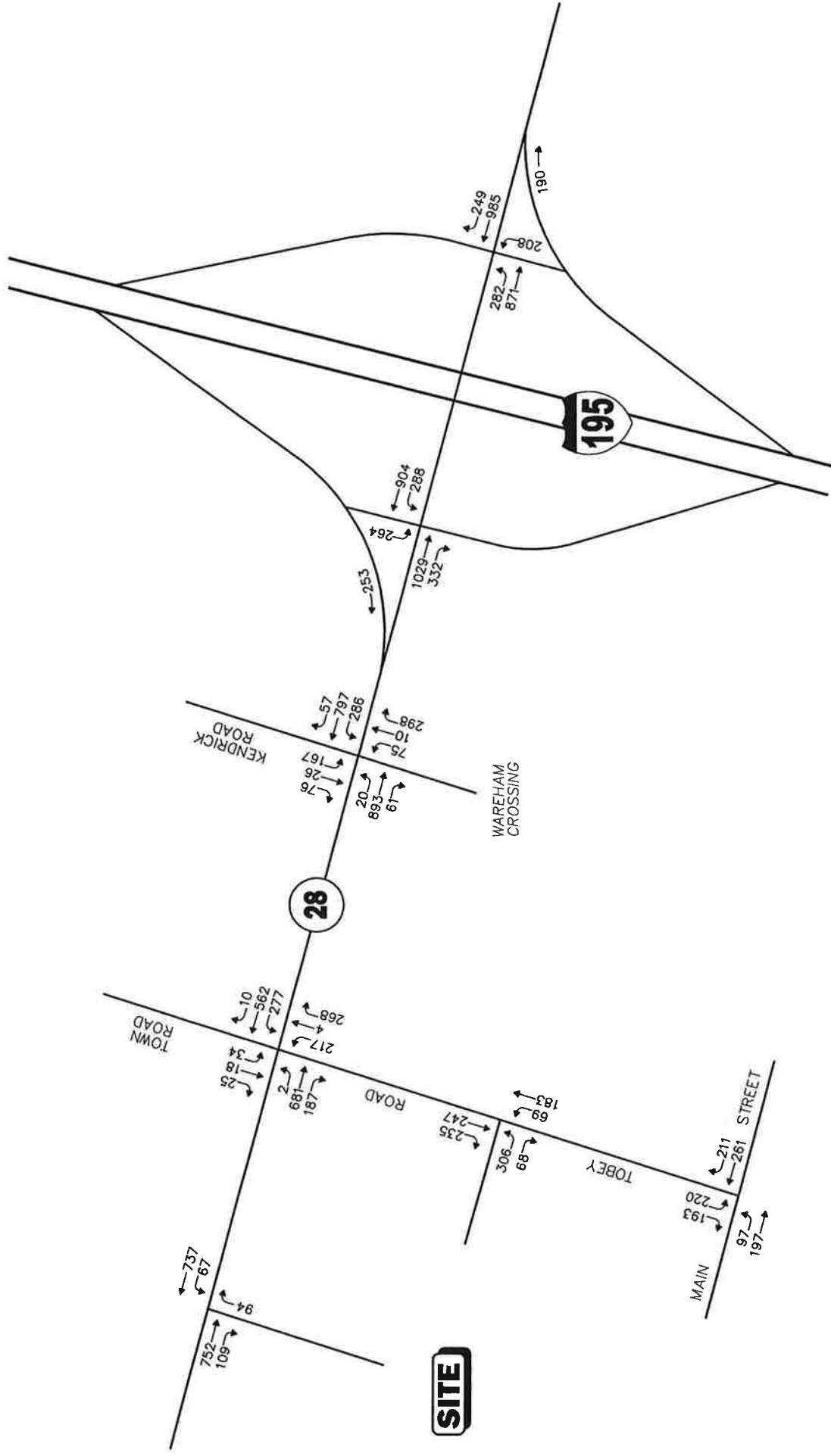
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each intersection approach for the weekday evening and Saturday midday peak hours, respectively.

### **Build Traffic Volumes**

Future Build condition traffic volumes were determined by adding project-specific traffic to the 2015 No-Build scenario. Figure 10 and Figure 11 present the 2015 Build networks for the weekday evening and Saturday midday peak hours, respectively.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

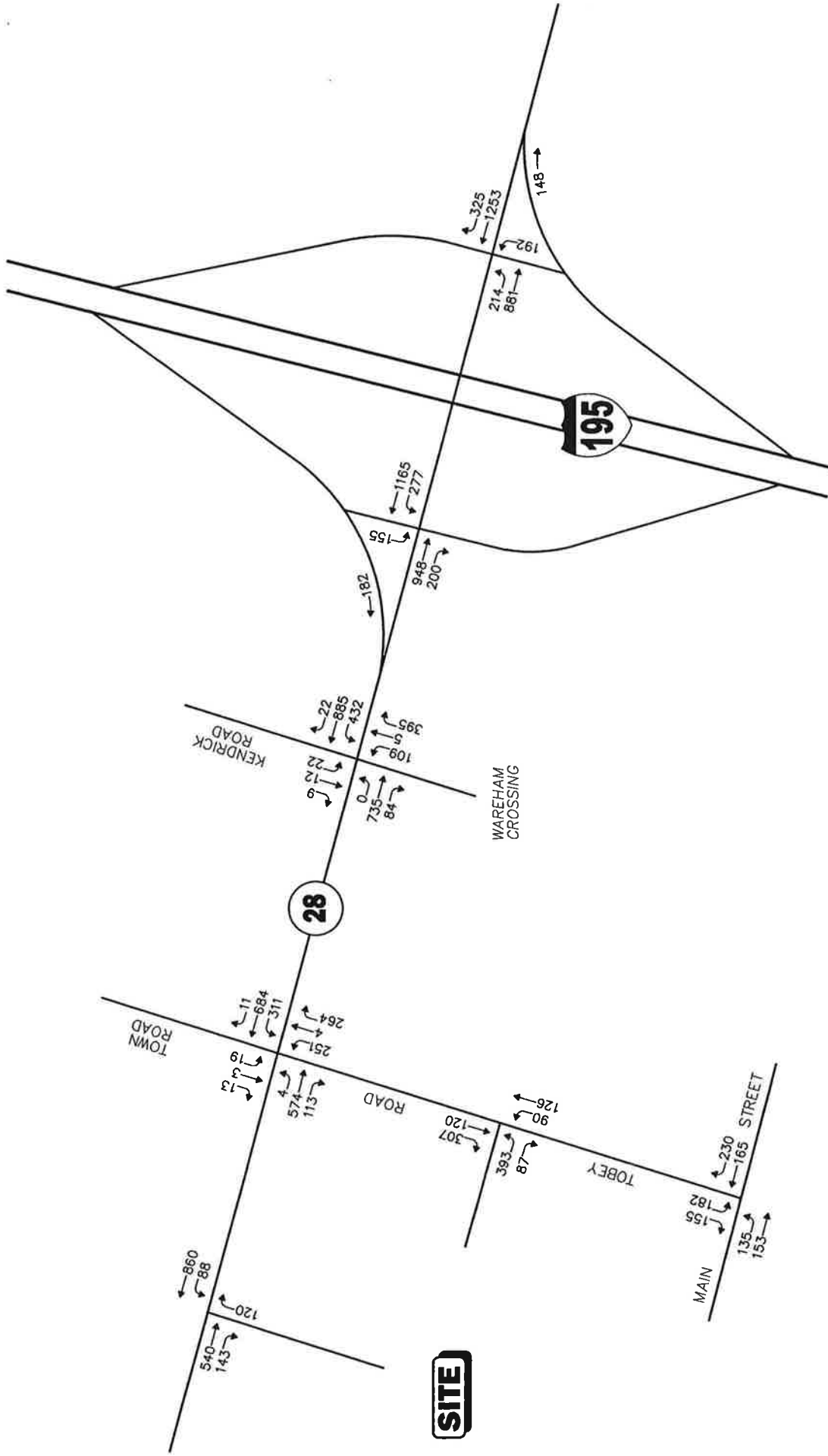
Figure 10

2015 Build  
Weekday Evening  
Peak Hour Traffic Volumes

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Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

Figure 11

2015 Build  
Saturday MIDDAY  
Peak Hour Traffic Volumes

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## **TRAFFIC OPERATIONS ANALYSIS**

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Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity analyses were conducted under Existing, No-Build, and Build traffic-volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them.

### **METHODOLOGY**

#### **Levels of Service**

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.<sup>3</sup> The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

#### **Signalized Intersections**

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*.<sup>4</sup> This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial

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<sup>3</sup>The capacity analysis methodology is based on the concepts and procedures presented in the 2000 *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

<sup>4</sup>*Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2000.

deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table 5 summarizes the relationship between level of service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

**Table 5**  
**LEVEL-OF-SERVICE CRITERIA**  
**FOR SIGNALIZED INTERSECTIONS<sup>a</sup>**

Level of Service	Control (Signal) Delay Per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

<sup>a</sup>Source: *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2000; page 16-2.

### **Unsignalized Intersections**

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2000 *Highway Capacity Manual*. Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in 2000 *Highway Capacity Manual*. Table 6 summarizes the relationship between level of service and average control delay.

**Table 6**  
**LEVEL-OF-SERVICE CRITERIA FOR**  
**UNSIGNALIZED INTERSECTIONS<sup>a</sup>**

Level of Service	Average Control Delay (Seconds Per Vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	>50.0

<sup>a</sup>Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000; page 17-2.

## **ANALYSIS OF RESULTS**

Level-of-service analyses were conducted for 2009 Existing, 2014 No-Build and 2014 Build conditions for the intersections within the study area. The results of the intersection capacity analyses are summarized in Table 7 through Table 10 with detailed analysis results presented in the Appendix. The following is a summary of level-of-service analyses for the intersections within the study area.

### **Signalized Intersections**

The signalized intersection analysis was conducted using the SYNCHRO computer model, which is based on the 2000 *Highway Capacity Manual* procedures and is officially sanctioned by the EOEEA/EOTC. The results are summarized in Table 7 and Table 8.

