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ROUTE 6A SCENIC BYWAY

Corridor Management Plan Update

JUNE 2010

Prepared by Cape Cod Commission Staff
on behalf of the

CAPE COD METROPOLITAN PLANNING ORGANIZATION:
Massachusetts Department of Transportation
Cape Cod Regional Transit Authority
Cape Cod Commission
Barnstable County
Town of Barnstable
Towns of Bourne, Sandwich, Falmouth, and Mashpee
Towns of Yarmouth, Dennis, Harwich, Brewster, and Chatham
Towns of Orleans, Eastham, Wellfleet, Truro, and Provincetown

in cooperation with:
Massachusetts Department of Environmental Protection
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Contents

ABBREVIATIONS

CMP	Corridor Management Plan
AASHTO	American Association of State Transportation Officials
ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
CCC	Cape Cod Commission
CCJTC	Cape Cod Joint Transportation Committee
CCRTA	Cape Cod Regional Transit Authority
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
ISTEA	Intermodal Surface Transportation Efficiency Act
MassDOT	Massachusetts Department of Transportation
MEPA	Massachusetts Environmental Policy Act
NHESP	Natural Heritage and Endangered Species Program
OKHRHD	Old King's Highway Regional Historic District
ROW	Right-of-way
RPP	Regional Policy Plan

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Executive Summary

INTRODUCTION

Route 6A consists of approximately 34 miles of state highway that extend along the Cape Cod Bay shoreline, traversing seven communities from the village of Sagamore in the town of Bourne to the U.S. Highway Route 6 Rotary at the Eastham/Orleans border. The Massachusetts state legislature designated the roadway as a Scenic Byway in 1992, in recognition of its distinctive scenic and historic character. In 1995, the Cape Cod Commission (CCC) issued the Route 6A Corridor Management Plan (CMP) through a grant provided by the state's Interim Scenic Byways program. The main purpose of the plan was to focus on resource protection along the corridor while addressing traffic and safety needs. A secondary purpose was to inform the Massachusetts Highway Department (now Massachusetts Department of Transportation, "MassDOT") policy on management of scenic roads and to assist in the development of the state's Scenic Byways program. The purpose of this Route 6A Corridor Management Plan Update ("Update") is to continue the same mission as the original plan, using current data.

The Route 6A corridor is one of the state's most scenic and historic roadways. Maintaining and preserving its special character enhances quality of life for residents, provides a special traveling experience for residents and visitors, and contributes to the state economy through tourism. Despite its Scenic Byway designation, the corridor's intrinsic qualities are vulnerable to impacts from development and transportation projects that detract from its distinctive scenic and historic character.

In addition, as a tourist destination in a coastal resort area with myriad points of interest along and connecting to the corridor, the roadway faces threats from overuse. Balancing its popularity with maintaining a pleasurable and safe "scenic byway" travel experience presents several challenges.

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The Scenic Byways program recognizes and promotes outstanding roads, with a focus on tourism and the traveling experience. For scenic byways in more rural or non-resort locations, drawing additional visitors may be a primary focus. In contrast, a more appropriate goal for Route 6A is to accommodate its high volumes of visitors while ensuring that the special qualities that led to its designation as a scenic byway are preserved.

☐ CMP Goals

The Update seeks to advance the following CMP goals as well as revise existing and propose new CMP strategies:

- Preserve the character and scale of the roadway;
- Address transportation pressures on the roadway;
- Protect the historic, scenic and environmental resources along the corridor;
- Enhance safety for all roadway users - pedestrians, bicyclists, and motorists;
- Promote coordination between agencies with jurisdiction over the corridor; and
- Increase awareness of the roadway's significance.

Primary strategies to achieve goals:

- Enhance protection of intrinsic resources;
- Adopt land-use and zoning regulations;
- Develop alternative designs for transportation and roadway improvements;
- Promote access management planning;
- Encourage opportunities for alternate transportation modes; and
- Develop partnerships with existing visitor facilities along the corridor.

The Update includes a review of the 1995 CMP recommendations with an assessment of progress to date; discussion of current/existing conditions; analyses of changes since 1995; general strategies for improvement; and specific implementation recommendations. As an update to the existing management plan for the corridor, it does not include the comprehensive background information for the various issue areas as provided in the

original plan. In this sense, the Update serves as a supplement to the 1995 plan.

The Update provides an overview of what has happened along the Route 6A corridor in last 15 years since the CMP. Overall, 2010 conditions are similar to 1995 conditions. The CMP strategies noted above appear to be working. Several recommendations from the CMP have been implemented, resulting in improved resource protection and traffic safety. Increased land protection, better designed roadway improvements, land-use regulations, and partnerships between stakeholders have helped maintain Route 6A's "scenic byway" character over the last 15 years.

Despite such improvements, the potential "threats" to Route 6A's distinctive character and traffic safety remain. In the 15 years since the original plan, the primary issue—protecting the distinctive character of the corridor while providing a safe and enjoyable traveling experience—remains a challenge given the development pressures in the region, the role of Route 6A as a major roadway link between the Upper, Mid- and Lower Cape, and its popularity as a tourist destination. The Update identifies land protection and "context sensitive" roadway/transportation facility design as key strategies for addressing preservation of the corridor's intrinsic qualities and enhancing safety for roadway users. Implementation of the Update's recommendations will advance resource protection and improved transportation safety along the corridor.

ISSUE AREAS

TRANSPORTATION

Route 6A, a state highway, is the main roadway within the Old King's Highway Regional Historic District. It has characteristics typical of an urban/suburban roadway, with its high traffic volumes and numerous activity centers.

Options for roadway/transportation facility improvements on Route 6A are limited due to the presence of historic, scenic, and environmental resources. The narrow right-of-way (ROW) also limits the available width for improvements such as sidewalks and bicycle paths. Current roadway

design standards, many of which are inappropriate for a scenic byway, do not provide the flexibility needed to improve Route 6A (beyond a simple resurfacing) without impacting its scenic and historic character. The goal of the Update's transportation section (as with the original CMP) is to identify means to improve Route 6A safety and decrease traffic pressures within the constraints identified in the resources sections of this plan.

☐ Transportation Improvement Strategies

- Improve access management;
- Encourage non-automobile travel of the corridor; and
- Develop flexible roadway standards.

☐ Transportation Implementation Recommendations

- Implement speed management techniques along corridor;
- Install shared-use pavement markings ("sharrows") on sections with no alternate routes for bicyclists;
- Provide a roundabout at Route 6A/Route 132 in West Barnstable;
- Connect sidewalks throughout the scenic byway (on both sides of the road in village centers);
- Provide public transit service; and
- Collect vehicle classification data at all Cape Cod Commission Route 6A automated traffic count locations to help determine the number of large trucks using the roadway.

HISTORIC RESOURCES

The current and projected threats to Route 6A's historic resources as listed in the 1995 CMP are all still relevant today, though some to a greater or lesser extent than in 1995. While additional historic resource protections such as preservation restrictions, National Register listings for individual properties and districts, and regulatory changes have been adopted since the CMP, the corridor's historic resources and distinctive character remain vulnerable to development and standard design roadway/transportation projects that are inconsistent with its historic character. Some of Route 6A's distinctive open spaces have been lost to new residential subdivisions; losing the distinctive remaining undeveloped areas could significantly alter

the historic character of the corridor. The primary regulations affecting historic resources along the corridor are those of the Old King's Highway Regional Historic District, whose committees in some communities have a substantial workload reviewing projects affecting significant resources.

☐ Historic Resources Improvement Strategies

- Continue research to enhance protection of historic resources;
- Support the efforts of Old King's Highway Regional Historic District Commission to protect historic resources by providing updated historic inventory forms, training and staff support;
- Pursue educational efforts to draw attention to the significance of open spaces and cultural landscapes in the corridor's history;
- Preserve cultural landscapes through land acquisition, easements or preservation restrictions, zoning, and transfers of development rights to strengthen protection of the intrinsic character of the corridor; and
- Pursue consistent treatment of roadway design changes to protect historic and scenic character.

☐ Historic Resources Implementation Recommendations

- Work with Old King's Highway Regional Historic District Commission to identify areas where additional or updated historic inventories are needed.
- Prepare an exhibit or brochure on the corridor's significant cultural landscapes;
- Work with Old King's Highway Regional Historic District Commission and planning boards to develop or revise existing design guidelines that protect historic buildings and the existing character of village centers and outlying areas along the corridor.
- Consider hiring a consultant to develop a National Register nomination for the entire roadway, noting its significant characteristics and providing a basis for efforts to retain character-defining features in future road improvement efforts;
- Work with MassDOT to establish context sensitive roadway design standards to ensure engineering changes do not damage the historic character of the corridor; and
- Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay

approach to help towns develop priority land acquisition/ easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation.

SCENIC RESOURCES

Scenic resources evaluated in the 1995 CMP and the 2010 Update consist of major scenic views; detailed scenic resources; and tree canopy. Features that detract from the scenic quality of Route 6A were included as well (i.e., overhead utilities, inappropriate land uses, and excessive signage, guard-rail, and chain-link fencing).

While only limited development has taken place along the corridor since the CMP, future development poses the greatest potential threat to the scenic viewsheds along Route 6A. The introduction of inconsistent design elements such as guardrail and curbing can also affect driver experience along the corridor. Despite protection of Route 6A's distinctive tree canopy as a priority cited in the CMP, the loss of tree canopy continues to be a major threat to the scenic character of Route 6A. Visual intrusions identified in the CMP such as inappropriate land use, inconsistent signage, steel guardrail, and overhead utilities have remained essentially unchanged since the CMP but continue to detract from the scenic character.

☐ Scenic Resources Improvement Strategies

- Pursue efforts to improve the scenic qualities of the roadway through management of the tree canopy, removal/management of invasive plant species, and gateway/design improvements;
- Support continued land protection efforts to preserve the intrinsic qualities of the corridor and reduce future traffic generation; and
- Pursue consistent treatment of roadway design changes, including curb and sidewalk treatment, guardrail, and drainage structures throughout the corridor to protect its scenic character.

☐ Scenic Resources Implementation Recommendations

- Continue to work with the Barnstable Route 6A Committee to update the tree canopy inventory for the eight-mile Barnstable

section of Route 6A and develop a tree removal and replacement program/policy, including consistent procedures concerning notification of local boards for any emergency tree removal;

- Explore the feasibility, cost, benefits, and detriments of burying utility cables along sections of Route 6A. Cape Cod Commission staff will facilitate a meeting/workshop with representatives from NStar, Comcast, town officials, and other stakeholders;
- Work with Mass DOT to establish context-sensitive roadway design standards to ensure engineering changes do not damage the scenic character of the corridor;
- Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS source overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation; and
- Using a composite GIS resource overlay approach, select a "pilot" section of Route 6A to implement various improvement strategies and context-sensitive safety improvements, including the following:
    - Place utilities underground;
    - Survey and identify existing rights-of-way (as well as significant trees, stone walls and other resources);
    - Install pedestrian paths;
    - Provide "sharrow" to enhance bicycle safety; and
    - Provide gateway improvements including landscaping.

ENVIRONMENTAL FEATURES

Changes to the corridor's environmental features since the CMP include additional land acquisition/protection, the opening of tidal restrictions at two locations, and revised mapping of rare species habitat areas. Roadway/transportation improvement projects located in wetland areas pose potential threats to these systems from run-off, sedimentation, and grading/clearing activities; roadwork outside of the existing roadway footprint could impact rare species and their habitat. Opportunities remain for

towns to enhance existing wetlands and wildlife protections and ensure permanent protection of the scenic and rural qualities of the roadway.

☐ Environmental Features Improvement Strategies

- Support educational efforts to improve rare species protection;
- Pursue changes to local regulations to improve wetland protection along the corridor; and
- Support continued land protection efforts to preserve and protect the corridor's environmental resources.

☐ Environmental Features Implementation Recommendation

- Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation.

LAND USE AND ZONING

Few significant zoning changes for the Route 6A corridor have been adopted since the CMP. The types of land uses located along the corridor are generally the same today as well. New development since 1995 is primarily residential, with some new commercial development and expansions of existing commercial plazas. Development of the corridor's remaining open areas and undeveloped land could significantly alter the character of the Route 6A corridor and add traffic to the roadway. Zoning changes and land acquisition could help protect the existing character as well as reduce future trip generation along the roadway.

☐ Land Use and Zoning Improvement Strategies

- Consider changes to zoning and land use regulations to reduce traffic and to protect the corridor's intrinsic qualities;
- Consider zoning or other land use strategies to improve commercial areas along the corridor that differ in character from the rest of Route 6A;
- Support continued land protection efforts to preserve and protect the corridor's intrinsic qualities and reduce traffic; and

- Consider establishing a District of Critical Planning Concern, a special regional planning and regulatory approach authorized through the Cape Cod Commission Act, within one community or extending to multiple corridor towns, to enhance protection of the corridor's resources through zoning and non-zoning regulations.

☐ Land Use and Zoning Implementation Recommendation

- Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation.

VISITOR FACILITIES

Visitor facilities are generally the same as in the original CMP except for the gateway improvements discussed in the scenic resources section of this report and new alternate travel mode amenities as discussed in the transportation section. For scenic byways in more rural or non-resort locations, drawing additional visitors may be a primary focus. In contrast, for Route 6A a more appropriate goal is to accommodate its high volumes of visitors while ensuring that the special qualities that led to its designation as a scenic byway are preserved.

☐ Strategies for Improvement

- Maintain and enhance existing visitor facilities and improve linkages to them to encourage alternate modes of travel along the corridor to protect its intrinsic qualities and reduce traffic.
- Consider adoption of cultural arts districts along Route 6A.

☐ Implementation Recommendation

- Provide signage, maps and/or educational materials to support cultural arts districts on Route 6A and encourage alternate modes of travel to these destinations.

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Introduction

BACKGROUND AND PURPOSE

Route 6A consists of approximately 34 miles of state highway that extend along the Cape Cod Bay shoreline, traversing seven communities from the village of Sagamore in the town of Bourne to the U.S. Highway Route 6 Rotary at the Eastham/Orleans border. The Massachusetts state legislature designated the roadway as a Scenic Byway in 1992, in recognition of its distinctive scenic and historic character. In 1995, the Cape Cod Commission issued the Route 6A Corridor Management Plan (CMP) through a grant provided by the state's Interim Scenic Byways program. The main purpose of the plan was to focus on resource protection along the corridor while addressing traffic and safety needs. A secondary purpose was to inform Massachusetts Highway Department (now Massachusetts Department of Transportation, "MassDOT") policy on management of scenic roads and to assist in the development of the state's Scenic Byways program. The purpose of this Route 6A Corridor Management Plan Update ("Update") to the CMP is to continue the same mission as the original plan, using current data.

The Route 6A corridor is one of the state's most scenic and historic roadways. Maintaining and preserving its special character enhances quality of life for residents, provides a special traveling experience for residents and visitors, and contributes to the state economy through tourism. Despite its Scenic Byway designation, the corridor's intrinsic qualities are vulnerable to impacts from development and transportation projects that detract from its distinctive scenic and historic character.

In addition, as a tourist destination in a coastal resort area with myriad points of interest along and connecting to the corridor, the roadway faces threats from overuse. Balancing its popularity with maintaining a pleasurable and safe "scenic byway" travel experience presents significant challenges. The Scenic Byways program recognizes and promotes outstanding roads, with a focus on

tourism and the traveling experience. For scenic byways in more rural or non-resort locations, drawing additional visitors may be a primary focus. In contrast, a more appropriate goal for Route 6A is to accommodate its high volumes of visitors while ensuring that the special qualities that led to its designation as a scenic byway are preserved.

METHODOLOGY

The study area of the 1995 CMP and the 2010 Update includes the Route 6A roadway and right-of-way, adjacent land areas, and viewsheds from the Sagamore Bridge overpass in Bourne to the rotary at the Orleans/Eastham town line. Staff of the Cape Cod Commission conducted a review of the 1995 CMP recommendations in each issue area and assessed progress to date. Staff also collected and reviewed observations and data on current/existing conditions, including roadway characteristics and traffic conditions; historic, scenic, and environmental resources; land use and zoning information, and visitor facilities. Staff used Geographic Information Systems (GIS) to map current conditions compared to conditions identified in 1995 and analyzed changes and identified problems. In concert with comments generated at public meetings, staff developed general improvement strategies and specific implementation recommendations. The Update does not include the comprehensive background information for the various issue areas as provided in the original plan; in this sense, it serves as a supplement to the 1995 plan.

IMPROVEMENT STRATEGIES AND RECOMMENDATIONS

Projects selected from the implementation recommendations may include road/intersection safety improvements, pedestrian safety improvements, changes to signage, design enhancements, and land acquisition/preservation. Recommendations also may be incorporated into road design guidelines in the Cape Cod and Islands Rural Roads Initiative.

The Update provides an overview of what has happened along the Route 6A corridor in last 15 years since the CMP. Overall, 2010 conditions are similar to 1995 conditions. The CMP strategies identified in this report appear to be working. Several recommendations from the CMP have been implemented, resulting in improved resource protection and traffic safety. Increased land protection, better designed roadway improvements, land-use regulations, and

partnerships between stakeholders have helped maintain Route 6A's "scenic byway" character over the last 15 years.

Despite such improvements, the potential "threats" to Route 6A's distinctive character and traffic safety have not gone away. In the 15 years since the original plan, the primary issue—protecting the distinctive character of the corridor while providing a safe and enjoyable traveling experience—remains a challenge given the development pressures in the region, the role of Route 6A as a major roadway link between the Upper, Mid- and Lower Cape, and its popularity as a tourist destination. The Update identifies land protection and "context-sensitive" roadway/transportation facility design as key strategies for addressing preservation of the corridor's intrinsic qualities and enhancing safety for roadway users.

The context-sensitive approach encourages roadway project design that is compatible with the physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. Whereas traditional road planning has focused on the needs of motor vehicles, the context-sensitive approach addresses visual, aesthetic, and environmental elements. It also incorporates alternative transportation options, including bicycle and pedestrian needs, into roadway planning. For Route 6A, the context sensitive approach promotes flexible guidelines for road and pathway widths and materials, curbing, barriers, and pavement markings that address safety needs while having as little impact as possible on the scenic and historic character of the corridor.

The map (Figure 1) on the following page provides an overview of the study area.

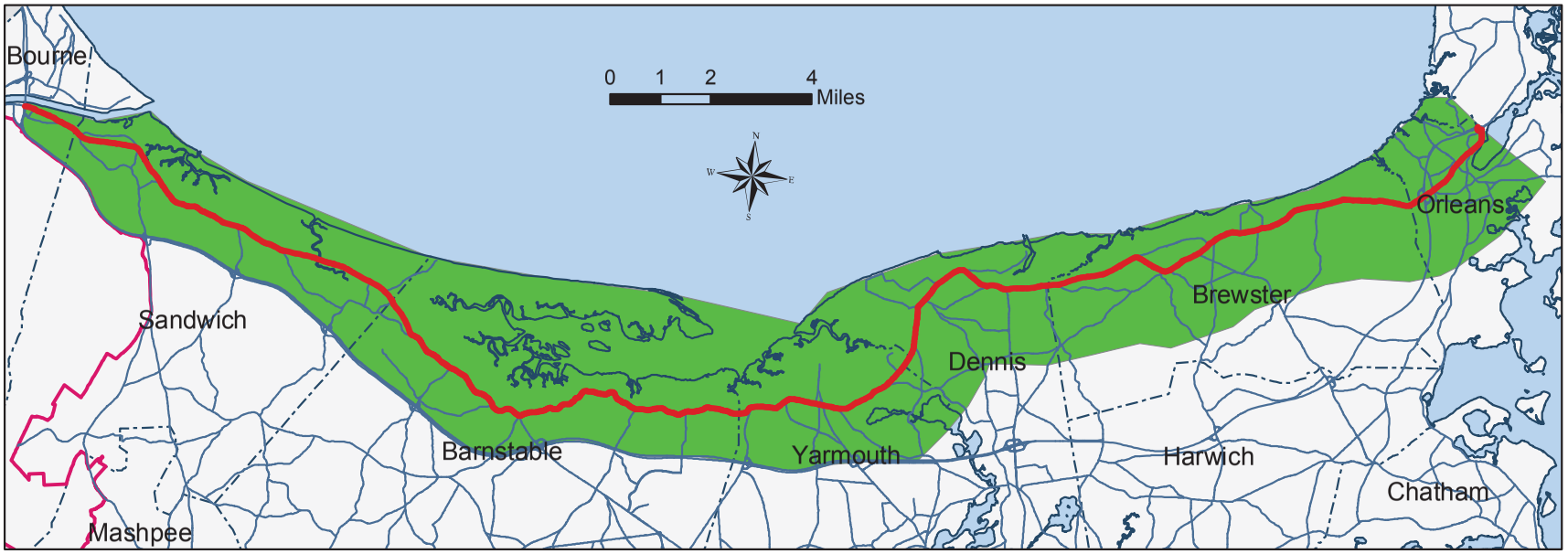
A BRIEF HISTORY OF ROUTE 6A

From its beginning as a Native American trail, Route 6A evolved into a principal east–west cart path for early Cape Cod farmers and other settlers. In the late 17th century it became an extension of the Plymouth Colony's "King's Highway."

With the rise of 18th century maritime activities on Cape Cod, sea captain homes, taverns and other commercial activities were built along the route, giving occasion to Boston–Provincetown stagecoaches to stop.

Figure 1

Route 6A Corridor Management Plan Update - Study Area



Legend

- Route 6A Study Area
- Route 6A
- Major Roads
- MMR Boundary
- Town Boundary
- Shore

This represents the study area for the Route 6A corridor management plan update.
The study area includes the Cape Cod Bay shoreline south to Route 6 from Bourne to Barnstable. In Yarmouth and eastward to Orleans, the study area extends 8000 feet south of Route 6A, which is an approximate average distance between 6A and 6 in the Bourne to Barnstable part of the study area.

In the next century, the demise of maritime industries prompted a return to agricultural pursuits and a focus on cranberry production in the district. Meanwhile, residents who had seen the corridor stripped of trees to support farming and shipbuilding planted new shade trees. Many of these trees, now mature, grace the roadway today.

By the early 20th century, as automobiles replaced horse-drawn carriages and tourism developed on the Cape, the highway required a paved surface. Preservation efforts ensued, and today Route 6A remains faithful to the original trail in most areas.

CORRIDOR MANAGEMENT PLAN GOALS

The CMP was developed under a federal transportation planning program that emphasizes conservation of scenic byways' intrinsic qualities while addressing transportation and tourism needs common to such designated roadways. The CMP was intended to guide protection of Route 6A's character-defining features and examine its transportation and safety issues. The Update is intended to further the goals of the original CMP using current data and assess how changes in its intrinsic qualities and traffic conditions over the last 15 years may call for new strategies to meet these goals.

The Update seeks to advance the following CMP goals as well as revise existing and propose new CMP strategies:

- Preserve the character and scale of the roadway;
- Address transportation pressures on the roadway;
- Protect the historic, scenic and environmental resources along the corridor;
- Enhance safety for all roadway users—pedestrians, bicyclists, and motorists;
- Promote coordination between agencies with jurisdiction over the corridor; and
- Increase awareness of the roadway's significance.

Primary strategies considered in the 1995 CMP to achieve these goals include:

- Enhance protection of intrinsic resources;
- Adopt land-use and zoning regulations;

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- Develop alternative designs for transportation and roadway improvements;
- Promote access management planning;
- Encourage additional opportunities for use of alternate transportation modes; and
- Develop partnerships with existing visitor facilities along the corridor.

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Review of 1995 Corridor Management Plan

The 1995 CMP provided recommendations in the areas of transportation, historic resources, scenic resources, environmental features, land use and zoning, and visitor facilities. The following sections review the status of the 1995 CMP recommendations.

1995 CMP TRANSPORTATION RECOMMENDATIONS

The 1995 CMP transportation recommendations are identified below with a discussion of progress made.

☐ Improve coordination between the state, town, and local officials.

Since 1995, the Cape Cod Commission has expanded its range of communication products to include more information on the web. The Cape Cod Metropolitan Planning Organization (MPO) expanded to a total of nine voting members representing the various Cape communities and transportation agencies. Portions of the Route 6A study area fall within each new MPO representation region. The Cape Cod MPO membership categories are as follows:

- Massachusetts Executive Office of Transportation
- Massachusetts Highway Department
- Cape Cod Regional Transit Authority
- Cape Cod Commission
- Barnstable County
- Town of Barnstable
- Towns of Bourne, Sandwich, Falmouth, and Mashpee

- Towns of Yarmouth, Dennis, Harwich, Brewster, and Chatham
- Towns of Orleans, Eastham, Wellfleet, Truro, and Provincetown

☐ Investigate speed zoning for the corridor.

Speed zoning is the process of (1) recording the speeds of vehicles on a segment of roadway and (2) setting the "appropriate" speed limits. Determination of the speed limit usually is based on the speed at which 85 percent or fewer motorists travel along that given segment of the road. The current speed zones on Route 6A vary, with changes occurring over relatively short distances. Drivers frequently exceed the speed limit; in many of the higher speed zones (speed limit 45 mph) this affects the comfort and safety of pedestrians and bicyclists.

Using the traditional speed-zoning procedure to set speed limits on Route 6A could result in higher speed limits (and higher travel speeds) if a majority of drivers currently exceed the existing limit. Rather than speed zoning, establishing uniform speed limits along the corridor with lower speed limits in village centers would be more appropriate for Route 6A. Adding traffic-calming features and enforcement measures would improve motorist, bicyclist, and pedestrian safety. See Transportation section for further discussion.

☐ Explore the possibility of local jurisdiction of Route 6A.

In their discussions at transportation planning meetings, local officials expressed a general sentiment that fiscal constraints on member communities prohibit the acquisition of roadway segments and additional maintenance responsibilities. Estimates of potential increased costs for each municipality are included in *Route 6A Jurisdiction Evaluation*, prepared by De Leuw Cather & Company, August 1995.

☐ Develop an access management plan for the corridor.

In August of 1995, the Cape Cod Commission released *Access Management Study: Route 6A between Bourne and Orleans*, prepared by the consultant Vanasse Hangen Brustlin (VHB). The study summarized existing access conditions such as the spacing, quantity, and land-use type associated with curb cuts along Route 6A. Information on strategies to combine access and reduce traffic conflicts was included. The study also included seven Route 6A case studies with recommended access-management strategies.

☐ Develop a sidewalk maintenance plan and identify new sidewalk locations.

In August 1995, the Cape Cod Commission released *Route 6A – Alternate Modes Assessment*. This study, prepared by the consultant Louis Berger & Associates, included an evaluation of sidewalk availability along the Route 6A corridor in each town. Bourne ranked the highest, with 42 percent of the corridor having sidewalks; Sandwich ranked the lowest with 7 percent, and the overall sidewalk availability for the Route 6A corridor as a whole was 25 percent. An update of sidewalk coverage and needs is discussed later in this report.

☐ Perform detailed evaluation of methods to improve bicycle accessibility and safety.

The Cape Cod Commission produced a brochure entitled "Cape Cod Bike Map Old King's Highway Regional Historic District" in 1999. It was distributed to the public at local bike shops and by mail upon request. An Internet version is available at:

www.gocapecod.org/oldkingsbikeway

The brochure includes safety tips and cultural background information related to the district and its attractions as well as a map with detailed roadway coverage—sufficient for bicyclists to use as a guide for locating alternatives to riding along Route 6A.

☐ Develop Route 6A shuttle bus service.

The 1995 *Route 6A – Alternate Modes Assessment* noted above included a feasibility analysis of alternate mode use. Since the CMP, additional bus service has become available along the Orleans and Brewster segments of Route 6A through the "Flex" bus. The Cape Cod Regional Transit Authority (CCRTA) continues to provide the Villager bus route, a portion of which travels along Route 6A from Route 132 to Hyannis Road/Millway in the Barnstable Village. In the late 1990s CCRTA operated a now-discontinued Marstons Mills–West Barnstable service that included service on Route 6A from Route 149 to Route 132.

☐ Consider increased use of seasonal rail service.

The Cape Cod Regional Transportation Plan includes restoration of passenger rail service as a priority project.

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☐ Improve problem intersections.

Traffic signal improvements were installed at the following Route 6A intersections:

New Installation:	Tupper Road (eastern end)	Sandwich
Upgrade:	Hyannis Road/Millway	Barnstable
Upgrade:	Eldredge Park Way/West Road	Orleans

☐ Pursue traffic flow improvements on Route 6 and at the Sagamore Rotary.

The Sagamore Rotary was replaced with a full interchange in 2006. The Cape Cod long-range Regional Transportation Plan recommends improvements to Route 6 Interchange 1 to reduce congestion of outbound traffic and decrease the amount of traffic diverted to Route 6A.

☐ Consider direct interchange from Route 6 to Nickerson State Park.

This alternative is no longer under consideration due to the lack of public support, the construction of recreational facilities near the potential interchange site, and potential problems with cut-through traffic.

1995 CMP HISTORIC RESOURCES RECOMMENDATIONS

The 1995 CMP included recommendations to further the goals of preserving historic structures and resources along the roadway, as well as preserving the corridor's historic context. The recommendations are identified below, followed by a discussion of progress made.

☐ Update historic resource inventories.

Since the CMP was completed in April 1995, the towns of Sandwich, Dennis, and Brewster have conducted historic inventory work, resulting in new properties or districts along the corridor listed on the National Register of Historic Places. Consultants conducted additional inventory work in Barnstable in 2009 as part of a town-wide survey expansion effort. In addition, the Cape Cod Commission has commissioned several surveys of historic landscapes along the Route 6A corridor. These are discussed further under the recommendation "Identify Historic Landscapes."

☐ Establish architectural review throughout corridor.

This recommendation sought to expand design review to the parts of the corridor that are not covered by the Old King's Highway Regional Historic District (located in Bourne and Orleans). Since the 1995 CMP, the town of Orleans has improved the design criteria used by the Architectural Review Committee in its review of non-residential development in the Village Center District, which covers a significant portion of the town's Route 6A corridor. The committee has the authority to disapprove a project and prevent issuance of a building permit if a proposal does not meet the stated design criteria related to scale, massing, height, setback, and more. Some portions of the corridor through Orleans still are not covered by design review. The town of Bourne has not established an architectural review in its small portion of the corridor, though the town adopted a demolition-delay bylaw that helps to avoid demolition of historic structures.

☐ Pursue historic resource nomination for roadway.

This recommendation sought to further protect the roadway from change by designating the roadway itself as an historic resource. A nomination was not pursued but the historical commissions in Sandwich and Brewster partially addressed it by including the corridor as a "defining element" in the new National Register Historic Districts established along route.

☐ Develop alternative roadway standards.

Cape Cod Commission staff has been involved with the Massachusetts Highway Department (MassDOT) efforts to develop alternative road standards that are context-sensitive and preserve historic and scenic areas. MassDOT's Project Development and Design Guide, published in 2006, is a step forward, although it does not provide flexible design standards for Route 6A/scenic byways or allow for deviations from the existing standards without obtaining a waiver. (See Transportation section for further discussion.) Intersection widening, the addition of turning lanes, and some sidewalk construction projects still pose a challenge to maintaining historic roadway character.

☐ Develop design guidelines for road appurtenances.

This recommendation sought to avoid use of steel guardrails, chain link fencing, rock-lined drainage areas, and other features that are inconsistent with the roadway's historic character. The MassDOT Project Development and Design Guide mentioned above addresses many of these features. Road paving and related projects since the 1995 CMP have been improved in

Sandwich, Barnstable, and Yarmouth due to efforts by the towns and the Cape Cod Commission, and due to greater awareness of the resources by MassDOT.

☐ Establish a preservation incentives program.

