

Overview of Harwich Final CWMP for CCC DRI Public Hearing

Town of Harwich, Massachusetts



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Presentation on
July 28, 2016

**CDM
Smith**[®]

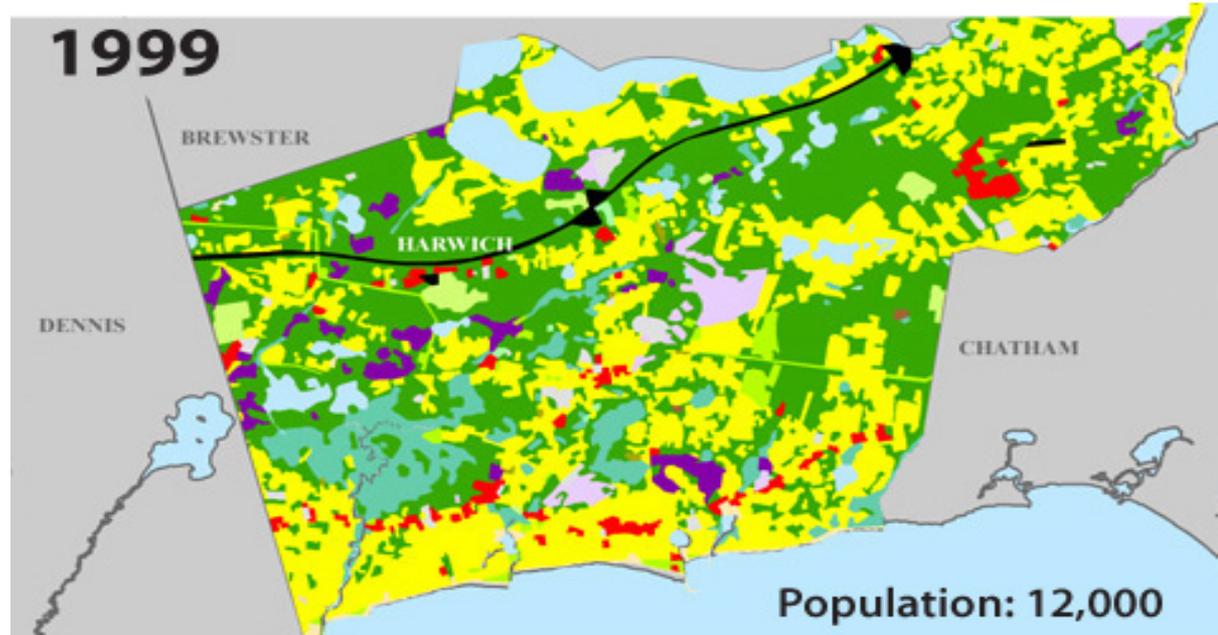
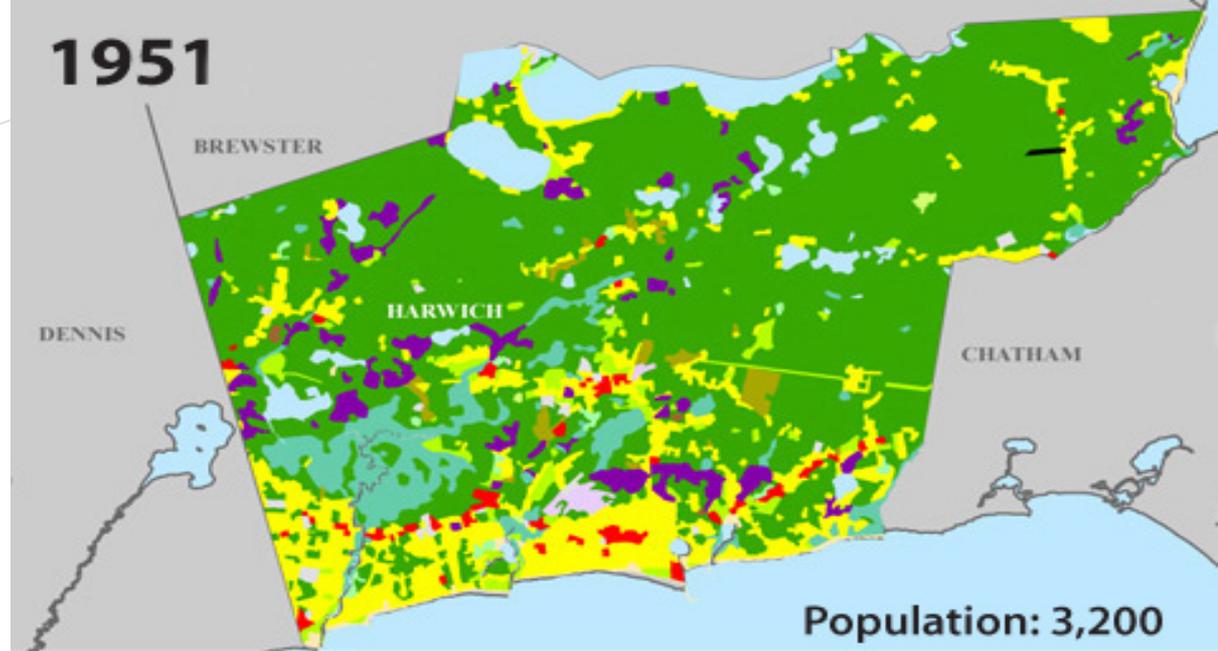
Presentation



