

Tech Panel

October 25, 2013

Approaches

Conventional



WATERSHED MVP

MULTI-VARIANT PLANNER

Map Tools

Selection

Selection by: Watershed

Watershed: [all watersheds]

- Allen Harbor
- Barnstable Harbor
- Bass River
- Bassing Harbor/Ryders Cove

Base Map

Planning Scenarios

Data Summary

Summarize by: Water Use

Existing Future Scenario

Chart

Show/Hide Legend

- Commercial
- Industrial
- Multi-Family Residential
- Other Development
- Other Non-Development
- Residential Condo/Apt
- Single Family Residential
- Vacant Development
- Vacant Non-Development

Results

Total Number of Properties Selected	7,171
Existing Sewered	3
Total Existing Water Use	1,015,835.58 g/day

Costs

Cape Cod Commission

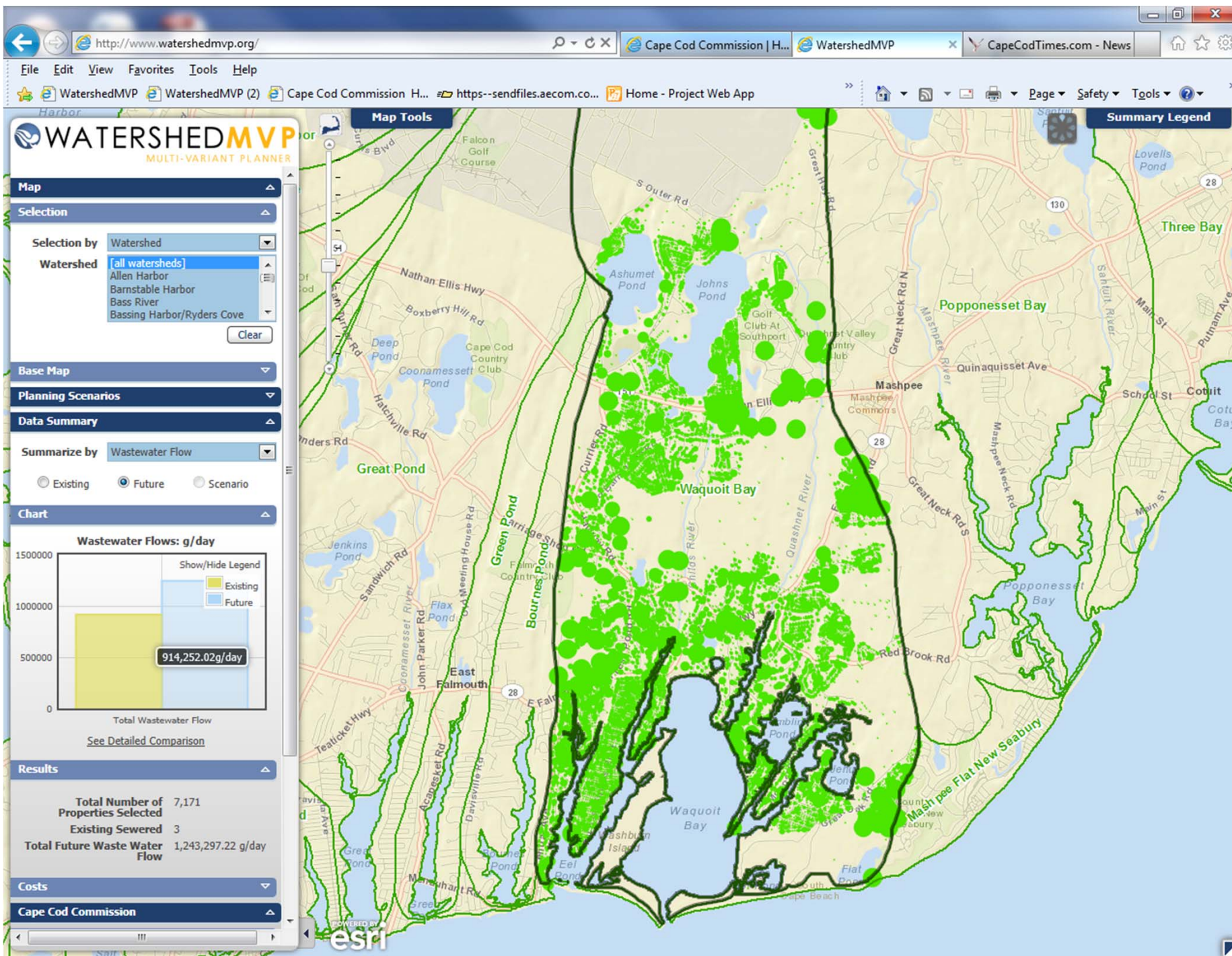
Contact Us

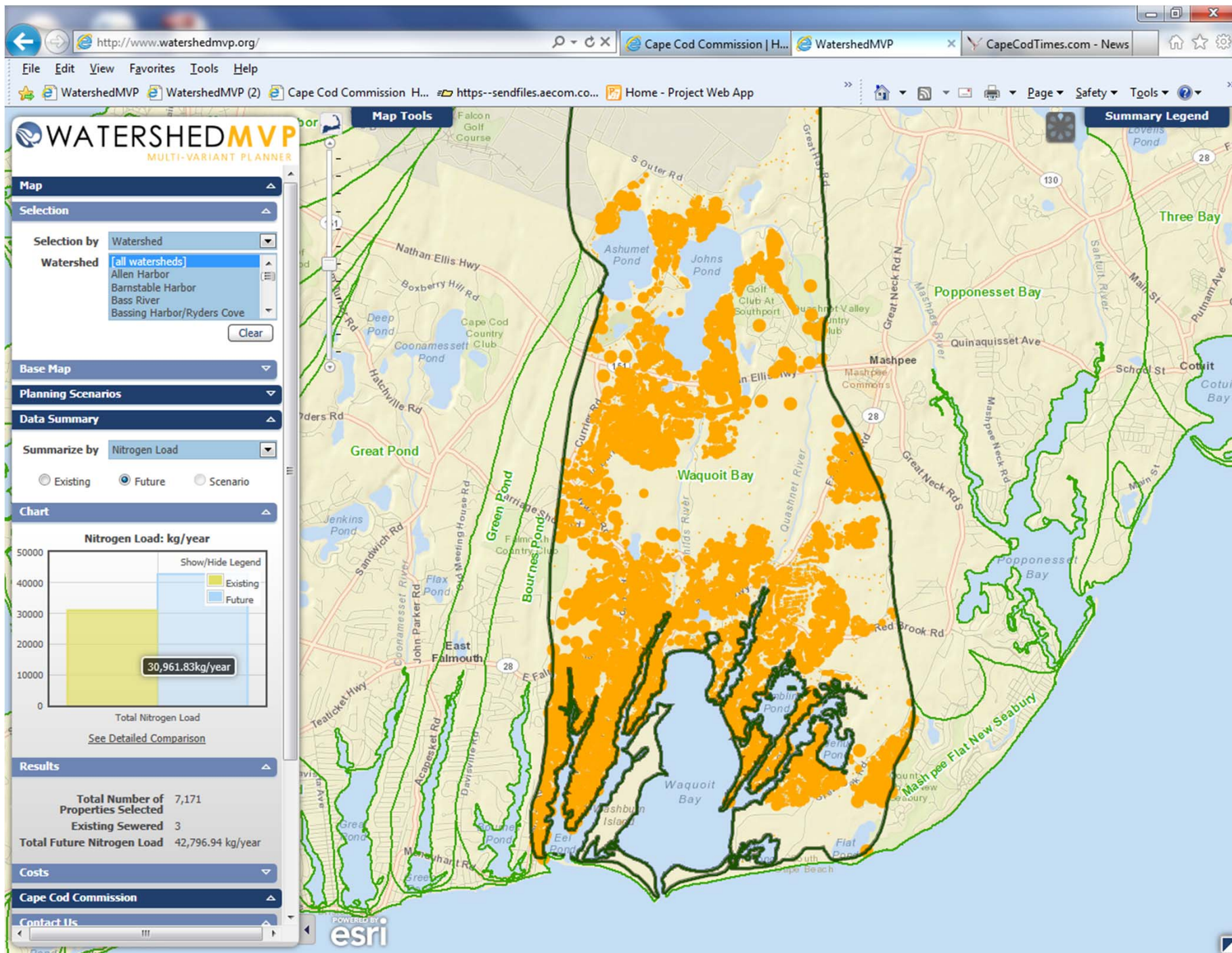
CAPE COD COMMISSION

Cape Cod Commission
3225 Main Street (Route 6A)
Barnstable, Massachusetts 02630
(508) 362-3328
www.capecodcommission.org
Email Us

POWERED BY **esri**

Summary Legend





The screenshot displays the WatershedMVP web application interface. The browser address bar shows the URL <http://www.watershedmvp.org/>. The application title is "WatershedMVP MULTI-VARIANT PLANNER".

Map Tools: Includes a search bar, a scale bar, and a north arrow.

Summary Legend: Located in the top right corner, it provides a key for the map's symbology.

Map Selection: The "Selection by" dropdown is set to "Watershed". The "Watershed" list includes "all watersheds", "Allen Harbor", "Barnstable Harbor", "Bass River", and "Bassing Harbor/Ryders Cove".

Base Map: A dropdown menu for selecting the base map.

Planning Scenarios: A dropdown menu for selecting planning scenarios.

Data Summary: The "Summarize by" dropdown is set to "Wastewater Treatment Type". The "Existing" radio button is selected.

Chart: A pie chart showing the distribution of wastewater treatment types. The legend indicates "Septic" (yellow) and "Sewered" (blue).

Results: A summary table showing the total number of properties selected and the number of existing sewered properties.

