



CAPE COD
COMMISSION

2016 REGIONAL TRANSPORTATION PLAN
Technical Appendix M: Transportation
Project Analysis

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Table of Contents

Universe of Projects	1
Project Analysis.....	10
Screening of Highway Regional Target Projects	10
Analysis of Highway Regional Target Projects	10

List of Tables

Table 1. Highway Regional Target Projects – Income, Minority, and LEP Population Impacts.....	11
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Technical Appendix M: Transportation Project Analysis

UNIVERSE OF PROJECTS

The universe of projects identified for funding can be divided into one of four funding categories:

- Transportation Projects
- Transportation Programs
- Smart Solutions
- Transportation Studies

A “**transportation project**” is specific in the location and nature of construction or other activity that is anticipated. Examples of potential transportation projects include the reconfiguration of Exit 1C on Route 6 and the construction of a new multi-use trail from the end of the existing Shining Sea Bikepath to the Cape Cod Canal Path. Any project over \$20 Million in total cost must be included in the RTP to receive federal funding. Projects under \$20 Million may be included in the RTP depending on the level to which the project has been developed.

Given that the RTP, covers a 25-year time-span it beyond our ability to define every specific transportation project that will implemented. Therefore, “**transportation programs**” identifying categories of specific transportation projects that are anticipated to be implemented and identifying funds to pay for these bundles of transportation projects. Examples of potential transportation programs include roadway resurfacing, intersections improvements, and transit operating assistance and capital needs.

“**Smart solutions**” are initiatives that do not require major investments in capital or operations. Examples of potential smart solutions include coordination of Cape Cod Regional Transit Authority and ferry schedules with each other and the development of a Cape-wide bicycle route system.

Finally, “**transportation studies**,” seek to solve problems through planning efforts that focus on analysis of alternatives and public participation. These transportation studies ultimately identify solutions to problems that may be in the form of future transportation projects, programs, and/or smart solutions.

The Universe of Projects for the 2016 RTP are shown on the following pages.

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Project	Falmouth and Hyannis to New Bedford	2 New Ferry Services	Provide new ferry services: New Bedford-Woods hole, New Bedford-Hyannis	Ferry	2,000	100,000	146,000
Project	Bourne	Bourne Rotary Improvements	Reconfigure Bourne rotary to allow direct connection between Bourne Bridge to Route 28 (MacArthur Blvd). Interim improvements to improve flows at rotary entrances and exits by widening and pavement markings/signage.	Highway		50,000	50,000
Project	Barnstable	Hyannis Access Improvements	Improve access to downtown Hyannis per Hyannis Access Study. Construct 2 additional travel lanes w/landscaped median on Yarmouth Road to connect from existing 4-lanes in Yarmouth to Route 28 in Hyannis. Includes multi-use path and sidewalk.	Highway		43,154	43,154
Project	Sandwich	Interchange Improvements Rte 6	Mid-Cape Hwy - Implement improvements to Route 6 Interchanges	Highway		38,200	38,200
Project	Bourne	Sandwich Road Parkway	Develop Sandwich Road into a 4 lane parkway with a landscaped median.	Highway		35,000	35,000
Project	Wellfleet, Truro, Provincetown	Cape Cod Rail Trail Extensions	Extend Cape Cod Rail Trail from S. Wellfleet to Provincetown	Bicycle/ Pedestrian		20,000	20,000
Project	Mashpee	Mashpee Rotary Ring Roads	Construct connector roads outside of the Mashpee Rotary: from Great Neck Road South to Route 28 East Leg; from Great Neck Road North to Route 151	Highway		20,000	20,000
Project	Bourne	Rte 28 MacArthur Boulevard Improvements	Bourne - Construction of 2 new northbound lanes on Rte 28, reverse existing northbound, existing southbound becomes frontage road	Highway		20,000	20,000
Project	Yarmouth Dennis Harwich Chatham	Rte 28 Multimodal Improvements	Multimodal improvements on of Route 28 from Falmouth to Orleans potentially markings, signage, minor widening, sidewalk construction, and improvements per the Rte 28 Safety and Traffic Flow Study including turning lanes, signal optimization.	Multi-Modal		20,000	20,000
Project	Barnstable, Sandwich	Cape Cod Rail Trail Extensions	Extend Cape Cod Rail Trail from Barnstable to Cape Cod Canal Bikepath	Bicycle/ Pedestrian		15,000	15,000
Project	Barnstable Boston	Barnstable-Boston Ferry Service	Ferry service: Barnstable to Boston	Ferry		15,000	15,000
Project	Dennis Harwich Brewster Orleans	Rt 6 Reconstruction	Route 6 National Highway System NHS, section with failing pavement	Highway		15000	15,000
Project	Barnstable Yarmouth	Hyannis Access Bicycle/Pedestrian Improvements	Regional bicycle/pedestrian access in the Route 28/Yarmouth Road and Willow Street area between Hyannis Transportation Center and planned extension of the existing Cape Cod Rail Trail in Dennis-Yarmouth; Design build grade crossings of Willow Street and Railroad	Bicycle/ Pedestrian		13000	13,000
Project	Bourne	Scenic Highway Median Barrier	Complete construction of median barrier along Route 6 Scenic Highway from Edge Hill Road to Belmont Circle in Bourne	Safety		12,000	12,000
Project	Chatham	Bridge St Bridge Replacement	Replace Bridge Street/Mitchell River Bridge (Chatham)	Bridge		12,000	12,000
Project	Wellfleet	Chequessett Bridge	Chequessett Bridge Rehabilitation	Bridge		12000	12,000
Project	Bourne	Rte 6 Reconfigure Interchange One	Improve westbound on-ramp near Sagamore Bridge during peak times for off-cape traffic flow: Route 6, Exit 1: Reconfigure WB on-ramp	Highway		11,500	11,500
Project	Sandwich Barnstable Yarmouth	Route 6 Hydroplaning	Route 6 stormwater improvements to remove runoff from traveled way, including construction of shoulders as needed	Safety		10,000	10,000
Project	Bourne	Scenic Highway/Rte 25 Connector Ramp	Develop a direct connection from Scenic Highway to Rte. 25 to divert traffic from the Belmont Circle.	Highway		10,000	10,000
Project	Capewide	HOV Lanes	Construct High-Occupancy Lanes at key segments of freeways such as Route 6, 3, 25, and 28.	Highway		10,000	10,000
Project	Provincetown	Provincetown Intermodal Gateway Project - Construction	Construct the Gateway	Enhancements		8,000	8,000
Project	Bourne	Shining Sea Bikepath Extension	Extend the Shining Sea Bikepath to the Cape Cod Canal Bikepath	Bicycle/ Pedestrian		8,000	8,000
Project	Bourne Sandwich	Rt 6 Resurfacing	Resurfacing and related work on Rt 6 from Sagamore Bridge to Sandwich/Barnstable TL	Highway		8000	8,000
Project	Barnstable	Independence Park Bikepath	Connect western extension of Cape Cod Rail Trail through Independence Park (Barnstable) to Service Rd at Exit 6	Bicycle/ Pedestrian		7,000	7,000
Project	Brewster	Rt 6A Resurfacing	Coldplaning/resurfacing of Rt 6A from Dennis T.L. to Orleans T.L. in Brewster	Highway		6500	6,500