This program was not pursued, other than through educational efforts. Individual property owners placed additional preservation restrictions on significant historic buildings along the corridor with Massachusetts Historical Commission grant funds and the Community Preservation Act. Workshops organized by the Cape Cod Commission's Community Preservation Act Round Table have provided additional information about preservation restrictions and monitoring them.

☐ Identify historic landscapes.

The Cape Cod Commission commissioned Public Archaeology Labs, Inc., and Candace Jenkins, Preservation Consultant, to conduct a survey of cultural landscapes along the Route 6A corridor in the summer of 1995. This included identification of significant property types along the corridor and preparation of 30 inventory forms for significant and representative landscapes along the corridor. The report recommended 15 properties for nomination to the National Register of Historic Places, several of which have since been listed on the National Register as part of new historic districts.

In May 1999 graduate students from the Department of Urban and Environmental Policy at Tufts University completed further survey and identification of cultural landscapes in Sandwich and Bourne. This report included a table of cultural landscapes and an evaluation of their significance, as well as maps showing their location. In Bourne, the survey identified only two landscapes within the Route 6A corridor. In Sandwich, the survey identified approximately 25 landscapes within the Route 6A corridor, many of which were considered "highly significant" and a "priority for preservation." All of these properties fall within the existing Old King's Highway Historic District, and some are recognized through listings on the National Register of Historic Places.

Graduate students in the Boston University Preservation Studies Program conducted an additional survey of cultural landscapes in the towns of Brewster and Dennis in the spring of 2007. Their work identified several priority heritage landscapes in each of the towns, and included recommended planning strategies for their protection. Among the priority landscapes were several historic farmsteads, a large summer camp, and road and river corridors.

☐ Promote an historic walking tour network.

In 1996 the Cape Cod Commission produced a corridor-wide brochure listing historic sites in each of the towns. The Commission distributed the brochure to chambers of commerce along the corridor for several years. Commission staff compiled and produced a more detailed walking tour brochure in 2000, identifying and describing 70 specific sites of historic interest along the corridor and mapping them.

☐ Encourage adaptive re-use through zoning.

The regulations of the Old King's Highway Regional Historic District Commission, which seeks to prevent demolition of significant historic structures, promoted re-use. Town efforts to make zoning regulations more consistent with the scale of existing historic structures should be considered further.

☐ Clarify review of non-traditional resources.

This recommendation was intended to help protect elements along the roadway that are not always recognized as historic resources, such as historic landscapes, sites, and the roadway itself. Such non-traditional resources still are not addressed consistently by the Old King's Highway Regional Historic District Commission. This recommendation should continue to be pursued along with other efforts to provide support to the historic district committees.

☐ Update wetlands bylaws for archaeological resources.

The towns of Barnstable and Brewster still are the only towns along the corridor with specific local protections for archaeological resources. In 2003, Brewster amended its bylaw language to clarify how archaeological sites are identified and protected through the filing of a Project Notification Form with Massachusetts Historical Commission. This continues to be a model for other towns along the corridor.

☐ Expand National Register designations.

The towns of Brewster and Sandwich have moved forward with these efforts. Brewster listed two new districts, and Sandwich is in the process of listing two new districts along the corridor. The town of Dennis has listed a few additional resources along the corridor but not an entire district. Orleans has not pursued historic district status along Route 6A, though the design review procedures in the village center area take historic features into account and seek to preserve them. Barnstable and Yarmouth were already fully designated along the corridor.

☐ Develop interpretation and maintenance information.

The Cape Cod Commission did not pursue development of a brochure to guide interpretation and maintenance along the corridor. The need for this should be re-evaluated.

1995 CMP SCENIC RESOURCES RECOMMENDATIONS

Scenic resources recommendations from the 1995 CMP were divided into five categories: gateway improvements; major scenic views; detailed scenic resources; tree canopy; overhead utilities; and visual intrusions. Specific recommendations in each of these categories are identified below with a discussion of progress made since the CMP.

☐ Provide gateway improvements.

The CMP recommended several key "gateway" locations for improvements such as tree planting, relocation of utilities, and pedestrian enhancements along the Route 6A corridor. Of the several locations identified in the CMP, consultants working with Cape Cod Commission staff prepared design plans through a grant under the Interim Scenic Byways Program for four locations on Route 6A:

- Main Street Common - Sandwich
- Barnstable Village center
- Yarmouth Common at Church Street
- Orleans gateway - Exit 12

Based on these conceptual design plans, improvements were completed in three of four locations. The Barnstable Village Improvement Association used the conceptual design plan for Barnstable village to assist with fundraising for brick sidewalks and tree planting. In addition to the above improvements, the town of Dennis purchased a former gas station at the intersection of New Boston/Nobscussett Road and Route 6A, planted trees, and converted the property to a park.

☐ Pursue scenic easements/acquisition.

Since the CMP, approximately 879 acres within or adjacent to major scenic viewsheds identified in the CMP have been protected, primarily through

Community Preservation Act and/or Land Bank funds. Brewster, for example, acquired "Betty's Curve" at Luke's Liquors as protected land.

The town of Brewster purchased the three-acre "Betty's Curve" parcel in 2003, preserving a notable open landscape and scenic view along Route 6A.

☐ Conduct vista pruning.

A tidal flow restoration project at Bridge Creek in West Barnstable has helped to restore the open viewshed in the area by controlling the spread of *Phragmites*; another tidal restoration project at Bridge Street in Dennis should yield similar results and open that viewshed as well. In addition following Cape Cod Commission review of a proposed subdivision in Sandwich, a property owner conducted vista pruning and restored a viewshed at one location the CMP identified for such.

☐ Consider increased lot frontage/rezoning.

No significant zoning changes have been adopted by towns along the corridor except for increased minimum lot size along a section of the corridor in Barnstable, and minor changes as noted in the Land Use and Zoning section.

☐ Expand Old King's Highway purpose.

The CMP recommended that the Purpose section of the Old King's Highway guidelines be expanded to include major scenic views. This recommendation has not been pursued to date by the Old King's Highway Regional Historic District Commission.

☐ Improve surveys of historic districts.

This recommendation was intended to ensure that all buildings and structures of historic significance are included in the Route 6A historic district surveys so that historic review boards would better understand their significance when asked to review changes to the buildings/structures. Sandwich and Brewster have adopted new National Register historic districts since the CMP, including surveys with appropriate level of detail.

☐ Establish scenic road database.

This recommendation has not been completed to date.

☐ Develop a tree canopy management plan.

The CMP recommended that a detailed inventory and analysis for trees along Route 6A be conducted. This effort was completed in August 1995 through a grant under the Interim Scenic Byways Program. The *Route 6A Vegetation Management Plan* included an inventory by a Massachusetts certified arborist that evaluated the condition and maintenance requirements of 7,498 trees that contribute to the tree canopy along Route 6A. The plan found that approximately 4,100 trees were located within ten feet of the edge of the roadway. Of this total, 500 trees were considered historic and significant, with many trees greater than 15 inch diameter at breast height (dbh). The arborist found a total of 121 species and varieties were found along the route. The vegetation management plan noted impacts on mature trees from utility line pruning and the lack of tree replacement. The plan recommended that a moderate diverse planting program be initiated to ensure a supply of smaller trees moving into larger size classes, and included recommended tree species for different situations along the corridor.

☐ Purchase trees.

The CMP recommended that a corridor-wide program be developed to purchase trees and work with private property owners at locations where rights-of-way limited planting of new street trees. The Cape Cod Commission proposed creation of a nursery as recommended by the *Route 6A Vegetation Management Plan*, but the Federal Highway Administration did not approve the use of Scenic Byway funds for this purpose. However, in 2001 the Cape Cod Cooperative Extension and Barnstable County established a two-acre nursery on the Barnstable County Farm on Route 6A. Trees planted there are available for purchase by the towns on an biannual basis.

☐ Adopt overlay district.

The CMP recommended that overlay districts be adopted to provide special street tree requirements for Route 6A. This recommendation has not been pursued by the towns.

☐ Strengthen buffer requirements.

Commercial-area vegetated buffer requirements have not changed as recommended by the CMP. Orleans planted additional trees at the Skaket Corners commercial plaza as a result of intersection improvements at West Road and Route 6A.

☐ Establish tree preservation/replanting priorities.

The CMP recommended coordination with the Old King's Highway Historic District Committees to establish priorities and proper species selection for replacement tree planting. This recommendation has not been implemented.

☐ Relocate overhead utilities when planning roadway improvements.

The CMP recommended the Cape Cod Commission assist towns in working with state agencies or public utilities to place existing utilities underground when roadway improvements or replacement of other infrastructure is planned. This is consistent with the Regional Policy Plan standards which, for Developments of Regional Impact, requires all new development to locate utilities underground.

☐ Conduct feasibility study.

The CMP recommended conducting a feasibility study to determine the long-term costs/benefits of undergrounding utilities for several village centers along Route 6A. This recommendation has not been pursued to date.

☐ Improve land use/structures out of context.

The CMP recommended that incentives or a loan program be developed to encourage business owners to make façade or other design improvements to existing strip-style building development. This recommendation has not been pursued to date.

☐ Develop distinctive guide signs/highway signage standards.

A scenic byway advisory committee together with Cape Cod Commission staff developed guide signs for the corridor under the Interim Scenic Byways

Program. However, historic committees were opposed to additional signage along Route 6A and the proposed new signs were not installed.

☐ Coordinate local sign bylaws.

This recommendation has not been pursued to date.

☐ Revise AASHTO standards.

MassDOT's 2006 Project Development and Design Guide provides flexible standards for roadway projects. However, it does not provide the flexibility needed to improve Route 6A (beyond a simple resurfacing) without impacting its scenic and historic character. The design guide would still require a minimum 30-foot roadway width (two 11-foot travel lanes and two 4-foot shoulders) for any upgrading/improvements to the roadway. Any deviation from these standards would require a design waiver. Many towns consider obtaining design waivers to improve the roadway as a burdensome process.

New or flexible design standards for Route 6A would allow for the provision of roadway and safety enhancements without harming the qualities for which the roadway was designated a scenic byway. (See Transportation section for further discussion.)

1995 CMP ENVIRONMENTAL FEATURES RECOMMENDATIONS

The CMP did not recommend substantial changes to existing environmental regulations but made recommendations that if implemented would enhance protections for sensitive environmental resources along Route 6A. The recommendations are identified below with a discussion of progress made.

☐ Upgrade local wetlands bylaws to standards consistent with Regional Policy Plan.

No changes have been made that would improve protections to wetlands within the road corridor.

☐ Survey needed drainage improvements.

No corridor-wide or individual town surveys of stormwater concerns have been conducted for the roadway, but MassDOT has completed several drainage improvement projects since the 1995 plan. In 2005–2006 MassDOT (then

MassHighway) worked with the towns of Sandwich and Barnstable to design and implement improved drainage and Best Management Practices (BMPs) to mitigate stormwater runoff at approximately eight separate locations along the corridor during a Route 6A resurfacing project in the towns. The improvements included the elimination of direct discharges to streams and wetlands and the construction of leaching catch basins. Similar stormwater improvements were installed later within the Yarmouth section of Route 6A.

☐ Conduct field surveys of natural resources prior to road improvements.

No field surveys have been conducted, as road improvements to date have occurred within the existing roadway footprint.

☐ Maintain vegetated buffers along roadway, except where views to scenic resources are desirable.

The most noticeable vegetation loss along the corridor has involved damaged or diseased trees, or trees that pose a roadway hazard (as discussed in the Scenic Resources section). Several large trees have been removed, primarily in the Barnstable and Yarmouth roadway sections. *Phragmites* has invaded many fresh and brackish wetlands, often impairing scenic views. Removing invasive plant species and restoring native open habitats would improve views to the coast.

1995 CMP LAND USE AND ZONING RECOMMENDATIONS

The CMP's land use and zoning recommendations focused on techniques to limit build-out capacity along Route 6A; maintain traditional uses that are characteristic of the corridor; ensure high-quality commercial development; and reduce traffic generation. The plan included several corridor-wide recommendations as listed in summary below with notes on progress to date.

☐ Complete a build-out analysis to quantify growth potential in the Route 6A corridor.

The Cape Cod Commission produced the Monomoy Capacity Study in 1996, which includes build-out scenarios for the Route 6A towns of Brewster, Orleans, and Dennis by census tract but does not quantify growth potential along the Route 6A corridor specifically. A build-out analysis would be useful for understanding growth potential along the corridor but entails a significant

amount of work. The Update identifies vacant developable land along the corridor, which is a key component of a build-out analysis.

☐ Reduce commercial square footage allowed by right to limit traffic generation.

This includes reducing allowed floor area ratios for retail and office space and restricting commercial uses to the first floor of structures, to encourage mixed-use development. No such restrictions on commercial uses have been adopted along the corridor since the CMP.

☐ Revise zoning bylaws and subdivision regulations to improve access and reduce auto traffic on 6A.

The town of Barnstable increased the minimum residential lot size from one-acre to two acres along portions of the corridor, thereby reducing the potential number of new house lots and additional vehicle trip generation.

☐ Limit incompatible uses which have an adverse impact on the roadway's character.

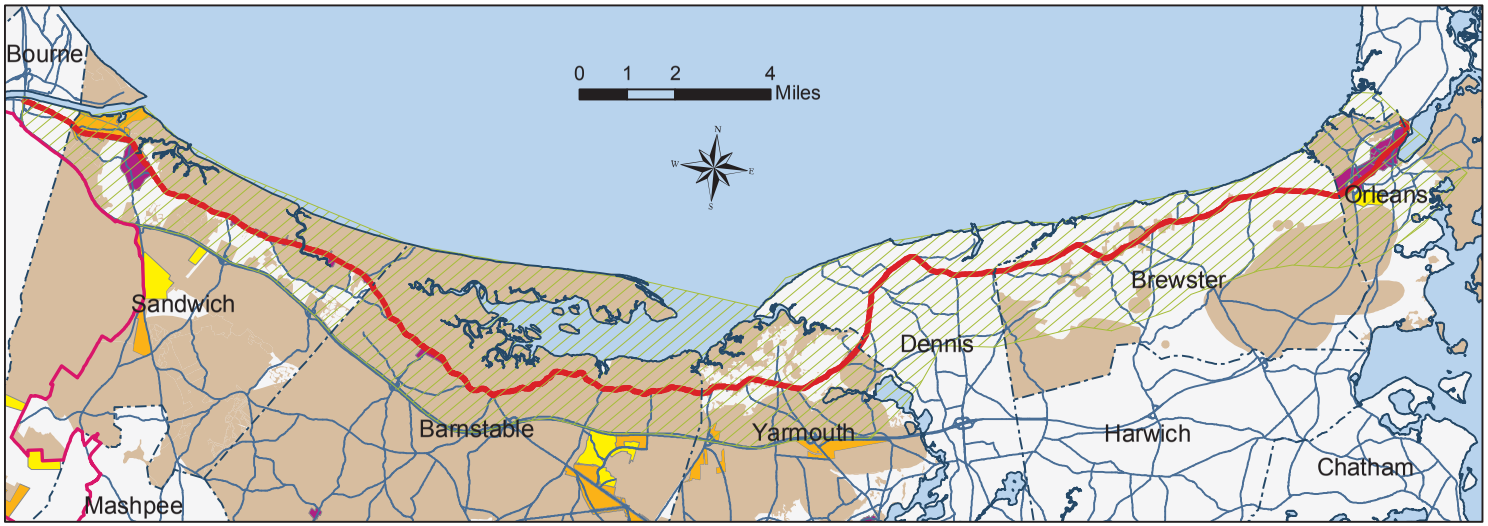
The towns have adopted minor changes regarding allowed uses, either by prohibiting certain uses or by requiring special permit authorization. Orleans, for example, adopted a prohibition on auto sales in the Village Center District following a proposal to construct a car dealership on Route 6A.

☐ Rezone linear general or highway business districts to residential or residential business with identified nodes zoned for village business to ensure development which is compatible with the existing character of the corridor.

No such zoning changes have been adopted. However, the Cape Cod Commission has been working with the towns to create a Regional Land Use Vision Map (LUVM) for Cape Cod that articulates a growth policy for the region in a map format. The map identifies areas to focus growth and redevelopment efforts as well as resource protection areas where significant change may not be appropriate. Five Route 6A towns have completed the map (Sandwich, Barnstable, Yarmouth, Brewster, and Orleans), with the sections of the 6A corridor mapped as "Village Areas" and "Resource Protection Areas." Sandwich also designated the area on the north side of the corridor by the Stop and Shop plaza as an "Economic Center." (See the following map, Figure 2.)

Figure 2

Route 6A Corridor Management Plan Update - Land Use Vision Map



Land Use Vision Map 2009

- Economic Center
- Industrial And Service Trade Area
- Village
- Resource Protection Area
- MMR Boundary
- Town Boundary
- Shore
- Route 6A Study Area
- Route 6A
- Major Roads

This represents the study area for the Route 6A Corridor Management Plan Update and the Land Use Vision Map areas designated for the 2009 Regional Policy Plan. Five of the seven Route 6A Corridor towns have approved a Land Use Vison Map. (Sandwich, Barnstable, Yarmouth, Brewster, and Orleans)

Data Sources: MassGIS Executive Office of Environmental Affairs, and the Cape Cod Commission's Geographic Information System Department. This map was produced by the Cape Cod Commission's Geographic Information System Department a division of Barnstable County on May 4, 2010. Comments and corrections are welcome at the Cape Cod Commission office.
This map is illustrative and all depicted boundaries are approximate.

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☐ Develop improved performance standards for parking lots, access, landscaping, building design, and signage.

No significant changes have been adopted. The town of Brewster reduced numeric parking standards in its Corridor Overlay Protection District and adopted minor changes in the sign code. Orleans adopted minor changes to architectural guidelines and also adopted lighting regulations.

☐ Establish DCPCs to reduce build-out, traffic congestion, or to maintain character of the roadway.

The town of Dennis designated the Quivett Neck/Crowe's Pasture District of Critical Planning Concern (DCPC) in March 2002 to protect natural, historic, water, and coastal resources and to manage residential growth on nearly 250 acres in East Dennis. The designation of the district and its resource protection zoning bylaw help preserve the character of the area and in particular, scenic views from the Route 6A corridor.

Barnstable nominated the Pond Village DCPC in 2006 to protect the water quality of a freshwater pond and a portion of Barnstable Harbor and the scenic and historic character of a 115-acre area located on the north side of Route 6A near Barnstable Village. Although special implementing regulations for the district were not adopted, the Barnstable Town Council voted to approve a zoning change that increased the minimum lot size in the area, thereby reducing build-out potential and reducing potential trip generation as well as protecting water, scenic, and other resources.

☐ Adopt mixed-use development bylaws to reinforce traditional village settings.

No mixed-use bylaws have been adopted.

☐ Adopt incentives for improvements to strip developments.

Incentives could include flexible zoning and parking requirements to encourage design improvements and shared parking. No such incentives have been adopted.

1995 CMP VISITOR FACILITIES RECOMMENDATIONS

The goal of the CMP's recommendations (as identified below) related to visitor facilities was to better convey the significance of the Route 6A corridor and its attributes while having limited impact on the values that make it attractive.

Several recommendations from other sections of the plan also contribute to increased public visibility and increased awareness of the corridor's attractions.

☐ Establish a network of walking trails to encourage pedestrian travel and provide links to activity centers along the corridor.

Through Barnstable County's Cape Cod Pathways program new walking trails have been established in the vicinity of Route 6A in Barnstable Village and near the Route 6A corridor in Brewster. A map of these and other trail connections including the Directory of Cape Cod Walking Trails is available on the Pathways website:

www.capecodcommission.org/pathways/home.htm

☐ Provide interpretive facilities to encourage appreciation of corridor resources.

Phase 2 of the Scenic Byways Study included the development of conceptual designs for interpretive facilities that could be accommodated at existing visitor facilities and public locations. The designs were based on comments received from the Route 6A Scenic Byways Advisory Committee, Cape Cod Commission staff, and input from representatives of existing facilities along the corridor. No interpretive facilities were installed, as consensus on design was not reached.

☐ Develop partnerships with existing facilities to disseminate visitor information.

This recommendation sought to encourage interpretive panels or posters about Route 6A at existing museums, libraries, and chambers of commerce along Route 6A, thereby avoiding the need for new signage along the road corridor. Consensus on design or content was not reached and the recommendation was not pursued.

☐ Create a brochure to convey the history and significance of the roadway.

The Cape Cod Commission, with assistance of a graphic designer and guidance by the Route 6A Scenic Byways Advisory Committee, produced a brochure in 1999 that includes a short narrative history of the region's development, a listing of scenic byway attractions, a stylized map of the corridor, and historic and current photographs of the roadway's distinctive features. The brochure also provides information on the need for safety and the benefits of exploring the corridor through alternate modes of transportation.

With the assistance of a graphic designer and input from local historians, the Cape Cod Commission issued a brochure in 2000 entitled *A Historic Walking Tour of Old King's Highway*. The brochure includes a stylized historic map of the corridor with illustrated symbols marking the sites of historic and scenic/natural resource interest, plus a short description of each site.

☐ Provide site furnishings consistent with the character of the roadway.

In 1995, through funding under the Scenic Byways Program Phase 2, the Cape Cod Commission contracted the services of various designers for site and landscape design improvements at four locations along the corridor. Proposed furnishings included pedestrian lighting, benches, and bicycle racks. In Orleans village center, picnic tables, bike racks, and a bulletin board were installed adjacent to the bike trail parking area.

☐ Develop pedestrian, bicycle, and alternate transportation mode linkages to encourage non-auto visitation of Route 6A.

The Cape Cod Commission released the *Route 6A – Alternate Modes Assessment*, which includes a sidewalk maintenance plan and identifies potential new sidewalk locations. As noted above, the Orleans village section of the Cape Cod Rail Trail, adjacent to Route 6A, was upgraded with various amenities that attract visitors into the village/downtown area on foot and bicycle.

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Public Participation Process

QUESTIONNAIRE

Commission staff used a Web-based questionnaire to help gather public input about Route 6A issues for the 2009 Update. The questionnaire posed about 30 questions on summer-season and off-season travel experiences on Route 6A and on the types of travel modes (automobile, public transit, bicycle, pedestrian) respondents use. It also asked respondents to identify transportation problem areas and to suggest potential solutions to concerns. The questionnaire included additional questions for owners of businesses along the corridor. (See "2009 Questionnaire" in Appendix.)

Results from the questionnaire are consistent with public comments received throughout the development of the 1995 CMP and at many public meetings since then. Highlights from the questionnaire are provided below:

☐ Travel Choices

Almost 55 percent of respondents rated the Scenic Byway as "good" for car travel; and less than 5 percent rated it as "poor." None of the respondents classified it as "unacceptable" for car travel. This is in stark contrast to how respondents viewed Route 6A's travel by other means. Almost 46 percent rated its public transit function as "poor" (only 8.6 percent said "good"). For bicycling, almost 47 percent stated it was "unacceptable" (less than 2 percent said it was "good"). Walking along the Route 6A was considered by more than 42 percent to be "poor" (less than 12 percent rated it as "good").

☐ Solutions

Respondents' perceptions of acceptable transportation solutions mirror many of the recommendations of the original 1995 CMP. The following table displays responses regarding solutions.

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Table 1 - Results for Route 6A Questionnaire:
Summary/Tally of Responses to Potential Solutions

	Extremely Ineffective/ Uncceptable	Somewhat Ineffective/ Unacceptable	Neutral/No Harm or Benefit	Somewhat Effective/ Acceptable	Extremely Effective/ Acceptable
roadway widening to increase width of travel lanes	**47.3% (53)**	22.3% (25)	15.2% (17)	7.1% (8)	8.0% (9)
narrowing of travel lanes to reserve width for others (e.g., bikes & pedestrians)	**43.2% (48)**	26.1% (29)	1.8% (2)	22.5% (25)	6.3% (7)
roadway widening to provide width for others (e.g., bikes & pedestrians)	**32.4% (36)**	25.2% (28)	6.3% (7)	19.8% (22)	16.2% (18)
ban/restrict large vehicles (trucks, tour buses, etc.)	10.6% (12)	18.6% (21)	20.4% (23)	23.9% (27)	**26.5% (30)**
add/improve public transportation (local/regional bus service)	7.0% (8)	4.4% (5)	22.8% (26)	**43.9% (50)**	21.9% (25)
install amenities for public transit users (e.g., benches, shelters, bus pullout areas)	16.8% (18)	9.3% (10)	26.2% (28)	**35.5% (38)**	12.1% (13)
pedestrian paths offset from the roadway	4.4% (5)	2.7% (3)	10.6% (12)	37.2% (42)	**45.1% (51)**
multi-use (bikes, etc.) paths offset from the roadway	6.3% (7)	8.0% (9)	8.0% (9)	31.3% (35)	**46.4% (52)**
traditional intersection improvements (e.g., turning lanes, traffic signals)	22.5% (25)	16.2% (18)	9.9% (11)	**33.3% (37)**	18.0% (20)
"Traffic Calming" techniques to reduce excessive speed (e.g, roundabouts, changes in pavement texture, short sections of lane narrowing, etc)	24.1% (27)	14.3% (16)	17.9% (20)	**25.0% (28)**	18.8% (21)
remove roadside hazards including historic trees	**59.5% (66)**	18.9% (21)	4.5% (5)	11.7% (13)	5.4% (6)
reduce route 6A traffic by reintroducing passenger rail service to Cape Cod	17.1% (20)	11.1% (13)	21.4% (25)	17.1% (20)	**33.3% (39)**
reduce future increases in traffic by acquiring developable land for conservation	16.5% (19)	5.2% (6)	16.5% (19)	13.0% (15)	**48.7% (56)**
remove signage to reduce distraction	19.3% (21)	16.5% (18)	**31.2% (34)**	19.3% (21)	13.8% (15)
install additional signage for guidance and information (e.g, street name signs)	12.6% (14)	15.3% (17)	24.3% (27)	**36.0% (40)**	11.7% (13)

Source: Cape Cod Commission Transportation Program

ROUTE 6A CORRIDOR MANAGEMENT PLAN STEERING COMMITTEE

A steering committee of Cape Cod Commission members from the Route 6A towns held public informational meetings on the Update to present the plan and hear comments from the public. Should the recommendation to designate a pilot section of Route 6A for implementation of improvements be funded, the steering committee will guide selection of the location.

PUBLIC COMMENT

Cape Cod Commission staff gathered comments received at the public meetings, written comments, and telephone comments and presented them to the steering committee. A summary of public comments is provided in the Appendix.

The main issues raised by members of the public in their comments concerned excessive traffic speeds along the corridor; burial of underground utility lines; preserving existing width and character of roadway; providing sidewalks and pedestrian amenities; and improving bicycle safety.

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Transportation

Route 6A, a state highway, is the main roadway within the Old King's Highway Regional Historic District. It is classified as an Urban Collector ("U5") from its western origin near the Cape Cod Canal area to Route 134 in the town of Dennis. Eastward to the Orleans/Eastham Rotary the road is classified as an Urban Extension of a Rural Minor Arterial ("U3"). Route 6A has characteristics typical of an urban/suburban roadway, with its high traffic volumes and numerous activity centers. Residential use dominates the corridor, with commercial uses scattered throughout. Numerous major regional roads intersect Route 6A, and traffic volumes vary considerably along its length.

Transportation planning plays a role in all of the CMP goals and primary strategies (listed below). The Update seeks to advance the CMP goals and continue the dialogue with the public to refine the existing and propose new CMP strategies.

☐ CMP Goals

- Preserve the character and scale of the roadway;
- Address transportation pressures on the roadway;
- Protect the historic, scenic and environmental resources along the corridor;
- Enhance safety for all roadway users - pedestrians, bicyclists, and motorists;
- Promote coordination between agencies with jurisdiction over the corridor; and
- Increase awareness of the roadway's significance.

☐ Primary Strategies to Achieve Goals

- Enhance protection of intrinsic resources;
- Adopt land-use and zoning regulations;

- Develop alternative designs for transportation and roadway improvements;
- Promote access management planning;
- Encourage opportunities for alternate transportation modes;
- Develop partnerships with existing visitor facilities along the corridor.

TRANSPORTATION CHANGES SINCE THE 1995 CMP

TRAFFIC LEVELS

Overall summer traffic volumes on Route 6A have declined by an average of 1.79 percent per year during the period from 1997 to 2007, with shorter-term increases in traffic and localized variations (both positive and negative). The causes of the decline may be attributed to the larger trends affecting New England (i.e., declining population, increased fuel costs, changing demographics, etc.). One should not assume the trend will continue indefinitely or that lower traffic volumes on Route 6A have become the norm, as the sources of traffic along the Scenic Byway and the surrounding region continue to exist. The vast supply of existing housing units together with new construction may in the future generate higher traffic volumes on Route 6A and throughout the Cape in general.

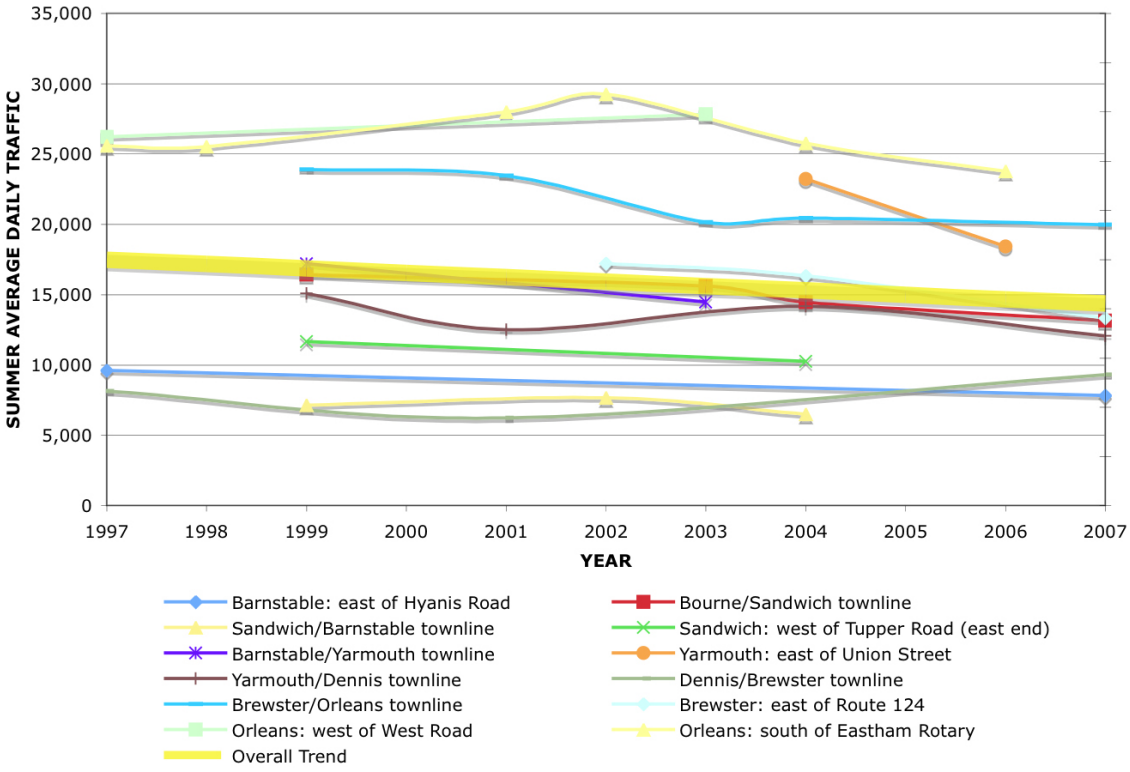
Figure 3 (next page) shows traffic trends on Route 6A at 12 different locations (indicated by the various colored lines) where data were collected during the summer (July or August) for at least two different years during the period 1997–2007. (The analysis software is limited to 10-year periods). The thick yellow line represents the overall trend of Route 6A traffic volumes, showing a total ten-year decline of almost 17 percent. This decline is in contrast to traffic counts collected throughout Cape Cod that showed a slight average increase of 0.16 percent per year (1.69 percent total increase for the 10-year period 1997–2007).