**Table 7**  
**SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –**  
**WEEKDAY EVENING PEAK HOUR**

Location	Approach	2010 Existing			2015 No-Build			2015 Build (Unmitigated)		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Route 28 at I-195 Eastbound Ramps	Eastbound	0.39	20	B	0.41	19	B	0.47	21	C
	Northbound	0.42	12	B	0.52	13	B	0.65	17	A
	Southbound	0.67	11	B	0.69	11	B	0.71	11	B
	<b>Intersection</b>	<b>0.47</b>	<b>13</b>	<b>B</b>	<b>0.55</b>	<b>13</b>	<b>B</b>	<b>0.64</b>	<b>15</b>	<b>B</b>
Route 28 at I-195 Westbound Ramps	Westbound	0.82	47	D	0.95	60	E	0.95	60	E
	Northbound	0.49	12	B	0.67	16	B	0.67	19	B
	Southbound	0.56	12	B	0.61	13	B	0.74	14	B
	<b>Intersection</b>	<b>0.59</b>	<b>19</b>	<b>B</b>	<b>0.69</b>	<b>23</b>	<b>C</b>	<b>0.76</b>	<b>24</b>	<b>C</b>
Route 28 at Wareham Crossing/ Kendrick Road	Eastbound	0.49	34	C	0.49	34	C	0.49	34	C
	Westbound	0.90	60	E	1.05	>80	F	1.17	>80	F
	Northbound	0.53	28	C	0.53	28	C	0.54	29	C
	Southbound	0.61	19	B	0.67	19	B	0.83	23	C
	<b>Intersection</b>	<b>0.66</b>	<b>31</b>	<b>C</b>	<b>0.71</b>	<b>36</b>	<b>D</b>	<b>0.80</b>	<b>42</b>	<b>D</b>
Route 28 at Tobey Road/ Tow Road	Eastbound	0.57	38	D	0.61	38	D	1.16	>80	F
	Westbound	0.49	45	D	0.55	47	D	0.55	47	D
	Northbound	0.46	13	B	0.56	17	B	0.93	31	C
	Southbound	0.86	33	C	0.88	34	C	1.11	>80	F
	<b>Intersection</b>	<b>0.73</b>	<b>27</b>	<b>C</b>	<b>0.77</b>	<b>29</b>	<b>C</b>	<b>1.02</b>	<b>67</b>	<b>E</b>

<sup>a</sup>Volume-to-capacity ratio.

<sup>b</sup>Average stopped delay per vehicle (in seconds).

<sup>c</sup>Level of service.

**Table 8**  
**SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –**  
**SATURDAY MIDDAY PEAK HOUR**

Location	Approach	2010 Existing			2015 No-Build			2015 Build (Unmitigated)		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Route 28 at I-195 Eastbound Ramps	Eastbound	0.37	23	C	0.39	20	C	0.43	22	C
	Northbound	0.47	10	A	0.54	11	B	0.72	16	B
	Southbound	0.61	10	A	0.62	10	A	0.68	10	B
	<b>Intersection</b>	<b>0.49</b>	<b>11</b>	<b>B</b>	<b>0.54</b>	<b>11</b>	<b>B</b>	<b>0.68</b>	<b>15</b>	<b>B</b>
Route 28 at I-195 Westbound Ramps	Westbound	0.44	37	D	0.56	37	A	0.56	37	D
	Northbound	0.69	16	B	0.85	22	C	0.85	24	C
	Southbound	0.39	12	B	0.45	14	B	0.59	17	B
	<b>Intersection</b>	<b>0.47</b>	<b>17</b>	<b>B</b>	<b>0.56</b>	<b>21</b>	<b>C</b>	<b>0.64</b>	<b>23</b>	<b>C</b>
Route 28 at Wareham Crossing/ Kendrick Road	Eastbound	0.47	29	C	0.48	29	C	0.48	29	C
	Westbound	0.35	42	D	0.37	42	D	0.37	42	D
	Northbound	0.60	22	C	0.60	22	C	0.60	22	C
	Southbound	0.35	13	B	0.43	13	B	0.68	17	B
	<b>Intersection</b>	<b>0.43</b>	<b>22</b>	<b>C</b>	<b>0.47</b>	<b>22</b>	<b>C</b>	<b>0.58</b>	<b>22</b>	<b>C</b>
Route 28 at Tobey Road/ Tow Road	Eastbound	0.58	41	D	0.61	42	D	>1.2	>80	F
	Westbound	0.23	44	D	0.26	44	D	0.26	44	D
	Northbound	0.53	9	A	0.61	11	B	0.87	23	C
	Southbound	0.58	18	B	0.67	20	C	0.90	39	D
	<b>Intersection</b>	<b>0.55</b>	<b>17</b>	<b>B</b>	<b>0.63</b>	<b>19</b>	<b>B</b>	<b>0.86</b>	<b>52</b>	<b>D</b>

<sup>a</sup>Volume-to-capacity ratio.

<sup>b</sup>Average stopped delay per vehicle (in seconds).

<sup>c</sup>Level of service.

As summarized in Table 7 and Table 8, the intersection of Route 28 with the I-195 eastbound ramps currently operates at an overall level of service (LOS) B during both the weekday evening and Saturday midday peak hours. Under future No-Build conditions, this location is projected to continue to operate at LOS B during both the weekday evening and Saturday midday peak hours. Under future Build conditions this location is projected to continue to operate at LOS B, with project-related traffic resulting in minimal increases to overall delay.

Under existing conditions the intersection of Route 28 with the I-195 westbound ramps currently operates at LOS B during both the weekday evening and Saturday midday peak hours. Under future No-Build conditions this location is projected to operate at an overall LOS C during both the weekday evening and Saturday midday peak hours. Under future Build conditions this location is projected to continue to operate at LOS C, with project-related traffic increases resulting in minimal increases to overall delay, amounting to 2 seconds or less during both peak periods.

The intersection of Route 28 with the Wareham Crossing drive and Kendrick Road currently operates at an overall LOS C during both the weekday evening and Saturday midday peak periods. Under future No-Build conditions this location is projected to operate at LOS D and C during the weekday evening and Saturday midday peak hours, respectively. Under future Build conditions this location is projected to continue to operate at LOS D and C during the weekday evening and Saturday midday peak hours.

Under existing conditions, the intersection of Route 28 with Tobey Road and Tow Road currently operates at an overall LOS C and B during the weekday evening and Saturday midday peak hours, respectively. Under future No-Build conditions this location is projected to continue

to operate at an overall LOS C and B during the weekday evening and Saturday midday peak hours, respectively. Under future Build conditions, absent proponent sponsored mitigation, this location is projected to operate at LOS E and D during the weekday evening and Saturday midday peak hours, respectively. As discussed in subsequent sections of this report, mitigation measures are proposed at this location to accommodate project-related traffic increases. With these measures in place, this location is projected to operate at an overall LOS C under future Build conditions during both peak periods.

### **Unsignalized Intersection Results**

The unsignalized intersection analysis was conducted using the SYNCHRO computer model, which is based on the 2000 *Highway Capacity Manual* procedures and is officially sanctioned by the EOEEA/EOTC. The results are summarized in Table 9 and Table 10.

**Table 9**  
**UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –**  
**WEEKDAY EVENING PEAK HOUR**

Location	Approach	2010 Existing			2015 No-Build			2015 Build		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Main Street at Tobey Road	Eastbound	0.07	<5	A	0.08	<5	A	0.10	<5	A
	Westbound	0.25	<5	A	0.28	<5	A	0.30	<5	A
	Southbound	0.49	18	C	0.57	21	C	0.77	31	D
Route 28 at Site Driveway	Eastbound	na	na	na	na	na	na	0.29	20	C
	Northbound	na	na	na	na	na	na	0.47	<5	A
	Southbound	na	na	na	na	na	na	0.55	<5	A
Tobey Road at Site Driveway	Eastbound	na	na	na	na	na	na	0.07	<5	A
	Westbound	na	na	na	na	na	na	0.16	<5	A
	Southbound	na	na	na	na	na	na	0.79	34	D

<sup>a</sup>Volume-to-capacity ratio.

<sup>b</sup>Average stopped delay per vehicle (in seconds).

<sup>c</sup>Level of service.

**Table 10**  
**UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –**  
**SATURDAY MIDDAY PEAK HOUR**

Location	Approach	2010 Existing			2015 No-Build			2015 Build		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Main Street at Tobey Road	Eastbound	0.09	<5	A	0.10	<5	A	0.13	<5	A
	Westbound	0.20	<5	A	0.22	<5	A	0.25	<5	A
	Southbound	0.33	14	B	0.39	16	C	0.61	22	C
Route 28 at Site Driveway	Eastbound	na	na	na	na	na	na	0.28	16	B
	Northbound	na	na	na	na	na	na	0.55	<5	A
	Southbound	na	na	na	na	na	na	0.44	<5	A
Tobey Road at Site Driveway	Eastbound	na	na	na	na	na	na	0.09	<5	A
	Westbound	na	na	na	na	na	na	0.20	<5	A
	Southbound	na	na	na	na	na	na	0.84	34	D

<sup>a</sup>Volume-to-capacity ratio.

<sup>b</sup>Average stopped delay per vehicle (in seconds).

<sup>c</sup>Level of service.

As summarized in Table 9 and Table 10, mainline traffic volumes along Main Street, at its intersection with Tobey Road currently operate at LOS A during both the weekday evening and Saturday midday peak hours, with southbound traffic on Tobey Road operating at LOS C and B during the weekday evening and Saturday midday peak hours, respectively. Under future No-Build conditions, mainline traffic volumes along Main Street are projected to continue to operate at LOS A, with southbound traffic on Tobey Road operating at LOS C during both the weekday evening and Saturday midday peak periods. Under future Build conditions, mainline traffic volumes are projected to operate at LOS A during both peak periods, with southbound traffic on Tobey Road operating at LOS D and C during the weekday evening and Saturday midday peak periods, respectively.

The proposed site driveway onto Route 28 is projected to operate at LOS C and B during the weekday evening and Saturday midday peak hours. During both peak periods, mainline traffic volumes along Route 28 are projected to operate at LOS A.

The proposed site driveway onto Tobey Road is projected to operate at LOS D during both the weekday evening and Saturday midday peak periods, with mainline traffic volumes along Tobey Road operating at LOS A. As discussed in subsequent sections of this report, if deemed appropriate by MassDOT, the proponent will install a traffic signal at this location, which would operate in conjunction with the existing traffic signal at Route 28 and Tobey Road.



## **MITIGATION**

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As documented in this report, project-related traffic increases are projected to amount to 710 new vehicle trips (361 entering and 349 exiting) during the weekday evening peak hour and 920 new vehicle trips (474 entering and 446 exiting) during the Saturday midday peak hour. On a daily basis, the proposed development is projected to generate 8,414 new trips (4,207 entering and 4,207 exiting) on a typical weekday and 9,914 new trips (4,957 entering and 4,957 exiting) on a typical Saturday.

As documented in this report, at the majority of study area intersections, project-related traffic increases are not projected to result in a significant impact to area traffic operations, with minimal impact to overall levels of service and delay during peak hours. The proponent is committed to working with MassDOT and the Town of Wareham to implement appropriate mitigation to address project-related impacts and enhance future traffic operation within the study area. This includes a combination of both roadway and traffic signal enhancements, including traffic calming measures to enhance future traffic operations and safety. A brief summary of these improvements is as follows:

### **Route 28 at Tobey Road and Tow Road**

As mitigation for the proposed development, roadway and traffic signal improvements are proposed for the intersection of Route 28 with Tobey Road and Tow Road. Specifically, it is recommended that the southbound Route 28 approach at this intersection be widened from a two lane approach to a three lane approach in order to accommodate an exclusive right-turn lane onto Tobey Road. In addition, it is recommended that the eastbound Tobey Road approach is widened to extend both the shared left-turn/through lane and exclusive right-turn lane in order to provide additional vehicle storage. Modifications to the existing traffic signal timing are also proposed to optimize future traffic operations at this location. If deemed appropriate by MassDOT, the applicant will install a new traffic signal at the site driveway onto Tobey Road, which would work in conjunction with the existing traffic signal at this location. In order to enhance pedestrian accommodations within the vicinity of the project site, construction of new sidewalk along Tobey Road, adjacent to the project site is proposed. Additionally, if deemed appropriate by MassDOT, the proponent is committed to constructing a crosswalk across Cranberry Highway at the intersection with Tobey Road to allow for pedestrian crossings from the opposite side of Cranberry Highway to the project site.