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Project	Capewide	Transportation Management Center	Design & construct Operations Center to monitor traffic operations, issue real-time reports to traveling public, control variable message signs and coordinated traffic signals	ITS/ Management		6,450	6,450
Project	Bourne	Bourne Rotary - Falmouth /Sandwich Bus Services	Introduce public transit bus service between the Bourne Bridge area and Sandwich/ Falmouth (CMAQ funding)	Transit	276		6,351
Project	Dennis	Rte 28 Main St Bridge Rehabilitation	Rehabilitate Route 28 Main Street/Swan Pond River Bridge (Dennis)	Bridge		6,000	6,000
Project	Capewide	Rail Upgrade (Bourne +)	Buzzards Bay to Middleborough capital improvements for rail upgrade	Rail		6000	6,000
Project	Capewide	MV Eagle Refurbishment	Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority (SSA) MV Eagle Mid-Life Refurbishment	Ferry		5900	5,900
Project	Bourne	Route 25 Access Ramp Widening/Belmont Circle Modification	Route 25 Access Ramp Widening/Belmont Circle Modification	Highway		5000	5,000
Project	Bourne	Infrastructure Improvements for Buzzards Bay Commuter Rail Service	Infrastructure Improvements (Platform, Parking, etc.) for Buzzards Bay Commuter Rail Service	Rail		5,000	5,000
Project	Orleans, Eastham, Wellfleet, Truro, Provincetown	Rte 6 Improvements Orleans to Provincetown	Implement safety improvements in the corridor between Orleans and Provincetown	Highway		5,000	5,000
Project	Bourne	Otis Rotary Area Improvements	Construct safety improvements on Route 28/Connery Avenue/Route 28A at the Otis Rotary	Safety		5,000	5,000
Project	Sandwich, Bourne	Bus-Only Lanes for Rte 3 & Rte 6	Provide bus-only lanes between both Exits "2" and the Sagamore Bridge for both Rte. 3 and Rte. 6. This is expected to be achieved by widening and strengthening the shoulder section	Transit		5,000	5,000
Project	Barnstable	Route 132 Access Management	Construct traffic channelization, land acquisition, combine/eliminate driveways to improve traffic flow and safety from CC Mall to Phinneys Lane	Safety		5,000	5,000
Project	Eastham	Route 6 Complete Street	Route 6 in Eastham: add bike accommodation, improve sidewalks, bus turnouts & stops to create "Complete Street"	Highway			5,000
Project	Bourne	Reconfigure Route 6/28 Bypass (Buzzards Bay)	Reduce road width to 1 travel lane in each direction; provide local access to cross-streets; construct multi-use path from Memorial Circle to Belmont Circle. Per 2007 "Buzzards Bay Village Comprehensive Transportation Plan."	Highway		4455	4,455
Project	Harwich	Rt 124 (Harwich) Reconstruction	Reconstruction of Rt 124 from Headwaters Dr to Brewster T.L. in Harwich	Highway		4000	4,000
Project	Capewide	Intercity Seasonal Connector-demonstration	Intercity Seasonal Rail Connector-demonstration	Transit		4000	4,000
Project	Provincetown	Commercial St (Provincetown) Reconstruction	Commercial Street Reconstruction	Highway		3500	3,500
Project	Falmouth	Cross-Falmouth Bikepath	Bike path connection from E. Falmouth to Gifford St. to Shining Sea Bike Path	Bicycle/ Pedestrian		3,000	3,000
Project	Capewide	Canal Area Intelligent Transportation System	Expand transportation monitoring system to improve congestion & safety while providing real-time information Capewide & beyond	ITS/ Management		3,000	3,000
Project	Barnstable	Truck Staging at Route 6 Interchange	Construct truck transfer staging area near a Route 6 (e.g., Exit 6 or Exit 7) interchange for transfer of freight from large trucks to smaller trucks for destinations in the Hyannis Area. Consider rail freight transfer.	ITS/ Management		3,000	3,000
Project	Dennis	Upper County Rd Bridge Rehabilitation	Rehabilitate Upper County Road/Swan Pond River Bridge (Dennis)	Bridge		3,000	3,000
Project	Sandwich	Rt 6A over Scorton River Bridge	Replace bridge: Rt 6A over Scorton River in Sandwich	Bridge		3000	3,000
Project	Barnstable Bourne	Upper/Mid Cape Real Time Traffic Information System	Real Time Traffic Information System -- Design Build of year-round 24/7 Web based traffic information system based on cameras, sensors, with 511 to reduce road rage, congestion, and improve mobility and incident management through improved information	ITS/ Management		3000	3,000
Project	Sandwich	Rt 130 Exit 2 Rt 6 Intersection Improvements phase 2	Route 130 Exit 2 Phase 2, WB exit ramp and Service Road intersection improvements	Safety		3000	3,000
Project	Capewide	Ferry Sewage Pump-out Systems	Vessel Sewage Pump-out Systems -- Installation of 3 land-side pump-out systems and vessel modifications in Woods Hole, Vineyard Haven, and Nantucket	Ferry		2700	2,700
Project	Barnstable	Route 28/Bearses Way Access Improvements	Intersection improvements including accommodation of bike/ped & public transportation amenities	Highway		2500	2,500
Project	Barnstable	Osterville-Cotuit Bike Connection	Construct off-road connection south of Route 28 for bicycle-pedestrian access between Osterville and Cotuit	Bicycle/ Pedestrian		2,000	2,000