ROADWAY INFRASTRUCTURE

The roadway surface has generally been retained in its original dimensions, with resurfacing and basic maintenance activities having occurred periodically in the

various communities. The most notable changes occurred in Sandwich, where the overall travel width was reduced to conform more closely to the character of the other communities; sidewalks were added along portions of the road as well.

Figure 3 – Route 6A Traffic Volumes 1997–2007



Source: Cape Cod Commission Traffic Counting Program

BICYCLE & PEDESTRIAN FACILITIES

The 1995 CMP identified sidewalks of varying quality in each of the Route 6A communities. MassDOT's latest roadway inventory shows a lower amount of sidewalks than indicated in the CMP. This is partly due to MassDOT's use of an "official" definition of a sidewalk: a minimum of three feet in width and meeting the standards of access for people with disabilities. It is unlikely that any pedestrian facilities have been removed since 1995; in fact, new/improved pedestrian facilities have been installed in several towns.

The apparent reduction in pedestrian facilities shown in Table 2, therefore, reflects two different methods of accounting for sidewalks rather than a comparison of sidewalk length.

Table 2 – Route 6A Sidewalk Lengths (in feet): 1995* and 2006†

Town	Northside Sidewalk		Southside Sidewalk		Total		Route 6A Roadway Length (Both sides)		Percent of Route 6A with Sidewalk Total	
	1995*	2006†	1995*	2006†	1995*	2006†	1995*	2006†	1995*	2006†
Bourne	2,841	1,774	0	5,939	2,841	7,713	6,696	11,879	42	65
Sandwich	3,147	1,828	2,378	2,719	5,525	4,547	79,094	78,672	7	6
Barnstable	16,034	12,265	17,466	2,284	33,500	14,549	88,768	89,022	38	16
Yarmouth	9,407	4,202	1,893	10,977	11,300	15,179	39,283	39,249	29	39
Dennis	6,822	0	2,873	4,574	9,695	4,574	44,986	44,981	22	10
Brewster	10,860	0	5,377	8,525	16,237	8,525	82,157	82,119	20	10
Orleans	7,696	865	5,023	7,005	12,719	7,870	22,282	21,375	57	37
Total	56,807	20,934	35,01	42,023	91,817	62,957	363,266	367,297	25	17

Sources: 1995 Route 6A Corridor Management Plan; and Massachusetts Highway Department 2006 Roadway Inventory File

* The 1995 CMP identified 91,817 total feet of sidewalk, which includes the lengths of sidewalks on both sides of Route 6A (where they occur). Orleans had the highest percentage of sidewalk availability along the corridor and Sandwich had the lowest. The methodology used to define the availability of a sidewalk included the "unofficial" paths that may not have been designed according to ADA standards.

† MassDOT's roadway inventory file shows 62,957 total feet of sidewalk along Route 6A. The inventory may only include "qualified" sidewalks (e.g., those meeting ADA standards) and may be incomplete where updated information was available. The inventory identifies Bourne as having the highest percentage of available sidewalks along the route and Sandwich as having the lowest.

PROBLEM IDENTIFICATION

SAFETY

The highest priority transportation goal of Cape Cod's major planning processes (as discussed in the Regional Transportation Plan and Regional Policy Plan) is to maintain and improve the level of safety for all users. MassDOT provided the Cape Cod Commission with geographically located crash records for the years 2005-2006. These records form the basis for identifying hazardous locations along the Route 6A corridor. As part of this analysis, the severity of crashes is considered through a measure known as the Equivalent Property Damage Only (EPDO). The EPDO assumes that each Property

Damage Only crash is valued at "1," Injury crashes are valued at "5," and Fatality crashes are valued at "10."

ROUTE 6A CRASHES

The following figures show the locations of crashes along the Route 6A corridor. For consistency, MassDOT used a 115-foot "buffer" on each side of the Route 6A centerline. MassDOT selected this buffer after a review of individual crashes along Route 6A, finding that crashes beyond the buffer were no longer in the operational area of the roadway. The maps and tables presented in this section include all crashes along Route 6A regardless of whether these occur at intersections or are isolated along segments of the road.

Figure 4 – Route 6A Crashes: Overview

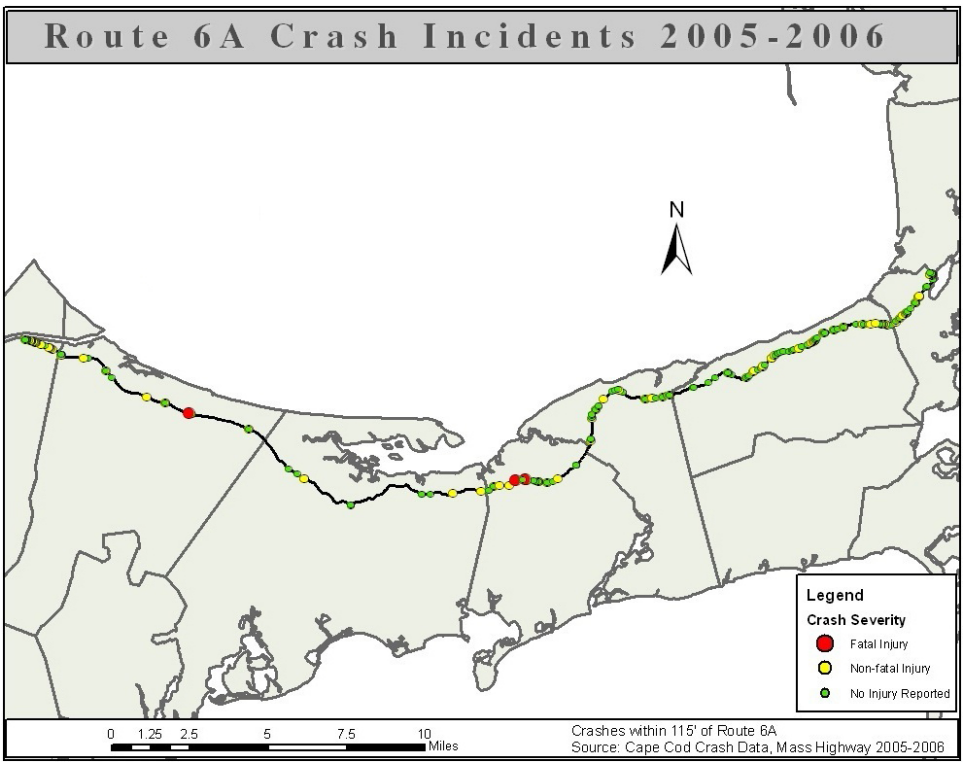
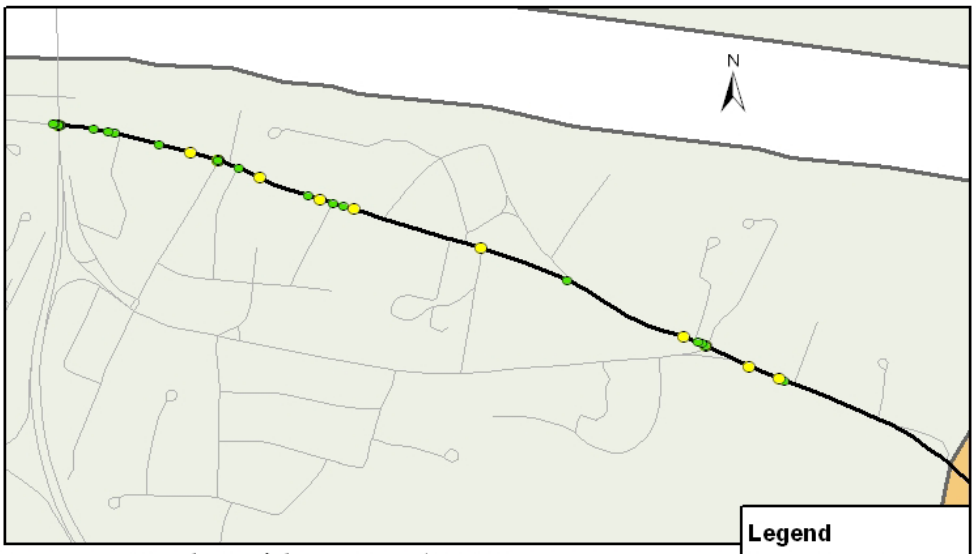
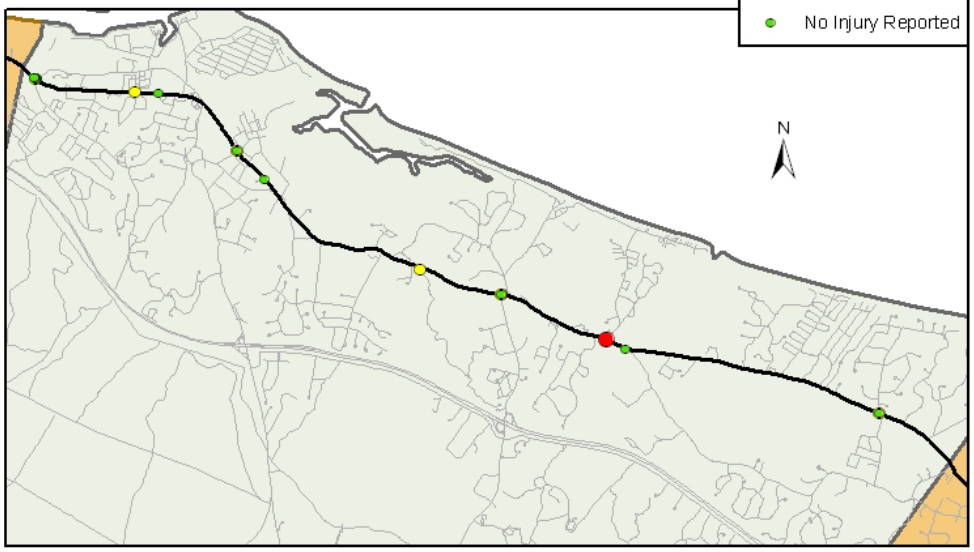


Figure 5 – Route 6A Crashes: Bourne & Sandwich



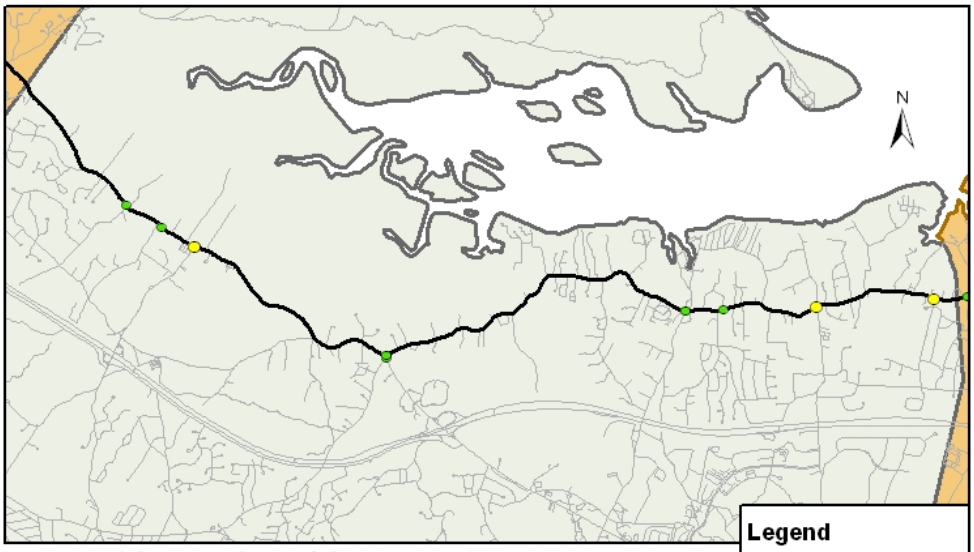
Bourne Crash Incidents 2005-2006



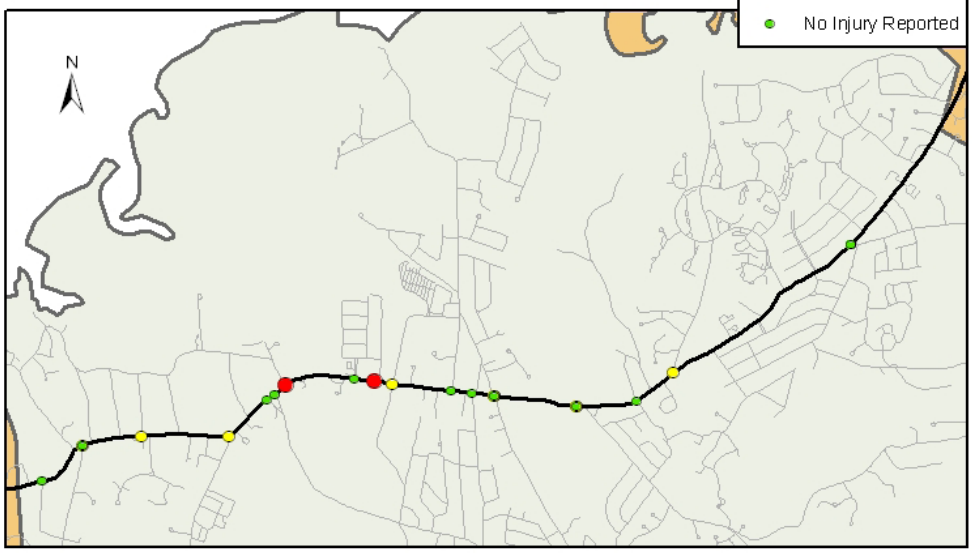
Sandwich Crash Incidents 2005-2006

Crashes within 115' of Route 6A
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Figure 6 – Route 6A Crashes: Barnstable & Yarmouth



Barnstable Crash Incidents 2005-2006



Yarmouth Crash Incidents 2005-2006

Crashes within 115' of Route 6A
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

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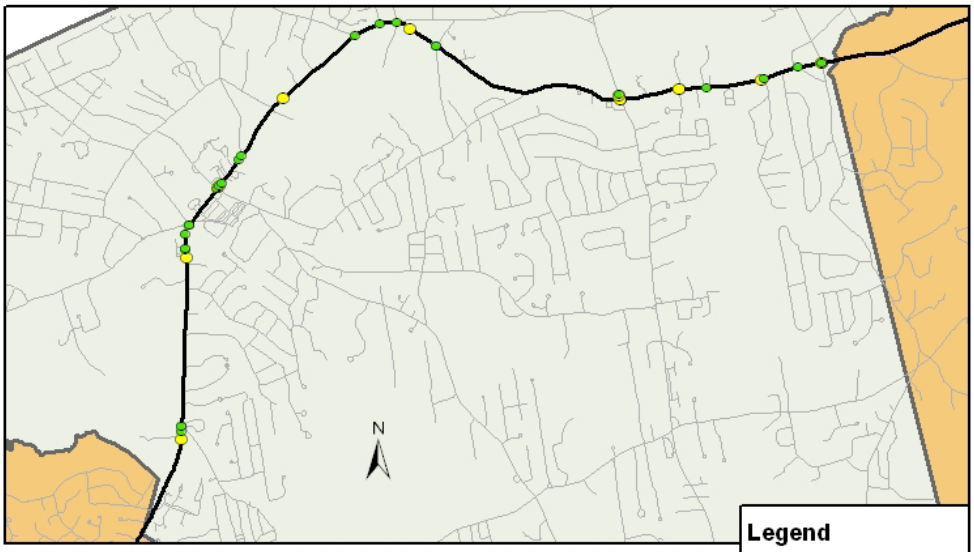
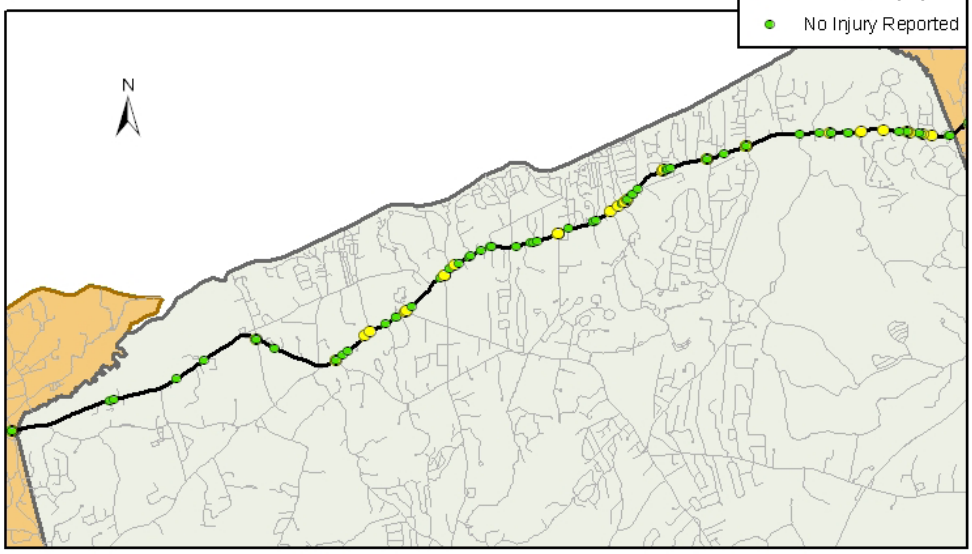
COMMISSION

Figure 7 – Route 6A Crashes: Dennis & Brewster



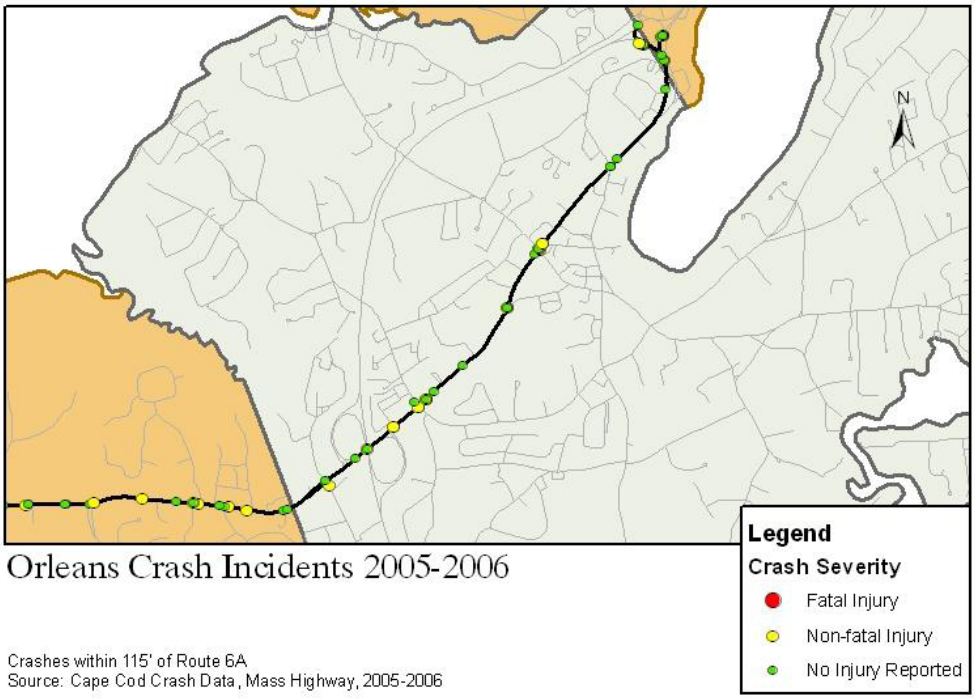
Dennis Crash Incidents 2005-2006



Brewster Crash Incidents 2005-2006

Crashes within 115' of Route 6A
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Figure 8 – Route 6A Crashes: Orleans



The following charts show Route 6A crashes organized by various characteristics:

Figure 9 – Route 6A Crash Severity

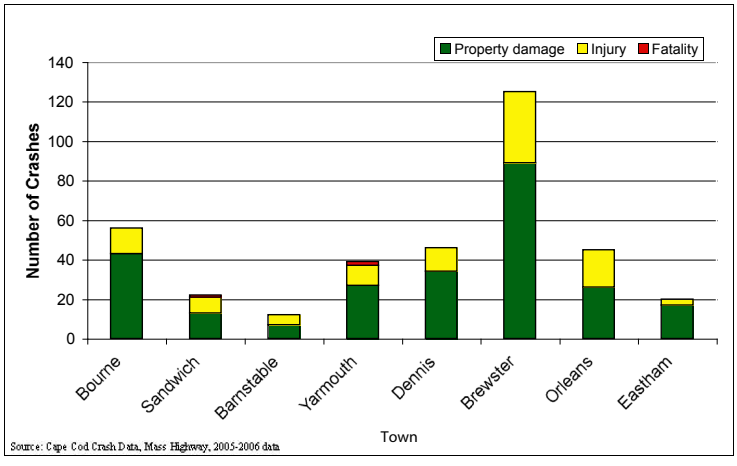


Figure 9 shows the severity of Route 6A crashes for each town along the corridor. “Property damage” (only) crashes are indicated in green; “injury” crashes

are yellow, and "fatality" crashes are indicated in red. Brewster had the highest overall number of reported crashes (125) during the two-year span of data and Barnstable had the fewest (12). Yarmouth had two recorded fatality crashes. It is important to remember that traffic volumes and distance of roadway vary by town; both are important factors that affect the total number of crashes, as does the rate of reporting.

Figure 10 – Route 6A Crash Type

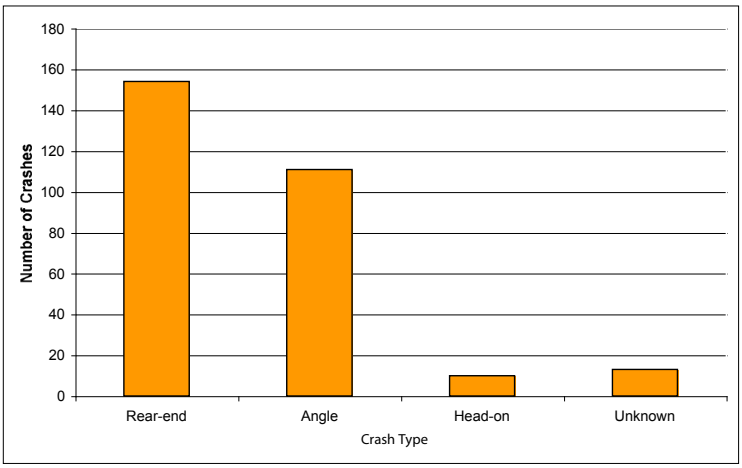


Figure 10 shows the incidence of crashes by type. The most frequent reported crash type is "rear-end" with 154 crashes for the years 2005–2006.

Figure 11 – Route 6A Crashes by Time of Day

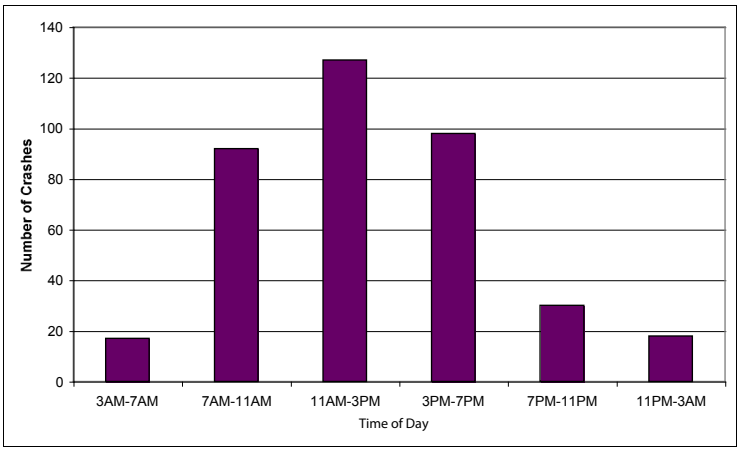


Figure 11 indicates the number of crashes reported during differing periods of the day. The 11 AM – 3 PM timeframe had the most (127 crashes), while the 3 AM – 7 AM period had the fewest (17 crashes).

Figure 12 – Route 6A Crashes by Time of Year

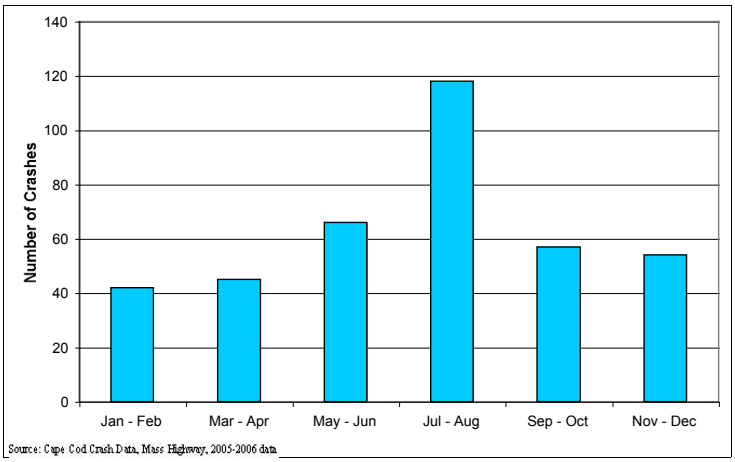


Figure 12 shows the reported crashes for differing times of the year during 2005–2006. July–August had the most reported crashes (118) and January–February had the fewest (42) crashes.

Figure 13 – Route 6A Crashes by Day of Week

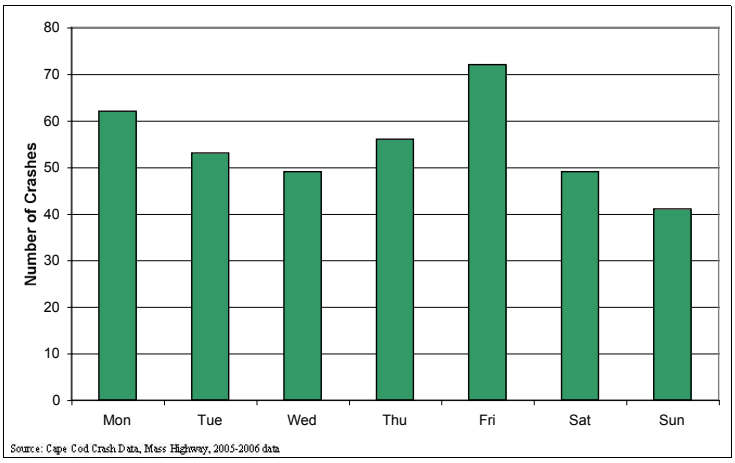


Figure 13 shows the reported crashes during differing days of the week for 2005–2006. The most crashes were reported for Friday (72) and the fewest were reported for Sunday (41).

Figure 14 – Route 6A Crashes by Lighting Condition

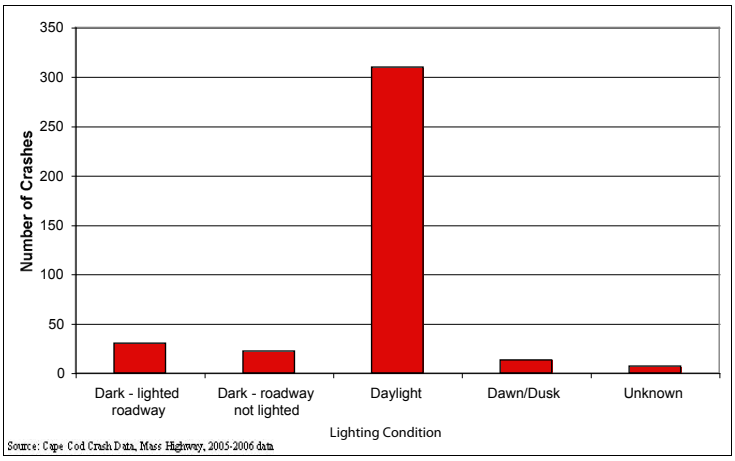


Figure 14 shows the number of reported crashes for differing lighting conditions for 2005–2006. "Daylight" included the most crashes (310). This is consistent with the proportion of hours and heavy traffic volumes that occur during the day.

Figure 15 – Route 6A Crashes by Weather Type

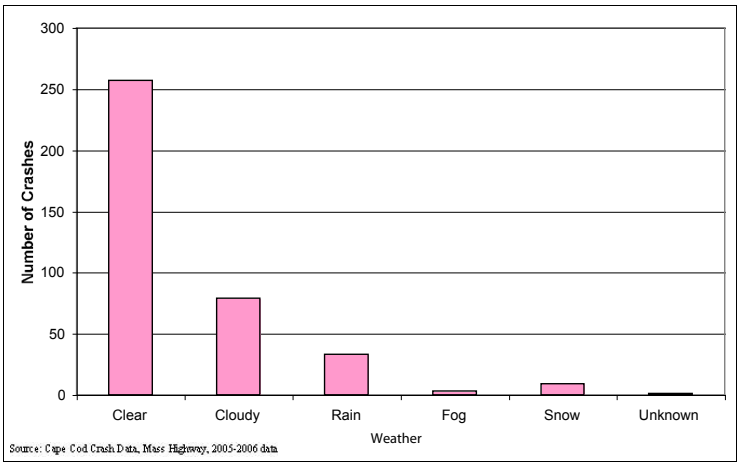


Figure 15 shows the incidence of crashes during different types of weather. "Clear" conditions account for the highest number of crashes (257) during 2005–2006. This is likely due to the majority of the time that weather is reported as clear versus other types and may not be an indicator that traveling during clear weather is more dangerous than during other weather conditions.

Figure 16 – Route 6A Crashes by Surface Condition

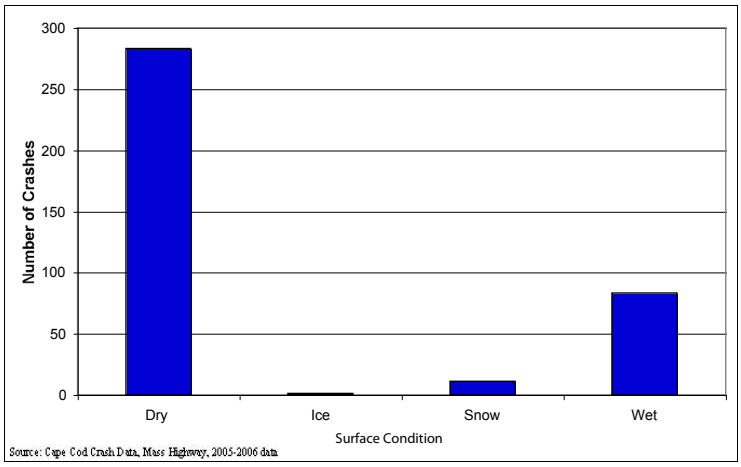


Figure 16 shows the number of reported crashes during differing surface conditions for 2005–2006. "Dry" conditions account for the highest number of crashes (283). This is likely due to the majority of the time that the roadway surface is reported as dry versus other types and may not be an indicator that traveling on dry surfaces is more dangerous than other surface conditions.

INTERSECTION CRASHES

Using the principle of the 115-foot buffer described in the previous section, Cape Cod Commission staff assigned crashes located inside of a 115-foot circle of each intersection to that intersection. This allows for analysis of clusters of crashes for identifying trends and patterns of crashes at the most affected locations. These crashes are a subset of the overall analyses presented in the previous section. For each intersection where crashes have been identified, an overall EPDO score has been calculated. As discussed previously EPDO, the Equivalent Property Damage Only, is calculated by multiplying each Injury crash by 5 and each Fatality crash by 10. These results are added to the number of "property damage only" crashes for the two years (2005–2006) of available data. A high EPDO score can therefore reflect a large number of low-severity (e.g., property damage only) crashes or a relative few higher-severity crashes (e.g., injury and fatality).