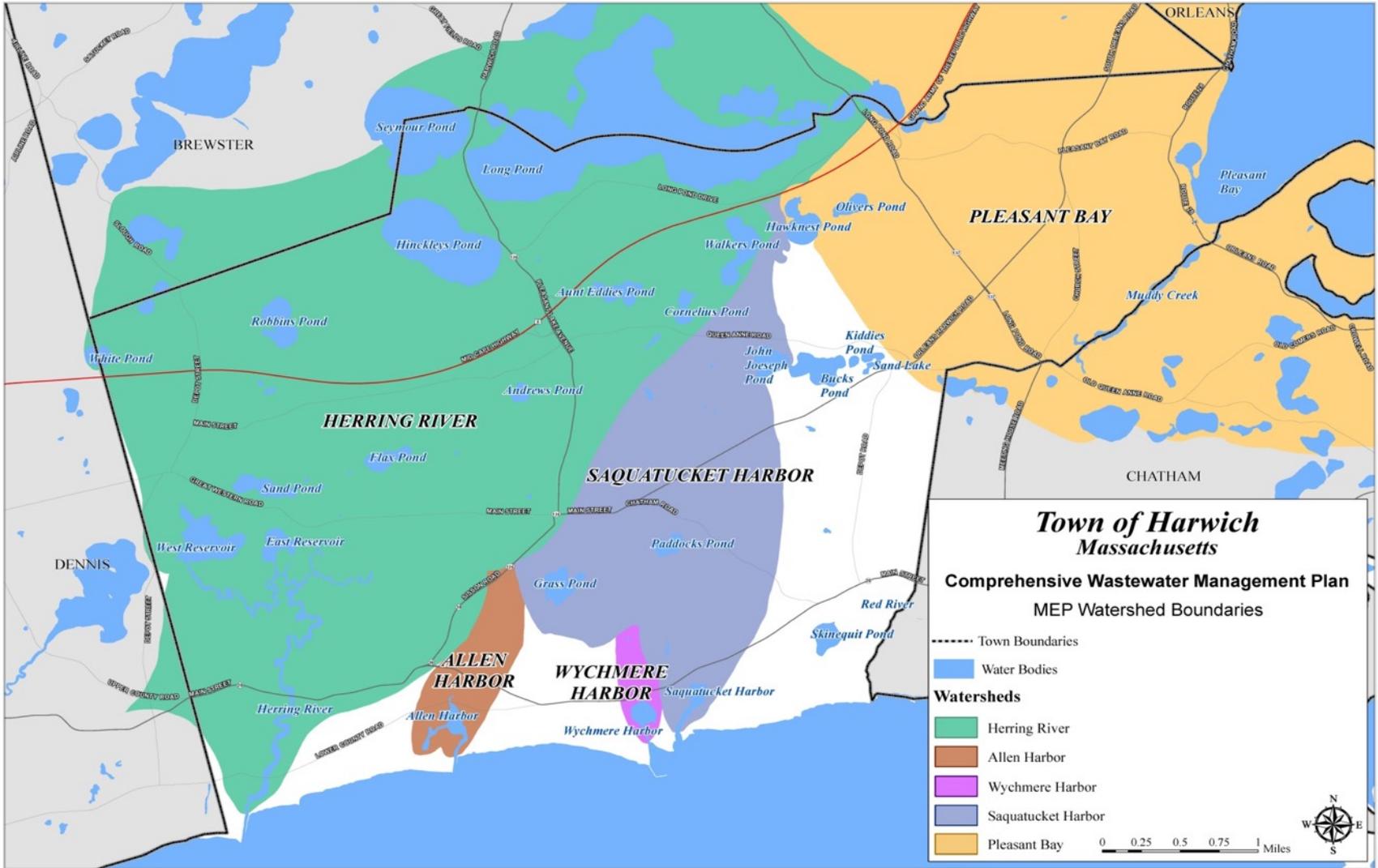
- Brief overview of Harwich Comprehensive Wastewater Management Plan (CWMP).
- Status of initial phase program components.
- What is next?
- Questions and comments.

Harwich Land Use Development 1951 and 1999

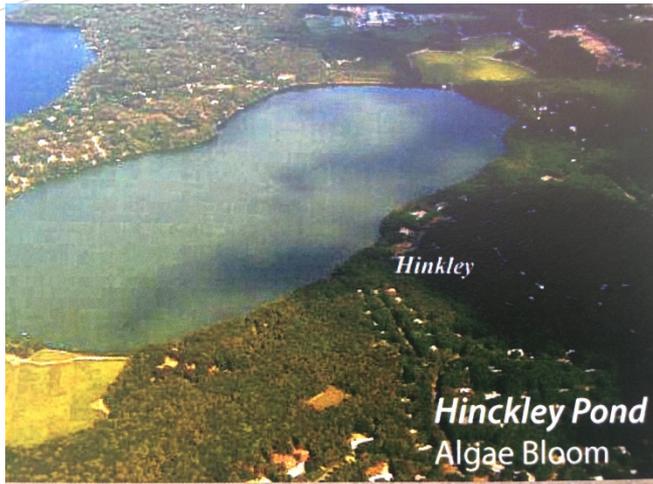
- 400% population growth from 1951 to 1999



Harwich watersheds



Algae Blooms in Harwich waters



Hinckleys Pond (P)



Allen Harbor (N)

- Both fresh and salt water areas have been affected by algae blooms.
- Excessive nutrients in water bodies can cause algae blooms
- When the algae dies it decomposes and depletes dissolved oxygen levels which results in an unhealthy environment for fish and other organisms.