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Project	Provincetown	Shank Painter Rd Corridor Improvements	Corridor improvements including new sidewalks, curb cut consolidation, landscaping, bicycle lanes, etc.	Bicycle/ Pedestrian		2000	2,000
Project	Barnstable	Rt 28/Yarmouth Rd Intersection Improvements	Construction of turning lanes and signal upgrades per Hyannis Access Study	Highway		2000	2,000
Project	Dennis	Rt 6A (Dennis) Sidewalks	Route 6A sidewalks Yarmouth TL to Sesuit Neck Road	Bicycle/ Pedestrian		2,000	2,000
Project	Brewster	Rt 137(Brewster) Reconstruction	Full depth reclamation Long Pond Road / Rte 137	Highway		1900	1,900
Project	Bourne	Memorial Circle Reconfiguration (Routes 6/28, Main Street Buzzards Bay)	Convert Memorial Circle to 4-way Intersection; includes slip lane connection for eastbound Routes 6/28 to Main Street. Per 2007 "Buzzards Bay Village Comprehensive Transportation Plan."	Highway		1802	1,802
Project	Capewide	Passenger Loading Ramps	Passenger loading ramp modifications in Woods Hole, Vineyard Haven, Oak Bluffs, and Nantucket	Ferry		1600	1,600
Project	Falmouth	Rt 28/Jones Rd/Worcester Ct Intersection Improvements	Intersection improvements at Rt 28/Jones Rd/Worcester Ct in Falmouth	Highway		1500	1,500
Project	Brewster	Rt 124(Brewster) Reconstruction	Full depth reclamation Harwich Road / Rte 124	Highway		1500	1,500
Project	Capewide	Variable Message Signs	Remote operated variable message signs installed along all major routes - Rte 6, Rte 28 in Bourne & Falmouth, Rte 25 Extension, Rte 3	ITS/ Management	10	1,000	1,230
Project	Bourne, Sandwich	Cape Cod Canal Park-and-Ride Lot(s) Improvements	Construct new and/or expand existing Park-and-Ride facilities on both sides of the Cape Cod Canal near highway bridges	Multi-Modal		1,150	1,150
Project	Truro	Bus Stop Livability Enhancements	Livability enhancements / Improvements for bus stop area	Enhancements			1,000
Project	Eastham	Route 6/Gov. Prence Road Intersection Improvements	Install improvements at Route 6/Governor Prence Road intersection in Eastham	Safety		1,000	1,000
Project	Provincetown	Provincetown Bicycle Path Ext	Develop ped/bicycle facility using a portion of the Rte. 6 ROW	Bicycle/ Pedestrian		1,000	1,000
Project	Orleans	Rt 6A/Rt 28 Intersection Improvements	Per recommendations of 2006 Safety Study, install traffic signal or roundabout at intersection of Route 6A/Route 28/Canal Street in Orleans	Highway		1,000	1,000
Project	Barnstable	Barnstable Roundabout	Improve traffic flow and safety of the Route 6A/Route132 intersection through channelization of traffic movements (roundabout)	Safety		1,000	1,000
Project	Falmouth	Dillingham Av/Davis Straights Signalization	Install traffic signal at Dillingham Avenue/Davis Straights intersection in Falmouth	Highway		1,000	1,000
Project	Yarmouth	Route 6A/Union Street Intersection Improvements	Route 6A/Union Street intersection improvements in Yarmouth	Highway		1,000	1,000
Project	Yarmouth	West Yarmouth Rt 28 Intersection Improvements	Construct intersection improvements at Route 28 & East Main Street in West Yarmouth	Safety		1,000	1,000
Project	Eastham	Align Roadways: Aspinet /Nauset	Align Aspinet Rd with Nauset Rd at Route 6(Eastham)	Safety		1,000	1,000
Project	Provincetown	Provincetown Bicycle Path Ext - Phase I	Develop an extension from Race Point to McMillan Pier.	Bicycle/ Pedestrian		1,000	1,000
Project	Capewide	Renewable Fuels Pilot Stations	Develop pilot stations for renewable fuels such as biodiesel and ethanol. Proposal includes one station in the Mid-Cape area and one in the Outer Cape area	Enhancements		999	999
Project	Sandwich	Quaker Meetinghouse Rd Resurfacing	Sandwich, Quaker Meetinghouse Road - 2 miles long, mill and pave	Highway		925	925
Project	Barnstable	Villager Bus (Red Line) Phinneys Lane	Reroute CCRTA Villager service (Red Line) to include direct service to or from Barnstable Village directly to Route 132 via Phinneys Lane	Transit	40		920
Project	Barnstable	Airport Rotary Traffic Improvements	Reconfigure Airport Rotary to improve traffic flow and safety. May include realignment of approaches and reduction of diameter to conform to modern roundabout design	Safety		900	900
Project	Sandwich	Quaker Meetinghouse Rd Sidewalk	Quaker Meetinghouse Road Pedestrian Accessibility 3 miles of sidewalk	Bicycle/ Pedestrian		800	800
Project	Yarmouth	South Shore Dr (Yarmouth) Sidewalks	Yarmouth, Sidewalk improvements: South Shore Drive sidewalk- from Sea View Ave. to South Middle Beach	Bicycle/ Pedestrian		650	650
Project	Brewster	Stony Brook Rd, Rt 6A, Satucket Rd (Brewster) Reconstruction	Full depth reclamation Stony Brook Road, Rte 6A - Satucket Rd	Highway		600	600
Project	Dennis	Rt 134/Airline Rd Roundabout	Route 134 at Airline Road, Intersection Improvements (roundabout)	Highway		600	600
Project	Orleans	Rock Harbor Rd (Orleans) Reconstruction	Rock Harbor Road drainage improvements and roadway reconstruction	Highway		600	600
Project	Wellfleet	Cemetery Road & Old Wharf Road/Route 6 Improvements	Reconstruct intersections to consolidate Cemetery & Old Wharf Rd at Route 6 in Wellfleet	Highway		500	500
Project	Mashpee Barnstable	Left-Turn Lanes - Route 28	Construct turning lanes on Rte 28 from Route 130 to Orchard Road in Mashpee (esp. at Bowdoin Road)	Highway		500	500
Project	Capewide	Coast Guard Beach Shuttle Replacement - Phase 2	Replace existing vehicles - National Park Service	Transit		500	500