### Tobey Road at Site Driveway

Primary access to and egress from the project site is proposed via a full access and egress driveway onto Tobey Road. In order to accommodate project-related traffic at this location it is recommended that the Tobey Road corridor be widened to provide a two-lane approach in the northbound direction, consisting of a shared left-turn/through lane and through lane. Proposed improvements also entail the widening of the Tobey Road southbound approach to provide a through lane and exclusive right-turn lane into the project site. It is recommended that the proposed site driveway approach provide both an exclusive left-turn and right-turn lane onto Tobey Road. If deemed appropriate by MassDOT, the applicant is committed to installing a traffic signal at this location which would be coordinated with the traffic signal at the intersection of Route 28 with Tobey Road. Proposed roadway improvements are depicted on Figure 12.

Capacity analyses were conducted for both locations with proposed improvements in place. Table 11 and Table 12 summarize the results of the capacity analyses under future Build mitigated conditions.

**Table 11**  
**SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –**  
**WEEKDAY EVENING PEAK HOUR WITH MITIGATION**

Location	Approach	2015 No-Build			2015 Build (Unmitigated)			2015 Build (Mitigated)		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Route 28 at Tobey Road/ Tow Road	Eastbound	0.61	38	D	1.16	>80	F	0.79	59	E
	Westbound	0.55	47	D	0.55	47	D	0.55	47	D
	Northbound	0.56	17	B	0.93	31	C	0.96	28	C
	Southbound	0.88	34	C	1.11	>80	F	0.90	35	D
	<b>Intersection</b>	<b>0.77</b>	<b>29</b>	<b>C</b>	<b>1.02</b>	<b>67</b>	<b>E</b>	<b>0.86</b>	<b>38</b>	<b>D</b>
Tobey Road at Site Driveway	Eastbound	na	na	na	na	na	na	0.63	39	D
	Westbound	na	na	na	na	na	na	0.72	21	C
	Southbound	na	na	na	na	na	na	0.26	5	A
	<b>Intersection</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>0.36</b>	<b>20</b>	<b>B</b>

<sup>a</sup>Volume-to-capacity ratio.

<sup>b</sup>Average stopped delay per vehicle (in seconds).

<sup>c</sup>Level of service.

**Table 12****SIGNALIZED INTERSECTION CAPACITY ANALYSIS SUMMARY –  
SATURDAY MIDDAY PEAK HOUR WITH MITIGATION**

Location	Approach	2015 No-Build			2015 Build (Unmitigated)			2015 Build (Mitigated)		
		V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	V/C	Delay	LOS	V/C	Delay	LOS
Route 28 at Tobey Road/ Tow Road	Eastbound	0.61	42	D	>1.2	>80	F	0.79	42	D
	Westbound	0.26	44	D	0.26	44	D	0.26	44	D
	Northbound	0.61	11	B	0.87	23	C	0.83	22	C
	Southbound	0.67	20	C	0.90	39	D	0.81	31	C
	<b>Intersection</b>	<b>0.63</b>	<b>19</b>	<b>B</b>	<b>0.86</b>	<b>52</b>	<b>D</b>	<b>0.75</b>	<b>30</b>	<b>C</b>
Tobey Road at Site Driveway	Eastbound	na	na	na	na	na	na	0.66	45	D
	Westbound	na	na	na	na	na	na	0.49	14	B
	Southbound	na	na	na	na	na	na	0.31	<5	A
	<b>Intersection</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>0.36</b>	<b>15</b>	<b>B</b>

<sup>a</sup>Volume-to-capacity ratio.<sup>b</sup>Average stopped delay per vehicle (in seconds).<sup>c</sup>Level of service.

As summarized in Table 11 and Table 12, with proposed mitigation measures implemented, the intersection of Route 28 with Tobey Road and Tow Road is projected to operate at an overall LOS C or D during both the weekday evening and Saturday midday peak hours.

Under traffic signal control, the intersection of Tobey Road with the site driveway is projected to operate at LOS B during both the weekday evening and Saturday midday peak periods.

**TRANSPORTATION DEMAND MANAGEMENT (TDM)**

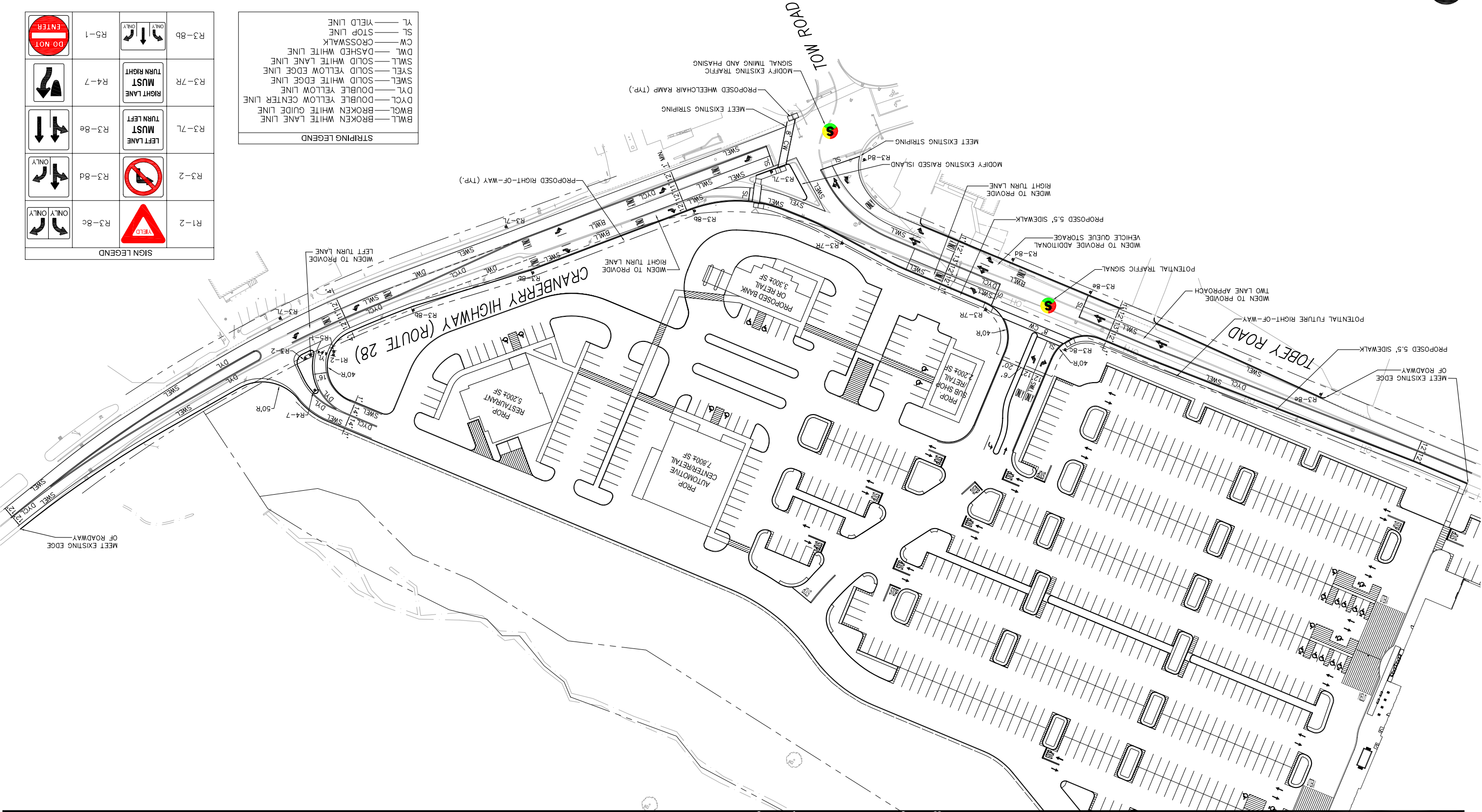
In an effort to promote the use of public transit as a means to access the site, and to reduce peak hour trip generation for the project, the proponent will commit to the following measures:

- ***Flex-time Work Schedules.*** To the extent possible, the proponent will implement flex-time work schedules for project employees to reduce vehicular traffic during peak commuter periods. It is noted that due to the retail nature of the development, employees of the project will not typically arrive or depart during typical commuter hours.
- ***Transit Service.*** The project site is currently served by a bus route operated by the Greater Attleboro – Taunton Regional Transit Authority. In order to promote the use of transit by employees and customers of the store, the proponent will post transit maps and schedules in conspicuous areas of the store. If deemed feasible by the GATRA, the proponent will work with the authority in an effort to provide direct bus service to and from the project site.

**CONCLUSION**

As documented in this study, project-related traffic increases are not expected to result in a significant impact to traffic operations within the study area. The proponent is committed to working with the Town of Wareham and MassDOT to implement proposed mitigation measures to minimize the impacts of traffic associated with the proposed project. With these measures in place, safe and efficient access and egress to the development can be provided, and the

development can be safely constructed with minimal impact to the surrounding transportation system.



Source: Bohler Engineering, Inc.

0 50 100 Scale in Feet

Conceptual Improvement Plan

Figure 12

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APPENDIX IV

WETLANDS & WATERWAYS





#### **4.0 Wetlands and Waterways**

The subject parcel is a 26-acre, undeveloped, predominantly wooded area located generally west of Seth F. Tobey Road (Tobey Road) and south of the intersection of Tobey Road and Cranberry Highway (Route 28) in Wareham, Massachusetts (Figure 1). Strow's Folly Brook serves as the western boundary of the subject parcel. AECOM identified wetland resource areas subject to jurisdiction under the Massachusetts Wetlands Protection Act (MWPA)(M.G.L., Chapter 131, § 40), its implementing Regulations (310 CR 10.00), and the Town of Wareham Wetlands Protective Bylaw during site observations in December, 2009. Wetland resource areas identified on the subject parcel include Bordering Vegetated Wetlands (BVW, 310 CMR 10.55), Bank (310 CMR 10.54), and Riverfront Area (310 CMR 10.58).

Wetland resource areas identified on the subject parcel include BVW, Bank, and Riverfront Area as further described in the following Wetland Resource Area Identification and Delineation Report. Limits of the BVW and Bank were delineated in the field in agreement with the recommended standards referenced in the MWPA and the local bylaw. Currently no filling of Bordering Vegetated Wetlands is contemplated for this project. Furthermore, developed areas of the site do not encroach upon the 200-foot riverfront area. Project review will be conducted through a Notice of Intent filing with the Town of Wareham Conservation Commission.