MassDEP Eel Grass Mapping

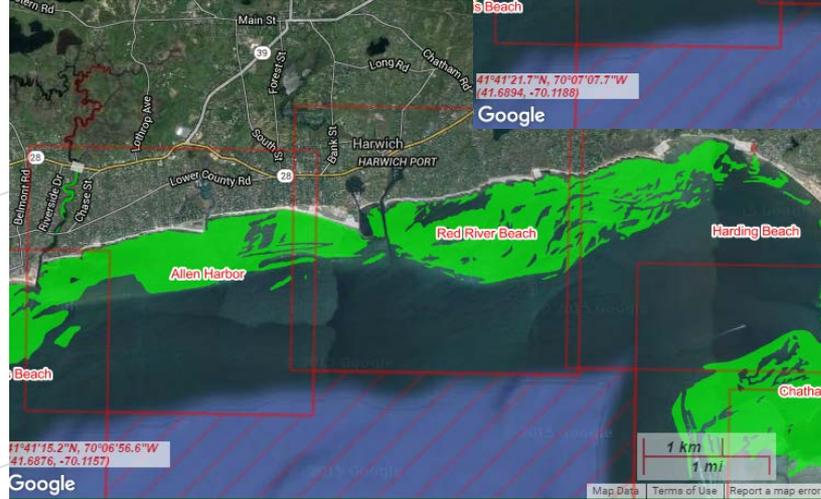
2001



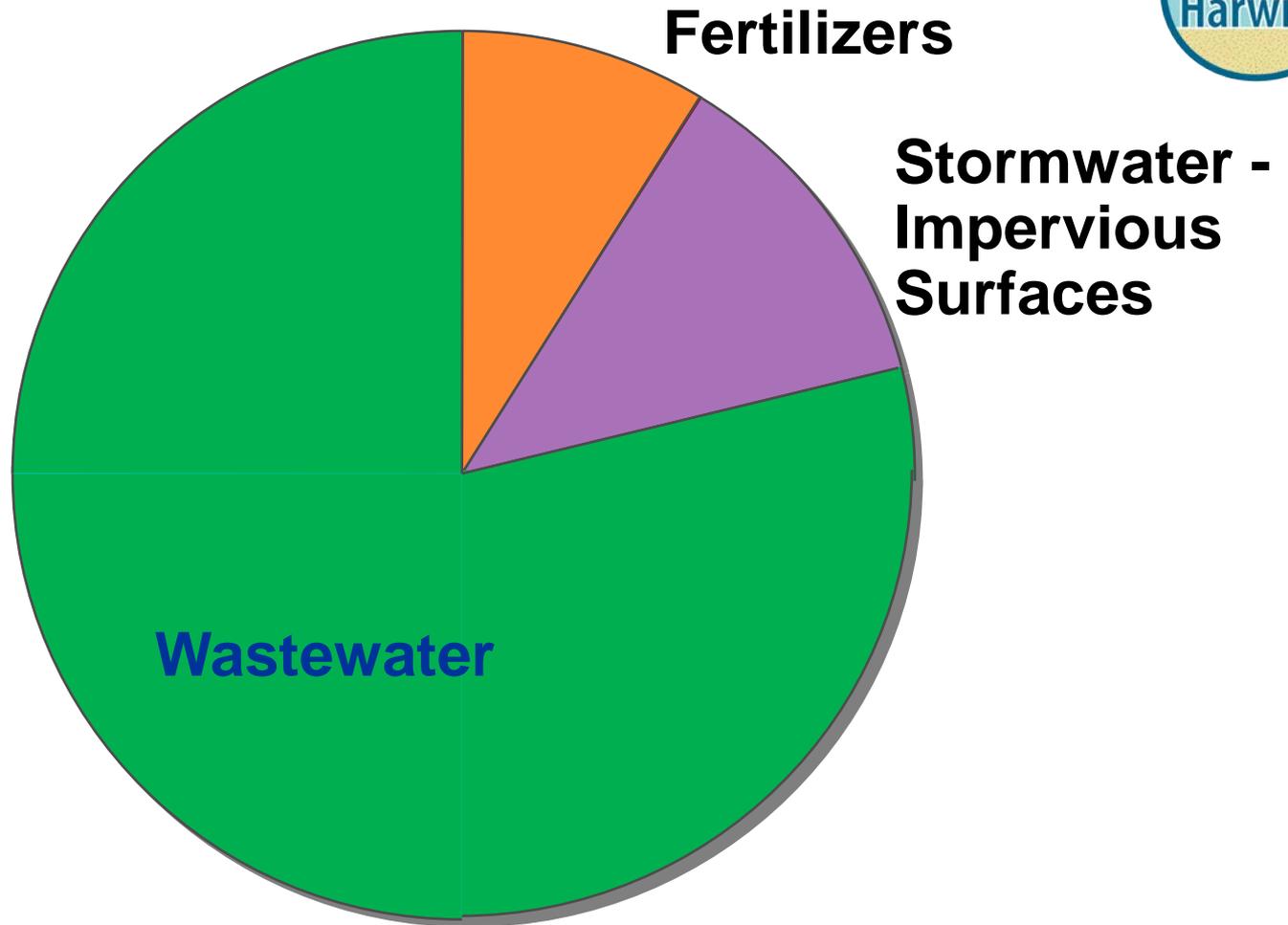
2010-2013



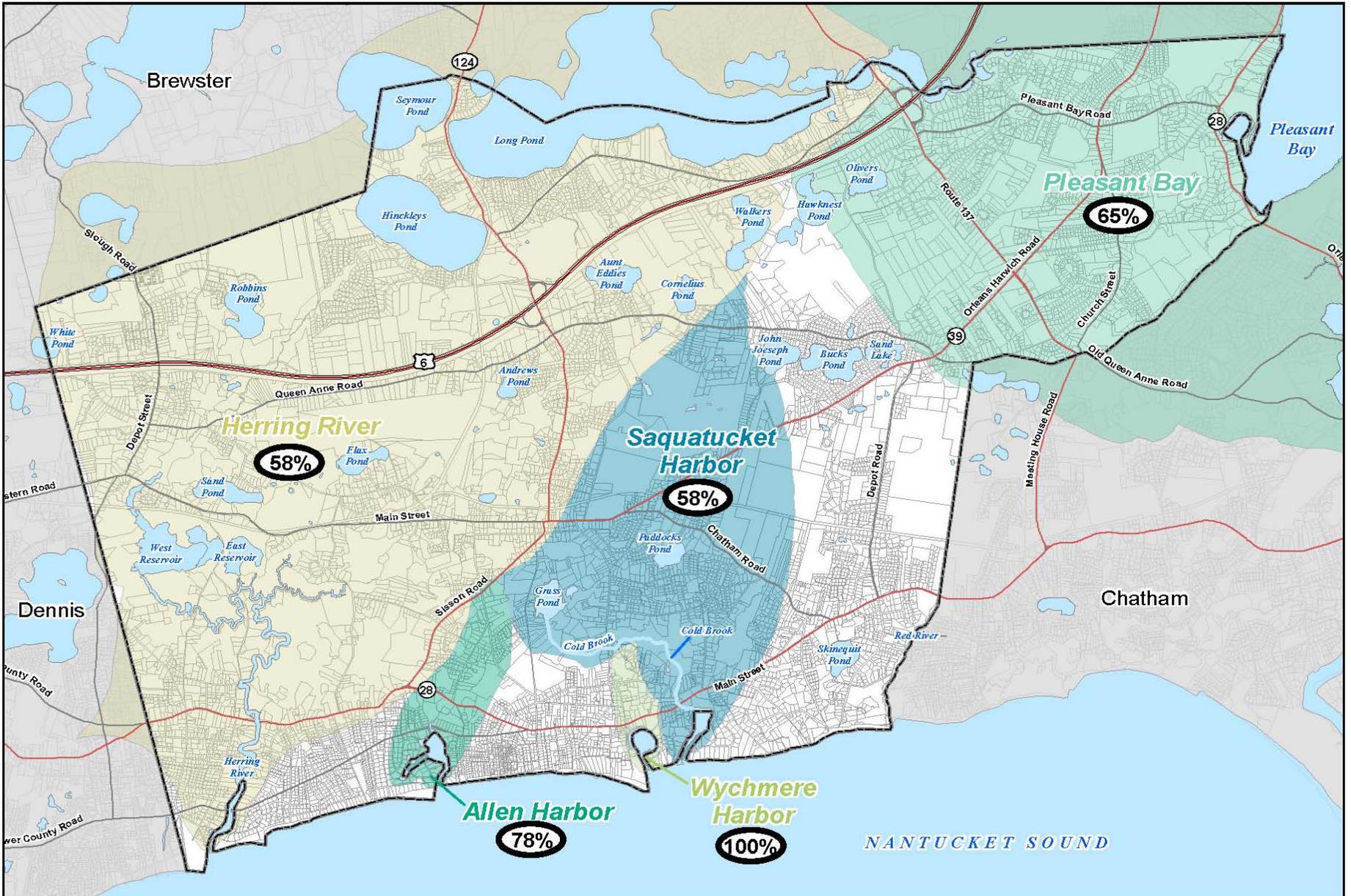
1995



Controllable Sources of Nitrogen



Local Control – Typical Percentages



Legend

Watersheds

