

3225 MAIN STREET • P.O. BOX 226
BARNSTABLE, MASSACHUSETTS 02630



CAPE COD
COMMISSION

(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

Facts about Wastewater on Cape Cod

- The primary cause of nitrogen in our marine waters is nitrogen from on-site, Title 5 septic systems. Title 5 septic systems do not remove nitrogen, and they contribute up to 80% of the nitrogen load polluting our coastal embayments. Other contributors include fertilizers, stormwater runoff, and atmospheric deposition (nitrogen carried by rainwater).
- Today, approximately 85% of homes on Cape Cod use individual on-site Title 5 septic systems, and approximately 15% of Cape homes are sewered. Each home with a Title 5 on-site septic system releases approximately 8-10 lbs of nitrogen into the environment each year.
- Wastewater disposal from existing development has created the water quality problems we are seeing in our coastal waters today. Of the 57 major coastal embayments on Cape Cod, 46 have been studied, or are identified for study, to establish their degree of nitrogen sensitivity (with watersheds totaling 76% of Cape Cod land area). Please see the attached map entitled 'Percent Nitrogen Removal'.
- Half of the 46 nitrogen sensitive watersheds (23) are currently subject to U.S. EPA established Total Maximum Daily Loads (TMDLs). 23 more of these 46 watersheds are under review or identified for review for establishment of TMDLs.
- Please see the attached map entitled 'Cross Boundary Embayments' indicating those watersheds that lie solely within one town and those that are shared across town boundaries (152,395.36 acres of watersheds cross town boundaries, 50,053.07 acres of watersheds are within town boundaries, and 61,458.7 acres are 'direct discharge' watersheds that are not included in the 57 major coastal embayments).
- The results of a regionalization study prepared for the towns of Eastham, Orleans and Brewster determined that participating in regional wastewater management could save the Town of Brewster between \$3.0 to \$8.4M, Eastham could save \$2.5 to 6.9M, and Orleans could save \$1.9 to \$10.5M.¹
- An April 2010 study entitled Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod, provides data to assist decision makers about whether on-site/alternative systems, satellite, cluster and/or centralized systems may be appropriate and cost effective based on development density, proximity to treatment and disposal areas, and other factors.²

The Cape Cod Commission is working with towns to ensure coordination between wastewater and land use planning. Please see the attached map entitled 'Land Use Vision Map' showing locally identified growth areas. The Commission is also refining development density mapping and identifying opportunities for shared wastewater infrastructure to reduce overall costs for Cape taxpayers.

¹ See Wastewater Regionalization Study (Orleans – Brewster – Eastham), December 2009, at CapeKeepers.com/RegionalWastewaterManagement/Reports

² Id at CapeKeepers.com/frontpage

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The Regional Wastewater Management Plan (RWMP)

The Regional Wastewater Management Plan is a planning document intended to establish broad policy goals and identify science and data to guide wastewater management decisions. The plan establishes goals, strategies and measures to track progress in obtaining the stated objectives.

The plan promotes regional approaches in order to reduce public investment in wastewater infrastructure and limit taxpayer expense while meeting water quality goals. The plan promotes intergovernmental coordination and cooperation through Intermunicipal Agreements (IMAs) and Memoranda of Understanding (MOUs) between towns that share watersheds.

The plan promotes consistency between land use and wastewater planning to ensure that wastewater infrastructure does not promote growth in areas where on-site wastewater disposal would have limited or prohibited such growth. The plan recommends that wastewater planning ensure adequate wastewater infrastructure for areas identified for future growth (including Economic Centers, Village Centers, Industrial Service and Trade Centers) and adopt zoning and other land use regulations to limit growth due to new wastewater infrastructure outside of identified growth areas.