Environment

Prepared for:  
Bohler Engineering  
Southboro, MA

Prepared by:  
AECOM  
Sagamore Beach, MA  
Project 60138622

# Wetland Resource Area Identification and Delineation Report

**Location:**     **Lot 1000-A1**  
                      **Seth F. Tobey Road and Cranberry Highway**  
                      **Wareham, Massachusetts**

**Prepared:**     **March 2010**

## Contents

<b>1.0 Introduction.....</b>	<b>1-1</b>
<b>2.0 Methodology .....</b>	<b>2-1</b>
2.1    Bordering Vegetated Wetlands .....	2-1
2.2    Bank .....	2-2
2.3    Riverfront Area .....	2-2
<b>3.0 Wetland Identification Parameters.....</b>	<b>3-3</b>
3.1    Soils.....	3-3
3.2    Vegetation .....	3-3
3.3    Hydrologic Information.....	3-3
3.4    BVW and Bank Flagging .....	3-4
<b>4.0 Site Description .....</b>	<b>4-4</b>
<b>5.0 Discussion .....</b>	<b>5-5</b>
<b>6.0 References .....</b>	<b>6-6</b>

## List of Appendices

Appendix A Figures

Appendix B Vascular Plant List

Appendix C Site Photographs

Appendix D Field Data Forms

Appendix E MESA-related Correspondence

## 1.0 Introduction

This report provides the results of a wetland resource area identification and delineation performed by AECOM Environment (AECOM) biologists at the subject parcel at the request of Bohler Engineering, Inc. (Bohler). The subject parcel is a 26-acre, undeveloped, predominantly wooded area located generally west of Seth F. Tobey Road (Tobey Road) and south of the intersection of Tobey Road and Cranberry Highway (Route 28) in Wareham, Massachusetts (Figure 1). Strow's Folly Brook serves as the western boundary of the subject parcel. AECOM identified wetland resource areas subject to jurisdiction under the *Massachusetts Wetlands Protection Act* (MWPA)(M.G.L., Chapter 131, § 40), its implementing *Regulations* (310 CR 10.00), and the *Town of Wareham Wetlands Protective Bylaw* (the local bylaw)(Revised October 28, 2008) during site observations in December, 2009. Wetland resource areas identified on the subject parcel include Bordering Vegetated Wetlands (BVW)(310 CMR 10.55), Bank (310 CMR 10.54), and Riverfront Area (310 CMR 10.58). The boundaries of wetland resource areas are shown on a site plan prepared by Bohler.

AECOM biologists performed field observations on December 30, 2009. During the site visit AECOM determined the boundaries of wetland resource areas and collected information regarding soils, plant community composition, and wetland hydrologic indicators. This report discusses AECOM's wetland delineation and field data collection methodology. This report includes Department of Environmental Protection (DEP) BVW Delineation Field Data Forms used to document wetland characteristics, including an assessment of the plant cover, soil profile descriptions, and observed indicators of wetland hydrology. Appendix B contains a general inventory of higher vascular plants observed on the site and Appendix C provides a set of photographs representative of existing site conditions.

## 2.0 Methodology

AECOM biologists identified wetland resource areas subject to state and local jurisdiction in accordance with the MWPA and its Regulations, and the *Town of Wareham Wetlands Protective Bylaw*. The delineation of the boundary of the wetland resource areas was completed according to guidelines provided in the manual *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (the DEP handbook)(March 1995). The delineation is also in accord with the federal methodology for wetland determination and delineation, which requires an assessment of the plant community, soil characteristics, and wetland hydrologic indicators. Wetland resource areas subject to jurisdiction under the MWPA and the local bylaw include BVW, Bank, Riverfront Area, and Estimated Habitat for Rare Wildlife (Figure 2). (Coordination with the Natural Heritage and Endangered Species Program regarding compliance with the Massachusetts Endangered Species Act occurred in 2009 separate from field assessments related specifically to wetland and stream resources at the site.)

### 2.1 Bordering Vegetated Wetlands

The MWPA Regulations define BVWs at 310 CMR 10.55(2) as follows:

*Bordering Vegetated Wetlands are freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes. The types of freshwater wetlands are wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants. The ground and surface water regime and the vegetational community which occurs in each type of freshwater wetland are specified in M.G.L. c. 131, § 40.*

## 2.2 Bank

The MWPA Regulations define Bank at 310 CMR 10.54(2)(a and c) as follows:

*A Bank is the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland. A Bank may be partially or totally vegetated, or it may be comprised of exposed soil, gravel or stone. The upper boundary of a Bank is the first observable break in slope or the mean annual flood level, whichever is lower. The lower boundary of a Bank is the mean annual low flow level.*

Under the local bylaw the upper boundary of the Bank is slightly more conservative in that it defined as “the first observable break in the slope or the mean annual flood level, whichever is higher.”

## 2.3 Riverfront Area

The MWPA Regulations define Riverfront Area at 310 CMR 10.58(2)(a)(1) in the following manner:

*A Riverfront Area is the area of land between a river's mean annual high water line and a parallel line measures horizontally. The riverfront area may overlap other resource areas of their buffer zones. The riverfront area does not have a buffer zone.*

*A river is any natural flowing body of water that empties to any ocean, lake, pond, or other river and which flows throughout the year. Rivers include streams (see 310 CMR 10.04 for definition of Stream) that are perennial because surface water flows within them throughout the year. Intermittent streams are not rivers as defined herein because surface water does not flow within them throughout the year. When surface water is not flowing within an intermittent stream, it may remain in isolated pools, or it may be absent. When surface water is present in contiguous and connected pools/riffle systems, it shall be determined to be flowing. Rivers begin at the point an intermittent stream becomes perennial, or at the point a perennial stream flows from a spring, pond, or lake. Downstream of the first point of perennial flow, a stream normally remains a river except where interrupted by a lake or pond. Upstream of the first point of perennial flow, a stream is normally intermittent.*

The limits of the Riverfront Area were previously reviewed under an Abbreviated Notice of Resource Area Delineation (ANRAD) submitted to the Wareham Conservation Commission in 2004 by LEC, Inc. The analysis performed at that time concluded that the perennial portion of the stream started at the point where the Snipatuit and Wareham United States Geological Survey (USGS) quadrangle maps meet. The stream on the Wareham USGS quadrangle map is depicted as intermittent and the watershed area of 130-acres (approximately 0.2 square miles) is below the 0.5 square mile watershed threshold referenced in the Regulations. AECOM reviewed the material submitted to the Wareham Conservation Commission at that time and believes the analysis was performed in agreement with the Regulations described in 310 CMR 10.58.

The boundary of the BVW located along and landward of the eastern edge of Strow's Folly Brook was delineated with a series of consecutively numbered pink wetland flags based on the predominance of wetland indicator species in the vegetative community, hydric soil features, and indicators of wetland hydrology.

In accordance with the DEP handbook guidelines, the presence/absence of hydrophytic vegetation, hydric soils, and indicators of wetland hydrology were used to identify or exclude habitats as subject to jurisdiction under the MWPA. Indicators of wetland hydrology included the presence of standing water, water-stained leaves, oxidized rhizospheres, saturated soil conditions, and a ground water table near the ground surface. AECOM assessed these three parameters in order to confirm the presence/absence of wetland habitats and used them to establish wetland boundary locations.

## 3.0 Wetland Identification Parameters

The methodology for characterizing and evaluating plant communities, identifying wetland hydrology indicators, and assessing soil morphological indicators as they relate to wetland identification were performed as follows:

### 3.1 Soils

At the center of each field sampling plot, AECOM examined soil samples for morphological features to determine the presence/absence of a hydric soil. Soil borings were taken with a hand-held Dutch auger to depths typically 18 to 24 inches below the ground surface. Observations collected for each soil profile generally included soil horizonation information, soil textures, soil matrix color, the presence or absence of redoximorphic features, and depths to morphological features. Colors of the soil matrix and mottles were identified using a Munsell Soil Color Charts. AECOM based hydric soil determinations on established criteria referenced in the DEP Handbook and *Field Indicators for Identifying Hydric Soils in New England* (NEIWPCC, 2004, Version III). Additionally, AECOM noted the presence of soil saturation and/or standing water observed near the soil pit during the soil profile description.

### 3.2 Vegetation

Plant species abundance in upland and wetland communities was visually estimated within the sampling plots. Dominant trees and shrubs/saplings were recorded within a 30-foot and 15-foot radius, respectively, from the center of each observation plot. Woody vines were recorded within a 30-foot radius of the plot center point. Dominant herbaceous vegetation was recorded within a 5-foot radius of the plot center point. All observations were recorded on DEP data forms. AECOM identified plant species using pertinent botanical reference and field guides for the region. The indicator status of each species was identified using the *National List of Plant Species That Occur in Wetlands, Region 1- Northeast* (Resource Management Group, 1999). Hydrophytic vegetation was determined to be prevalent when greater than 50 percent of the dominant species were classified as having a wetland indicator status of facultative (FAC+ or FAC), facultative wetland (FACW) or obligate (OBL).

### 3.3 Hydrologic Information

At each data collection station wetland hydrologic indicators were evaluated by initially observing whether the soil at the surface was inundated or saturated to the surface. If the ground surface was dry, the depth to free standing groundwater or saturated soil was measured, and the presence or absence of other indicators of wetland hydrology (e.g. drift lines, water-stained leaves, oxidized rhizospheres, etc.) was noted. The wetland hydrology criterion was met if one or more primary or two or more secondary field indicators were present.

### 3.4 BVW and Bank Flagging

Upon consideration of all field observations, AECOM used a series of brightly colored, sequentially numbered flagging tape to mark BVW boundary flag stations. The established wetland boundary line at this site begins with wetland flag BVW-1 just off-site on an adjacent property to the south of the site. The wetland boundary line enters the southwestern corner of the subject parcel near wetland flag BVW-9. The wetland boundary line then runs in a northeasterly direction to wetland flags BVW-67 and BVW-68. Wetland flags BVW-67 and BVW-68 are located at the concrete headwall observed in the drainage easement located near and associated with Cranberry Highway. The concrete headwall apparently discharges storm water runoff originating from Cranberry Highway into the brook.

AECOM prepared a set of wetland resource area field data summary sheets using recorded field observations for two sampling stations located near wetland flags BVW-27 and BVW-51 along the wetland boundary line. Representative photographs of the existing site conditions in the upland and wetland communities were also collected.

In the upper reaches of the BVW, a braided system of drainage channels was observed in the BVW below the concrete headwall. The braided system of channels eventually merged into a single stream channel below the concrete headwall. This point coincides with the northerly end of the series of blue wetland flags used to define the Bank resource area.

The Bank flag series identifies the first observable break in slope above the stream channel. The Bank along the eastern edge of the brook was delineated with the flag series B-1 to B-44. Bank flag B-44 ends at the point where the braided channels observed the concrete headwall merge into the single channel. The western Bank of the brook was delineated with the flag series B-100 to B-138. Bank flag B-138 is located generally opposite B-44 at the upper end of the well-defined main stream channel. The boundary of the Bordering Vegetated Wetland present on the western side of Strow's Folly Brook was not delineated as it occurs on an off-site parcel.

## 4.0 Site Description

The subject parcel is a 26-acre parcel of undeveloped, predominantly wooded land located generally west of Seth F. Tobey Road in West Wareham, Massachusetts. The northern portion of the property has frontage on Cranberry Highway (Route 28). Strow's Folly Brook is located generally concurrent with the property line along the western property line. The abutting properties to the northwest and west contain undeveloped forested lands and commercially developed parcels. The parcel to the south of the subject property is developed and occupied by a United States Postal Service facility.