-  Allens Harbor
-  Herring River
-  Pleasant Bay
-  Saquatucket Harbor
-  Wychmere Harbor
-  78% Septic Load Decrease to Meet Threshold

Town of Harwich
Comprehensive Wastewater
Management Plan

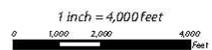
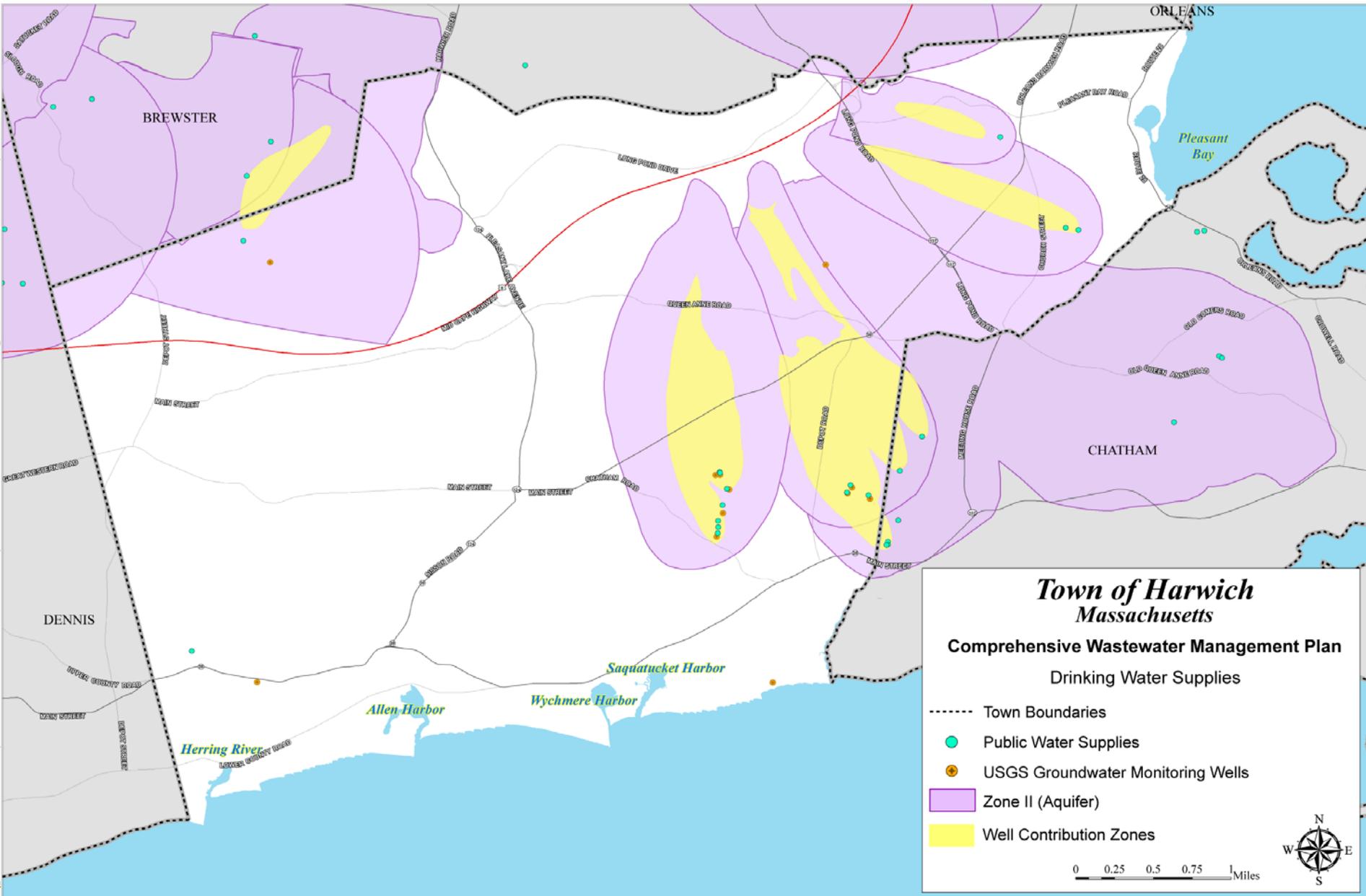


