



CAPE COD  
COMMISSION

2020 REGIONAL TRANSPORTATION PLAN

Technical Appendix M:  
Transportation Project Analysis

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**2019**



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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.

Each of the transportation projects, transportation programs, smart solutions, transportation studies listed with the universe of projects includes the town, title, description, category, and estimated costs. The cost estimates are conceptual in nature and would be refined as a project is

further designed. A score is presented for projects that have been scored the Transportation Improvement Program (TIP) Transportation Evaluation Criteria. Remaining project are considered to be a “stage zero” with insufficient information on the nature of the potential project to score the project. These criteria, as summarized in the table below, were approved by the Cape Cod MPO following the adoption of the 2016 RTP. These criteria may be updated following the adoption of the 2020 RTP to ensure consistency between on RTP and the TIP.

TABLE 1. Transportation Improvement Program (TIP) Transportation Evaluation Criteria

CATEGORY	CRITERIA	POINTS (OUT OF 100)
System Preservation and Modernization	<ul style="list-style-type: none"> <li>■ Primary asset condition / effect on condition</li> <li>■ Enhancements to other assets</li> <li>■ Modern technology/regional ITS efforts</li> </ul>	35
Mobility	<ul style="list-style-type: none"> <li>■ Existing motorist congestion / effect on motorist congestion</li> <li>■ Effect on mobility / accommodation of non-motorists</li> <li>■ Effect on connectivity / access</li> </ul>	10
Safety	<ul style="list-style-type: none"> <li>■ Motorist crash history and anticipated safety impact</li> <li>■ Non-motorist crash history and anticipated safety impact</li> </ul>	10
Economic Impact	<ul style="list-style-type: none"> <li>■ Effect on regionally-designated economic development area</li> <li>■ Effect on locally-designated business district</li> <li>■ Housing, job, cultural centers, &amp; essential services connections / freight</li> </ul>	10
Environmental and Health Effects	<ul style="list-style-type: none"> <li>■ Wetlands, wildlife, or other resources</li> <li>■ Stormwater management/treatment</li> <li>■ Air quality / GHG emission</li> <li>■ Coastal Resiliency/SLR Vulnerability</li> <li>■ Cultural resources or open space</li> <li>■ Healthy Transportation Options</li> </ul>	10
Cost Effectiveness	<ul style="list-style-type: none"> <li>■ Project cost per user</li> </ul>	15
Policy Support	<ul style="list-style-type: none"> <li>■ Community support (demonstrated through highest elected officials)</li> <li>■ Regional plans/policies</li> <li>■ Local plans/policies</li> <li>■ Supports Federal/State policies/goals</li> </ul>	10

The Universe of Projects for the 2020 RTP are shown on the following pages.

