



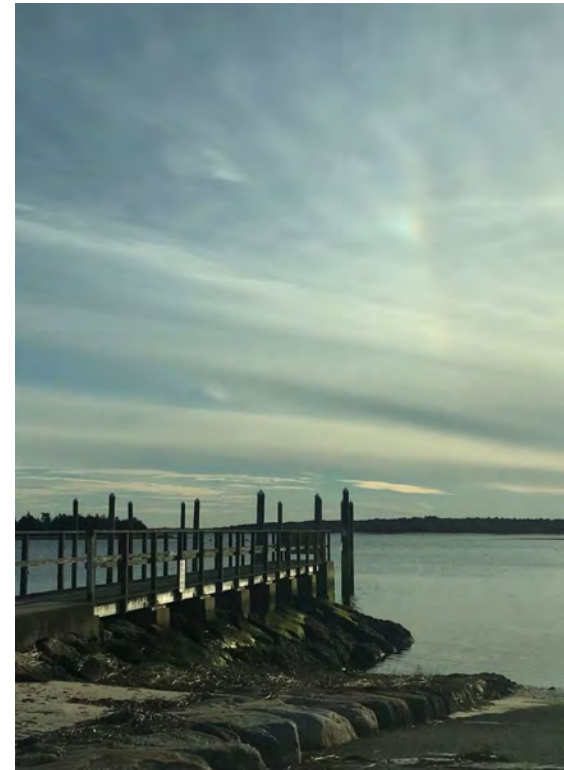
Town of Bourne Comprehensive Wastewater Management Plan

Recommended Plan Update



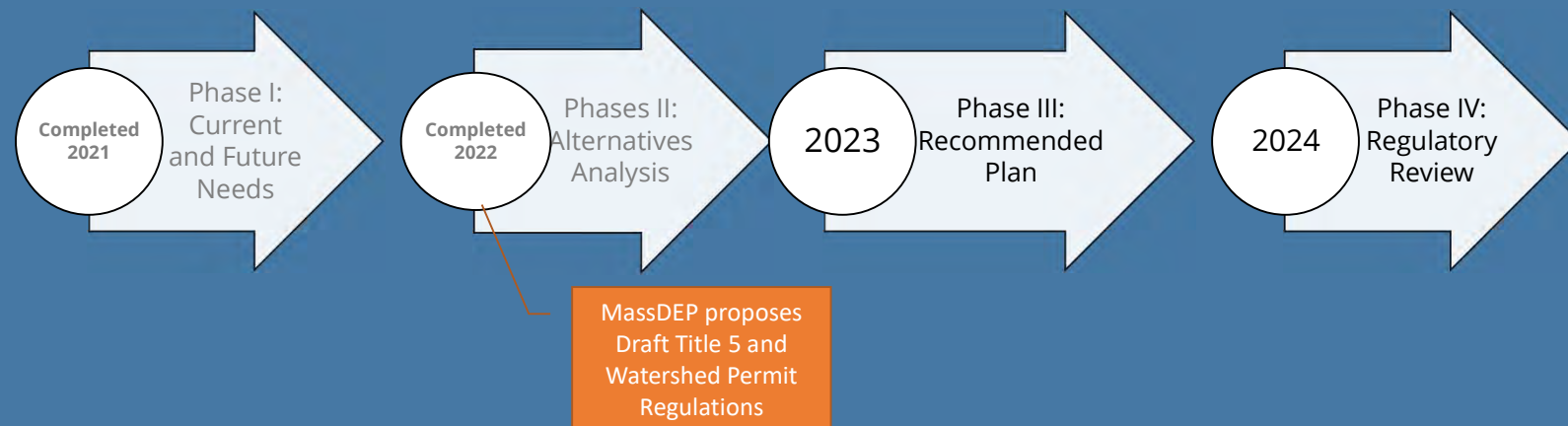
Agenda

- Refresher on CWMP
 - Completed Phases
 - Phases Left to be Completed
- Regulatory Changes and CWMP impacts
- Draft Recommended Plan
 - Changes to Alternatives
 - Costs
 - Timing



Refresher: What is a Comprehensive Wastewater Management Plan?