Figure 17 – Route 6A Intersection (EPDO) Crashes: Overview

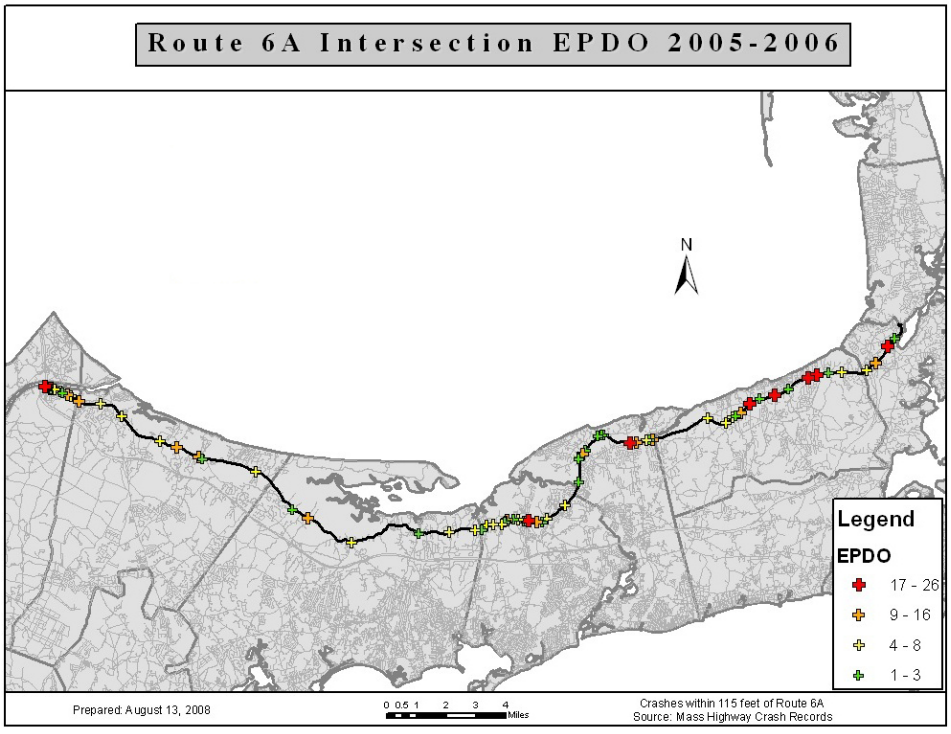
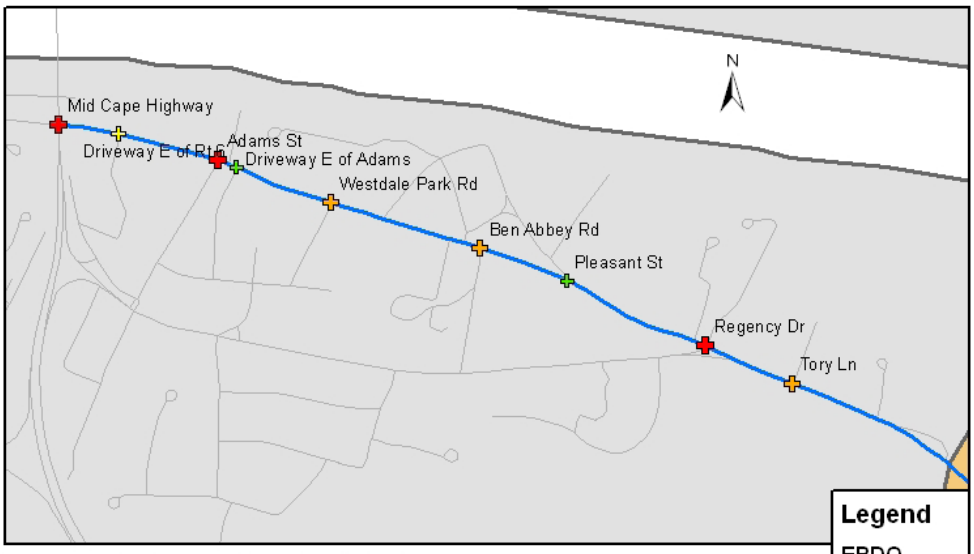
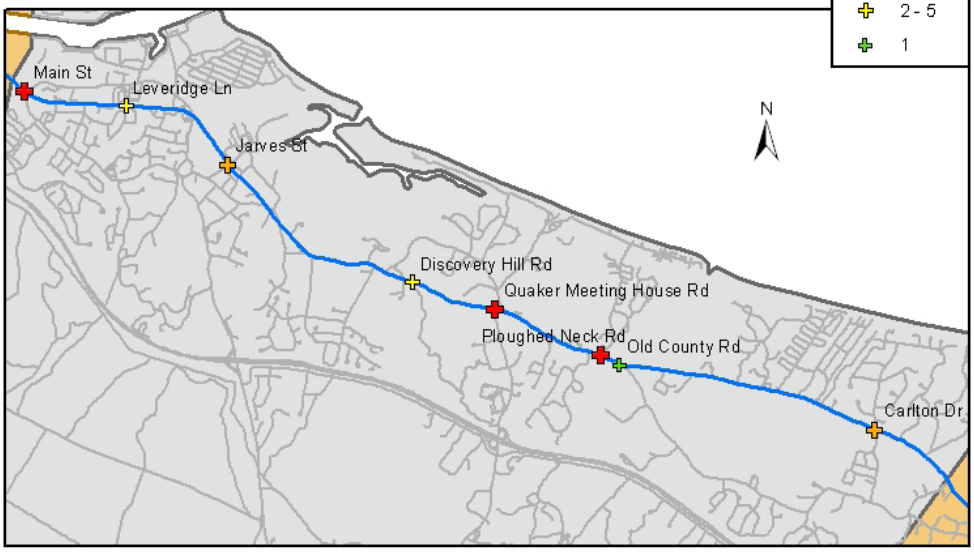


Figure 18 – Route 6A Intersection (EPDO) Crashes: Bourne & Sandwich

*Bourne crashes: Since Route 6 and Route 6A do not intersect in Bourne, it is possible that this was a default location used by MassDOT when recording the data.



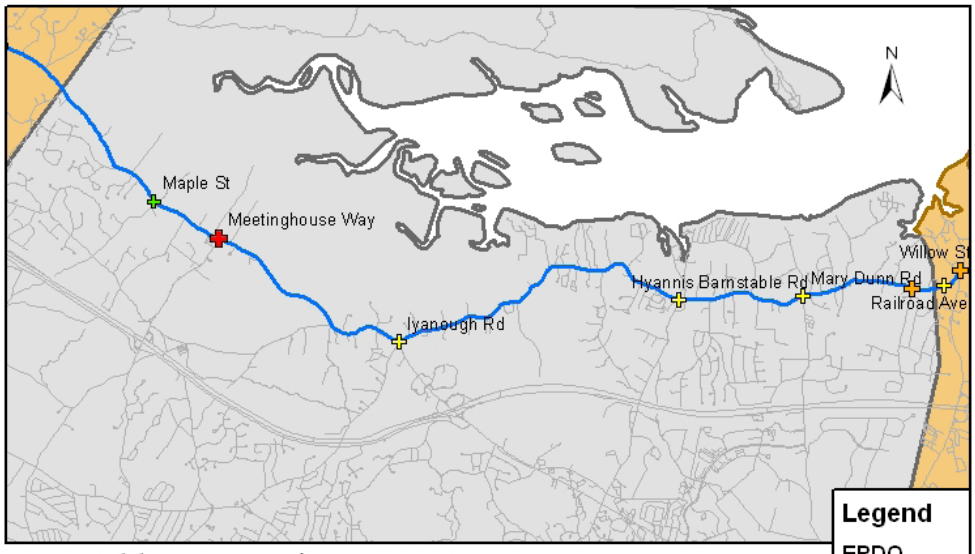
Bourne Intersection EPDO



Sandwich Intersection EPDO

Equivalent Property Damage Only, crashes within a 115' radius of the intersection
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Figure 19 – Route 6A Intersection (EPDO) Crashes: Barnstable & Yarmouth

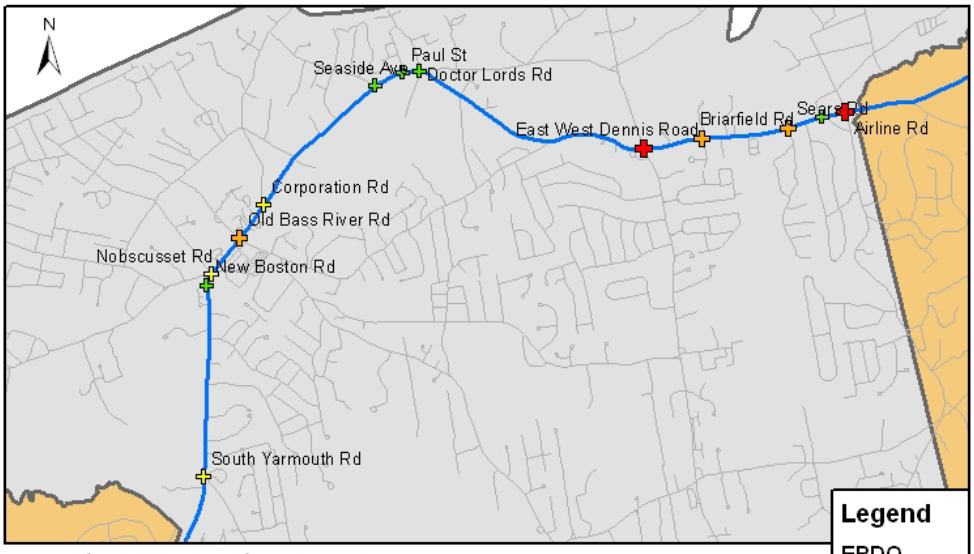


Barnstable Intersection EPDO

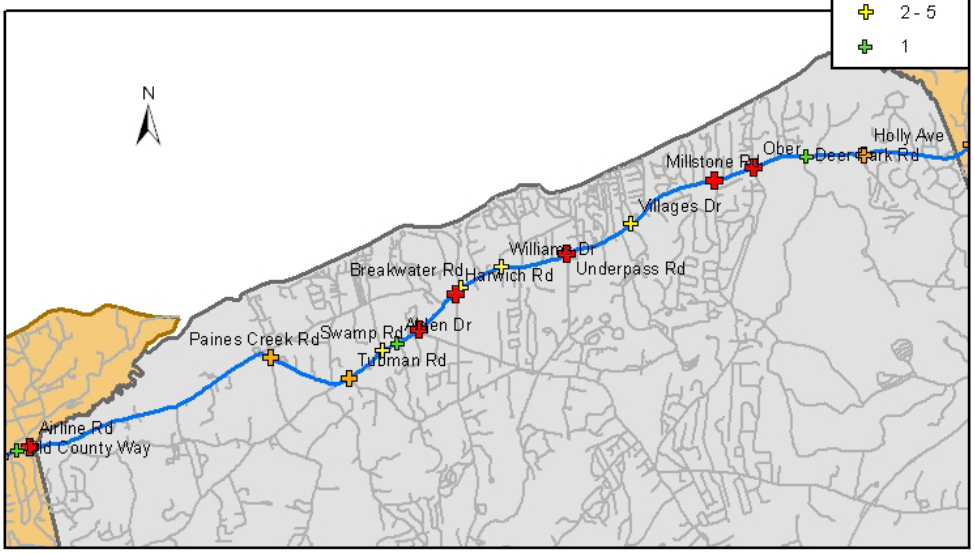
Yarmouth Intersection EPDO

Equivalent Property Damage Only, crashes within a 115' radius of the intersection
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Figure 20 – Route 6A Intersection (EPDO) Crashes: Dennis & Brewster



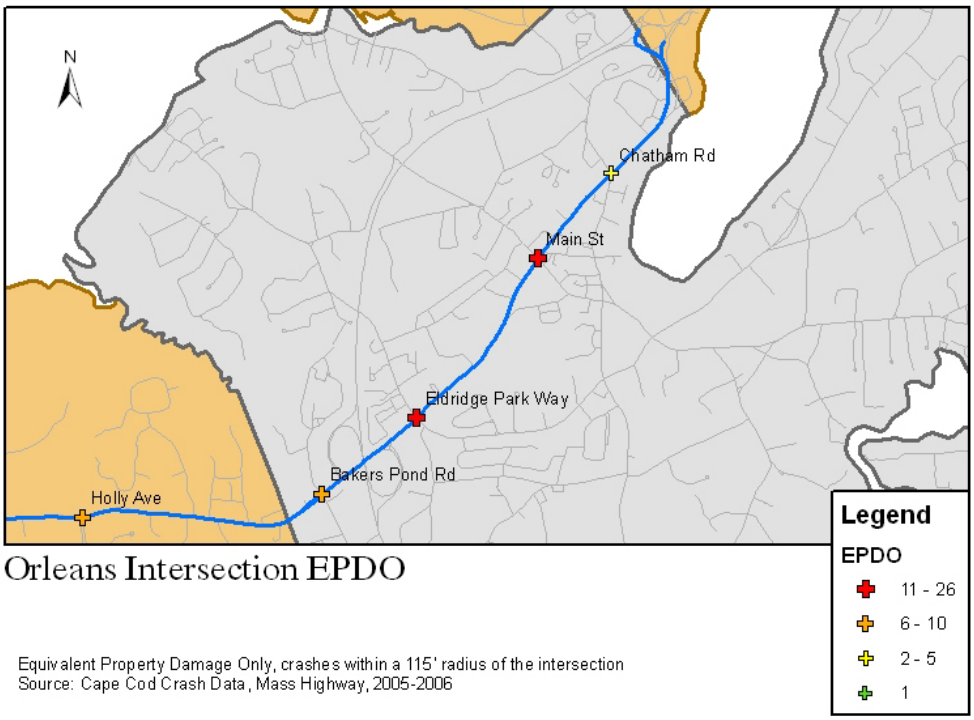
Dennis Intersection EPDO



Brewster Intersection EPDO

Equivalent Property Damage Only, crashes within a 115' radius of the intersection
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Figure 21 – Route 6A Intersection (EPDO) Crashes: Orleans



Orleans Intersection EPDO

Equivalent Property Damage Only, crashes within a 115' radius of the intersection
Source: Cape Cod Crash Data, Mass Highway, 2005-2006

Table 3 (next page) summarizes and prioritizes Route 6A intersections according to the severity of recorded crashes. Using the EPDO for each intersection, four ranking categories ("tiers") are listed. Tier 1, the most severe category, includes intersections that have experienced an EPDO ranging from 11 to 26.

Tier 1 intersections form the basis for prioritizing safety improvements. It is interesting to note that the intersection of Adams Street with Route 6A in Bourne serves as a "cut-through" for motorists circumventing the access road to and from westbound Route 6 Interchange 1. The Cape Cod Regional Transportation Plan has recommended restrictions at the on-ramp to reduce the diversion to Route 6A of motorists who avoid staying on Route 6 westbound as they approach the Sagamore Bridge. Restrictions at Exit 1 would likely reduce unnecessary westbound traffic on Route 6A destined for this area from locations as far as Route 132 in Barnstable.

Table 3 – Route 6A Intersections – Equivalent Property Damage Only (EPDO)

Tier 1 (EPDO 11-26)		EPDO	Tier 2 (EPDO 6-10)		EPDO
Adams St	Bourne	26	Briarfield Rd	Dennis	10
Harwich Rd (Route 124)	Brewster	24	Old Bass River Rd	Dennis	10
East West Dennis Rd (Route 134)	Dennis	23	Church St	Yarmouth	10
Union St	Yarmouth	21	Paines Creek Rd	Brewster	8
Ober Rd	Brewster	20	Tubman Rd	Brewster	8
Underpass Rd	Brewster	20	Willow St	Yarmouth	8
Main St	Orleans	18	Ben Abbey Rd	Bourne	7
Mid Cape Highway*	Bourne	17	Holly Ave	Brewster	7
Millstone Rd	Brewster	17	Marstons Ln	Barnstable	6
Main St (Route 130)	Sandwich	16	Tory Ln	Bourne	6
Regency Dr	Bourne	13	Westdale Park Rd	Bourne	6
Quaker Meetinghouse Rd	Sandwich	13	Sears Rd	Dennis	6
Meeting House Way (Route 149)	Barnstable	12	Bakers Pond Rd	Orleans	6
Airline Rd	Dennis	12	Carlton Dr	Sandwich	6
Eldredge Park Way	Orleans	12	Jarves St	Sandwich	6
Weir Rd	Yarmouth	12	Ginger Bread Ln	Yarmouth	6
Long Pond Rd (Route 137)	Brewster	11	Setucket Rd	Yarmouth	6
Ploughed Neck Rd	Sandwich	11			
Tier 3 (EPDO 2-5)		**EPDO**	**Tier 4 (EPDO 1)**		**EPDO**
Mary Dunn Rd	Barnstable	5	Maple St	Barnstable	1
Swamp Rd	Brewster	5	Driveway beside Adams	Bourne	1
Discovery Hill Rd	Sandwich	5	Pleasant St	Bourne	1
Leveridge Ln	Sandwich	5	Alden Dr	Brewster	1
Hockanom Rd	Yarmouth	5	Deer Park Rd	Brewster	1
Summer St	Yarmouth	5	Doctor Lords Rd	Dennis	1
Winter St	Yarmouth	5	New Boston Rd	Dennis	1
Iyanough Rd (Route 132)	Barnstable	4	Old County Way	Dennis	1
Driveway beside Mid CH	Bourne	3	Paul St	Dennis	1
Villages Dr	Brewster	3	Seaside Ave	Dennis	1
Williams Dr	Brewster	3	Old County Rd	Sandwich	1
Nobscusset Rd	Dennis	3	Frances Helen Rd	Yarmouth	1
South Yarmouth Rd	Dennis	3	Red Jacket Rd	Yarmouth	1
Chatham Rd	Orleans	3	Strawberry Ln In	Yarmouth	1
Hyannis Barnstable Rd	Barnstable	2	West Yarmouth Rd	Yarmouth	1
Breakwater Rd	Brewster	2			
Corporation Rd	Dennis	2			
Center St	Yarmouth	2			
Railroad Ave	Yarmouth	2			
Strawberry Ln Out	Yarmouth	2			

Source: Cape Cod Crash Data, Mass Highway, 2005–2006 data

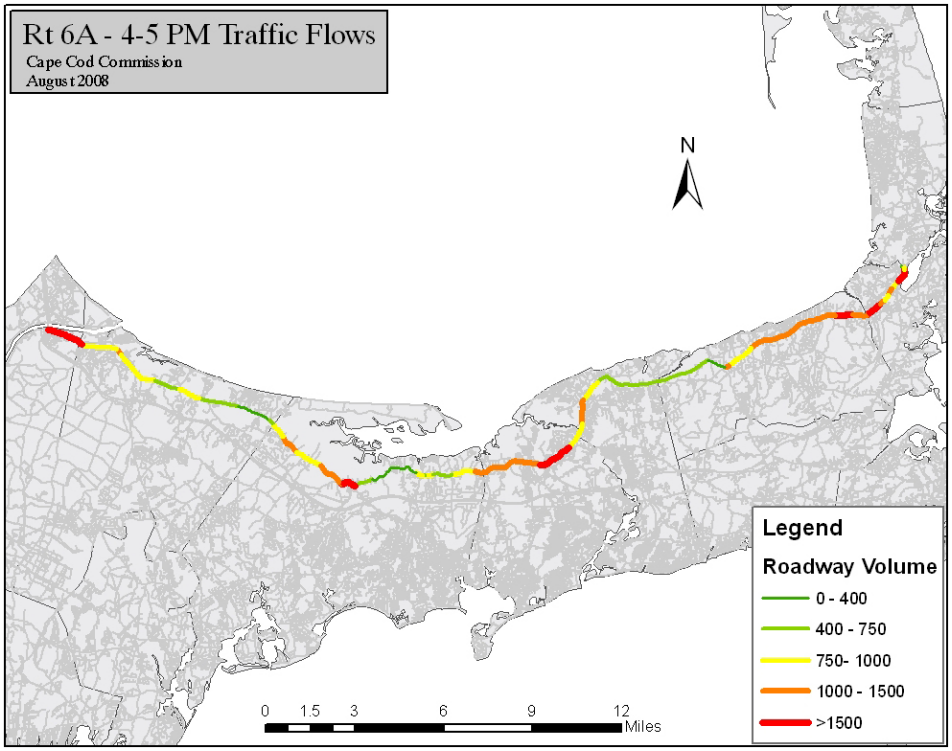
*Since Route 6 and Route 6A do not intersect at this point (Bourne), this may be a default location used by MassDOT.

TRAFFIC CONGESTION

Traffic congestion along Route 6A varies with location and time of year. Traffic volumes have a direct effect on congestion, which can worsen with the additional variables of turning movement conflicts and geometric constraints (e.g., roadway curvature, lack of shoulders etc.). Figure 22 (map) shows ranges of traffic volumes along Route 6A for a typical summer weekday during the 4–5 p.m. peak hour. The Cape Cod Commission transportation staff chose this particular time period for analysis since it is a commonly busy time yet not an extreme case (such as, say, the Fourth of July, or even summer Saturdays).

The busiest sections (traffic volumes greater than 1,500 vehicles per hour) along Route 6A are generally found near crossings of Route 6 (near Interchange 1 in Bourne and Interchange 12 and at the rotary in Orleans. Other heavily traveled areas include Route 6A west of Route 132 and in eastern Yarmouth. Roadway sections that experience relatively light traffic include Route 6A in eastern Sandwich, Barnstable east of Route 132, and areas adjacent to the Dennis/Brewster town line.

Figure 22 – Traffic Volume Map



ROADWAY CONSTRAINTS

The following sections discuss constraints and opportunities to improve transportation on Route 6A for the various types of users (motorists, public transportation riders, pedestrians, and cyclists). Options for roadway improvements on Route 6A are limited due primarily to the presence of historic, scenic, and environmental resources as well as right-of-way issues. Meeting current roadway design standards, many of which are incompatible with the character of the corridor, adds further challenges. These and other constraints are discussed below. Much of this information derives from the original 1995 CMP, with updates as appropriate.

☐ Right-of-Way

Narrow right-of-way (ROW) on Route 6A limits the available width for potential improvements. Roadway construction and upgrades for bicyclists and pedestrians usually require safety features such as adequate lane and shoulder width, smooth pavement, and curb setbacks. Without adequate space within the ROW, improvements would not be possible without taking land or accepting easements by property owners. An additional complication is that no comprehensive engineered survey of Route 6A has been conducted, and the location and extent of the right-of-way is unclear in various locations throughout the route.

☐ Scenic/Historic Resources

Scenic and historic elements such as stone walls, mature shade trees, and historic structures that are close to the roadway edge could be jeopardized by roadway projects that involve widening, and the introduction of new materials and transportation structures could damage the character of the corridor. In addition, without a current survey of the roadway that documents their exact location within the right of way, these scenic and historic elements could be destroyed during construction.

☐ Environmental Features

Improvements to roadway facilities may require cut-and-fill sections which could endanger wetlands and other sensitive areas adjacent to the roadway. Work outside the existing roadway footprint poses potential threats to rare species and their habitat. In addition, grading needs in areas with side slopes could destroy vegetation.

☐ Grandfathered Properties

Improvements along the corridor related to access management and curb cut consolidation may be limited as legally pre-existing properties can stay "as is" and not comply with new requirements until substantial improvements or changes are proposed.

☐ Roadway Standards

MassDOT's 2006 Project Development and Design Guide ("design guide") provides flexible standards for roadway projects. However, it does not provide the flexibility needed to improve Route 6A (beyond a simple resurfacing) without impacting its scenic and historic character. The design guide still requires a minimum 30-foot roadway width (two 11-foot travel lanes and two 4-foot shoulders) for any upgrading/improvements to the roadway. Any deviation from these standards requires a design waiver from MassDOT, which many towns consider a burdensome process.

As noted in the Historic Resources and Scenic Resources sections, flexible design standards for Route 6A could allow roadway and safety enhancements without harming the qualities for which the roadway was designated a scenic byway. The following options should be considered when incorporating flexibility into Route 6A's roadway design standards:

- Footprint design: Route 6A would benefit from allowing a "footprint" roadway project to move forward without adherence to the 2006 design guidelines. A "footprint" roadway design would allow for roadway surface improvements/upgrades along Route 6A within the existing footprint without disturbing the roadway elements (i.e. stone walls, distinctive trees, historic markers, etc.) that define the character of Route 6A. (The recent repaving projects in Barnstable and Yarmouth involved resurfacing/repaving only and did not entail upgrading the roadway. The repaving, as noted in other sections of this report, did not expand beyond the existing footprint.)
- Shoulder width: More flexibility could be applied to Route 6A roadway improvements if the shoulder requirements were relaxed. Roadway shoulders are provided primarily to accommodate bicyclists, pedestrians, and emergency vehicles. As recommended in this report, additional sidewalks should be installed to ensure the entire roadway is walkable. Since adequate room does not exist to accommodate bicycles safely, alternate bike routes in the vicinity of the corridor should be identified. With alternate, safer bicycle routes

available, the Route 6A shoulder requirements could be reduced, thereby preserving the roadway's existing width and character.

- Scenic byway design guidelines: MassDOT could develop relaxed design guidelines for scenic roadways. The current design manual requires the same roadway design regardless of roadway designation. Acknowledging the unique nature of Route 6A and reducing the design standards could allow for context-sensitive design to move forward for Route 6A.

ALTERNATE MODES OF TRANSPORTATION

Development of alternate modes of transportation is an important aspect of the Scenic Byways Program. It is a way of providing access to visitors and residents without further stressing the capacity limits of the road. Alternate modes also allow for increased travel without impacting the resources with traditional structural enhancements. The current lack of frequent and accessible alternatives along Route 6A requires visitors and residents to use private automobiles for most trip purposes along the corridor. Historic, scenic, and environmental resources pose constraints to providing increased roadway capacity. Therefore, it is important to develop alternate modes of travel that address the needs of both visitors and residents without stressing the roadway capacity.

☐ Public Transportation

Route 6A currently provides few public transportation opportunities. No passenger rail service is available; however, using existing rail infrastructure in Bourne, Sandwich, West Barnstable, and Barnstable to provide passenger service (with connections to Hyannis and off-Cape) could help address the traffic problems on the western end of the Route 6A corridor. Providing train service for the entire corridor is unlikely, as the cost of re-introducing rail service to the Lower Cape is prohibitive.

The lack of a large enough year-round population base to support year-round public transportation service impacts the amount of service that can be provided. Public transportation services could operate more frequently in the summer and fall to meet the needs seasonal residents and tourists and then focus on the needs of commuters during the off-season. Year round shuttle service has proven very successful on the Lower/Outer Cape with the Flex bus which serves a portion of Route 6A in Brewster and Orleans.

One of the most viable options for improving public transit and access along the corridor would be to provide summer shuttle service. A Route 6A summer shuttle bus could serve as an alternative to automobile travel for visitors and residents during the peak seasons when car traffic is heaviest on the roadway.

☐ Pedestrian Facilities

Numerous constraints limit provision of pedestrian facilities on Route 6A as discussed below.

Cost

Municipalities must consider the additional costs for maintenance activities (such as snow removal and sweeping) following sidewalk construction.

Right-of-way

Right-of-way constraints on Route 6A limit the widening and construction of sidewalks. In some sections, the roadway has consumed the majority of the ROW, prohibiting sidewalk construction without taking land or granting of easements.

Environmental Features

Sidewalk construction in some areas could impact sensitive environmental areas such as wetlands and wetland buffers and wildlife habitat.

Scenic/Historic Resources

Scenic and historic elements such as stone walls, mature shade trees, and historic structures exist close to the roadway edge along much of Route 6A. Construction of pedestrian facilities could impact these resources. In addition, standard sidewalk design (width and materials requirements) may conflict with the distinctive character of the area. Design standards need to be consistent throughout the corridor but should not compromise the character of the scenic byway. Flexible design standards that address the resource sensitivity and dimensional constraints of the Route 6A corridor are needed to provide pedestrian facilities in sensitive resource areas.

Current Design Standards

Pedestrian improvements incorporated into Route 6A's CMP must comply with all applicable engineering standards and state laws such as those in the AASHTO Greenbook, MassDOT's design guide, and

the Architectural Access Board's rules and regulations. For sidewalk construction this means a minimum length of 3 feet. The minimum width for a sidewalk is 5 feet (excluding the width of curbing). Where curbing is included, the total minimum width is 5.5 feet. If not buffered from motor vehicle traffic, sidewalks need 6 feet of width (excluding curbing).

Route 6A's narrow right-of-way conflicts with design standards that would require pavement widening, such as those for curbs and access for people with disabilities. Widening may impact existing resources such as trees and may be inconsistent with the character of some areas that are currently defined by narrow footpaths. Standard barrier curbs also may conflict with the character because they introduce an urban element to the corridor.

Due to resource constraints on Route 6A, some traditional improvements may not be possible using current design standards. Where conflicts arise between current standards and existing resources, alternate solutions should be explored, including application of a special design standard that recognizes the special needs of Route 6A. Changes to pedestrian facility design standards that are consistent with the Route 6A's scenic and historic character can be achieved without compromising the safety of pedestrian and vehicular traffic.

☐ Bicycle Facilities

A key goal of the CMP is to accommodate alternate modes of transportation, including bicycles and pedestrians, safely along the corridor while maintaining the character and charm of the existing roadway and right-of-way. Due to the limited ROW and the historic and scenic nature of the road, options to improve bicycle accessibility are limited. The existing paved roadway width averages between 22 and 26 feet along Route 6A with an overall narrow ROW throughout the corridor. Full width bicycle lanes (minimum 4 feet on each side) cannot be provided without acquiring additional ROW, thereby encroaching upon sensitive natural resource areas; causing removal or alteration of some historic features such as stone walls; and altering the scale of the roadway itself, which is integral to the corridor's historic and scenic character. Narrowing vehicular travel lanes and providing slightly wider shoulders free of obstructions may, however, be feasible.

A dedicated bicycle path immediately adjacent to the roadway is less desirable due to the high number of closely-spaced curb cuts and resource constraints and impacts. Frequent curb cuts increase the likelihood of conflicts

between bicycles and vehicles turning into and out of developments. In certain areas on Route 6A, bicycle paths are not viable.