The plan will serve as the Regional Wastewater Management Plan authorized by Sections 5 and 10 of the 2008 Massachusetts Environmental Bond Legislation. That law provides the towns of Cape Cod with critical tools needed to proceed with wastewater infrastructure projects. Section 5 provides access to State Revolving Loan Fund (SRF) loans with zero interest. In order to qualify for 0% interest, the project must be consistent with the Regional Wastewater Management Plan, among other requirements. The legislation also amended Mass General Law, Chapter 83, to authorize towns to adopt regulations to “checkboxboard” wastewater collection systems (to provide sewer service to only select lots along a sewer line) which will enable towns to size wastewater treatment systems to support only existing and planned growth.

The development of a Cape Cod Regional Wastewater Management Plan has been discussed for a number of years by Barnstable County and its advisory committees and its preparation was incorporated as a task item in the County Ordinance that created the Cape Cod Water Protection Collaborative. While the goals and minimum performance standards of the Cape Cod Regional Policy Plan are the regulatory mechanism for determining the regional consistency of local Comprehensive Wastewater Plans, the RPP does not provide specific guidance on the wastewater planning process to assist towns and the region. Based on the policies contained in this plan, the Cape Cod Commission will adopt a technical bulletin to guide the development and review of local Comprehensive Wastewater Plans under the Cape Cod Regional Policy Plan.

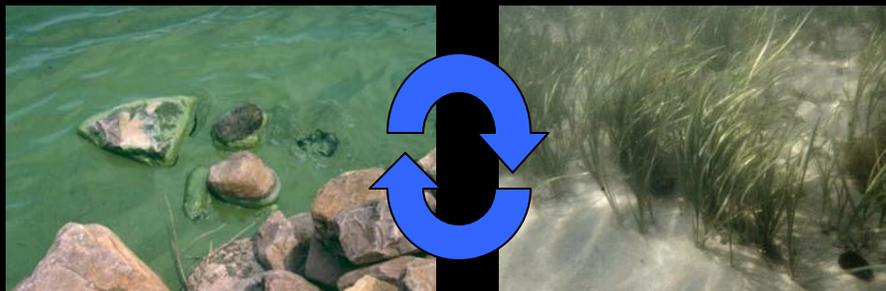
The Cape Cod Commission will offer an interactive, map-based website to assist town officials in planning for wastewater management. These interactive maps will be available in the future at www.capecodcommission.org/.

Cape Cod Regional Wastewater Management Plan (RWMP)



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Objective Restore degraded water bodies through regional nutrient management policy promoting appropriate infrastructure and growth management mechanisms while protecting taxpayers from unnecessary costs.



