



# Route 138 Corridor Planning Study

Milton • Canton • Stoughton



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# Route 138 Corridor Planning Study

## Milton • Canton • Stoughton

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## The Boston Metropolitan Planning Organization Region



## Study area

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## INTRODUCTION

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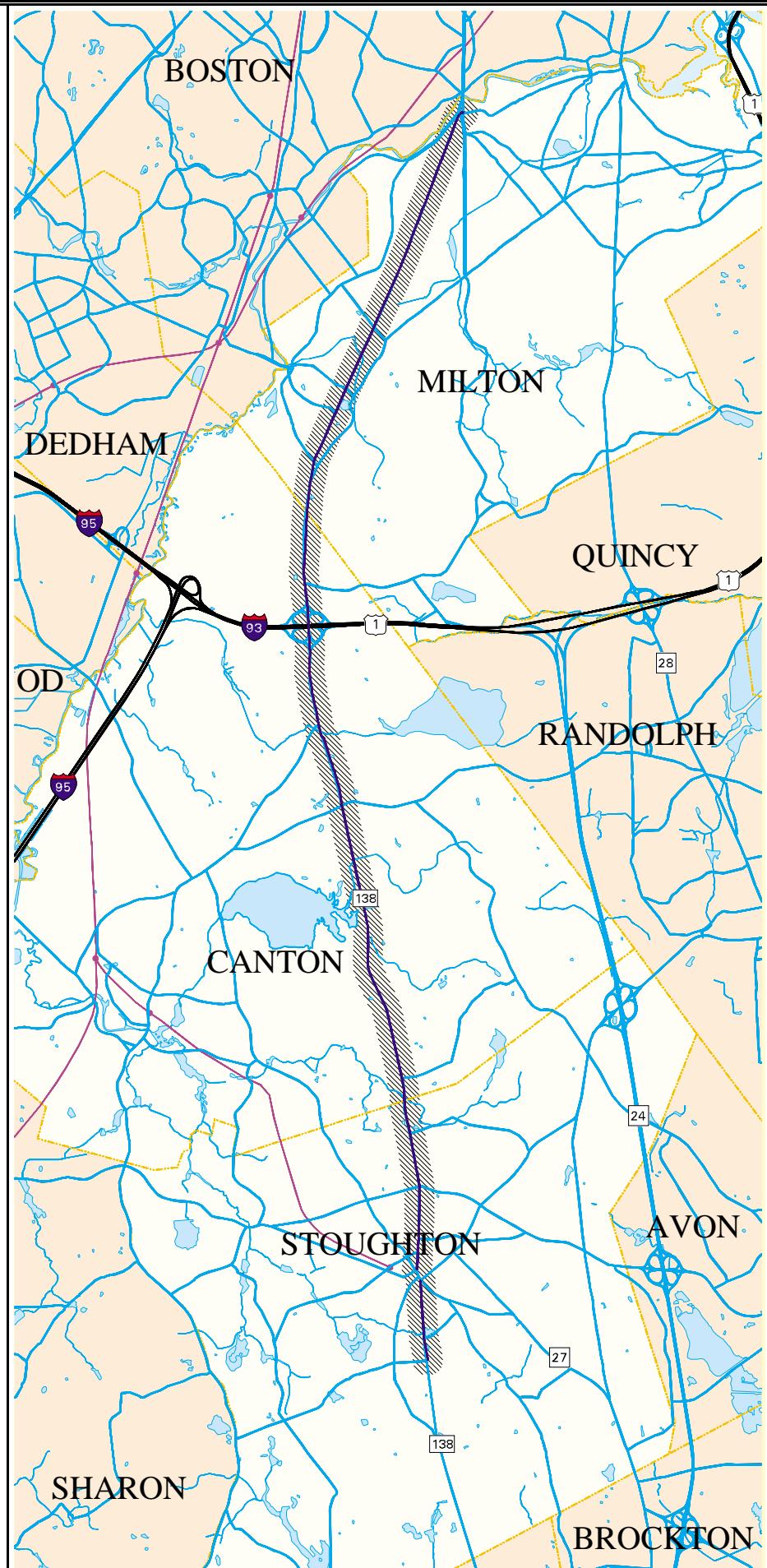
In order for mutual traffic concerns to be addressed, the communities of Milton, Canton, and Stoughton, and the Metropolitan Area Planning Council (MAPC) requested in 1999 that MassHighway, through the Central Transportation Planning Staff (CTPS), perform a traffic study for the Route 138 corridor (see Figure 1). This study has recently been concluded. Its main objective was to develop strategies which reduce congestion and which also enhance safety for drivers, bicyclists, and pedestrians.

CTPS identified traffic concerns pertaining to Route 138, analyzed numerous improvement alternatives, and has recommended a package of improvements which would mitigate the traffic concerns in the study area. The process for formulating the recommended alternatives included review and comment by the project task force, the Route 138 Committee. The recommendations respond to the study objective, stated above. Although much work remains in terms of design, additional environmental assessment of improvements, permitting, and eventual construction, the end of the conceptual planning phase has been reached.

This report documents the various elements and steps of the planning study, presenting analysis methods as well as results. The body of the report summarizes the analysis methods and some key results, while the bulk of data and results are provided in the appendices, which principally consist of technical memoranda produced during the course of the study.

FIGURE 1

Study Area



■ Study area

— Interstate  
Road of other functional  
classification  
— Commuter rail line and station

## **PARTICIPANTS IN THE STUDY**

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The Route 138 Committee members actively involved in the meetings and instrumental in all the steps of the study process were:

|                                    |                                     |
|------------------------------------|-------------------------------------|
| Milton town officials              | Reebok International Ltd.           |
| Canton town officials              | Citizens for Ponkapoag              |
| Stoughton town officials           | East-West Connector Road Committee  |
| MassHighway-Planning (Boston)      | Moratorium Study Committee          |
| MassHighway-District 4 (Arlington) | Canton River Watershed Watchdogs    |
| MassHighway-District 5 (Taunton)   | Neponset Valley Chamber of Commerce |
| Metropolitan Area Planning Council | Citizens from the local communities |
| Norfolk County Commissioners       | State Senator Brian Joyce           |
| Canton Planning Board              | State Senator Jo Ann Sprague        |
| Canton Association of Industries   |                                     |

The Route 138 Committee met on the following dates (the first meeting was held at Canton Town Hall; the remainder were held at Stoughton Town Hall):

*1999* 29 June, 28 September, 13 October, 17 November

*2000* 12 January, 1 March, 1 November

*2001* 21 March

## TRAFFIC CONCERN IDENTIFICATION

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The study area stretches through three communities, Milton, Canton, and Stoughton. The land use abutting the roadway is different in each town. In Milton it tends to be single family residential, in Canton a mix of residential and commercial in the north and light industrial/warehouse/office to the south, and in Stoughton primarily commercial with some residential pockets. Two-way daily traffic volumes on Route 138 vary throughout the 11-mile corridor, ranging from just under 11,000 north of Neponset Valley Parkway in Milton to nearly 39,000 south of the I-93 interchange in Canton.

Because of the varying land uses and traffic levels, traffic issues and concerns are different for the three towns. CTPS already had information on what some of the corridor's traffic concerns are, acquired in the course of other studies. Additional information was solicited from the Route 138 Committee regarding intersections and locations with poor traffic operations, safety deficiencies, lack of proper signage, or sight distance difficulties. Specific traffic concerns within the study area include:

- Congestion and numerous collisions at major Route 138 intersections, including (from north to south):

*Milton*

Milton Street  
Neponset Valley Parkway  
Brush Hill Road

*Canton*

Royall Street  
Greenlodge Street  
Washington Street  
Randolph Street

*Stoughton*

York Street  
Central Street  
Lincoln Street  
School Street  
Stoughton Square  
Plain Street

- Sections of Route 138 with numerous unsignalized side streets and driveways from which (or onto which) substantial numbers of left-turns are made:

*Canton:*

A 3,400-foot section between Pequot Park and Merkert Enterprises

*Stoughton:*

The section between Lincoln Street and Central Street

- Lack of sidewalks, proper curb cuts, and bicycle facilities along some sections of Route 138

- Lack of public transportation throughout the Route 138 corridor

- Sight distance difficulties at numerous locations:

For Route 138 traffic – Difficulties with vertical alignments (e.g., obscured traffic signals or driveways beyond a hillcrest)

For side street/driveway traffic – Poor intersection geometry at some unsignalized locations; hillcrests causing insufficient sight distance when looking to the right or left from a side street/driveway

Information was developed by CTPS, in conjunction with the Route 138 Corridor Committee, on these and other congestion, mobility, and safety-related concerns in the corridor. All locations with concerns were investigated, level-of-service (LOS) analyses were performed whenever appropriate and possible, field surveys were made to better understand the issues, and the results were reported to the committee. Additional information regarding the concerns may be found in Appendices A (“Definition of Traffic Concerns”), B (“Data Collection”), and C (“Review of Existing Conditions”).

The following sections summarize the various steps which were followed in developing the eventual set of recommended improvement measures.

## DATA COLLECTION

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For this study, the Route 138 corridor was analyzed primarily through the interpretation of many forms of travel data. Data were collected in the field by CTPS staff, as well as gleaned from previous traffic studies conducted in the corridor. Traffic simulation modelling was not deemed necessary for this study, due to the relatively nondivergent traffic improvements anticipated at the outset.

The collected data, described below, formed the basis for analyzing traffic operations at intersections, both signalized and unsignalized. They were also used in identifying sight distance deficiencies, areas where pedestrian and bicycle facilities are insufficient, and locations where collisions tend to occur.

The data may be categorized as follows:

### Traffic Counts and Projections

Manual AM and PM peak period turning movement counts (MTMCs) at signalized and unsignalized intersections constituted the most important form of travel data used in the study. By means of these counts, it was possible to determine both the magnitude of congestion through a measurement of queues, as well as the levels of service (LOS) of traffic operations, at the key intersections in the corridor.

The bulk of the MTMCs were collected by CTPS staff in late 1999. Twenty-four-hour automatic traffic recorder (ATR) counts were also obtained, mainly from MassHighway, the Old Colony Planning Council, Norfolk County, and numerous environmental impact reports (EIRs) and traffic studies performed for specific developments in the corridor. MTMCs were obtained for 39 intersections for the AM and PM peak periods, while 24-hour ATRs were obtained for 18 locations. A few counts were also performed specifically to help determine the percentage of trucks in the traffic stream at certain locations (these percentages are given in the following subsection). The counts used in the study are summarized in Appendix B (Table 1, pp. 7–9) and Appendix D–1.

Traffic volume projections were created for the year 2020, for use in the LOS analyses that were conducted to estimate the operational merits of suggested roadway

improvements. The projections were based on trends in AM and PM peak period traffic growth during the 1980s and 1990s at four locations<sup>1</sup> in the corridor, as well as on the background growth estimates found in recent EIRs and traffic studies for local development projects.<sup>2</sup> From these sources, the following future growth estimates for Route 138 peak period traffic were developed: in Milton, +0.5% per year (+11.0% between 1999 and 2020, compounded); in Canton and Stoughton, +0.75% per year (+17.0%, 1999–2020, compounded).