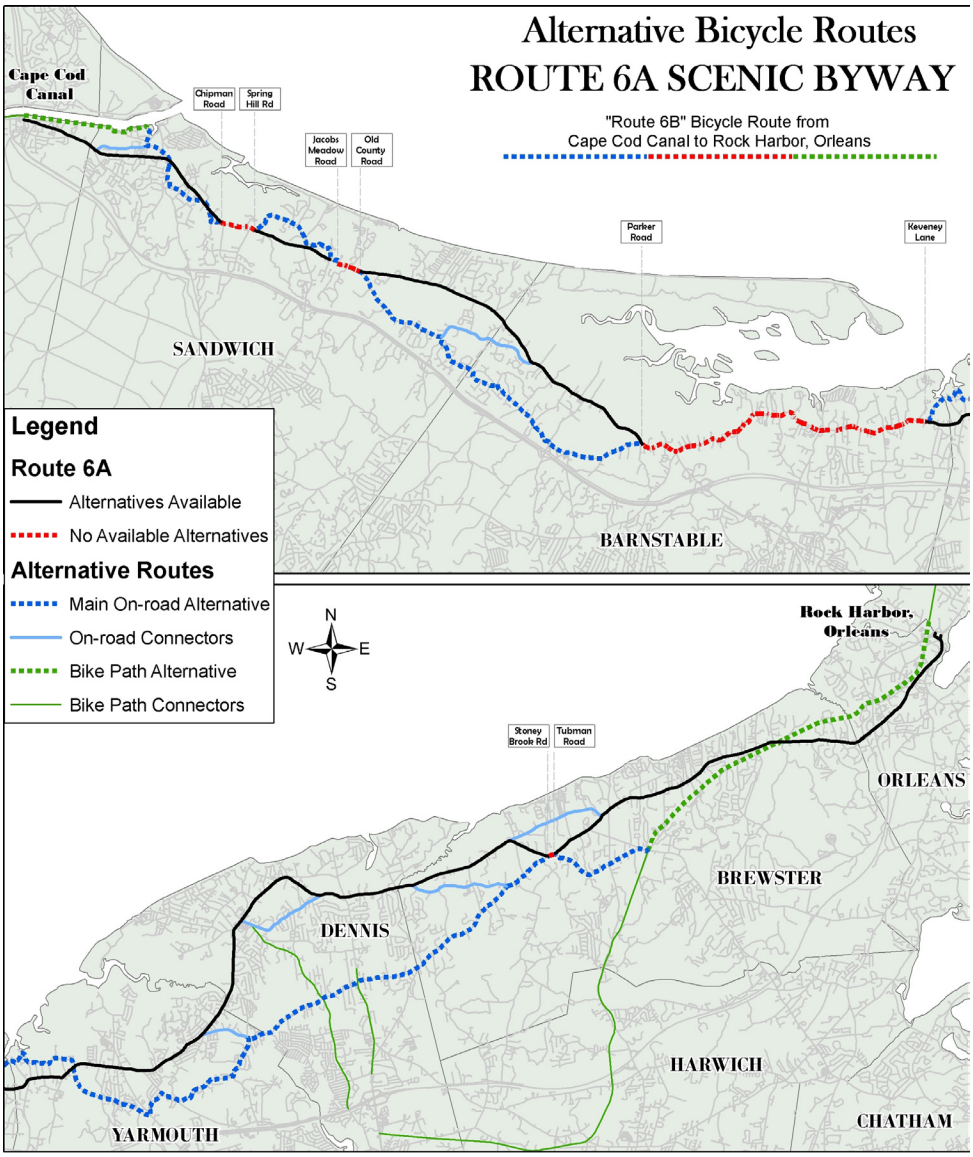
The Federal Highway Administration (FWHA) has identified three types of bicycle user:

- Group A - Advanced Bicyclist
- Group B - Basic Adult Bicyclists
- Group C - Children and Beginning Bicyclists

Each group has its own needs for safe bicycle operation on a roadway. FHWA suggests that Group B/C riders are best served by identifying key travel corridors and by providing designated bicycle facilities through these corridors (e.g., separate bike paths, bike lanes, or side-street routes). Group A riders are best served by making streets "bicycle friendly" by minimizing speed differentials between bicycles and motor vehicles, and providing usable shoulders along roadways.

It is important to look at several different options for accommodating bicycles through the Route 6A corridor in ways that are consistent with the CMP. Mapping and signage could help direct bicyclists to alternate routes that are safer for bicycle travel. Figure 23, for example, identifies suitable alternatives to Route 6A from the Cape Cod Canal area in Bourne to the Orleans/Eastham town line area near Rock Harbor. For discussion purposes, this route is referred to as "Route 6B." The methodology Cape Cod Commission staff used to identify suitable alternatives recognizes that bicyclists generally prefer a direct route rather than a circuitous route. The map identifies a route as a "suitable alternative" if it provides direct access to Route 6A and does not increase travel distance by more than 50–75 percent for each diversion. Suitable alternatives also may showcase notable scenic and historic features. Each diversion should provide reasonable access via connectors to Route 6A destinations.

Figure 23 – Route "6B" Alternate Bicycle Routes



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GENERAL TRANSPORTATION IMPROVEMENT STRATEGIES

The following strategies advance the goals of the CMP and serve as the basis for the transportation implementation recommendations:

- Improve access management. By combining driveways, constructing inter-connections between adjacent parcels, or eliminating excess driveways and unnecessary "wide-open" pavement, traffic flow and safety is improved.
- Encourage non-automobile travel of the corridor. Alternate travel modes should be supported by development of non-automobile transportation facilities, education, and marketing. Using alternate transportation such as biking and walking reduces the impacts on air quality, safety, and energy use associated with automobile travel and enhances the Route 6A experience by reducing traffic.
- Develop flexible roadway standards. Allowing for narrower travel lanes can encourage lower travel speeds and enhance the safety of non-motorized travel such as walking or biking.

TRANSPORTATION IMPLEMENTATION RECOMMENDATIONS

The following recommendations for implementation advance strategies to address traffic flow and safety along Route 6A, as well as support other CMP goals.

☐ IMPLEMENTATION RECOMMENDATION:

Speed-management techniques

The 1995 CMP recommended exploring "speed zoning" to address safety concerns on Route 6A. Speed zoning is the process of (1) recording the speeds of vehicles on a segment of roadway and (2) setting the "appropriate" speed limits. Determination of the speed limit usually is based on the speed at which 85 percent or few motorists travel along that given segment of the road. The current speed zones on Route 6A vary, with changes occurring over relatively short distances. Drivers frequently exceed the speed limit; in many of the higher speed zones (speed limit 45 mph) this impacts the comfort and safety of pedestrians and bicyclists.

The traditional method of establishing speed limits would likely result in higher speed limits throughout the corridor, which would be inappropriate with the scenic byways program goals of accommodating a variety of roadway users (including pedestrians and bicyclists). Establishing greater uniformity in the corridor's speed limits and lowering them in areas where speed limits are high to better serve the various types of users would improve safety along the corridor.

The greatest potential benefit of speed management for Route 6A is to bring uniformity and reduce the variability of average travel speeds. Higher travel speeds generally are not as great a concern for safety as differences in speeds and the resulting conflicts. It is important to keep in mind that compliance is necessary for speed limits to be effective. The Institute of Transportation Engineers has issued the following reasons for using caution when establishing speed limits:

What realistic speed limits do:

- Encourage compliance from the majority of drivers;
- Give a clear reminder of reasonable and prudent speeds;
- Provide an effective enforcement tool to the police;
- Minimize public antagonism toward police enforcement, which results from obviously unreasonable regulations; and
- Encourage drivers to travel at the speed where the risk of crash involvement is the lowest.

What unrealistic speed limits do:

- Discourage voluntary compliance;
- Create the perception of "speed traps;"
- Cause public antagonism toward the police;
- Create a bad image for a community in the eyes of tourists; and
- May increase the potential for crashes.

"Traffic calming" techniques such as geometric and visual cues can also be used to encourage motorists to travel at safer speeds. This approach involves reducing the perceived width or straightness of the travel lane through changes in pavement texture along the shoulders; pavement markings; strategic use of curbing; and other techniques to give motorists cues to drive slower. For information on traffic-calming techniques, see:

http://www.gocapecod.org/calming.htm

Educational and enforcement programs:

Lower speed limit signs alone generally are ineffective for reducing speed. New signage (e.g., "High Traffic Enforcement Area") may have an immediate effect on motorist behavior, but absent other factors (such as constant police attention), the signage over time may be ignored. Traditional speed enforcement has limited "educational" value since it is usually intermittent or only in effect in a few ideal locations (due to visibility, officers' safety etc).

In some states, speed enforcement is accomplished via speed cameras coupled with traffic radar equipment. When a vehicle is measured to be traveling over the speed limit, digital cameras record images of the driver and the license plate, along with data such as travel speed, time and date, etc. The information is reviewed for accuracy and then a citation is mailed to the motorist. Massachusetts laws do not explicitly support enforcement through speed cameras. However, in recent years legislation has supported the Massachusetts Turnpike Authority's use of camera-based automated enforcement of electronic toll lanes. For a review of state laws that affect implementation of strategies such as "photo radar," see the Governor's Highway Safety Association:

http://www.statehighwaysafety.org/html/stateinfo/laws/auto_enforce.html

In summary, speed management for the Route 6A corridor should include the following elements:

- Establish 35 miles per hour speed limits for the entire scenic byway;
- Establish 25 miles per hour speed limits within village centers along the scenic byway;
- Reduce travel lane width to 10 feet (remaining width for shoulder use by non-motorized travel); and
- Explore educational and enforcement programs.

☐ IMPLEMENTATION RECOMMENDATION:

Connect sidewalks throughout the Scenic Byway (on both sides of the road in village centers)

Substantial areas along Route 6A have no pedestrian paths. Without accommodations for walking (for pleasure/recreation or for a short trip), travelers are forced to choose cars. Sidewalks serve a basic need for many of the shorter trips along the byway. When pedestrians are not present, sidewalks are also useful for beginning cyclists and low speed biking. MassDOT has

indicated that 4-foot wide sidewalks are acceptable (narrowing intermittently to 3-feet at restrictions such as utility poles).

☐ IMPLEMENTATION RECOMMENDATION:

Provide public transit service

Providing continuous, frequent, and coordinated public transit service can support other non-automobile uses (bikes are accommodated on racks of all Cape Cod Regional Transit Authority buses) throughout the corridor. Public transit uses relieve the stress of automobile demand and its associated congestion and safety problems. One of the most viable options for improving public transit and access along the corridor would be to provide summer shuttle service. A Route 6A summer shuttle bus could serve as an alternative to automobile travel for visitors and residents during the peak seasons when car traffic is heaviest on the roadway

☐ IMPLEMENTATION RECOMMENDATION:

Roundabout

The intersection of Route 6A/Route 132 is a concern for drivers due to the wide expanse of pavement, high speed approaches, and complicated traffic channelization. In addition, non-motorized travel such as by bicycle is highly risky since some turning maneuvers require multiple points of exposure to potential side-on collisions. The current Cape Cod Regional Transportation Plan (RTP) has identified construction of a roundabout at this location as the 19th highest priority project on Cape Cod. According to the RTP, such a project would "improve traffic flow and safety of the Route 6A/Route 132 intersection through channelization of traffic movements (roundabout)."

Figure 24 (next page) illustrates a roundabout concept for the intersection of Route 6A/Route 132. Modern roundabouts have been shown to improve traffic safety and traffic flow as well as provide other community benefits. The geometry of a properly designed roundabout encourages low-speed entry, circulation, and exit that is consistent for each approaching roadway. In certain circumstances roundabouts can have significantly improved operations compared to signalized intersections and many unsignalized intersections. The main advantage of roundabouts is that they provide continuous traffic flow, as there is no "all-red" phase where all traffic must stop. A roundabout's continuous traffic flow generally results in less noise than the stop-idle-accelerate traffic movements of a signalized intersection.

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A correctly designed roundabout encourages consistent lower speeds of all users—a safer option—versus the wide range of operating speeds at a signalized or unsignalized intersection (containing a mixture of stopped vehicles and high-speed through traffic). Additionally, the geometry of a modern roundabout is well-suited for creating a "gateway" to welcome visitors to a special area.

Due to the proximity of residences to the Route 6A/Route 132 intersection, it is important to use a low noise-emitting surface for the truck apron (the rumble strip inside the circulating roadway). A stamped-asphalt installation (as used at the Route 39/Queen Anne's Road roundabout in Harwich) is recommended.

Intersection of Route 6A, Route 132, and Oak Street in Barnstable.
(Photo taken from Route 132, facing north)

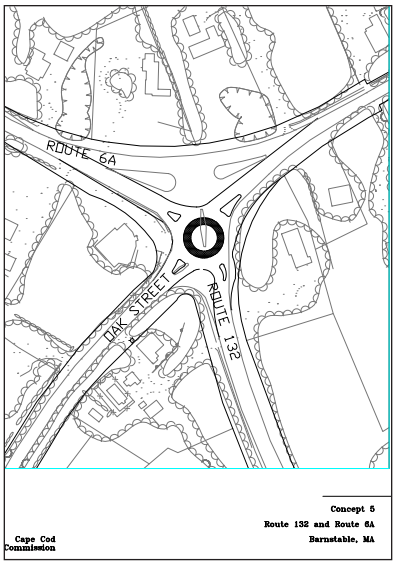

Figure 24 – Diagram of a potential roundabout for the intersection shown in the photo above.

☐ IMPLEMENTATION RECOMMENDATION:

Shared-use pavement markings

Traffic lanes on roads such as Route 6A are often too narrow for sharing side-by-side by bicyclists and passing automobiles or trucks. Bicyclists riding too close to the roadway edge run the risks of being run off the road, being "clipped" by overtaking motorists who misjudge passing clearance, or encountering drainage structures, poor pavement, debris, and other hazards.

Riding farther to the left may help avoid these problems (and is legally permitted where needed for safety) but can run counter to motorist expectations and be hazardous. A pavement marking that indicates the legal and appropriate bicyclist line of travel, and cues motorists to pass with sufficient clearance, is recommended for certain locations on route 6A.

Guidance for proper installation indicates that a shared-lane marking should not be placed on roadways that have a speed limit above 35 miles per hour. Markings should be placed immediately after an intersection and spaced at intervals not greater than 250 feet thereafter. If used on a street without on-street parking (like most of Route 6A), the centers of the markings should be at least 4 feet from the face of the curb, or from the edge of pavement where there is no curb. The centers of the markings should be 11 feet from the edge where there is parking.

An example of a "sharrow" pavement marking on a narrow road is shown in the following photo:

"Sharrow" pavement marking

Source: National Committee on Uniform Traffic Control Devices, Technical Committee Recommendation, 2007

For Route 6A, the most effective use of the sharrow markings would be on road segments that are not served by alternate routes suitable for regional bike travel. Four segments of Route 6A do not have suitable alternate routes for bicycle use. These are identified by a western and an eastern roadway intersection as shown in the Table 4 (next page).

Table 4 – Route 6A Enhanced Bicycle Accommodation Segments

Town	Western Transition	Eastern Transition	Length (miles)
Sandwich	Chipman Road	Spring Hill Road	0.5
Sandwich	Jacobs Meadow Road	Old County Road	0.4
Barnstable	Parker Road	Keveney Lane	5.0
Brewster	Stony Brook Rd (E)	Tubman Road	0.1

The longest segment is approximately five miles long from Parker Road to Keveney Lane in Barnstable.

☐ IMPLEMENTATION RECOMMENDATION

Collect vehicle classification data

The Cape Cod Commission traffic counting program should collect vehicle classification data at all Route 6A automated traffic count locations. (Twelve locations are scheduled for the 2010 traffic counts.) This will help determine the number of large trucks using Route 6A, which not only poses potential safety concerns but also could impact the condition of the roadway.

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Historic Resources

EXISTING CONDITIONS

NEW HISTORIC DESIGNATIONS

Since the 1995 Corridor Management Plan, several new historic districts and individual historic properties have been listed on the National Register of Historic Places. The following is a summary by town of historic designations that provide some additional protection to historic properties along the Route 6A corridor:

☐ Brewster:

- Two new National Register historic districts were established in this town, one in an area that the 1995 Corridor Management Plan identified as eligible for listing on the National Register, and the other focusing on a separate portion of the original route of the Old King's Highway.
- The Old King's Highway Historic District was listed in February 1996 with 376 properties. Its boundaries roughly follow Route 6A east of Paine's Creek Road to Bittersweet Drive, including parts of Briar and Lower Roads.
- The Stony Brook-Factory Village National Register District was listed in June 2000 with 67 properties. It is centered on Setucket Road and the Stony Brook Mill, located on the original route of the Old King's Highway.
- A preservation restriction was placed on the windmill at Drummer Boy Park in 2007, in conjunction with rehabilitation work funded by a Community Preservation Act grant. In addition to the windmill, the park is a significant historic landscape on the Route 6A corridor.

☐ Sandwich:

- Two new National Register historic districts are currently being nominated in town at Spring Hill and Jarvesville, both areas that the 1995 Corridor Management Plan identified as eligible for listing on the National Register of Historic Places.
- The Spring Hill National Register Historic District is proposed to have 127 properties. It is centered on Spring Hill Road and Route 6A and includes many early homes and open landscapes that define that portion of Route 6A.
- The Jarvesville National Register Historic District is proposed to have 238 properties. It is centered on Jarves Street on the north side of Route 6A and includes properties that define the dense working village there.
- The nearby Town Hall Square National Register Historic District, centered along the original path of the Old King's Highway, is also proposed to be expanded to 246 properties.
- New individual historic structures along the corridor in Sandwich were also protected, including the Hoxie House at 663 Route 6A (protected by a preservation restriction in September 1997), 4 Water Street (also protected by a Preservation Restriction, in August 2008), and the John Jarves and Mary Waterman House at 3 Jarves Street, listed on the National Register in August 2002.

☐ Dennis:

- The Dennis Village Cemetery Historic District was listed on the National Register in June 2005. It contains with 31 properties in the heart of Dennis Village along Route 6A.
- The Josiah Dennis Manse, an important historic property in Dennis accessible only from Route 6A (though not visible from the corridor), was protected by a preservation restriction in 1998.

☐ Yarmouth:

- The Swedenborgian Church/New Church, a prominent structure located at 266 Route 6A at the head of the village common in Yarmouthport, was protected by a preservation restriction in November 1999.

☐ Regional Efforts:

- The Cape Cod Commission commissioned Public Archaeology Labs, Inc., and Candace Jenkins, Preservation Consultant, to conduct a survey of cultural landscapes along the Route 6A corridor in the summer of 1995. This project included identification of significant property types along the corridor, and preparation of 30 inventory forms for significant and representative landscapes along the corridor. The survey recommended fifteen properties for nomination to the National Register of Historic Places, several of which have since been listed on the National Register as part of new historic districts.
- Graduate students were also commissioned to conduct heritage landscape inventories of several towns along the Route 6A corridor in two distinct efforts. The first, in 1999 by graduate students from the Department of Urban and Environmental Policy at Tufts University, identified some properties along the Route 6A corridor in Sandwich and Bourne. In Bourne, the survey identified only two landscapes within the Route 6A corridor. In Sandwich, the survey identified approximately 25 landscapes within the Route 6A corridor, many of them considered "highly significant" and a "priority for preservation." All of these properties fall within the existing Old King's Highway Historic District, and some are further recognized through listing on the National Register of Historic Places. The second inventory, in 2007 by graduate students in the Boston University Preservation Studies Program, identified properties along the Route 6A corridor in the towns of Dennis and Brewster. Their work identified several priority heritage landscapes in each of the towns, and included recommended planning strategies for their protection. Among the priority landscapes were several historic farmsteads, a large summer camp, and road and river corridors. While these inventories do not provide direct protection for these resources, they are used in planning efforts and are expected to help indirectly with preservation efforts.

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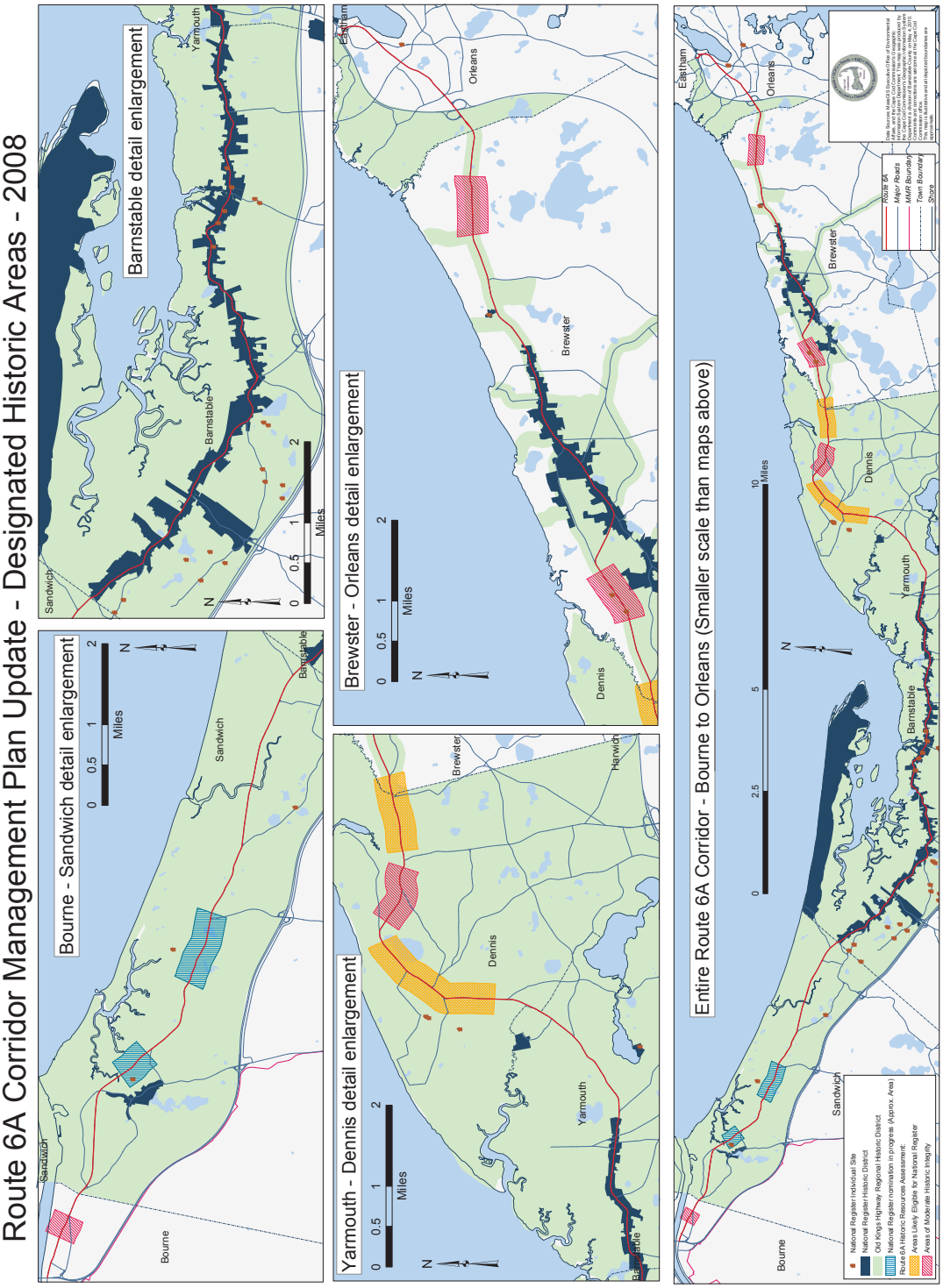
Figure 25



NEW RESIDENTIAL DEVELOPMENT TRENDS ALONG THE CORRIDOR

Most of the new development along the corridor since the 1995 CMP is residential. (See Figure 36 "Year Built Data" in the Land Use and Zoning section.) In portions of Brewster, Dennis, and Sandwich residential subdivisions have taken the place of open spaces and wood lots. An open field in Barnstable that was advertised for sale at the time of the original CMP now has three homes constructed on it. In some cases, the new development is well designed or partially screened from the corridor and has little impact on the historic character. In other cases, the new homes are visibly larger and more modern, providing a strong contrast to the surrounding historic areas. In Yarmouth, much of the new development has been concentrated outside the historic village area, which is still clearly defined to the east by an undeveloped area between Weir Road and Union Street. In Sandwich, an increase in residential development and elevated structures along Cape Cod Bay is visible from some segments of Route 6A across the marshes. In Orleans, a new condominium development was designed as infill adjacent to a commercial plaza. With appropriate siting close to the street, pitched roofs, and parking to the side, the design is compatible with the character of the corridor.

In several towns, historic structures that were in poor condition at the time of the original CMP have been rehabilitated. Notably, Yarmouth has two such properties east of Union Street, Brewster has one such property in West Brewster, and Orleans has two such properties west of Brewster Cross Road. While some historic properties are not being maintained, the general trend appears to be toward repair and rehabilitation of these structures.

The potential for continued subdivision of land for residential development is apparent in the number of 'Land for Sale' signs along the corridor, especially in Barnstable and Brewster. In Yarmouth, this may be a concern with the undeveloped land east of Union Street that currently divides the historic portion of the town from more recently developed areas. In Brewster and Dennis, several large parcels of open land currently used for farming and summer camps present a concern as development pressures increase.

NEW COMMERCIAL AND OTHER DEVELOPMENT TRENDS ALONG THE CORRIDOR

Relatively little commercial development has been constructed along the roadway since the CMP. A few new buildings have been built, notably in

Brewster, and they generally have been well sited and scaled to retain the historic character of the corridor. Large- scale commercial development continues to be clustered primarily in Orleans and Sandwich, at the east and west ends of the corridor respectively. Existing large commercial plazas in Orleans and Sandwich (outside the heart of the historic areas) and smaller commercial plazas in the other towns generally have retained their same configuration.

More visible changes have been made to commercial areas along the corridor by narrowing the roadway and adding landscaping and pedestrian amenities that better reflect the historic scale of the corridor. The most visible location for this work is Sandwich Center, where MassDOT narrowed the roadway and added sidewalks and landscaping.

Barnstable also made design improvements including brick sidewalks and historic traffic signals in Barnstable Village after the completion of the original CMP. In East Sandwich, Yarmouth, and Barnstable, the state and towns also repaved the roadway without widening it, effectively preserving its intimate, historic character. Orleans gateway improvements near the rotary and at the Route 6 off ramp at Interchange 12 are also notable landscaping improvements.

Several signs installed along the corridor note additional protected land and continued farming activities in the corridor's historic open lands. Massachusetts Audubon Society signage along Route 6A in Barnstable reflects a large parcel of open space protected to the north of the corridor. Similarly, a new farm sign denoting the CapeAbilities farm in West Dennis, on the north side, is a positive development. The town of Brewster acquired land on Betty's Curve for open space in 2003 (using Land Bank and other grant funds), helping to preserve the open character of the marshlands beyond the historic village area. In contrast, the Roberti Farm property in Sandwich, a portion of which was given to the town as mitigation for an adjacent commercial plaza expansion, is now overgrown and its open space and historic farm resources are not maintained.

Other town efforts have impacted historic resources along the corridor in a positive way. Non-profit groups in Yarmouth have restored several notable buildings since 1995, including the Yarmouth New Church and the Edward Gorey House. The Town of Dennis has taken over a previously vacant gas station near an historic cemetery and converted the land to a small park. Several institutions in Brewster, including churches and the town library, have expanded historic structures with sensitive designs and additions to the side

and rear, maintaining the building's historic relationship to the roadway. The Fire and History Museum in Brewster is now vacant and its large site may present opportunities for redevelopment that is more consistent with the corridor, removing parking from the front and restoring a more traditional road edge.

ANALYSIS

OBSERVATIONS AND ISSUES OF CONCERN

☐ Development Pressures

The current and projected threats listed in the 1995 CMP are all still relevant, though some to a greater or lesser extent than in 1995. A general trend toward rehabilitation and improved care for historic buildings is evident along the corridor, with the restoration of several previously derelict properties. Towns and non-profits have acquired and protected parcels along the corridor in several communities.

The issue of new development's encroaching into previously undeveloped areas is perhaps most relevant as development pressures and the value of residential properties on the Cape continue to increase. Some distinctive open spaces have been lost to new residential subdivisions; losing the distinctive remaining undeveloped areas could significantly alter the historic character of the corridor. Towns should consider pursuing opportunities to purchase open lands along the corridor, which would bring benefits both in the protection of significant heritage landscapes and environmental resources, and in the reduction of traffic.

☐ Road Improvements

Road improvements since the 1995 CMP have been much more consistent with the character of the roadway than prior improvements. Improved design is visible especially on road resurfacing projects in Sandwich, where a 20th century portion of the roadway was narrowed to make it more consistent with the historic character of the corridor, and in Barnstable where resurfacing was conducted within the existing road footprint. Issues of roadway design have not been fully resolved through changes to design standards in the state, so the issue of sidewalk accessibility and standards for highway design are also still important along the corridor. Some progress has been made at the

extended gateways to Route 6A, particularly along the commercial stretch in western Sandwich where the roadway was narrowed and better defined. Planting efforts at the Eastham/Orleans rotary and at Interchange 12 have also improved these gateway locations.

☐ Incentives for Preservation

Additional historic districts have been established along the corridor, more resources have been inventoried, and additional resources have been protected through preservation restrictions. The use of preservation incentives through CPA and other grant funds has increased, though numerous historic structures along the corridor still need rehabilitation and, perhaps more significantly, the corridor's cultural landscapes need protection from development pressures. The call for additional historic inventory work will always be relevant as inventory standards evolve and towns need to update old forms to include newer resources. Cultural landscapes and other less well recognized historic resources need further inventory work and designation in all corridor towns.

☐ Regulations

Towns have adopted relatively few changes in zoning along the corridor since the 1995 CMP (as discussed in the Land Use and Zoning section). In addition to the zoning changes as recommended in the 1995 CMP, towns should also consider planning for how to improve the character of 20th century commercial areas along the corridor.

The primary regulations affecting historic resources along the corridor are those of the Old King's Highway Regional Historic District Act. The District was established by Chapter 470 of the Acts of 1973 and amended several times, most recently by the Acts of 2007. The Old King's Highway Regional Historic District Commission should continue to be a focus. The number of projects they review is enormous in some communities due to the large size of the district, and the size of their workload makes it difficult to put additional effort into projects affecting more significant resources. Numerous historic resources have been demolished as a result. While the district is focused on protection of more than just historic values, individual town committees would benefit from updated historic inventory forms and staff support to advise them during review of projects involving significant historic properties. Town and Cape Cod Commission staff trained in historic preservation should offer advisory assistance for areas with significant historic resources or visual impacts on historic corridors.

HISTORIC RESOURCES IMPROVEMENT STRATEGIES

- Continue research to enhance protection of historic resources. Town historical commissions and planners should continue to expand and update historic inventories along the corridor, with participation from the Old King's Highway Regional Historic District Commission and assistance from Cape Cod Commission staff. Updated historic structure inventory forms, with specific information about the character-defining architectural features and historic significance of each resource, are an important reference for town regulatory boards when they are considering development proposals.
- Support the Old King's Highway Regional District Commission efforts to protect historic resources by providing training and staff support. In most towns along the corridor, the Old King's Highway Historic District Commission provides the only protective regulations focused on historic resources. Historic district committees review a large number of projects and would benefit from additional staff support and training sessions. Cape Cod Commission staff should provide training opportunities and advisory assistance in review involving significant historic properties. Towns should consider providing additional support for the committees through additional staff positions or through consulting assistance on an as-needed basis.
- Cape Cod Commission staff and towns should pursue educational efforts to draw attention to the significance of open spaces and cultural landscapes in the corridor's history. Significant cultural landscapes identified along the corridor include:

  Keith Mansion, Bourne
  Freeman Farmstead site, Sandwich
  Spring Hill bogs area, Sandwich
  Crow Farm, Sandwich
  "Long" lots in West Barnstable
  County Farm, Barnstable
  Town Common, Yarmouth Port
  Colonial Inn designed landscape, Yarmouth
  Village Green, Yarmouth
  Tobey Farm, Dennis
  Dennis Common and cemetery

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East Dennis agricultural landscapes
Captain Tully Crosby Farm, Brewster
Cape Cod Sea Camps, Brewster
Fieldstone Hall/Ocean Edge landscape, Brewster
Town Cove Park, Orleans

- Preserve cultural landscapes through land acquisition, easements or preservation restrictions, zoning, and transfer of development rights to strengthen protection of the intrinsic character of the corridor. Following the many cultural landscape inventory efforts that have been undertaken along the corridor, additional protection should be provided for key landscapes through changes in town zoning, placement of easements or preservation restrictions, transfer of development rights, and acquisition.
- Pursue consistent treatment of roadway design changes designed to protect historic and scenic character. Cape Cod Commission staff should continue to work with individual towns and MassDOT to guide appropriate roadway design and sidewalk design along the corridor, acknowledging that design specifications may differ in village centers and outlying areas.

HISTORIC RESOURCES IMPLEMENTATION RECOMMENDATIONS

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff and town planners should work with the Old King's Highway Regional Historic District Commission to identify areas where additional or updated historic inventories are needed.

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff and town planners should work with the Old King's Highway Regional Historic District Commission and planning boards to develop and enhance design guidelines that protect historic buildings and the existing character of village centers and outlying areas along the corridor.

