Megansett– Squeteague Alternatives Analysis

Update: 10/25/2022

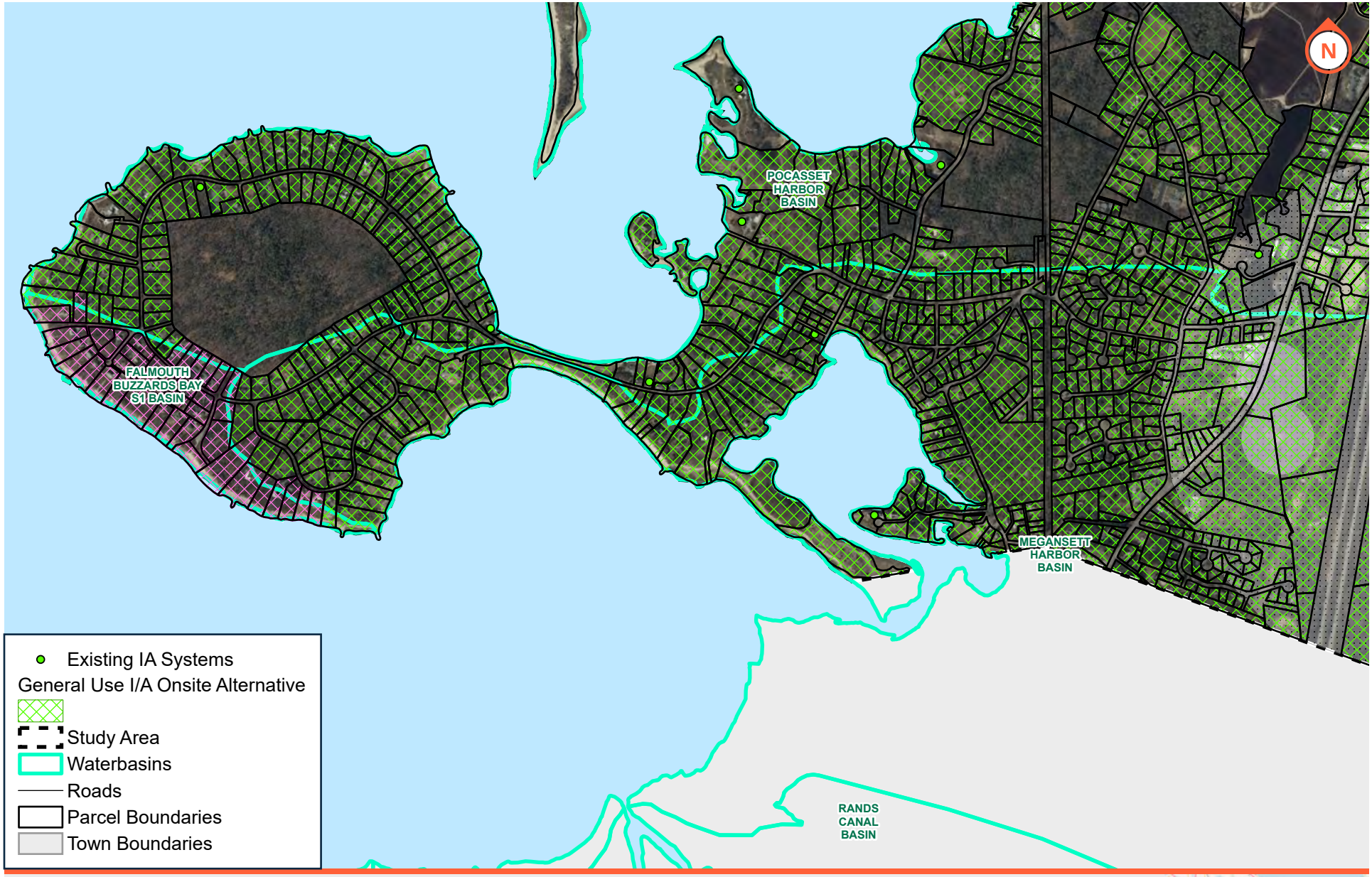
Overview

- Nitrogen impaired watershed.
- Has Total Maximum Daily Limit (TMDL) requirement.
- Priority watershed with annual nitrogen removal goal of 600 kilograms of nitrogen per year (kg-N/y).
- Nitrogen reduction through General Use Approved Innovative/Alternative (I/A) on-site wastewater system replacements.
- Stormwater Best Management Practices (BMP) improvements will be implemented to supplement primary source reduction.

