



CAPE COD
COMMISSION

Cape Cod Metropolitan Planning Organization (MPO)

Unified Planning Work Program for Transportation Planning Activities

(October 1, 2015 – September 30, 2016)

Endorsed July 20, 2015





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CAPE COD METROPOLITAN PLANNING ORGANIZATION Unified Planning Work Program for Transportation Planning Activities October 1, 2015 – September 30, 2016

Endorsement Date: July 20, 2015

Cape Cod Metropolitan Planning Organization Members

Stephanie Pollack, Secretary and Chief Executive Officer, Massachusetts Department of Transportation (MassDOT)

Thomas J. Tinlin, Acting Administrator, MassDOT Highway Division

Tom Guerino, Chair, Cape Cod Regional Transit Authority

Richard Roy, Cape Cod Commission

Jessica Rapp Grassetti, President, Barnstable Town Council

Leo Cakounes, Barnstable County Commissioners

R. Patrick Ellis, Mashpee Selectman, for Bourne, Falmouth, Mashpee, and Sandwich

Sheryl A. McMahon, Dennis Selectman, for Dennis and Yarmouth

Sims McGrath, Orleans Selectman, for Brewster, Chatham, Harwich, and Orleans

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Cape Cod Metropolitan Planning Organization Endorsement DATE: July 20, 2015

The UPWP development process is being used to satisfy the public hearing requirements of the FTA's Section 5307 program and this public notice of public involvement activities and time established for public review and comments on the UPWP will satisfy the FTA Program of Projects requirements.

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CAPE COD METROPOLITAN PLANNING ORGANIZATION (MPO)
Unified Planning Work Program (UPWP)
October 1, 2015 through September 30, 2016

The signatures to follow certify that the Cape Cod Metropolitan Planning Organization (MPO), at their meeting on July 20, 2015, hereby approves the following action in accordance with the Comprehensive, Cooperative and Continuing transportation planning process. In accordance with the requirements of 23 CFR Part 450 Section 308(c) of Federal Regulations, the MPO for Cape Cod has completed its review and hereby endorses the Cape Cod Unified Planning Work Program for Transportation Planning Activities for October 1, 2015 through September 30, 2016.

Stephanie Pollack, Secretary/Chief Executive Officer – Massachusetts Department of Transportation (MassDOT)

Thomas Tinlin, Acting Administrator
Massachusetts Department of Transportation
(MassDOT) Highway Division

Richard Roy, Chair
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Tom Guerino, Chair
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Sims McGrath
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Robert Weinstein
Eastham, Provincetown, Truro, Wellfleet



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CAPE COD JOINT TRANSPORTATION COMMITTEE (CCJTC) MEMBERS

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George Sala	Bourne
(vacant)	Brewster
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Joseph Rodricks, PE	Dennis
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Lincoln Hooper	Harwich
Catherine Laurent	Mashpee
Mark Budnick	Orleans
David Gardner	Provincetown
Paul S. Tilton, PE	Sandwich
Jason Norton	Truro
Mark Vincent	Wellfleet
Kathy Williams	Yarmouth
Dr. Edward Gross	Bicycle Representative

CCJTC EX-OFFICIO MEMBERS

Tom Cahir	Cape Cod Regional Transit Authority
Pamela S. Stephenson	Federal Highway Administration
Mary Beth Mello	Federal Transit Administration
Bryan Pounds	Massachusetts Department of Transportation
Tim Kochan	MassDOT, Highway Division, District 5
Edward DeWitt	Association to Preserve Cape Cod



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Introduction

This Unified Planning Work Program (UPWP) is developed annually by the Cape Cod Commission transportation staff on behalf of the Cape Cod Metropolitan Planning Organization, in accordance with the requirements in SAFETEA-LU and federal planning regulations including the newest federal transportation legislation “Moving Ahead for Progress in the 21st Century” (MAP-21). MAP-21 makes several changes such as the elimination of discretionary programs, emphasis on performance measures, and Performance Management in general. Another new feature is the introduction of the “Transportation Alternatives Program” (TAP) that encourages enhancements such as multi-use paths and safe routes to schools.

The UPWP describes all significant transportation planning activities planned on Cape Cod over the twelve (12) month period of October 2015 to September 2016, regardless of lead organization and funding source. The following are the major transportation planning areas:

1. **Management and Support of the Planning Process and Certification Activities** – the efforts required for coordinating transportation planning activities between CCC and Metropolitan Planning Organization (MPO) member communities, local, regional, state and federal agencies; efforts required to maintain the public participation process; Environmental Justice strategies; efforts required for the administration of the CCC contract with the Massachusetts Department of Transportation (MassDOT); development and approval of the UPWP and the Transportation Improvement Program (TIP); and enhancement of the technical capacity of the planning process.
2. **Data Collection and Analysis Activities** – to continually gather and update traffic, crash, and road data necessary for transportation planning and analysis; to maintain databases; to develop and update Cape Cod’s travel demand forecasting model; to review safety data, goals, objectives, and strategies to promote safety.
3. **Short- and Long-Range Transportation Planning** – efforts to update and maintain the Regional Transportation Plan for Cape Cod, a certification activity that requires a new plan every four years and development of the Congestion Management Program for the region. Also includes efforts to perform special planning studies of corridor



safety/traffic flow and transit and integration of special studies into the regional transportation plan. Emphasis areas include identification of strategies to support the economic vitality of the metropolitan area, transportation security, emergency planning, strategies to promote smart growth and economic development patterns, environmental protection and energy conservation and preservation of the existing transportation system.

4. Other Technical Activities – to provide other technical assistance to the region, including assistance in the design and implementation of projects, participating in special studies, coordination with transit agencies and assistance in the planning, design, and development of the Intelligent Transportation System for Cape Cod. Special emphasis areas include enhancing the integration and connectivity of the transportation system, across and between modes, for people and freight and promotion of Operation and Management Strategies.
5. Regulatory Review and Planning Assistance to the Towns – review of Developments of Regional Impact and assistance in the development and implementation of Local Comprehensive Plans and Districts of Critical Planning Concern.

Appendix – efforts that are awaiting grant funding that may be initiated during the UPWP period, including efforts proposed by the National Park Service.

COORDINATION WITH FEDERAL TRANSPORTATION PLANNING FACTORS

All tasks of the UPWP will be implemented with consideration of federal transportation planning factors. This discussion relates to the general topic of Cape Cod MPO transportation planning and is intended to provide an overview to the public. Each planning factor may apply to a varying degree to each specific UPWP task. Cape Cod MPO transportation planning goals are manifested in the Cape Cod Regional Transportation Plan (RTP) referenced in the discussion below. The UPWP is developed in coordination with the eight MAP-21 planning factors as follows:



1. SUPPORT THE ECONOMIC VITALITY OF THE METROPOLITAN AREA,
ESPECIALLY BY ENABLING GLOBAL COMPETITIVENESS, PRODUCTIVITY,
AND EFFICIENCY

The Cape Cod MPO staff shall apply specific criteria in the review of transportation strategies. These criteria are applied to changes of delay and emissions. Reduction in traffic delay has a direct consequence on economic vitality both through the timely arrival of commuters and goods and reduction in fuel expenses and losses due to air pollution. The RTP directly supports these efforts through the goal: “Maintain, protect, and enhance the natural environment while strengthening the economy.” The CCC directly supports regional productivity through its economic development mission (including full-time staff) manifested in the Regional Policy Plan and support of the Cape Cod Economic Development Council’s initiatives, including support of the federally approved Cape Cod Comprehensive Economic Development Strategy priority projects.

2. INCREASE THE SAFETY OF THE TRANSPORTATION SYSTEM FOR
MOTORIZED AND NONMOTORIZED USERS

The Cape Cod MPO staff shall apply specific criteria in the review of transportation strategies. These criteria are applied to estimated changes in safety. The primary goal of the RTP is focused on safety: “Provide safe travel options for all users.” Safety is of such importance that it is recognized in its major appendix of the RTP.

3. INCREASE THE SECURITY OF THE TRANSPORTATION SYSTEM FOR
MOTORIZED AND NONMOTORIZED USERS

Goals of the RTP related to security include: “Provide safe travel options for all users” and “Preserve, maintain, and modernize the existing transportation system.” Security is of such importance that it is recognized in a major appendix of the RTP. One area of additional security planning that applies to Cape Cod is that of traffic impacts due to weather events such as impending hurricanes. CCC staff is continuing to participate in the Massachusetts Emergency Management Agency (MEMA) Massachusetts State Police efforts regarding the “Cape Cod Emergency Traffic Plan.”

4. INCREASE THE ACCESSIBILITY AND MOBILITY OF PEOPLE AND FOR
FREIGHT

The Cape Cod MPO staff shall apply specific criteria in the review of transportation strategies. These criteria are applied to improvements in multi-modal accessibility. The RTP supports these efforts through goals: “Provides a variety of healthy transportation options to all users” and “Improve



efficiency and reliability of freight movement.” The RTP includes an appendix addressing freight issues.

5. PROTECT AND ENHANCE THE ENVIRONMENT, PROMOTE ENERGY CONSERVATION, IMPROVE THE QUALITY OF LIFE, AND PROMOTE CONSISTENCY BETWEEN TRANSPORTATION IMPROVEMENTS AND STATE AND LOCAL PLANNED GROWTH AND ECONOMIC DEVELOPMENT PATTERNS
The RTP directly supports this planning factor through two goals: “Maintain, protect, and enhance the natural environment while strengthening the economy” and “Support livable communities and village centers that strengthen the long-term sustainability of the region.” The RTP and therefore the UPWP includes a focus on addressing Climate Change. Where appropriate, UPWP tasks will include assessments of vulnerabilities and negative risks that climate change effects or extreme weather events pose, to the Cape’s transportation infrastructure. These vulnerabilities and risks will be seriously considered when planning future improvements. Where appropriate, UPWP tasks will develop adaptation strategies that will enable the Cape Cod region to implement improvements appropriately. The reduction of greenhouse gas emissions (GHG) remains an important goal in addressing climate change. UPWP tasks are encouraged that reduce VMT and congestion.

6. ENHANCE THE INTEGRATION AND CONNECTIVITY OF THE TRANSPORTATION SYSTEM, ACROSS AND BETWEEN MODES, FOR PEOPLE AND FREIGHT

The Cape Cod MPO staff shall apply specific criteria in the review of transportation strategies. These criteria are applied to improvements in multimodal accessibility. The RTP supports these efforts through its goals: “Provides a variety of healthy transportation options to all users” and “Improve efficiency and reliability of freight movement.” Where appropriate, UPWP tasks will support the enhancement of the movement of goods throughout the Cape Cod region. To further this goal, Cape Cod MPO staff will continue to develop knowledge and skills regarding the integration of goods movement. The RTP includes an appendix addressing freight issues.

7. PROMOTE EFFICIENT SYSTEM MANAGEMENT AND OPERATION

The RTP supports this planning factor through two goals: “Reduce congestion and improve travel time reliability” and “Preserve, maintain, and modernize the existing transportation system.”



8. EMPHASIZE THE PRESERVATION OF THE EXISTING TRANSPORTATION SYSTEM

The RTP supports this planning factor through the goal: “Preserve, maintain, and modernize the existing transportation system.” Through the CCC regulatory process, development projects are required to provide traffic mitigation. Additionally, a significant number of acres of developable land have been conserved through the CCC regulatory process — thereby reducing future transportation impacts.

STAFF DEVELOPMENT

Throughout the year staff will be provided with opportunities for professional development in support of the various UPWP tasks. For example, to attend a workshop that focuses on reducing crashes at hazardous intersections the workshop fee and staff time will be billed to the UPWP task related to safety.



Task #1 – Management and Support of the Planning Process and Certification Activities

TASK 1.1 - UNIFIED PLANNING WORK PROGRAM (CERTIFICATION ACTIVITY)

Objectives: To develop a Unified Planning Work Program (UPWP), in accordance with the requirements in MAP-21 and federal planning regulations, and to obtain MPO endorsement of the UPWP. To prepare progress reports, as needed.

Previous Work: Previous UPWPs (most recent MPO-endorsed FY 2015 UPWP: June 2014; endorsement of FY 2016 UPWP expected July 2015)

Procedures: In conformance with applicable Federal and State guidelines, prepare a UPWP which describes all significant transportation and transportation-related planning activities anticipated to be carried out in the region during the period, regardless of funding sources or lead organization. Maintain the UPWP and make amendments as necessary.

Products: Unified Planning Work Program for Transportation Planning Activities for the period October 1, 2016 to September 30, 2017. Amendments to the current UPWP will be submitted as necessary. Monthly progress reports on PL activities performed under the UPWP and an annual report of transportation planning activities.

Schedule:

- Draft UPWP anticipated submission to MPO and CCJTC, June 2016
- Final UPWP anticipated submission to MPO, July 2016
- Monthly progress reports
- Annual Report

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$31,250	10 person-weeks



TASK 1.2 - TRANSPORTATION IMPROVEMENT PROGRAM (CERTIFICATION ACTIVITY)

Objectives: To prepare a program of transportation improvement projects that is consistent with MAP-21, the region's transportation plan, the State Implementation Plan, EPA's Air Quality Conformity Regulations, and FHWA/FTA's Planning Regulations. The Transportation Improvement Program (TIP) will include a four-year program of projects. The TIP will be presented for endorsement by the Metropolitan Planning Organization (MPO) in accordance with federal regulations and the region's Public Participation Plan.

Previous Work:

"Cape Cod Transportation Improvement Programs (TIPs)," and amendments as needed, 1988 to present;

- Latest endorsed TIP FFY 2015-2018 (endorsed June 2014)
- FFY 2016-2019 TIP (endorsement expected July 2015)

Procedures: To continue to participate in a committee of Regional Planning Agency (RPA) Directors, Federal and State officials to cooperatively develop financial estimates, evaluate projects, and schedule of TIP development.

I – Preparation of the draft TIP

A) General

1. The TIP is a staged, multi-year, intermodal program of transportation projects which are consistent with the Regional Transportation Plan (RTP). It is the programming document to implement FHWA and Federal Transit Administration (FTA) Regional Transportation Plan projects.
2. Insure involvement of local officials and citizens through the Cape Cod Joint Transportation Committee and the Public Participation Plan
3. Provide assistance to municipalities in advancing TIP projects
4. Coordinate with MassDOT District 5, and the MassDOT Boston Office of Transportation Planning in developing project advancement
5. Include project within financial estimates (and other items)

B) Development of the four-year program of projects according to a uniform statewide format.

1. Update the list of transit and highway projects that are expected to require federal transportation funds during the active fiscal years of the TIP.
2. The list of projects may include information such as the following:
 - a. The official MassDOT identifying project title

- b. Project description
 - c. Estimated total cost
 - d. Proposed sources of federal and non-federal funds.
3. The total costs of projects seeking federal funds in each program year shall be in line with anticipated federal and state funds.

C) Public Participation

- Per the MPO approved Public Participation Plan.

II – TIP Approval

The TIP documents will be reviewed and endorsed by the MPO. The endorsed products will serve as a portion of the required air quality consistency documentation necessary for USDOT (FHWA/FTA) and EPA conformity determinations.

III – Modification/Amendment

A) Amendments to the TIP require MPO approval following the procedures and guidelines of the Cape Cod MPO's Memorandum of Understanding.