Category	Count
Total Number of Properties Selected	7,171
Existing Sewered	3

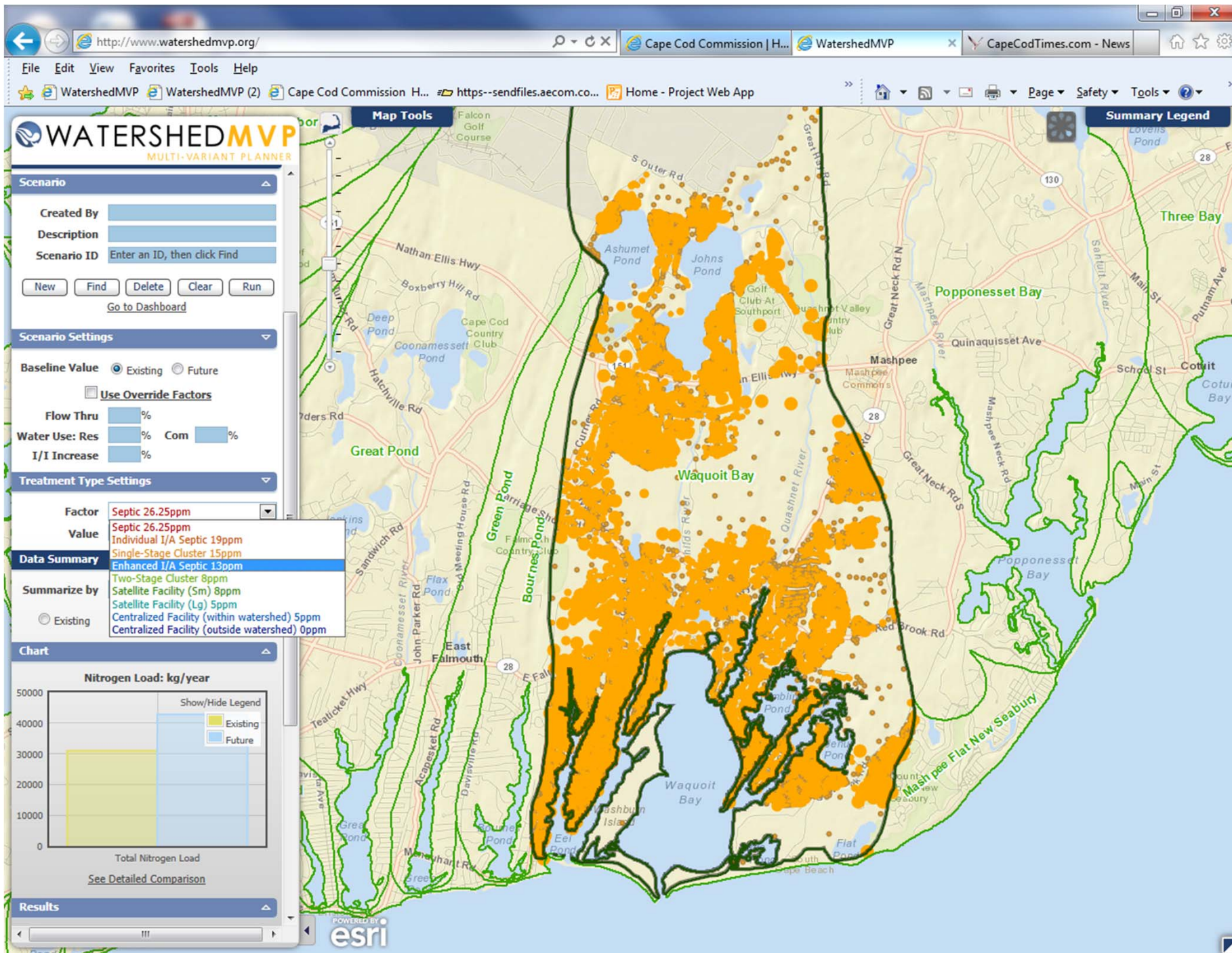
Costs: A dropdown menu for selecting cost categories.