- Town-wide water quality assessment and solutions
- Aligns with 2019 Local Comprehensive Plan Goals for growth and development
- 20-year planning to meet water quality goals



Where did we conclude our alternatives analysis?

- Remove nitrogen based on the goals set in our Needs Assessment
 - TMDLs
 - 25% Reduction across Nitrogen Impaired Watersheds
- Objectives
 - 208 Plan Compliant solutions
 - Alignment with Town Goals
- Process
 - Drafted and Reviewed Analysis with Wastewater Advisory Committee
 - Reviewed and Approved Final Report with Board of Sewer Commissioners in 2022

Watersheds	Total Nitrogen Load Values, kg-N/year		Bourne Total Removal (kg-N/yr.)
	Wastewater	Total	
Megansett-Squeteague Harbor	7,611	11,658	564
Phinneys Harbor	5,948	8,730	1,706
Buttermilk Bay	4,058	5,610	1,402
Pocasset Harbor	7,958	12,479	3,120
Pocasset River	3,762	5,157	1,289
Buzzards Bay	16,830		TBD
Cape Cod Canal	164,028		TBD
Total			8,072

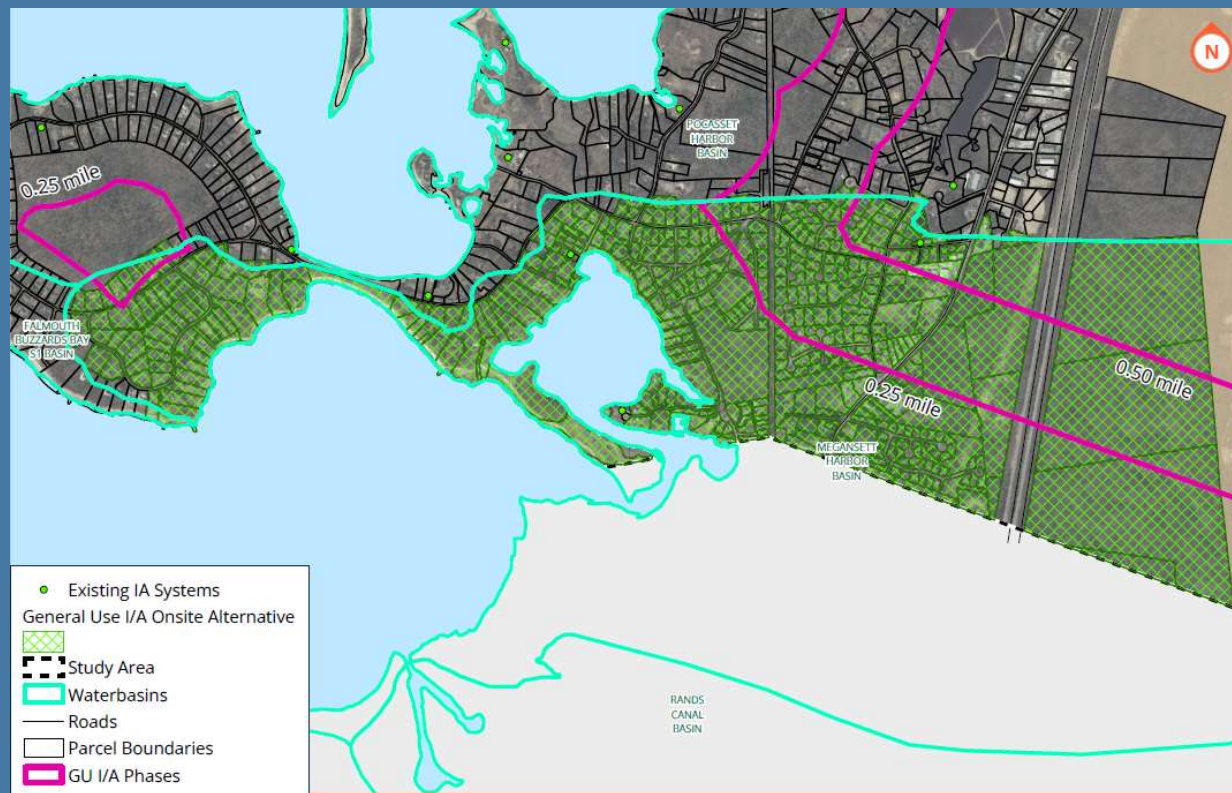


Regulatory Changes and CWMP Impacts

- December 2022
 - Draft Revised Title 5 Regulations released
 - CWMP paused until final regulations released
- July 2023
 - Revised Title 5 Regulations and new Watershed Permit regulations were promulgated
 - EP Updated CWMP Plan of Study to conform with regulatory changes
 - Alternatives proposed in 2022 are consistent with the revised Title 5 compliance
 - EP Met with Select Board to discuss Watershed Permit options for Town
- November 2023 – Present
 - Began working with Town Staff to develop Draft Recommended Plan