Figure 13-2
Watershed Septic Load Reductions



Existing Conditions – Drinking Water Supplies



East Harwich Village Center – Buildout Wastewater Flow Allowance



Draft CWMP Assumptions:

250 additional residential dwelling units at 150 gpd/unit
equals 37,500 gpd

500,000 SF of additional commercial space at 35
gpd/1,000 SF equals 17,500 gpd

Total = 55,000 gpd allowance

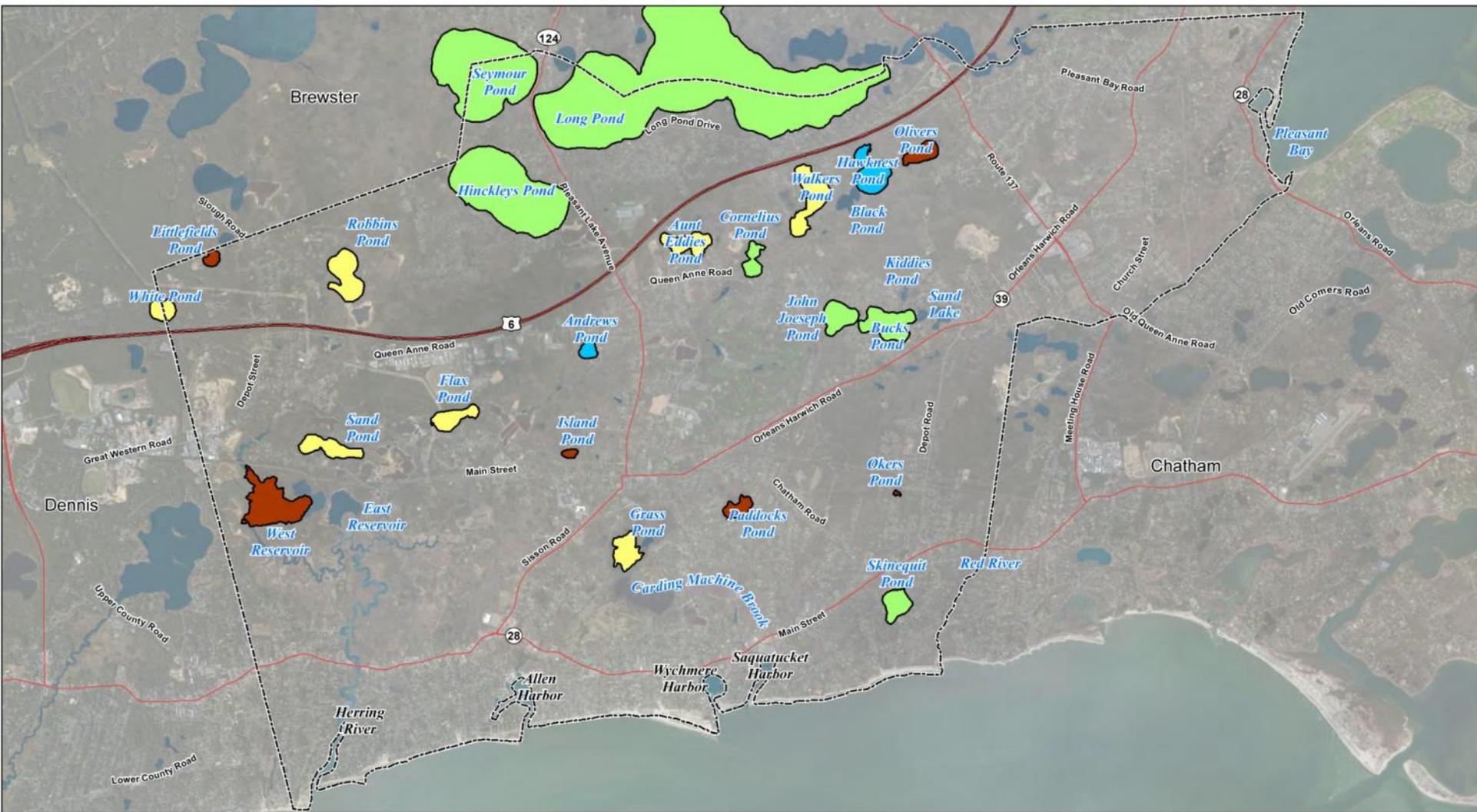
Final CWMP Revised Assumptions:

200 additional residential dwelling units at 150 gpd/unit
equals 30,000 gpd

250,000 SF additional commercial space at 100 gpd/1,000
SF equals 25,000 gpd

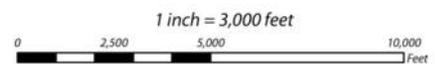
Total + 55,000 gpd allowance

Impaired Fresh Water Ponds in Harwich



Legend

- Additional Data Required
- High Quality Pond
- Pond With Some Water Quality Impairment
- Impaired Pond Water Quality



Town of Harwich CWMP
 Impairment Status of Fresh Water Ponds in Harwich
Figure 5-2



Harwich Wastewater Needs



Wastewater flow needs are based on:

- Nitrogen removal requirements by watershed at buildout.
- Water supply protection.
- Desired economic development – smart growth.
- Title 5 issues.
- Potential freshwater pond protection.

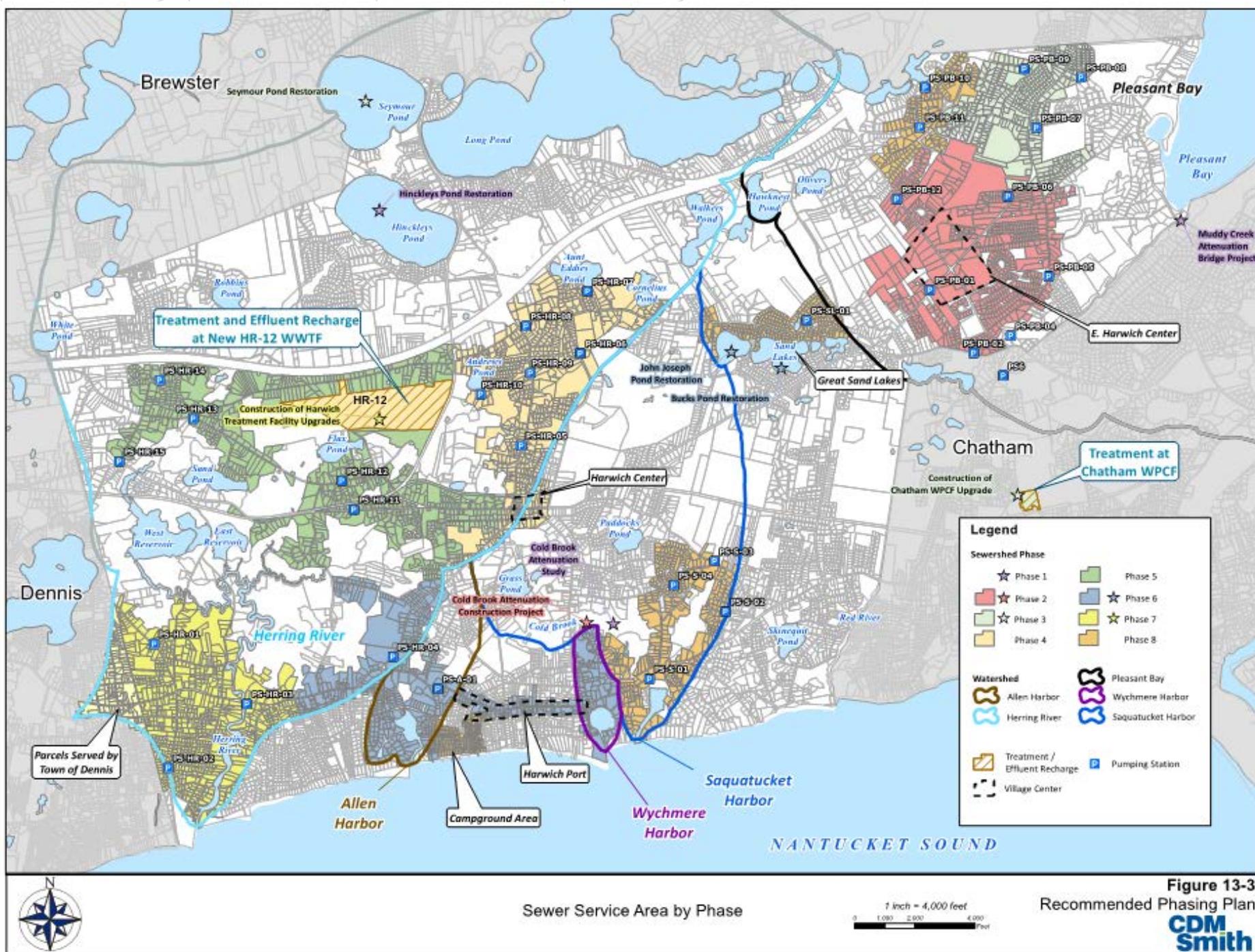


Figure 13-3
Recommended Phasing Plan

Components of Recommended Program



- Eight phases over 40 years
- Muddy Creek inlet widening to increase flushing
- Cold Brook natural nitrogen attenuation study
- Harwich/Chatham Inter-Municipal Agreement for treatment
- Core system relies on sewers for collection of wastewater with treatment and effluent recharge at two locations
- Potential permeable reactive barrier at one recharge site
- Other: stormwater best management practices, fertilizer education, open space acquisition, zoning review, public education, fresh water pond restorations, shellfish seeding program, etc.