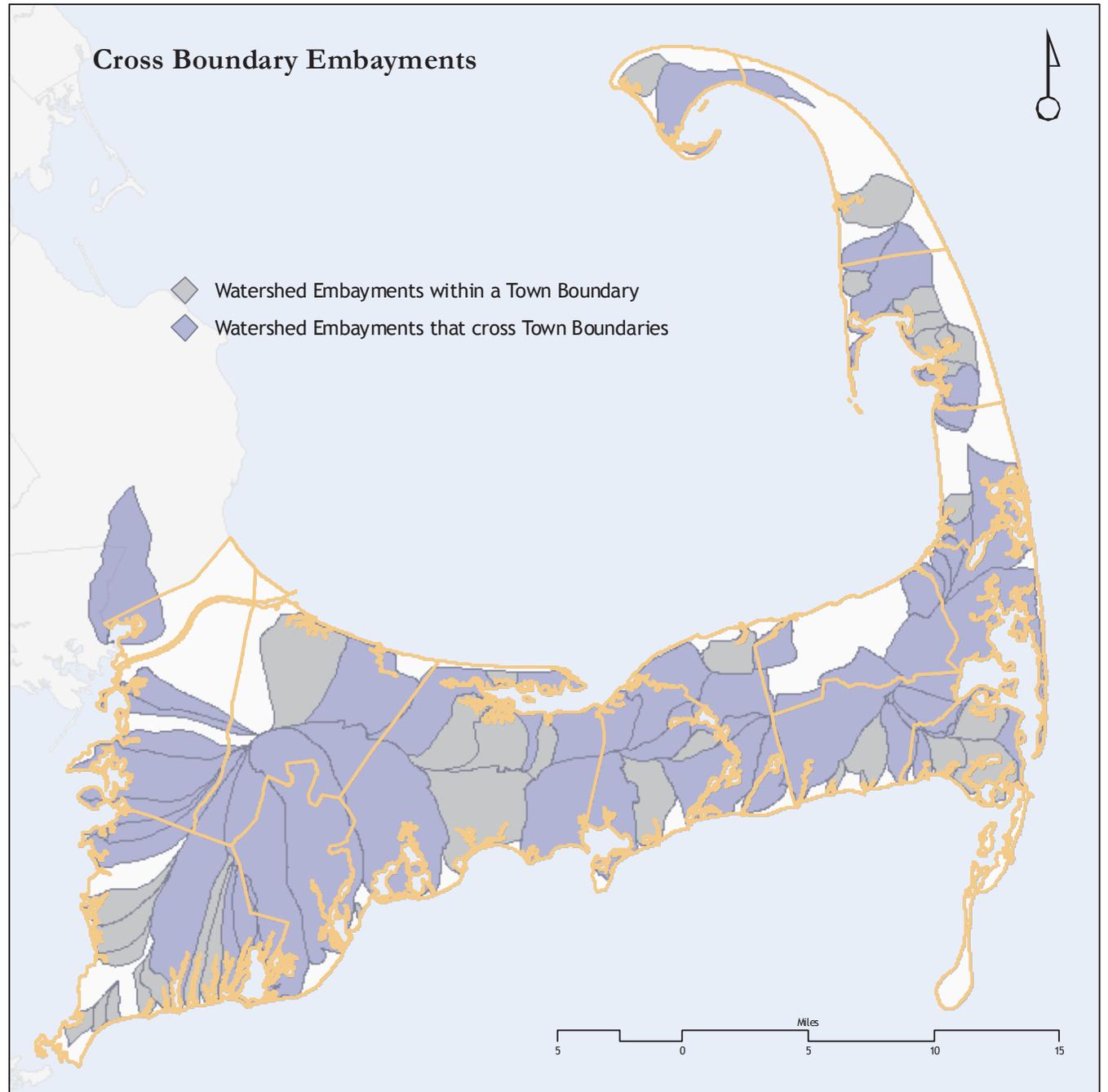
Goal

Policy Integrating:

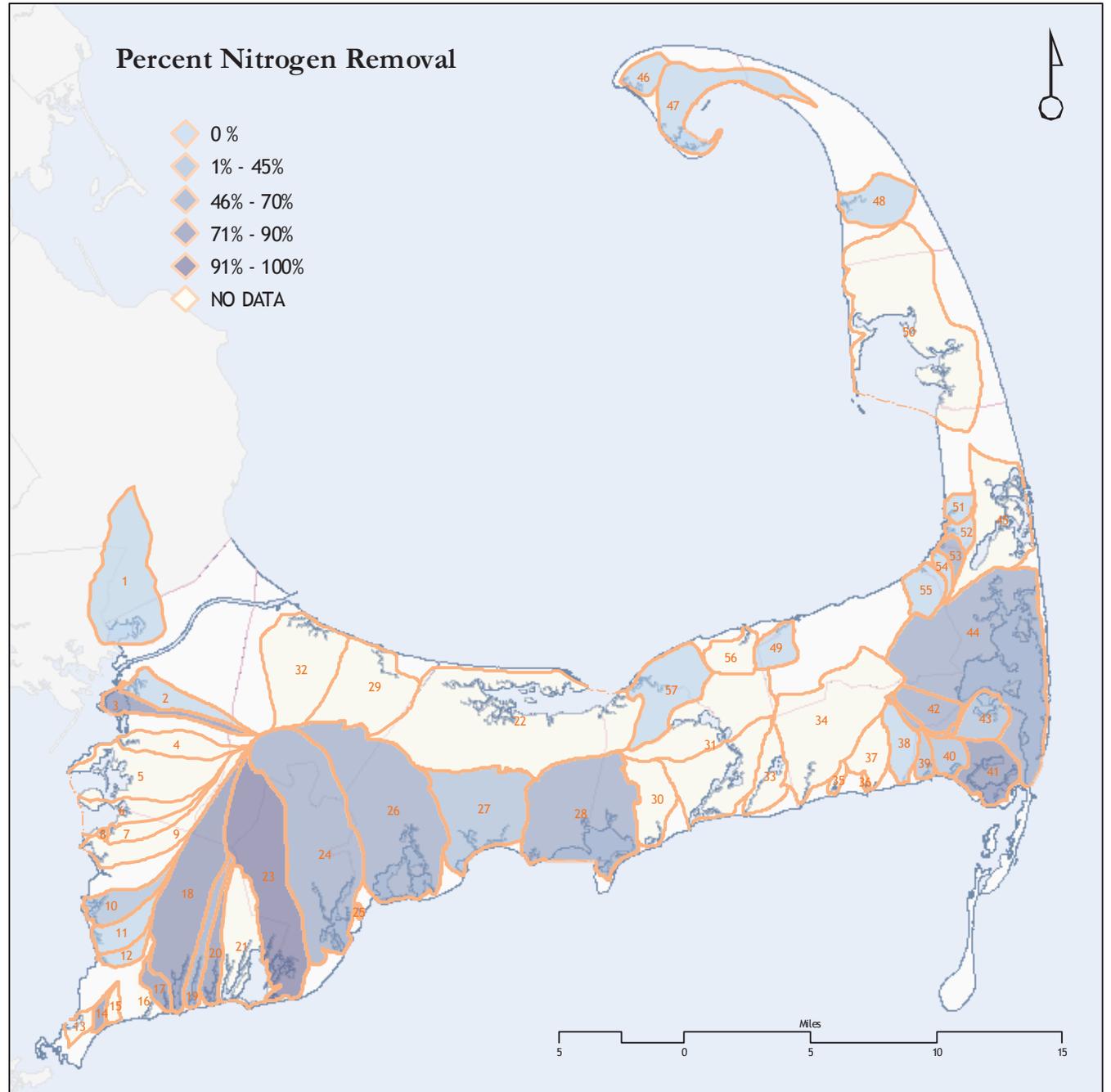
- Environment
- Affordability
- Infrastructure
- Growth Management

Town	# of Shared Watersheds	Total Watersheds
BARNSTABLE	10	16
BOURNE	14	14
BREWSTER	8	8
CHATHAM	10	13
DENNIS	12	13
EASTHAM	12	13
FALMOUTH	20	31
HARWICH	11	14
MASHPEE	7	7
ORLEANS	8	8
PROVINCETOWN	3	4
SANDWICH	16	17
TRURO	7	8
WELLFLEET	6	13
YARMOUTH	10	12