## Trucks

Information was gathered on the level of truck traffic in the Route 138 corridor. This information came from numerous published reports and from field work performed by CTPS staff. The following table summarizes, by section, the percentage of trucks in the traffic stream in the AM and PM peak periods, from south to north:

| Section                            | % Trucks<br>AM Pk Per | % Trucks<br>PM Pk Per | Source(s)                   |
|------------------------------------|-----------------------|-----------------------|-----------------------------|
| Stoughton Square (5 approaches)    | 8.8                   | 7.6                   | Old Colony Planning Council |
| Stoughton Square to Central St     | 4.8                   | 1.8                   | CTPS                        |
| Central St to Canton line          | 5.1                   | 2.2                   | CTPS                        |
| Canton line to Dan Rd              | 4.0                   | 2.2                   | CTPS; Coler & Colantonio    |
| Dan Rd to Randolph St              | 4.1                   | 2.5                   | CTPS; VHB, Inc.             |
| Washington St to I-93              | 5.4                   | 2.6                   | CTPS; Earth Tech            |
| Milton line to Brush Hill Rd       | 5.5                   | 3.5                   | Rizzo Associates            |
| Neponset Val. Pkwy, west of Rt 138 | 11.9                  | 7.3                   | CTPS                        |

## Collision Data/Diagrams

The primary goal of the study, together with reducing congestion, was to develop strategies which increase safety in the Route 138 corridor. A vital component in this quest was to gather data on vehicle collisions at key intersections, for use in achieving a better understanding of both the patterns and the causes of collisions at the various locations. Once this understanding was reached, it was then possible to develop improvement strategies that reduce the likelihood of collisions.

Two sources of data were utilized in addition to the general data contained in the EIRs and traffic studies. The CTPS GIS/Data Resources section provided information on collisions in the corridor, as summarized by the Massachusetts Registry of Motor Vehicles. Data were also obtained from the local police departments. Summaries were created for such characteristics as collision type (e.g., rear end, head on, angle); collision

<sup>1</sup> Route 138: south of Stoughton Square; at the Canton-Stoughton line; south of Brush Hill Road; and north of Neponset Valley Parkway.

<sup>2</sup> “Reebok World Headquarters, Draft EIR–EOEA #11280,” VHB, Inc., January 1998; “Traffic Impact Report, Indian Woods, Stage Coach Road, Canton, Massachusetts,” Coler & Colantonio, February 1998; “East-West Connector Road, Supplemental Draft EIR–EOEA #10704,” VHB, Inc., March 1998; “Traffic Impact Analysis, Milton-Fuller Housing Corporation, Senior Living Development, Milton, Massachusetts,” Rizzo Associates, June 1998.

severity (property damage, personal injury, fatality); time of day; day of week; and pavement, light, and weather conditions. Collision diagrams based on a total of more than 250 individual accidents were constructed for six key intersections in the corridor as well. The collision data are contained in Appendices C (“Review of Existing Conditions”) and D (“Recommended Improvements”).

## **Other Data**

Numerous other types of traffic data were collected in the corridor and used in the analysis of traffic conditions. These included:

*Travel times.* These were obtained both from CTPS’s Congestion Management System database for 1998 and from runs performed specifically for this study in late 1999.

*Queue lengths.* Traffic was observed and measurements of queue lengths were taken at six signalized intersections operating at level-of-service (LOS) E or F (i.e., failing conditions).

*Signalized intersection characteristics.* For ten key signalized intersections in the study area, the following data were compiled through field observation and from signal permits: cycle length; phasings; green, yellow, and red time by approach; pedestrian buttons and phasings; number of pedestrians and bicycles.

*“Windshield survey” data.* Other aspects of existing conditions that CTPS personnel compiled information on through observation in the field were posted speed limits, other signage, crosswalks, number of curb cuts, existence of sidewalks, and sight distance deficiencies. Potential service road locations were also noted.

## **IDENTIFICATION OF POTENTIAL IMPROVEMENT MEASURES AND DEVELOPMENT OF RECOMMENDATIONS**

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Based on analysis of the data collected on the study area's traffic concerns and their context in the corridor, CTPS identified potential measures for addressing the concerns. Also, Route 138 Committee members were asked for input on potential measures, to supplement CTPS's analyses. The local community representatives, with their direct experience of conditions in the corridor, suggested many potential solutions.

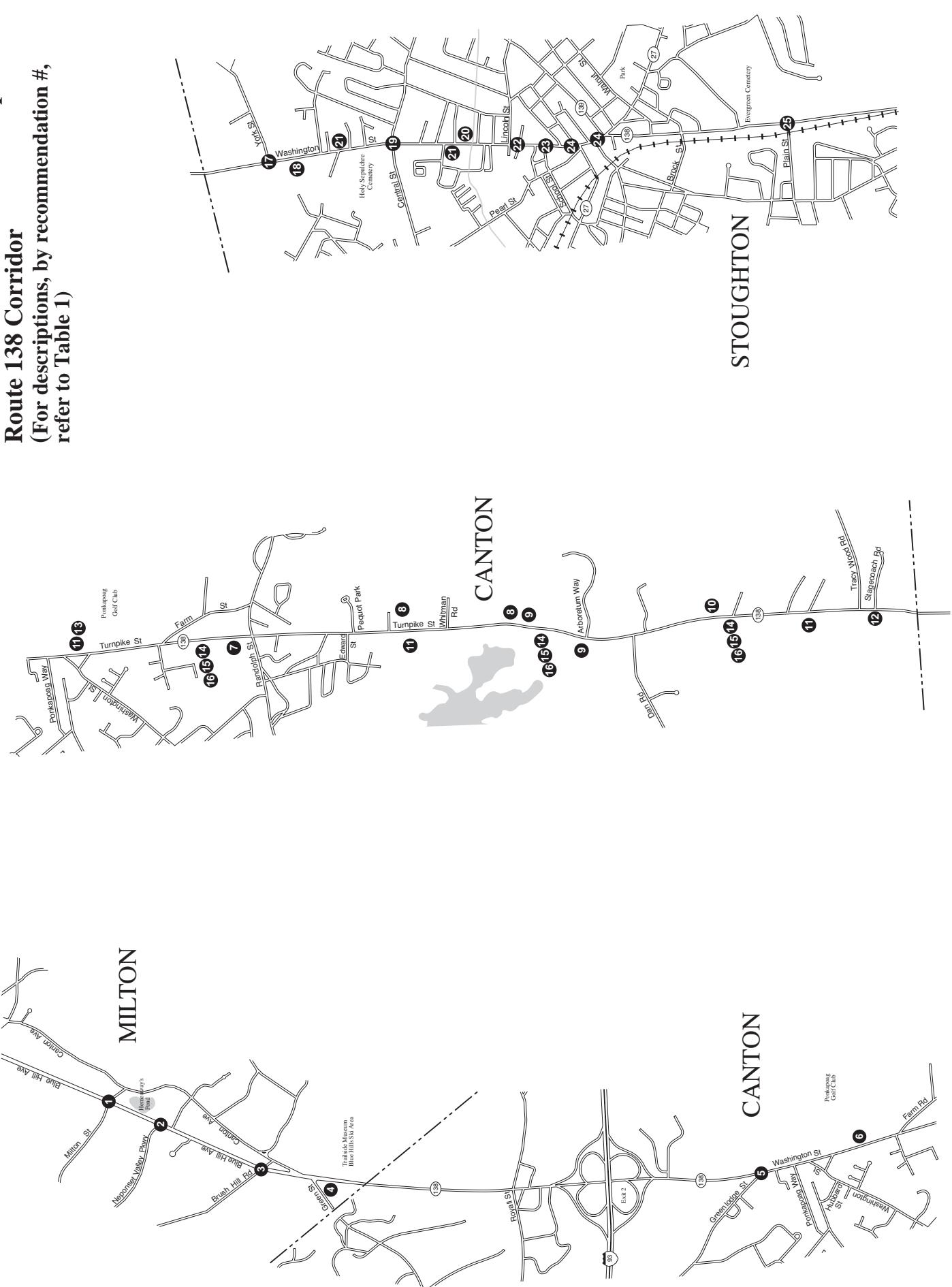
CTPS summarized the identified traffic concerns and the potential improvement measures in a technical memorandum which was distributed to the committee for comment. Responses were received from virtually all entities comprising the committee (the responses are presented in Appendix E). Taking into consideration the comments received, CTPS refined many of the improvement measures and developed a set of recommendations.

Each of the recommendations corresponds to a location of concern in the corridor, except for a few that correspond to a type of concern. Some recommendations consist of a single improvement measure, some of two or more measures. The measures are the following types:

|                         |  |
|-------------------------|--|
| Access points added     | Public transportation improvements     |
| Aesthetic improvements  | Restriction of traffic                 |
| Bicycle improvements    | Roadway resurfacing, shoulder widening |
| Collision reduction     | Signage improvements                   |
| Congestion reduction    | Signal installation                    |
| Curb cut improvements   | Speed limit enforcement                |
| Lighting improvements   | Turning lane/travel lane added         |
| Pedestrian improvements |  |

Figure 2 shows the locations of the recommended improvements. Table 1 summarizes the recommendations, indicating the improvement type(s), giving the location and a brief description, and stating who has jurisdiction and the estimated cost. The descriptions cross-reference Appendix D, where a more complete discussion of each recommendation may be found.

**FIGURE 2**  
**Locations of Recommended Improvements,**  
**Route 138 Corridor**  
 (For descriptions, by recommendation #,  
 refer to Table 1)



**TABLE 1**  
**Recommendations**  
**Route 138 Corridor**

| Recommendation # (refer to Figure 2) | Improvement Type(s)   | Location/Description<br>(For complete description, see Appendix D, page....Figure...)   | Jurisdiction   | Estimated Cost (1)                      |
|--------------------------------------|---|---|--|---|
| Milton 1                             | Collision reduction<br>Signage improvements<br>Speed limit enforcement  | <i>At Milton Street:</i><br>Add signs stating "Reduced Speed Ahead"; enforce speed limits<br>(.....,page 4)   | MassHighway<br>State Police<br>Milton Police               | \$500                                   |
| 2                                    | Bicycle improvements<br>Collision reduction<br>Congestion reduction<br>Pedestrian improvements<br>Turning lane/travel lane added                                | <i>At Neponset Valley Parkway:</i><br>Add a left-turn lane on Route 138 northbound; add wider shoulders, sidewalks<br>(.....,page 4, Figure 2)  | MassHighway  | \$200,000-\$250,000                     |
| 3                                    | Access points added<br>Bicycle improvements<br>Collision reduction<br>Congestion reduction<br>Pedestrian improvements<br>Roadway resurfacing, shoulder widening | <i>At Brush Hill Road:</i><br>Resurface and widen Route 138 to current standards; widen breakdown/bicycle shoulders; add sidewalks on west side; possibly, add driveway from Montessori School to Brush Hill Road; add pedestrian phase and crosswalks at signal<br>(.....,page 5, Figure 3)      | MassHighway<br>Town of Milton<br>Thacher Montessori School | \$350,000-\$400,000                     |
| 4                                    | Bicycle improvements<br>Pedestrian improvements<br>Restriction of traffic<br>Signage improvements   | <i>Near TrainSide Museum/Blue Hills ski area:</i><br>Add pedestrian signal and/or enhance crosswalks; enhance painted shoulders/bicycle lanes; improve signage for Boston-Cape Cod Bikeway; prohibit left turns from Green Street during AM and PM peak periods (install signs)<br>(.....,page 7) | MassHighway  | \$2,500<br>(excludes pedestrian signal) |
| Canton 5                             | Collision reduction<br>Congestion reduction<br>Restriction of traffic   | <i>At Greenlodge Street:</i><br>Prohibit left turns from Greenlodge Street during AM and PM peak periods (install signs); resurface and restripe Route 138<br>(.....,page 9, Figures 4, 5)  | MassHighway  | \$200,000                               |
| 6                                    | Pedestrian improvements   | <i>Between Washington Street and Randolph Street:</i><br>Add sidewalk on west side of Route 138<br>(.....,page 10)  | MassHighway  | \$70,000-\$100,000                      |
| 7                                    | Collision reduction<br>Signage improvements   | <i>North of Randolph Street:</i><br>Install an LED sign in the southbound direction warning drivers of a signal beyond the hillcrest<br>(.....,page 13)   | MassHighway  | \$10,000-\$15,000                       |

(R. Sievert, 010622, 138Reems.xls)

(1) Estimated costs do not include land takings.