Site topography is generally level with slightly undulating areas where gentle to moderate slopes run generally in a westerly direction toward Strow's Folly Brook. Dirt paths running in a north-south direction are identified on the site plans. The dirt paths showed signs of recent use.

The upland portion of the property supports a relatively undisturbed pine-oak forest with a moderately dense understory shrub layer. Dominant canopy tree species recorded in the site assessment included white pine (*Pinus strobus*), pitch pine (*Pinus rigida*), and several oak species (*Q. coccinea*, *Q. velutina*, and *Q. alba*). Associate trees observed in the upland forest habitat were red maple (*Acer rubrum*) and black cherry (*Prunus serotina*). Common understory shrubs observed in the forest habitat were black huckleberry (*Gaylussacia baccata*), bayberry (*Myrica pensylvanica*), lowbush

blueberry (*Vaccinium pallidum*), and sheep-laurel (*Kalmia angustifolia*). Associate shrubs species observed were arrowwood (*Viburnum dentatum*), highbush blueberry (*Vaccinium corymbosum*), and sweet pepperbush (*Clethra alnifolia*). Sweet pepperbush was very common in the transitional areas between the upland forest habitat and the forested wetland habitat bordering Strow's Folly Brook.

The forested wetland adjacent to Strow's Folly Brook is classified as a palustrine forested wetland. Red maple was observed to be a common canopy species in the forested wetland with white pine occurring occasionally as a co-dominant canopy species. Yellow birch (*Betula allegheniensis*) was recorded occasionally as an associate tree species. Understory shrubs observed in the forested wetland were highbush blueberry, sweet pepperbush, arrow-wood, silky dogwood (*Cornus amomum*), witch-hazel (*Hamamelis virginiana*), swamp azalea (*Rhododendron viscosum*), and dangle-berry (*Gaylussacia frondosa*).

Herbaceous groundcover species observed in the forested wetland included cinnamon fern (*Osmunda cinnamomea*) and several sedges (*Carex* spp.) Dense tangles of greenbrier (*Smilax rotundifolia*) vines were observed frequently along the margins of the forested wetland. Dewberry (*Rubus hispidus*) vines were also observed frequently on the floor of the forested wetland.

Stow's Folly Brook runs concurrent with the western property line nearly the entire length of the property. The stream flows in a relatively well defined channel. The channel has been historically modified as evidenced by the installation of wooden planks installed when the brook was managed as a fish hatchery.

According to information reviewed in the *Soil Survey of Plymouth County, Massachusetts* (Sheets 49 and 54, 1969) prepared by the Natural Resources Conservation Service, formerly the Soil Conservation Service, the upland soil is mapped as Carver coarse sand with 0-3 percent slopes, while the wetland soil is mapped as a shallow Muck. Soil profiles examined in the upland forest and red maple swamp are consistent with the soil survey classifications. Soil conditions were examined at regular stations along the wetland boundary line with a hand-held soil auger. Soil profiles were also examined along the edges of the dirt paths where exposed soil features were present. Soil profiles were generally inspected to depths of 18 to 24 inches.

Based on our review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for the Town of Wareham, Massachusetts (Community Profile Number 255223 0005 C, dated August 4, 1987) the site is not located in an area subject to a 100 year flood event. The subject parcel occurs in a Zone X, which is an area located outside the 500 year floodplain.

## 5.0 Discussion

Wetland resource areas identified on the subject parcel by AECOM biologists include BVW, Bank, and Riverfront Area. Limits of the BVW and Bank were delineated in the field in agreement with the recommended standards referenced in the MWPA and the local bylaw. DEP delineation field data forms were completed at two representative sampling stations to support the established location of the BVW boundary. Soil profiles and wetland hydrology indicators were also recorded at the sampling stations. The Riverfront Area associated with the section of Strow's Folly Brook where the stream becomes permanent was reviewed and confirmed under a prior ANRAD and Order of Resource Area Delineation issued by Wareham Conservation Commission in 2004. Site conditions appear to be unchanged and the analysis prepared at that time appears to be unchanged.



## 6.0 References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service Biological Report 79/31, Washington, D.C.

New England Hydric Soils Technical Committee. 2004. 3rd ed., *Field Indicators for Identifying Hydric Soils in New England*. New England Interstate Water Pollution Control Commission, Lowell, MA.

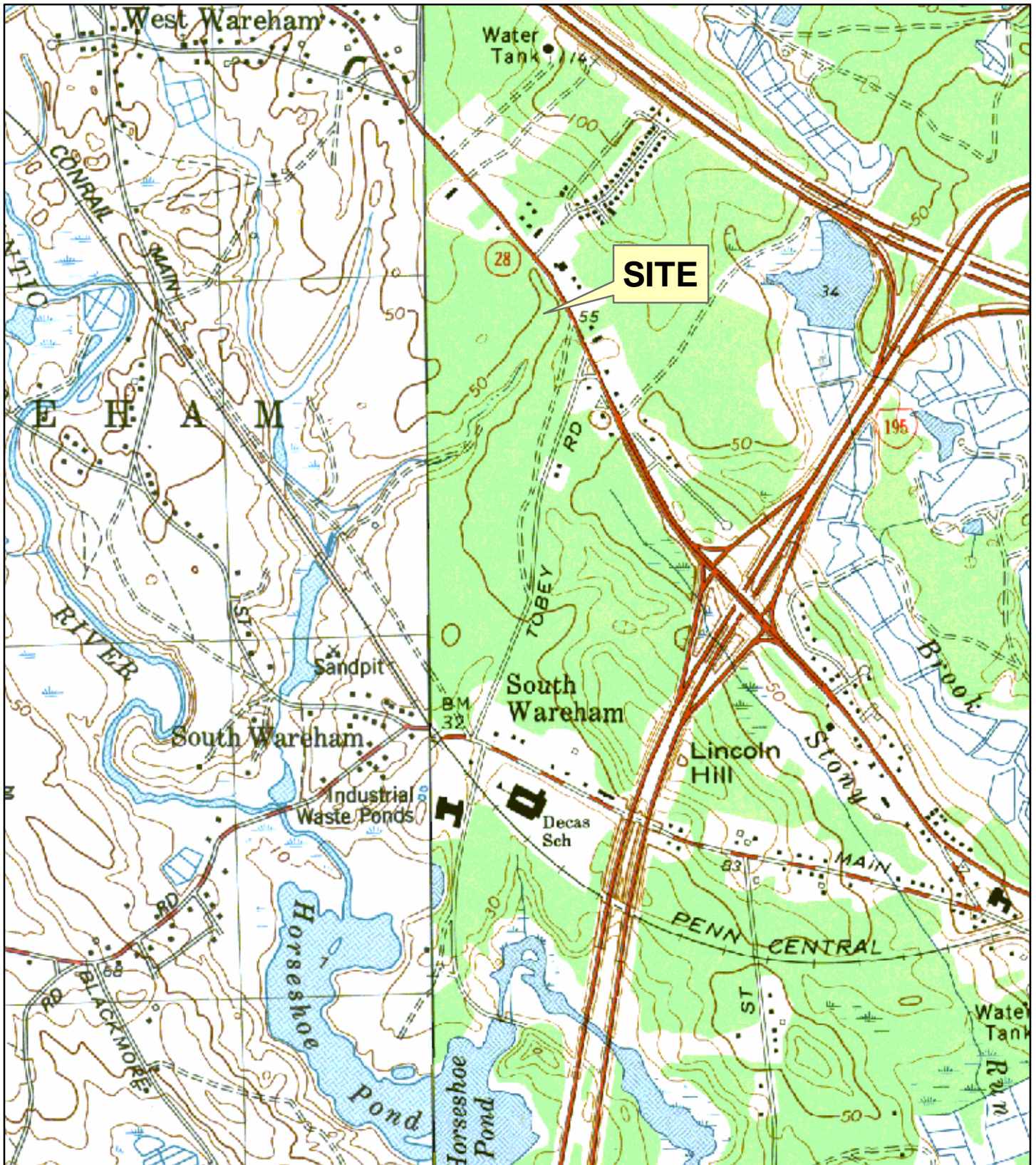
Resource Management Group. 1999. *National List of Plant Species That Occur in Wetlands, Region 1- Northeast*. Grand Haven, MI.

US Army Corps of Engineers. 1987. Wetlands Delineation Manual, Environmental Laboratory, Washington D.C.

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Field Indicators of Hydric Soils in the United States, Version 6.0. G.W. Hurt and L.M. Vasilas (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

## **Appendix A**

### **Figures**



Wareham Quadrangle  
USGS Topographic Map supplied by  
<http://www.mass.gov/mgis/>



0 430 860 1,720 2,580 3,440 Feet

## Site Locus

Proposed Walmart  
Seth F. Tobey Road &  
The Cranberry Highway

AECOM

Figure Number

1

SCALE

1" = 1,250'

DATE

09/29/08

PROJECT NO.

10445-009





**SITE**

**Wareham Quadrangle**  
Aerial photographs supplied by  
<http://www.mass.gov/mgis/>



0 237.5 475 950 1,425 1,900 Feet

## Priority Habitat

Lots 1000-A1A, 1000-A1B & 1000-A1C  
Seth F. Tobey Road &  
The Cranberry Highway

**AECOM**

Figure Number

2

SCALE

1" = 650'

DATE

09/29/08

PROJECT NO.

10445-009



APPENDIX V

WATER & WASTEWATER



## **5.0 Water and Wastewater**

### **Water**

The proposed development will be served by public water that is currently available along the site frontage. Utilizing Massachusetts DEP Title V calculations for Walmart and the future outlot development, the project is expected to use 24,170 GPD (gallons per day). Domestic, and fire water supply will be provided by the Water Department of the Wareham Fire District. Water Model Plans will be submitted by the Applicant to the Water Department. The Water Department will then run water modeling calculations to determine the adequacy of the proposed service line and if their system can serve the project with both domestic and fire flows. Preliminary conversations with the Water Superintendent indicate that they currently have no reservations regarding their ability to serve the project. Upon completion of the calculations, the Board of Water Commissioners will issue a Certificate of Water Availability to the Applicant along with a copy of the modeling calculations and an initial report.

### **Wastewater**

Utilizing the same flow calculations as above, the amount of wastewater generated by the site will be 24,170 GPD. Wastewater from the site discharges to the Wareham Water Pollution Control Facility (WWPCF). The WWPCF currently has a permitted discharge capacity of 1.56 MGD (million gallons per day), and based on 2009 figures, is currently running at 1.11 +/- MGD average daily flow. Therefore, the plant currently has an excess capacity of 450,000 +/- GPD. The construction of this development would result in an excess capacity of 425,000 +/- GPD, which still allows for additional future flows. Therefore, it is expected that the proposed project can be adequately handled by the WWPCF.





APPENDIX VI

STORMWATER MANAGEMENT ANALYSIS



## 6.0 Stormwater Management Analysis

The project's stormwater system has yet to be fully designed at this stage, but will be fully reviewed at the municipal level through both the Site Plan Review process and through a Notice of Intent filing with the Wareham Conservation Commission.

The proposed project will comply with the DEP's Stormwater Management Regulations. The proposed stormwater management system will be designed in accordance with the ten standards described in this policy. Each of the standards is discussed below.