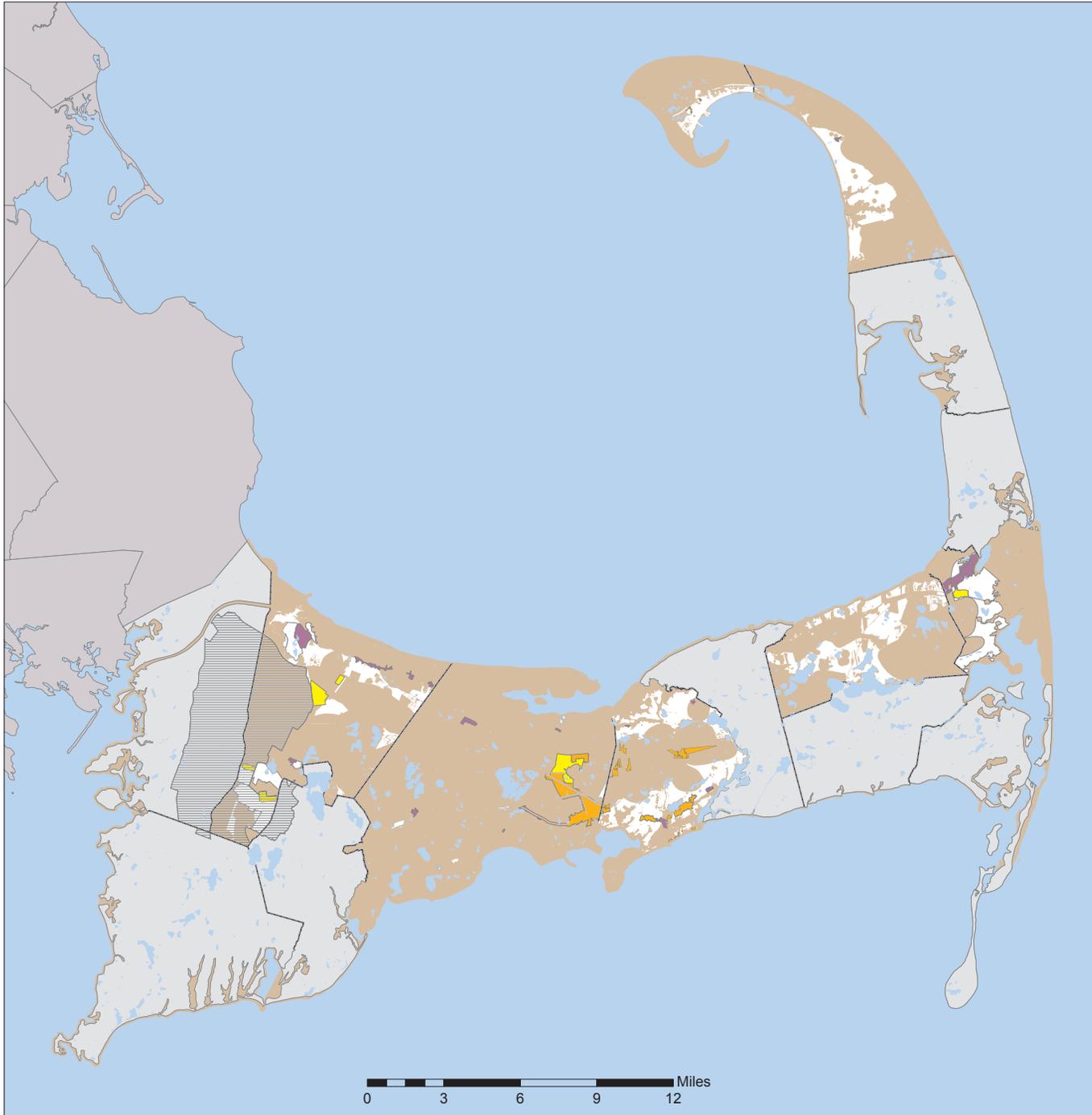
Shared watersheds are counted in every town crossed. When a watershed crosses two towns, that watershed is counted twice.



MAP ID	Major Embayment	% TMDL
23	Waquoit Bay East	100
25	Rushy Marsh Pond	100
20	Bournes Pond	90
17	Little Pond	86
41	Stage Harbor	85
3	Phinney's Harbor	80
18	Great Pond	79
14	Oyster Pond	77
53	Rock Harbor	69
19	Green Pond	65
42	Muddy Creek	65
24	Popponeset Bay	61
26	Three Bays	60
44	Pleasant Bay	52
28	Lewis Bay/Halls Creek	50
10	West Falmouth Harbor	43
43	Bassing Harbor/Ryders C	42
39	Taylor's Pond/Mill Creek	40
40	Sulfur Springs/Bucks Cr	35
27	Centerville River	34
1	Buttermilk Bay	0
11	Great Sippewisset Creek	0
12	Little Sippewisset Cree	0
2	Eel Pond/Back River	0
38	Red River	0
46	Hatches Harbor	0
48	Pamet River	0
51	Herring River (Eastham)	0
52	Boat Meadow River	0
54	Little Namskaket Creek	0
55	Namskaket Creek	0
57	Chase Garden Creek	0
49	Quivett Creek	0
47	Provincetown Harbor	0
13	Quisset Harbor	ND
15	Salt Pond	ND
21	Waquoit Bay West	ND
30	Parkers River	ND
31	Bass River (Upper & Low)	ND
33	Swan Pond River	ND
34	Herring River	ND
35	Allen Harbor	ND
36	Wychmere Harbor	ND
37	Saquatucket Harbor	ND
4	Pocasset River	ND
45	Town Cove/Nauset Marsh	ND
5	Pocasset Harbor	ND
50	Wellfleet Harbor	ND
56	Sesuit Harbor	ND
22	Barnstable Harbor	ND
29	Scorton Harbor	ND
6	Megansett Harbor	ND
32	Sandwich Harbor	ND
7	Rands Canal	ND
8	Fiddlers Cove	ND
9	Wild Harbor	ND
16	Falmouth Harbor	ND