Nitrogen Reduction via Increased Flushing at Muddy Creek



Muddy Creek 2012



Small Inlets to Muddy Creek - 2015



New 24-ft Inlet to Muddy Creek - 2016

Water
Quality
Harwich



Nitrogen Reduction by Natural Attenuation at Cold Brook Bogs – Bank Street



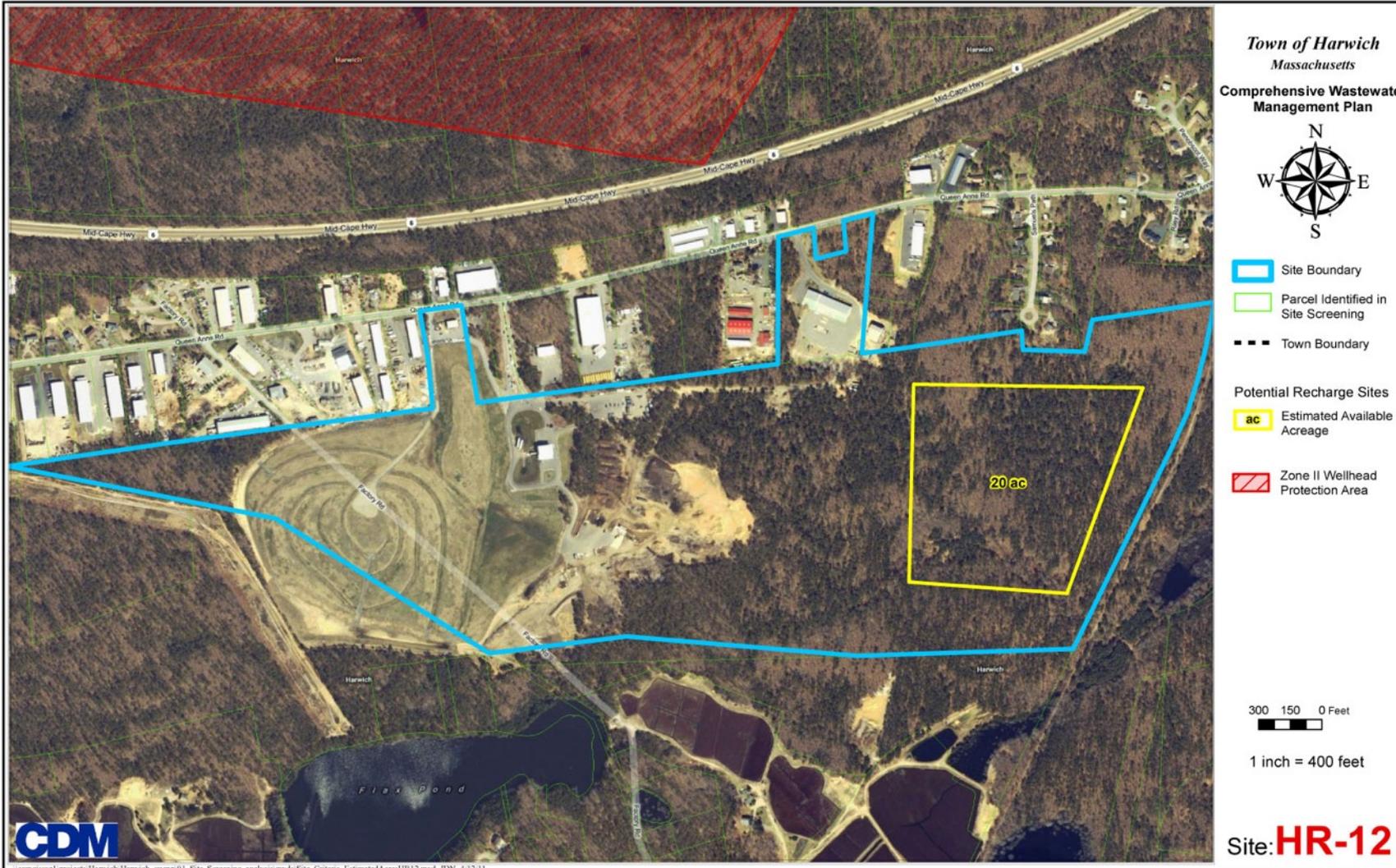
Cold Brook – Natural Nitrogen Attenuation



Chatham Wastewater Treatment Plant (1.1 million gallon per day average flow with open infiltration basins)



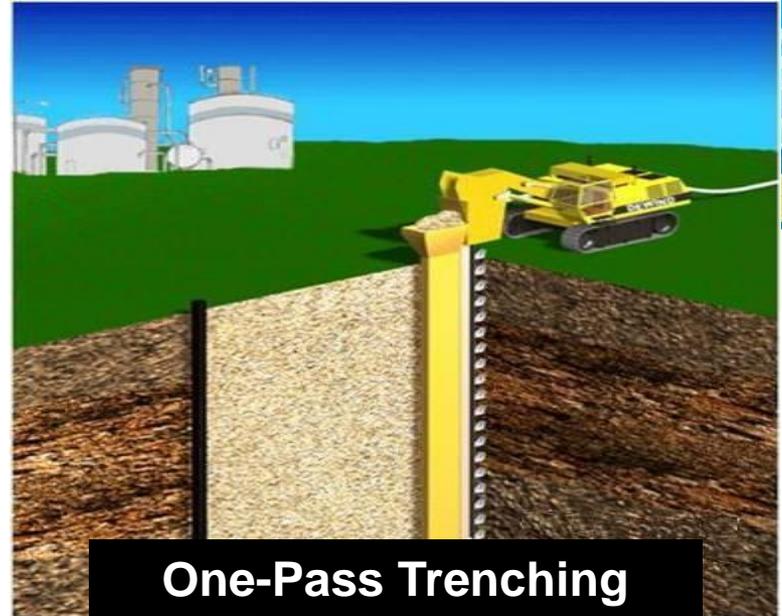
HR-12 – Adjacent to Former Town Landfill In the Herring River Watershed