Universe of Projects

2020 Cape Cod Regional Transportation Plan

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
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. Construct grade-separation of Route 132/Rotue 28E at Airport Rotary. Includes multi-use path and sidewalk.	Highway		56,400	56,400	
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	Orleans, Eastham, Wellfleet, Truro, Provincetown	Route 6 Improvements Orleans to Provincetown	Implement safety improvements in the Route 6 corridor between Orleans and Provincetown	Highway		5,000	5,000	
Project	Wellfleet, Truro, Provincetown	Cape Cod Bike Path Extensions (Outer Cape)	Extend Cape Cod Rail Trail from S. Wellfleet to Provincetown	Bicycle/Pedestrian		20,000	20,000	
Project	Falmouth Bourne Sandwich Barnstable Yarmouth	Cape Cod Bike Path Extensions (Mid-and Upper-Cape)	Extend path (Cape Cod Rail Trail) from Yarmouth to Canal bikepath and from Canal through Bourne to Shining Sea Bikeway (Bourne Rail Trail)	Bicycle/Pedestrian		35,000	35,000	
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		10,000	10,000	60
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		7,000	7,000	
Project	Bourne Sandwich Barnstable Yarmouth Dennis Harwich Brewster Orleans	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 Sandwich Barnstable Yarmouth Dennis Harwich Brewster Orleans	Interchange Improvements Rte 6	Mid-Cape Hwy - Implement improvements to Route 6 Interchanges	Highway		40,000	40,000	
Project	Capewide	Bike Path Connectors to town centers	Bike Path Connectors to town centers per CCC studies	Bicycle/Pedestrian		10,000	10,000	
Project	Barnstable	Rt 28/Yarmouth Rd Intersection Improvements	Construction of turning lanes and signal upgrades per Hyannis Access Study	Highway		15,600	15,600	83
Project	Barnstable	Route 132 Improvements	Provide bicycle & pedestrian accommodations along Route 132	Bicycle/Pedestrian		5,000	5,000	
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		56,000	56,000	
Project	Bourne	Sandwich Road Parkway	Develop Sandwich Road into a 4 lane parkway with a landscaped median.	Highway		35,000	35,000	
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	Bourne, Sandwich	Cape Cod Canal Bridges Replacement/Expansion	Address future needs for highway crossings of Cape Cod Canal. Includes replacement or expansion of existing bridges	Highway		700,000	700,000	
Project	Capewide	HOV Lanes	Construct High-Occupancy Lanes at key segments of freeways such as Route 6, 3, 25, and 28.	Highway		30,000	30,000	
Project	Falmouth	Route 151 Improvements - Falmouth	Provide bicycle & pedestrian accommodations along Route 151	Bicycle/Pedestrian		10,000	10,000	
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	Mashpee	Route 151 Improvements - Mashpee	Provide bicycle & pedestrian accommodations along Route 151	Bicycle/Pedestrian		16,000	16,000	80
Project	Sandwich	Rt 6A over Scorton River Bridge	Replace bridge: Rt 6A over Scorton River in Sandwich	Bridge		12,000	12,000	
Project	Wellfleet	Chequessett Bridge	Chequessett Bridge Rehabilitation	Bridge		12,000	12,000	

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
Project	Bourne Sandwich Barnstable Yarmouth Dennis Brewster Orleans	Route 6A Improvements	Provide bicycle & pedestrian accommodations along Route 6A	Bicycle/Pedestrian			0	
Project	Capewide	Bikeshare	Deploy bikeshare bicycles to village centers and strategic locations	Bicycle/Pedestrian			0	
Project	Barnstable Boston	Barnstable-Boston Ferry Service	Ferry service: Barnstable to Boston	Ferry		15,000	15,000	
Project	Bourne	Rail Platform - Canal Southside	Construct rail platform on south side of Cape Cod Canal	Rail		4,000	4,000	
Project	Capewide	Transit Frequency Improvements	Increase frequency of transit service (including additional night & weekend service)	Transit			0	
Project	Dennis Yarmouth	Dennis-Yarmouth Local Bus Service	Local bus service linking villages of Yarmouth & Dennis to connections at Patriot Square	Transit			0	
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	142,000	
Project	Provincetown	Provincetown Intermodal Gateway Project - Construction	Construct the Gateway	Enhancements		8,000	8,000	
Project	Barnstable	Villager Bus Service (Red Line) Split	Add CCRTA Villager service into two separate, coordinated lines	Transit	5		105	
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	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. Includes multi-modal improvements	Safety		5,000	5,000	
Project	Barnstable	Barnstable Roundabout	Improve traffic flow and safety of the Route 6A/Route 132 intersection through channelization of traffic movements (roundabout)	Safety		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	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	
Project	Barnstable	Rt 6A W. Barnstable Sidewalk	Construct sidewalk along Route 6A in W. Barnstable	Bicycle/Pedestrian		2,000	2,000	
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		3,000	3,000	
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	Bourne	Exit 1C Ramp Relocation	Relocated westbound Route 6 Exit 1C ramps away from Sagamore Bridge	Highway		33,000	33,000	
Project	Bourne	Route 25 Access Ramp Widening/Belmont Circle Modification	Route 25 Access Ramp Widening/Belmont Circle Modification	Highway		15,000	15,000	
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		5,000	5,000	
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		4,000	4,000	
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		3,000	3,000	
Project	Capewide	Intercity Seasonal Connector-demonstration	Intercity Seasonal Rail Connector-demonstration	Transit		4,000	4,000	
Project	Capewide	Beach Shuttle Expansion	Acquire additional buses to accommodate inland National Seashore parking needs - National Park Service.	Transit		400	400	
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	Emergency Routes & Shelters Signage	Install signage indicating emergency routes and shelter locations	Security		150	150	
Project	Capewide	Parking Improvement Implementation - Phase 1	Develop inland parking for the National Seashore	Park & Ride		150	150	



Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
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	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	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	1,210	
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	280	
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	Upgrade Radio System for CCRTA Service	Improve communications systems and provide capacity to accommodate ITS components /Narrowband Radio.	ITS/Management		150	150	
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	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	76	3,000	4,596	
Project	Dennis	Rt 134/Airline Rd Roundabout	Route 134 at Airline Road, Intersection Improvements (roundabout)	Highway		3,000	3,000	
Project	Dennis	Rte 28 Main St Bridge Rehabilitation	Rehabilitate Route 28 Main Street/Swan Pond River Bridge (Dennis)	Bridge		6,000	6,000	
Project	Dennis	Rt 6A (Dennis) Sidewalks	Route 6A sidewalks Yarmouth TL to Sesuit Neck Road	Bicycle/Pedestrian		2,000	2,000	
Project	Dennis	Rt 134 (Dennis) Bike/Ped Accommodation	Route 134 state section sidewalks / pedestrian bicycle accommodation, existing gap	Bicycle/Pedestrian		2,000	2,000	
Project	Eastham	Route 6/Gov. Prence Road Intersection Improvements	Install improvements at Route 6/Governor Prence Road intersection in Eastham	Safety		3,000	3,000	
Project	Eastham	Align Roadways: Aspinet /Nauset	Align Aspinet Rd with Nauset Rd at Route 6(Eastham)	Safety		3,000	3,000	
Project	Eastham	Governor Prence Road reconstruction and improvements	Reconstruction to improve sub-surface, pavement, and multimodal accommodation	Safety		3,000	3,000	
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		1,500	1,500	
Project	Falmouth	Falmouth Transit Improvements	Add service/stops to Surf Drive, Maravista Ave, Brick Kiln Rd, Jones Rd.	Transit			0	
Project	Falmouth	Rt 28/Old Meetinghouse Rd Intersection Improvements	Intersection improvements at Rt 28/Old Meetinghouse Rd in Falmouth	Highway		3,000	3,000	
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	Falmouth, Mashpee, Barnstable, Yarmouth, Dennis, Harwich, Chatham	Southside Bike Route	Define network (on- and off-road) for bike route from Woods Hole to Chatham	Bicycle/Pedestrian		100	100	
Project	Harwich	Bike Path Connector	Bike Path Connection from Old Colony Rail Trail to Rt 28 & Beaches (Harwich)	Bicycle/Pedestrian		500	500	
Project	Mashpee Barnstable	Route 28 Improvements-Mashpee/Barnstable	Improvements on Rte 28 from Santuit/Newtown Road to Orchard Road in Mashpee	Highway		8,000	8,000	
Project	Orleans	Rt 28/Rt 39 Intersection Improvements	Identify safety improvements at Route 28/Route 39/Quanset Road intersection in Orleans	Safety		4,000	4,000	
Project	Orleans	Main Street (Orleans) Improvements	Main Street Sidewalk extension and reconstruction of Meeting House Road intersection	Bicycle/Pedestrian		300	300	
Project	Provincetown	Circulator Bus	High frequency trolley bus circulating among parking areas to serve downtown	Transit			0	
Project	Provincetown	Commercial St (Provincetown) Reconstruction	Commercial Street Reconstruction	Highway		3,500	3,500	
Project	Provincetown	Shank Painter Rd Corridor Improvements	Corridor improvements including new sidewalks, curb cut consolidation, landscaping, bicycle lanes, etc.	Bicycle/Pedestrian		6,200	6,200	
Project	Provincetown	Provincetown Bicycle Path Ext - Phase I	Develop an extension from Race Point to McMillan Pier	Bicycle/Pedestrian		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	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		3,000	3,000	
Project	Sandwich	Quaker Meetinghouse Rd Sidewalk	Quaker Meetinghouse Road Pedestrian Accessibility 3 miles of sidewalk	Bicycle/Pedestrian		800	800	
Project	Sandwich	Canal Connector Bike Path	Bike Path Connection from Cape Cod Canal to Sandwich Center	Bicycle/Pedestrian		500	500	