**TABLE 1**  
**Recommendations**  
**Route 138 Corridor**

| Recommendation # (refer to Figure 2) | Improvement Type(s)   | Location/Description<br>(For complete description, see Appendix D, page....Figure....)  | Jurisdiction  | Estimated Cost (1)                                      |
|--------------------------------------|---|---|---|---|
| 8<br>Canton (cont.)                  | Bicycle improvements<br>Collision reduction<br>Congestion reduction<br>Curb cut improvements<br>Pedestrian improvements<br>Roadway resurfacing, shoulder widening | <i>Between Pequot Park and Merkert, Inc.:</i><br>Resurface 3,400 ft of Route 138; add wider shoulders, sidewalks; relocate/consolidate driveways  | MassHighway   | \$1,000,000-<br>\$1,500,000<br>(includes drainage)      |
| 9                                    | Access points added<br>Congestion reduction<br>Curb cut improvements  | <i>At J. Baker and J. Merkert, Inc., driveways:</i><br>Ensure that exiting driveway traffic is not given excessive priority by police details; create right-in/right-out-only driveways while adding new access points via potential service roads<br><i>(.....page 19, Figure 7)</i> | Town of Canton<br>MassHighway<br>Canton Association of Industries | \$500,000-<br>\$750,000<br>(J. Baker improvements only) |
| 10                                   | Aesthetic improvements<br>Curb cut improvements   | <i>Numerous driveways:</i><br>Identify driveways in need of visual enhancement, geometric improvements<br><i>(.....page 21)</i>   | Town of Canton<br>MassHighway<br>Canton Association of Industries | N.A.  |
| 11                                   | Access points added<br>Congestion reduction<br>Roadway resurfacing, shoulder widening   | <i>Between Dan Road and the Stoughton line:</i><br>Should this area experience future growth in traffic and development resurface, add wider shoulders and sidewalks; consider implementing service roads with consolidated access points<br><i>(.....page 21)</i>                    | Town of Canton<br>MassHighway<br>Canton Association of Industries | N.A.  |
| 12                                   | Turning lane/travel lane added  | <i>At Stagecoach Road:</i><br>A left-turn lane is proposed on Stagecoach Road<br><i>(.....page 22)</i>  | MassHighway<br>Town of Canton                                     | \$25,000  |
| 13                                   | Signage improvements<br>Speed limit enforcement   | <i>Ponkapoag area:</i><br>Add speed limit signs; add portable roadside electronic speed detectors; enforce speed limit<br><i>(.....page 22)</i>   | State Police<br>Canton Police<br>MassHighway<br>Town of Canton    | \$500<br>(excludes portable detectors)                  |

(1) Estimated costs do not include land takings.

**TABLE 1**  
**Recommendations**  
**Route 138 Corridor**

| Recommendation # (refer to Figure 2) | Improvement Type(s)  | Location/Description<br>(For complete description, see Appendix D, page....Figure...)  | Jurisdiction  | Estimated Cost (1)                                 |
|--------------------------------------|--|--|---|--|
| Town 14<br>Canton (cont.)            | Congestion reduction<br>Public transportation improvements   | <i>Throughout corridor:</i><br>Increase public awareness of existing public transportation service; consider providing an additional Railink shuttle bus<br>(.....,page 22)  | Town officials<br>Neponset Valley TMA<br>Chambers of Commerce | \$75,000<br>(per year)                             |
| 15                                   | Lighting improvements  | <i>Throughout corridor, particularly between Washington Street and Randolph Street:</i><br>A full study of lighting needs on Route 138 is recommended<br>(.....,page 23)   | Town of Canton  | N.A.   |
| 16                                   | Bicycle improvements<br>Pedestrian improvements  | <i>Throughout corridor:</i><br>Enhance existing sidewalks on west side near Trailside Museum/Blue Hills ski area, extend them to new sidewalks at Royall Street; add new sidewalks between Washington and Randolph Streets, between Pequot Park and Merkert, Inc., between Lincoln and Central Streets; enhance painted breakdown lane/bicycle shoulder throughout corridor<br>(.....,page 23) | MassHighway   | \$15,000-\$20,000<br>(north of Royall Street only) |
| 17                                   | Bicycle improvements<br>Collision reduction<br>Signage improvements<br>Signal installation<br>Turning lane/travel lane added | <i>At York Street:</i><br>Install new traffic signal; add turning lanes; add second travel lane northbound; enhance painted shoulders; add an LED sign south of York Street warning drivers of signal beyond hillcrest<br>(.....,page 24, Figure 8)  | MassHighway   | \$400,000  |
| 18                                   | Curb cut improvements<br>Restriction of traffic  | <i>At Albert's Restaurant #247 Washington Street (Route 138):</i><br>Close one of four driveways to Route 138, or, alternatively, change northernmost driveway to right-in only (existing traffic not permitted); upgrade remaining driveways<br>(.....,page 26, Figure 9)   | MassHighway<br>Town of Stoughton                              | \$5,000-\$10,000                                   |
| 19                                   | Access points added<br>Collision reduction<br>Congestion reduction<br>Restriction of traffic                                 | <i>At Central Street:</i><br>Construct raised medians on three approaches; implement a service road connecting three businesses and the Stoughton DPW to Central Street and Phillips Avenue<br>(.....,page 26, Figures 10, 11, 12a through c)  | MassHighway<br>Town of Stoughton<br>Business owners           | \$600,000-\$700,000<br>(assumes current signal)    |

(1) Estimated costs do not include land takings.

**TABLE 1**  
**Recommendations**  
**Route 138 Corridor**

| Recommendation # (refer to Figure 2) | Improvement Type(s)   | Location/Description<br>(For complete description, see Appendix D, page....Figure....)   | Jurisdiction  | Estimated Cost (1)   |
|--------------------------------------|---|--|---|--|
| 20<br>Stoughton (cont.)              | Aesthetic improvements<br>Curb cut improvements   | <i>Numerous driveways:</i><br>Identify driveways in need of visual enhancement, geometric improvements   | Town of Stoughton<br>MassHighway<br>Stoughton Chamber of Commerce | N.A.   |
| 21                                   | Bicycle improvements<br>Congestion reduction<br>Pedestrian improvements<br>Turning lane/travel lane added   | <i>At Blockbuster/Applebee's driveway:</i><br>Add left-turn lane northbound; add sidewalk on northbound side, Lincoln Street to Central Street; enhance painted shoulders  | MassHighway   | \$200,000-\$250,000  |
| 22                                   | Congestion reduction<br>Pedestrian improvements<br>Turning lane/travel lane added   | <i>At Lincoln Street:</i><br>Create left- and right-turn lanes on Lincoln Street westbound; enhance crosswalks   | Town of Stoughton   | \$75,000-\$100,000   |
| 23                                   | Collision reduction<br>Congestion reduction<br>Pedestrian improvements<br>Restriction of traffic<br>Signal installation<br>Turning lane/travel lane added | <i>At School Street:</i><br>Install new traffic signal; create second southbound through lane from existing center left-turn lane; enhance crosswalks; prohibit northbound left turns during AM and PM peak periods  | MassHighway<br>Town of Stoughton                                  | \$125,000-\$150,000  |
| 24                                   | Collision reduction<br>Congestion reduction<br>Pedestrian improvements<br>Restriction of traffic  | <i>At Stoughton Square:</i><br>Enhance all crosswalks throughout the square; prohibit left turns from Wyman Street during the AM peak period (PM peak already prohibited); consider redesignating Routes 27 and 139 away from Stoughton Square, possibly including truck restrictions and/or traffic calming | MassHighway<br>Town of Stoughton                                  | \$5,000-\$10,000 (signs, restriping only)<br>\$75,000-\$100,000 (signal, if needed at Route 27 at Turnpike Street) |
| 25                                   | Bicycle improvements<br>Collision reduction<br>Pedestrian improvements<br>Signal installation<br>Turning lane/travel lane added                           | <i>At Plain Street:</i><br>Install new traffic signal; add turning lanes on all approaches; enhance crosswalks; enhance painted shoulders  | MassHighway<br>Town of Stoughton                                  | \$400,000  |

(R. Sievert, 010622\_138Reems.xls)

(1) Estimated costs do not include land takings.

## IMPLEMENTATION PROCESS

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Brief outlines of the processes by which proposed highway and transit improvements may be implemented are shown below. These outlines are intended to help community officials and residents understand the steps which the community needs to follow in order to initiate and further the processes.

### Highway Projects

MassHighway will assist the towns of Milton, Canton, and Stoughton with the implementation of highway projects derived from this study. The process is as follows:

1. The town must make a written request for assistance to the MassHighway District director<sup>3</sup>. The letter should explain why improvements are needed, describe the proposed improvements, indicate the level of local support for the project, and convey a commitment that the project will be designed by the town and that any right-of-way acquisitions or easements required will be the responsibility of the town. A copy of the letter should be sent to the executive secretary of the Boston Metropolitan Planning Organization (MPO) as well.
2. The District office will review the request and possibly request a Project Justification Report. It is the responsibility of the town to prepare the report, if requested, and submit it to the district office and the MPO.
3. At this point, the town should meet with the district office and MPO to discuss the potential priority of the proposed project and plan the remaining steps required to complete the process, possibly including holding an informational meeting to determine the degree of community support or opposition.
4. If the evaluation of the Project Justification Report is favorable and there is local support for the project, the district office will submit a favorable request to the Project Review Committee (PRC) of MassHighway. The PRC will then determine

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<sup>3</sup> Milton and Canton are located in MassHighway District 4 (Arlington office); Stoughton is in District 5 (Taunton office).

whether the proposed project is eligible for federal and state highway funding, and MassHighway will notify the town of the results.