### Standard #1- Untreated Storm Water

The site's parking areas will be served by a system of catch basins and drain manholes which convey runoff to proposed underground detention basins. Pretreatment of runoff includes the use of nonstructural techniques such as street sweeping to reduce pollutants and sediment loading. Structural Best Management Practices include the use of hooded, and deep-sump catch. Note that no runoff from impervious surfaces is discharged from the site without pre-treatment.

### Standard #2: Post Development Peak Discharge Rates

Runoff rates for the pre-development and post-development conditions will be calculated for the 2-year, 10-year, 25-year and 100-year 24-hour storm events. The design will be such that there is no increase in stormwater runoff rates for the design storms analyzed.

### Standard #3: Recharge to Groundwater

At the time of report preparation, soil and ground water conditions onsite are unknown. If onsite conditions can accommodate the recharge prescribed by the policy, it will be designed as such. Regardless, recharge will increase with development through introduction of increase landscaped areas onsite.

### Standard #4: 80% TSS Removal

The proposed Best Management Practices for this site provide for at least 80% TSS removal and consist of a "process train" which includes both nonstructural and structural techniques. In every case, street cleaning and use of deep sump catch basins are used to reduce pollutant loading.

#### **TSS Removal Rates**

	<u>Design</u>	<u>Remaining</u>
Street and Parking Lot Sweeping	10%	90%
Deep Sump Catch Basins (Hooded Basins)	25%	67.5%
Water Quality Units	80%	13.5%
Total removal		86.5%

Standard #5: Higher Potential Pollutant Loads

This site is classified as a higher potential pollutant load because the commercial parking lot is considered a high intensity use. Because of this our site will incorporate parking lot sweeping, deep sump catch basins and a water quality unit as pretreatment measures before the stormwater ultimately reaches any underground detention ponds.

Standard #6: Protection of Critical Areas

The site does not contain any, and does not discharge to any critical areas.

Standard #7: Redevelopment Projects

The proposed project is not a redevelopment project.

Standard #8: Erosion/Sediment Control

The purpose of this standard is to prevent erosion and promote sediment control throughout the project site. This project will achieve this goal by utilizing:

- a siltation barrier made up of staked-in-place haybales and silt fence;
- stabilized construction entrances/exits consisting of crushed stone;
- inlet filters installed at all proposed catch basins;
- drainage outlets utilize flared-end outlets with rip-rap to reduce velocities before entering the wetland area;
- and temporary seeding of disturbed areas that have not been final graded.

Standard #9: Long Term Operation & Maintenance Plan

A Long Term Operation and Maintenance Plan will be developed for this project, and will be submitted/reviewed during both the Site Plan and Notice of Intent filings.

Standard #10: Illicit Discharges

An Illicit Discharge Compliance Statement verifying that no illicit discharges exist on the site will be prepared by the proponent. Included in this statement will be the pollution prevention plan measures to prevent illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. The Illicit Discharge Compliance Statement will be filed with the Notice of Intent upon the request of the Wareham Conservation Commission.

APPENDIX VII

STATE LISTED RARE SPECIES



## **7.0 State Listed Rare Species**

The property has been mapped as Priority Habitat and Estimated Habitat according to the Massachusetts Natural Heritage Atlas, 13<sup>th</sup> Edition. The Massachusetts Division of Fisheries and Wildlife has indicated that Eastern Box Turtles, a state-listed rare species, have been found in the vicinity of the subject property. A Preliminary Habitat Assessment was performed on April 17, 2009 in which no turtles were observed. However, the Wildlife Ecologist found that the site does provide habitat conditions that are recognized as suitable for support of the Eastern Box Turtle, particularly for overwintering and foraging habitat and unimpeded migration across the landscape. During pre-filing consultations with the Division of Fisheries and Wildlife, the Division has stated that they would like a full Eastern Box Turtle survey performed in order to determine whether or not the project will result in a "take". NHESP indicated that an acceptable alternative would be to work under a mutually agreed assumption that the project would result in a "take" of Eastern Box Turtle, and file for a Conservation and Management Permit (CMP) that would include appropriate mitigation measures. NHESP has also indicated that such mitigation could include funds for off-site land protection, as well as a turtle protection plan implemented during construction of the site. The Proponent intends to pursue this option, and is in the process of preparing a draft CMP for review by NHESP.



Commonwealth of Massachusetts

# Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

July 31, 2009

Scott Robertson  
S & H Realty, LLC  
Wareham, MA 02571

RE:	Project Location:	Seth F. Tobey Road at Cranberry Highway, Wareham
	Project Description:	Construction of commercial buildings and associated work totaling approximately 19.4 acres of disturbance
	NHESP Tracking No.	08-25140

Dear Mr. Robertson:

Thank you for submitting a MESA Project Review Checklist, project description and site plans (dated 05/12/08; noting an approximate disturbance area of 19.4 acres) to the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife in compliance with the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00).

Based on a review of information that was submitted and the information that is contained in our database, the NHESP has determined that proposed project is located within habitat of the Eastern Box Turtle (*Terrapene carolina*), a species state-listed as "Special Concern". This species and its habitats are protected pursuant to MESA and its implementing regulations. A Fact Sheet for this species can be found at [www.nhesp.org](http://www.nhesp.org).

The MESA is administered by the NHESP of the Massachusetts Division of Fisheries & Wildlife, and prohibits the "take" of state-protected species, which includes actions that "in reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct... Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of habitat of state-listed wildlife species" (321 CMR 10.02).

Because you are proposing to alter +/-19.4 acres of Eastern Box Turtle Habitat, the NHESP has determined that we require additional information in the form of an Eastern Box Turtle survey in order to complete our MESA review (321 CMR 10.20). The survey must be completed by a qualified turtle biologist in accordance with site specific survey protocols approved in writing in advance by the NHESP. Once we receive the results of this survey, we will determine whether or not the proposed project will result in a "take" of a state-listed species. As you are aware, projects resulting in the "take" of state-listed wildlife may only be permitted if they meet the performance standards for a "Conservation and Management Permit" (CMP; 321 CMR 10.23).

[www.masswildlife.org](http://www.masswildlife.org)

Division of Fisheries and Wildlife

Field Headquarters, 1 Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7891

*An Agency of the Department of Fish and Game*



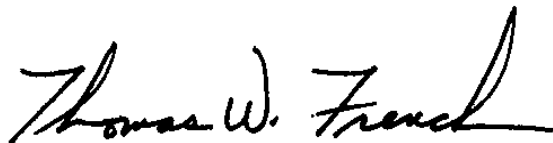
During informal pre-filing consultations with NHESP staff, we indicated that, in order to save time and survey costs, you could elect to immediately submit a CMP application, in lieu of conducting Eastern Box Turtle Surveys. If you were to pursue this option, we would work under the mutually agreed assumption that the project would result in a "take" and you would propose an appropriate mitigation plan. As turtle surveys in mapped Eastern Box Turtle Priority Habitat almost always confirm the presence of Box Turtles, many project proponents elect to forego surveys in order to streamline the MESA review process.

Pursuant to MESA, a Conservation and Management Permit may be issued for the Proposed Project provided that the applicant (a) adequately assesses alternatives to both temporary and permanent impacts to State-listed Species, (b) demonstrates that the project will result in an insignificant impact to the local populations of the affected species, and (c) carries out a conservation and management plan that provides a long-term Net Benefit to the conservation of the State-listed species affected by the proposed project (321 CMR 10.23).

Based on an email you sent to Kristin Black (NHESP) on July 23, 2009, it is our understanding that you intend to apply for a CMP and in order to meet the long-term Net Benefit requirement, you are proposing to provide off-site land protection funds in the amount of \$308,000 plus associated overhead at no more than 25%. It is the opinion of the NHESP that this project, with the currently proposed off-site land protection funds and NHESP-approved turtle protection measures, would qualify for issuance of a Conservation & Management Permit. However, the NHESP will not render a final decision regarding the Conservation & Management Permit until the MEPA review process and associated public and agency comment period are completed. Please note that appropriate turtle protection measures for this project must include enclosing the site with turtle-proof barriers and conducting turtle sweeps during the turtle active season and before the start of work.

If you have any questions about this letter, please contact Kristin E. Black, Endangered Species Review Biologist, at (508) 389-6367 ([kristin.e.black@state.ma.us](mailto:kristin.e.black@state.ma.us)).

Sincerely,

A handwritten signature in black ink that reads "Thomas W. French". The signature is fluid and cursive, with the first letters of each name being capitalized and prominent.

Thomas W. French, Ph.D.  
Assistant Director

**AECOM Environment**

95 State Road, Sagamore Beach, Massachusetts 02562  
T 508.888.3900 F 508.888.6689 www.aecom.com

May 2, 2009

Mr. John Kucich  
Bohler Engineering, Inc.  
Southboro Executive Place - 352 Turnpike Road  
Southboro, MA 01772

**RE: Preliminary Rare Species Habitat Assessment Report  
Property off Seth F. Tobey Road and Cranberry Highway (Rte 28)  
Wareham, Massachusetts**

Dear Mr. Kucich:

AECOM Environment (AECOM) provides you with the following preliminary habitat assessment report discussing conditions at the referenced site with respect to the presence of Eastern box turtle (*Terrapene c. carolina*) habitat. We provide this report in order to present you and your client with our initial findings following one period of site observations that occurred on April 17, 2009. We also provide a discussion pertaining to regulatory compliance under the *Massachusetts Endangered Species Act* (MESA) (M.G.L. Chapter 131A, 321 CMR 10.00) with respect to Eastern box turtle habitat impacts, recommendations for moving forward with permitting for the planned retail development project, and possible reactions that the Massachusetts Natural Heritage and Endangered Species Program (NHESP) may have to the project proposal at this time.

As you are aware, the January 27, 2009, correspondence from NHESP confirms that the entire site is located within Priority Habitat 317 (PH 317) and Estimated Habitat (EH 218) according to the *Massachusetts Natural Heritage Atlas* (13<sup>th</sup> Edition). The species for which these habitats are mapped is the State-listed Species of Special Concern, Eastern box turtle. As the letter indicates, this species has been observed in the vicinity of the site and not necessarily within the boundaries of the site. By including the site within mapped Priority and Estimated Habitats for Eastern box turtle, NHESP is indicating that they believe that the site possesses features that provide nesting, breeding, feeding, migratory, overwintering, and/or aestivating opportunities for the species. The site is situated along the eastern edge of PH 317; the PH extends west of the site and covers approximately 490 acres of similar habitat to that occurring on the site. NHESP's records of rare species are confidential, and it is typically not possible to obtain more specific information on the actual record observations to know what has been recorded and where. The property owner, however, may make a request to NHESP seeking specific information that was the basis of the PH mapping. This could be a useful step to take, as we discuss later in this letter.

### **Site Observations and Initial Findings**

On April 17, AECOM field biologists, including a senior herpetologist, observed field conditions at the 26-acre subject site. Charles Rowley, engineer from Rowley Associates, accompanied AECOM during our site visit at the request of the current property owners, Scott and Howard Robinson (S&H Realty). Weather conditions on the day of this first site visit were described as clear with an ambient air temperature near 60 degrees (°F). Field observations began at approximately 9:30 AM and were concluded by approximately 1:45 PM. The purpose of this initial site observation period was to determine the dominant plant communities, soil conditions, and proximity of upland areas to wetland resource areas.