Alternatives	Estimated Nitrogen Reduction (kg-N/y)
Residential I/A General Use Onsite System Replacement	504—631
Stormwater BMP	219
Total	**723 - 850**
Nitrogen Removal Goal	600
Removal Goal Met?	**Yes**

Source:

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 18, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf



ENVIRONMENTAL PARTNERS
— An Apex Company —

Megansett Squeteague Harbor

Bourne, MA

10/3/2022

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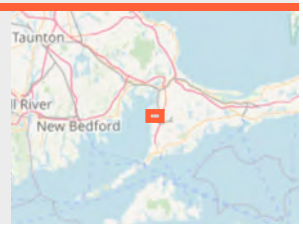
1:1500 Feet



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Disclaimer: This map is intended for planning purposes

Phinneys Harbor Alternatives Analysis

Update: 10/25/2022

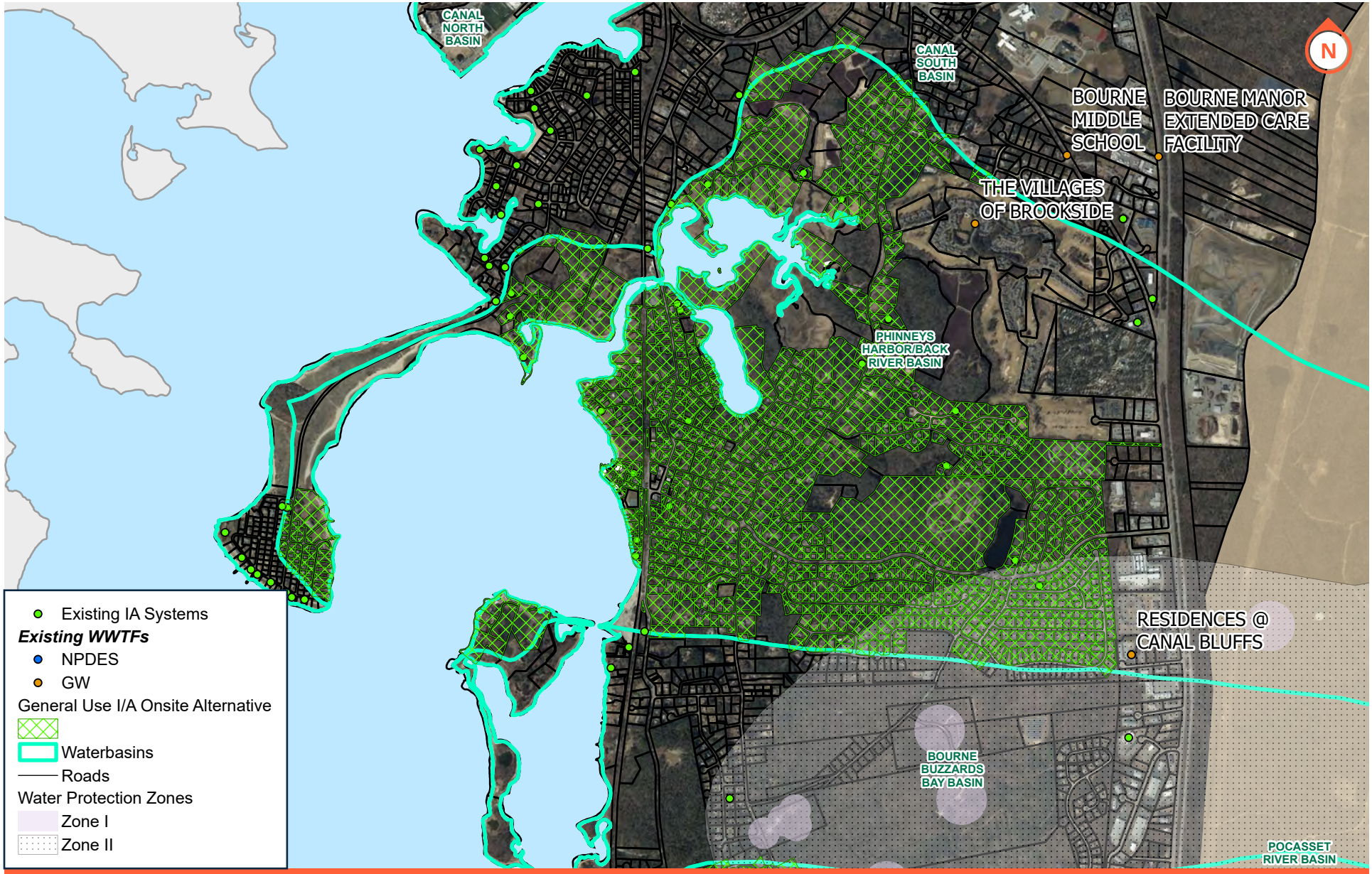
Overview

- Nitrogen impaired watershed.
- Current Total Maximum Daily Limit (TMDL) removal requirement of 1,706 kilograms of nitrogen per year (kg-N/y).
- Primary nitrogen source reduction will be through General Use Approved Innovative/Alternative (I/A) on-site wastewater system conversion, targeting 1,133 to 1,235 parcels.
- Improvements to Stormwater Best Management Practices (BMPs) will be implemented to supplement primary source reduction.

Alternatives	Estimated Nitrogen Reduction
Residential I/A General Use Onsite System Replacement	2,001- 2,182
Stormwater BMP	383
Total	**2,384– 2,565**
Nitrogen Removal Goal	1,706
Removal Goal Met?	**YES**

Source:

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 20, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf



ENVIRONMENTAL PARTNERS
— An Apex Company —

Phinney's Harbor

Bourne, MA

10/3/2022

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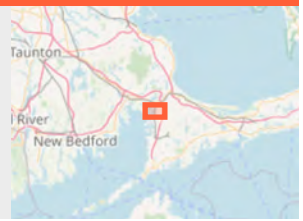

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Disclaimer: This map is intended for planning purposes