PRB - Construction Techniques



One-Pass Trenching



One-Pass Trenching



Traditional Trenching

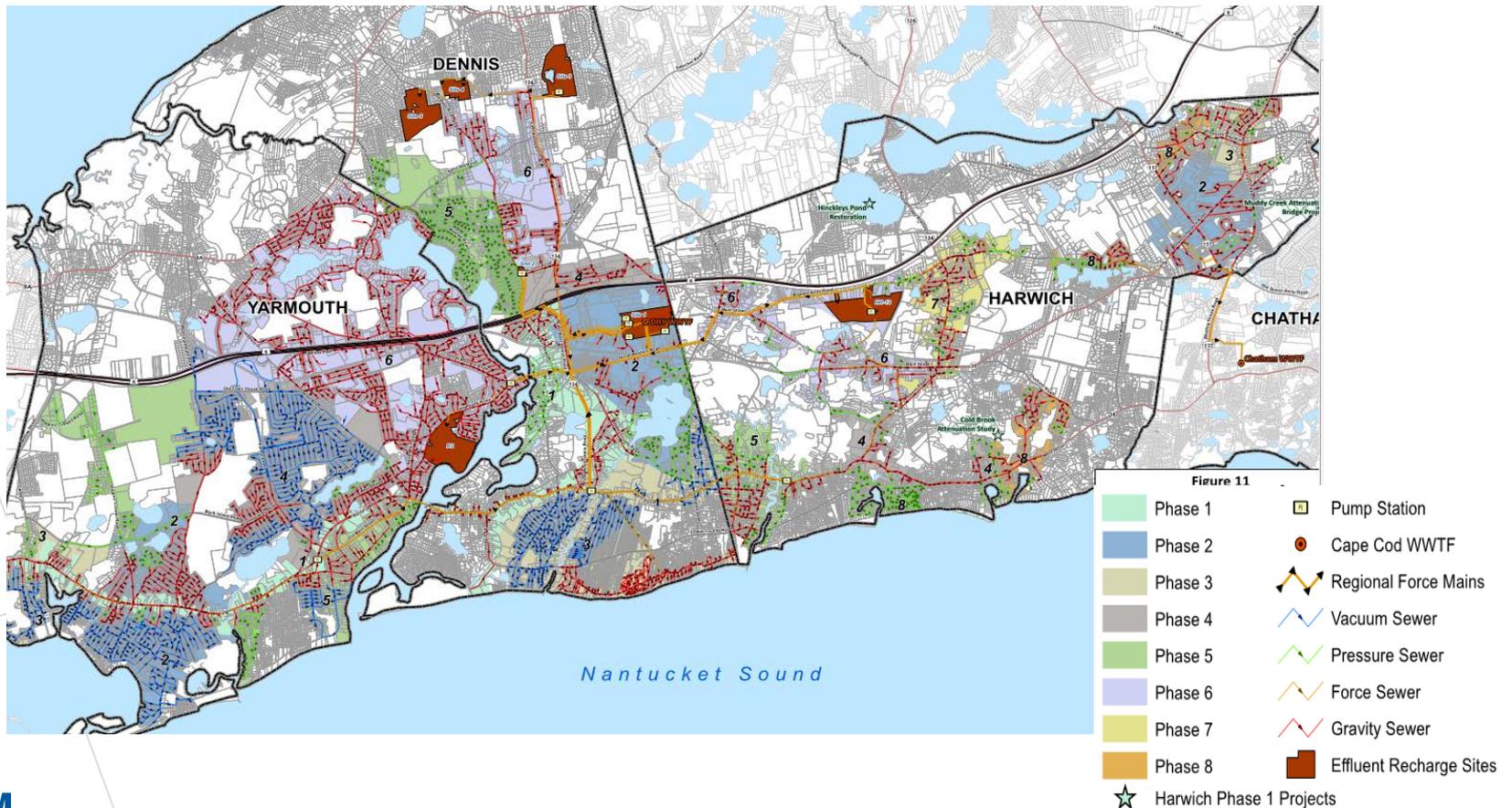


Traditional Trenching



Community Partnership Option

- Dennis, Harwich, and Yarmouth are currently evaluating the construction of one centralized treatment facility in order to save on capital and operation and maintenance costs.



Seeded Shellfish Areas



Herring River



Allen's Harbor



CDM Smith Round Cove/Pleasant Bay



Wychmere Harbor

Watershed Reports



The Harwich Board of Selectmen acting as the Wastewater Management Agency (WMA) for the town submitted watershed reports to the Cape Cod Commission in June 2016 for:

- Pleasant Bay Watershed
- Herring River Watershed
- Allen, Wychmere and Saquatucket Watersheds

What's Next



- Complete DRI review process.
- Complete Chatham IMA negotiations.
- Wastewater Implementation Committee (WIC) working on public outreach and implementation and monitoring components.
- Participate in community partnership option discussions
- Potential Spring 2017 Town Meeting Articles
 - Approval of Chatham IMA
 - Land Use Controls (flow neutral)
 - Initial phase design costs
 - Other

Questions and Comments

Water
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Harwich



Algae Bloom in Allen Harbor, Harwich, Swan Pond, Dennis and Mill Creek, Yarmouth