IV – Publication of Obligated Projects

- A) Description and costs of obligated TIP projects by program year
- B) Listing published within TIP, includes projects obligated within the period up to 90 days following the closing of the fiscal year in which the projects were obligated.

Products:

- TIP consistent with the State Implementation Plan and the Regional Transportation Plan
- Modifications/amendments to the TIP as required

Schedule: As determined by the MPO, FHWA, FTA, and MassDOT.

Funding/Staffing breakdown:

<u>Funding source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$38,750	12 person-weeks



TASK 1.3 - CCJTC AND MPO ACTIVITIES

Objectives:

To maintain an open comprehensive, cooperative and continuing (3C) transportation planning and programming process involving the local, regional, state, and federal levels of government in conformance with applicable federal and state requirements and guidelines.

Previous Work:

- Past maintenance of 3C process, including support to the CCJTC, the MPO, and member agencies

Procedures:

1. Provide administrative and technical support to the 3C regional planning process, such as:
 - a. Community liaison and assistance on transportation planning matters
 - b. Review of federal and state transportation programs and related documents as required
2. Provide for and support the public participation process in transportation planning for Cape Cod
 - a. Support Cape Cod Joint Transportation Committee (CCJTC)
 - b. Develop, support and participate in local parking, traffic, bikeway, and environmental committee meetings
 - c. Preliminary and follow-up work for meetings as required
3. Present transportation plans and programs (e.g., UPWP, Regional Transportation Plan, and TIP) developed through the public participation process to the Cape Cod Joint Transportation Committee and the Metropolitan Planning Organization (MPO) for appropriate action
4. Conduct efforts in conformance with federal, state and local requirements

Products:

- Viable 3C process, including CCJTC and public outreach
- Website updates, notices to news media, meeting notices
- Transportation program annual report
- Minutes and reports on CCJTC meetings
- Letters, memoranda, and notes as required
- Other products as required

Schedule:

Meetings typically held monthly

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$43,750	13.5 person-weeks

TASK 1.4 – ENVIRONMENTAL JUSTICE/TITLE VI

Objectives: To integrate the basic principles of Environmental Justice into the 3C Transportation Planning Process, including Limited English Proficiency, as necessary. To develop and maintain a Title VI Civil Rights program for the Cape Cod MPO. To account for Environmental Justice efforts within each task as appropriate.

Previous Work:

- Attendance at preliminary meetings with MassDOT and FHWA to discuss environmental justice requirements and receive guidance on ensuring compliance.
- Preparation of updates to the Cape Cod Regional Transportation Plan including information and strategies to ensure Environmental Justice.
- 2014 Title VI Report

Procedures: Coordination with the Cape Cod Regional Transit Authority and MassDOT, as required.

Products:

- Viable Title VI Civil Rights program for the Cape Cod MPO
- Incorporation of environmental justice principles into MPO activities

Schedule: Ongoing procedures

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$40,000	12.5 person-weeks



TASK 1.5 – PUBLIC PARTICIPATION PLAN

Objectives:

To ensure that all segments of the population are able to fully participate in transportation planning processes and has access to transportation facilities. To cooperate with stakeholders in the development of the Public Transit Human Services Transportation Plan. To engage the Mashpee Wampanoag Tribe in transportation planning.

Previous Work:

- Preparation of updates to the Cape Cod Regional Transportation Plan including information and strategies to ensure a viable public outreach process.
- Public Participation Plan (2015)
- Previous updates of the Public Participation Plan (PPP) (June 2007, Addendum in 2009)

Procedures:

Coordination with the Cape Cod Regional Transit Authority and MassDOT, as required.

Products:

- Revision of PPP, as necessary

Schedule:

Ongoing procedures

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$16,250	5 person-weeks



TASK 1.6 – REGIONAL TRANSPORTATION PLAN (Certification Activity)

Objectives:

To maintain and update the Regional Transportation Plan for Cape Cod providing greater integration of land use, transportation, and climate change data, in conformance with the federal transportation legislation: Moving Ahead for Progress in the 21st Century (MAP-21), and consistent with the goals and requirements of the Cape Cod Commission, towns, the MassDOT, FTA, and the FHWA. Consider all modes of transportation and both short- and long-range elements. Expand public accessibility to RTP effort in accordance with the Commission's Title VI program.

Previous Work:

- Regional Policy Plan for Cape Cod, 2009
- Regional Transportation Plan, approved by MPO, August 2011
- Interagency Scenario Planning Pilot Project, 2011
- Living Streets Design Manual for Cape Cod, 2013
- UPWP FFY14 Climate Change Risk and Vulnerability Assessment of Transportation Infrastructure, November 2013
- UPWP FFY15 Climate Change Mitigation & Adaptation Strategy for Critical Transportation Infrastructure, under development 2014
- INVEST sustainable highways self-evaluation tool, 2014
- 2014 Title VI Report and Public Participation Plan
- 2014 GIS-based Infrastructure Vulnerability Tool
- 2014 Freight Study
- 2014 "Section 208 Area-Wide Water Quality Management Plan for Cape Cod"
- Regional Transportation Plan, approval expected by MPO, July 2015

Procedures:

Updates to the Regional Transportation Plan (RTP). Potential amendment to RTP in FY 2016-2017 to include recommendations from MassDOT Cape Cod Canal Area Transportation Studies. Includes RTP conformity analyses and reassessment of fiscal constraint. Ongoing public outreach will include workshops and participation at meetings of local officials and issue-oriented groups focused on the environment and accessibility. These efforts will further involve Cape Cod environmental organizations and strengthen the link between transportation impacts and environmental analysis.

Work closely with MassDOT's Environmental Services section to ensure that any proposed projects have support and approval of MPO. Continue to



develop partnerships and conduct outreach with community groups and the Mashpee Wampanoag Tribe.

Continue to work with communities to identify Growth Incentive Zones and areas for higher Development of Regional Impact (DRI) thresholds designated through Chapter H of the Commission's regulations to promote research and development/light manufacturing, and identify appropriate transportation infrastructure to support these areas.

Strengthen procedures to incorporate stormwater and nutrient management from transportation rights-of-way.

Continue to integrate Performance Standards (see also Task 2.2) into the RTP.

Products:

- Updates and amendments as necessary (e.g., amendment to include Cape Cod Canal Area transportation recommendations)
- Presentation materials, maps, website downloads for meetings and workshops

Schedule: Ongoing

Funding/Staffing Breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$ 18,750	6 person-weeks

Task #2 – Data Collection and Analysis Activities

TASK 2.1 – CAPE COD TRAFFIC DATA COLLECTION PROGRAM

Objectives:

To create and maintain databases of traffic counting data for Cape Cod to be used for transportation planning. To monitor growth in traffic volumes and to determine existing traffic volumes on Cape Cod roads. To perform the coverage counts for MassDOT. To perform bicycle and pedestrian activity counts in selected locations. To obtain data on road geometry, when necessary, as part of the traffic counting efforts.

Note: It is a goal of the region to install permanent traffic counters to provide continuous reliable data on traffic volumes, vehicle types, and speed on all major roads. Permanent stations with remote access capabilities are the appropriate safe and cost-effective manner to collect data.

Previous Work:

Annual traffic counting programs, 1984–2014. Traffic counting reports and appendices (2014 versions most recently):

- Cape Cod Traffic Counting Report
- Intersection Turning Movement Counts
- Bicycle - Pedestrian Counts
- Park and Ride Lot Counts
- Travel Times

Procedures:

For the summer of 2016, over 200 automated traffic recorder (ATR) counts will be scheduled across Cape Cod's 15 towns. Additional counts, in coordination with or at the request of the towns and MassDOT, will be taken as schedule and weather permits. Where possible, FHWA traffic monitoring guide procedures will be followed. Police details, if required for the additional count locations, shall be the responsibility of the towns for local roads and MassDOT for state roads and locations requested by MassDOT. Turning movement counts will also be taken at selected intersections. Bicycle and pedestrian counts will also be performed on selected paths throughout Cape Cod.



Where possible, FHWA traffic monitoring guide procedures will be followed.

Work activities under this task include:

- Placement of counters
- Retrieval of counters
- Routine checks of counters
- Equipment inventory and maintenance
- Data tabulation
- Data factoring
- Data analysis/recording
- Coordination of counters
- Coordination of safety measures with towns
- Coordination of external program counts
- Periodic calibration/verification of equipment per MassDOT guidelines
- Obtain necessary permits from towns and MassDOT
- Development of traffic count file and data base
- Data mapping
- Program evaluation
- Computer data entry and maintenance
- Updated geometric information, as needed. Gather information to include sidewalks, shoulders and bicycle lanes.

Products:

- Cape Cod Traffic Counting Report for 2015. Report will contain information on study design, count location, date/time of peak-hour volume, average daily traffic, and factored average daily traffic. The most recent 10 years of counts conducted by CCC will be included in this report.
- Online database that includes date of counts, general weather and traffic conditions average daily traffic, factored average daily traffic, peak hour traffic volume. Breakdown of traffic by hour over period studied kept on file. Information provided via a map-based search tool for ease of use by the public and other stakeholders.
- Factored counts for MassDOT
- Expanded seasonal traffic counting data
- Turning movement counts at intersections, including bicycle and pedestrian counts
- An analysis of traffic growth trends over the past 10-year period for Cape Cod, subregions and major routes
- Counts accessible at website:

<http://www.capecodcommission.org/counts>

Schedule:

Report on counts taken in 2011 submitted January 2012

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$40,000	12.5 person-weeks

TASK 2.2 – PERFORMANCE STANDARDS

A key feature of MAP-21 is the establishment of a performance- and outcome-based program with the objective to invest resources in projects that collectively will make progress toward the achievement of the national goals. These national performance goals from MAP-21 are identified in the following table:

Goal area	National goal
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
Infrastructure condition	To maintain the highway infrastructure asset system in a state of good repair
Congestion reduction	To achieve a significant reduction in congestion on the National Highway System
System reliability	To improve the efficiency of the surface transportation system
Freight movement and economic vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
Environmental sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment, including mitigation strategies for stormwater management and nutrient loading.
Reduced project delivery delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

**Objectives:**

To develop standards to be used in assessing the performance of important elements of the Cape's transportation system. To work with MassDOT to support the above MAP-21 goals at the state level. To integrate Performance Standards into the RTP, Regional Policy Plan (RPP) update and Cape Cod Commission's "OGSM" (Objectives, Goals, Strategies and Measures) initiative.

Previous Work:

- 2014 "Section 208 Area-Wide Water Quality Management Plan for Cape Cod"
- Development of transportation databases for travel times, vehicle counts, crash records
- Geo-located Cape Cod crash database for 2004–2012
- Online mapping of traffic counting data
- Transportation model, developed in 1999/2000 for base year of 1997
- Transportation model, updated in 2010

Procedures:

Identify major elements of the Cape's transportation system. Examples include:

- Major roadway segments based on roadway functional class, including the Mid-Cape Highway (Route 6).
- Intersections of major roads/signalized intersections
- MassDOT Park-and-Ride Lots
- Intermodal connector facilities

For each element identify potential performance standard. For example, for signalized intersections the performance standard may correspond to a certain level of service or operational parameter such as the average number of seconds of delay per vehicle.

Potential performance standards will be presented to the Cape Cod Joint Transportation Committee for consultation and consensus in anticipation of making recommendations to the Cape Cod Metropolitan Planning Organization. Resulting performance standards will be further integrated into the Regional Transportation Plan (see also Task 1.6), the Commission's Regional Policy Plan, and Objectives, Strategies, Goals and Measures initiative.

Products:

- Summary report of Cape Cod transportation performance standards

Schedule:

Ongoing

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC staffing</u>
FHWA/MassDOT	\$21,250	6.5 person-weeks

TASK 2.3 – TRANSPORTATION DATABASE MANAGEMENT/MODELING

Objectives:

To maintain and improve databases of Cape Cod transportation information including roadway geometry, traffic volumes (motor vehicles, bicycles, pedestrian), and other. To provide transportation information for Cape Cod to local and state officials, transportation professionals, and the public. To continue to develop and calibrate computerized travel demand forecasting databases and models for Cape Cod, including year 2040 forecasts. To continue integration with Geographic Information System (GIS) data to provide a platform for GIS-based traffic counts, congested link summaries, and accident summaries.

Previous Work:

- Draft VISSIM models for Harwich Center and Yarmouth Road/Willow Street (Barnstable)
- Geo-located Cape Cod crash database for 2004–2012
- Online mapping of traffic counting data
- Transportation model, developed in 1999/2000 for base year of 1997
- Transportation model, updated in 2010

Procedures:

Integrate new records when available; maintain database, develop subroutines for analysis. When details are needed for specific locations, town crash records may be obtained and reviewed. CCC staff will contact MassDOT to request latest crash records. Conduct public outreach to member communities. Respond to data and information requests from the



public, transportation professionals, and local, regional, and state officials. Participate in analyses of and obtain latest Pictometry data and software.

Review and utilize available socio-economic, employment, population, and housing data for base year and forecast year data. Utilize existing traffic volume and transit data to determine existing travel demands. Utilize existing transportation models for sub-regions of Cape Cod. Improve transfer methods of data between CCC Geographic Information System (GIS) services and transportation modeling effort. Expand transportation demand model to include Saturday morning element and to explicitly include public transportation used. Additional modeling efforts include the use of Synchro/Sim-Traffic software. Construction of Synchro models includes development of a computerized roadway/intersection network. Inputs include turning movements and roadway link traffic volumes, roadway and intersection geometry, and signal timing and phasing.

Products:

- Crash, roadway geometry, roadway traffic volumes, intersection turning movements data, and Pictometry information database
- Reports, letters, and memoranda as required
- Updated regional transportation model based on latest available demographic information, reports of results, and summaries
- Models will be used to support Task 3 and other regional planning and TIP activities

Schedule:

Ongoing

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC staffing</u>
FHWA/MassDOT	\$33,750	10.5 person-weeks

TASK 2.4 – PAVEMENT MANAGEMENT/ ASSET MANAGEMENT

Objectives:

To collect data and implement a regional pavement management system for Cape Cod to provide an objective rating of pavement conditions and needs.

To collect other roadway attribute data as part of the pavement management system.

Previous Work:

- Pavement Management Status Reports (2011 - 2014). 2013 data collection includes approximately 200 “point” assessments collected during installation of automatic traffic recorder installation – outputs include updated databases and mapping. Corridor-based pavement assessments for 33% of the municipally-owned federal-aid roadway network – outputs include updated databases and mapping.
- Reviews of town-based pavement management efforts.
- Eastham, Pilot Pavement Management Study, December 1990
- Bourne, Preliminary Pavement Management Report, April 1992
- Participation on technical coordination committees for Pavement Management
- Special Statewide pavement management systems effort, 1994

Procedures:

Existing roadway conditions will be identified through observations made from motor vehicles. Approximately 33% of the municipally-owned federal-aid eligible roadways will be surveyed and results will be used to update databases and produce pavement condition maps and reports.

Approximately 200 point assessments of pavement condition will be made as part of the installation of automatic traffic recorders – results inputted into a database and used to generate maps and reports. Additional information may be provided by individual towns; some towns maintain pavement management databases. Existing data will be requested from individual towns. The proposed pavement rating system will be determined in coordination with the towns. The rating system will be consistent with MassDOT standards and standards that other Massachusetts’ RPAs are using.

In addition, a focus on tribal roads under the jurisdiction of the Mashpee Wampanoag tribe will be continued.