Mr. John Kucich  
Bohler Engineering, Inc.  
Page 2 of 4

In addition, observations were made relative to other significant habitat features, site disturbances, development in the vicinity of the site, and to potentially observe Eastern box turtles or evidence of their presence. Box turtles typically emerge from their overwintering locations in early to mid-April of each year in this region of the state.

The majority of the site is a mature white pine-dominant, wooded upland. Mature deciduous trees are not abundant. Strow's Folly Brook, an intermittent tributary to the Weweantic River, forms the property's western boundary. This stream was at one time part of an active trout hatchery. A wooded wetland habitat borders this stream and occupies a relatively small portion of the actual property. The site is generally undisturbed except for a cleared site access roadway and a few unpaved cart paths that traverse portions of the site. A shrub-dominant understory provides relatively dense cover. Fallen woody debris of small and larger diameters is abundant. Site topography is generally flat, but a moderately steep slope is present along the border between the upland and wetland along the stream.

Eastern box turtles are commonly associated with deciduous and mixed deciduous/coniferous forested uplands, early succession/scrub-shrub communities, and the edges between these habitats ("edge habitats"). In addition, Eastern box turtles require open areas of sparse vegetation interspersed with exposed sandy soils for nesting. Unfragmented forested upland and wetland habitats, as observed on this site, typically function as foraging and unimpeded migration across the landscape for box turtles. In addition, on much of the site, particularly in the riparian zone of Strow's Folly Brook, a loose humus layer was observed beneath the leaf-litter, which provides important overwintering habitats. No significant nesting habitats, forest edge habitats, or early succession/scrub-shrub communities typically used by Eastern box turtles were observed on site.

No Eastern box turtles were observed during the observation period. However, box turtles have excellent camouflage and exhibit cryptic behaviors (i.e., they move slowly or remain hidden under leaf-litter and woody debris) that make them difficult to find. Our survey methodology involved meander searches by three individuals over the entire site. Closer inspections were performed along cart path margins, in and near fallen woody debris, along the wetland margin, in existing small mammal burrows, and in sun lit areas of the woodland. Any direct mammal, bird, and amphibian observations (or evidence of their presence) were noted.

While no Eastern box turtle observations occurred during this survey period, the site does provide habitat conditions that are recognized as suitable for support of this species, particularly for overwintering and foraging habitat and unimpeded migration across the landscape. We cannot therefore refute the potential that this species occurs at this site; rather, it is our opinion that the site does provide habitat conditions consistent with those utilized by the Eastern box turtle.

### **Recommendations with Respect to MESA Regulatory Compliance**

In order to comply with MESA, a project proposed on a site within a Priority Habitat must impact only an "insignificant portion of the location population" of a State-listed rare species. If a proposed project is determined by NHESP to have such an insignificant impact, it can be authorized to proceed under MESA if measures are approved that would contribute to the "net benefit" of the species. As currently implemented by NHESP for the Eastern box turtle, the way in which a project typically complies with this particular standard is to preserve an area of box turtle habitat approximating 70 percent of the habitat area proposed to be developed. The conceptual site plan you have provided to us indicates that approximately 23 of the 26-acre site is proposed for development.

Mr. John Kucich  
Bohler Engineering, Inc.  
Page 3 of 4

Based upon the 70/30 formula, NHESP will likely be seeking approximately 53 acres of protected Eastern box turtle habitat to mitigate for the loss of these 23 acres (in this case amounting to 3 acres on site and 50 acres off site). In certain cases, the NHESP has agreed to a less than 70/30 formula when additional funding is provided for off-site land acquisition or research funding on the impacted species. We also note that they would allow this only if they first determine that the development itself would not impact a significant portion of the local Eastern box turtle habitat. For example, if it is known that a concentration of Eastern box turtles, or their nesting habitat, is on the site, NHESP could determine that the development will impact a significant portion of the local population and therefore not allow the project even with land proposed for protection. Based upon our initial site review, we do not believe such a finding is likely.

Expressed another way, according to the above guidelines approximately 8 acres of the site could be developed, with the remaining portion (18 acres) preserved to provide the net benefit for the species. Should more land be needed for development, other measures would need to be implemented. These could include adding off-site land that is still within the Priority Habitat into the preservation equation, or providing money for NHESP to put toward preservation measures for this species. It is not possible to more definitively determine the equations that NHESP might find acceptable without meeting with them; however, there could be a variety of alternatives they might find acceptable that balance development limits with land preservation and monetary contributions.

AECOM strongly recommends that a meeting with NHESP be scheduled to discuss the site, present conceptual project plans, and to seek their comments relative to possible considerations that might allow development to move forward. It would be helpful to conduct additional site observations in early May to further survey the habitat on the property. It would also be helpful to obtain additional information on property ownership of the land west of the site, and perhaps to make inquiries on the potential for obtaining such land. As noted previously, we also recommend that the current land owner request from NHESP the information that is the basis of the existing Priority Habitat mapping. We believe that it is reasonable to expect that NHESP will request one (or more) of the following:

- 1) Perform a more intensive habitat survey over a period of one or two seasons using a NHESP-approved survey protocol in an attempt to demonstrate that there is not a significant population of Eastern box turtles at the site.
- 2) Investigate the purchase of a sufficient amount of land for preservation on the west side of Strow's Folly Brook so that the amount of preserved land in the same Priority Habitat and the amount of land developed as part of the project is at, or close to a 70/30 ratio. This would mean that as much as approximately 53 acres be preserved if the proposed 23 acres were to be developed. If less land were to be preserved, a monetary contribution might be considered as part of the "net benefit" determination.
- 3) Consideration of scaling back the development such that the more interior portions of the property are preserved and the proposed development is kept tighter to the roadways. Then consider options for off-site mitigation to supplement the shortfall in preserved on-site area.

It has been our experience that meeting with NHESP is really the only way to gain more insight into what disposition they may have on development of a site in a Priority Habitat. NHESP encourages such meetings with prospective applicants early in the process.

Mr. John Kucich  
Bohler Engineering, Inc.  
Page 4 of 4

Please contact Michael Ball in Sagamore Beach (508.888.3900), Scott Egan in Westford (978.589.3000), or Dennis Lowry (860.429.5323) in Willington, Connecticut, should you have questions or comments pertaining to the information and opinions presented in this letter. We look forward to assisting you and your client further on this project.

Sincerely,



D. Michael Ball  
Wetland Scientist / Project Manager  
Derek.Ball@AECOM.com



Dennis Lowry, PWS  
Senior Wetland Scientist  
Dennis.Lowry@AECOM.com



R. Scott Egan  
Herpetologist / Wetland and Wildlife Ecologist  
Robert.Egan@AECOM.com



**MassWildlife**

Commonwealth of Massachusetts

# Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

1/27/2009

Christopher Mackin  
Bohler Engineering  
352 Turnpike Road  
Southborough MA 01772

RE: Project Location: Seth F. Tobey Road at Cranberry Highway; Robertson's Corner  
Town: WAREHAM  
NHESP Tracking No.: 08-25140

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located **within** *Priority Habitat 317 (PH 317)* and *Estimated Habitat 218 (EH 218)* as indicated in the *Massachusetts Natural Heritage Atlas (13<sup>th</sup> Edition)*. Our database indicates that the following state-listed rare species have been found in the vicinity of the site:

<u>Scientific name</u>	<u>Common Name</u>	<u>Taxonomic Group</u>	<u>State Status</u>
<i>Terrapene carolina</i>	Eastern Box Turtle	Reptile	Special Concern

The species listed above is protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website ([www.nhesp.org](http://www.nhesp.org)).

Please note that projects and activities located within Priority and/or Estimated Habitat must be reviewed by the NHESP for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).

### Wetlands Protection Act (310 CMR 10.00)

If the project site is within Estimated Habitat and a Notice of Intent (NOI) is required, then a copy of the NOI must be submitted to the NHESP so that it is received at the same time as the local conservation commission. If the NHESP determines that the proposed project will adversely affect the actual Resource Area habitat of state-protected wildlife, then the proposed project may not be permitted (310 CMR 10.37, 10.58(4)(b) & 10.59). In such a case, the project proponent may request a consultation with the NHESP to discuss potential project design modifications that would avoid adverse effects to rare wildlife habitat.

A streamlined joint MESA/WPA review process is now available. When filing a Notice of Intent (NOI), the applicant may now file concurrently under the MESA on the same NOI form and qualify for a 30-day streamlined joint review. For a copy of the revised NOI form, please visit the MA Department of Environmental Protection's website: <http://www.mass.gov/dep/water/approvals/wpaform3.doc>.

[www.masswildlife.org](http://www.masswildlife.org)

Division of Fisheries and Wildlife

Field Headquarters, North Drive, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7891

*An Agency of the Department of Fish and Game*

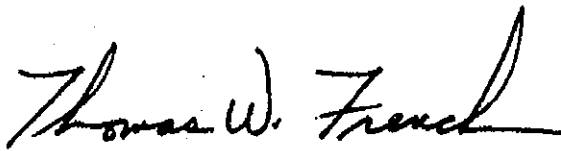
**MA Endangered Species Act (M.G.L. c. 131A)**

If the proposed project is located within Priority Habitat and is not exempt from review (see 321 CMR 10.14), then project plans, a fee, and other required materials must be sent to NHESP Regulatory Review to determine whether a probable "take" under the MA Endangered Species Act would occur (321 CMR 10.18). Please note that all proposed and anticipated development must be disclosed, as MESA does not allow project segmentation (321 CMR 10.16). For a MESA filing checklist and additional information please see our website: [www.nhesp.org](http://www.nhesp.org) ("Regulatory Review" tab).

We recommend that rare species habitat concerns be addressed during the project design phase prior to submission of a formal MESA filing, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If you have any questions regarding this letter please contact Amy Coman, Endangered Species Review Assistant, at (508) 389-6364.