5. Once the proposed project is approved, the town should request that the MPO place the project in the region's Transportation Improvement Program (TIP). The project must carry with it regional benefits and comply with the regional Transportation Plan.
6. Once the project is in the TIP, the town should prepare the necessary construction documents. Depending on the complexity of the project, submittals may be required at the 25%, 75%, or 100% design phase.
7. MassHighway advertises and awards the project, and issues a notice to proceed to start construction.<sup>4</sup>

Projects in the Route 138 corridor can use funds from a variety of funding categories. It should be noted that many other projects compete for the same money; therefore, the priority of the project will determine if it is assigned to a funding category and programmed in the TIP. The funding categories for which Route 138 projects are eligible are:

- National Highway System (NHS) – Funds for projects on all National Highway System roadways (this category only applies to the section of Route 138 north of I-93 (Route 128), i.e., through northern Canton and Milton).
- Non-Federal Aid (NFA) – Funds for construction, reconstruction, and improvement projects on roads and bridges in urban and rural areas.
- Surface Transportation Program (STP) – Funds for projects chosen by states and localities on any roads that are not functionally classified as local or as rural minor collectors.
- STP Earmark (STP O) – A portion of the STP funding earmarked for projects, chosen by states and localities, that are in urban areas with a population over 200,000 and are for roads that are not functionally classified as local or as rural minor collectors.

## Transit Projects

The MBTA's Service Delivery Policy provides a consistent procedure for the allocation of MBTA transit services within the service area; it covers both new service and service changes. All service proposals are subject to a review-and-approval process, to ensure that they are consistent with the service guidelines and MBTA Board initiatives,

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<sup>4</sup> The above process assumes that none of the improvements requires an environmental impact assessment.

and that they can be implemented within the adopted budget. The process is described below:

1. Proposals for service changes or new service can be made by anyone – private citizens, elected officials, MBTA employees, representatives of neighborhood groups, business organizations, etc. Upon receipt by the MBTA, a proposal will be reviewed by the manager of service planning. If the proposal appears to be consistent with the MBTA’s service guidelines and policies, it will be assigned to a service planner for analysis. If it is not consistent, the planning department will inform the party making the proposal, in writing, of why the proposal is not being pursued.
2. All analysis of service proposals will be done by the Service Planning unit of MBTA Operations Passenger Services & Schedules. This analysis will be based on the factors described in the “Evaluation Criteria” section of the Service Delivery Policy. In conducting the analysis, Service Planning will coordinate with other MBTA departments that would be involved in the proposed change, as well as the proponent of the service change.
3. Following the analysis, the service proposal will be reviewed by the Service Planning Committee. Service Planning will then recommend that either (1) the proposal be implemented, (2) a variation of the proposal be implemented, (3) the proposal be deferred, or (4) the proposal be denied. A summary of the analysis and recommendations will be forwarded to the party that made the proposal. The decision on whether to implement a proposal and the timing of implementation will depend on the significance of the change and whether or not capital expenditures are required.
4. In general, minor changes that can be made within the adopted budget will be implemented as quickly as possible. Minor changes that would increase costs will be held until they can be “bundled” with other changes that would reduce operating costs by an equal amount. Minor changes are implemented based upon the final recommendation of the Service Planning unit of the Planning Department.
5. The implementation of moderate changes will be handled similarly to that of minor changes. If the change does not involve an increase in operating costs, it will be implemented as quickly as possible. Moderate changes that would increase costs will be held until they can be “bundled” with other changes that involve offsetting operating cost reductions. Moderate changes must be approved by the Executive Service Oversight Committee.
6. Major changes will be evaluated within the context of a “comparative evaluation” and the development of periodic Service Plans. The comparative evaluation will weigh all of the potential major changes proposed and evaluated since the

preceding Service Plan and determine which would be the best allocation of resources. Major changes must be endorsed by the Executive Service Oversight Committee and approved by the general manager or the MBTA board of directors. In most cases, the MBTA board's approval will be via approval of a new Service Plan.

The MBTA is currently reviewing this process.

**APPENDIX A**

**Definition of Traffic Concerns**

## **MEMORANDUM**

**TO: Route 138 Corridor Planning Study Project Files**

**26 November, 1999**

**FROM: Robert Sievert**

**RE: Summary of Existing Problems in the Route 138 Corridor: Based on Committee Meeting on 17 November, Stoughton Town Hall**

A meeting to discuss existing traffic problems in the Route 138 corridor through Milton, Canton, and Stoughton took place on Wednesday, 17 November at 9:30 AM in the Stoughton Town Hall. The purpose of this meeting was to solicit input from committee members on *perceived* traffic problems in the corridor. This memorandum is not a summary of the minutes from the meeting, but is simply a list of the traffic concerns which were mentioned by committee members during the course of the meeting. Traffic problems mentioned were as follows:

**Jim Miller, Town Engineer, Stoughton:**

- Central Street at Pearl Street (to be studied by Edwards & Kelcey)
- School Street at Canton Street (to be studied by Edwards & Kelcey)
- Central Street at Washington Street (Route 138)<sup>1</sup>
- Stoughton Square
- York Street at Washington Street (Route 138)
- Lincoln Street at Washington Street (Route 138)
- Plain Street at Washington Street (Route 138)

**Beverly Foley, Canton Association of Industries (CAI):**

- Safety on Route 138 is paramount, including reducing police and fire access difficulties
- There are too many single-occupancy drivers commuting in the corridor
- Transit should be enhanced

**Ruth Slocum, Canton resident in Ponkapoag neighborhood:**

- Turnpike Street at Washington Street (Route 138), i.e., at the Ponkapoag Golf Course entry/exit and Crowell's Market

**Roger Nicholas, Canton Town Planner:**

- The hilly section of Route 138 between Washington Street and I-93 (Route 128) in Canton

**Chris Podgorski, Canton Planning Board member:**

- Driveways at Will's Sand and Gravel at two locations on Route 138, both between Randolph Street and Washington Street (Canton), and north of York Street in Stoughton

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<sup>1</sup> This intersection was reconstructed in 1995.

The above information will be summarized by CTPS together with all existing data into categories of traffic problems. Analysis and corroboration of the data will be performed; the information will then be listed and discussed in a technical memorandum assessing existing traffic conditions. That memorandum will serve as input to the task of developing and recommending roadway improvement alternatives.

Finally, attached are the meeting notes by Jack Dacey, Norfolk County.

Attachment

RES/res

cc: Ethan Britland, MassHighway-BTP&D  
Efi Pagitsas, CTPS



# COUNTY OF NORFOLK

*The County of Presidents*

FELIX JULIANI, WELLESLEY, CHAIRMAN  
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TO: MUNICIPAL OFFICIALS IN MILTON, CANTON, STOUGHTON:  
Selectmen; Administrator; Planning Board; Planner; Engineer;  
Public Works Director, Police Chief; Fire Chief

From: Norfolk County Coordinator  
SUBJECT: NOTES FROM WED NOV 17 MEETING OF ROUTE 138 CORRIDOR COMMITTEE  
Date: Thursday, November 18, 1999

- Attendees per sign-in sheet on reverse side
- BRITLAND @ MASS HWY PLANNING: Scope of work approved 11/4 (see enclosure)
- SIEVERT @ CTPS: explained maps, color-coded for intensity of AM and PM peak traffic
- NOONAN @ REEBOK: Status of Reebok-funded projects in Canton: Royal Street @ 138 waiting OK to proceed with construction; Washington @ 138 and Randolph @ 138 both close to done; maybe design by January to town officials?
- KANTER @ MILTON: Note predominantly residential use along 138 in Milton
- MILLER @ STOUGHTON: Pearl @ Central and School @ Central intersections to be studied by Edwards & Kelcey; traffic counts by Town of Stoughton; traffic cueing at Central @ 138 may be a timing problem (new lights in 1995); other intersections of interest are York @ 138 and Lincoln @ 138 (both north of town center) and Plain @ 138 in southern stretch
- MILTON/CANTON/STOUGHTON Boards of Selectmen apparently each drafting an individual letter of traffic concerns associated with 138; possibly forward all, under one cover, to MHD
- ONORATO @ MHD DISTRICT 4: Any construction projects will have to meet MHD standards; any major land-takings may slow/delete project from consideration
- NEXT MEETING of Corridor Study Committee at 9:30, WED JAN 12 @ Stoughton Town Hall

## **APPENDIX B**

### **Data Collection**

## **MEMORANDUM**

**TO: Route 138 Corridor Planning Study Committee**

**22 February, 2000**

**FROM: Robert Sievert**

**RE: Task 3: Data Collection**

### **INTRODUCTION**

Prior to the 12 January Route 138 committee meeting, CTPS distributed a draft memorandum<sup>1</sup> describing the progress of the study's data collection effort (Task 3 in the project work program), and assessment of existing conditions (Task 4), to date. Task 3, as discussed in detail in the work program, includes four subtasks. These are listed below:

- Subtask 3.1 Windshield Survey
- Subtask 3.2 Traffic Counts
- Subtask 3.3 Accident Data
- Subtask 3.4 Travel Time Runs

Data collection for the Route 138 Corridor Planning Study is now complete. This memorandum summarizes in some detail the various categories of data collected, and constitutes the product for Task 3.

Analysis of the collected data will yield an assessment of existing traffic conditions in the Route 138 corridor. That assessment will be summarized in a separate memorandum<sup>2</sup>, and will be the product for Task 4.

### **SUBTASK 3.1: WINDSHIELD SURVEY**

#### **Physical Characteristics**

During the course of the late fall and early winter, numerous trips were made to Milton, Canton, and Stoughton to observe and record the physical layout and makeup of the Route 138 corridor. A general description of the topography of the corridor is that through much of Milton and Canton, Route 138 traverses an area of gentle, rolling hills. In Stoughton, the vertical roadway characteristics have by and large levelled off. In terms of abutting land use activities, a

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<sup>1</sup> R. Sievert, "Status Report: Data Collection and Existing Conditions," CTPS memorandum, 3 January, 2000.

<sup>2</sup> R. Sievert, "Task 4: Assessment of Existing Traffic Conditions in the Route 138 Corridor," CTPS memorandum, 1 March, 2000 (to be distributed at the 1 March Route 138 committee meeting).

very general description is that Milton is residential, Canton is a mix of commercial, residential, and office/light industrial, and Stoughton is commercial/retail.

### Driveways and Curb Cuts

Although abutters on Route 138 in Milton, a 3.6 mile section from Route 28 in the north to just south of Canton Street in the south, tend to be primarily single-family dwellers, other uses do exist, e.g., Temple Shalom, Delphi Academy, Curry College, Montessori Thacher School. However, the vast majority of land abutting Route 138 in Milton is made up of intersecting streets, single-family homes with private driveways, and undeveloped open spaces.

Route 138 in Canton runs from the Blue Hills ski area to just north of York Street in Stoughton. Mixed uses exist in the northern half between the ski area and Randolph Street (about 2.5 miles), including: a few gas stations and a Howard Johnson's Restaurant north of I-93; private residences, a gas station, a convenience store, a golf course, and a skating rink between I-93 and Washington Street; and, private residences, Blue Hill Montessori School, Canton Auto Mall, and A.A. Will Sand and Gravel between Washington Street and Randolph Street. However, abutters on the section of Route 138 south of Randolph Street to the Stoughton line (about 2.5 miles), are almost exclusively office parks, light industrial sites, or commercial enterprises.