Cape Cod Commission: A dropdown menu for selecting the commission.

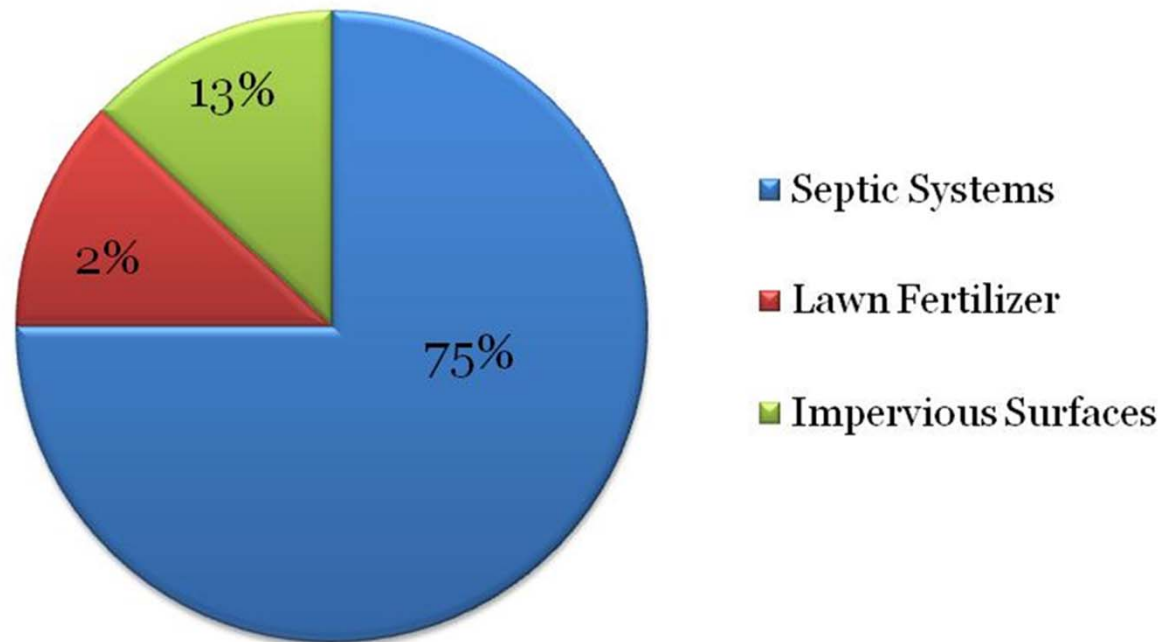
Contact Us: A dropdown menu for selecting contact information.