Buttermilk Bay Alternatives Analysis

Update: 10/25/2022

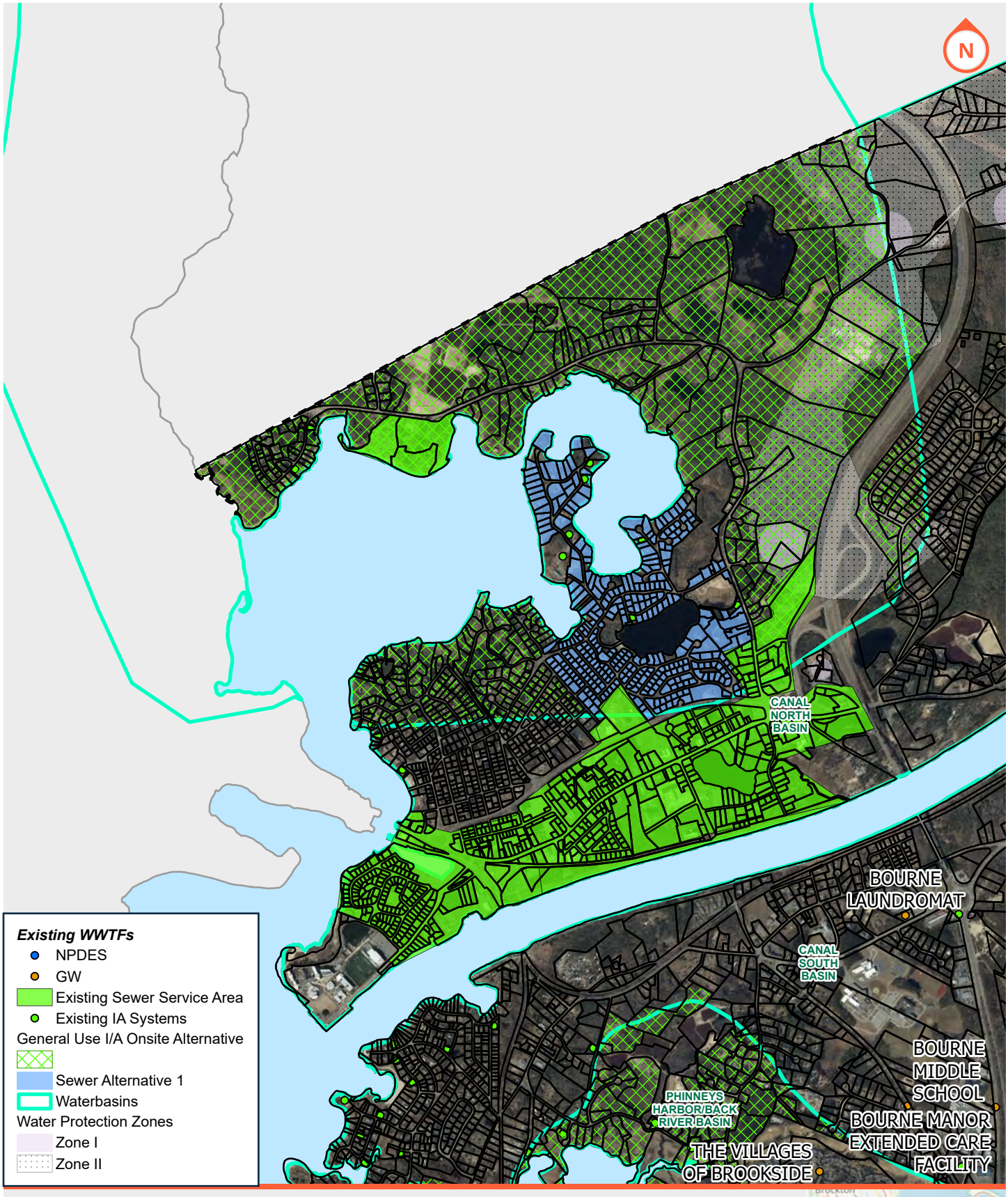
Overview

- Nitrogen impaired watershed
- No current Total Maximum Daily Limit (TMDL) requirement
- Priority watershed with documented water quality concerns
- 25% nitrogen removal needed
- Target removal met using combination of General Use Approved Innovative and Alternative (I/A) onsite wastewater system conversions and one sewer area

Alternatives	Estimated Nitrogen Reduction (kilograms-Nitrogen/year)
Residential I/A General Use Onsite System Replacement	588
Sewer Alternative 1	1,160
Stormwater BMP	117
Total	**1,925**
Nitrogen Removal Goal	1,102
Removal Goal Met?	**Yes**

Source:

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 23, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf



ENVIRONMENTAL PARTNERS
— An Apex Company —

Buttermilk Bay

Bourne, MA

10/3/2022

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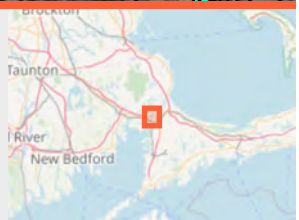
1:2200 Feet



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Disclaimer: This map is intended for planning purposes