Review TMDL #1: Megansett-Squeteague Harbor



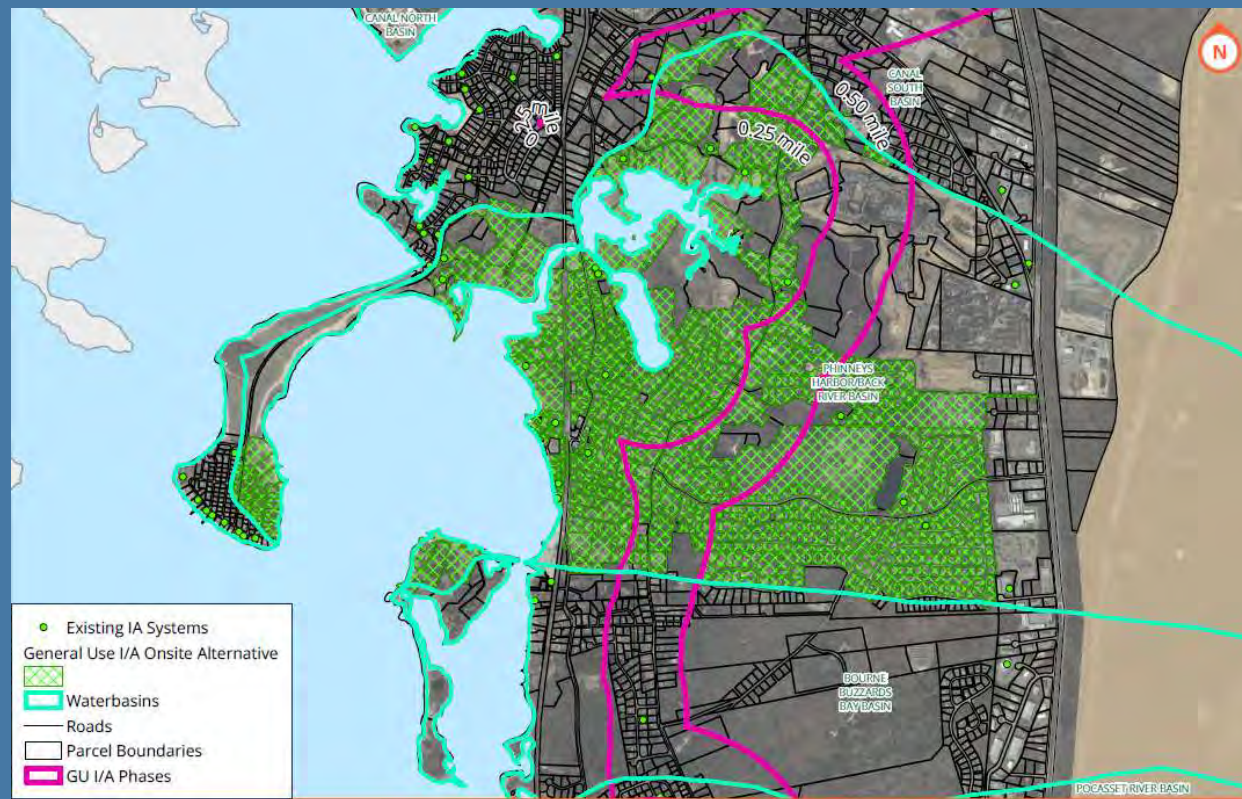
Megansett-Squeteague Harbor

Table 6: Megansett-Squeteague Alternative Summary

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg N/y)
Residential I/A General Use Onsite System Replacement	285 - 357	504 - 631
Stormwater BMP	-	219
Total Estimated Removal		723-850
<i>TMDL Removal Requirement</i>		600
Removal Goal Met?		Yes



TMDL #2: Phinney's Harbor



Phinney's Harbor

Table 9: Phinney's Harbor Alternative Summary

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg-N/y)