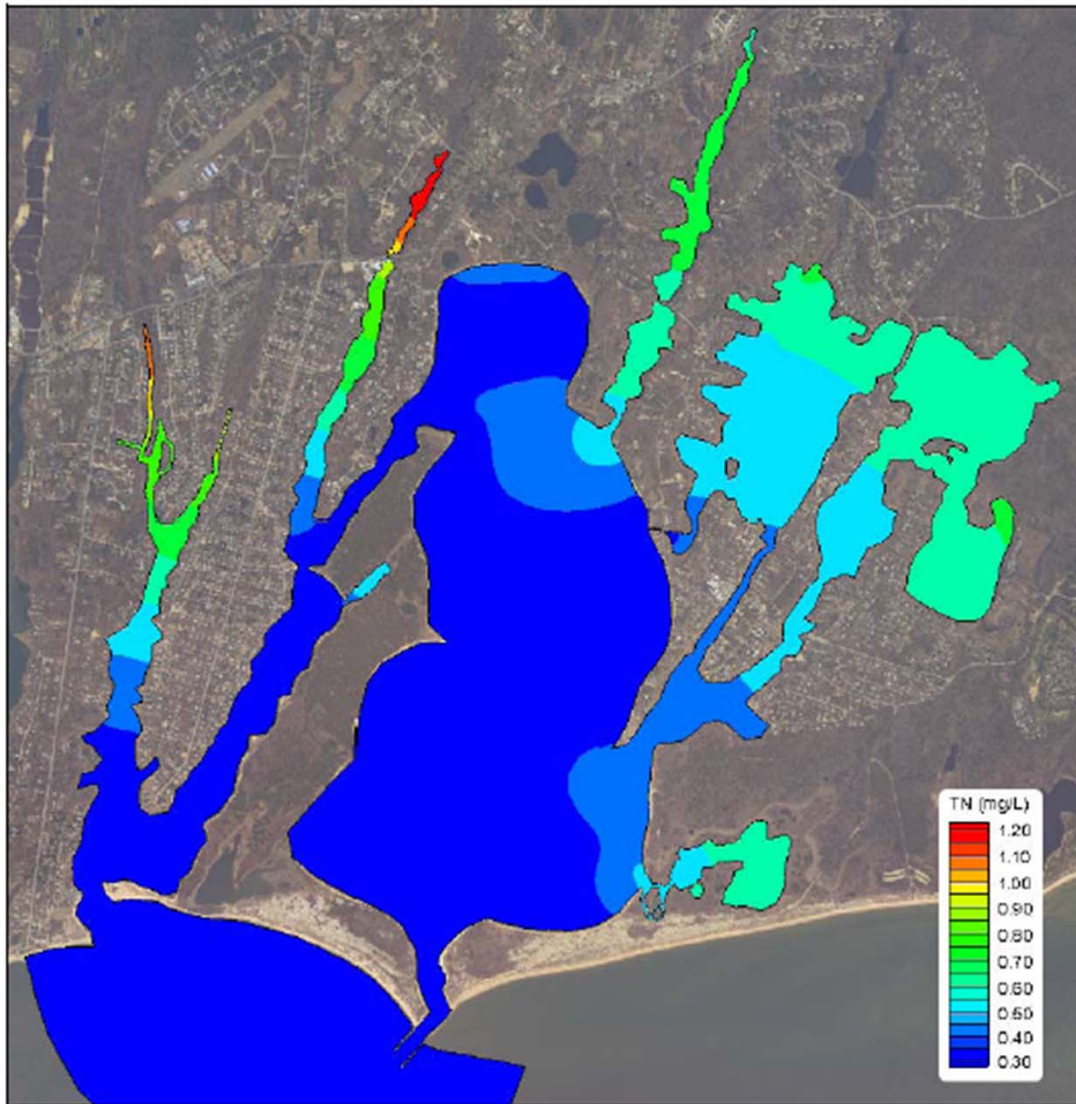
Map Content: The main map area shows a detailed view of Cape Cod with various watersheds outlined in green. The map is overlaid with brown dots representing properties. Key locations labeled include Great Pond, Waquoit Bay, Mashpee, and Popponesset Bay. Major roads like Route 1 and Route 28 are visible.