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff should prepare an exhibit or brochure on the corridor's significant cultural landscapes.

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☐ IMPLEMENTATION RECOMMENDATION:

Town historical commissions and the Old King's Highway Regional Historic District Commission should consider hiring a consultant to develop a National Register nomination for the entire roadway, noting its significant characteristics and providing a basis for efforts to retain character-defining features in future road improvement efforts.

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff, the Old King's Highway Regional Historic District Commission, and town staff should work with MassDOT to establish context-sensitive roadway design standards to ensure engineering changes do not damage the historic character of the corridor.

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff should provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation.

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Scenic Resources

Scenic resources evaluated in the 1995 CMP consisted of major scenic views; detailed scenic resources; and tree canopy. The CMP also included an inventory of features that detract from the scenic quality of Route 6A. These features included overhead utilities and major scenic intrusions such as inappropriate land uses and detailed elements such as excessive signage, guardrail, and chain link fencing. A summary of any changes to these resources since 1995 is provided below.

EXISTING CONDITIONS

MAJOR SCENIC VIEWS

As noted in the Historic Resources section, limited residential and commercial development has occurred along the Route 6A corridor since the CMP's completion. The lack of significant development pressures directly along the corridor plus land protection efforts by the towns and local land trusts have helped to minimize changes to major scenic views. Additional acreage within or adjacent to major viewsheds has been protected as open space since 1995 (Figures 26–30). The additional open space protected was a result of town/land bank and Community Preservation Act funds (see the photo of "Betty's Curve" area in Brewster on page 15). While these are positive steps in maintaining the intrinsic qualities of the corridor, it should be noted that several major viewsheds along the Route 6A have been impacted by *Phragmites australis*, Common Reed Grass, as well as other invasive species.

Figure 26

Route 6A Corridor Management Plan Update - Route 6A Corridor Protected Open Space in Scenic Views.

Legend

- Route 6A
- Major Road
- MMR Boundary
- Town Boundary
- Shore

Views and Protection Status

- Detailed Scenic Element
- Field
- Marsh
- Water
- Protected Open Space 1992
- Additional Protected Open Space 2007

0 1.5 3 6 Miles

Data Sources: MassGIS Executive Office of Environmental Affairs, and the Cape Cod Commission's Geographic Information System Department. This map was produced by the Cape Cod Commission's Geographic Information System Department a division of Barnstable County on February 3, 2009. Comments and corrections are welcome at the Cape Cod Commission office or email gis@capecodcommission.org. This map is illustrative and all depicted boundaries are approximate.

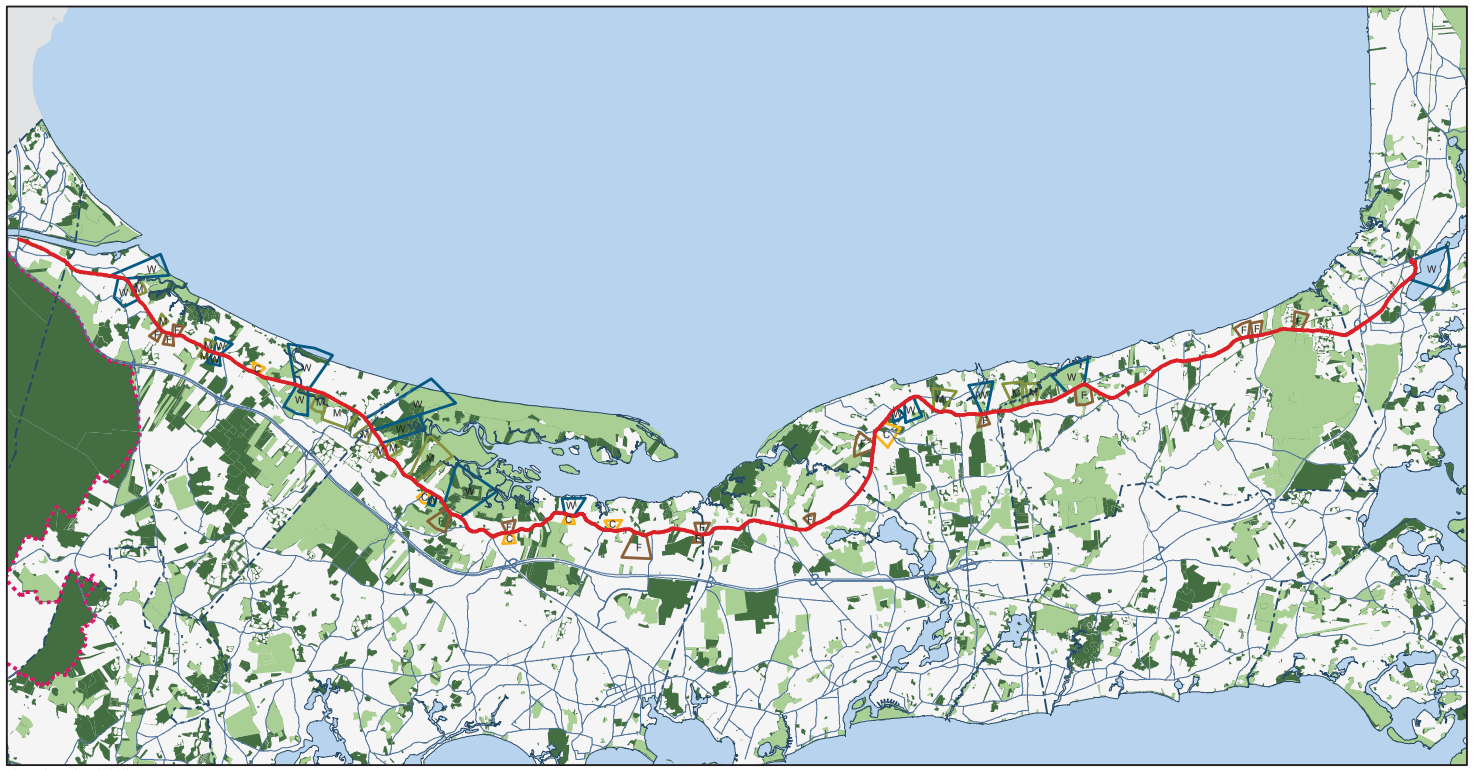

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Figure 27

Route 6A Corridor Management Plan Update - Protected Open Space in Scenic Views. Sandwich

Legend

- Route 6A
- Major Road
- MMR Boundary
- Town Boundary
- Shore

Views and Protection Status

- Detailed Scenic Element
- Field
- Marsh
- Water
- Protected Open Space 1992
- Additional Protected Open Space 2007

0 0.45 0.9 1.8 Miles

Data Sources: MassGIS Executive Office of Environmental Affairs, and the Cape Cod Commission's Geographic Information System Department. This map was produced by the Cape Cod Commission's Geographic Information System Department a division of Barnstable County on February 3, 2009. Comments and corrections are welcome at the Cape Cod Commission office or email gis@capecodcommission.org. This map is illustrative and all depicted boundaries are approximate.

rt6a_os_views_mb.mxd 5/04/10

Figure 28

Route 6A Corridor Management Plan Update - Protected Open Space in Scenic Views. Barnstable

Legend

- Route 6A
- Major Road
- MMR Boundary
- Town Boundary
- Shore

Views and Protection Status

- Detailed Scenic Element
- Field
- Marsh
- Water
- Protected Open Space 1992
- Additional Protected Open Space 2007

0 0.5 1 2 Miles

Data Sources: MassGIS Executive Office of Environmental Affairs, and the Cape Cod Commission's Geographic Information System Department. This map was produced by the Cape Cod Commission's Geographic Information System Department a division of Barnstable County on February 3, 2009. Comments and corrections are welcome at the Cape Cod Commission office or email gis@capecodcommission.org. This map is illustrative and all depicted boundaries are approximate.

rt6a_os_views_mb.mxd 5/04/10

Figure 29

Route 6A Corridor Management Plan Update - Dennis - Yarmouth
Protected Open Space in Scenic Views.

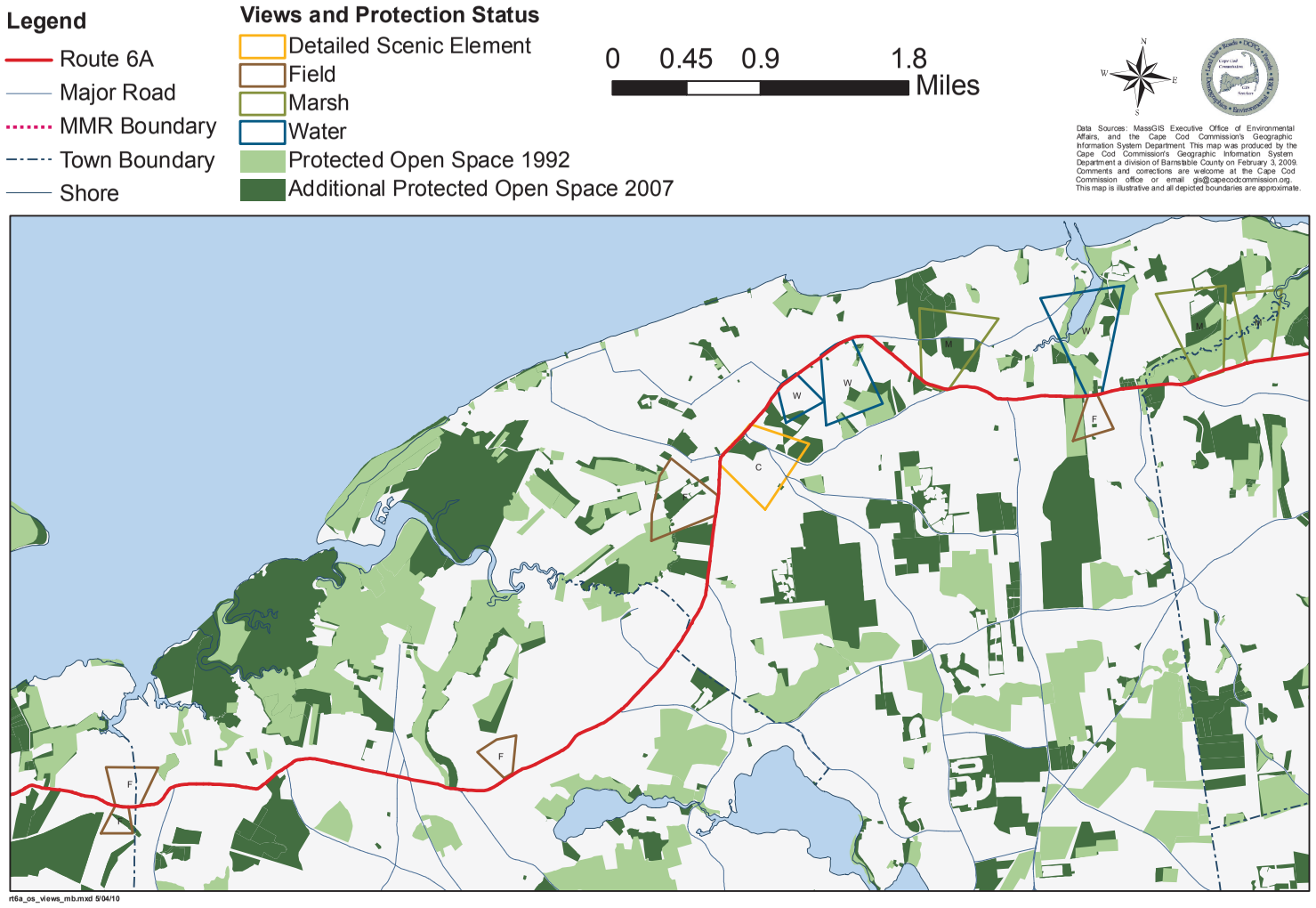


Figure 30

Route 6A Corridor Management Plan Update - Brewster - Orleans
Protected Open Space in Scenic Views.

Legend

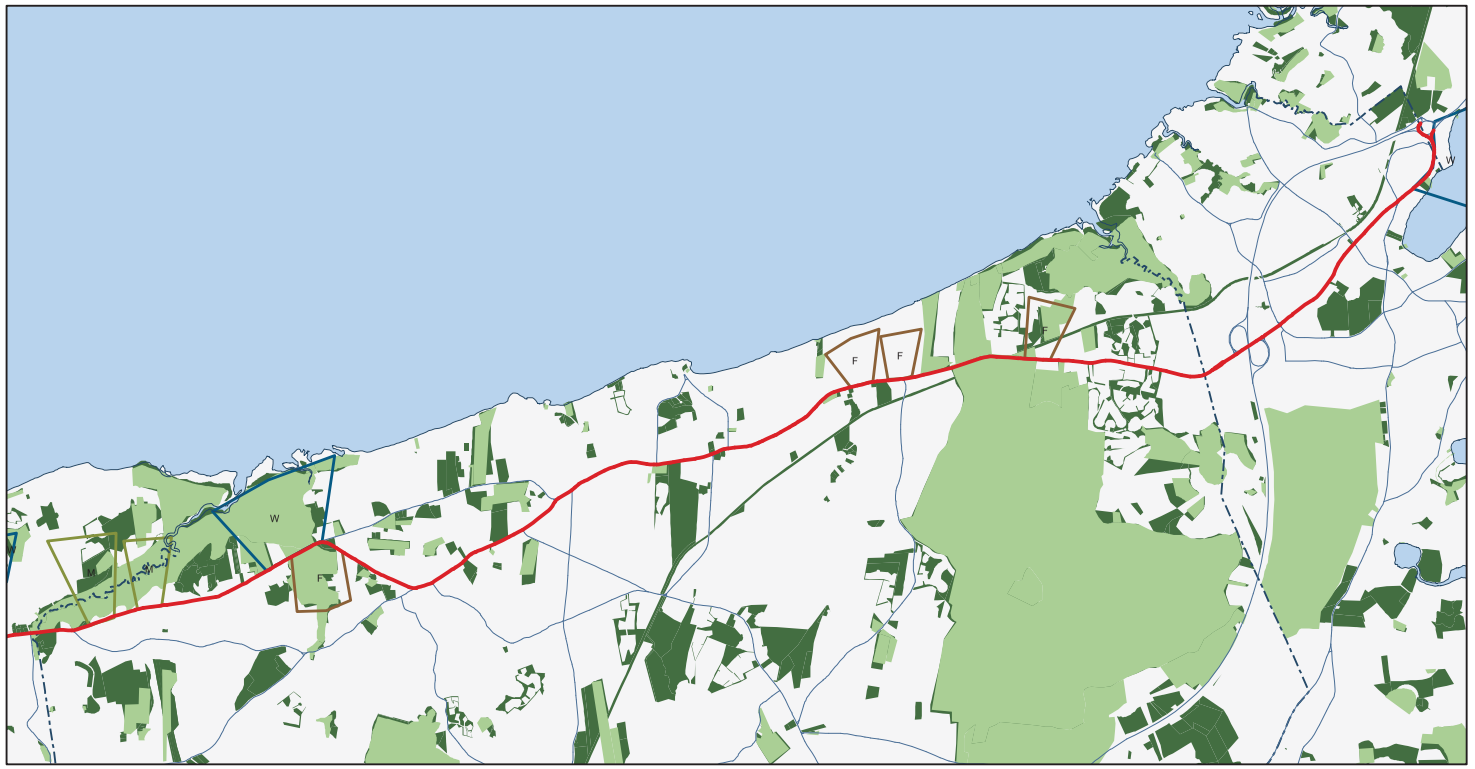
- Route 6A
- Major Road
- MMR Boundary
- Town Boundary
- Shore

Views and Protection Status

- Detailed Scenic Element
- Field
- Marsh
- Water
- Protected Open Space 1992
- Additional Protected Open Space 2007

0 0.5 1 2 Miles

Data Sources: MassGIS Executive Office of Environmental Affairs, and the Cape Cod Commission's Geographic Information System Department. This map was produced by the Cape Cod Commission's Geographic Information System Department a division of Barnstable County on February 3, 2009. Comments and corrections are welcome at the Cape Cod Commission office or email gis@capecodcommission.org. This map is illustrative and all depicted boundaries are approximate.



DETAILED SCENIC RESOURCES

As in the case of major scenic views, few changes have occurred to detailed scenic resources along the corridor since the CMP was completed. Areas with the highest concentrations of detailed scenic resources are still intact. New development has generally respected the existing character of the roadway, and resurfacing projects in the Sandwich, Barnstable, and Yarmouth sections of the corridor have not resulted in significant impacts to these resources.

TREE CANOPY

A recent windshield survey indicated that losses to the tree canopy since the CMP have been most significant in the approximately eight-mile Barnstable section and portions of the four-mile Yarmouth section of the Route 6A corridor. Numerous large and significant trees identified in the Route 6A Vegetation Management Plan have been removed due to disease, storm damage, or neglect. In 2006, a tree that fell following a winter storm killed a car driver in the town of Yarmouth. Trees removed have not been replaced, resulting in significant changes to the scenic character of the roadway.

VISUAL INTRUSIONS

Visual intrusions to the scenic quality of Route 6A have not changed significantly since the CMP was prepared. Of these elements, the amount of steel guardrail along the corridor appears to have increased, although the original CMP did not provide actual measurements of existing guardrail. Guardrail treatment along the corridor is inconsistent, which may be due in part to its installation over time. No reduction in the amount of overhead utilities along the corridor has occurred. Utility lines and poles in close proximity to the roadway edge continue to be a safety hazard to motorists and impact the both the tree canopy and the scenic quality of Route 6A.

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ANALYSIS

SCENIC VIEWS

While only limited development has taken place since the CMP, future residential and commercial development poses the most significant potential threat to the scenic viewsheds along Route 6A. If not managed properly invasive vegetation also poses a threat by obscuring major scenic views. *Phragmites*, which grows tall and very dense, as well as other invasive species, have invaded several major viewsheds along Route 6A. Tidal restoration projects along the roadway have helped to check the growth of *Phragmites* or are in the process of reducing its spread and height. Notable sites include Bridge Creek in West Barnstable and Sesuit Creek at Bridge Street in Dennis. No comprehensive program to conduct vista pruning has been developed, as recommended by the CMP. The introduction of inconsistent design elements such as guardrail and curbing can also affect driver experience along the corridor.

As noted in the Historic Resources section, towns and nonprofit organizations have acquired and protected parcels along the corridor in several communities. Vista pruning has occurred in at least one location identified in the CMP as a result of a Cape Cod Commission Development of Regional Impact review. Continued land protection efforts through easement or purchase not only could provide benefits to scenic resources but also could help protect sensitive environmental resources and reduce traffic.

DETAILED SCENIC RESOURCES

The lack of protections afforded detailed scenic resources continues to be a threat to these resources. While areas identified in the CMP as having the highest concentrations of detailed scenic resources are still intact, an inventory of these elements could be used to help local historical commissions nominate the resources to the National Register of Historic Places, thereby increasing the level of protection.

GATEWAY IMPROVEMENTS

The gateway improvements completed after the CMP have had positive impacts on the scenic quality of the roadway. Additional improvements at key locations could further enhance the intrinsic qualities of the corridor.

TREE CANOPY

The loss of tree canopy continues to be a major threat to the scenic character of Route 6A. Protection of Route 6A's distinctive tree canopy was one of the priorities cited in the CMP. Since the CMP, numerous large and significant trees identified in the Route 6A Vegetation Management Plan have been removed due to disease, storm damage, or neglect. There is no comprehensive planting program to replace trees that are removed.

An ad hoc committee formed in 2009 to re-evaluate the condition of trees along the Barnstable section of Route 6A. The goal of the committee is to work with state officials and utility companies to develop a tree removal and replacement

Damaged (right) and fallen (below) trees along Route 6A in Barnstable that are tagged for removal.

program for Route 6A and consistent policies and procedures concerning notification of local boards for any emergency tree removal. This effort could serve as a model for other towns along the corridor to protect and enhance this important character-defining feature of Route 6A.

VISUAL INTRUSIONS

Visual intrusions identified in the CMP such as inappropriate land use, inconsistent signage, steel guardrail, and overhead utilities, have remained essentially unchanged since the CMP. Although road improvement projects have been much more consistent with the character of the roadway, the lack of consistent design standards for Route 6A remains a concern.

SCENIC RESOURCES IMPROVEMENT STRATEGIES

- Towns should pursue efforts to improve the scenic qualities of the roadway through management of the tree canopy, removal/management of invasive plant species, and gateway/design improvements. The scenic character of Route 6A is defined in part by the mature tree canopy that lines the roadway. This scenic character has been eroded by the lack of a tree replacement and maintenance program. Continued management of invasive species could improve major scenic views. Design improvements, including landscaping at key locations, could also enhance the scenic character of the corridor.
- Support continued land protection efforts to preserve the intrinsic qualities of the corridor and reduce future traffic generation. Towns should continue to pursue opportunities to protect open space in major viewsheds to help preserve the scenic qualities of the roadway. Cape Cod Commission staff can assist town efforts through completion of the Regional Open Space Plan.
- Pursue consistent treatment of roadway design changes, including curb and sidewalk treatment, guardrail, and drainage structures throughout the corridor to protect its scenic character. The Commission will continue to work with towns and MassDOT to guide appropriate

roadway and sidewalk design, recognizing that design specifications may differ in village centers and outlying areas.

SCENIC RESOURCES
IMPLEMENTATION RECOMMENDATIONS

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff should continue to work with the Barnstable Route 6A Committee to update the tree canopy inventory for the eight-mile Barnstable section of Route 6A and develop a tree removal and replacement program/policy, including consistent procedures concerning notification of local boards for any emergency tree removal.

☐ IMPLEMENTATION RECOMMENDATION:

Cape Cod Commission staff, the Old King's Highway Historic District Commission, and town staff should work with MassDOT to establish context-sensitive roadway design standards to ensure engineering changes do not damage scenic character of the corridor.

☐ IMPLEMENTATION RECOMMENDATION:

Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation. Cape Cod Commission staff can provide a web-based mapping tool to help towns evaluate resource sensitivity of land along the corridor.

☐ IMPLEMENTATION RECOMMENDATION:

Explore the feasibility, cost, benefits, and detriments of burying utility cables along sections of Route 6A. Cape Cod Commission staff will facilitate a meeting/workshop with representatives from Nstar, Comcast, town officials, and other stakeholders.

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☐ IMPLEMENTATION RECOMMENDATION:

Using a composite GIS resource overlay approach, select a "pilot" section of Route 6A to implement various improvement strategies and context-sensitive safety improvements, including the following:

- Place utilities underground;
- Survey and identify existing rights-of-way (as well as significant trees, stone walls, and other resources);
- Install pedestrian paths;
- Provide "sharrow" to enhance bicycle safety; and
- Provide gateway improvements including landscaping.

If funding is available through the Scenic Byways program for the pilot project, Cape Cod Commission staff should work with the towns to identify an appropriate location for its implementation.

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Environmental Features

Maps in Figures 31–34 identify the estimated and priority habitat for state listed endangered species, public water zones of contribution, protected open space, and certified vernal pools. While no comprehensive field study of habitat types along the roadway has been conducted since the 1995 CMP, the current mapped data provides sufficient information for general planning purposes.

EXISTING CONDITIONS

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Additional land acquisition has occurred within the Sandy Neck ACEC since the time of the last plan, thus enhancing resource protection and open space preservation.

RARE SPECIES HABITAT

The state's Natural Heritage and Endangered Species Program's (NHESP) mapped areas of estimated rare species habitat have changed since the 1995 CMP, with some previously mapped areas no longer mapped, and other previously unmapped areas now mapped for rare species habitat (see comparison maps, Figure 31). Such changes likely reflect impacts from new development that have restricted available habitat and from new additional reports of rare species sitings.

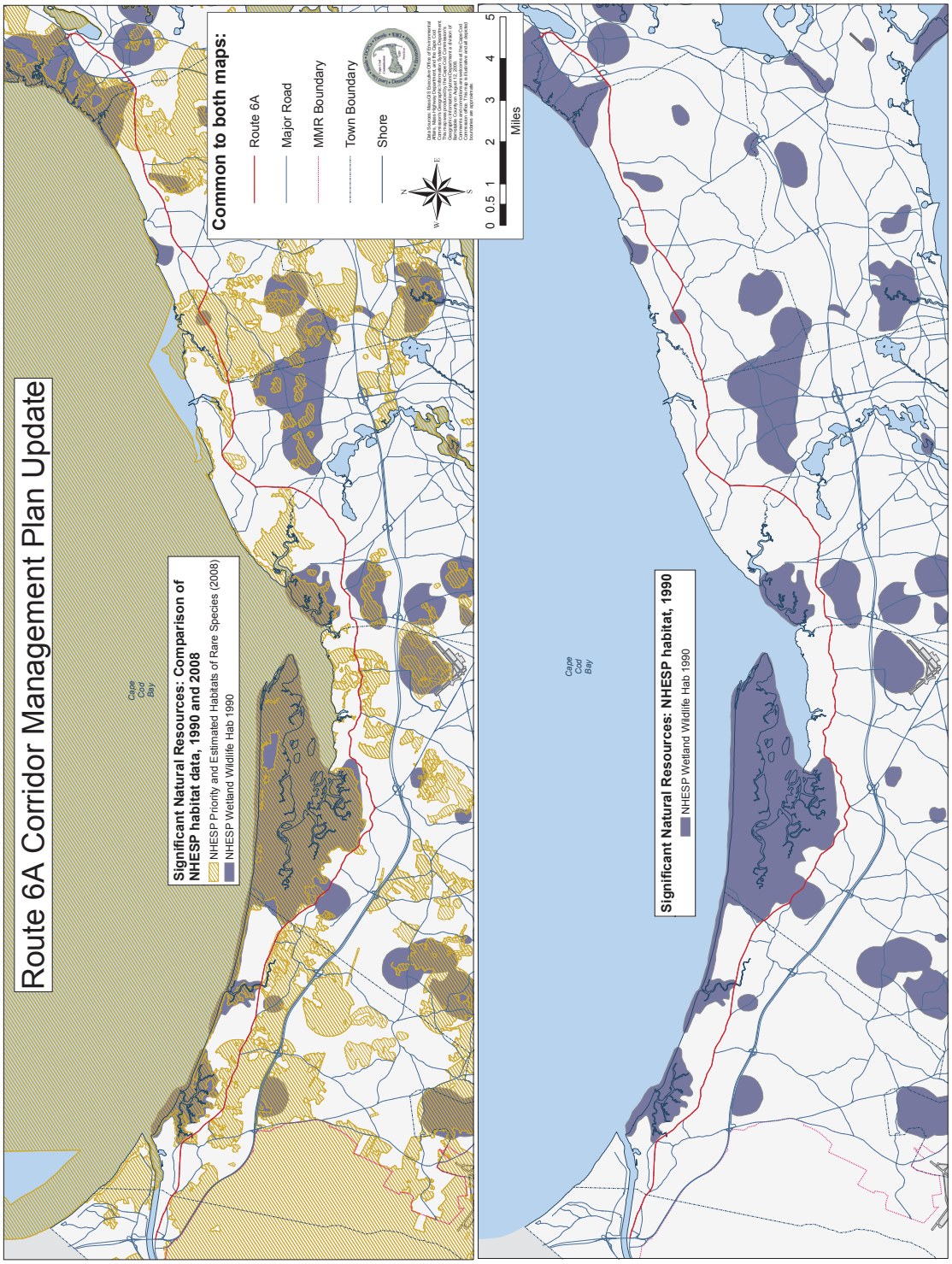
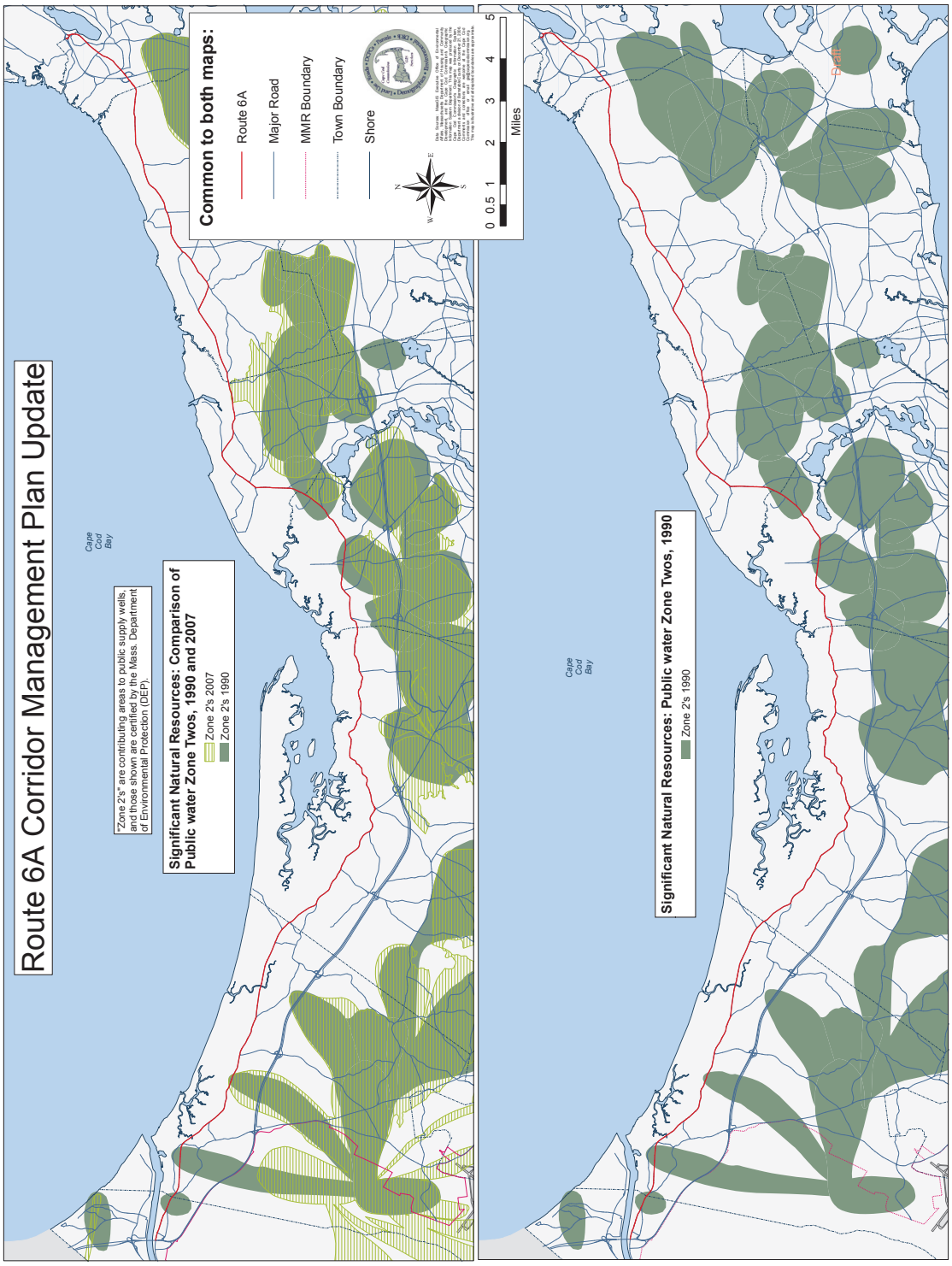

Route 6A Corridor Management Plan Update
Significant Natural Resources: Comparison of NHESP habitat data, 1990 and 2008
NHESP Priority and Estimated Habitats of Rare Species (2008)
NHESP Wetland Wildlife Hab 1990
Common to both maps:
Route 6A
Major Road
MMR Boundary
Town Boundary
Shore
0 0.5 1 2 3 4 5
Miles
Cape Cod Bay
Significant Natural Resources: NHESP habitat, 1990
NHESP Wetland Wildlife Hab 1990
Cape Cod Bay