During the collection of pavement condition, technicians will record important roadway characteristics such as the availability and serviceability of sidewalks for either side of the roadway.

Products:

Assessment of pavement management needs and inventory of other roadway attributes such as sidewalk availability and serviceability.

**Schedule:**

January-March 2016	Evaluation of existing data, coordination with communities, review of methodologies.
March-April 2016	Schedule & coordination of data collection
May-August 2016	Data Collection
September 2016	Status Report

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$ 37,500	11.5 person-weeks

TASK 2.5 – ASSET MANAGEMENT/RESILIENCY SELF-ASSESSMENT TOOL FOR TRANSPORTATION INFRASTRUCTURE

Objectives:

To monitor and assess existing transportation infrastructure. To use Module 5 and 6 of FHWA's Climate Change and Extreme Weather Vulnerability Assessment Framework to conduct yearly self-assessments on the resiliency of transportation infrastructure with local officials and stakeholders. To determine how to incorporate these yearly assessments into current transportation plans and public outreach efforts in each town.

Previous Work:

- UPWP FFY14 Critical Transportation Assets and their Vulnerability to Sea Level Rise, March 2015
- GIS-Based Sea Level Rise Viewer, v 1.0 released in April 2014
- UPWP FFY13 Climate Change Risk and Vulnerability Assessment of Transportation Infrastructure, November 2013

Procedures:

UPWP FFY 2013 and 2014 Reports demonstrated that transportation infrastructure on Cape Cod is vulnerable to climate change and therefore it is important to monitor infrastructure on a yearly basis. Cape Cod Commission staff will facilitate a dialogue with community leaders to monitor transportation infrastructure at risk to rising water and pinpoint areas of the Barnstable County transportation network that can become more resilient. These facilitated dialogues will occur on a sub-regional basis, starting with the Outer Cape region (Provincetown, Truro, Wellfleet and Eastham).

**Products:**

A final report describing the monitoring process and public outreach effort in the Outer Cape region. This report will be publically available on the Cape Cod Commission's website.

Schedule:

October 2015 to September 2016

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$ 18,750	6 person-weeks

TASK 2.6 – GEOGRAPHIC INFORMATION SYSTEM

Objectives:

To maintain and improve the Geographic Information System for Cape Cod to provide an analysis tool for transportation decision-making.

Ongoing Work:

- Integration of Massachusetts DOT Roadway Inventory Files
- Development of geographic land use information for transportation planning

Procedures:

Importing of transportation-related geographic information from state, federal, local and other sources into Cape Cod's Geographic Information System; editing as needed; provide database, digital, and graphic outputs of geographic information as required.

Products:

Digital files for input into specialized transportation analyses; graphic output of maps (paper, .jpg, .pdf as required).

Schedule:



CAPE COD
COMMISSION

Ongoing

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$ 37,500	11.5 person-weeks

Task #3 – Short- and Long-range Transportation Planning

The Cape Cod MPO includes a close partnership between member agencies and the Cape Cod Regional Transit Authority. Many of the planning strategies resulting from Task 3 efforts will capitalize on the services that the Cape Cod RTA has to offer.

Livability Statement

Livability refers to the social and environmental quality of an area as perceived by residents, workers, and visitors. The U.S. Department of Transportation considers the principle of Livability to be essential to the success of regional transportation planning. Livability directly benefits people who live in, work in or visit Cape Cod, increases property values and business activity, and it can improve public health and safety. Livability is largely affected by conditions in our public spaces, places where people naturally interact with each other and their community, including roads, conservation lands, transportation hubs and other public facilities, and so is affected by public policy and planning decisions.

Transportation decisions can have a major impact on Livability. Streetscapes that are attractive, safe and suitable for a variety of transportation modes (particularly walking) are a key factor in Livability. Traffic safety, traffic noise and local air pollution, affordability, impervious surface coverage (i.e., the portion of land devoted to roads and parking), preservation of environmental and cultural structures, and opportunities for recreation are all Livability factors often affected by transportation policies and practices. Transportation decisions can also affect social interactions and community cohesion. Pedestrian-friendly streets create opportunities for people to meet and interact, helping to create community networks. The MPO continues to support Livability through the following planning tasks in this UPWP.

TASK 3.1 – LIVING STREETS (BARNSTABLE: ROUTE 28 FROM ROUTE 130 TO SANTUIT/NEWTOWN ROAD)

Background

Route 28 in Barnstable is a major regional east-west transportation corridor on Cape Cod. The section of Route 28 from Santuit-Newtown to Route 130 has been identified as a priority for investigation. This section of road is often congested, particularly in the summer months. The corridor includes



three busy intersections on Route 28 including at Santuit-Newtown Road, Main Street and Route 130 that are often functionally deficient. Several retail businesses and restaurants also contribute to traffic congestion. Along this corridor, congestion is a barrier to reliable inter-regional access between the towns of Falmouth and Mashpee to Barnstable, Sandwich and other towns on the eastern portions of Cape Cod. Residents and visitors traveling this corridor may be connecting to various destinations including Hyannis, Mashpee Commons, Main Street Cotuit, or the limited access highway, Route 6.

There are safety concerns in addition to congestion issues. The intersection of Route 28 and Santuit-Newton Road is an unsignalized four-way intersection with challenging geometry. The intersection of Route 28 and Route 130 is a signalized intersection with challenging grades. Both intersections have been identified to facilitate a high percentage of injury crashes.

Also of key concern is accommodation for all road users including motorists, pedestrians, bicyclists, and transit users. This is a heavily used corridor for non-motorized users looking to access their jobs and retail destinations from their neighborhoods.

Despite there being significant concerns with this corridor there has been limited study to identify solutions. Any potential improvements along this corridor must be balanced with impacts on the environment and neighboring properties.

Description of Services

The Cape Cod Commission, under the 2015-2016 Unified Planning Work Program, will conduct a transportation planning study for the study area with the following study goal:

- Develop alternatives that will provide safe and convenient access within the study area for all users of the roadway system including pedestrians, bicyclists, and motorists.

Project Limits

The segment of Route 28 in Barnstable identified as the study area is approximately 0.35 miles from Santuit-Newtown Road to Route 130. Please see the Study Area map on the following page.

Procedures

Task A: Project Initiation

Commission staff will gather past studies and develop a plan for analysis of the study area. This task will include meeting with Commission staff and a consultation meeting with Town of Barnstable staff.

Product: Final Scope of Work and Public Participation Plan

Task B: Data Collection, Mapping, and On-Site Reconnaissance

Commission staff will gather data including crash locations, roadway geometry, traffic volumes, pedestrian/bicycle connections and land use information. At a minimum traffic volume data will be collected at multiple locations along Route 28 and turning movement counts will be conducted at the intersections of Route 28 with Santuit Newtown Road, Main Street, and Route 130.

Commission staff will visit the study area to evaluate and photograph conditions. Town staff will be invited to attend the visit to the study area.

Task C: Kickoff Meeting - Opportunities and Constraints

Commission staff will prepare for and host a public kickoff meeting in or near the study area where opportunities and constraints along the corridor will be identified. The meeting will include a brief presentation including information gathered as part of the first two tasks, but focus on input from the stakeholders in attendance at the meeting. Stakeholders demonstrating interest in the project along with other individuals identified by Commission and Town staffs will constitute the project Task Force that will be used throughout the project to facilitate project direction, development of alternatives, and the preferred alternative to improve this section of Route 28 in Barnstable.

Product: Summary of Opportunities and Constraints



FIGURE 1 - ROUTE 28 COTUIT STUDY AREA

Task D: Listening Session

As a follow-up to the opportunities and constraints public kickoff meeting, a more targeted listening session will focus on specific aspects of the corridor such as cross section, intersection geometry, or access management. It is envisioned that the listening session will be a forum for input from Task Force members and other members of the public interested in a particular segments of the focus area. This session will provide an opportunity to focus in on the priorities for improvement along the corridor and identification/discussion of potential solutions.

Product: Summary of Listening Session Comments

Task E: Concept Development

Information collected during Tasks C and D will be reviewed with Town of Barnstable staff and preliminary concepts will be developed. Conceptual design plans will illustrate options for corridor improvements with a minimum of 3 alternatives. One of these alternatives will be the “no-build” scenario and will form the basis of comparison for any of the “build” alternatives.

After review of the preliminary concepts by Commission and Town of Barnstable staffs, the preliminary concepts will be presented at a public

meeting and shared with Task Force members. Feedback on the preliminary concepts will be used to inform the concept refinements.

Product: Preliminary Concepts and Summary of Feedback

Task F: Concept Refinement

Concepts will be refined based on public comments and feedback from a Technical Review Committee. It is envisioned that the Technical Review Committee would include Commission staff, Town of Barnstable staff, MassDOT staff, a Cape Cod Regional Transit Authority (CCRTA) representative and a regional bicycle representative.

Refined concepts will be prepared as part of a draft report. The draft report will also include an analysis of each alternatives impact on traffic flow and safety. General criteria that may be applied include:

- Change in through-trip travel times & distances
- Queuing
- Safety impacts (e.g., change in number of conflicting traffic movements & expected traffic demand at each)
- Environmental impacts (air quality, intrusion near wetlands, etc.)
- Right-of-Way impacts (need to acquire property for construction of alternative)
- Expected cost to construct

By reviewing each alternative's potential benefits in concert with its costs and other detriments, a preferred alternative will be identified.

Product: Draft Report

Task G: Public Presentation and Final Report

The draft report, including the refined conceptual designs, will be presented in a public meeting of a local board in the Town of Barnstable and the document will be released for public comment.

All of the information and comments received will be compiled into a final report document and delivered to MassDOT and the Town of Barnstable.

Product: Final Report

Products

- Maps and illustrations identifying opportunities and constraints.
- Public outreach and facilitation to gather comment on priorities, alternatives.
- Draft report incorporating data analysis suggestions for improving the roadway layout, including conceptual presentation of a preferred alternative.



- Draft alternative concept plans.
- Final report with recommendations.

Public Participation Plan

A detailed public participation process will include the following elements:

- Public Participation Goals
- Kickoff Meeting
- Focused Listening Session
- Concept Development
- Technical Review
- Process Protocols
 - Contacts
 - Meeting Logistics & Noticing
 - Project Email List
 - Web Site
 - Social Media
 - Public Comment
 - Presentation Materials
 - Status Reporting

Schedule

The schedule for this effort allows for a final completion by September 2016 as shown in the following graphic on the following page. Milestones include coordination meetings with the Cape Cod Joint Transportation Committee (or designated subcommittee thereof) and updates to the Cape Cod Metropolitan Planning Organization.

- Needed data collection – Summer of 2015
- Review of methodology/project initiation: November 2015 – January 2016
- Kickoff Meeting with Stakeholders: March 2016
- Listening Session: April 2016
- Problem identification and development of alternatives – review with CCJTC: April – July 2016
- Analysis of Alternatives – review with CCJTC: May – August 2016
- Draft report/public meeting: July/August 2016
- Final report: September 2016

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$62,500	19.5 person-weeks



TASK 3.2 – TRANSPORTATION SAFETY (SAFETY AT THREE LOCATIONS)

Objectives:

To evaluate safety improvements at three high-crash locations identified in the 2014 “Barnstable County High Crash Locations” report and the 2016 Cape Cod Regional Transportation Plan. Coordination with MassDOT’s safety division and participation in MassDOT Road Safety Audits. Assist towns with associated roadway safety improvements on an as-needed basis.

Previous Work:

Roadway Safety Audits

Barnstable Road Safety Audits

- Iyannough Road (Route 132) at Cape Cod Community College/Cape Cod Conservatory Intersection (2014)
- Route 28 at Osterville-West Barnstable Road (2012)
- Iyannough Road (Route 28) at Yarmouth Road (2012)
- Meetinghouse Way (Route 149)/Route 6 Ramps (2010)
- Route 28 (Falmouth Road)/Bearses Way (2009)
- Route 28 in Barnstable – Lane Departure Safety Audit (2007)

Bourne Roadway Safety Audits

- Route 28 between Bourne Rotary and Otis Rotary (2013)
- Sandwich Road at Cranberry Highway (2012)

Dennis Roadway Safety Audit

- Route 134 at the Route 6 Ramps (2009)

Eastham Roadway Safety Audit

- Route 6 and Governor Prentice Road (2012)

Mashpee Roadway Safety Audits

- Nathan Ellis Highway (Route 151) at Old Barnstable Road Intersection (2014)
- Great Neck Road North/Old Barnstable Road (2009)
- Route 130 Lane Departure Road Safety Audit (2007)

Sandwich Road Safety Audits

- Cotuit Road/Harlow Road/South Sandwich Road (2009)
- Route 6: Major Highway Median Cross-Over Crashes (2009)

Yarmouth Road Safety Audits

- Route 6A – Willow Street to Union Street (2013)
- Old Townhouse Road/Forest Road (2010)



Location-Specific Safety Studies

Wellfleet: Route 6 Safety Study (2012)

- Route 6 at Main Street
- Route 6 at LeCount Hollow Road
- Route 6 at Cove Road
- Route 6 Merge Area near Eastham Town Line

Analysis of High Crash Locations in Dennisport (2012)

- Upper County Road at Depot Street
- Main Street (Route 28) at Sea Street
- Main Street (Route 28) at Depot Street

Safety Study (2009)

- Route 6 at the Truro Central School
- Orleans/Eastham Rotary
- Route 6 at Shank Painter Road in Provincetown

Transportation Safety Report (2008)

- Eastham: Route 6 at Brackett Road
- Sandwich: Route 6 at Route 130 (Exit 2) (Westbound and Eastbound Ramps)

Transportation Safety Report (2006)

- Bourne: Route 28 at Otis Rotary
- Harwich: Route 137 at Route 39
- Orleans: Route 6A at Route 28

Route 28 Safety & Traffic Flow Study: Chatham, Harwich, Dennis, Yarmouth (2006)

Route 6 Safety & Traffic Flow Study: Eastham, Wellfleet, Truro, Provincetown (2004)

The 2014 Barnstable County Intersections of Critical Safety Concern (top fifty crash location report) provided analysis based on frequency, crash rate, EPDO, and EPDO rate using geo-located crash data to the extent available. Creation of the report also included outreach to local and state police to improve crash data reporting.

2015 report pending.

Procedures:

- Coordination with CCJTC, MassDOT District 5 and local agencies on specific locations, with an effort to ensure that geographic equity is considered in location selection
- Review recent lists of Top 50 Barnstable High Crash Locations
- Review of causal factors of crashes at each location
- Review of roadway/intersection geometry
- Evaluate bicycle and pedestrian safety
- Identification of deficiencies and alternatives to improve safety
- Review of local and state police reporting practices
- Identification of ways to improve accuracy, consistency and timeliness of information
- Assistance in the implementation of improved practices
- Consultation and coordination with appropriate agencies regarding environmental mitigation
- Use of visualization techniques including GIS data layers showing land use and sensitive environmental areas (as outlined in Task 2.6)

Products:

Report including recommendations to improve safety at studied locations for consideration of future TIP programming.