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
Project	Sandwich	Bike Information Kiosk	Construct informational kiosk by Canal bikeway near Sandwich Marina	Bicycle/Pedestrian		2	2	
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	ITS/Management		5,000	5,000	
Project	Yarmouth	West Yarmouth Rt 28 Intersection Improvements	Construct intersection improvements at Route 28 & East Main Street in West Yarmouth	Safety		3,000	3,000	
Project	Yarmouth	Route 6A/Union Street Intersection Improvements	Route 6A/Union Street intersection improvements in Yarmouth	Highway		3,000	3,000	
Project	Yarmouth	Old Townhouse Rd/Forest Rd Intersection Improvements	Intersection improvements at Old Townhouse Rd/Forest Rd in Yarmouth	Highway		3,000	3,000	
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	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	
Program	Capewide	Adaptive Signalization	Install and maintain signal prioritization hardware (e.g., Opticom) at traffic signals to improve public safety vehicle access, and transit priority	Safety		10,000	10,000	
Program	Capewide	Climate Change Adaptation & Mitigation	Implement adaptive measures at strategic locations to respond to the effects of climate change. Includes technological upgrades to support the electrification of the transportation system	Climate Change	1,000		21,000	
Program	Capewide	Street Lighting	Install street lighting in woody areas where appropriate	Safety	10,000		210,000	
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		63,000	
Program	Capewide	Vegetation Management	Implement a comprehensive program to trim/remove vegetation from encroaching areas	Safety	450		9,450	
Program	Capewide	Red Light Running Cameras	Support legislation to allow installation of red-light running cameras at high-crash signalized intersections	Safety	200		4,200	
Program	Capewide	Traffic Calming	Promote the installation of Traffic Calming features at appropriate locations	Safety	100		2,100	
Program	Capewide	Roadway Rehabilitation & Reconstruction	Roadway resurfacing, rehabilitation, and reconstruction	Highway	360,000		7,560,000	
Program	Capewide	Intersection Improvements	Intersection Improvements, including roundabouts, to address safety and congestion relief. Includes left-turn lanes & phases at signalized intersections	Highway	800		16,800	
Program	Capewide	Transit Operating	Transit Operating Assistance	Transit	3,050		64,050	
Program	Capewide	Transit Capital	Transit Capital Needs	Transit	2,150		45,150	
Program	Capewide	Additional CCRTA Service	Public transit shuttles connecting villages along Route 6A from Sandwich to Orleans, Provincetown-Orleans Shuttle, etc.	Transit	750		15,750	
Program	Capewide	Local Transportation Centers	Construct intermodal transportation centers in Buzzards Bay, Orleans, etc.	Transit	166		3,486	
Program	Capewide	Bus Service Amenities	Provide bus schedule signage & related amenities	Transit	150		3,150	
Program	Capewide	Cape-wide Flex Service	Expand Flex bus service throughout Cape Cod	Transit	100		2,100	
Program	Capewide	Transit Marketing & Education	Implement education programs and marketing activities to support public transit	Transit	50		1,050	
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		756	
Program	Capewide	Railway Infrastructure	Maintain & provide rail infrastructure	Rail	2,000		42,000	
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		4,200	
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		210	
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		52,500	
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		21,000	
Program	Capewide	Access Management	Eligible for all state and local numbered routes. Curb cut consolidation, medians, other access improvements	ITS/Management	300		6,300	
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		1,050	
Program	Capewide	Congestion Management	Consider peak period pricing at strategic locations to provide funding for transportation needs	ITS/Management			0	
Program	Capewide	New Ferry Service	Passenger ferries connecting Cape Cod harbors	Ferry	250		5,250	
Program	Capewide	Culvert & Bridge Abutment Improvements	Remove tidal restrictions and restore river and stream connectivity	Environmental	3000		63,000	