Most of the driveways and curb cuts in this southern section of Canton access individual enterprises or just a small number of businesses, and vary with respect to the level of entering/exiting traffic during the peak hour (as many as 340 turning vehicles at one driveway, a Dunkin' Donuts). In a few instances, side streets exist where numerous larger businesses are located and which collectively access Route 138 at the same point. Examples are Route 138 at Whitman Road, Peqout Park, Industrial Drive, and Dan Road. In the case of Dan Road (Canton Commerce Center), total employment from the various companies is large enough to warrant a traffic signal at Route 138. A second access point from the Commerce Center to Route 138, Boston Drive (unsignalized), was opened during 1999 and is located just under a mile south of Dan Road.

From a design standpoint, the unsignalized driveways in this area are located in a staggered, unaligned fashion, sometimes in close proximity to other driveways. This has created some difficult turning movement operations onto Route 138 from both sides of the roadway, requiring the presence of police officers to allow exiting driveway traffic onto the main road, e.g., at J.Baker/Arboretum Road and at Merkert/Casual Male. Many curb cuts also seem to suffer from wear and tear, or from poorly defined locations as to where vehicles should enter and exit specific establishments.

In Stoughton, the Route 138 study area runs 2.3 miles from the Canton border north of York Street to the Plain Street intersection, 1.7 miles north of the Easton line. Abutting land use consists nearly exclusively of commercial/retail sites. Major supermarkets (Stop & Shop, Shaw's), fast food and other restaurants, auto services (auto parts, car wash, mechanics, gas stations), banks, small office buildings, drug stores, and other personal service establishments are the primary abutters. Turning movements occur at the driveways throughout the day during

business hours. Some private homes exist along Route 138 north of Stop & Shop and in the southern section between Stoughton Square and Plain Street.

### Sight Distance

Sight distance is the length of roadway ahead visible to the driver.

The minimum sight distance available on a roadway should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. *Although greater length is desirable, sight distance at every point along the highway should be at least that required for a below-average operator or vehicle to stop in this distance.*<sup>3</sup>

The 1990 AASHTO design manual recommends specific stopping sight distances for roadways, depending on the speed for which the roadway is designed and the assumed speeds for prevailing conditions. These design stopping sight distances are based on certain factors, including brake reaction time and braking distance, and are summarized in Table 1.

**Table 1**  
**Recommended Design Stopping Sight Distances (wet pavements)**

| Roadway<br><u>Design Speed (mph)</u> | Assumed Speed<br>for Condition (mph) | Design Stopping<br><u>Sight Distance (ft)</u> |
|--------------------------------------|--------------------------------------|---|
| 20                                   | 20-20                                | 125-125                                       |
| 25                                   | 24-25                                | 150-150                                       |
| 30                                   | 28-30                                | 200-200                                       |
| 35                                   | 32-35                                | 225-250                                       |
| 40                                   | 36-40                                | 275-325                                       |
| 45                                   | 40-45                                | 325-400                                       |
| 50                                   | 44-50                                | 400-475                                       |
| 55                                   | 48-55                                | 450-550                                       |
| 60                                   | 52-60                                | 525-650                                       |
| 65                                   | 55-65                                | 550-725                                       |
| 70                                   | 58-70                                | 625-850                                       |

(Source: 1990 AASHTO design manual, Table III-1, p.120)

The posted speed limits on Route 138 in the study area range from 35 to 45 miles per hour. From Table 1, commensurate stopping sight distances for this speed range would be between 275 and 400 feet. This would represent the minimum required stopping sight distances for vehicles traveling Route 138 at the posted speeds under wet pavement conditions.

The following two subsections describe instances where the required sight distances were applied as part of the windshield surveys. These locations are described as “problematic” even though only subjective, eye-ball measurements of apparently inferior sight distances were made. The field work included driving on Route 138 and on most side streets and driveways, and

<sup>3</sup> American Association of State Highway and Transportation Officials (AASHTO), “A Policy on Geometric Design of Highways and Streets,” 1990, p.117-118 (emphasis added).

estimates were made at locations which *appeared* to fall short of the 275–400 feet stopping distance range for the posted speeds.

### Travelling on Route 138

Route 138 traverses rolling hills, through Milton and Canton especially. Consequently, a number of instances of poor sight distance for drivers travelling either northbound or southbound on Route 138 were observed. A few of these instances stand out:

- *Milton:* Obscured views when approaching four signalized intersections on Route 138 from the north as well as the south, i.e., one cannot easily “see through” the intersection due to the perpendicular side street being on the crest of a hill. The four intersections are Route 138 at:
  - Cheever Street [Posted Route 138 speed: 35 NB, 35 SB]
  - Robbins Street [Posted Route 138 speed: 35 NB, 35 SB]
  - Atherton Street [Posted Route 138 speed: 35 NB, 35 SB]
  - Milton Street [Posted Route 138 speed: 35 NB, 35 SB]
- *Canton:*
  - A few driveways on both sides of Route 138, just south of I-93 (Route 128), seem to “come out of nowhere.” [Posted Route 138 speed: 40 NB, 45 SB]
  - Route 138 at #125, A.A. Will Sand & Gravel driveway: trees blocking sign when approaching from the south due to travelling over the crest of a hill. [Posted Route 138 speed: 40 NB]
  - Route 138 at #163, Blue Hill Montessori School, and #160, Canton Auto Mall driveways: visible “suddenly” when approaching from both the north and south. [Posted Route 138 speed: 40 NB, 40 SB]
  - Route 138 at Randolph Street: signalized intersection hidden when approaching from the north due to travelling over the crest of a hill. [Posted Route 138 speed: 40 SB]
  - Route 138 at #225, Bay State School of Technology driveway: visible “suddenly” when approaching from south. [Posted Route 138 speed: 40 NB]
  - Route 138 at #437, 490, and 500, Merkert Enterprises/Big & Tall driveways: visible “suddenly” when approaching both the north and south driveways from the south. [Posted Route 138 speed: 45 NB]
  - Route 138 at #465, Commercial Sheet Metal Co. driveway: visible “suddenly” when approaching from the north. [Posted Route 138 speed: 45 SB]
- *Stoughton:*- Route 138 at #168, A.A. Will Materials driveway: visible “suddenly” when approaching from the south. [Posted Route 138 speed: 45 NB]

Travelling toward Route 138 on unsignalized side streets and driveways

Through field observation, it was noted that inferior sight distance exists for traffic entering Route 138 from a number of unsignalized side streets and driveways. These include:

- *Milton:* None observed. Some private homes may have driveways with limited sight distance. *[Posted Route 138 speeds range from: 35-45 NB, 35-45 SB]*
- *Canton:*
  - #160, Canton Auto Mall: limited sight distance to the left (looking southward). *[Posted Route 138 speed: 40 NB]*
  - #163, Blue Hill Montessori School/Ponkapoag Grange: limited sight distance to the left (looking northward). A “no left turn” sign is present. *[Posted Route 138 speed: 40 SB]*
  - #230, Cheapo Depot: limited sight distance to the left and right. *[Posted Route 138 speed: 40 NB, 40 SB]*
  - #240 and #250, two low office buildings: limited sight distance to the right (looking northward). *[Posted Route 138 speed: 45 NB, 45 SB]*
  - Whitman Road: limited sight distance to the left (looking southward). *[Posted Route 138 speed: 45 NB]*
  - #440, Mulberry Child Care & Preschool: limited sight distance to the right (looking northward). *[Posted Route 138 speed: 45 NB]*
  - #490, Merkert Corporate Center (north driveway): limited sight distance to the left (looking southward). *[Posted Route 138 speed: 45 NB]*
  - #500, Merkert Enterprises, Inc. (south driveway): limited sight distance to the left and right. *[Posted Route 138 speed: 45 NB, 45 SB]*
  - #437, Casual Male Big & Tall: limited sight distance to the left and right. *[Posted Route 138 speed: 45 NB, 45 SB]*
  - #465, Commercial Sheet Metal Co.: limited sight distance to the left (looking northward). *[Posted Route 138 speed: 45 SB]*
  - #1095, Select Auto Sales, Inc.: limited sight distance to the left (looking northward). *[Posted Route 138 speed: 45 SB]*
- *Stoughton:*
  - #20, The Lock Up (self storage): limited sight distance to the right (looking northward). *[Posted Route 138 speed: 45 SB]*
  - #22, Desco Door Sales, Inc.: limited sight distance to the right (looking northward). *[Posted Route 138 speed: 45 SB]*

- #50, A.V.O. Cedar Fences: limited sight distance to the right (looking northward). *[Posted Route 138 speed: 45 SB]*
- #168, A.A. Will Materials Corp. (southernmost driveway): limited sight distance to the left (looking southward). *[Posted Route 138 speed: 45 NB]*
- #217, Albert's Restaurant (northernmost driveway): limited sight distance to the left (looking northward). *[Posted Route 138 speed: 45 SB]*
- Gay Street: limited sight distance to the left (looking southward). *[Posted Route 138 speed: 40 NB]*

### **SUBTASK 3.2: TRAFFIC COUNTS**

Most of the data collected during the autumn of 1999 were traffic counts at signalized and unsignalized intersections in the corridor. Manual turning movement counts (MTMCs) at six signalized and 24 unsignalized intersections were gathered by CTPS staff for the AM and PM peak periods. In addition, recent MTMCs at four signalized and five unsignalized intersections were available from other sources. Together with twenty 48-hour automatic traffic recorder (ATR) counts provided by MassHighway, Norfolk County, the Old Colony Planning Council, and existing environmental impact reports (EIRs), counts at a total of 59 locations in or adjacent to the Route 138 corridor were obtained.

Table 2 summarizes the 59 MTMCs and ATRs obtained for the corridor. Based on the same data, Figures 1–3 show study area traffic flows for the 1999 AM and PM peak hours and for the 24-hour period.

It is seen from Table 2 that the intersection with the highest total AM peak hour traffic is Route 138 at Royall Street/Blue Hill River Road (Canton), 3,390 vehicles. The highest total PM peak hour traffic exists at Route 138 at Central Street (Stoughton), 3,520 vehicles. The Route 138 location with the highest 24-hour total two-way traffic is just south of the I-93 (Route 128) ramps (Canton), 38,400 vehicles. The most common peak hours are 7:15–8:15 AM and 5:00–6:00 PM.