Schedule:

October–November 2015	Data Collection (as outlined in Task 2.5)
December 2015–February 2016	Problem identification, development of improvements and analysis
March 2016	Recommendations and draft report
April 2016	Mapping (as outlined in Task 2.6)
May 2016	Final report

Funding/Staffing breakdown:

<u>Funding source</u>	<u>Amount</u>	<u>CCC staffing</u>
FHWA/MassDOT	\$31,250	10 person-weeks



TASK 3.3 – SHINING SEA BIKEWAY AND BIKE ROUTE 1

Objectives:

1. To create a signage plan for State Bike Route 1 on Cape Cod that would:

- Identify incorrect/unneeded signs to be removed
- Identify existing correctly installed signs to confirm their location (assess their condition to recommend replacement if needed)
- Create a plan for each town for needed guide sign installation locations.

2. To evaluate the feasibility of extending the Shining Sea Bikeway from its current terminus near Route 151 in the town of Falmouth to the Cape Cod Canal bike path in the town of Bourne.

Background Objective 1:

Bicycling from Boston to Cape Cod is popular activity that draws tourists and local residents onto the bikeway as they explore the region on bicycle. It is important for their safety that the signed and designated route be updated to travel along the safest roads and bicycle paths.

The Massachusetts General Court established the Claire Saltonstall Memorial Bikeway in 1978 (as a memorial to Claire Saltonstall, daughter of Senator William Saltonstall, who died in a bicycle accident in 1974). The bikeway has been given the designation “State Bike Route 1” and is indicated at various locations using the example sign shown in the following figure.



The route consists of a series of interconnected on-road segments and multi-use paths beginning in Boston and ending in Provincetown or Woods Hole. The Cape Cod section travels from the Plymouth County line to the Sagamore Bridge and divides into two spurs: (1) Sagamore Bridge to Woods Hole, and (2) Sagamore Bridge to Provincetown.

**Background Objective 2:**

The spur to Woods Hole travels along local roads within the town of Bourne and northern Falmouth, then joins the multi-use path of the Shining Sea Bikeway at Route 151.

In the 35 years since the bikeway's designation, the Cape's roads, development patterns, and bicycle accommodations have changed, but the originally designated route for the bikeway has not. Portions of the route travel along once rural roads that now carry considerably more traffic volumes. The Cape Cod Rail Trail provides a preferable option to shared roads for many cyclists, but the mapped Saltonstall route in some towns still travels along busy roads. In 2015 the Cape Cod Commission produced a report "Claire Saltonstall Memorial Bikeway: Cape Cod Segment – Recommended Route Revisions" listing recommendations for a realignment of the route. This and other reports are available on the Cape Cod Commission website at:

www.capecodcommission.org/bikeped

Previous Work:

- Claire Saltonstall Memorial Bikeway: Cape Cod Segment – Recommended Route Revisions (February 2015)
- Current Cape Cod Bicycle and Pedestrian Projects (Revised September 2014)
- Connecting Town Centers to the Regional Pedestrian & Bicycling Network on Cape Cod (July 2014)
- Sandwich Pedestrian/Bicycle Planning: Improved Pedestrian and Bicycle Connections with the Cape Cod Canal Multi-use Path (February 2014)
- Closing the Gaps: Connecting Cape Cod's Bicycle and Pedestrian Network to Transit Routes (October/November 2013)
- Cape Cod Regional Bicycle and Pedestrian Plan Questionnaire and Questionnaire Results (October 2013)
- Presentation: Cape Cod Rail Trail - Proposed Extension - Barnstable and Yarmouth Public Meetings (February 2013)
- Town Centers Bicycle and Pedestrian Level of Service (LOS) Report (November 2012)
- Cape Cod Bicycle Route Wayfinding Sign - November 2012
- Compilation of the Cape Cod Regional Bicycle Wayfinding Design Guidelines (November 2012)
- Study: Bicycling on Woods Hole Road, Falmouth (September 2012)
- Cape Cod Bicycle & Pedestrian Planning Recommendations Report (September 2011)
- Regional Transportation Plan 2012-2035 - Chapter 5: Bicycling & Pedestrian Issues (August 2011)



- A Guide to Public Transportation and Bike Route Options on Cape Cod (brochure produced by the Cape Cod Regional Transit Authority, map prepared by the Cape Cod Commission; April 2011)
- A Plan for Improved Pedestrian and Bicycle Facilities in Harwich (January 2011)
- Bicycle Feasibility Study: Integrated Bicycle Plan for Cape Cod (National Park Service/Cape Cod National Seashore, in partnership with the Cape Cod Commission; August 2010. NOTE: The Massachusetts Chapter of the American Planning Association awarded this study a Planning Project Award in 2012).
- Old King's Highway Regional Historic District Bike Map (1999 brochure/map)
- Route 6A Alternate Modes Assessment (August 1995)
- Route 6A Bicycle Accommodation Study (August 1995)

Procedures:

Bike Route 1

- Field observations to ascertain location and condition of existing signs
- Review proposed rerouting recommendations as a guide in order to prepare maps and listings of sign locations:
 - Where signs are correctly placed
 - Where signs are correctly placed but in poor condition
 - Where signs are incorrectly placed
 - Where new signs are needed to guide bicyclists
- Coordinate with asset management activities in support of the Cape Cod MPO's Performance Measures program. Consider mapping needs to include other bicycle-related signage (e.g., "Share the Road" and local bike routes).
- Preparation of draft and final report

Shining Sea Bikeway

- Evaluate feasibility of the following three alternatives for extending the Shining Sea Bikeway:
 - No-build
 - Removal of rails, construction of multi-use path on rail bed
 - Construction of multi-use path adjacent to existing rail bed

Products:

- Mapping of proposed changes to signage for Bike Route 1. This is expected to include a GIS-based web map.
- Listings of sign condition and location
- Concept plans for extension of Shining Sea Bikeway
- Draft & Final reports

Schedule:

October 2015 to September 2016

Funding/Staffing breakdown:

Funding source	Amount	CCC staffing
FHWA/MassDOT	\$25,000	8 person-weeks

TASK 3.4 – PLANNING FOR RESILIENT TRANSPORTATION INFRASTRUCTURE ON CAPE COD

Objectives:

To facilitate discussion with Towns officials in the Lower Cape sub-region (Orleans, Brewster, Chatham, Harwich) of Barnstable County on climate change resiliency projects for critical, vulnerable transportation infrastructure. To present transportation and climate change information to assist local decision-makers in adopting climate change resiliency strategies for critical transportation infrastructure.

Previous Work:

- Public Engagement tools developed in FFY15 for UPWP 3.4
- UPWP FFY14 Critical Transportation Assets and their Vulnerability to Sea Level Rise, March 2015
- GIS-Based Sea Level Rise Viewer, April 2014
- UPWP FFY13 Climate Change Risk and Vulnerability Assessment of Transportation Infrastructure, November 2013
- Interagency Scenario Planning Pilot Project, 2011
- Regional Multi-Hazard Mitigation Plan, 2010

Procedures:

Using the monitoring and assessment of existing transportation infrastructure from Task 2.5 as a guide, CCC staff will facilitate a series of discussions with town officials in the Lower Cape to brainstorm climate change resiliency strategies for critical transportation assets in Barnstable County. Once the critical/vulnerable assets have been identified, resiliency strategies can be implemented. Mitigation actions that have been identified will guide town officials and CCC Staff to identify a subset of resiliency



projects and draft a scope of work for each viable project. CCC staff will also provide links to public engagement tools on climate change resiliency on the Cape Cod Commission's website.

Products:

A list of potential climate change resiliency projects for critical transportation infrastructure in Barnstable County. A subset of projects will be summarized in a draft scope of work. Updated information and links to a public engagement tool on climate change resilience hosted on the Cape Cod Commission's website.

Schedule:

October 2015 to September 2016

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$25,500	8 person-weeks

TASK 3.5 – ROUTE 6 STORMWATER AND VEGETATION MANAGEMENT PLAN

Background

The current configuration of the Mid-Cape Highway from the Sagamore Bridge to the Orleans Rotary was constructed over a 20-year time period starting in 1950. Improvements have been made at select sections of the roadway, but its basic configuration, including cuts and fills, slopes, road profile and geometry, were designed and constructed based on engineering and design criteria from 60 years ago. With the exception of these recent improvements, stormwater systems incorporated into the original Route 6 roadway design do not reflect current best management practices; additionally, they may not reflect consideration for current and anticipated stormwater design flows. Because of the sensitivity of the Cape's drinking water and coastal resources to nutrient and pollutant loading, stormwater solutions should include alternatives which address nutrient attenuation and improve water quality.

In November 2014, a MassDOT contractor performing clear zone vegetation management overcut approximately 2.5 acres within a 1.2-mile segment of the Route 6 center median. A stakeholder group consisting of Cape residents, Commission staff, representatives from Heritage Museum and Gardens, the contractor's arborist, and officials from MassDOT District 5 Construction and Maintenance Divisions collaborated to develop replanting

plans for the overcut area. While the overcut was replanted, a more comprehensive approach is needed to address stormwater management as well as to enhance the landscape character of the roadway.

The MassDOT District 5 office will be undertaking an analysis of the Route 6 corridor in FFY 16. The District 5 effort will be limited to an engineering review of road segments and interchanges. It is intended that this UPWP effort will inform, and be informed by, the District 5 analysis.

Objectives

To complete a landscape character and stormwater drainage assessment within the Route 6 right-of-way from the Sagamore Bridge to Orleans Rotary. Identify locations for Low Impact Development (LID) approaches to stormwater management that can also serve to enhance landscape character and wildlife habitat values along the corridor. Based on the landscape assessment and stormwater needs, prepare a long-term stormwater and vegetation management plan to guide future Route 6 roadway improvements.

Previous Work

- Route 6 Hydroplaning Crash Analysis and Alternatives Development, October 2013
- Complete Streets/Living Streets Design Manual for Cape Cod, 2013
- “Living Streets” Design Study, Yarmouth, MA, 2013
- Route 6A Living Streets Design Study, Brewster/Orleans, MA, 2012
- Design Review Comment Summary and Resolution Sheet, MassDOT Contract No. 60516. Route 6 Resurfacing and Related Work, Bourne to Sandwich
- 2014 – 2018 MassDOT Integrated Vegetation Management Plan

Procedures

Using base maps from MassDOT, aerial photography, GIS maps from the Cape Cod Commission and other available data, complete a drainage assessment of the corridor, incorporating findings from the Route 6 Hydroplaning Crash Analysis and Alternatives Development Study. Complete an ecological assessment of plant communities within the Route 6 right-of-way. Review MassDOT Integrated Vegetation Management Plan and recommend any improvements specific to the Route 6 corridor. Identify locations along the corridor that are priorities for invasive species management. Develop a list of recommended replacement species for any dead or diseased trees.

Develop a conceptual master plan using LID approaches for stormwater management wherever feasible throughout the corridor. Make



recommendations on use of native plant materials in stormwater management areas as well as other locations throughout the corridor to enhance the scenic and habitat qualities of the corridor.

Coordinate with MassDOT District 5 on the Route 6 Study focusing on deficiencies along the roadway including horizontal and vertical geometry, acceleration and deceleration lengths at the interchanges, as well as shoulder widths.

Products

- Draft and Final report with conceptual plan(s) for Route 6 corridor including recommended LID approaches, native plant species for stormwater management, invasive species removal, replanting recommendations
- Presentation materials, maps for meetings and workshops

Schedule

October 2015 to September 2016

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FHWA/MassDOT	\$18,750	6 person-weeks
CCC	\$20,000	6.5 person-weeks

TASK 3.6 – FOLLOW-UP ON PREVIOUS TRANSPORTATION PLANNING STUDIES

Objectives:

- To allow for completion of and/or follow-up work on special transportation studies of prior UPWPs.
- To prepare a Transportation Investment Generating Economic Recover (TIGER) grant application. With the potential for a TIGER grant in FY 2016 the objective of this task is to prepare a TIGER Grant Application for the construction of the preferred alternative (total estimated cost \$52 million) presented in the 2013 “Hyannis Access Study Implementation” report.

Background Information in the TIGER Grant

Since 2009 the United States Department of Transportation (DOT) has awarded annually, in varying amounts, funding pursuant to the American Recovery and Reinvestment Act of 2009 known as the Transportation Investment Generating Economic Recovery, or “TIGER Discretionary Grants,” program.

While there are many areas on Cape Cod that could benefit from large-scale investment in transportation infrastructure, Hyannis, with its regional airport, rail and bus terminal, ferries to the Islands, regional hospital, historic downtown, large commercial development, and many cultural and recreational attractions, demonstrates the greatest need and potential benefit. The 2008 Hyannis Access Study has looked at safety and congestion issues in the area seeking to “examine, recommend, and prioritize ways to improve overall transportation mobility for residents, businesses and visitors while minimizing impacts to neighborhoods.”

Following the 2008 study the 2012 “Yarmouth Road Corridor Study” and the 2013 “Hyannis Access Study Implementation” looked more in detail at potential infrastructure improvements and came up with preferred alternatives.

Previous Work:

- 2008 Hyannis Access Study
- 2013 Hyannis Access Study *Implementation*.
- Canal Area Data Collection and Analysis
- Route 28/Yarmouth Road Intersection
- Route 28 Corridor between Yarmouth Road and Airport Road
- Bourne Bridge Rotary Study

Procedures:

In coordination with the Town of Barnstable, and with the assistance of Town of Barnstable staff, the following actions will be completed:

Prepare Project Description

Adapting 2008 “Hyannis Access Study,” 2012 “Yarmouth Road Corridor Study,” and 2013 “Hyannis Access Study Implementation” study.

Apply to Project Review Committee (PRC)

Apply to MassDOT’s Project Review Committee to establish a PRC number for this project

Establish Project Timeline

Establish a timeline that includes milestones such as start and completion of environmental reviews and approvals; design; right of way acquisition;



approval of plan, specification and estimate (PS&E); procurement; and construction.

Prepare Benefits-Costs Analysis

Prepare per TIGER website guidance. This will require significant effort in refining the project costs as well as establishing quantifiable benefits.

Detail Project Funding

Determine and detail all of the sources of funding for the project and the relative contributions from each source (Federal, state, local, etc.).

Prepare Discussion of Selection Criteria

Prepare a discussion of how the project meets the selection criteria.

Submit Application

After registering on Grants.gov submit the application and all required documentation (i.e., Federal Wage Rate Certification).

Products:

- UPWP FY 2015 tasks as needed
- FY2016 TIGER Grant Application

Schedule:

As needed. To be determined as the deadlines for the FY2016 TIGER Grant is announced

Funding/Staffing breakdown:

<u>Funding source</u>	<u>Amount</u>	<u>CCC staffing</u>
FHWA/MassDOT	\$ 27,000	8.5 person-weeks

Task #4 – Other Technical Activities

TASK 4.1 – TRANSPORTATION CENTER TO STEAMSHIP CONNECTIVITY

Objective:

To conduct a transportation study for connectivity from Main Street Hyannis to amenities on the waterfront at Lewis Bay for all roadway users including vehicles, pedestrians and bicyclists.

Additional locations will be included as appropriate. These may include locations being considered for Congestion Mitigation Air Quality funding or have been identified through the Cape Cod Commission's public participation process.

Data Collection:

A key task of the study will be the collection of needed data. Data collection will include adjustment of existing traffic counting data if available or new traffic counts collected at the following locations:

Automatic Traffic Recorder (ATR) counts:

- Main Street East of Center Street
- Main Street West of Center Street
- Old Colony Road South of Main Street
- South Street West of Old Colony Road

Turning Movement Counts (TMCs):

- Main Street at Center Street
- South Street at Old Colony Road

Data collection at other congested locations as appropriate.