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Project	Capewide	Variable Message Signs - Phase 1	Permit, and install variable message signs for the Outer Cape.	ITS/ Management		500	500
Project	Capewide	Variable Message Signs - Phase 2	Permit, and install variable message signs for the Outer Cape.	ITS/ Management		500	500
Project	Harwich	Bike Path Connector	Bike Path Connection from Old Colony Rail Trail to Rt 28 & Beaches (Harwich)	Bicycle/ Pedestrian		500	500
Project	Sandwich	Canal Connector Bike Path	Bike Path Connection from Cape Cod Canal to Sandwich Center	Bicycle/ Pedestrian		500	500
Project	Dennis	Old Wharf Rd (Dennis) reconstruction	Old Wharf Road, reconstruction, sidewalks, and drainage improvements	Highway		450	450
Project	Capewide	Beach Shuttle Expansion	Acquire additional buses to accommodate inland National Seashore parking needs - National Park Service.	Transit		400	400
Project	Yarmouth	Winslow Gray Rd (Yarmouth) Sidewalks	Yarmouth, Sidewalk improvements: Winslow Gray Rd. sidewalk 0.75 miles long from Buck Island Rd. to Long Pond Dr.	Bicycle/ Pedestrian		400	400
Project	Bourne	Cohasset Narrows Bridge Improvements & Traffic Management. Includes multi-use path	Repair bridge abutments, prepare and implement traffic management plans as part of repairs to the Cohasset Narrows Bridge in Bourne [***review schedule]	Bridge		300	300
Project	Orleans	Main Street (Orleans) Improvements	Main Street Sidewalk extension and reconstruction of Meeting House Road intersection	Bicycle/ Pedestrian		300	300
Project	Dennis	Rt 134 (Dennis) Bike/Ped Accommodation	Route 134 state section sidewalks / pedestrian bicycle accommodation, existing gap	Bicycle/ Pedestrian		300	300
Project	Capewide	Permanent Traffic Counting Stations	Install permanent traffic counting stations at strategic locations Cape-wide, including remote-accessible detection at signalized intersections	ITS/ Management	5	175	290
Project	Capewide	Cape-wide Highway Advisory Radio	Provide travel information cape-wide via AM radio	ITS/ Management		250	250
Project	Capewide	Outer Cape ITS Operations Control Center	Design and build an initial control center to accommodate ITS deployment for the Outer Cape	ITS/ Management		250	250
Project	Capewide	Information Kiosks	Procure, install, and enable public transportation information kiosks	ITS/ Management		200	200
Project	Capewide	Highway Advisory Radio System	Permit and install a highway advisory system for the lower/outer Cape area.	ITS/ Management		200	200
Project	Capewide	Emergency Routes & Shelters Signage	Install signage indicating emergency routes and shelter locations	Security		150	150
Project	Capewide	Upgrade Radio System for CCRTA Service	Improve communications systems and provide capacity to accommodate ITS components /Narrowband Radio.	ITS/ Management		150	150
Project	Capewide	Parking Improvement Implementation - Phase 1	Develop inland parking for the National Seashore	Park & Ride		150	150
Project	Barnstable	Villager Bus Service (Red Line) Split	Add CCRTA Villager service into two separate, coordinated lines	Transit	5		115
Project	Falmouth	Left Turn Phase - Gifford/Jones	Add left-turn phase Gifford St/Jones Rd (Falmouth)	Highway		50	50
Project	Capewide	Surveillance Cameras	Permit, and install surveillance cameras for the Outer Cape to observe traffic conditions and monitor Nat'l Seashore parking facilities.	ITS/ Management		50	50
Project	Wellfleet	Marconi Beach Road/Route 6 Intersection Signage	Add correct signage indicating "disappearing lane" at Marconi Beach Road/Route 6 intersection in Wellfleet	Highway		5	5
Project	Barnstable	CCRTA Bike Rental	Provide bike rental service at Hyannis Transportation Center	Bicycle/ Pedestrian			0
Project	Eastham Orleans	Eastham Rotary Bike/Ped Accommodation	Add bike/ped accommodation to connect Orleans to Rock Harbor Rd & Rt 6 in Eastham via periphery of rotary	Bicycle/ Pedestrian			0
Project	Sandwich	Bike Information Kiosk	Construct informational kiosk by Canal bikeway near Sandwich Marina	Bicycle/ Pedestrian			0