Pocasset Harbor Alternatives Analysis

Update: 10/25/2022

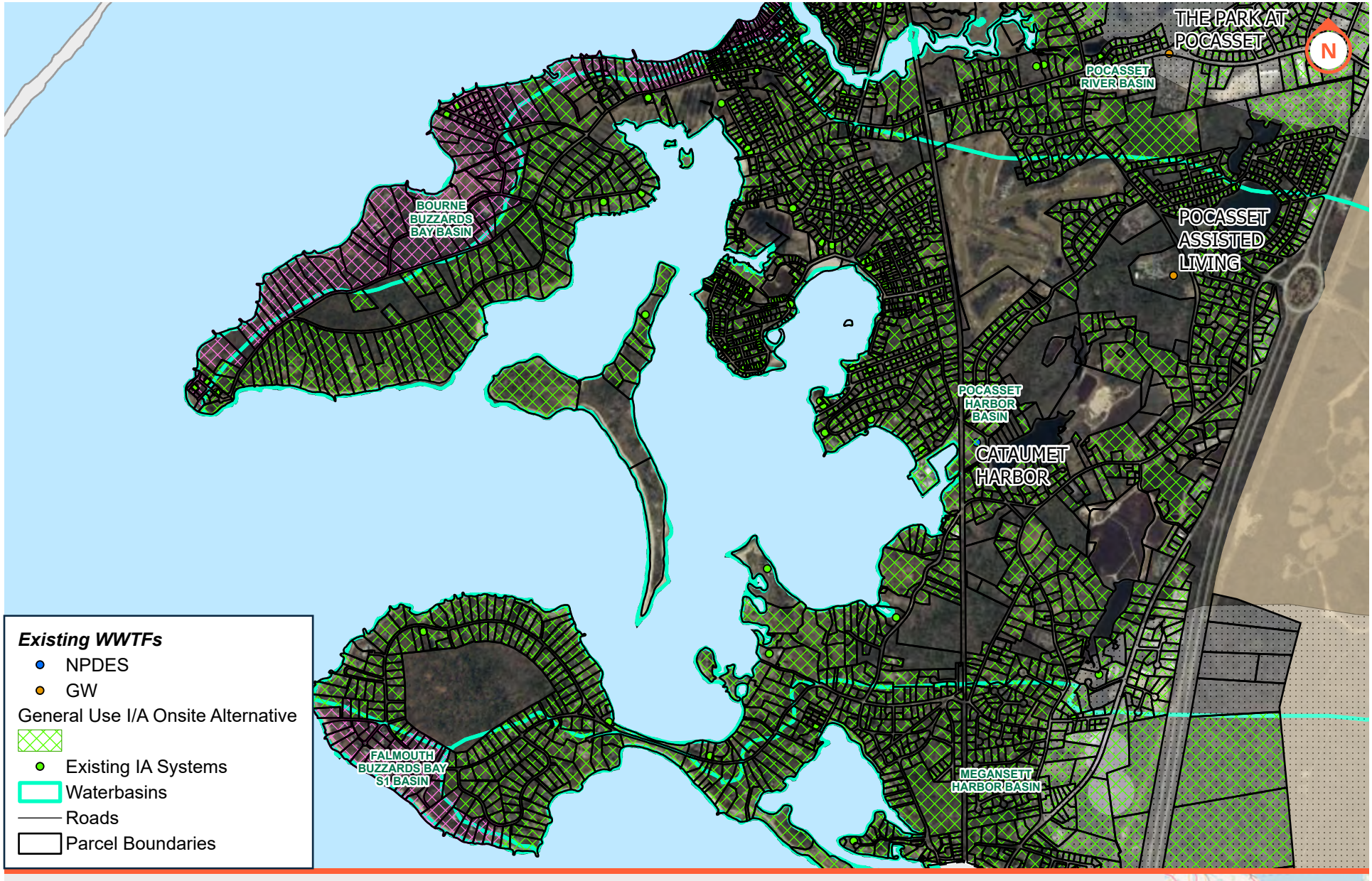
Overview

- Nitrogen impaired watershed.
- No Total Maximum Daily Limit (TMDL) requirement.
- Priority watershed with documented water quality concerns.
- Nitrogen reduction mainly through General Use Approved Innovative/Alternative (I/A) Onsite wastewater system replacements, targeting about 1,503 parcels.
- Stormwater Best Management Practices (BMP) will be implemented to supplement primary source reduction.

Alternatives	Estimated Nitrogen Reduction (kilograms-Nitrogen/year)
Residential I/A General Use Onsite System Replacement	2,562
Commercial I/A General Use Onsite System Replacement	262
Stormwater BMP	470
Total	**3,292**
Nitrogen Removal Goal	3,129
Removal Goal Met?	**Yes**

Source

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 27, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf



ENVIRONMENTAL PARTNERS
— An Apex Company —

Pocasset Harbor

Bourne, MA

10/3/2022

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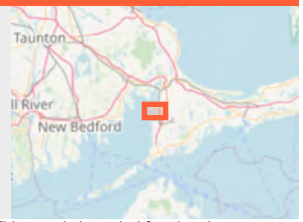
1:2,350 Feet



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Disclaimer: This map is intended for planning purposes