Residential I/A General Use Onsite System Replacement	1,133 -1,235	2,001 – 2,182
Stormwater BMP	-	383
Total		2,384 – 2,565
<i>TMDL Removal Goal</i>		<i>1,706</i>
Removal Goal Met?		Yes



Buttermilk Bay – 2022

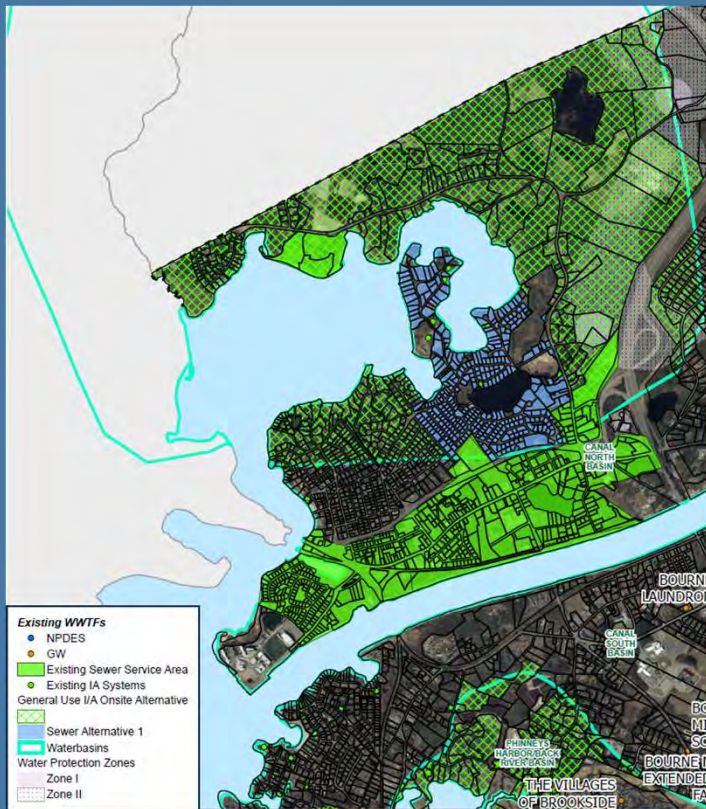


Table 13: Buttermilk Bay Alternative Summary

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg-N/y)
Residential I/A General Use Onsite System Replacement	374	588
Sewer Alternative 1	330	1,160
Stormwater BMP	-	177
Total		1,925
<i>Nitrogen Removal Goal</i>		<i>1,402</i>
<i>Removal Goal Met?</i>		<i>Yes</i>