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Project	Bourne	Rail Connection at "Y"	Construct direct connection from Canal-side rail to Falmouth rail (eliminating need to lower Canal rail bridge)	Rail			0
Project	Barnstable	West Main St Transit	Provide transit service along West Main Street from SeaLine connection at Rt 28 to downtown Hyannis	Transit			0
Project	Falmouth	Falmouth Transit Improvements	Add service/stops to Surf Drive, Maravista Ave, Brick Kiln Rd, Jones Rd.	Transit			0
Project	Capewide	Mobility Management Call Center	One-stop traveler call center to coordinate all travel modes and to manage eligibility and special requirements for human services.	Transit			0
Project	Capewide	Expansion of Next-Gen Mobile Data Terminals to Paratransit	State-of-the-art displays, global positioning systems (GPS), automatic vehicle location (AVL) systems, in-vehicle navigation systems, digital driver manifests and mobile data collection.	Transit			0
Project	Capewide	Next Bus Stop Announcements and Automatic Passenger Counting	Add technology to Mobile Data Terminals (MDTs) to provide next bus stop announcements/displays onboard. Includes automatic passenger counters.	Transit			0
Project	Capewide	Web 2.0 Integrated Intermodal Traveler Information over the Web	Internet-based intermodal trip planning, displays at malls and terminals to provide real-time mapping of transit vehicles, estimated time of arrival (ETA). Includes real-time displays for major destinations and terminals, ETA displays at bus shelters, and smartphone applications	Transit			0
Project	Brewster	Rt 124/Tubman Safety Improvements	Context-sensitive improvements to improve intersection safety	Highway			0
Project	Barnstable	Rt 6A W. Barnstable Sidewalk	Construct sidewalk along Route 6A in W. Barnstable	Bicycle/ Pedestrian			0
Project	Bourne	Main Street (Buzzards Bay) Streetscaping Phase 3	Continue streetscaping improvements along Route 6/28 Main Street in Buzzards Bay	Enhancements			0
Project	Dennis Harwich Brewster Orleans Eastham Wellfleet Truro Provincetown	Route 6 Stormwater Improvements	Route 6 stormwater improvements to remove runoff from traveled way, including construction of shoulders as needed from Dennis to Provincetown	Safety			0
Project	Chatham	Rt 28/Crowell Rd/Depot Rd/Queen Anne Rd Intersection Improvements	Intersection improvements at Rt 28/Crowell Rd/Depot Rd/Queen Anne Rd in Chatham	Highway			0
Project	Chatham	Rt 28 Corridor improvements	Access management improvements along Rt 28 from George Ryder Rd to Barnhill Rd	Highway			0
Project	Falmouth	Rt 28/Old Meetinghouse Rd Intersection Improvements	Intersection improvements at Rt 28/Old Meetinghouse Rd in Falmouth	Highway		0	0
Project	Harwich	Rt 39 (Harwich) Reconstruction	Reconstruction of Rt 39 from Oak St to Brewster T.L. in Harwich	Highway			0
Project	Orleans	Rt 6A/Main St Intersection Improvements	Intersection improvements at Rt 6A/Main St in Orleans	Highway			0
Project	Orleans	Rt 28/Main St Intersection Improvements	Intersection improvements at Rt 28/Main St in Orleans	Highway			0
Project	Yarmouth	Old Townhouse Rd/Forest Rd Intersection Improvements	Intersection improvements at Old Townhouse Rd/Forest Rd in Yarmouth	Highway			0
Project	Eastham	Governor Prence Road reconstruction and improvements	Reconstruction to improve sub-surface, pavement, and multimodal accommodation	Safety			0
Program	Capewide	Roadway Rehabilitation & Reconstruction	Roadway resurfacing, rehabilitation, and reconstruction	Highway	360,000		8,280,000
Program	Capewide	Street Lighting	Install street lighting in woody areas where appropriate	Safety	10,000		230,000
Program	Capewide	Bridge	Bridge Replacement/Reconstruction	Bridge	9,000		207,000
Program	Capewide	Transit Operating	Transit Operating Assistance	Transit	3,050		70,150
Program	Capewide	Underground Utilities/Pole Relocation	Remove above ground utilities adjacent to roadways and install them underground or away from roadsides to improve safety where appropriate	Safety	3,000		69,000
Program	Capewide	Cape-wide Intelligent Transportation Systems (ITS)	Design and implement real-time transportation monitoring and notification technologies at facilities throughout Cape Cod. Includes highway and transit users traveling to and within Barnstable County.	ITS/ Management	2,500		57,500
Program	Capewide	Transit Capital	Transit Capital Needs	Transit	2,150		49,450
Program	Capewide	Bicycle/Pedestrian Projects	Bicycle and/or pedestrian facilities and programs. Includes development of a regional bike network, bike lane construction, bicycling accessibility improvements and amenities, pedestrian accessibility improvements and sidewalk network expansion.	Bicycle/ Pedestrian	2,000	3,125	49,125
Program	Capewide	Railway Infrastructure	Maintain & provide rail infrastructure	Rail	2,000		46,000
Program	Capewide	Low-Floor Loading Buses	Purchase/acquire low-floor loading buses for Cape Cod services	Transit	1,125		25,875