**TABLE 2**  
**ROUTE 138 CORRIDOR PLANNING STUDY**  
**Base Year Traffic Counts**

| MILTON                                      | S or U (*) | MTMC or ATR (**) | Count Date | Counted by | 24-hour AWDT |       | Total intersection volume AM pk hr | Total intersection volume PM pk hr | Actual AM and PM Peak Hours |
|---|------------|------------------|------------|------------|--------------|-------|------------------------------------|------------------------------------|-----------------------------|
|   |            |                  |            |            | 1,110        | 1,240 |                                    |                                    |                             |
| - Route 138 at Brook Rd                     | S          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 north of Atherton St            |            | ATR              | 1998       | MHD        | 10,590 (ADT) |       |                                    |                                    |                             |
| - Route 138 at Milton St                    | S          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 north of Neponset Valley Pkwy   |            | ATR              | 1998       | MHD        | 11,500 (ADT) |       |                                    |                                    |                             |
| - Route 138 at Neponset Valley Parkway      | U          | MTMC             | 1997       | MHD        |              |       |                                    |                                    |                             |
| - Neponset Valley Parkway west of Route 138 |            | ATR              | 1997       | MHD        | 13,800 (ADT) |       |                                    |                                    |                             |
| - Route 138 north of Brush Hill Rd          |            | ATR              | 1998       | Rizzo      | 24,900       |       |                                    |                                    |                             |
| - Route 138 at Brush Hill Rd                | S          | MTMC             | 1998       | Rizzo      |              |       |                                    |                                    |                             |
| - Brush Hill Rd west of Route 138           |            | ATR              | 1998       | Rizzo      | 2,160        |       |                                    |                                    |                             |
| - Brush Hill Rd at Canton Ave               | U          | MTMC             | 1998       | Rizzo      |              |       |                                    |                                    |                             |
| - Route 138 at Canton Ave                   | U          | MTMC             | 1998       | Rizzo      | 2,600        |       |                                    |                                    |                             |
| - Route 138 south of Canton Ave             |            | ATR              | 1996       | VHB        |              |       |                                    |                                    |                             |
|   |            |                  |            |            | 670          |       |                                    |                                    |                             |
|   |            |                  |            |            |              |       |                                    |                                    |                             |
|   |            |                  |            |            | 2,350        |       |                                    |                                    |                             |
|   |            |                  |            |            |              |       |                                    |                                    |                             |
|   |            |                  |            |            | 31,400       |       |                                    |                                    |                             |
|   |            |                  |            |            |              |       |                                    |                                    |                             |

(\*) S=signalized intersection; U=unsignalized intersection

(\*\*) MTMC=Manual Turning Movement Count (AM/PM peak hour); ATR=Automatic Traffic Recorder (24-hour count)

**TABLE 2 (cont.)**  
**ROUTE 138 CORRIDOR PLANNING STUDY**  
**Base Year Traffic Counts**

| CANTON  | S or U (*) | MTMC or ATR (**) | Count Date | Counted by | 24-hour AWDT |       | Total intersection volume AM pk hr | Total intersection volume PM pk hr | Actual AM and PM Peak Hours |
|---|------------|------------------|------------|------------|--------------|-------|------------------------------------|------------------------------------|-----------------------------|
|   |            |                  |            |            | AM           | PM    |                                    |                                    |                             |
| - Route 138 at Royall St/Blue Hill River Rd (***)     | S          | MTMC             | 1997       | VHB        |              |       |                                    |                                    |                             |
| - I-93 south of Route 138                             |            | ATR (loops)      | 1996       | MHD        | 184,500      |       |                                    |                                    |                             |
| - I-93 north of Route 138                             |            | ATR (loops)      | 1996       | MHD        | 177,100      |       |                                    |                                    |                             |
| - Route 138/I-93 (Route 128) ramps (combined)         |            | ATR              | 1996       | MHD        | 54,300       |       |                                    |                                    |                             |
| - Route 138 south of I-93 (Route 128)                 |            | ATR              | 1996       | MHD        | 38,400       |       |                                    |                                    |                             |
| - Route 138 at Greenlodge St                          | U          | MTMC             | 1997       | Earth Tech |              |       |                                    |                                    |                             |
| - Route 138 at Washington St (***)                    | S          | MTMC             | 1997       | VHB        |              |       |                                    |                                    |                             |
| - Route 138 at Randolph St (***)                      | S          | MTMC             | 1997       | VHB        |              |       |                                    |                                    |                             |
| - Randolph St east of Farm St                         |            | ATR              | 1996       | MHD        | 12,500       |       |                                    |                                    |                             |
| - Route 138 south of Randolph St                      |            | ATR              | 1996       | MHD        | 26,200       |       |                                    |                                    |                             |
| - Route 138 at Pequot Park                            | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at #s 320-348 (LPI, MPC, ....)            | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Dunkin' Donuts (north/south) driveways | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at '99 Restn/Orchard Cove drwys           | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Whitman Road                           | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Merkert Inc. driveway (north)          | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Merkert/Big and Tall drivew. (south)   | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Thistill Corp. driveway                | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at J.Baker/Arboretum driveways            | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Dan Rd                                 | S          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at #960 (Foxford Business Center)         | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Boston Dr/#980                         | U          | MTMC             | 1999       | CTPS       |              |       |                                    |                                    |                             |
| - Route 138 at Tracy Wood Rd                          | U          | MTMC             | 1997       | B.S.T.C.   |              |       |                                    |                                    |                             |
| - Route 138 south of Tracy Wood Rd                    |            | ATR              | 1997       | B.S.T.C.   | 21,700       |       |                                    |                                    |                             |
| - Route 138 at Stagecoach Rd                          | U          | MTMC             | 2000       | CTPS       |              |       |                                    |                                    |                             |
|   |            |                  |            |            | 1,850        |       |                                    |                                    |                             |
|   |            |                  |            |            |              | 1,840 |                                    |                                    |                             |

(\*) S=signalized intersection; U=unsignalized intersection

(\*\*) MTMC=Manual Turning Movement Count (AM/PM peak hour); ATR=Automatic Traffic Recorder (24-hour count)

(\*\*\*) Analyzed as part of the Reebok expansion and mitigation

(ReS\_010622\_BsYCnts.xls)

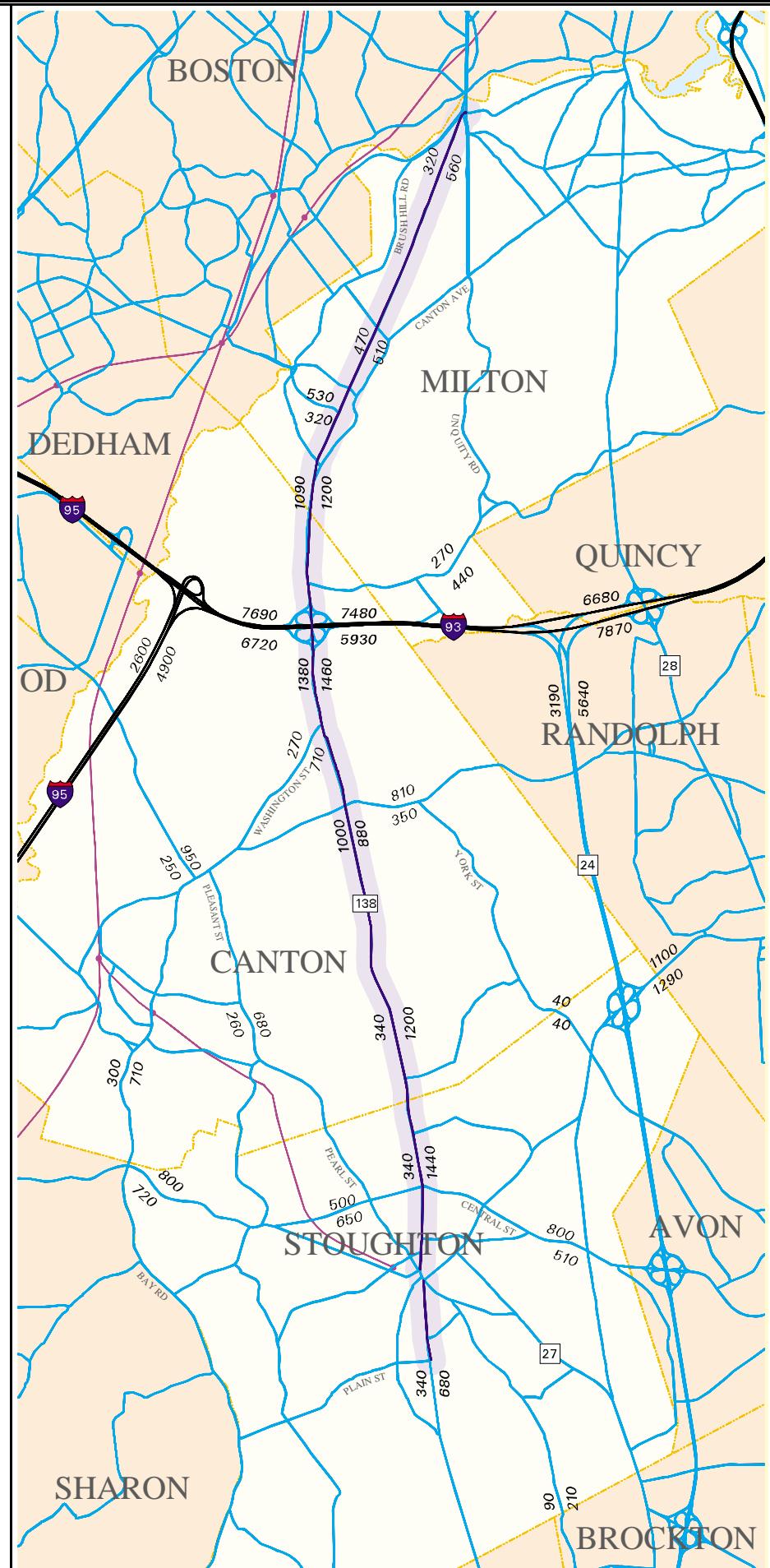
**TABLE 2 (cont.)**  
**ROUTE 138 CORRIDOR PLANNING STUDY**  
**Base Year Traffic Counts**