Figure 31

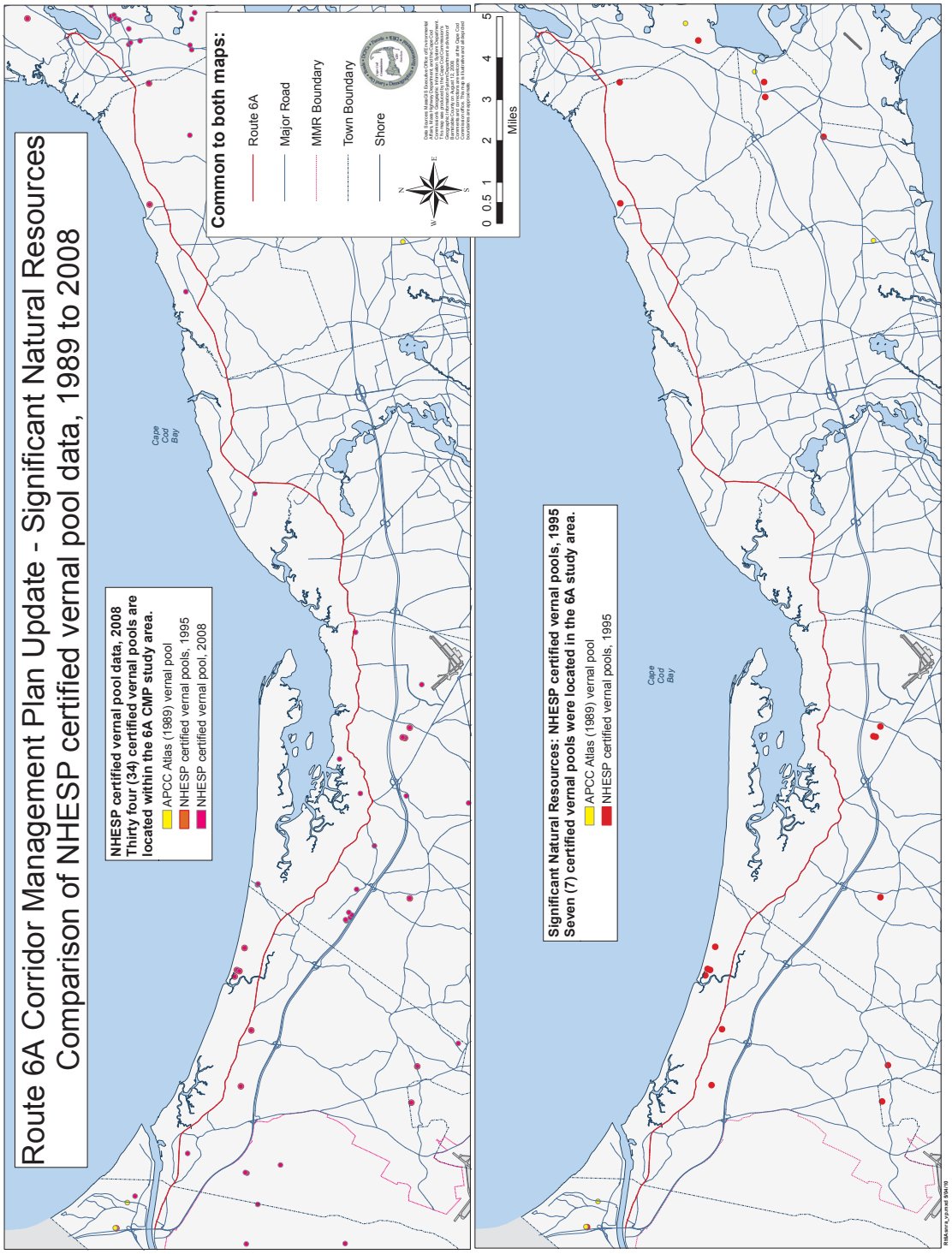
Figure 32


Route 6A Corridor Management Plan Update
Significant Natural Resources: Comparison of Public water Zone Twos, 1990 and 2007
Zone 2's 2007
Zone 2's 1990
"Zone 2's" are contributing areas to public supply wells and those shown are certified by the Mass. Department of Environmental Protection (DEP).
Cape Cod Bay
Common to both maps:
Route 6A
Major Road
MMR Boundary
Town Boundary
Shore
0 0.5 1 2 3 4 5
Miles
Significant Natural Resources: Public water Zone Twos, 1990
Zone 2's 1990
Cape Cod Bay
Draft


Route 6A Corridor Management Plan Update
Significant Natural Resources: Comparison of Protected Open Space, 1992 and 2007
Protected Open Space 1992
Additional Protected Open Space 2007
Common to both maps:
Route 6A
Major Road
MMR Boundary
Town Boundary
Shore
Miles
0 0.5 1 2 3 4 5
Cape Cod Bay
Significant Natural Resources: Protected Open Space, 1992
Protected Open Space 1992
Cape Cod Bay

Figure 33

Figure 34


Route 6A Corridor Management Plan Update - Significant Natural Resources
Comparison of NHESP certified vernal pool data, 1989 to 2008
NHESP certified vernal pool data, 2008
Thirty four (34) certified vernal pools are located within the 6A CMP study area.
APCC Atlas (1989) vernal pool
NHESP certified vernal pools, 1995
NHESP certified vernal pool, 2008
Common to both maps:
Route 6A
Major Road
MMR Boundary
Town Boundary
Shore
0 0.5 1 2 3 4 5
Miles
Cape Cod Bay
Significant Natural Resources: NHESP certified vernal pools, 1995
Seven (7) certified vernal pools were located in the 6A study area.
APCC Atlas (1989) vernal pool
NHESP certified vernal pools, 1995
Cape Cod Bay

WETLANDS AND WATERBODIES

The number of wetlands and waterbodies does not appear to have changed over the last 15 years, consistent with town and regional regulations intended to protect these resources. Wetland quality may have improved in some areas from wetlands restoration projects that removed tidal restrictions (undersized culverts) to restore tidal flow. Such projects may increase the area of the wetlands, restore wildlife, fish and shellfish habitat; and/or manage invasive species through salinity changes. In addition, tidal restoration projects may help enhance view corridors by reducing the presence of *Phragmites*, which has choked out native vegetation and filled viewsheds along the roadway. Tidal restoration projects in the vicinity of Route 6A have occurred at Bridge Creek in West Barnstable and at Bridge Street in Dennis.

Replacing undersized culverts with larger culverts at the Bridge Creek road and railroad crossings in West Barnstable helped restore tidal flow to 40 acres of coastal wetlands.

Wetland water quality improvements associated with improved stormwater management through the replacement of direct discharges with leaching catch basins is discussed in the review of the 1995 CMP Environmental Features recommendations.

Wetlands regulations still vary among the towns, and the level of resource protection provided under the regulations is the same as in 1995. Barnstable and Sandwich allow up to 2,500 square feet of wetland fill under certain conditions, and Barnstable allows wetland replication as mitigation. Changing these local provisions to make them consistent with the Regional Policy Plan would provide better protections for wetlands along the corridor.

NHESP has certified several additional (previously uncertified) vernal pools in the vicinity of the corridor in Barnstable, and one in Dennis since the CMP (see Figure 34).

OPEN SPACE ACQUISITION

Adoption of the Cape Cod Land Bank in 1998, and later the Community Preservation Act, has enabled towns to purchase several properties along Route 6A for conservation. Figure 33 illustrates the difference in protected land from 1995 to now. Some areas that appear to be newly protected may actually be wetlands that were not mapped previously, or cemeteries (now included as "open space" lands, as their open character contributes to the character of the roadway).

While the Route 6A towns have not engaged in a coordinated joint effort to acquire open space along the corridor (as recommended in the 1995 CMP), several communities have acquired land on the corridor or in its vicinity, thereby expanding upon the existing protected lands and enhancing sensitive resources protection in the area. A cooperative effort between local and state conservation organizations to protect land within the Sandy Neck ACEC has resulted in a substantial expansion of protected land and consequently reduced development potential in this area.

In addition, the Commission's Development of Regional Impact approval for several residential subdivisions and a commercial project in Sandwich (Old Harbor Estates, Bay View Farm Estates, Stop and Shop, Norse Pines) resulted in additional protected open space in the Route 6A vicinity, including enhancement and preservation of a viewshed from the roadway.

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Additional protected open space along Route 6A in Sandwich as a result of Cape Cod Commission review of a residential subdivision. Invasive species removal and management helped to restore a scenic view to the salt marsh.

ANALYSIS

Existing regulations, including the Massachusetts Endangered Species Act, the Massachusetts Wetlands Protection Act, and the Cape Cod Regional Policy Plan, provide adequate protections for rare species. NHESP updates its atlas of estimated and priority habitats for rare species on a biennial basis. Typical roadway projects that may impact rare species include culvert openings that alter habitat beyond the roadway layout area and roadway expansions outside of the existing footprint. New commercial and residential development along the roadway also may impact rare species habitat and should be monitored at the local level.

While additional land has been protected since the 1995 CMP along the Route 6A corridor and tidal flow has been restored in two tidally restricted areas, opportunities remain for towns to enhance existing wetlands and wildlife protections and ensure permanent protection of scenic and rural qualities of the roadway.

ENVIRONMENTAL FEATURES IMPROVEMENT STRATEGIES

- Support educational efforts to improve rare species protection. Cape Cod Commission staff could work with towns to help make property owners aware of the filing requirements under the state's Endangered Species Act (MESA) to enhance protection of rare species. Town permitting boards should inform applicants of rare species permitting requirements, based on the Natural Heritage Atlas, where applicable.
- Pursue changes to local regulations to improve wetland protection along the corridor. Changes to local wetland bylaws or regulations could enhance protection of wetlands from road runoff, storm-water systems discharge, and other impacts from other roadway improvements in and adjacent to wetland areas. Wetland buffer areas should be protected from development incursions to maintain habitat and preserve wetland functions.
- Support continued land protection efforts to preserve and protect the corridor's environmental resources. The natural resources along Route 6A are integral elements of the corridor's character that should be protected. Protection of properties with one or more significant natural features present will help to protect key resources and maintain the character of the roadway that defines the scenic byway traveling experience.

ENVIRONMENTAL FEATURES IMPLEMENTATION RECOMMENDATION

☐ IMPLEMENTATION RECOMMENDATION:

Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation. Cape Cod Commission staff can provide a web-based mapping tool to help towns evaluate resource sensitivity of land along the corridor.

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Land Use and Zoning

The main goals of the CMP's land use and zoning section were (1) to review and suggest amendments to zoning bylaws to ensure that zoning reinforces, rather than undermines, the historic and scenic character of Route 6A; and (2) to review and suggest amendments to zoning bylaws to reduce traffic congestion on Route 6A.

This section of the Update provides an overview of existing conditions, with updated maps showing locations of new development along the corridor as well as vacant developable land. The analysis includes an assessment of changes in land use and zoning within the corridor area plus improvement strategies and implementation recommendations.

EXISTING CONDITIONS

The types of land uses located along the corridor today have changed little since the 1995 CMP. Typical commercial uses include inns, motels, and cottages, restaurants, antique shops, galleries, gift shops, services such as gas stations, banks, small markets, and small professional offices. Residential uses, including home occupations, mixed with churches, municipal buildings, and open land, continue to dominate the rest of the roadway.

VACANT DEVELOPABLE LAND

Over 3,350 acres of vacant developable land is located within the corridor study area, most of it zoned for residential use. Development of vacant parcels that abut the roadway or are located within or adjacent to historic resource areas and scenic viewsheds could diminish the distinctive character

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Figure 35

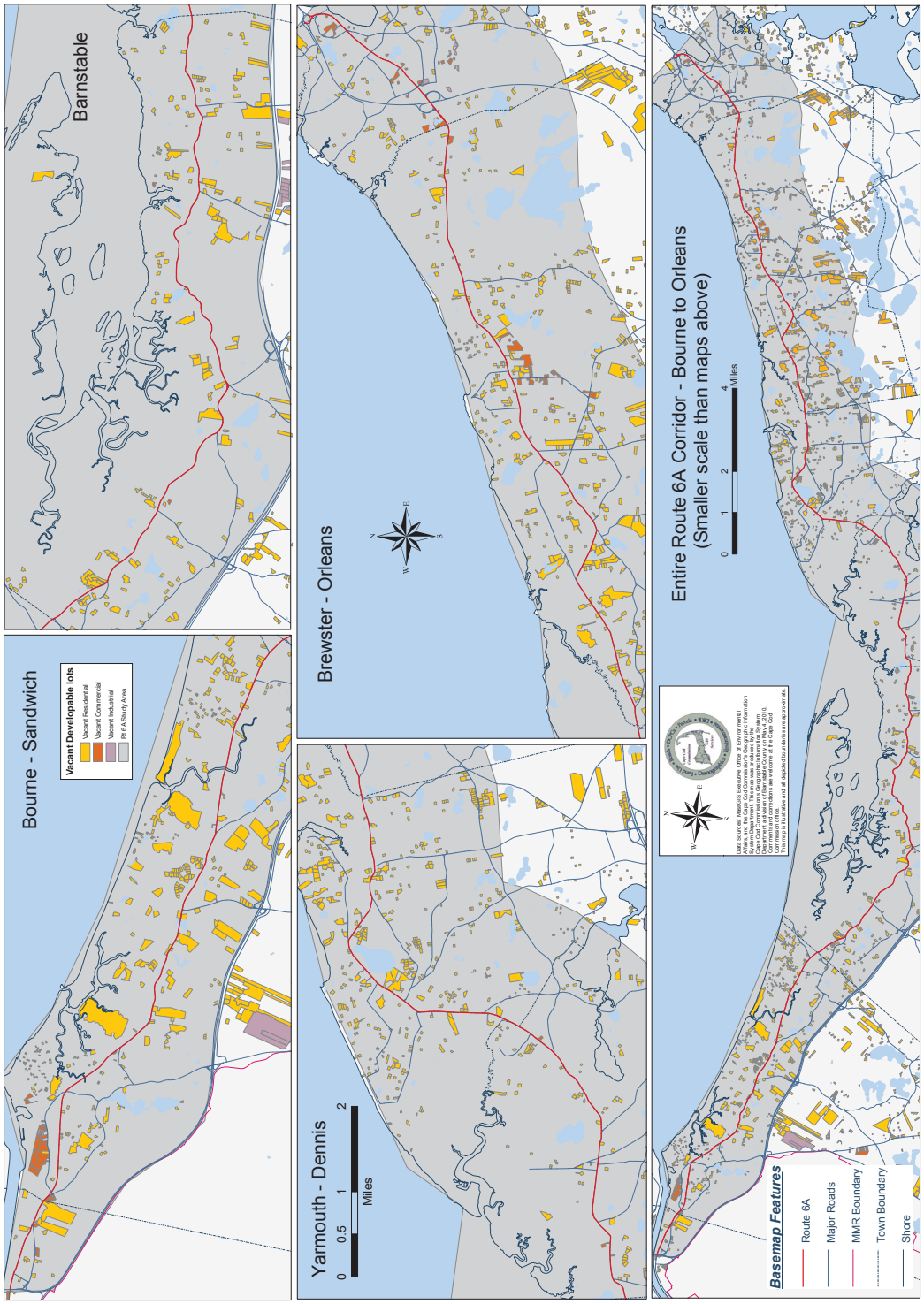


Table 5 – Vacant Developable Land/Route 6A Study Area

Number of parcels	Category	Total Acres
BARNSTABLE:		
203	Vacant Residential	438.2
4	Vacant Commercial	2.1
BOURNE:		
18	Vacant Residential	70.9
7	Vacant Commercial	5.2
SANDWICH:		
388	Vacant Residential	770.2
29	Vacant Commercial	54.8
9	Vacant Industrial	3.4
YARMOUTH:		
140	Vacant Residential	150.9
3	Vacant Commercial	2.6
7	Vacant Industrial	17.8
DENNIS:		
672	Vacant Residential	843.5
8	Vacant Commercial	12.0
BREWSTER:		
477	Vacant Residential	784.1
32	Vacant Commercial	40.0
ORLEANS:		
114	Vacant Residential	120.2
26	Vacant Commercial	27.7
13	Vacant Industrial	9.4

of the corridor. Additional development in the area also adds to trip generation and additional vehicles traveling along the corridor.

NEW CONSTRUCTION

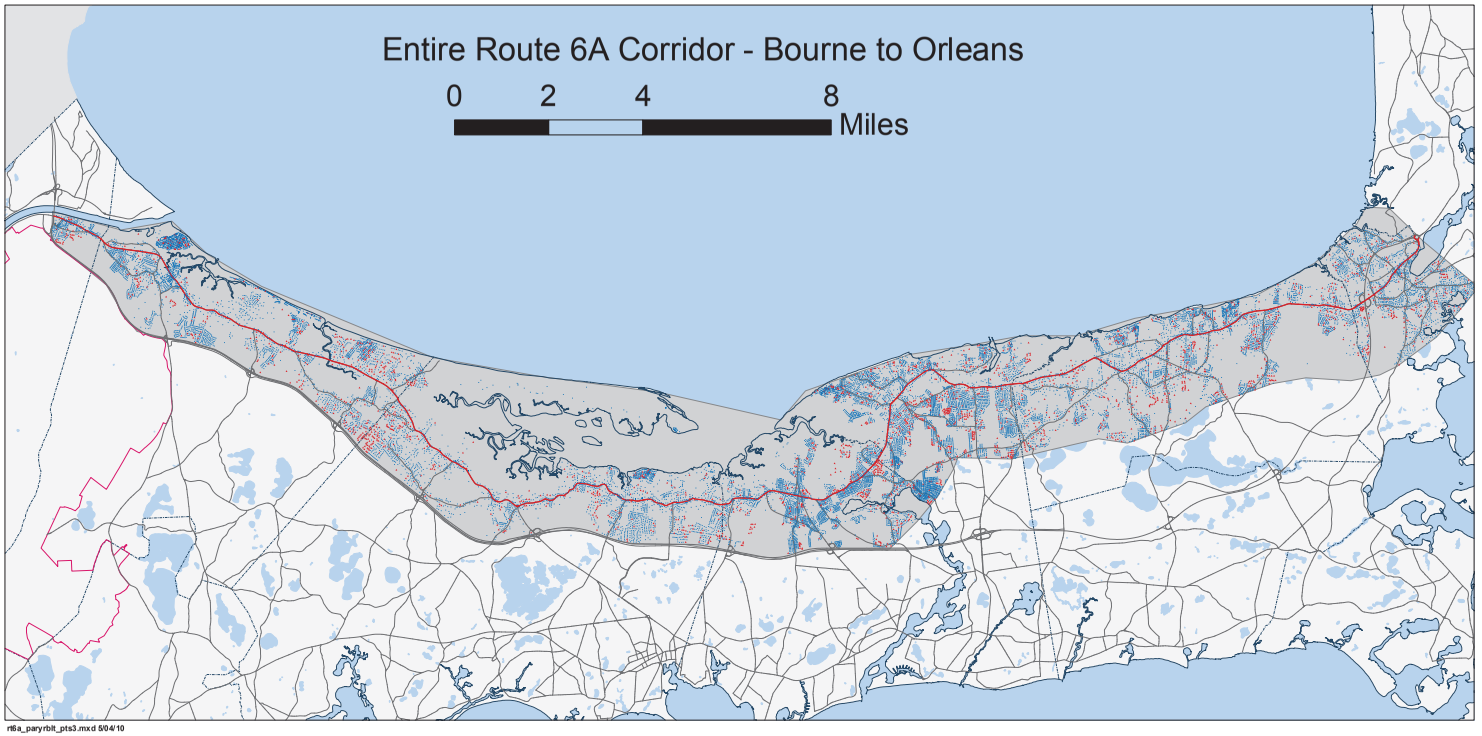
Since the CMP (between 1995 and 2007), 2,201 new buildings have been constructed within the Route 6A corridor "study area" (as identified in Figure 36). Most of the new development is residential, with new commercial buildings scattered along the corridor and expansions to existing commercial plazas.

Figure 36

Route 6A Corridor Management Plan Update - Year Built Data

This map shows a total of 18,003 buildings built before 1995 in the study area, and 2,133 buildings built after 1995.

Route 6A Study Area - Summary of Residential/Commercial parcels		
Year Built	**Residential**	**Commercial**
Pre 1995	17306	697
Post 1995	2075	58



DEVELOPMENT POTENTIAL

In addition to potential growth from development of vacant land, redevelopment/expansion of existing uses within the corridor area represents additional development potential. With relatively little vacant developable commercial land remaining along the corridor in most towns, redevelopment of existing structures and changes of use may become more prevalent. Conversions of campgrounds and cottage colonies to residential uses has occurred throughout the region. Such conversions within the Route 6A corridor could impact the roadway's character and increase traffic.

For key properties whose development or redevelopment may significantly affect the character of the Route 6A corridor, towns should consider acquiring or protecting them through conservation restrictions, preservation restrictions, etc. using Community Preservation Act or other funds, particularly if they are located within scenic viewsheds, historic or cultural landscapes, or abut open space. A parcel's "threat" level (i.e., the likelihood of its being sold and developed) should be considered as well.

Figure 37 identifies the location of the corridor's scenic and historic resources, as well as vacant developable land, rare species habitat, and wetlands. Parcels with multiple resources present may be key areas to focus land protection strategies, particularly for parcels at risk of development that would impact the intrinsic qualities of the Route 6A corridor. This map provides an initial tool to help towns prioritize land protection strategies.

Despite potential for adverse impacts from redevelopment, for areas with existing strip development or inappropriate commercial uses (for a scenic byway), redevelopment proposals also could provide opportunities to improve existing landscaping, site layout, and site access management. Establishing new landscaping and access management requirements and providing incentives for property owners to improve site design (such as reduced parking requirements and flexibility in layout) could help improve the character and safety conditions in these areas. The corridor's gateways in Bourne and Orleans may benefit from such redevelopment opportunities.

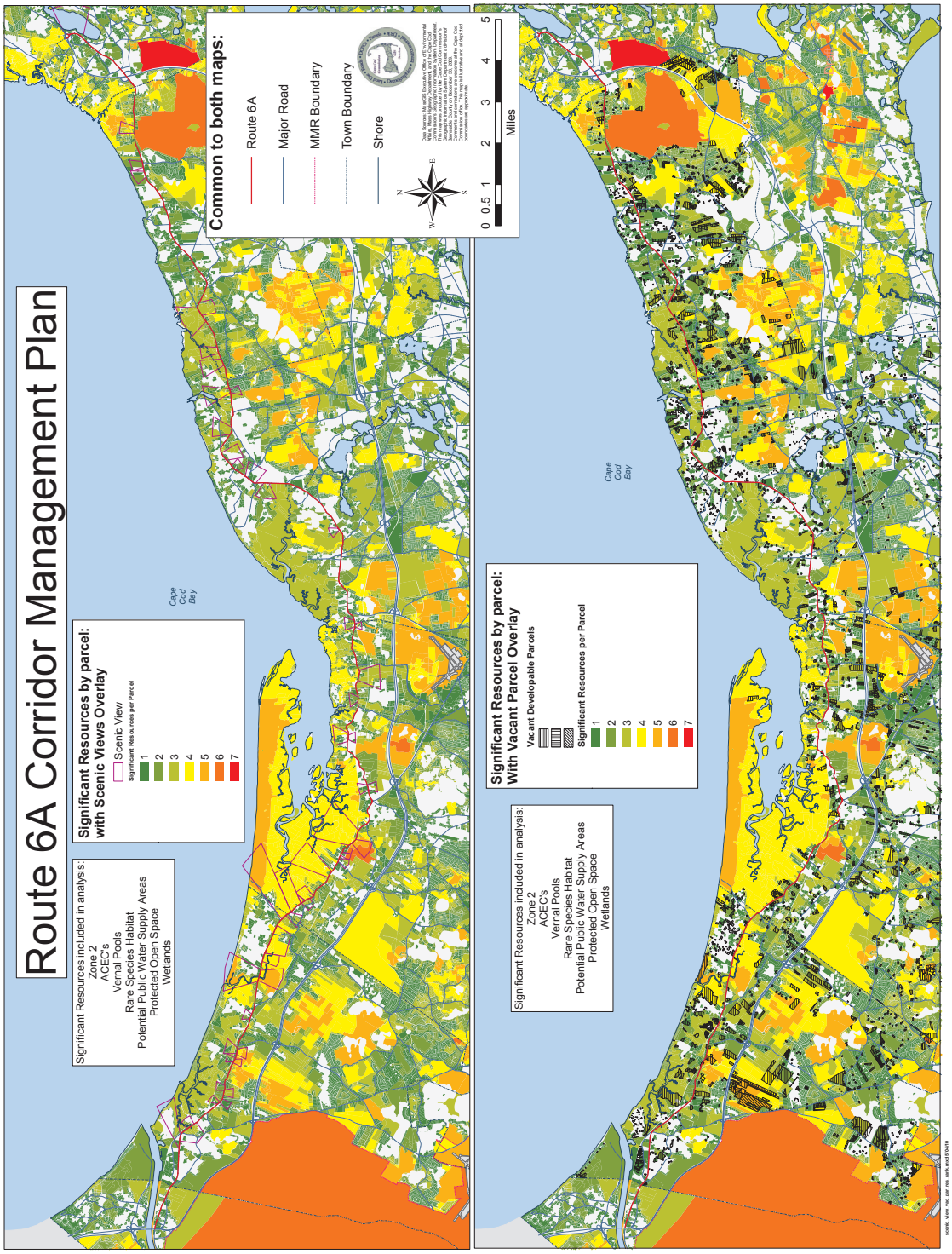

Route 6A Corridor Management Plan
Significant Resources by parcel:
with Scenic Views Overlay
Scenic View
Significant Resources per Parcel
1
2
3
4
5
6
7
Significant Resources included in analysis:
Zone 2
ACEC's
Vernal Pools
Rare Species Habitat
Potential Public Water Supply Areas
Protected Open Space
Wetlands
Cape Cod Bay
Common to both maps:
Route 6A
Major Road
MMR Boundary
Town Boundary
Shore
0 0.5 1 2 3 4 5
Miles
Significant Resources by parcel:
With Vacant Parcel Overlay
Vacant Developable Parcels
Significant Resources per Parcel
1
2
3
4
5
6
7
Significant Resources included in analysis:
Zone 2
ACEC's
Vernal Pools
Rare Species Habitat
Potential Public Water Supply Areas
Protected Open Space
Wetlands
Cape Cod Bay

Figure 37

SUMMARY OF ZONING CHANGES SINCE 1995

Together with historic settlement patterns, town zoning is the primary factor in determining the land uses, and thereby the character, of the Route 6A corridor. Zoning along the corridor today generally is unchanged since the CMP. Barnstable is the only town that reduced development potential through zoning (by increasing minimum lot area requirements from one acre to two acres along sections of the corridor). Towns have adopted minor changes to the uses allowed within zoning districts along the corridor. Orleans, for example, amended its zoning to prohibit car sales on Route 6A. In Bourne, contractors yards and warehousing, two uses with potential impacts on the roadway's scenic character, are no longer allowed by right in the BL district but require special permit authorization. In contrast, Sandwich adopted a zoning change to allow outdoor recreational facilities (sports fields) by special permit in all three of its Route 6A zoning districts. As part of the Crowe's Pasture/Quivett Neck DCPC, Dennis adopted zoning changes for land north of the Route 6A corridor. Dennis also revised its sign code town-wide, although the Old King's Highway District's standards generally are more restrictive. Other zoning changes include a minor reduction in parking standards in Brewster and the adoption of a lighting bylaw in Orleans.

LAND USE AND ZONING IMPROVEMENT STRATEGIES

The following strategies address resource protection and traffic safety needs for the Route 6A corridor:

- Consider changes to zoning and land use regulations to reduce traffic and to protect the corridor's intrinsic qualities. Increasing minimum lot size in areas with a significant amount of subdividable land may be effective for reducing development potential and additional trip generation but should be combined with cluster-type subdivision provisions to discourage additional land consumption and sprawl. Lot coverage restrictions are useful for limiting building footprint size to help maintain the development scale of the surrounding area. Clearing restrictions are useful for maintaining wooded buffers and roadway character. Allowing mixed use development in village areas could encourage a variety of housing types,

reduce car travel, and enhance the vitality of these areas. Restricting or prohibiting uses that conflict with the qualities of a scenic byway also should be considered to help maintain the traditional uses along the corridor. Towns should also consider adoption of a "formula" business bylaw for the corridor to help maintain the distinctive character of the corridor and help support locally owned businesses.

- Consider zoning or other land use strategies to improve commercial areas along the corridor that differ in character from the rest of Route 6A. Towns should consider efforts to direct change in these areas (particularly the eastern and western ends of the corridor) that is more consistent with the rest of the roadway. Establishing a commercial overlay district in sections of Bourne and Orleans could address redevelopment in these areas.
- Support continued land protection efforts to preserve and protect the corridor's intrinsic qualities and reduce traffic. Acquisition efforts should focus on key parcels of high resource value whose development would damage the scenic or historic character of the corridor; such parcels with a heightened "threat" of development should be a top priority.
- Consider establishing a District of Critical Planning Concern, a special planning and regulatory approach through the Cape Cod Commission Act, within one community or extending to multiple corridor towns, to enhance protection of the corridor's resources through both zoning and non-zoning regulations. A DCPC may provide for a more focused approach on the corridor's resource protection and traffic safety issues, particularly where neighboring communities seek to address these issues together. In addition, implementing regulations passed through a DCPC could address "grandfathered" use protections provided under zoning.

LAND USE AND ZONING IMPLEMENTATION RECOMMENDATION

☐ IMPLEMENTATION RECOMMENDATION:

Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns

develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation. Cape Cod Commission staff can provide a web-based mapping tool to help towns evaluate resource sensitivity of land along the corridor.

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Visitor Facilities

EXISTING CONDITIONS

Visitor facilities are generally the same as in the original CMP except for the gateway improvements discussed in the scenic resources section of this report and new alternate travel mode amenities discussed in the transportation section.

ANALYSIS

Route 6A is located within a major tourist destination and is enjoyed as a primary travel route by local residents and visitors alike. The many points of interest along and connecting to the corridor, including beaches, trails, conservation areas, scenic views, shops, restaurants, historic inns, professional services, and civic buildings, attract large numbers of visitors and residents. Balancing Route 6A's popularity with maintaining a pleasurable and safe "scenic byway" travel experience presents several challenges. For scenic byways in more rural or non-resort locations, drawing additional visitors may be a primary focus. In contrast, a more appropriate goal for Route 6A is to accommodate its high volumes of visitors while ensuring that the special qualities that led to its designation as a scenic byway are preserved.

VISITOR FACILITIES IMPROVEMENT STRATEGIES

In addition to the strategy and recommendation below, several recommendations from the original CMP should continue to be considered as part of an

ongoing effort to enhance the visitor experience along the corridor without impacting the resources and intrinsic qualities that draw visitors to the area. In addition, implementation of strategies and recommendations concerning other issue areas in this plan (i.e., transportation, historic resources, etc.) also would enhance visitors' experience and accommodations.

- Maintain and enhance existing visitor facilities and improve linkages to them to encourage alternate modes of travel along the corridor to protect its intrinsic qualities and reduce traffic.
- Consider adoption of a cultural arts districts along Route 6A. Establishing arts districts (where feasible and appropriate) could help focus attention on the corridor's rich architectural heritage and existing cultural arts facilities. Communities can use zoning and non-regulatory approaches to create nodes that support and encourage community arts and cultural interests, providing activities and attractions that draw both visitors and residents and help boost the regional economy.

VISITOR FACILITIES IMPLEMENTATION RECOMMENDATION

☐ IMPLEMENTATION RECOMMENDATION:

Provide signage, maps, and/or educational materials to support cultural arts districts on Route 6A and encourage alternate modes of travel to these destinations. In addition to helping direct visitors to these areas of interest, signage and guides can provide information about how to reach the corridor's arts districts through alternate means of travel.