Powered by: The Esri logo is visible in the bottom left corner.



Waquoit Bay Controllable Nitrogen Loads





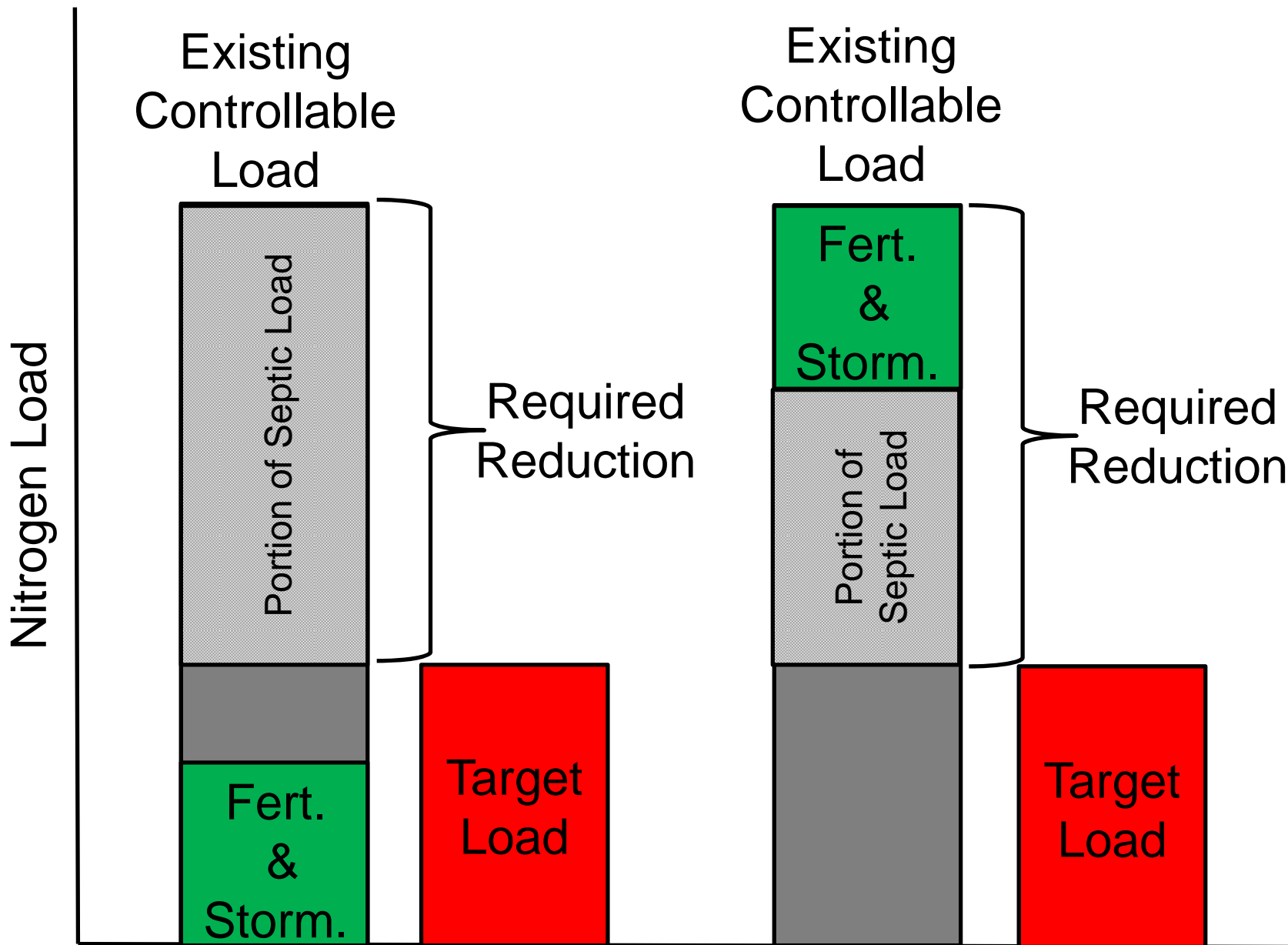
Contour plots of **average total nitrogen concentrations** from results of the present conditions loading scenario, for the Waquoit Bay system.