Public Participation:

The Cape Cod Commission will facilitate a kick-off meeting with stakeholders and interested public. Stakeholders will engage to facilitate project direction, development of alternatives and the preferred alternative. The project team will hold public meetings to provide information and obtain stakeholder input. The following methods may be used to communicate study progress and receive public input:



- Questionnaires/online surveys
- Informational handouts/flyers
- Online postings at: www.capecodcommission.org
- Progress updates at monthly meetings of the Cape Cod Joint Transportation Committee and meetings of the Cape Cod Metropolitan Planning Organization.
- Presentations at public meetings.
- Promotion of contact information and reception of public input via telephone, fax, email, or regular mail
- Meetings with local officials and other interested parties to discuss other congested locations, as appropriate

Development of alternatives:

Based on estimated traffic operations identified for the future forecast year and input received from the public participation process, the Cape Cod Commission will develop and analyze a minimum of three alternatives. One of the alternatives will be the “no-build” scenario and will form the basis of comparison for any of the “build” alternatives. Alternatives development may include preparation of analyses of other congested locations as appropriate.

Evaluation criteria, and recommendations:

Each alternative will be evaluated for its impact on traffic flow and safety, as well as environmental and community character impacts. General evaluation criteria that may be applied include:

- INVEST analyses
- Queuing
- Safety impacts (e.g., change in number of conflicting traffic movements & expected traffic demand at each)
- Bicycle and pedestrian accommodation (“living streets”)
- Stormwater management
- Right-of-Way impacts (need to acquire property for construction of alternative)
- Expected cost to construct

By reviewing each alternative’s potential benefits in concert with its costs and other detriments, a preferred alternative will be identified.

Products:

Results will be published in a draft and written report to be made available online at www.capecodcommission.org in addition to printed copies for interested parties. Other study materials will be produced and made available via internet, mailings, public meetings etc. including maps and charts, handouts and flyers. Reports and memoranda published are to include analyses and recommendations for improvements at other congested locations as appropriate.

Schedule & Level of Effort:

The schedule for this effort allows for a final completion by October 2015. Milestones include coordination meetings with the Cape Cod Joint Transportation Committee (or designated subcommittee thereof) and updates to the Cape Cod Metropolitan Planning Organization.

- Needed data collection (FY 2015) – Summer of 2015
- Review/confirmation of scope – November 2015
- Public meeting with Stakeholders: March 2016
- Problem identification and development of alternatives: June 2016
- Analysis of Alternatives – review with CCJTC: July 2016
- Draft report/public meeting: August 2016
- Final report: September 2016

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FTA 5303	\$35,500	11 Weeks
CCC	\$ 8,875	3 Weeks

TASK 4.2 – SIDEWALK ACCESSIBILITY TO TRANSIT STOPS

Objective:

To conduct transportation study that includes an inventory of pedestrian access to transit services and recommends changes to pedestrian networks that could enhance the transit experience. Inventory and recommendations will extend 0.25 miles from fixed route transit stops and park and ride lots.

Additional locations will be included as appropriate. These may include locations being considered for Congestion Mitigation Air Quality funding or



have been identified through the Cape Cod Commission's public participation process.

Data Collection:

A key task of the study will be the collection of needed data. Data collection will include the use of a collector application to evaluate the sidewalk networks 0.25 miles from each transit stop or park and ride lot and the availability of crosswalks and pedestrian phases on nearby traffic signals. Ridership at each stop will be collected from the CCRTA and used to prioritize recommendations.

Public Participation:

The Cape Cod Commission will facilitate a kick-off meeting with stakeholders and interested public. Stakeholders will engage to facilitate project direction, development of alternatives and the preferred alternative to improve pedestrian access to fixed transit routes. In addition, the following methods may be used to communicate study progress and receive public input:

- Online postings at: www.capecodcommission.org/transportation
- Progress updates at monthly meetings of the Cape Cod Joint Transportation Committee and meetings of the Cape Cod Metropolitan Planning Organization.
- Presentations at public meetings.
- Promotion of contact information and reception of public input via telephone, fax, email, or regular mail
- Meetings with local officials and other interested parties to discuss other congested locations, as appropriate

Evaluation criteria and recommendations:

Each gap in pedestrian access will be considered a recommendation. Recommendations will be prioritized by severity, number of existing passengers at the transit stop or park and ride location, and 0.25 density from that stop. General evaluation criteria that may be applied include:

- Vehicle safety impacts (e.g., change in number of conflicting traffic movements & expected traffic demand at each)
- Bicycle and pedestrian accommodation ("living streets")
- Stormwater management
- Right-of-Way impacts (need to acquire property for construction of alternative)
- Expected cost to construct

**Products:**

Results will be published in a draft and written report to be made available online at www.capecodcommission.org in addition to printed copies for interested parties. Other study materials will be produced and made available via internet, mailings, public meetings etc. including maps and charts, handouts and flyers.

Reports and memoranda published are to include analyses and recommendations for improvements at other congested locations as appropriate.

Schedule & Level of Effort:

The schedule for this effort allows for a final completion by October 2015. Milestones include coordination meetings with the Cape Cod Joint Transportation Committee (or designated subcommittee thereof) and updates to the Cape Cod Metropolitan Planning Organization.

- Needed data collection (FY 2014) – Summer of 2014
- Review/confirmation of scope – November 2014
- Public meeting with Stakeholders: March 2015
- Problem identification and development of recommendations: June 2015
- Analysis and ranking of recommendations – review with CCJTC: July 2015
- Draft report/public meeting: August 2015
- Final report: September 2015

Funding/Staffing Breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
FTA 5303	\$36,037	11.5 Weeks
CCC	\$ 9,009	3 Weeks



TASK 4.3 – OTHER TECHNICAL ASSISTANCE REQUESTS

Objectives:

To provide the state, the towns, and the region with technical transportation assistance, as needed

Previous Work:

- Hyannis Parking Study, 2013
- Preparation of signal warrant analyses, review of local transportation improvement alternatives, preparation of local safety studies
- Wellfleet Fire Station access/egress recommendations, 2007
- West Chatham Route 28 Improvements, 2008
- Traffic Calming Techniques identified for local roads in Truro (2011)

Procedures:

Assist towns with infrastructure improvements including pedestrian, bicycle, transit rider shelter locations, roadway reconfigurations, corridor studies, etc. Potential locations include Route 28/Bearses Way in Barnstable (capacity and safety improvements), Shank Painter Road in Provincetown (corridor improvements), and Route 28 in Harwich (pedestrian, bicycle and transit improvements).

Products:

Letters, reports, memoranda, and analyses

Schedule:

Continuous throughout the year

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC staffing</u>
FHWA/MassDOT	\$ 18,500	7 person-weeks
FTA 5303	\$35,000	11 Weeks



Task #5 – Cape Cod Commission Transportation Planning and Regulatory Activities

TASK 5.1 – REVIEW AND COMMENT ON ENVIRONMENTAL NOTIFICATION FORMS, ENVIRONMENTAL IMPACT REPORTS, AND DEVELOPMENTS OF REGIONAL IMPACT

Objectives:

The primary purpose of the CCC regulatory program is mitigation of transportation impacts in a manner that is consistent with Barnstable County's Regional Policy Plan. To ensure proper review and analysis of traffic impacts of major residential and commercial developments throughout the region. To provide such information to the CCC, MassDOT, EOE-MAPEA Unit, town officials, and other interested parties, as required. To recommend mitigation measures and work with interested parties in applying conditions to projects. To assist the Cape Cod Commission regulatory staff in the review of developments of regional impact. To assist the Massachusetts Highway Department/ Public Private Development Unit (MassDOT - PPDU) in the implementation of mitigation strategies.

Previous Work:

Previous work includes analysis, review, and comment on Environmental Notification Forms (ENFs), Environmental Impact Reports (EIRs), and Cape Cod Commission regulatory review.

Procedures:

- Review ENF, EIR, EIS, MIS and/or traffic analyses
- Compute trip generation estimates
- Review traffic counts on adjacent street network; conduct special traffic counts
- Perform preliminary site visit
- Compute LOS at site drive and area intersections, as necessary
- Attend MEPA site visit, if applicable
- Discuss project with interested parties
- Identification of appropriate mitigation measures
- Review mitigation measures for compliance and consistency with the Regional Policy Plan



- Written and oral comments and testimony to the Cape Cod Commission, MassDOT District 5, MEPA, the towns, and other interested organizations as required
- Coordinate mitigation with MassDOT-PPDU

Products:

- Discussions with MEPA, MassDOT, project proponents, and town officials – provide written comments
- Testimony at DRI and other meetings as required
- Advancement of measures to mitigate traffic impacts
- Analysis and recommendation on transportation improvements necessary to mitigate impacts

Schedule:

As required to meet CCC, MEPA, MassDOT, and local deadlines

Funding/Staffing breakdown:

Support of this effort will be provided by the CCC. Below is the funding/staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
CCC	\$ 69,703	22 person-weeks

TASK 5.2 – ASSIST COMMUNITIES AND THE REGION IN THE DEVELOPMENT AND IMPLEMENTATION OF LOCAL COMPREHENSIVE PLANS (LCPS), DISTRICTS OF CRITICAL PLANNING CONCERN (DCPCS), AND ECONOMIC DEVELOPMENT IN DESIGNATED GROWTH CENTERS

Objectives:

To provide technical assistance in the development and implementation of LCPs and DCPCs, Growth Incentive Zones, Economic Centers, village center planning, and other CCC funded transportation efforts

Previous work:

- Regional Policy Plan updates
- Past assistance in the development of LCPs in various Cape Cod towns

**Procedures:**

Advisory and analytical assistance

Products:

Testimony, letters, LCPs, DCPCs, and Technical Memoranda as required

Schedule:

As established by the Cape Cod Commission and the Towns and legislated requirements

Funding/staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC Staffing</u>
CCC	\$ 25,685	8 person-weeks

TASK 5.3 – OTHER TRANSPORTATION ACTIVITIES

Objectives:

To perform other transportation activities and transportation program management

Previous Work:

Past transportation program management

Procedures:

Flexible

Products:

Viable transportation planning program

Schedule:

Continuous throughout the year

Funding/Staffing breakdown:

<u>Funding Source</u>	<u>Amount</u>	<u>CCC staffing</u>
CCC	\$ 48,701	15 person-weeks



Appendix A – Additional Planning Efforts

The following projects are funded from outside sources (primarily from grants) and are shown for informational purposes.

APPENDIX A.1 – PROVINCETOWN/TRURO/WELLFLEET BICYCLE MASTER PLAN

Objective:

Develop a master plan for a network of bicycle routes in Provincetown, Truro and Wellfleet and an extension of the Cape Cod Rail Trail (CCRT) from South Wellfleet. The three towns are ideally situated for constructing this network because they are adjacent to existing trails in the National Seashore and the CCRT.

Previous Work:

- Integrated Bicycle Plan for Cape Cod, 2010
- Adoption of project scope by the Towns of Provincetown and Truro
- Rail Trail Extension Study, 1988

Procedures:

Per CCNS Grant Application

Total Budget (FY 2015-2016):
\$231,680

Expected Effort in FY 2016:
\$100,000

Schedule:

Work would be completed by December 31, 2015.



INTRODUCTION

The purpose of this study is to identify potential improvements to the transportation system surrounding the Cape Cod Canal in Bourne and Sandwich, Massachusetts, including the potential construction of new Cape Cod Canal crossings, and to initiate the environmental permitting of the identified improvements through the Massachusetts Environmental Protection Act (MEPA) with the filing of an Environmental Notification Form. Currently, the only connections between the mainland and the communities of Cape Cod are three crossings of the Cape Cod Canal: two functionally obsolete highway bridges (the Sagamore Bridge to the east and the Bourne Bridge to the west) and the moveable-span railroad bridge west of the Bourne Bridge. The bridges and the surrounding roadway network are subject to severe congestion during the summer months and other holiday weekends throughout the year. This congestion has significant impact on safety; emergency access (including evacuation routes off of Cape Cod); and overall economic activity of the Cape Cod communities.

The study will entail the development and analysis of a full range of transportation alternatives to address the identified transportation needs. The alternatives considered will include new Cape Cod Canal crossings, highway, interchange, and non-highway improvements, as well as options and design elements that improve access in all modes. The alternatives will be evaluated relative to criteria that relate to the study goals and objectives. The study will produce a final report that includes the study's analytical findings; a recommended plan of future scheduled transportation improvements (short-term, medium-term and long-term); preliminary cost estimates for these improvements; and a comprehensive implementation plan for the recommended improvements. Following completion of the final report, the selected consultant will be responsible for preparing an Environmental Notification Form of the recommended improvements in compliance with MEPA.

It is expected that this planning study will be conducted concurrently with the MassDOT projects and initiatives listed below:

- The development of traffic improvement plans for Belmont Circle (Buzzards Bay Bypass – Routes 6&28, Route 25 & Main Street) in the Town of Bourne that is currently being advanced separately by the MassDOT Highway Division District 5;
- The development of public-private partnership to construct an additional roadway crossing of the Cape Cod Canal that is currently being advanced separately by the MassDOT Special Public-Private Partnership Infrastructure Oversight Commission; and



- The replacement of the existing toll booths with All Electronic Tolling equipment along the Massachusetts Turnpike and the Tobin Bridge by the MassDOT Highway Division.

The selected consultant will be expected to support any and all coordination required between this planning study and the listed projects. This coordination will most likely involve sharing collected data and providing graphics and other study materials to the Highway Division's design consultants and/or construction firms for their use.

DESCRIPTION OF PROCUREMENT

The following sections addressing the specific tasks of the Scope of Services to be undertaken by the consultant are intended to serve as a guide for Prospective Consultants in preparing their respective technical proposals.

I. SCOPE OF SERVICES

The selected consultant team will be directed by MassDOT's Office of Transportation Planning, and the consultant's progress will be monitored by the Project Manager. The selected consultant will perform specific tasks as outlined below, with summary report, presentation materials (presumably in MS PowerPoint software), and other products as needed for each major task.

Each task will be accomplished in coordination with a public involvement plan. However, no items in this scope shall preclude the consultant from proposing modified or additional approaches or activities to accomplish the objectives of this effort. At the same time, the selected consultant must recognize that while this scope includes most major tasks expected to be required, the consultant will be responsible for other tasks necessary to deliver the major study elements, even though not all may be explicitly called out in this scope.

Task CANAL-1 – Study Area, Goals and Objectives, Evaluation Criteria, and Public Participation

The purpose of this task is to develop the framework necessary to conduct the study. The consultant, in consultation with MassDOT and the study's Working Group, will finalize the study area and will develop goals and objectives, evaluation criteria, and a public involvement plan. Evaluation criteria will be determined based on the defined goals and objectives.

A. Study Area

The Primary Study Area is defined below, although the boundaries of the areas to be analyzed will differ by task and need. The Primary Study Area, and other relevant study areas (e.g. regional highway system connections, connectivity to destinations, etc.) will be finalized in the initial stages of the study with input from the study's Working Group. This does not preclude the consultant from proposing modified boundaries as part of their response



to this procurement. The study areas should be defined to incorporate both local and regional impacts of any alternative.