Pocasset River Alternatives Analysis

Update: 10/25/2022

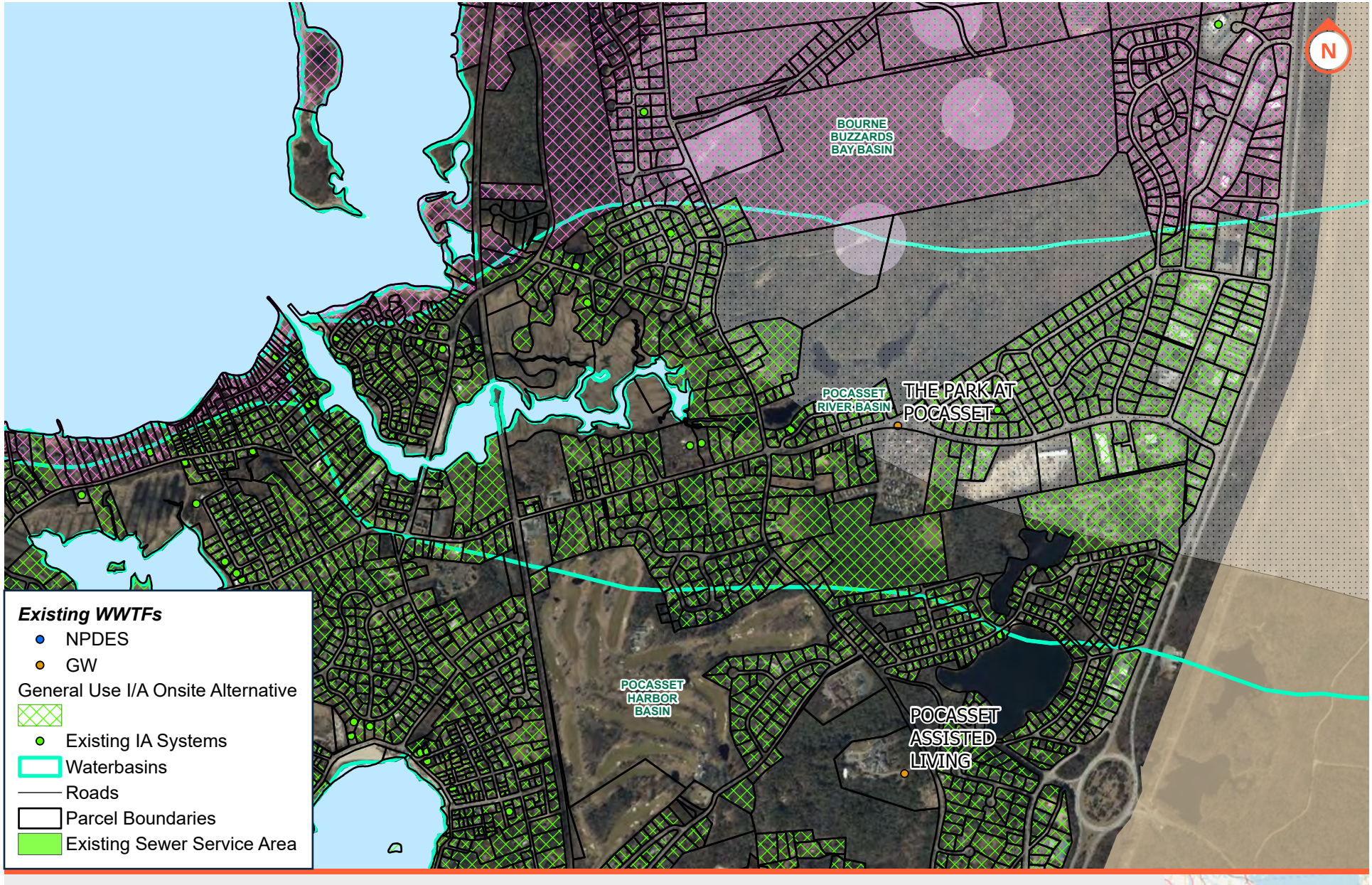
Overview

- Nitrogen impaired watershed.
- No Total Maximum Daily Limit (TMDL) requirement.
- Priority watershed with documented water quality concerns.
- Majority reduction through Residential General Use Innovative/Alternative (I/A) systems targeting about 650 parcels.
- Stormwater Best Management Practice (BMP) improvements will be implemented to supplement primary source reduction.

Alternatives	Estimated Nitrogen Reduction (kilograms-Nitrogen/year)
Residential I/A General Use Onsite System Replacement	1,148
Stormwater BMP	215
Total	**1,363**
Nitrogen Removal Goal	1,289
Removal Goal Met?	**Yes**

Source:

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 29, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf



ENVIRONMENTAL PARTNERS
— An Apex Company —

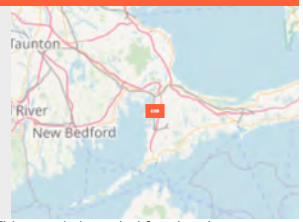
Pocasset River

Bourne, MA

10/4/2022

0 750 1,500 3,000

1:1500 Feet



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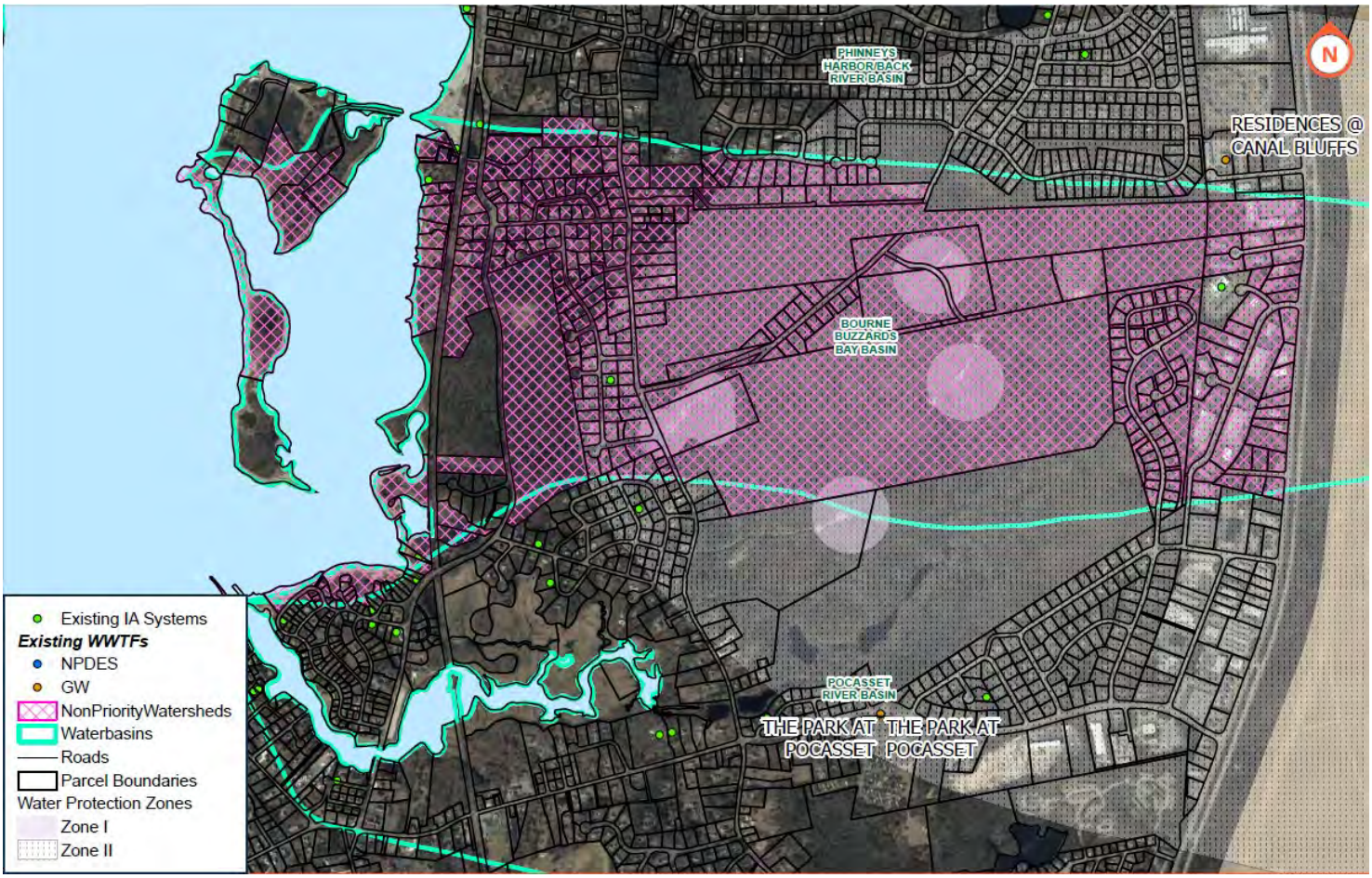
Disclaimer: This map is intended for planning purposes

Buzzards Bay Alternatives Analysis

Update: 10/25/2022

Overview

- No Nitrogen impairment.
- No current or expected Total Maximum Daily Limit (TMDL) for nitrogen.
- Long term solutions are recommended to be implemented in a phased approach.
- General Use Innovative/Alternative Onsite Systems could be a long term solution.