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Program	Capewide	Land Conservation	Strategic purchase of land to reduce sprawl and inefficient allocation of transportation resources. Also used to acquire land for improvement of intersections and protection of operations at new interchanges	ITS/ Management	1,000		23,000
Program	Capewide	Intersection Improvements	Intersection Improvements, including roundabouts, to address safety and congestion relief. Includes left-turn lanes & phases at signalized intersections	Highway	800		18,400
Program	Capewide	Additional CCRTA Service	Public transit shuttles connecting villages along Route 6A from Sandwich to Orleans, Provincetown-Orleans Shuttle, etc.	Transit	750		17,250
Program	Capewide	Vegetation Management	Implement a comprehensive program to trim/remove vegetation from encroaching areas	Safety	450		10,350
Program	Capewide	Access Management	Eligible for all state and local numbered routes. Curb cut consolidation, medians, other access improvements	ITS/ Management	300		6,900
Program	Capewide	New Ferry Service	Passenger ferries connecting Cape Cod harbors	Ferry	250		5,750
Program	Capewide	Signal Preemption	Install and maintain signal preemption hardware at traffic signals to improve public safety vehicle access	Safety	225		5,175
Program	Capewide	MBTA-Compatible Electronic Fare Systems on Transit and Inter-City Buses	Electronic fare system (EFS) on all CCRTA vehicles, interoperable with Massachusetts Bay Transit Authority.	Transit	200		4,600
Program	Capewide	Red Light Running Cameras	Support legislation to allow installation of red-light running cameras at high-crash signalized intersections	Safety	200		4,600
Program	Capewide	Mashpee Wampanoag Roadway & Transit Projects	Implement roadway & transit improvements to improve accessibility & mobility to and within tribal lands in Mashpee	Multi-Modal	200		4,600
Program	Capewide	Local Transportation Centers	Construct intermodal transportation centers in Buzzards Bay, Orleans, etc.	Transit	166		3,818
Program	Capewide	Bus Service Amenities	Provide bus schedule signage & related amenities	Transit	150		3,450
Program	Capewide	Traffic Calming	Promote the installation of Traffic Calming features at appropriate locations	Safety	100		2,300
Program	Capewide	Cape-wide Flex Service	Expand Flex bus service throughout Cape Cod	Transit	100		2,300
Program	Harwich to Truro	Flex Parking	Construct or designate parking areas for The Flex transit service	Multi-Modal	75		1,725
Program	Capewide	Travel Demand Management/Transportation Systems Management (TDM/TSM)	Travel Demand Management/Transportation Systems Management projects (TDM/TSM). Includes support of Transportation Management Associations (TMAs). Provide assistance to employers and institutions for the development and coordination of alternative transportation options for employees and patrons.	ITS/ Management	50		1,150
Program	Capewide	Transit Marketing & Education	Implement education programs and marketing activities to support public transit	Transit	50		1,150
Program	Capewide	Construction of Enhanced Bus Shelters	Build intelligent, accessible, and energy efficient Cape Cod style bus shelters that provide real-time customer information and amenities.	Transit	36		900
Program	Capewide	Safe Routes to Schools	Installation of sidewalks and provide other improvements and programs to promote safe routes to schools	Bicycle/ Pedestrian	30		690
Program	Sandwich, Barnstable, Yarmouth, Dennis, Brewster, Orleans	Route 6A/Scenic Byways	Corridor Management Plan update and implement recommended improvements. Includes connection of sidewalks (on both sides in villages), "Sharrow" pavement markings for bike accommodation. For report, see www.gocapecod.org/6AWay	Highway	10	125	355
Program	Capewide	Park-and-Ride Lot Management	Monitor parking usage of parking facilities at Barnstable (Exit 6), Sagamore, Harwich (Exit 10); identify & acquire new facilities, expansions as necessary	Multi-Modal	10		230
Program	Capewide	Congestion Management	Consider peak period pricing at strategic locations to provide funding for transportation needs	ITS/ Management	-47,000	5,000	-1,076,000
Study	Bourne, Army Corps	Cape Cod Canal Bridges Replacement/Expansion/Addition. Includes evaluation of Belmont Circle and Buzzards Bay Bypass and other roads.	Evaluation of future needs for highway crossings of Cape Cod Canal. Includes consideration of replacement or expansion of existing bridges; additional crossings	Highway		1,000	1,000
Study	Barnstable	Rt 28 Corridor Study	Identify multimodal corridor improvements from Mashpee T.L. to Yarmouth T.L. along Route 28	Multi-Modal		750	750
Study	Falmouth, Mashpee, Barnstable, Yarmouth, Dennis, Harwich, Chatham	Southside Bike Route	Identify network (on- and off-road) for bike route from Woods Hole to Chatham	Bicycle/ Pedestrian		500	500