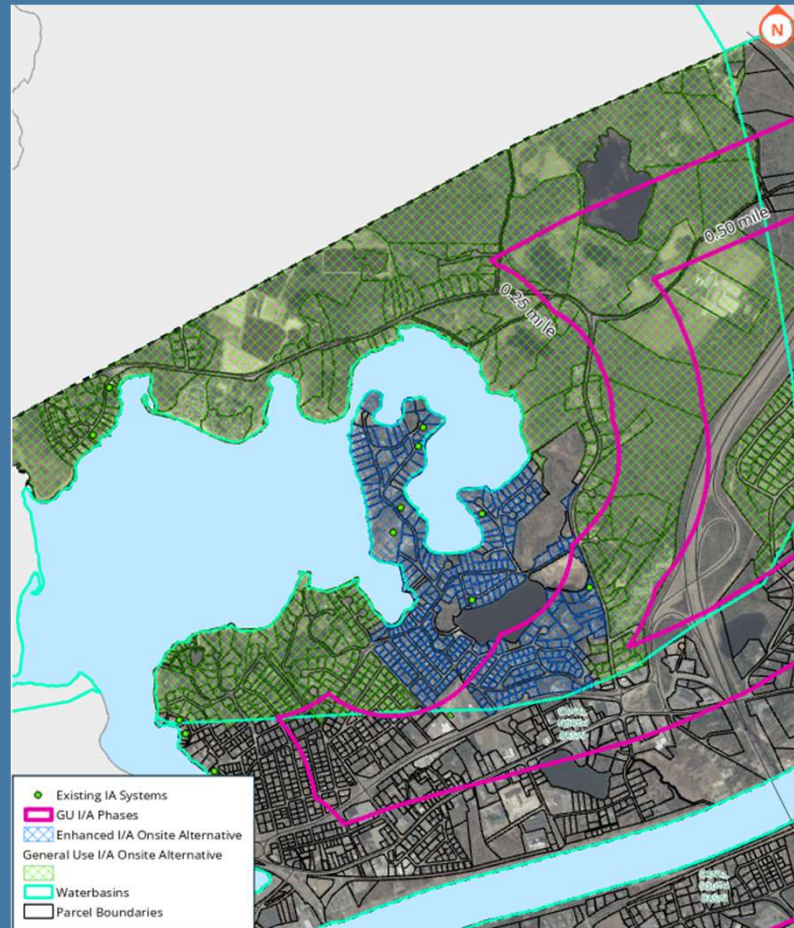


What Changed?

- Between 2022 – 2023, Board of Sewer Commissioners allocated all available flow to those who applied
 - Between IMA and Buzzards Bay WWTF, no available flow capacity exists
- To add Core Sewer Area for Nitrogen Removal
 - Existing Buzzards Bay WWTF needs to be expanded and the existing groundwater discharge permit needs to be revisited
 - Revisit potential regional partnerships
- For the recommended plan, consider Best Available Nitrogen Reducing Technology expansion in the former Core Sewer Area
 - Adaptively manage this area as onsite technologies improve or other WWTF sites are determined
 - For example, Massachusetts Maritime Academy WWTF or Wareham WWTF regional partnerships