The initial Primary Study Area boundary will be of sufficient size to examine the feasibility and direct impacts of any study alternatives, including a new Cape Cod Canal crossing, and will, at a minimum, include infrastructure, right-of-way, and adjacent land use within 1 mile of the Cape Cod Canal. The project will also include the evaluation of any potential impacts on other transportation facilities, including, but not limited to, connecting roadways, the CapeFLYER rail service, ferry service to Cape Cod and the islands of Martha's Vineyard and Nantucket, and the Cape Cod Canal bicycle path within the Primary Study Area.

For the evaluation and analysis of regional transportation impacts, a larger Regional Study Area will include the following routes listed below. Evaluation of the benefits and impacts of the alternatives with respect to economic development, and land use or zoning changes will extend to this area.

- State Route 3 from Exit 2 (Route 3A – Herring Pond Road) in the Town of Plymouth to the north to the Sagamore Bridge in the Town of Bourne to the south,
- U.S. Route 6 from Memorial Circle (Cranberry Highway/Buzzards Bay Bypass & Lincoln Avenue/Main Street) in the Town of Bourne to the west to Exit 2 (Route 130 – Forestdale Road) in the Town of Sandwich to the east (via both Scenic Highway on the northern side of the Cape Cod Canal and Sandwich Road on the south side of the canal),
- State Route 28 within the Town of Bourne from Memorial Circle (Cranberry Highway/Buzzards Bay Bypass & Lincoln Avenue/Main Street) in the north to Clay Pond Road in the south,
- State Route 25 from Exit 2 (Maple Springs Road & Glen Charlie Road) in the Town of Wareham to the west to the Bourne Bridge in the Town of Bourne the south,
- Sandwich Road within the Town of Bourne from the Bourne Rotary in the west to the Cranberry Highway in the east,
- Connecting roadways,
- Major intersections along these routes, and
- Other facilities as appropriate.

Product:

- Primary Study Area definition
- Definition of any supplemental study areas
- Mapping and other supporting documentation for study areas



B. Goals and Objectives

Goals and objectives, which define the purpose of the study and its guiding principles, will be developed for this project in close coordination with the study Working Group and the public. The goals and objectives provide a “mission statement” for the study as a whole, as well as for addressing a particular issue or set of issues. The goals and objectives should shape the framework for the entire study. The Cape Cod Canal Transportation Study’s goals will serve as a base, but will not preclude modifications or additional goals and objectives from being developed. The goals and objectives should be developed so that they can also act as the project “needs and goals” as required for the future environmental permitting documents.

Product:

- Goals and Objectives

C. Evaluation Criteria

The evaluation criteria are specific considerations, or measures of effectiveness, used to assess benefits and impacts of alternatives developed during the study. The evaluation criteria will be based on the defined objectives, and must support the ultimate goals of study. Such criteria commonly include, but are not limited to, those that fall in the following categories:

- Mobility and system reliability in all major transportation modes
- Accessibility
- Safety
- Environmental effects, including air quality and greenhouse gas impacts
- Health effects, including promotion of healthy transportation options as well as discussion of other public health factors, such as air quality and noise
- Land use and economic development
- Community effects / Title VI / Environmental Justice Analysis
- Cost, including both capital and operating cost

The evaluation criteria will be used for Task 4 (alternatives analysis) of the study. The criteria should be logically related to objectives, and wherever possible, be quantitatively measured and directly derived from either previously developed information or analysis techniques used in the study. All evaluation criteria – containing both quantifiable and more subjective, qualitative measures of effectiveness – should be used to determine the best solutions for the defined goals and objectives.

Product:

- Evaluation criteria and measurement methods



D. Public Involvement Plan

The study's Public Involvement Plan will, at a minimum, have three components: 1) meetings with the study's Working Group and 2) general public informational meetings at key project milestones. In addition to legislative, state (including the Massachusetts Department of Environmental Protection, the Massachusetts Office of Coastal Zone Management, the Massachusetts Historical Commission, the Massachusetts Division of Marine Fisheries, the National Heritage and Endangered Species Program, and the Massachusetts Division of Energy Resources), and federal (including the Army Corps of Engineers which owns the Sagamore Bridge and the Bourne Bridge, and the Federal Highway Administration) representation, the Working Group will also have representation from regional and local stakeholders that include, but are not limited to, the Cape Cod Commission (CCC), the Southeastern Regional Planning and Economic Development District (SRPEDD), the Old Colony Planning Council (OCPC), the Cape Cod Canal Area Traffic Task Force, and the municipalities of Bourne, Sandwich, Plymouth and Wareham.

Working Group meetings will be scheduled at key project milestones with input from the members, and will be conducted by MassDOT Planning and the consultant. Following consultant selection, the first Working Group meeting will be scheduled to discuss the study area limits; to discuss the goals, objectives, and evaluation criteria for the project; and to give the Working Group the opportunity to comment on these elements.

MassDOT and the consultant will conduct public informational meetings at major project milestones. Public meetings will be scheduled and publicized by MassDOT Planning and the consultant. At the discretion of MassDOT Planning, the consultant will be expected to provide support for all elements of the public meetings.

The consultant shall be principally responsible for the preparation of presentation and display materials for Working Group meetings and public informational meetings. These materials shall be prepared in advance to allow MassDOT adequate time for review and approval. At MassDOT Planning's discretion, the consultant may be required to present presentation materials in advance of the Working Group or public informational meeting.

Additionally, the consultant should be prepared to share any materials prepared as part of this study with the MassDOT Highway Division and their consultants to support the public involvement plan for the traffic improvement project for Belmont Circle (Buzzards Bay Bypass – Routes 6&28, Route 25 & Main Street). Members of the consultant team may be required to attend these meetings to provide their expertise; however, the consultant will not be responsible for providing any administrative duties in support of these meetings.



A project website will be created, maintained, and updated by MassDOT. The consultant will be responsible for providing content data for development of this website. The consultant will also be responsible for providing relevant historical documents, task deliverables, and both pre- and post-meeting materials to the MassDOT project manager for posting in a timely manner.

All elements of the Public Involvement Plan must include specific communication strategies to provide continuous and meaningful opportunities for involvement by the public throughout the study process. These strategies must provide the opportunity for the full and fair participation by all potentially affected communities, including minority and low-income populations, at this stage of the transportation decision-making process. Likewise, these strategies must include provisions to actively engage minorities and gather their responses, as well as mitigate against potential discrimination based on race, color, national origin, English proficiency, income, religious creed, ancestry, disability, age, gender, sexual orientation, military service, or gender identity or expression. The Public Involvement Plan, at a minimum, will require Spanish and Portuguese language elements and American Sign Language interpreters will be provided at all meetings. All public materials produced as part of this study, including those posted to the project website, must be in an accessible format consistent with MassDOT guidelines. Please refer to the following address for additional information on accessibility:

<http://www.adobe.com/accessibility/products/acrobat/pdf/A9-accessible-pdf-from-word.pdf>

Products:

- Public Involvement Plan

FINAL PRODUCTS FOR TASK CANAL-1:

1. Draft report chapter containing the following:
 - Study areas
 - Goals and objectives
 - Evaluation criteria and measurement methods
2. Public Involvement Plan

Task CANAL-2 – Existing Conditions, Future No-Build Conditions, and Issues Evaluation

Existing transportation conditions will be inventoried and evaluated, as well as anticipated future-year conditions. Existing and future land use and environmental constraints will be examined and documented. Other issues raised by the Working Group may be evaluated if feasible.

A. Existing Conditions and Data Collection

Current year (2013) transportation conditions will be analyzed for the study area facilities.

Existing data from MassDOT, the Army Corps of Engineers, the Cape Cod Commission, the Southeastern Regional Planning and Economic Development District, the Old Colony Planning Council, and the towns of Bourne, Sandwich, Plymouth and Wareham, the Cape Cod Regional Transit Authority (PVRTA), Peter Pan Bus Lines, Plymouth & Brockton Street Railway, the Steamship Authority, other ferry operators, and other sources will be used to the degree feasible. This includes all available traffic volume, turning movement, and crash data; transit services, availability, and ridership; intercity passenger services, availability, and ridership; freight rail operations, customer destinations, and freight volumes; bicycle connections and volumes; pedestrian volumes; and any other data required for a complete understanding of the transportation conditions within the study area. The study area will be analyzed for traffic volumes and levels of service, safety, transit service level of service, bicycling and pedestrian demand and environment, freight movements, ferry ridership, and other conditions as necessary. Other transportation issues as suggested in the public involvement process may be evaluated as appropriate. The consultant will utilize microsimulation software such as SYNCHRO and VISSIM as required to perform the analysis of current year transportation conditions.

Recent traffic count and classification data (including the data collected in support of the Army Corps bridge repair projects) will be used to the greatest extent possible, although historical data will be used to demonstrate trends in traffic changes. Additional traffic counts (automatic traffic recorder, turning movements, pedestrian movements, and/or bicycle movements) will be required to properly assess the conditions on the roadways and other transportation facilities in the Study Area. These counts will be undertaken by MassDOT's Traffic Data Collection section under the Highway Division.

The selected consultant will initially use the data from the MassDOT Crash Records database (developed from the Registry of Motor Vehicle crash data) to provide a preliminary review. However, the actual crash reports from both State Police and local police will need to be obtained by the selected consultant, for the three most recent years available, to ensure a thorough understanding of the existing safety conditions and future impacts to safety.

Existing land use/economic development, environmental and public health data will also be reviewed and assembled for the defined study area, from existing sources to the degree feasible. This includes the Massachusetts



Department of Public Health, GIS data layers that are available from municipal or regional GIS sources (such as CCC, SRPEDD, and OCPC), and MassGIS sources.

Land use/economic development data collected may include, but are not limited to:

- Local comprehensive planning documents
- Previous conceptual planning studies
- Land-use patterns
- Zoning regulations
- Right-of-way
- Property values
- Tax revenue data
- Car and truck access
- Transit access
- Bicycle facilities
- Pedestrian facilities
- Parking
- Regional employment
- Elevation and visibility information
- Power transmission facilities
- Emergency response
- Public facilities and utilities

Environmental data collected may include, but are not limited to:

- Wetlands and water resources
- Stormwater management
- Floodplain information
- Surface geology
- Protected and recreational open space
- Areas of Critical Environmental Concern (ACECs)
- Fisheries/endangered species/wildlife
- Hazardous materials sites
- Noise levels
- Air quality/greenhouse gases
- Cultural, historical, and archaeological resources
- Federal lands

Public health data collected may include, but are not limited to:

- Hospitalization (inpatient) data for asthma, myocardial infarction, congestive heart failure, stroke, and hypertension
- Levels of pediatric and adult obesity
- Levels of pediatric and adult depression
- Levels of pediatric and adult diabetes (including Type II),
- Levels of pediatric asthma
- Injuries and fatalities related to crashes



Recent and proposed commercial/industrial developments, major residential and mixed-use projects, and other proposed projects with significant trip generation in the study area will be identified and mapped.

Sufficient data must be collected as part of this task to identify existing social equity impacts. This includes geometric data (layout plans, lanes, curb cuts, sidewalks, crosswalks, pedestrian buttons, transit accommodations, etc.) to identify compliance with the Americans with Disabilities Act and any major breaks in accessible paths of travel, demographic and population to identify minority, low income, and limited-English proficiency populations within the study area, and data on commercial enterprises within the study area, including identification of minority-owned businesses.

MassDOT will provide available aerial photography files and any previously existing maps for the development or updating of base maps by the consultant as necessary. The general accuracy of these data will be confirmed through site visits. Final resolution/scales of photographs and base maps will be determined jointly by MassDOT and the consultant team, and will be based on available data files.

Using the above collected data, a base map will then be assembled in a GIS format for use in the future tasks. The consultant team will identify all potential land use and environmental constraints that could affect the feasibility of any alternatives developed during the study. The data will be used for other analytical purposes as well.

The consultant shall also be responsible for obtaining or collecting other data and information that are needed to execute the study scope.

Products:

- Existing traffic volumes, turning movements, levels of service, and crash data (with collision diagrams and crash rates)
- Existing transit services and ridership for study area
- Existing rail services and ridership for the study area
- Existing ferry ridership and services for the study area
- Existing freight movements and services within the study area
- Existing environmental and land-use/economic development data
- Other data and information as needed



C. Future Year Conditions

Conditions in the study area will be forecasted for the horizon year of 2035. One of the primary tools to be used for estimating future conditions is a travel demand transportation model. The consultant will develop and calibrate a travel demand model for the regional study area using data from the MassDOT statewide travel demand model and the Cape Cod Commission travel demand model to the maximum extent possible. The travel demand model must be able to account for seasonal variation in travel patterns and potential shifts in travel between highway, passenger rail, and transit modes. Transportation conditions will be forecasted for a “no-build” condition, which assumes that no alternatives are implemented. MassDOT may also engage the Boston Metropolitan Planning Organization’s Central Transportation Planning Staff, through a separate contract, to provide information on demand for potential transit ridership in support of this project to ensure conformity with other planned projects. Throughout the region, only existing or planned projects that can reasonably be expected to be in place by 2035 will be included in the analysis. The consultant will work with MassDOT Planning and the Cape Cod Commission to identify appropriate assumptions for future year infrastructure and development.

Projections will be based on forecasts from the travel demand model that incorporates MPO regionally accepted growth trends and planned projects in the area. The travel demand model results will provide estimated regional and external traffic volumes, passenger rail ridership, and projected transit usage for input into the consultant’s microsimulation programs (including SYNCHRO and VISSIM) to assess the future no-build (do nothing) operational conditions within the Study Area.

The consultant will coordinate closely to utilize regional model results as inputs to traffic simulations and transit services depicting a future no-build condition. This future no-build condition should also include the most current socio-economic projections (population, households, and employment), and estimates of future land use.

Products:

- Forecasted traffic levels and conditions
- Forecasted transit ridership and services
- Forecasted passenger rail ridership and services
- Forecasted ferry ridership and services
- Forecasted freight movements and services
- Socio-economic projections

- Land use projections

D. Definition and Evaluation of Issues and Opportunities

Deficiencies and issues in the study area will be identified, quantified, and evaluated for use in subsequent tasks. Opportunities for new connections and improvements to infrastructure, access, mobility, and economic development will also be identified, quantified, and evaluated.

As part of defining transportation issues in the study area, the following elements should be considered: current and future traffic congestion, safety, environmental issues, evacuation routes, health determinants, community effects, economic development, land use, transit, bicycling, pedestrians, and other factors as appropriate. Additionally, the consultant will utilize the methods outlined in *NCHRP Report 532 – “Effective Methods for Environmental Justice Assessment”* to identify any existing transportation effects on minority or low-income populations which are disproportionate, high, and adverse. Wherever feasible, the defined issues and opportunities will be presented in graphical or map form suitable for presentation at a public informational meeting.

Product: Inventory and definition of issues and opportunities

E. Constraints Identification

MassDOT and the consultant team will identify a set of project constraints related to environmental impacts, engineering/design feasibility, business and residential effects, cost, transit services, and other factors as appropriate. Constraints for engineering feasibility will be based on appropriate MassDOT Highway Division guidelines as applicable.