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
Program	Capewide	Stormwater Treatment	Improve roadway stormwater treatment including nutrient management in key watersheds	Environmental			0	
Program	Capewide	Bridge	Bridge Replacement/Reconstruction	Bridge	9,000		189,000	
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	45,125	
Program	Capewide	Safe Routes to Schools	Installation of sidewalks and provide other improvements and programs to promote safe routes to schools	Bicycle/Pedestrian	30		630	
Program	Harwich to Truro	Flex Parking	Construct or designate parking areas for The Flex transit service	Multi-Modal	75		1,575	
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	335	
Smart Solution	Barnstable Boston	Passenger Rail - Hyannis	Expand passenger rail service to Hyannis	Rail			0	
Smart Solution	Bourne Boston	Passenger Rail - Buzzards Bay	Expand passenger rail service to Buzzards Bay	Rail			0	
Smart Solution	Barnstable	CCRTA Bike Rental	Provide bike rental service at Hyannis Transportation Center	Bicycle/Pedestrian			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	Bourne Wareham	CCRTA-GATRA Coordination	Coordinate schedules and service between GATRA and CCRTA	Transit			0	
Smart Solution	Capewide	CCRTA/Steamship Authority Coordination	Coordinate schedules among the CCRTA SeaLine (Blue Line) and Steamship Authority Ferries	Transit			0	
Smart Solution	Capewide	Bus Users Incentives: Shopping Discounts	Provide shopping discounts to bus users	Transit			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	Speed Management	Implement education, signage and enforcement to lower traffic speeds on roadways with speed-related safety problems	Safety			0	
Smart Solution	Capewide	Bicycling & Motorist Traffic Law Enforcement	Enforce traffic laws on bicyclists and motorists	Safety			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	
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	Vanpooling & Carpooling Incentives	Provide incentives to increase vanpooling and carpooling	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	Capewide	Redesignate 195 & 495	Redesignate Route 25 Extension as Route 195 or Route 495 or Route 195/495	ITS/Management			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	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	Wi-Fi Hotspots	Install wireless internet services at strategic locations throughout Cape Cod	ITS/Management			0	
Smart Solution	Capewide	Zoning/Planning Support for Sidewalks	Improve zoning regulations & planning efforts to invest in sidewalks	Bicycle/Pedestrian			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	New Bedford	Promote Ferry Service from New Bedford		Ferry			0	
Study	Eastham	Route 6 Complete Street	Route 6 in Eastham: add bike accommodation, improve sidewalks, bus turnouts & stops to create "Complete Street"	Multi-Modal		12,000	12,000	
Study	Capewide	EV Charging Stations	Deploy electric vehicle charging stations at strategic locations throughout Cape Cod	Enhancements			0	
Study	Provincetown Boston	Improved Ferry Service	Increase ferry frequency throughout the year	Ferry			0	
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			0	
Study	Barnstable	Route 149 Improvements	Improve grading and alignment of Route 149; includes bicycle and pedestrian accommodations	Multi-Modal			0	
Study	Bourne	Sagamore Bridge Speed Management	Identify measures to encourage safe speeds on Route 3 and Route 6 approaches to the Sagamore Bridge	Safety			0	