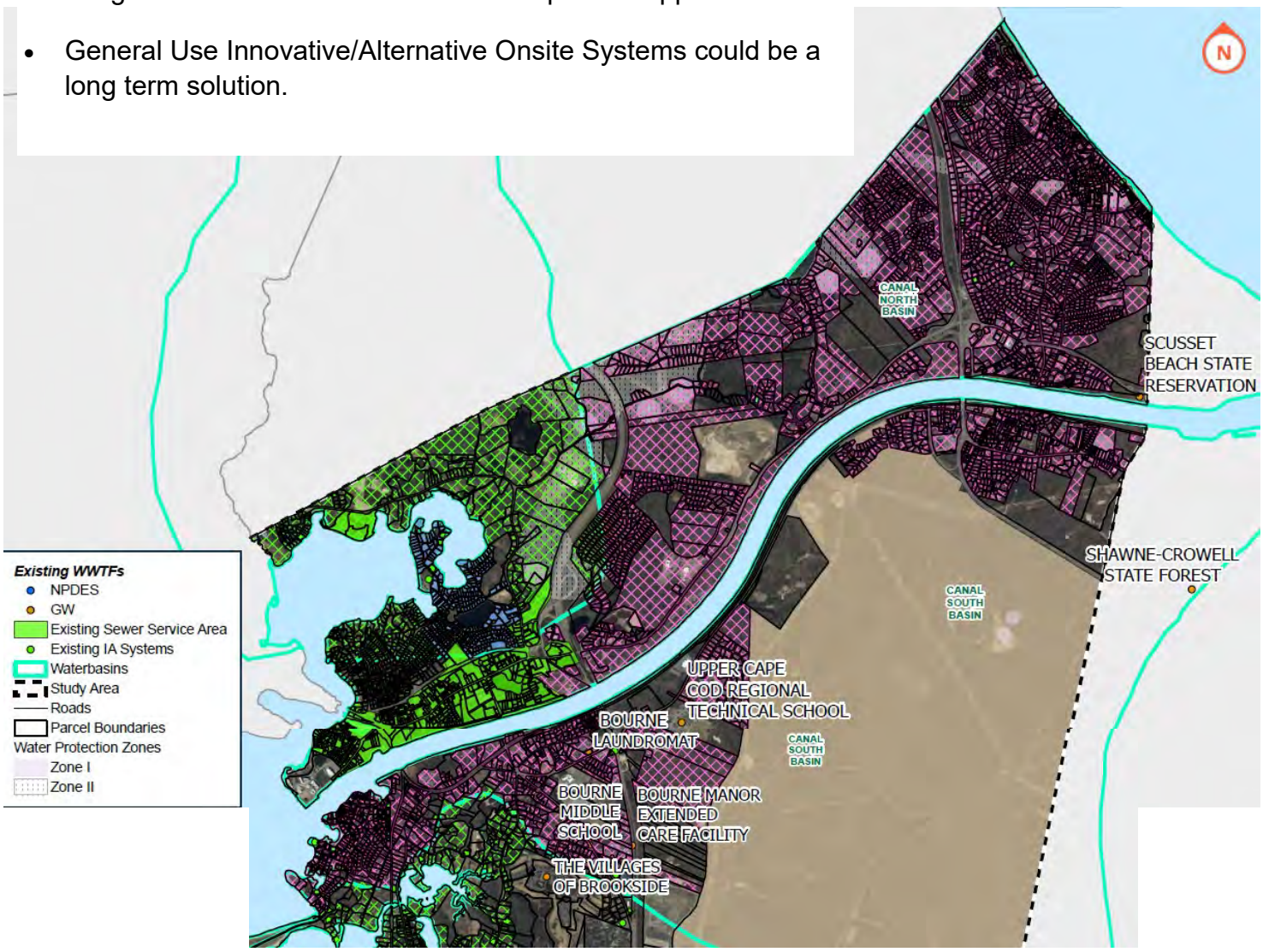
Source: " Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 31, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf

Cape Cod Canal Alternatives Analysis

Update: 10/25/2022

Overview

- No Nitrogen impairments
- No current or expected Total Maximum Daily Limit (TMDL) requirements
- Long-term solutions recommended in a phased approach
- General Use Innovative/Alternative Onsite Systems could be a long term solution.



Source:

"Comprehensive Wastewater Management Plan Alternatives Analysis Draft", 10-18-2022, Section 4.3, Page 33, https://www.townofbourne.com/sites/g/files/vyhlif7346/f/uploads/2022-10-18_draft_alternatives_analysis.pdf