Buttermilk Bay – 2024

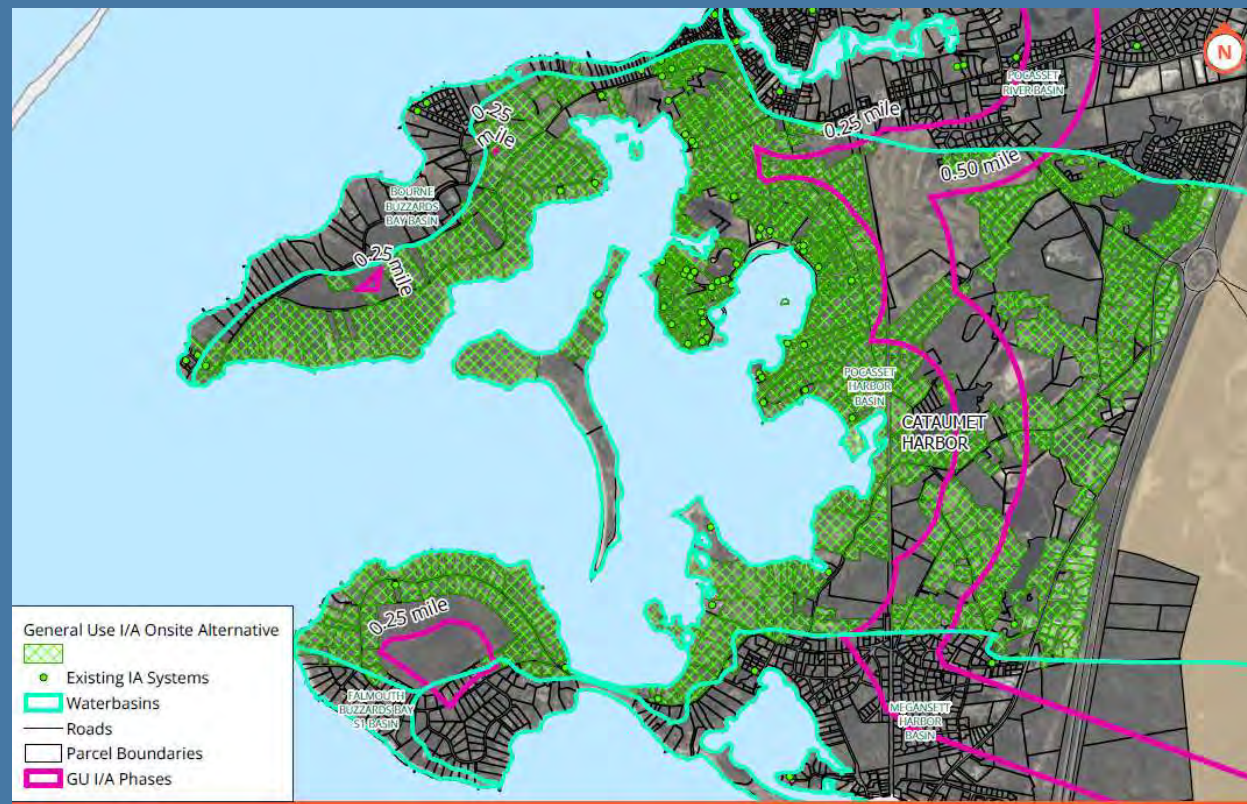


Buttermilk Bay – 2024

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg-N/y)
Residential General Use I/A Onsite System Replacement	374	588
Sewer Alternative 1 Residential Enhanced I/A Onsite System Replacement	330	816
Stormwater BMP	-	177
Total		1,581
<i>Nitrogen Removal Goal</i>		<i>1,402</i>
<i>Removal Goal Met?</i>		Yes