Product:

- Inventory of project constraints

FINAL PRODUCT FOR TASK CANAL-2:

Completed draft report chapter containing the following:

- Existing traffic volumes, turning movements, levels of service, and crash data
- Existing transit services for the study area
- Existing passenger rail services for the study area
- Existing bicycling/pedestrian activity for the study area
- Existing ferry ridership and services for the study area
- Existing freight movements and services within the study area



- Existing environmental and land-use data
- Forecasted traffic levels and conditions
- Forecasted transit ridership and services
- Forecasted ferry ridership and services
- Forecasted freight movements and services
- Socio-economic projections
- Land use projections
- Inventory and definition of issues and opportunities
- Inventory of project constraints

Task CANAL-3 – Alternatives Development

Based on work completed in prior tasks, short-, medium-, and long-range alternatives will be developed in this step. The alternatives development for this study will focus on a full range of transportation alternatives to address the identified transportation needs, including new Cape Cod Canal crossing options, as well as improvements for all users along connecting roadways, other transportation modes, and adjacent land uses and attractions using a Complete Streets approach. As each Cape Cod Canal crossing alternative alignment is developed, the consultant must: provide a street network that supports all users, preserve the existing ramp connections to the local and regional roadway network, identify potential sources of revenue to support construction and operations (public-private partnership, tolling), preserve rail access through the corridor, and improve transit, bicycle and pedestrian connections.

Additional alternatives that promote efficient system management and operation within the study area should also be included. In consultation with the Working Group, MassDOT and the consultant team will develop alternatives and refine a selection of alternatives for detailed analysis in Task CANAL-4. Where applicable, the consultant is strongly encouraged to utilize visual imaging tools (ranging from maps and graphics to the use of three-dimensional display techniques) as part of this task.

FINAL PRODUCT FOR TASK CANAL-3:

- Draft report chapter containing the following:
 - Descriptions of short and long-range alternatives
 - Maps, graphics, and other visualizations showing alternatives



Task CANAL-4 – Alternatives Analysis

The alternatives will be analyzed based on the evaluation criteria from Task CANAL-1. Any necessary mitigation related to each alternative should also be considered in the analysis.

A. Mobility and Accessibility Analysis

The consultant will analyze the impacts of alternatives on mobility in the study area. Mobility as it relates to the highway, rail, transit, bicycle and pedestrian systems should be considered. The highway system to be analyzed includes both the controlled-access highways/interchanges and local roads/intersections (including bicycle and pedestrian accommodations) in the local and regional study areas. The consultant will utilize microsimulation software such as SYNCHRO and VISSIM as required to perform the analysis of the highway system mobility. Transit services to analyze include intercity passenger rail (CapeFLYER service), commuter bus, local bus service, shuttle services, or any other type of existing or planned service as appropriate. The consultant will coordinate closely to utilize regional model results as part of the analysis methods for evaluating appropriate highway and transit alternatives.

Product:

- Alternatives analysis for roadway network, highway operations, traffic operations, transit ridership, ferry ridership, freight movements, bicycle and pedestrian conditions

B. Safety Analysis

The consultant will analyze the traffic safety impacts in the study area for each alternative to the degree feasible, including examining the impacts on vehicular, rail, bicycle and pedestrian movements in the study area. Each of the alternative designs should refer to the crash expectations at the intersection treatments proposed according to nationally published factors.

Products:

- Alternatives analysis for traffic safety

C. Environmental Effects Analysis

The consultant will analyze the environmental impacts for each alternative to the degree feasible, including examining: wetlands, floodplains, surface geology, protected and recreational open space, ACECs, hazardous materials sites, air quality, greenhouse gas impacts, noise, cultural, historical and archaeological resources, and other constraints as necessary to fully analyze each alternative.



Product:

Alternatives analysis for environmental effects

D. Land Use and Economic Development Analysis

The consultant will analyze land use, economic development and business impacts for each alternative to the degree feasible, including examining: right-of-way, property values, tax base, planned and potential zoning changes, planned developments (including 40B and TODs), parking, car and truck access to existing or planned parcels, freight movements, visibility, labor force impacts, impacts to minority-owned businesses, regional and local employment, and other elements as necessary to fully analyze each alternative.

Product:

Alternatives analysis for land use and economic/business impacts including impact on freight movements

E. Community Effects/Title VI/Environmental Justice Analysis

The consultant will analyze the community impacts for each alternative to the degree feasible, including examinations of: health determinants, right-of-way, noise levels, air quality, open space, land-use patterns, property values, vehicular access, transit access, solar access, emergency response, public facilities and utilities, cultural, historic, and archeological resources, elevation and visual impact, and other constraints as necessary to fully analyze each alternative. Where applicable, the consultant team will complete conceptual level right-of-way plans for each alternative in accordance with appropriate design criteria. Plans will not include detailed design of any structural elements, but may use visual imaging software (where applicable) to portray the visual characteristics of certain alternatives that may be proposed for analysis. The consultant will also utilize the methods outlined in *NCHRP Report 532 – “Effective Methods for Environmental Justice Assessment”* to analyze the possible social equity impacts of the developed alternatives and how they may impact or benefit the minority or low-income populations that have been identified. The consultant will determine if any of the alternatives and resulting mitigation is likely to result in effects that are disproportionate, high, and adverse to these populations. If so, the consultant will quantify the location, severity, and impacted population and identify potential mitigation.

Product:

Alternatives analysis for community effects/ environmental justice

F. Cost Analysis

Approximate construction, operations, right-of-way, and mitigation costs (including possible noise barriers) will be estimated for each alternative. The consultant will also estimate the potential revenue generated through a public-private partnership to construct and operate the proposed alternatives. Other information (project implementation scenarios, construction schedules, etc.) will be estimated to the extent possible.

Products:

- Analysis of costs associated with each alternative

FINAL PRODUCT FOR TASK CANAL4:

Draft report chapter evaluating all alternatives based on Task CANAL-1 criteria, including:

- Mobility and system reliability in all major transportation modes
- Accessibility
- Safety
- Environmental effects, including air quality and greenhouse gas impacts
- Health effects, including promotion of healthy transportation options as well as discussion of other public health factors, such as air quality and noise
- Land use and economic development
- Community effects
- Cost, including capital and operating cost and potential revenue to support the project cost

Task CANAL-5 – Recommendations

Recommendations may include both short-range (within five years), medium-range (between five and ten years) and long-range recommendations as a result of the analysis completed in the previous tasks. The recommendations shall also be presented in the form of an implementation plan that identifies key stakeholders, issues, milestones, regulatory and procedural requirements, and other relevant issues. The



recommendations must reflect a consensus of the public attained and documented through the public participation plan. The consultant will work with the identified stakeholders to outline the steps necessary to implement the recommended improvements.

FINAL PRODUCT FOR TASK CANAL-5:

Draft report chapter on recommendations containing:

- Tables of short and long-range recommendations
- Recommendation narrative and implementation plan
- Recommendation maps, graphics, and displays

Task 6 – Final Report

A Final Report will be prepared consisting of revised versions of the report chapters developed under Tasks 2 through 5, with an introductory chapter discussing the overall project and the goals-related material developed in Task CANAL-1. The report will also include an executive summary and appendices.

The consultant will prepare a draft of the final study report in an accessible format consistent with MassDOT guidelines for review and comment by MassDOT Planning. Once the comments have been addressed, the consultant shall produce a revised draft study report that shall be distributed to the SAG and released for a 30-day public comment period. The consultant shall also hold a public meeting to present the study results and recommendations and gather any final comments.

The consultant team will be expected to deliver twenty (20) paper copies of the report to MassDOT, as well as copies for each member of the Working Group. The final report should also be made available in accessible PDF format, with 100 compact disc copies provided to the Office of Transportation Planning. All electronic files (Word, PowerPoint, GIS Data layers, traffic analysis software, etc.) used to print the final report should also be provided to MassDOT on compact disc.

FINAL PRODUCTS FOR TASK CANAL-6:

- Draft final report
- PowerPoint document of recommendations
- Revised final report

TASK CANAL-7: Environmental Notification Form

The consultant will prepare and submit an Environmental Notification Form (ENF) for the improvements recommended in Task 5 along with a user-friendly report detailing potential impacts to relevant resource areas and a



technical appendix with appropriate background analysis in compliance with the Massachusetts Environmental Protection Act (MEPA). The report and technical appendix should consist primarily of revised versions of the final report and other materials prepared in Tasks CANAL-1 through CANAL-6. The ENF report will, at a minimum, include the following items:

1. **Project Description** – A detailed description of the elements of the project recommendations
2. **Project Needs and Goals** – A concise summary of why the project is being pursued and what its benefits would be. The description will identify how the current proposal is consistent or compatible with previous proposals, as well as how it may have been modified and improved to address future needs.
3. **Alternatives** – A discussion of the alternatives considered (including the No-Build scenario) and their expected impacts, measures to avoid and minimize impacts, and potential mitigation measures. The Preferred Alternative may be identified if that is the outcome of the recommendations in Task 5.
4. **Public Outreach** – A discussion of the public outreach efforts conducted to-date will be provided, along with a summary of support and concerns voiced at previous meetings. The continuing public participation plan will also be described.
5. **Potential Impacts** – A discussion of the potential impacts on, at a minimum, environmental justice populations, land use, hazardous materials release, electric and magnetic fields, alternative transportation modes, traffic, parking, noise, air quality/greenhouse gases, stormwater management, wetlands and water resources, fisheries/endangered species/wildlife, Chapter 91 compliance, federal lands, historical/archaeological resources, and open space/parkland/conservation land.
6. **Mitigation** – The report should highlight the mitigation strategies that encompass to the maximum extent practicable remedies for all the impacted areas noted above.
7. **Funding** – A discussion of the potential funding sources and potential construction timeframe.
8. **Consistency with Local and Regional Plans** – a review of the pertinent regional plans and documents (from CCC, SRPEDD, and OCPC), including its work on the upcoming Long Range Plan update, for applicability to the project. The report will also address how the project complies with state planning requirements and applicable MassDOT goals such as GreenDOT, Healthy Transportation Policy Directive, Mode Shift Goals, and the Global Warming Solutions Act.

Prior to initiation of Task CANAL-7, the consultant will consult with MassDOT staff and other regulatory stakeholders to determine if there is an



opportunity to expedite the MEPA process for the recommended improvements by filing an Expanded Environmental Notification Form. Following this consultation and determination of action, the consultant will prepare a draft of the ENF form, report, and appendix in an accessible format consistent with MassDOT guidelines for review and comment by MassDOT Planning and the MassDOT Highway Division. Once the comments have been addressed, the consultant shall produce a final set of documents that shall be circulated in compliance with MEPA guidelines. The Consultant will also handle the logistics related to setting up a site visit in support of the ENF.

FINAL PRODUCTS FOR TASK CANAL-7:

- Completed ENF with all standard attachments and distribution list
- ENF report and technical appendix
- ENF site visit

Total Budget (FY 2015-2016):	\$800,000	Source:
Expected Remaining Effort (FY 2016):	\$300,000	MassDOT

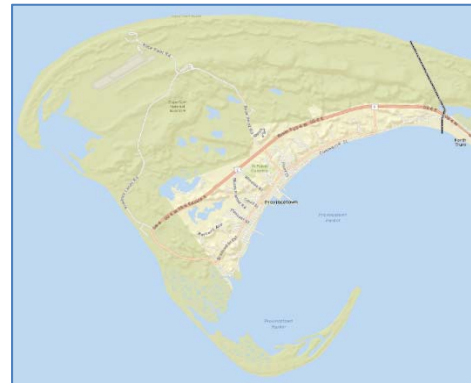


Background

The amount of commercial and recreational activity in the relatively small area of Provincetown is unique on Cape Cod. This density, along with the proximate connections to air, ferry, and bus transportation, provides a favorable environment for non-motorized transportation. However, automobile travel, including truck deliveries, to and around Provincetown is still critical for the economic vitality of the area. The narrow streets and limited parking currently provide significant challenges to motorists and bicyclist.

Goal & Objectives

The goal of this project is to provide guidance to the town on improvements to parking and circulation for both motorist and bicyclist that will improve the safety and efficiency of moving people and goods throughout Provincetown.



The objectives of the project are to provide:

1. A professional analysis of current parking stock and utilization for both motorist and bicyclist and overall circulation in Provincetown, and
2. A set of recommendations for parking improvements and policy as well as potential roadway infrastructure improvements to assist the Town in realizing the full potential for the area.

Research/Planning Questions

- What is the available total parking for both motorist and bicyclist? How much is public? How much is private?
- What are the pricing schemes in place for parking? How do other town regulations/policies affect parking?
- What is the current parking utilization?
- How well are the roadways and intersections in the area currently operating?
- Are there any improvements to parking that could improve circulation and alleviate congestion?



- Are there any improvements to the roadway network that could improve circulation and alleviate congestion?

Information & data needs

Data needs will include assessor's data on properties within the study area; existing inventories of parking lots/spaces as available, bicycle racks, parking lot data on town lots as available (counts, revenue, and ticketing), plan metric data (parking and other infrastructure), parking utilization data, traffic volume data, as well as the build-out analysis for the area.

Tasks

Task BIKE-1 – background

Commission staff will review existing planning documents covering traffic circulation for the Town as well as town regulations on parking.

Task BIKE-2 – Data Collection and Inventory

In addition to data provided by the Town, Commission staff will need to collect a significant amount of data on parking availability and utilization, traffic volumes, and travel patterns. Depending on the quality and quantity of data available from the town the scale of the data collection effort may need to be adjusted. A data inventory including, at the minimum, the following information will be established:

- Parking lot information
 - Number of spaces
 - Ownership
 - Pricing scheme
 - Utilization
 - Number of Bike Racks
- Traffic counts (including vehicle, bicyclists, and pedestrians) on major roadways and intersections
- Travel pattern data as collected by Bluetooth Travel-time Origin And Destination (Blue TOAD) readers (see map on the following page)
- Existing roadway configuration including available bicycle and pedestrian accommodations

Deliverables

Summary of data collection activities

Task BIKE-3 – Existing Conditions assessment

Based on the information and data collected in Tasks BIKE-1 and BIKE-2, Commission staff will develop an assessment of the existing condition of parking and traffic circulation within the study area. This assessment will include a graphical and tabular presentation of parking availability, pricing, and utilization as well as traffic volumes on major roadway and level of service at major intersections.

Deliverables

Graphical and tabular presentation of existing conditions

Task BIKE-4 – Development of Potential Parking Improvements

Based on the assessment completed in Task 3, Commission staff will develop a set of potential parking improvements aimed at improving the safety and efficiency of moving people and goods throughout Provincetown. This may include options for revisions to parking policy or pricing, developing new parking options, information technology options for parking management and/or options aimed at reducing parking demand such as transit. Commission staff will work to identify estimated costs, anticipated benefits, and likely obstacles to implementation for each potential improvement.

Deliverables

Summary of potential parking improvements with estimated costs, anticipated benefits, and likely obstacles to implementation

Task BIKE-5 – Development of Potential Roadway Improvements

Based on the assessment completed in Task BIKE-3, Commission staff will develop a set of potential roadway improvements aimed at improving the safety and efficiency of moving people and goods throughout Provincetown. This may include options for changing circulation patterns, improvements at select intersections, and/or options aimed at reducing circulating volumes within the study area. Commission staff will work to identify estimated costs, anticipated benefits, and likely obstacles to implementation for each potential improvement.



Deliverables

Summary of potential roadway improvements with estimated costs, anticipated benefits, and likely obstacles to implementation

Task BIKE-6 – presentation of draft report

Prepare a draft report including information collected in previous tasks and a full set of proposed recommendations.

Deliverables

Draft Report and Presentation

Task BIKE-7 – final report

Deliver the final report to the Town for distribution as they see fit.