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Study	Capewide	Disaster/Emergencies/Security Plan	Develop plans to address disasters, emergencies, and security issues	Security		500	500
Study	Barnstable, Mashpee, Falmouth	Hyannis-Falmouth Transportation Study	Identify needed roadway, public transit, and other modes' needed improvements for future travel demands between Hyannis and Falmouth	Highway		500	500
Study	Bourne	Sagamore Bridge Speed Management	Identify measures to encourage safe speeds on Route 3 and Route 6 approaches to the Sagamore Bridge	Safety		350	350
Study	Capewide	Sustainable Freight Options Study	Conduct a study of sustainable freight options to follow-up on the Freight Study completed February 2015	ITS/ Management		250	250
Study	Barnstable	Exit 6 Park-and-Ride Lot Expansion	Examine options at Exit 6 Park-and-Ride Lot such as parking structure or surface lot expansion to expand parking supply	Park & Ride		250	250
Study	Capewide	Develop Origin/Destination Transit Mode Split Model	Create a transit model for Cape Cod	Transit		250	250
Study	Capewide	Evaluation of Existing Transit Info Software/Procurement	Evaluate customer information software to be used for a web-based system to support CCRTA operations	ITS/ Management		250	250
Study	Capewide	Renewable Fuels Partnership Strategic Implementation Plan	Identify potential renewable fuel options, technologies, markets, and infrastructure needs to make use of biofuels both viable and sustainable	Enhancements		200	200
Study	Capewide	Update 5-Year and Long Range Cape Cod Public Transportation Plans	Update the 2002 5-Year Plan and the 2003 Long Range Public Transportation Plan.	ITS/ Management		175	175
Study	Capewide	ITS Evaluation and Phase II Recommendation study	Evaluate ITS deployment and make recommendations.	ITS/ Management		150	150
Study	Orleans	Rt 28/Rt 39 Intersection Improvements	Identify safety improvements at Route 28/Route 39/Quanset Road intersection in Orleans	Safety		100	100
Study	Capewide	Evaluation and refinement of Partner Program	Develop recommendations based on the public/private transportation provider coordination efforts.	ITS/ Management		100	100
Study	Capewide	Smart Card Study	Investigate current technologies, compatibilities with local planning, define potential partners, and make recommendations.	ITS/ Management		75	75
Study	Capewide	Railways for Transporting Emergency Supplies	Develop contingency plan to use railways for transporting supplies during emergencies	Security		75	75
Study	Capewide	Flex Phase II Evaluation Study	Evaluate improvements and expansion of the Flex transit service.	Transit		30	30
Study	Capewide	Evaluation of Customer Information Systems	Evaluate Customer Information Systems and make recommendations.	ITS/ Management		25	25
Study	Capewide	Evaluation of Partner Program II	Continue the evaluation of the public/private carrier coordination program.	ITS/ Management		15	15
Study	Sandwich Mashpee	Rt 130 Road Diet	Narrow travel lane width to reduce speeds and accommodate bicycles/ pedestrians	Safety			0
Study	Eastham Orleans	Eastham Rotary Bypass	Relocate Rock Harbor Road access from Rotary to new Bridge Rd/Rt 6 signalized intersection. Convert rotary to roundabout	Highway			0
Study	Wellfleet	Rt 6 at Wellfleet/Eastham TL	Congestion mitigation where two NB lanes merge to one	Highway			0
Study	Capewide	Mashpee Wampanoag Roadway & Transit Study	Identify roadway& transit improvements to improve accessibility & mobility to and within tribal lands in Mashpee	Multi-Modal			0
Study	Bourne Falmouth	Falmouth-Wareham Bike Connection	Connect Falmouth bike paths to Bourne/Wareham town line at William Dalton Bridge including connection to Cod Canal bike paths	Bicycle/ Pedestrian			0
Smart Solution	Capewide	Zoning/Planning Support for Sidewalks	Improve zoning regulations & planning efforts to invest in sidewalks	Bicycle/ Pedestrian			0
Smart Solution	Capewide	Remote Continuous Traffic Counting	Encourage installation of equipment at signalized intersections and other locations to conduct traffic counts throughout Cape Cod throughout the year using remotely-accessible detection equipment	ITS/ Management			0
Smart Solution	Capewide	CCRTA/Steamship Authority Coordination	Coordinate schedules among the CCRTA SeaLine (Blue Line) and Steamship Authority Ferries	Transit			0
Smart Solution	Bourne Wareham	CCRTA-GATRA Coordination	Coordinate schedules and service between GATRA and CCRTA	Transit			0