| STOUGHTON   | S or U (*) | MTMC or ATR (**) | Count Date | Counted by        | 24-hour AWDT |       | Total intersection volume AM pk hr | Total intersection volume PM pk hr | Actual AM and PM Peak Hours |
|---|------------|------------------|------------|-------------------|--------------|-------|------------------------------------|------------------------------------|-----------------------------|
|   |            |                  |            |                   | 24,370       | 2,020 |                                    |                                    |                             |
| <b>Route 138 at Canton-Stoughton line</b>             |            |                  |            |                   |              |       |                                    |                                    |                             |
| - Route 138 at York St                                | U          | MTMC             | 1999       | Norf. County CTPS |              |       | 2,110                              | 7:30-8:30; 16:30-17:30             |                             |
| - Route 138 at Stop'n Shop driveway (north)           | S          | MTMC             | 1999       | CTPS              |              |       | 2,060                              | 7:00-8:00; 17:00-18:00             |                             |
| - Route 138 at Stop'n Shop (south, Kimball Ave.)      | U          | MTMC             | 1999       | CTPS              |              |       | 2,130                              | 7:30-8:30; 17:00-18:00             |                             |
| - Route 138 north of Central St                       | ATR        | 1998             |            | MHD               | 22,700 (ADT) |       |                                    |                                    |                             |
| - Route 138 at Central St                             | S          | MTMC             | 1999       | CTPS              |              |       | 3,140                              | 3,520                              | 6:45-7:45; 17:00-18:00      |
| - Central St at Pearl St                              | S          | MTMC             | 1999       | CTPS              |              |       | 2,280                              | 2,440                              | 7:15-8:15; 16:30-17:30      |
| - Route 138 at Dunkin' Donuts (north/south) driveways | U          | MTMC             | 1999       | CTPS              |              |       | 1,500                              | 1,630                              | 8:00-9:00; 17:00-18:00      |
| - Route 138 at McDonald's (north/south) driveways     | U          | MTMC             | 1999       | CTPS              |              |       | 130 (turns)                        | 290 (turns)                        | 7:15-8:15; 16:45-17:45      |
| - Route 138 at Block Buster driveway                  | U          | MTMC             | 1999       | CTPS              |              |       | 1,450                              | 1,900                              | 7:15-8:15; 17:00-18:00      |
| - Route 138 at Lincoln St                             | U          | MTMC             | 1999       | CTPS              |              |       | 1,540                              | 2,340                              | 7:30-8:30; 17:00-18:00      |
| - Route 138 at School St                              | U          | MTMC             | 1999       | CTPS              |              |       | 1,460                              | 1,840                              | 8:00-9:00; 17:00-18:00      |
| - School St at Pearl St                               | U          | MTMC             | 1999       | CTPS              |              |       | 1,340                              | 1,350                              | 7:00-8:00; 16:45-17:45      |
| - Route 138 north of Stoughton Square                 | ATR        | 1998             |            | OCPC              | 16,600 (ADT) |       |                                    |                                    |                             |
| - Stoughton Square (north)                            | U          | MTMC             | 1999       | CTPS              |              |       | 2,280                              | 2,740                              | 7:15-8:15; 16:30-17:30      |
| - Stoughton Square (middle)                           | U          | MTMC             | 1999       | CTPS              |              |       | 450 (turns)                        | 370 (turns)                        | 7:30-8:30; 17:00-18:00      |
| - Stoughton Square (south)                            | U          | MTMC             | 1999       | CTPS              |              |       | 2,560                              | 2,630                              | 7:15-8:15; 17:00-18:00      |
| - Route 138 south of Stoughton Square                 | ATR        | 1998             |            | OCPC              | 12,300 (ADT) |       |                                    |                                    |                             |
| - Route 138 north of Plain St                         | ATR        | 1998             |            | OCPC              | 14,400 (ADT) |       |                                    |                                    |                             |
| - Route 138 at Plain St                               | U          | MTMC             | 1999       | CTPS              |              |       | 1,310                              | 1,690                              | 7:15-8:15; 16:45-17:45      |
| - Route 138 south of Plain St                         | ATR        | 1998             |            | OCPC              | 6,200 (ADT)  |       |                                    |                                    |                             |
| - Route 138 south of Plain St                         | ATR        | 1998             |            | OCPC              | 12,600 (ADT) |       |                                    |                                    |                             |

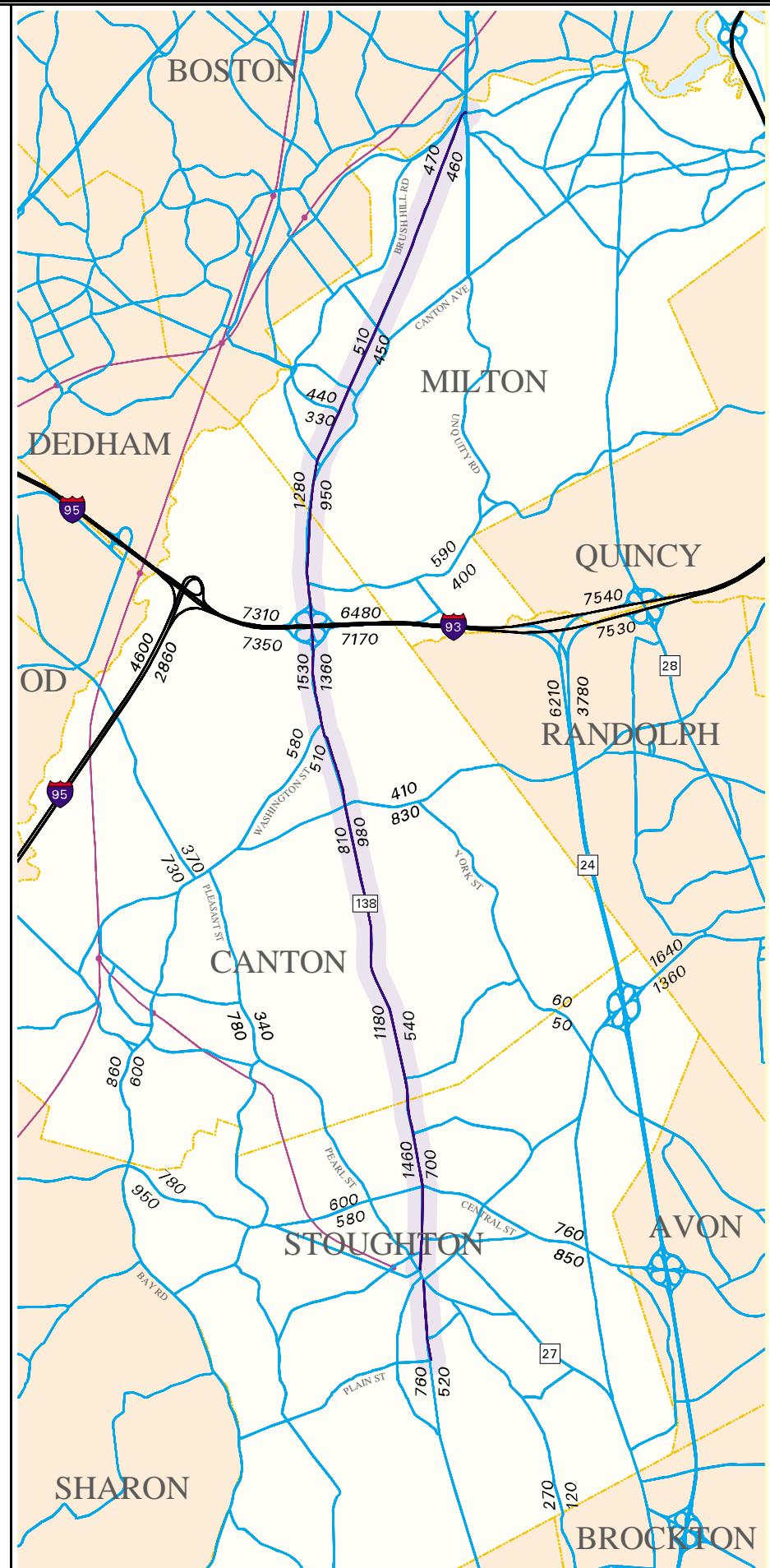
(\*) S=signalized intersection; U=unsignalized intersection

(\*\*) MTMC=Manual Turning Movement Count (AM/PM peak hour); ATR=Automatic Traffic Recorder (24-hour count)

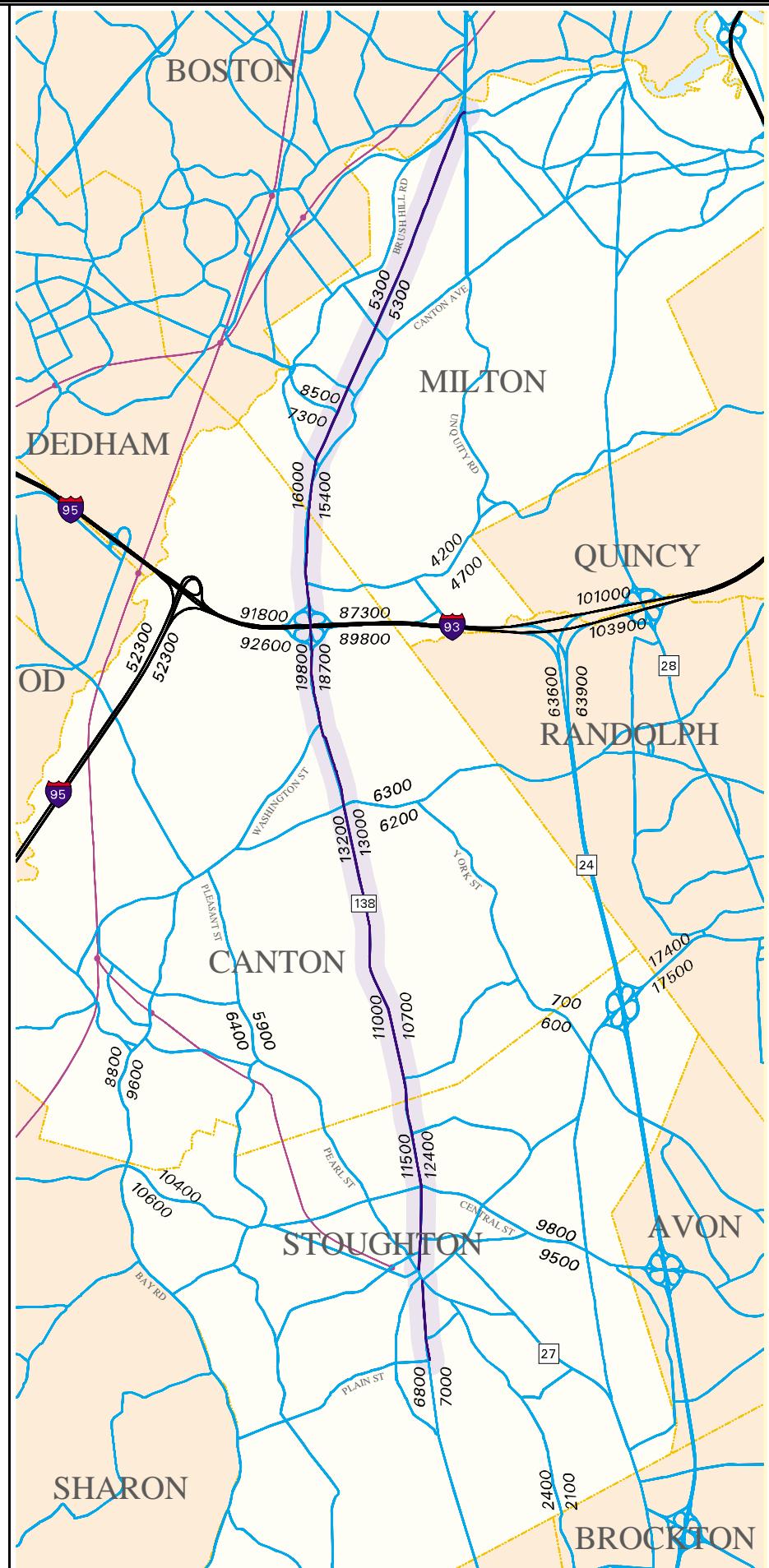
**FIGURE 1**  
Route 138 Corridor  
Planning Study Area  
1999 Traffic Flows  
AM Peak Hour



## FIGURE 2 Route 138 Corridor Planning Study Area 1999 Traffic Flows PM Peak Hour



## FIGURE 3 Route 138 Corridor Planning Study Area 1999 Traffic Flows 24- Hour Volumes



### **SUBTASK 3.3: ACCIDENT DATA**

Traffic accident data in the Route 138 corridor were obtained from the Milton, Canton, and Stoughton police departments for 1997–1999. Included for each reported accident was its location, type (rear end, angle, head on), time of day, weather conditions, and severity (property damage, injuries, fatalities).