Deliverables

Final Report including summary of findings and recommendations

Budget

Total Estimated Cost:	\$110,000
Cape Cod Commission Portion:	\$77,000
Town of Provincetown Portion:	\$33,000



Schedule

Task/Month	1	2	3	4	5	6	7	8	9	10	11	12
1. Background	x											
2. Data Collection		x	x	x								
3. Existing Conditions			x	x	x							
4. Parking Improvement Development						x	x	x				
5. Roadway Improvement Development						x	x	x				
6. Presentation of Draft Report									x	x		
7. Delivery of Final Report												x

Note: Schedule may need to be adjusted to allow for data collection during peak season conditions

Project Team

- Glenn Cannon, PE, Director of Technical Services (Project Manager)
- Lev A. Malakhoff, Senior Transportation Engineer
- Steven Tupper, Technical Services Planner
- Patrick Tierney, Technical Services Planner
- Martha Hevenor, Planner II, Bicycle and Pedestrian Coordinator
- Cally Harper, Planner II
- Phil Dascombe, Community Design Manager
- Leslie Richardson, Chief Economic Development Officer
- Anne Reynolds, GIS Director

Process Protocols

The following protocols are proposed in order to maximize public transparency, participation and satisfaction with the process.

Contacts



CAPE COD
COMMISSION

- *CCC Project Manager:* Glenn Cannon
gcannon@capecodcommission.org; (508) 362-3828
- *Town Project Manager:* David Gardner
dgardner@provincetown-ma.gov; (508) 487-7002

Meeting logistics & noticing

- CCC staff will coordinate with town staff to arrange the location, date and time of all meetings associated with the project.
- Town staff will reserve the location for any meetings. Microphones and audio/visual will be provided by the town as needed.
- Town staff will prepare notices, including flyers and informational postcards, to advertise any meeting as necessary.
- Town staff will be responsible for any printing required.
- Town staff is responsible for noticing workshops meetings consistent with the noticing requirements below.

Website

The website is intended to be the primary mechanism for distributing project-related information. It is anticipated that the town's website will act as a portal for interested parties and will link to a dedicated section of the Commission's website for additional information.



CAPE COD
COMMISSION

FEDERAL FISCAL 2016 PL FORMULA ALLOCATION



Unified Planning Work Program Funding

MPOs PL funded	Contract status	40% of total funds/ten MPOs	30% of funding for relative size of population		30% of funding for relative size of urbanized population			Total FFY16 funding by MPO	
		\$ 3,930,011	\$2,947,508		\$2,947,508			\$ 9,825,027	
Berkshire	Yr 4	\$ 393,001	131,219	2.03%	\$ 59,968	88,795	1.49%	\$ 43,972	\$ 496,942
Boston		\$ 393,001	3,161,712	48.56%	\$ 1,431,256	3,098,347	51.57%	\$ 1,519,905	\$ 3,344,162
CTPS	Yr 4								\$ 2,708,771
MAPC	Yr 4								\$ 635,391
Cape Cod	Yr 4	\$ 393,001	215,888	3.35%	\$ 98,663	198,826	3.34%	\$ 98,461	\$ 590,125
Central Mass	Yr 1	\$ 393,001	556,698	8.63%	\$ 254,416	462,724	7.77%	\$ 229,146	\$ 876,564
Merrimack Valley	Yr 1	\$ 393,001	333,748	5.17%	\$ 152,526	316,362	5.32%	\$ 156,666	\$ 702,193
Montachusett	Yr 4	\$ 393,001	236,475	3.67%	\$ 108,071	171,236	2.88%	\$ 84,798	\$ 585,871
Northern Middlesex	Yr 1	\$ 393,001	286,901	4.45%	\$ 131,117	277,474	4.66%	\$ 137,408	\$ 661,526
Old Colony	Yr 4	\$ 393,001	348,527	4.94%	\$ 145,602	328,231	5.02%	\$ 148,110	\$ 686,714
Pioneer Valley	Yr 1	\$ 393,001	621,570	9.64%	\$ 284,064	537,074	9.02%	\$ 265,965	\$ 943,030
Southeastern Mass	Yr 4	\$ 393,001	616,670	9.56%	\$ 281,824	531,236	8.93%	\$ 263,074	\$ 937,900
		\$ 3,930,011	6,449,550	100.00%	\$ 2,947,508	5,952,013	100.00%	\$ 2,947,508	\$ 9,825,027

The recommended PL Allocation Formula was developed by the Massachusetts Association of Regional Planning Agencies and recommended by MassDOT to FHWA, is based upon the following three factors: 40% of available funds divided equally among the ten MPOs, 30% is allocated based on each MPO's relative share of Massachusetts population, and 30% is allocated based on each MPO's relative share of urbanized population. These factors result in the percentages shown.



LIST OF STAFF AND ESTIMATED PERCENTAGE OF TIME ALLOCATED TO MASSDOT FUNDED (PL) TASKS IN THE FY 2016 UPWP

Staff Name and Position	Percentage of Time
Glenn Cannon, PE, Technical Services Director	85%
Lev A. Malakhoff, Senior Transportation Engineer	85%
Steven Tupper, Technical Services Planner	85%
Patrick Tierney, Technical Services Planner	85%
Martha Hevenor, Planner II	50%
Project Management (Daley, Senatori)	5%
Historic (Korjeff)	5%
Land Use (Rooney, Dascombe, Korjeff, Meus)	15%
Water Resources (Cambareri, Michaud, Mejia)	5%
GIS (Reynolds, Prahm, Detjens, Goulet, Gruber)	20%
Legal (Wielgus, Idman)	5%
Community Outreach/Title VI (Clinton, Donahue, McGuire, Still)	5%
Climate Change (Harper)	10%
Natural Resources/Environment (McElroy)	5%
Economic Development (Richardson, Ramachandran)	5%
Seasonal Traffic Technicians	100%

Seasonal Traffic Counting Technician(s) – approximately 10 person-weeks (100%)

#	Date/Format	Comment From	Summary of Comment	Potential Response/Action for Consideration
1	7/10/2015 email	Kirk DiRubio	Support for extension of Shining Sea Bikeway from North Falmouth to the Cape Cod Canal	Thank you for the comment.
	7/13/2015 letter	David Mohler, MassDOT	Ensure that the document is in an accessible format	Action: Done
			Ensure that 1/3 funds directed toward tangible products	Action: Done
			Revise title on signature page to "Acting" Administrator	Action: Done
			Separate Task 1.4 Environmental Justice/Title VI/Public Participation Plan into two tasks	Action: Revised Task 1.4 is now "Environmental Justice/Title 6," new Task 1.5 "Public Participation Plan" and subsequent Tasks renumbered
			Various formatting, pagination, subtask numbering, and reference to FFYs to be corrected	Action: Done
			Task 1.2 TIP, reference to MPO's MOU	Action: Done
			Task 2.3 Transportation Database Management/Modeling - strike "alternative modes" and define	Action: revised to "public transportation"
			Task 2.4 Pavement Management - strike "windshield surveys" and define	Action: revised to "observations made from a motor vehicle"
			Task 2.5 Asset Management/Resiliency - clearly state intentions are to monitor and assess existing transportation infrastructure	Action: language added to Task 2.5 Objectives
			Task 3 Short and Long Range Transportation Planning - description lacks specific language regarding the MPO's partnership with the CCRTA	Action: language added in Task 3 introductory paragraph
			Task 3.2 Transportation Safety - incorporate evaluations of bicycle and pedestrian safety; add "MassDOT District 5" to parties to coordinate with; add "review recent list of Top 50 Barnstable County High Crash Locations;" ensure geographic equity in selection of locations to study	Action: language added to Task 3.2 Procedures
			Task 3.4 Planning Resilient Transportation Infrastructure - reference monitoring and assessment from Task 2.5 as an input for implementation of resiliency strategies	Action: language added to Task 3.4 Procedures
2			Task 3.5 Hyannis Access Implementation TIGER Grant - Move to Task 3.7; PRC considers project readiness paramount	Action: Moved to "Task 3.6 Follow-Up on Previous Transportation Planning Studies," tasks renumbered; application for PRC number added to Procedure
			Task 3.6 Stormwater and Vegetation Management Plan - MassDOT will be performing a Rt 6 Study results of which will be needed for Task.	Action: Added language to procedures: "Coordinate with MassDOT District 5 on the Route 6 Study focusing on deficiencies along the roadway including horizontal and vertical geometry, acceleration and deceleration lengths at the interchanges, as well as shoulder widths."

Cape Cod 2016 Unified Planning Work Program - Public Comment Summary Grid

7-17-15 Draft

#	Date/Format	Comment From	Summary of Comment	Potential Response/Action for Consideration
2	7/13/2015 letter	David Mohler, MassDOT	Task 4.2 Sidewalk Accessibility to Transit Stops - task details should match description	<u>Action:</u> corrected task details added to UPWP
			Appendix A.1 Provincetown/Truro/Wellfleet Bicycle Master Plan - revise work completion schedule Appendix A.2 Cape Cod Canal Transportation Study - Consider condensing scope Proposed FY 2016 Funding Summary - revise as necessary	<u>Action:</u> revised to expected completion December 2015 No action; scope retained for informational purposes <u>Action:</u> summary revised per above items
3	7/15/2015 email	Bill Reidy	Comments focusing on rail issues as pertaining to potential extension of Shining Sea Bikeway (Task 3.3) using railroad right-of-way; consistency of UPWP and RTP	No action: Potential alignment issues will be explored during Task 3.3 development
4	7/15/2015 email	Leah Sirmin, FHWA	Ensure language references new RTP	<u>Action:</u> language now references new RTP goals and appropriate chapters/appendices
			Ensure all tasks have appropriate years referenced	<u>Action:</u> UPWP revised to reflect appropriate fiscal years
			Task 3.2 Transportation Safety - what is focus on bicyclists and pedestrians?	<u>Action:</u> Task procedures revised to include evaluations of bicycle and pedestrian safety
			Task 3.5 Hyannis Access Implementation - Federal funds cannot be used for lobbying	<u>Action:</u> "Collecting statements of support" removed from procedures
			Task 3.7 Follow-up on Previous Studies - reference to a task from a previous UPWP	<u>Action:</u> Task revised to be more general, all current FY tasks expected to be accomplished at this time
			Task 4.1 Transportation Center to Steamship - land use work is not permitted using PL funds	<u>Action:</u> Reference to land use deleted
			Task 4.2 Sidewalk Accessibility to Transit Stops - task title does not match description	<u>Action:</u> corrected task details added to UPWP
			Appendix A.1 Provincetown/Truro/Wellfleet Bicycle Master Plan - what is the funding source	Response: Cape Cod National Seashore grant
			Task 4.3 Other Technical Assistance - appears to have insufficient match	<u>Action:</u> UPWP budget revised
			Ensure that 1/3 funds are for work that results in a product	<u>Action:</u> Done

Acronyms: AC = advanced construction; CCC = Cape Cod Commission; CCRTA = Cape Cod Regional Transit Authority; DPW = Department of Public Works; MassDOT = Massachusetts Department of Transportation; MPO = Metropolitan Planning Organization; RTP = Regional Transportation Plan; TIP = Transportation Improvement Program; UPWP = Unified Planning Work Program

Note: The Public Comment Summary Grid presents a summary of the comments received during the 30-day public comment period. The comments were presented in their entirety to the Cape Cod Metropolitan Planning Organization (MPO) during a public meeting where the body considered the comments. The response and any action taken by the MPO are summarized in this table. This table will be included in the final plan and is available at www.capecodcommission.org/mpo

Proposed FY2016 Funding Summary

		FHWA	MDOT	FTA	CCC	Other	Task Total	Percent
		PL funds	PL (match)	Sec 5303				
Task 1 Mgt & Support of the Planning Process & Certification Activities								
1.1	Unified Planning Work Program	\$25,000	\$6,250				\$31,250	4.5%
1.2	Transportation Improvement Program	\$31,000	\$7,750				\$38,750	5.5%
1.3	CCJTC and MPO Activities	\$35,000	\$8,750				\$43,750	6.3%
1.4	Environmental Justice/Title 6	\$32,000	\$8,000				\$40,000	5.7%
1.5	Public Participation Plan	\$13,000	\$3,250				\$16,250	2.3%
1.6	Regional Transportation Plan	\$15,000	\$3,750				\$18,750	2.7%
Total for Task 1		\$151,000	\$37,750				\$188,750	27.0%
Task 2 Data Collection & analysis activities								
2.1	Traffic Data Collection Program	\$32,000	\$8,000				\$40,000	5.7%
2.2	Performance Standards	\$17,000	\$4,250				\$21,250	3.0%
2.3	Transportation database management	\$27,000	\$6,750				\$33,750	4.8%
2.4	Pavement Management	\$30,000	\$7,500				\$37,500	5.4%
2.5	Asset Management / Resiliency	\$15,000	\$3,750				\$18,750	2.7%
2.6	Geographic Information Systems	\$30,000	\$7,500				\$37,500	5.4%
Total for Task 2		\$151,000	\$37,750				\$188,750	27.0%
Task 3 Short and long range planning								
3.1	Living Streets - Route 28 Cotuit	\$50,000	\$12,500				\$62,500	8.9%
3.2	Transportation Safety	\$25,000	\$6,250				\$31,250	4.5%
3.3	Bike Planning - Shining Sea and Route 1	\$20,000	\$5,000				\$25,000	3.6%
3.4	Planning Resilient Transportation Infrastructure	\$20,000	\$5,000				\$25,000	3.6%
3.5	Route 6 Median	\$15,000	\$3,750		\$20,000		\$38,750	5.5%
3.6	Follow up on Previous Studies	\$21,600	\$5,400				\$27,000	3.9%
Total for Task 3		\$151,600	\$37,900		\$20,000		\$209,500	29.9%
Task 4 Other technical activities								
4.1	Transportation Center to Steamship Connectivity			\$35,500	\$8,875		\$44,375	6.3%
4.2	Sidewalk Accessibility to Transit Stops			\$36,037	\$9,009		\$45,046	6.4%
4.3	Other Technical Assistance Requests	\$18,500	\$4,625				\$23,125	3.3%
Total for Task 4		\$18,500	\$4,625	\$71,537	\$17,884		\$112,546	16.1%
Subtotal Task 4 FTA 5303 with CCC Match				\$89,421				
Task 5 CCC Planning and regulatory activities								
5.1	Regulatory				\$69,703			
5.2	Planning				\$25,685			
5.3	Other transportation activities				\$48,701			
Total for Task 5					\$144,089			
Totals								
		\$472,100	\$118,025	\$71,537	\$181,973		\$699,546	100%
Appx. Additional Planning Efforts*								
A.1	Provincetown/Truro/Wellfleet Bicycle Master Plan					\$100,000		
A.2	Cape Cod Canal Transportation Study		\$300,000					
A.3	Provincetown Parking, Circulation & Bike Study				\$77,000	\$33,000		
Total for Additional Tasks			\$300,000		\$77,000	\$133,000		
Key:								
*Additional Planning Effort s will be completed in FFY 2016 (total effort is shown in UPWP FY2016 for Informational Purposes)								
MDOT = Massachusetts Department of Transportation								
FHWA = Federal Highway Administration								
FTA = Federal Transit Administration								
CCC= Cape Cod Commission								
CCRTA = Cape Cod Regional Transit Authority								
PL = Planning funds								
Sec 5303 = Federal Transit Planning Funds								

CAPE COD COMMISSION

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