Sincerely,

A handwritten signature in black ink that reads "Thomas W. French". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Thomas W. French, Ph.D.  
Assistant Director





APPENDIX VIII  
DISTRIBUTION LIST



## DISTRIBUTION LIST

SECRETARY IAN A. BOWLES  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
ATTN: MEPA OFFICE  
100 CAMBRIDGE STREET, SUITE 900  
BOSTON, MA 02114

UNDERSECRETARY FOR POLICY  
100 CAMBRIDGE STREET, SUITE 900  
BOSTON, MA 02114

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION  
COMMISSIONER'S OFFICE  
ONE WINTER STREET  
BOSTON, MA 02108

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION  
WETLANDS PROGRAM  
ONE WINTER STREET  
BOSTON, MA 02108  
ATTN: MEPA COORDINATOR

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ONE WINTER STREET  
BOSTON, MA 02114  
ATTENTION: NANCY SEIDMAN

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ATTN: MEPA COORDINATOR  
SOUTHEASTERN REGIONAL OFFICE  
20 RIVERSIDE DRIVE  
LAKEVILLE, MA 02347

EXECUTIVE OFFICE OF TRANSPORTATION  
ATTN: ENVIRONMENTAL REVIEWER  
ROOM 3510  
10 PARK PLAZA  
BOSTON, MA 02116-3969

MASSACHUSETTS HIGHWAY DEPARTMENT  
ATTN: PUBLIC/PRIVATE DEVELOPMENT UNIT  
10 PARK PLAZA  
BOSTON, MA 02116

MASSACHUSETTS HIGHWAY DEPARTMENT-DISTRICT #5  
ATTN: MEPA COORDINATOR  
BOX 111  
1000 COUNTY STREET  
TAUNTON, MA 02780

MASSACHUSETTS HISTORICAL COMMISSION  
THE MA ARCHIVES BUILDING  
220 MORRISSEY BOULEVARD  
BOSTON, MA 02125

SOUTHEASTERN REGIONAL PLANNING  
& ECONOMIC DEVELOPMENT DISTRICT  
88 BROADWAY  
TAUNTON, MA 02780

NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM  
COMMONWEALTH OF MASSACHUSETTS  
1 RABBIT HILL ROAD  
WESTBOROUGH, MA 01581  
ATTN: MEPA REVIEW COORDINATOR

DIVISION OF MARINE FISHERIES (SOUTH SHORE)  
ATTN: ENVIRONMENTAL REVIEWER  
1213 PURCHASE STREET - 3RD FLOOR  
NEW BEDFORD, MA 02740-6694

ENERGY FACILITIES SITING BOARD  
ONE SOUTH STATION  
BOSTON, MA 02110  
ATTN: MEPA COORDINATOR

DIVISION OF ENERGY RESOURCES  
100 CAMBRIDGE STREET, 10<sup>TH</sup> FLOOR  
BOSTON, MA 02114  
ATTN: MEPA COORDINATOR

TOWN OF WAREHAM  
BOARD OF SELECTMEN  
54 MARION ROAD  
WAREHAM, MA 02571

TOWN OF WAREHAM  
PLANNING BOARD  
54 MARION ROAD  
WAREHAM, MA 02571

TOWN OF WAREHAM  
CONSERVATION COMMISSION  
54 MARION ROAD  
WAREHAM, MA 02571

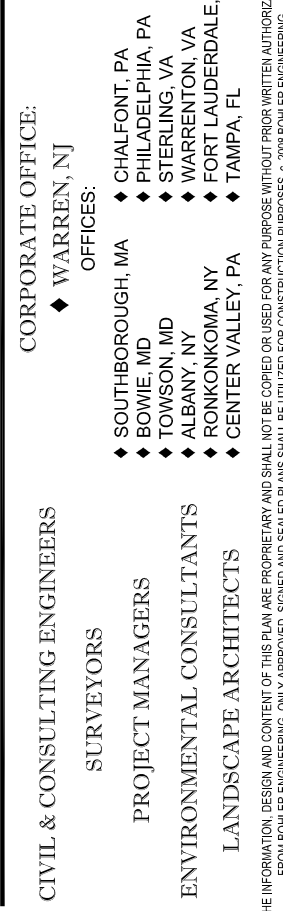
TOWN OF WAREHAM  
ZONING BOARD OF APPEALS  
54 MARION ROAD  
WAREHAM, MA 02571

TOWN OF WAREHAM  
BOARD OF HEALTH  
54 MARION ROAD  
WAREHAM, MA 02571





1. THIS PLAN REFERENCES A SURVEY PREPARED BY:  
CONTROL POINT ASSOCIATES, INC  
35 TECHNOLOGY DRIVE  
WARREN, NJ 07059  
(DATED 12/09/08, REVISED AS OF 1/13/09)




THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

(MA, ME, NH, RI, VT, 1-800-344-7233)  
(CT 1-800-922-4455)  
(NY 1-800-962-7962)

MEPA PLAN	
PROJECT No.:	W070644
DRAWN BY:	KBS/GWD
CHECKED BY:	MDS/JAK
DATE:	7/15/10
SCALE:	AS SHOWN
CAD I.D.:	W070644SS0 ENP

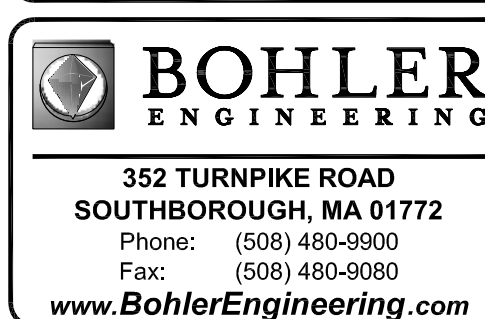
PROJECT: **SITE  
DEVELOPMENT  
PLANS  
FOR**

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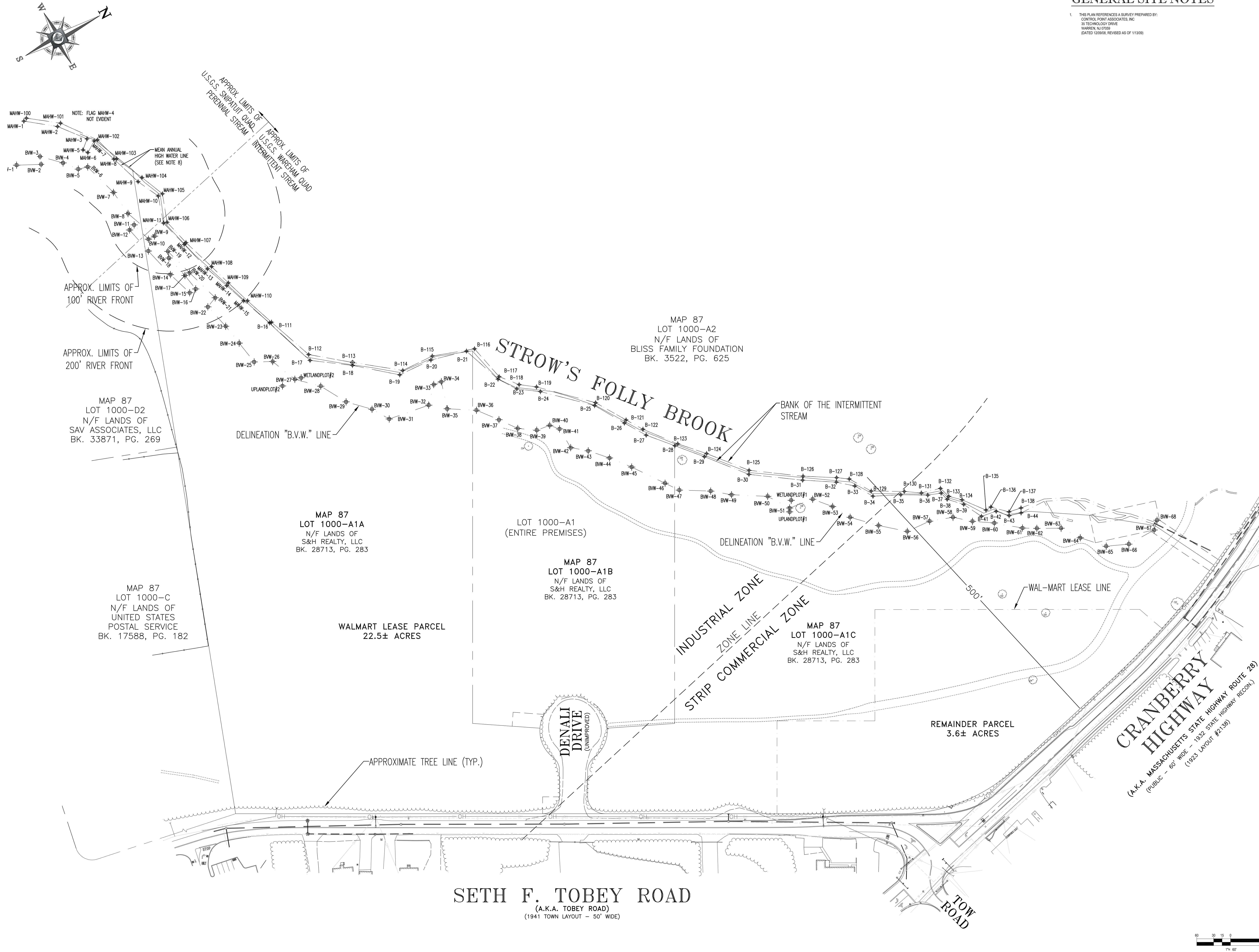
**Walmart** 

**STORE # 2095-06  
PROPOSED RETAIL  
DEVELOPMENT**

**SETH F. TOBEY ROAD &  
CRANBERRY HIGHWAY (RT# 28)  
TOWN OF WAREHAM  
PLYMOUTH COUNTY, MA**

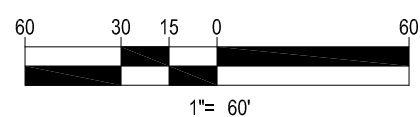


**M.D. SMITH**  
PROFESSIONAL ENGINEER  
MASSACHUSETTS LICENSE No. 45496  
RHODE ISLAND LICENSE No. 8145  
CONNECTICUT LICENSE No. 24567  
MAINE LICENSE No. 11023  
NEW HAMPSHIRE LICENSE No. 12501



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1. THIS PLAN REFERENCES A SURVEY PREPARED BY:  
CONTROL POINT ASSOCIATES, INC.  
35 TECHNOLOGY DRIVE  
WARREN, NJ 07059  
(DATED 12/08/08, REVISION AS OF 11/13/09)

2. SPECIFIC RESOURCES, TECHNICAL RESOURCES, DESIGN COMPANIES, ET. AL. RELATED TO THIS PROJECT INCLUDE (BUT NOT BE LIMITED TO THE FOLLOWING):  
SURVEY: "TOPOGRAPHIC AND UTILITY SURVEY, SETH F. TOBEY ROAD (C/ RAMPARTY HIGHWAY 100) 100+0.1A, 100+0.1B & 100+0.1A C/ ROAD OF WARHAM, PLYMOUTH COUNTY, COMMONWEALTH OF MASSACHUSETTS", PREPARED BY CONTROL POINT ASSOCIATES, INC. (DATED 12/09/2008 AND SCALED 1"=40')

3. PARCEL DATA LIST IS SHOWN AS

4. ALL PROPOSED BUILDING STRUCTURES WILL BE LESS THAN FORTY (40) FEET IN HEIGHT.

5. THIS PLAN DEPICTS A GENERAL SITE LAYOUT AND IS TO BE USED FOR ZONING PURPOSES ONLY. FORMAL SITE DESIGN CONCEPTS, WHICH MAY RESULT IN MAJOR CHANGES, WILL BE PREPARED AND FURTHER PERMITTED WITHIN THE 12 MONTH PERIOD TO CONSIDER FOR A CONCEPT PLAN.

REVISIONS			
REV	DATE	COMMENT	BY
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MEPA  
PLAN

PROJECT: SITE  
DEVELOPMENT  
PLANS

STORE # 2095-06  
PROPOSED RETAIL  
DEVELOPEMENT


**BOHLER**  
ENGINEERING

M.D. SMITH

SHEET TITLE:

PROPOSED  
CONDITIONS  
PLAN

1  
OF 1

REV 0 - 07/15/2010