Universe of Projects

Type	TOWN	Title	Description	Category	Ann. Cost /yr (\$K)	Start Cost (\$K)	Total Cost (\$K)	Score
Study	Bourne	Rail Connection at "Y"	Examine construction of direct connection from Canal-side rail to Falmouth rail (eliminating need to lower Canal rail bridge)	Rail			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	
Study	Capewide	Flex Phase II Evaluation Study	Evaluate improvements and expansion of the Flex transit service.	Transit			0	
Study	Capewide	Develop Origin/Destination Transit Mode Split Model	Create a transit model for Cape Cod	Transit			0	
Study	Capewide	Disaster/Emergencies/Security Plan	Develop plans to address disasters, emergencies, and security issues	Security			0	
Study	Capewide	Railways for Transporting Emergency Supplies	Develop contingency plan to use railways for transporting supplies during emergencies	Security			0	
Study	Capewide	Freight Rail	Increase use of rail for movement of freight	Rail			0	
Study	Capewide	Intra-Cape Rail Bus	Intra-Cape rail service using single unit self-propelled rail cars (e.g., Diesel Multiple Unit)	Rail			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	Capewide	Sustainable Freight Options Study	Conduct a study of sustainable freight options to follow-up on the Freight Study completed February 2015	ITS/Management			0	
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			0	
Study	Capewide	ITS Evaluation and Phase II Recommendation study	Evaluate ITS deployment and make recommendations.	ITS/Management			0	
Study	Capewide	Evaluation of Customer Information Systems	Evaluate Customer Information Systems and make recommendations.	ITS/Management			0	
Study	Capewide	Evaluation of Partner Program II	Continue the evaluation of the public/private carrier coordination program.	ITS/Management			0	
Study	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			0	
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			0	
Study	Capewide	Shared Use Path Crossing Improvements	Install safe road crossings for shared use paths	Bicycle/Pedestrian			0	
Study	Mashpee	Mashpee Rotary Area Improvements	Modify Mashpee Rotary and approaches to improve traffic flow and safety. Includes accommodations for bicycle and pedestrian use.	Multi-Modal			0	
Study	Sandwich Mashpee	Rt 130 Road Diet	Narrow travel lane width to reduce speeds and accommodate bicycles/ pedestrians	Safety			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 \$10 million or greater as staff determined this is the scale of project appropriate for specific inclusion in this document. Some projects under \$10 million were included if it was determined that the potential benefits were commensurate with these larger scale projects. 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, impact on performance targets, project score (where available), 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 the following.

Of the approximately \$138 million programmed for specific projects, approximately 61% was on projects within and proximate to minority populations, 84% was on projects within and proximate to low income populations, and 72%, was on projects within and proximate to LEP populations. Given the regional nature of these projects, even projects that are not proximate to these identified population are likely to positively impact these identified populations as they travel through these locations to access regional services. 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 2. 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
Mashpee: Route 151	M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 28 Multimodal Improvements: Various Locations	TBD	Improved bicycle/ pedestrian access, safety
Rail Trail Extensions (Mid- and Upper-Cape)	I, M, LEP	Improved bicycle/ pedestrian access, safety
Scenic Highway Median Barrier	M	Improved traffic flow, safety
Rail Trail Extensions (Outer Cape)	I, LEP	Improved bicycle/ pedestrian access, safety
Hyannis Access Phase II (Yarmouth Road Corridor)	I, M, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Route 6 Outer Cape Safety & Multimodal Improvements	I, LEP	Improved bicycle/ pedestrian access, safety, traffic flow
Cape Cod Canal Area Transportation Improvements	M	Improved traffic flow, safety
Interchange Improvements – Priority Locations	TBD	Improved traffic flow, safety
Bike Path Connectors to Town Centers	TBD	Improved bicycle/ pedestrian access, safety

For reference, demographics maps are included in Appendix L.

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