Table 3 is a list of the locations on Route 138 where accidents occurred most frequently during 1997–1999 and for which additional analysis, such as the development of collision diagrams, was performed. The collision diagram analysis, however, is presented in the aforementioned memo on Task 4 (see footnote 2 on p.1).

**Table 3**  
**Route 138 Intersection Accident Frequency, 1997–1999**

| Location                                       | Police Departments' Number of Reported Accidents |
|--|--|
| <i>Milton</i>                                  |  |
| 1. Blue Hill Avenue at Brush Hill Road         | 48 (*)   |
| 2. Blue Hill Avenue at Milton Street           | 24 (*)   |
| 3. Blue Hill Avenue at Neponset Valley Parkway | 20 (*)   |
| <i>Canton</i>                                  |  |
| 4. Turnpike Street at Randolph Street          | 71 (**)  |
| 5. Washington Street at Turnpike Street        | 22 (**)  |
| 6. Washington Street at Royall Street          | 15 (**)  |
| 7. Washington Street at Greenlodge Street      | 19   |
| 8. Washington Street at Dan Road               | 18   |
| <i>Stoughton</i>                               |  |
| 9. Washington Street at Central Street         | 134 (***)  |
| 10. Stoughton Square                           | 54 (****)  |
| 11. Washington Street at School Street         | 23   |
| 12. Washington Street at Plain Street          | 19   |

(\*) From discussions with Milton town officials it was determined that Mass Registry accident data for locations 1–3 would be the most representative. Registry data shown are from 1995–1997.

(\*\*) Canton Police data for locations 4, 5, and 6 are from 1994–1996 (see Chapter 5, Reebok Draft EIR, VHB, Inc., January 1998). Collision diagrams were not drawn for these three locations in this study.

(\*\*\*) Accident total represents all the accidents occurring within approximately 200 feet of the actual intersection (due to numerous establishments accessing Route 138 or Central Street, or both, very close to the intersection).

(\*\*\*\*) Eight streets merge into, not one intersection, but into a small area, or square. All the data are combined into one accident total.

(Sources: Milton, Canton, and Stoughton Police Departments, 1999; Mass Registry data, 1995–1997)

### **SUBTASK 3.4: TRAVEL TIME RUNS**

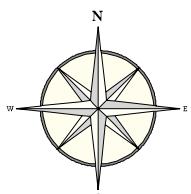
Travel time runs were performed during 1998 for the Route 138 corridor as part of the Congestion Management System (CMS) project (see Figures 4 and 5). The runs indicate the difference in travel speed for each segment in the corridor. Included were runs in both the northbound and southbound directions, during both the AM (6:00–10:00) and PM (3:00–7:00) peak periods. In the summer of 1999 additional runs were performed, and the results from all the runs are summarized in Table 4. Posted speeds in the corridor are added for comparative purposes.

| SEGMENT                      | LENGTH<br>(miles) | AVERAGE PEAK PERIOD SPEEDS (mph) |                |            |        |                |                |            |
|------------------------------|-------------------|----------------------------------|----------------|------------|--------|----------------|----------------|------------|
|                              |                   | NORTHBOUND                       |                | SOUTHBOUND |        | OBSERVED<br>AM | OBSERVED<br>PM | POSTED     |
|                              |                   | OBSERVED<br>AM                   | OBSERVED<br>PM | POSTED     | POSTED |                |                |            |
| <i>(Stoughton to Canton)</i> |                   |                                  |                |            |        |                |                |            |
| Plain St to Stoughton Sq     | 0.68              | 32                               | 21             | 40         |        | 26             | 28             | 40         |
| Stoughton Sq to Central St   | 0.80              | 32                               | 18             | 35         |        | 30             | 22             | 35         |
| Central St to Stop & Shop    | 0.22              | 29                               | 27             | 35         |        | 23             | 14             | 35         |
| Stop & Shop to Dan Rd        | 1.55              | 44                               | 35             | 45         |        | 41             | 35             | 45         |
| <i>(Canton to Milton)</i>    |                   |                                  |                |            |        |                |                |            |
| Dan Rd to Randolph St        | 1.48              | 33                               | 23             | 45, 40     |        | 35             | 33             | 45         |
| Randolph St to Washington St | 0.71              | 20                               | 33             | 40         |        | 27             | 27             | 45, 40     |
| Washington St to Royall St   | 1.15              | 30                               | 36             | 40         |        | 38             | 33             | 45         |
| Royall St to Brush Hill Rd   | 1.03              | 21                               | 32             | 40         |        | 34             | 26             | 45         |
| <i>(Milton to Mattapan)</i>  |                   |                                  |                |            |        |                |                |            |
| Brush Hill Rd to Milton St   | 0.68              | 32                               | 33             | 45, 35     |        | 33             | 26             | 45, 40     |
| Milton St to Bradlee Rd      | 0.55              | 37                               | 39             | 45, 35     |        | 35             | 32             | 45, 35     |
| Bradlee Rd to Robbins St     | 0.68              | 40                               | 39             | 45, 35     |        | 41             | 35             | 45, 35     |
| Robbins St to Cheever St     | 0.69              | 38                               | 37             | 45, 35     |        | 37             | 35             | 35, 45, 35 |
| Cheever St to Aberdeen Rd    | 0.14              | 34                               | 33             | 35         |        | 31             | 27             | 35         |
| Aberdeen Rd to Brook Rd      | 0.24              | 17                               | 26             | 35         |        | 33             | 35             | 35         |
| Brook Rd to Route 28         | 0.22              | 10                               | 13             | 35         |        | 26             | 31             | 35         |
| <b>TOTAL</b>                 | <b>10.82</b>      | <b>25</b>                        | <b>25</b>      |            |        | <b>32</b>      | <b>26</b>      |            |

Table 4 shows that the observed peak period speeds never quite reach the posted speed limits anywhere in the corridor. This makes sense, since the average observed speed for each segment includes peak period delays encountered at every signalized and unsignalized intersection. The time period with the highest average observed speed is the AM peak period in the southbound direction, 32 mph. This is reasonable, since this traffic is generally in the non-peak direction. The remaining three scenarios, AM northbound, PM northbound and southbound, all yielded lower average observed speeds, 25–26 mph. This also seems reasonable due to the higher peak direction traffic levels, as well as any added afternoon school, retail, and personal service trips throughout the corridor.

FIGURE 4

Route 138 Corridor  
Planning Study  
1998-99  
AM Peak Period  
Average Speeds



AM Peak Period  
Average Speed

- 1 - 9 mph
- 10 - 15 mph
- 16 - 20 mph
- 21 - 25 mph
- 26 - 34 mph
- 35+ mph

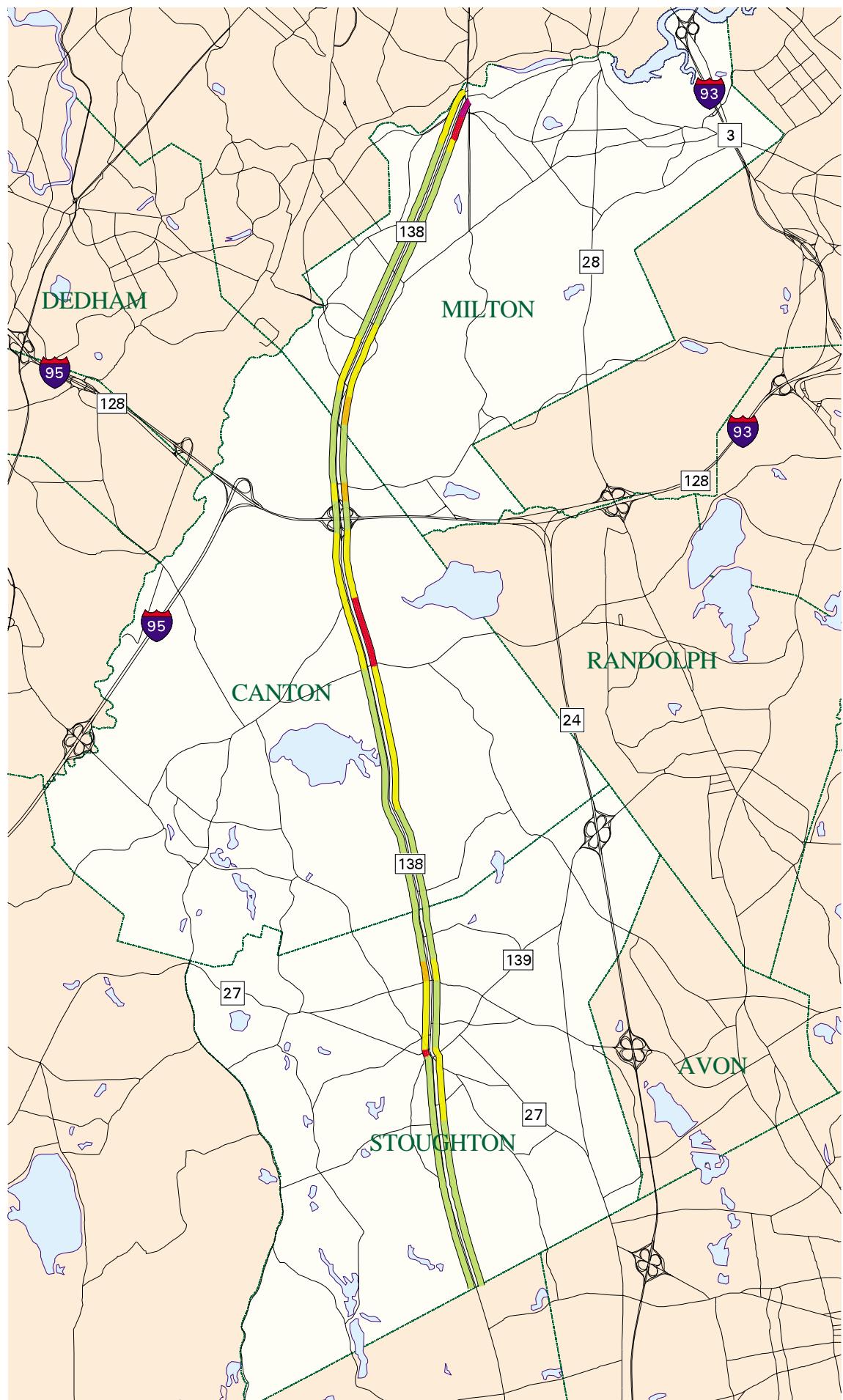
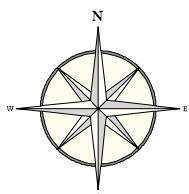


FIGURE 5

Route 138 Corridor  
Planning Study  
1998-99  
PM Peak Period  
Average Speeds



PM Peak Period  
Average Speed

- 1 - 9 mph
- 10 - 15 mph
- 16 - 20 mph
- 21 - 25 mph
- 26 - 34 mph
- 35+ mph