Pocasset Harbor



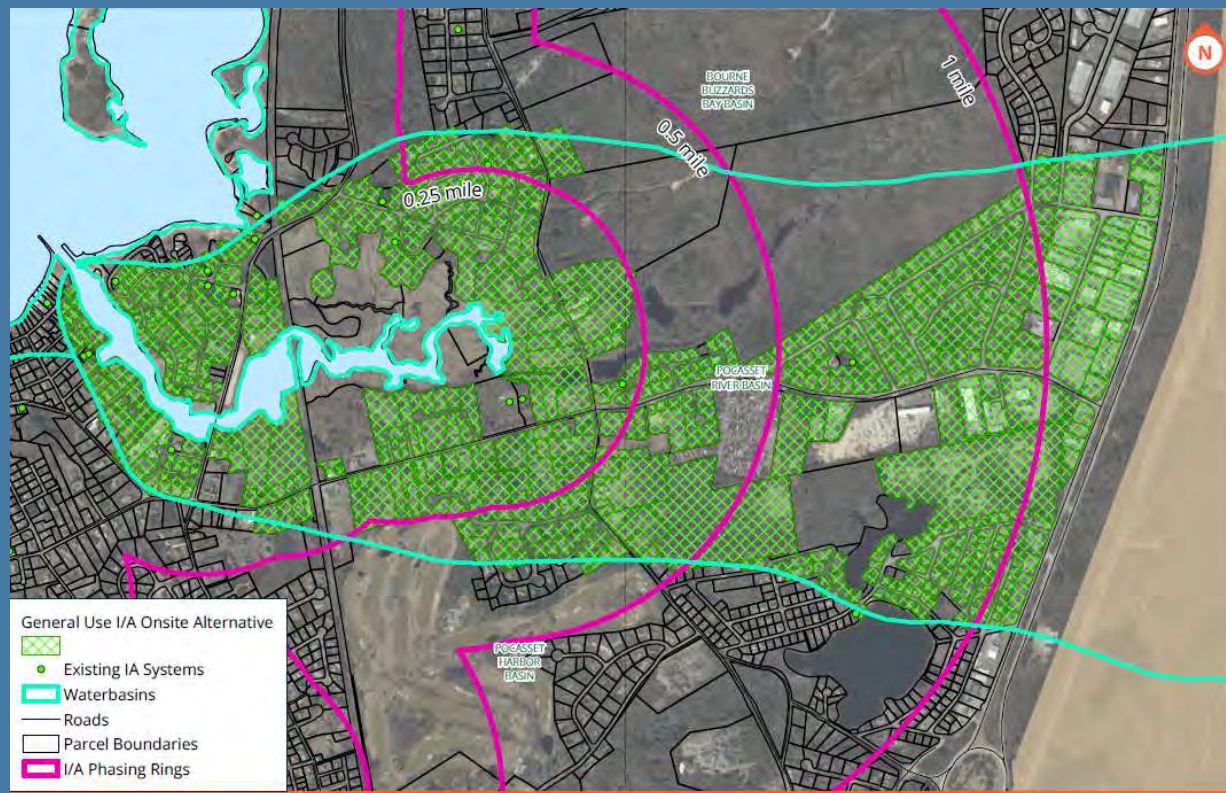
Pocasset Harbor

Table 16: Pocasset Harbor Alternative Summary

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg-N/y)
Residential I/A General Use Onsite System Replacement	1,450	2,562
Commercial I/A General Use Onsite System Replacement	53	262
Stormwater BMP	-	470
Total		3,292
<i>Nitrogen Removal Goal</i>		3,129
<i>Removal Goal Met?</i>		Yes



Pocasset River



Pocasset River

Table 19: Pocasset River Alternatives Summary

Alternative	Number of Parcels	Estimated Nitrogen Reduction (kg-N/y)
Residential I/A General Use Onsite System Replacement	650	1,148
Stormwater BMP	-	215
Total		1,363
<i>Nitrogen Removal Goal</i>		1,289
<i>Removal Goal Met?</i>		<i>Yes</i>



Recommended Plan

Feedback Requested

Implementation Plan

- Begin with TMDL Watersheds
 - Implement General Use I/A Systems based on travel time from water (distance radius)
 - Approximately 300 installations per year for first 5-years
- Next, implement across non-TMDL watersheds which are nitrogen impaired
 - Approximately 170 per year for remaining 15-years
 - Buttermilk Bay requires review of regional options for using Core Sewer Area
- **Feedback needed** to decide preference for Watershed Permit versus Title 5
 - Watershed Permit allows for longer schedule for compliance across TMDL watersheds
 - Title 5 regulation timelines for Natural Resource NSAs:
 - New Construction - July 2024
 - Existing Homes - July 2030