Cape Cod Regional Land Use Vision Map



**Regional Policy Plan (Effective January 16, 2009)
Amended -- Effective June 19, 2009
Amended -- Effective June 18, 2010
Cape Cod Regional Land Use Vision Map**

Explanation and Data Sources:
The Regional Land Use Vision Map expresses a vision for the future of Cape Cod. The Cape Cod Commission is working collaboratively with all 15 towns in Barnstable County to develop this vision. The land uses are categorized as Economic Centers, Villages, Industrial and Service Trade Areas, Resource Protection Areas, and Other Areas. Towns where the planning board has endorsed the vision map for their community are included on the Regional Land Use Vision Map.

This map is to be utilized in conjunction with the 2008 Regional Policy Plan (RPP).

Land Use Categories:
Economic Centers – Areas designated as appropriate for growth and redevelopment. These areas serve the region or sub-region and could include characteristics such as civic and institutional uses, retail, and mixed use. Economic Centers are defined by parcel data and/or zoning district boundaries, shown in detail on individual town maps. Developments of Regional Impact (DRI) proposed within Economic Centers may benefit from some reduced minimum performance standards during DRI review under the RPP.
Industrial and Service Trade Areas – Areas designated for industrial uses, construction trades, and/or public works facilities. Areas are intended for uses that are incompatible with residential and village settings, with a high square-footage-to-employee ratio.
Resource Protection Areas – Areas designated as not appropriate for additional growth due to the presence of one or more sensitive resources. These resources shall include at a minimum Wellhead Protection Areas, Land Subject to Coastal Storm Flowage or Sea, Lake, and Overland Surges by Hurricanes (SLOSH) zones, historic districts, and the Cape Cod National Seashore. Resource Protection Areas may also include but not be limited to wetlands, vernal pools, protected open space, and designated Districts of Critical Planning Concern (DCPCs).
Villages – Areas designated to preserve historic and/or community character. Consist of small, compact areas with development at a local scale. Characteristics could include civic uses, mixed use, and/or home occupations.
Other – Areas remaining after the other areas have been identified.

The land use category boundaries are based on digital data obtained from MassGIS, Army Corps of Engineers, NHESP, and Town GIS Departments, including town-based zoning and parcel information.

Regional Land Use Vision Categories

-  ECONOMIC CENTER
-  INDUSTRIAL AND SERVICE TRADE AREA
-  VILLAGE
-  RESOURCE PROTECTION AREA
-  OTHER

This Map was produced by the Cape Cod Commission's Geographic Information System Department for the Regional Policy Plan update, effective January 16, 2009, with any amendments listed below:
Amended to include Barnstable June 19, 2009.
Amended to include revisions Sandwich June 18, 2010.

The Cape Cod Commission is a division of Barnstable County. Corrections are welcome at the Cape Cod Commission office or contact gis@capecodcommission.org.

This map is illustrative and all depicted boundaries are approximate. It is intended for planning purposes only - - not site specific purposes.



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