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)
Smart Solution	Capewide	Bicycling & Motorist Traffic Law Enforcement	Enforce traffic laws on bicyclists and motorists	Safety			0
Smart Solution	Boston	Logan Intercity Bus Information	Provide real-time bus location information, schedules, fares etc. for service from Logan to Cape Cod	ITS/ Management			0
Smart Solution	Capewide	Redesignate 195 & 495	Redesignate Route 25 Extension as Route 195 or Route 495 or Route 195/495	ITS/ Management			0
Smart Solution	Capewide	Employer TDM Plans	Create incentives for employers to prepare and implement Travel Demand Management (TDM) plans (>25 Employees)	ITS/ Management			0
Smart Solution	Falmouth	New Bedford-Martha's Vineyard Freight	To reduce traffic on Woods Hole Rd, operate barges between New Bedford and Martha's Vineyard to carry fuel trucks and garbage trucks.	Ferry			0
Smart Solution	Capewide	Speed Management	Implement education, signage and enforcement to lower traffic speeds on roadways with speed-related safety problems	Safety			0
Smart Solution	Capewide	Transit Education & Marketing on Local TV	Implement education programs and marketing activities on community-access television to support public transit	Transit			0
Smart Solution	Capewide	Right-of-Way Preservation	Maintain rights-of-way for future transportation uses and to avoid future traffic generation	ITS/ Management			0
Smart Solution	Capewide	Bus Users Incentives: Shopping Discounts	Provide shopping discounts to bus users	Transit			0
Smart Solution	Capewide	Wi-Fi Hotspots	Install wireless internet services at strategic locations throughout Cape Cod	ITS/ Management			0
Smart Solution	New Bedford	Promote Ferry Service from New Bedford		Ferry			0
Smart Solution	Capewide	Vanpooling & Carpooling Incentives	Provide incentives to increase vanpooling and carpooling	ITS/ Management			0
Smart Solution	Capewide	Carpooling "Stands/Stops"	Install signage and implement education & marketing program for the use of carpooling stands/stops" to promote higher occupancy vehicle use	ITS/ Management			0
Smart Solution	Capewide	Rail Line Buffer Zone	Implement zoning protections to reduce future development for a distance of 100' along rail lines	Rail			0
Smart Solution	Capewide	Vanpooling at Steamship Authority Lots	Permit use of Steamship Authority parking facilities for vanpooling	Multi-Modal			0

PROJECT ANALYSIS

Of the funding represented in the plan, a portion is available for “regional target projects.” These are projects that the Cape Cod MPO has jurisdiction to select and prioritize. To ensure equity in the prioritization of these funds, Title VI and other equity considerations were incorporated in both the screening and analysis phases of the project selection process.

SCREENING OF HIGHWAY REGIONAL TARGET PROJECTS

In order to determine the projects to be contained within the financial constraint of the document, analysis was conducted on the universe of projects (includes all potential projects identified during the development of the document). Analysis of projects was limited to projects \$5 million or greater as staff determined this is the scale of project appropriate for specific inclusion in this document. Analysis was conducted with a subcommittee of the Cape Cod Joint Transportation Committee (CCJTC, an advisory body to the Cape Cod MPO) where each project was considered for potential benefit, estimated cost, consistency with the objectives of the RTP, equity as it relates to minority, low income, Limited English Proficiency (LEP) and other protected populations, and GHG reduction potential. Considering these factors and the anticipated available funding, a financially-constrained program of projects was developed with the CCJTC subcommittee, reviewed by the CCJTC, and ultimately endorsed by the Cape Cod MPO.

ANALYSIS OF HIGHWAY REGIONAL TARGET PROJECTS

Following the screening process, a more detailed analysis of potential impacts (positive or negative) on low income, minority, and LEP populations was conducted as presented in Table 1.

Of the regional target funding programmed for specific projects, approximately 60% was on projects within and proximate to minority populations, 77% was on projects within and proximate to low income populations, and 77%, was on projects within and proximate to LEP populations. This represents an investment in transportation infrastructure serving these areas proportionally higher than other areas on Cape Cod. In summary, the areas with higher proportions of low income and minority populations see more transportation dollars spent than other areas on Cape Cod.

TABLE 1. HIGHWAY REGIONAL TARGET PROJECTS – INCOME, MINORITY, AND LEP POPULATION IMPACTS

PROJECT	LOW INCOME [I], MINORITY [M], OR LIMITED ENGLISH PROFICIENCY [LEP] POPULATION AREA PROXIMATE	NATURE OF IMPACT ON LOW INCOME, MINORITY, OR LEP AREA
Barnstable: Hyannis Access Improvements	I, M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 28 Multimodal Improvements: Various Locations	I, M, LEP	Improved bicycle/ pedestrian access, safety
Route 6 Outer Cape Safety Improvements	I, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Canal Area: Belmont Circle/ Route 25 Ramp Improvements		
Canal Area: Route 6 Exit 1C Reconfiguration		
Cape Cod Rail Trail Expansion: S. Wellfleet to Provincetown	I, LEP	Improved bicycle/ pedestrian access, safety
Infrastructure Improvements (Platform, Parking, etc.) for Buzzards Bay Commuter Rail Service		
Cape Cod Rail Trail Expansion: Barnstable to Sandwich	I, M, LEP	Improved bicycle/ pedestrian access, safety
Shining Sea Bikepath Extension to Cape Cod Canal Bikepath		

For reference, demographics maps are included in Appendix L.

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