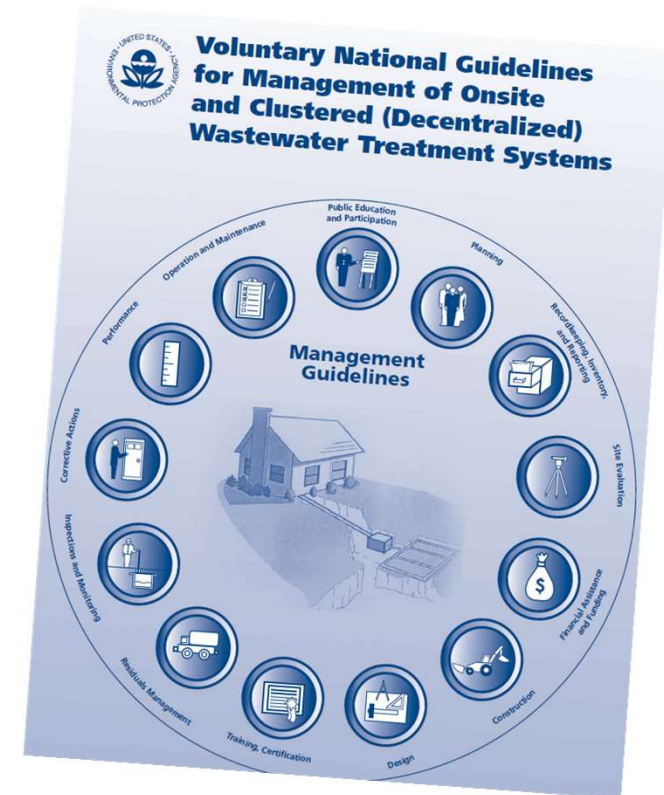
For Reference, Individual Capital Cost Estimate

GU I/A Individual System Capital Cost	OPCC (March 2024)	
	Low	High
Average GUIA Component (the Technology)*	\$ 10,000	\$ 16,000
Construction (Electrical and Sitework)**	\$ 12,000	\$ 19,200
Permits/Fees***	\$ 525	\$ 525
Contingency (20%)	\$ 4,505	\$ 7,145
Engineering (Soil Eval. & Site Plan)	\$ 5,406	\$ 8,574
Total	\$ 32,436	\$ 51,444
*Specific vendors are much higher (as high as \$50,000 estimated)		
**Not included: Landscaping/Paving		
***Based on current Town permitting fees		



Implementation Plan Cost

- Dependent on type of Responsible Management Entity (RME):
 - Who owns the system?
 - Who maintains the system?
 - Who is responsible for compliance?
- Levels of RME:
 - 5 Models, increasing requirements
- For consideration:
 - Model 4 – Town Operated and Maintained (directly or third party)
 - Model 5 – Fully Town Owned



Example Case Study: Otter Tail Water Management District, MN

- Otter Tail Water Management District formed in 1984 under Minnesota statute governing sanitary sewer districts
 - Approximately 1,850 systems
- Two Types of service plans:
 - Active – System maintained by OTWMD (60% of systems)
 - Passive – Administration (recordkeeping and troubleshooting), but homeowner responsible for all costs (40% of systems)
- All users pay a fee on their property taxes each year
 - Range from \$69.00 to \$414.00 for individual systems
 - The cost of the user fee is determined by the type of system and maintenance plan
 - Resorts have larger fees due to system sizes/types



Next Steps



General Use Innovative and Alternative (I/A) Onsite Systems are still the primary technology



Buttermilk Bay Core Sewer Area changed to Best Available Nitrogen Removal Technology (Enhanced I/A)



Feedback needed to determine cost-sharing and timeline preferences



Next Steps: Project Team

Spring 2024

- Draft Recommended Plan
- File MEPA EENF

Summer 2024

- Joint Review by MEPA and Cape Cod Commission
- Public Comment Period

Fall 2024

- Incorporate Feedback into Final Plan
- Town Meeting Action
- Begin Plan Implementation



THANK YOU