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Conclusion and Recommendations

CONCLUSION

Route 6A was designated as a Scenic Byway in 1992 by the Massachusetts state legislature, in recognition of its distinctive scenic and historic character. In 1995, the Cape Cod Commission issued the Route 6A Corridor Management Plan through a grant provided by the state's Interim Scenic Byways Program. The main purpose of the plan was to focus on resource protection along the corridor while addressing traffic and safety needs. A secondary purpose was to inform Massachusetts Highway Department (now MassDOT) policy on management of scenic roads and to assist in the development of the state's Scenic Byways program. The purpose of this 2010 Route 6A Comprehensive Management Plan Update is to continue the same mission as the original plan, using current data.

The Update seeks to advance the following goals from the 1995 CMP:

- Preserve the character and scale of the roadway;
- Address transportation pressures on the roadway;
- Protect the historic, scenic and environmental resources along the corridor;
- Enhance safety for all roadway users – pedestrians, bicyclists, and motorists;
- Promote coordination between agencies with jurisdiction over the corridor; and
- Increase awareness of the roadway's significance.

Primary strategies to achieve goals:

- Intrinsic resource protections;
- Land-use and zoning regulations;
- Alternative designs for transportation and roadway improvements;

- Access management planning;
- Additional alternative transportation modes opportunities; and
- Partnerships with existing visitor facilities along the corridor.

IMPROVEMENT STRATEGIES AND RECOMMENDATIONS

Maintaining and preserving Route 6A's special character enhances quality of life for residents, provides a special traveling experience for residents and visitors, and contributes to the state economy through tourism. The following improvement strategies and implementation recommendations address goals and purposes of the Scenic Byways program and are intended to protect the intrinsic qualities of the roadway while enhancing traffic safety

IMPROVEMENT STRATEGIES

☐ Transportation

- Improve access management;
- Encourage non-automobile travel of the corridor; and
- Develop flexible roadway standards.

☐ Historic Resources

- Continue research to enhance protection of historic resources;
- Support the efforts of the Old King's Regional Highway District Commission to protect historic resources by providing updated historic inventory forms and staff support;
- Pursue educational efforts to draw attention to the significance of open spaces and cultural landscapes in the corridor's history;
- Preserve cultural landscapes through land acquisition, easements or preservation restrictions, zoning, and transfer of development rights to strengthen protection of the intrinsic character of the corridor; and
- Pursue consistent treatment of roadway design changes to protect historic and scenic character.

☐ Scenic Resources

- Pursue efforts to improve the scenic qualities of the roadway through management of the tree canopy, removal/management of invasive plant species, and gateway/design improvements;
- Support continued land protection efforts to preserve the intrinsic qualities of the corridor and reduce future traffic generation; and
- Pursue consistent treatment of roadway design changes, including curb and sidewalk treatment, guardrail, and drainage structures throughout the corridor to protect its scenic character.

☐ Environmental Features

- Support educational efforts to improve rare species protection;
- Pursue changes to local regulations to improve wetland protection along the corridor; and
- Support continued land protection efforts to preserve and protect the corridor's environmental resources.

☐ Land Use and Zoning

- Consider changes to zoning and land use regulations to reduce traffic and to protect the corridor's intrinsic qualities;
- Consider zoning changes or other land use strategies to improve commercial areas along the corridor that differ in character from the rest of Route 6A;
- Support continued land protection efforts to preserve and protect the corridor's intrinsic qualities and reduce traffic; and
- Consider establishing a District of Critical Planning Concern, a special regional planning and regulatory approach authorized through the Cape Cod Commission Act, within one community or extending to multiple corridor towns, to enhance protection of the corridor's resources through zoning and non-zoning regulations.

☐ Visitor Facilities

- Maintain and enhance existing visitor facilities and improve linkages to them to encourage alternate modes of travel along the corridor to protect its intrinsic qualities and reduce traffic.
- Consider adoption of cultural arts districts along Route 6A.

- Implement speed-management techniques along corridor;
- Install shared-use pavement markings ("sharrows") on sections with no alternate routes for bicyclists;
- Connect sidewalks throughout the scenic byway (on both sides of the road in village centers);
- Provide a roundabout at Route 6A/Route 132 in West Barnstable;
- Include vehicle classification data at the Cape Cod Commission's Route 6A automated traffic count locations to help determine the number of large trucks using the roadway;
- Work with the Historic District Commission to identify areas where additional or updated historic inventories are needed;
- Work with the Historic District Commission and planning boards to develop design guidelines that protect historic buildings and the existing character of village centers and outlying areas along the corridor;
- Prepare an exhibit or brochure on the corridor's significant cultural landscapes;
- Consider hiring a consultant to develop a National Register nomination for the entire roadway;
- Work with MassDOT to establish context-sensitive roadway design standards to ensure engineering changes do not damage the historic and scenic character of the corridor;
- Provide analysis of scenic, historic, and natural resource sensitivity along the corridor using a composite GIS resource overlay approach to help towns develop priority land acquisition/easement projects to protect the corridor's scenic viewsheds, historic resources, and environmental/natural resources, and reduce traffic generation;
- Continue to work with the Barnstable Route 6A Committee to update the tree canopy inventory for the eight-mile Barnstable section of Route 6A and develop a tree removal and replacement program/policy, including consistent procedures concerning notification of local boards for any emergency tree removal;
- Explore the feasibility, cost, benefits, and detriments of burying utility cables along sections of Route 6A;

- Using a composite GIS resource overlay approach, select a "pilot" section of Route 6A to implement various improvement strategies and context-sensitive safety improvements, including the following:
    - Place utilities underground;
    - Survey and identify existing rights-of-way (as well as significant trees, stone walls, and other resources);
    - Install pedestrian paths;
    - Provide "sharrow" to enhance bicycle safety; and
    - Provide gateway improvements including landscaping.
- Provide signage, maps, and/or educational materials to support cultural arts districts on Route 6A and encourage alternate modes of travel to these destinations.

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Appendix

Route 6A Scenic Byway

6A

Corridor Management Plan

Questionnaire

Please return completed questionnaire to:

Cape Cod Commission
3225 Main Street
Barnstable MA 02630
Fax: (508) 362-3136
ATTN: Route 6A CMP

-or-

Complete your Questionnaire online:
www.gocapecod.org/6Away

Cape Cod Commission 2009

Route 6A - Cape Cod Scenic Byway

1. Welcome to the Route 6A Scenic Byway Questionnaire

Welcome!
This questionnaire is intended to identify Route 6A's problem areas and intrinsic scenic/historic qualities for preservation and enhancement. Route 6A travels through much of the Old King's Highway Regional Historic District within the towns of Bourne, Sandwich, Barnstable, Yarmouth, Dennis, Brewster, and Orleans in Barnstable County, Massachusetts.

Please take a few minutes to answer the questions. Your responses will help to protect and enhance the "Route 6A Experience."

Ready to begin? Click "Next"...

2. Summer Travel Questions

Please answer a few questions about travel along Route 6A during the summer months (July or August)...

1. HOW YOU GO. On average, how many round-trips EACH WEEK do you travel Route 6A by each of the following travel choices during the summer (July or August)?

car
public transit
bicycling
walking
other (list below)

2. Other travel choice (from Question 1 if applicable):

3. WHY YOU GO. On average, how many round-trips EACH WEEK do you travel Route 6A for each purpose during the summer (July or August)?

commuting to work, work trips during the day
shopping trips
dining/restaurant
office visits (e.g., dentist etc.)
visiting friends or relatives
sight-seeing, recreation
other (list below)

4. Other Trip Type (from Question 3 if applicable):

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Route 6A - Cape Cod Scenic Byway

5. Estimate your percentage of Route 6A travel distance by travel choice during the summer (July or August). Total=100:

car
public transit
bicycling
walking
other (list below)

6. Other travel choice (from Question 5 if applicable):

3. Off-Season Travel Questions

...now, please answer a few questions about travel along Route 6A during the off-season (not July nor August).

1. HOW YOU GO. On average, how many round-trips EACH WEEK do you travel Route 6A by each of the following travel choices during the off-season (not July nor August)?

car
public transit
bicycling
walking
other (list below)

2. Other travel choice (from Question 1 if applicable):

3. WHY YOU GO. On average, how many round-trips EACH WEEK do you travel Route 6A for each purpose during the off-season (not July nor August)?

commuting to work, work trips during the day
shopping trips
dining/restaurant
office visits (e.g., dentist etc.)
visiting friends or relatives
sight-seeing, recreation
other (list below)

4. Other Trip Type (from Question 3 if applicable):

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Route 6A - Cape Cod Scenic Byway

5. Estimate your percentage of Route 6A travel distance by travel choice during the off-season (not July nor August). Total=100:

car
public transit
bicycling
walking
other (list below)

6. Other travel choice (from Question 5 if applicable):

4. Identifying Transportation Problems

...and now help identify transportation problems along Route 6A

1. In order of importance (#1 is the MOST dangerous), please list up to five Route 6A locations which experience critical SAFETY problems:

Dangerous Route 6A location #1:
Dangerous Route 6A location #2:
Dangerous Route 6A location #3:
Dangerous Route 6A location #4:
Dangerous Route 6A location #5:

2. In order of importance (#1 is the MOST serious), please list up to five Route 6A locations which experience SERIOUS traffic delay problems.

Route 6A traffic delay location #1:
Route 6A traffic delay location #2:
Route 6A traffic delay location #3:
Route 6A traffic delay location #4:
Route 6A traffic delay location #5:

3. Please rate how well Route 6A provides for travel by the following travel choices:

	rating
car	
public transit	
bicycling	
walking	
other (list below)	

.

5. Potential Solutions

Please tell us what you think about some possible solutions:

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Route 6A - Cape Cod Scenic Byway

1. What do you feel are the most effective AND acceptable strategies to address traffic flow and safety and the quality of travel along Route 6A?

	Extremely Ineffective/ Uncceptable	Somewhat Ineffective/ Unacceptable	Neutral/No Harm or Benefit	Somewhat Effective/ Acceptable	Extremely Effective/ Acceptable
roadway widening to increase width of travel lanes	◯	◯	◯	◯	◯
narrowing of travel lanes to reserve width for others (e.g., bikes & pedestrians)	◯	◯	◯	◯	◯
roadway widening to provide width for others (e.g., bikes & pedestrians)	◯	◯	◯	◯	◯
ban/restrict large vehicles (trucks, tour buses, etc.)	◯	◯	◯	◯	◯
add/improve public transportation (local/regional bus service)	◯	◯	◯	◯	◯
install amenities for public transit users (e.g., benches, shelters, bus pullout areas)	◯	◯	◯	◯	◯
pedestrian paths offset from the roadway	◯	◯	◯	◯	◯
multi-use (bikes, etc.) paths offset from the roadway	◯	◯	◯	◯	◯
traditional intersection improvements (e.g., turning lanes, traffic signals)	◯	◯	◯	◯	◯
"Traffic Calming" techniques to reduce excessive speed (e.g, roundabouts, changes in pavement texture, short sections of lane narrowing, etc)	◯	◯	◯	◯	◯
remove roadside hazards including historic trees	◯	◯	◯	◯	◯
reduce route 6A traffic by reintroducing passenger rail service to Cape Cod	◯	◯	◯	◯	◯
reduce future increases in traffic by acquiring developable land for conservation	◯	◯	◯	◯	◯
remove signage to reduce distraction	◯	◯	◯	◯	◯
install additional signage for guidance and information (e.g, street name signs)	◯	◯	◯	◯	◯
Other (list below)	◯	◯	◯	◯	◯

.

*** 2. Do you own or operate a business on Route 6A?**

◯ No

◯ Yes

6. Business Owner/Operator Information

Here are a few questions for owners & operators of businesses along Route 6A.

If you do not own/operate a business on Route 6A please click the "<< Prev" button at the bottom of this page to correct your answer on the previous page.

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Route 6A - Cape Cod Scenic Byway

1. Which of the following best describes the type of business you own or operate along Route 6A

◯ Retail Store ◯ Professional Services ◯ Lodging ◯ Food Service ◯ Other

Other (please specify)

2. Is your business part of a typical Route 6A "cluster?" Select the best category:

◯ Not part of a cluster
◯ Antiques & Collectibles
◯ Art Gallery and/or Studio
◯ Bed & Breakfast
◯ Fine Dining Restaurant
◯ Entertainment
◯ Recreation
◯ Other

Other (please specify)

3. How important are the following customer groups to the success of your business?

	Essential	Very Important	Important	Not Important	Immaterial
Day trippers from off-Cape	◯	◯	◯	◯	◯
Overnight visitors	◯	◯	◯	◯	◯
Seasonal residents	◯	◯	◯	◯	◯
Year-round residents	◯	◯	◯	◯	◯
Other	◯	◯	◯	◯	◯

Other (please specify)

4. Is your business open year round? If "no", please indicate months of operation in the next question.

◯ Yes, open year-round
◯ No, only open during certain months (see next question)

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Route 6A - Cape Cod Scenic Byway

5. For business NOT open year-round. During which months of the year is your business open? Please check all that apply:

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December

6. How many years has your business been located along Route 6A?

Number of Years:

7. Is your business...? (Please check all that apply)

- ☐ Located in/next to your home
- ☐ Owner-operated
- ☐ Locally owned but not owner-operated
- ☐ A franchise
- ☐ A non-franchise chain
- ☐ Other

Other (please specify)

8. How important is being located on Route 6A to the success of your business?

- ◯ Essential
- ◯ Very Important
- ◯ Important
- ◯ Not Important
- ◯ Immaterial

9. What are some of the benefits of being located on Route 6A to your business?

10. How important is maintaining the historic character of Route 6A to the success of your business?

- ◯ Essential
- ◯ Very Important
- ◯ Important
- ◯ Not Important
- ◯ Immaterial

11. For each of the following elements of HISTORIC CHARACTER, please indicate the importance of each to the success of your business:

	Essential	Very Important	Important	Not Important	Immaterial
Historic buildings	◯	◯	◯	◯	◯
Street tree canopy	◯	◯	◯	◯	◯
Narrow curving roadway	◯	◯	◯	◯	◯
Open vistas	◯	◯	◯	◯	◯
Other	◯	◯	◯	◯	◯

Other (please specify)

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Route 6A - Cape Cod Scenic Byway

12. What kind of impact - positive or negative - do the following issues along Route 6A have on the success of your business?

	Very positive	Positive	No impact	Negative	Very negative
Traffic congestion	◯	◯	◯	◯	◯
Limited public transportation	◯	◯	◯	◯	◯
Business signage restrictions	◯	◯	◯	◯	◯
Historic-style directional sign posts	◯	◯	◯	◯	◯
Overall number of signs along Route 6A	◯	◯	◯	◯	◯
Aging street trees not being replaced	◯	◯	◯	◯	◯
Narrow or imperfect sidewalks	◯	◯	◯	◯	◯
Limited parking availability	◯	◯	◯	◯	◯
Other	◯	◯	◯	◯	◯

Other (please specify)

13. Do your customers/patrons have difficulty finding your business?

◯ Often ◯ Sometimes ◯ Never

14. How often do your customers use the following modes of transportation to get to your business?

	Often	Sometimes	Never
Automobile	◯	◯	◯
Walking	◯	◯	◯
Biking	◯	◯	◯
Public Transit	◯	◯	◯
Other	◯	◯	◯

Other (please specify)

15. How many traffic accidents have happened over the past five years as cars enter or exit your business from Route 6A?

Number of accidents (last 5 years)

16. To help us identify problem areas, please provide us with your BUSINESS name/address (your responses will be kept confidential).

Company:
Address:
City/Town:
ZIP/Postal Code:

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Route 6A - Cape Cod Scenic Byway

17. What are some of the problems of being located on Route 6A for your business?

7. Respondants' Information

Please tell us a few things about yourself. YOUR PERSONAL INFORMATION WILL BE KEPT CONFIDENTIAL! By including your name and address we can notify you of upcoming meetings and opportunities to comment on potential changes in the Route 6A area.

1. Please list contact information for announcements etc. (your information will be kept confidential).

Name:
Company:
Address:
Address 2:
City/Town:
State:
ZIP/Postal Code:
Email Address:

2. Which category best applies to you?

- ◯ permanent resident
- ◯ seasonal/part-time resident
- ◯ vacationer/visitor

Other (please specify)

3. Age?

- ◯ 15 & under
- ◯ 16-25
- ◯ 26-45
- ◯ 46-65
- ◯ over 65

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Route 6A - Cape Cod Scenic Byway

4. Household Income

- ◯ 0-$10,000
- ◯ $10,001-$25,000
- ◯ $25,000-$40,000
- ◯ $40,001-$60,000
- ◯ $60,001-$100,000
- ◯ over $100,000

5. Now it's your turn! Please enter any comments/questions or suggestions that you think will be helpful in protecting and enhancing the Route 6A Experience.

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CAPE COD COMMISSION

COMMENTS FROM THE PUBLIC

Listed below is a synopsis of comments received at meetings, in writing, or by telephone. (The online survey provided additional input. See the Public Participation Process section.)

Name/Town or Affiliation	Date	Comments
B. Bergstrom	6/23/09	Bury utility lines; post directional signs to guide bikes off of Rte 6A. Marion, MA is beautiful because it has no overhead line. Suggested moving the lines off of 6A and relocating them.
C. Marzigliano/Yarmouthport	6/23/09	Do not widen 6A. Its character is tourist attraction. Keep trucks off of 6A. Provide trails for bikes. Make speed limits consistent. Sidewalks need repair.
B. Muse/Yarmouthport business owner	6/23/09	Concern about speeding and pedestrian safety. Poor sight distance in Yarmouthport Village. Need comfort stations on 6A.
D. Oliver/Yarmouthport	6/23/09	Utility line burial could damage trees. Need better police enforcement of speed limit.
W. Jones/West Barnstable	6/23/09	Too much speeding on 6A. Need standard speed limit for roadway. Utility lines go through trees and vertical spread of lines is increasing.
Mr. _____, school bus driver	6/23/09	Need better enforcement of speed limit.
N. Scholl/Barnstable	6/23/09	Blinding sun affects drivers' ability to see. Dangerous speeds by Mary Dunn Road and Indian Trail.
R. Berry/	6/23/09	Highway surveys are incomplete. Seasonal congestion pricing to address traffic concerns.
M. Weiss/W. Barnstable	6/23/09	Can CCC issue a plan all 6A towns uniformly follow which is enforced. Unless road can be widened, no point in talking about bike travel on it. Walking it also infeasible. Make road car-free and open it to bikes and pedestrians.
D. Payson/Brewster	6/23/09	Trees planted in Barnstable Village in 1996 have been removed and there's no plan to replace them. Bike and pedestrian access is poor. Provide slow public transit on route to keep cars from going too fast. Also having bikes & pedestrians forces cars to slow down. He also noted stormwater management /drainage issues. Noted that when roads are upgraded, ADA requires provision of sidewalks.
J. Harris/Barnstable		Don't widen road but provide bike and pedestrian access where possible.
G. Jessup/Barnstable Old King's Highway Committee	6/23/09	As a bicyclist, concern about dangers such as granite curbs and trucks. Use grass strips for separation, not curbs. Need directional signage to guide bicyclists to alternate routes.
F. Schofield/Brewster	6/23/09	Questions about speed limit determination. More sidewalks needed in Brewster.
Ms. _____/retired police officer	6/23/09	Speed limit is not enforced on 6A.
Ms. _____	6/23/09	Trees have been removed but not replaced.
Ms. _____ /Brewster		Don't change speed limit, but improve enforcement.
A. Canedy/Cummaquid, Barnstable Town Councilor	6/23/09	Barnstable's Route 6A Committee could serve as model for other communities; hopes CCC will work with them. She noted that the towns can't afford the cost of owning and maintaining their roadway sections. 6A committee is working with MassDOT and local disabilities committee reps to provide sidewalks that are accessible and consistent with historic character.
D. Ellis/Bourne	6/23/09	Bourne segment bears brunt of 6A traffic. Trucks are a big problem, especially at Adam Street intersection which is highest crash location on corridor.

M. Wirtanen/West Barnstable	6/23/09	Burying power lines also would reduce number of power outages during storms. Sidewalks need better maintenance. Motorcycle noise impacts quality of life.
J. Dorris/medical office in Barnstable	6/23/09	Storm drains need repair/maintenance, better stormwater management practices.
C. Belham/Dennis	6/23/09	Beautification committee in Dennis planted 65 trees. Towns should take control of their 6A sections.
E. Taylor/Brewster CCC member	6/23/09	Getting public support to change speed limits would be helpful. Town select-boards should request better police speed limit enforcement.
Mrs. Trafficonte/Barnstable (?)	6/26/09	Keep Route 6A as is; do not widen it. Keep historic character. Try fog lighting to make poles visible. Big trucks are a problem, using Mary Dunn Rd. Signs at Post Office and crosswalk are essential.
Rene Duval	6/26/09	Route 6A is the most beautiful part of Cape Cod. Do not widen it.
W. Northcross/CC Chamber of Commerce	6/24/09	Replace islands at the 132/6A intersection with roundabout.
D. Fortier/Dennis Town Planner	6/24/09	Concern about street with 6A as only access point.
R. Berry & K. Benson/Barnstable	6/24/09	CCC should finance tree inventory; provide cost of undergrounding utilities and how to finance; use transponder to monitor speeds; congestion pricing in summer; consider consolidation of use/activities on Rte 6A.
A. Canedy/Cummaquid, Barnstable Town Councilor	7/20/09	Request to locate pilot improvement project in Barnstable segment.
J. Douglas/Brewster Asst. Town Administrator	6/26/09	Need more sidewalks in Brewster.
C. Powicki/Brewster	3/26/10	Recommendations concerning siting wind energy facilities on Route 6A, including having the CCC convene a workshop of OKH committee members and other stakeholders; conduct a viewshed analysis of the corridor; and develop siting criteria for wind and solar energy projects on the corridor.
H. Ross/Barnstable	4/9/10	Maintain scenic nature of the road; trees close to roadway help keep speed down; replace removed trees outside the power line and road layout but proximate to the street. Loud motorcycles are a problem.
S. Kelly/Barnstable	4/9/10	Removing debris and overgrown vegetation from sidewalks will help "widen" them; do severe pruning on sidewalks to improve access and safety.

NSTAR ELECTRIC GAS

Questions and Answers on Underground Electrical Power

SOME BASIC FACTS ON ELECTRIC DISTRIBUTION

- Approximately 3,000 overhead electric distribution "pole miles" on Cape Cod and Martha's Vineyard
- Since 1970, virtually all new residential subdivisions on the Cape and Vineyard (nearly 750 miles) added to NSTAR's distribution system have been underground.
  Over 200,000 electric customers on Cape Cod & Martha's Vineyard.
- Approximately 13,500 municipal street lights

1. What is NSTAR's position on the installations of an underground electrical distribution system on the Cape and Vineyard?

   NSTAR is supportive of the concept of an underground system for the Cape and we stand ready to work with local communities, the Cape Cod Commission, and our customers to make it happen. Our major concern is the cost of construction and the significant impact that it would have on customers.

2. What are the potential benefits and drawbacks of an underground electrical system?

Benefits	Drawbacks
Aesthetics Since lines and cables are underground there are no poles and wires that clutter the view run through scenic areas	Aesthetics None
Storm & Emergency –related problems: Underground lines are less susceptible to weather-related reliability problems, damage from storms, problems caused by trees, downed lines form car accidents, and other such incidents.	Storm & Emergency –related problems: Cable faults and equipment failures still occur. Service problems are harder to locate, testing and isolation of a problem is more difficult than with overhead, leading to longer outages.
Safety considerations: There would be less of a safety risk from downed wires with an underground system	Safety considerations: Pad mounted transformers would be used to provide electric service. They would be located along or near streets, and thus are subject to damage from motor vehicles accidents, which would also cause outages. An extensive underground system would also mean greater

	potential for problems related to digging, street and road work, construction, tree planting and other yard work could increase safety problems.
Benefits	**Drawbacks**
Construction Costs: Jobs, hopefully for local workers	Construction Costs: Cost is the most overwhelming hurdle in switching to an underground distribution system form an overhead system 9 see cost estimates below) Paying for the cost of burial is the primary concern. This would include: ■ Municipal assessment: Installing an underground system would likely be paid for by some kind of municipal assessment on each customer – a fact both family and business customers and COM/Electric would find difficult to justify. ■ Hook Up Cost: Individual family and business customers would have to pay for replacement of existing overhead service on their property with a new underground service from the main underground electrical line to their homes or businesses. This would cost approximately $3,000 or more per family or business, depending on how far their building is from the street/duct, size and type of service, and possible construction costs.
Maintenance Costs Our estimates, based on extensive experience, show that the cost of maintaining an underground electrical distribution system is not appreciably different than maintaining an overhead system. NSTAR's cost of tree-trimming would be reduced, however.	Maintenance Costs While tree-trimming costs would be reduced, NSTAR's cost for items such as "dig-safe" cable location would increase significantly. In addition, municipal tree-trimming costs would likely increase to pick up some trimming which NSTAR does annually.
Right-of-Way and Property issues: No benefit.	Right-of-Way and Property issues: Placing the system underground will require NSTAR to acquire rights form municipalities or private property owners in order to bury the electrical lines NSTAR would have to have continual, unencumbered access to those area's for normal maintenance and in the case of emergencies. Approximately every 5th house will need to give up an 8X8 area road frontage for a padmounted transformer.
Construction and Disruption No Benefit	Construction and Disruption The installation of a duct and manhole system (see

	below) or a direct burial system would require substantial construction on nearly every roadway and property on the Cape. This construction would not likely be done during the summer season because of its negative impact on summer visitors. Since such a project would likely take at least 20 years to complete, it would mean some inconvenience and possible traffic delays for year round residents over these years. Once the system is built, ongoing maintenance would also cause some traffic disruptions as well.

3. What will it cost to relocate NSTAR's overhead distribution line underground?

Depending upon which underground method is used, estimates currently range between approximately $5.3M per mile for a conduit and manhole system, as opposed to $618 ,000 per mile to install new overhead line. To replace all NSTAR lines with an underground system on the Cape, it would cost between $1.7 and $2.2 billion.

4. Who would pay for the cost of this underground installation?

Unless other funding sources can be found, customers would pay the cost. As an example, the $2.2 billion cost for a underground conduit electrical system works out to be the equivalent of about $13,200 per family or business. If one were to amortize the cost over 30 years, similar to a mortgage, "it would be the equivalent of $85.00 for each customer monthly.

5. Are there other funds or ways to pay for this?

Massachusetts General Laws Chapter 166, Section 22A and 22N establishes a way for municipalities to prohibit future overhead electrical distribution systems and relocate existing overhead lines. ***Only facilities located on a public way- not those on private property- are subject to this law****.*
The statute requires Selectmen or City Councils to hold a public hearing and adopt on ordinance. Once the ordinance is adopted a utility goes about the process of removing distribution lines; the cost is recovered form customers within that municipality through a rate differential and a two percent surcharge on customers. In addition, to the utility equipment, a municipality must remove- at its own expense- all police, fire and similar alarm systems and equipment located on the overhead lines. Utility customers must also pay a private electrician to connect to the new, relocated main lines.
To date, only one municipality – The Town of Needham- has made use of this law. This was done on one street in the Town, and customers paid a surcharge on their bills.
Since the assessment is limited to 2percent of municipal revenues annually, based on current revenues for Cape Cod and Vineyard communities, (and absent a rate differential) this would provide about $4.14 million annually. At that rate, it would take more than 500 years to pay off the cost of the project.

6. Couldn't we utilize any savings in maintenance to fund the cost of burying overhead lines?

There is no appreciable savings in maintenance for an underground system. Currently, it costs about $4 million per year to maintain the existing overhead system on Cape Cod. Even if it were possible to apply this entire amount each year to the cost of burial, it would take more than 500 years to fund the project. Obviously, this is not a feasible alternative, and requires us to find another way of paying for the project.

7. Have other communities or countries buried power lines?

Underground electrical distribution lines are used in some European countries; Holland, West Germany, Denmark and the United Kingdom have significant portions of their electrical systems underground. Some of these systems were built following he devastation of World War II, and this were essentially built from scratch and do not necessarily compare with our situation. Based on our own surveys, underground power systems in Europe tend to be more prevalent in urban areas than in rural ones.
In the United States, "under-grounding" is primarily used in dense urban areas where there are such heavy concentrations of overhead electric, telephone, cable television and fiber optic cable that normal utility poles couldn't support the weight. It is also used in some suburban areas where underground systems are built by private developers, generally in new subdivisions, where the current and future electrical load is well defined and when cost is not a major issue.
In addition, there are differences in governmental and utility structures between the U.S. and Europe that caused underground lines to be installed, in some cases European legislatures forced utilities to put in underground systems.
Despite the fact that some European countries have larger percentages of their electrical power underground than in the U.S., North America actually has many more overall miles of underground electrical system than Europe.
In 1990, Boston Edison, under a plan adopted by the Needham Town meeting, began converting two blocks in the Town of Needham to an underground system. This project cost approximately $1 million, and was financed through a 2% surcharge to customers.

8. If an underground system can improve reliability, why haven't you built one?

Frankly, the biggest problem (though not the only one) is cost – and that cost would have to be passed along to our customers. The reliability of an underground system is not appreciably greater than an overhead one; currently, NSTAR has a99.97% reliability level on the Cape; the City of Cambridge underground system has a 99.99% reliability level. Consumers would have to weigh the slight increase (two one-hundredths of a percent or less) in reliability with the 1.7 to 2.2 billion expense.

9. How do we go about creating an underground distribution system?

The best and most efficient way to bury the cable would involve actually putting conduits underground that would carry wires and cables. The conduits make the service and repair operations easier to perform in a buried system. This system would also require manholes at intervals to enable quick and easy access to the lines in case of an emergency or service problem. This is our current standard for an underground system and is in line with accepted industry practice.

In addition, all residences and businesses currently getting service from overhead lines would require modifications, including burying a service line to the lain conduit.
In order to get rid of poles and overhead wires, all lines would have to be removed and buried; this would mean not only Com/Electric lines, but telephone, cable TV, fire alarm and other municipal system lines and fiber optic cable as well. Thus, other companies would incur costs also- costs which would likely be passed along to consumers.
Lastly, all current streetlights on poles would have to be taken down and new lighting installed. Since there are 16,000 streetlights on Cape Cod and the Vineyard, the cost to replace them all would be around $32 million.

10. Can't you just bury cable in the ground? Why do you need conduit?

A "direct- buried" system is another alternative. However, burying the cable alone, without any way to easily access it (such as a manhole and conduit system) means that every time there is a service problem, the street or the ground would have to be dug up to find the source of the problem. Pin-pointing that source would become much more difficult. You might dig up an area and find that it was not the source of the problem. This would lead to longer power outages.
NSTAR actually has some experience with a direct buried system to draw upon. In the 1960's and early 1870's some new housing developments had 'direct-buried" underground systems installed. Cable faults provided a great many problems, and we were forced to dig up customers lawns, driveways and roads to make repairs when those problems occurred – a great inconvenience and nuisance for our customers.
Lastly, underground wires are not impervious to floods or rodents. For example, a few years ago, Central Maine Power buried power lines coming into it's Augusta offices; shortly afterwards, they lost power when a rat burrowed inside and gnawed through the line, short circuiting the cable.
Our experience and that of others, therefore, has shown that a conduit system is preferred to a direct buried system. If we are going to utilize an underground system, we ought to do it once and do it correctly.

11. What are the next steps?

Municipalities and customers need to make decisions based on the many factors involved. An extensive educational program should be a strong part of the planning process. Customers need to know the impacts and costs of relocating to an underground distribution system. NSTAR stands ready to work with municipalities and customers in considering options for their electric delivery system, such as burial of lines in certain areas selected by municipalities. This could make both the expense and the amount of time needed to complete a project more manageable.