(Source: MEP 2012)

Present Conditions: Waquoit Bay

Aggregate Percent removals Septic and Total

Total Nitrogen Removal Required	53.4%
Septic Nitrogen Removal Required	75%



IA Entire Watershed

WATERSHED MVP

Multi-Variant Planner

Scenario

Created By: JS
 Description: Waquoit Book End
 Scenario ID: 499 - 9/23/2013 3:56:46 PM

Buttons: New, Find, Delete, Clear, Run

Link: <http://www.watershedmvp.org/Default.aspx?s>
 Go to Dashboard

Scenario Settings

Baseline Value: Existing Future

Use Override Factors

Flow Thru: %
 Water Use: Res % Com %
 I/I Increase: %

Treatment Type Settings

Factor: Individual I/A Septic 19ppm
 Value: 19.00 ppm

Data Summary

Summarize by: Nitrogen Load

Existing Future Scenario

Chart

Nitrogen Load: kg/year

Total Nitrogen Load

See Detailed Comparison

Map Tools: Map Navigation, Identify, Draw a Polygon, Add/Remove Selection

Summary Legend

Results

Total Number of Properties Selected	7,171
Existing Sewered	3
Total Scenario Cost	\$283,277,850.00
Cost/lb of Nitrogen Removed	\$1,104.00

Costs

Show: Annual Cost

Annual Costs

Annual Cost (Total: \$17,967,000.00)

See Detailed Comparison

Total Cost	\$17,967,000.00
O&M Cost	\$8,948,000.00
Capital Cost	\$9,019,000.00

30% Removal

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Centralized Treatment Inside Watershed

WATERSHED MVP

MULTI-VARIANT PLANNER

Planning Scenarios

Scenario

Created By JS

Description Waquoit Book End

Scenario ID 499 - 9/23/2013 4:10:41 PM

New Find Delete Clear Run

Link: <http://www.watershedmvp.org/Default.aspx?s>

Go to Dashboard

Scenario Settings

Baseline Value Existing Future

Use Override Factors

Flow Thru %

Water Use: Res % Com %

I/I Increase %

Treatment Type Settings

Factor Centralized Facility (within watr)

Value 5.00 ppm

Data Summary

Summarize by Nitrogen Load

Existing Future Scenario

Chart

Nitrogen Load: kg/year

Total Nitrogen Load

See Detailed Comparison

Map Tools

- Map Navigation
- Identify
- Draw a Polygon
- Add/Remove Selection

Summary Legend

Results

Total Number of Properties Selected	7,171
Existing Sewered	3
Total Scenario Cost	\$385,932,181.00
Cost/lb of Nitrogen Removed	\$556.00

Costs

Show Annual Cost

Annual Costs

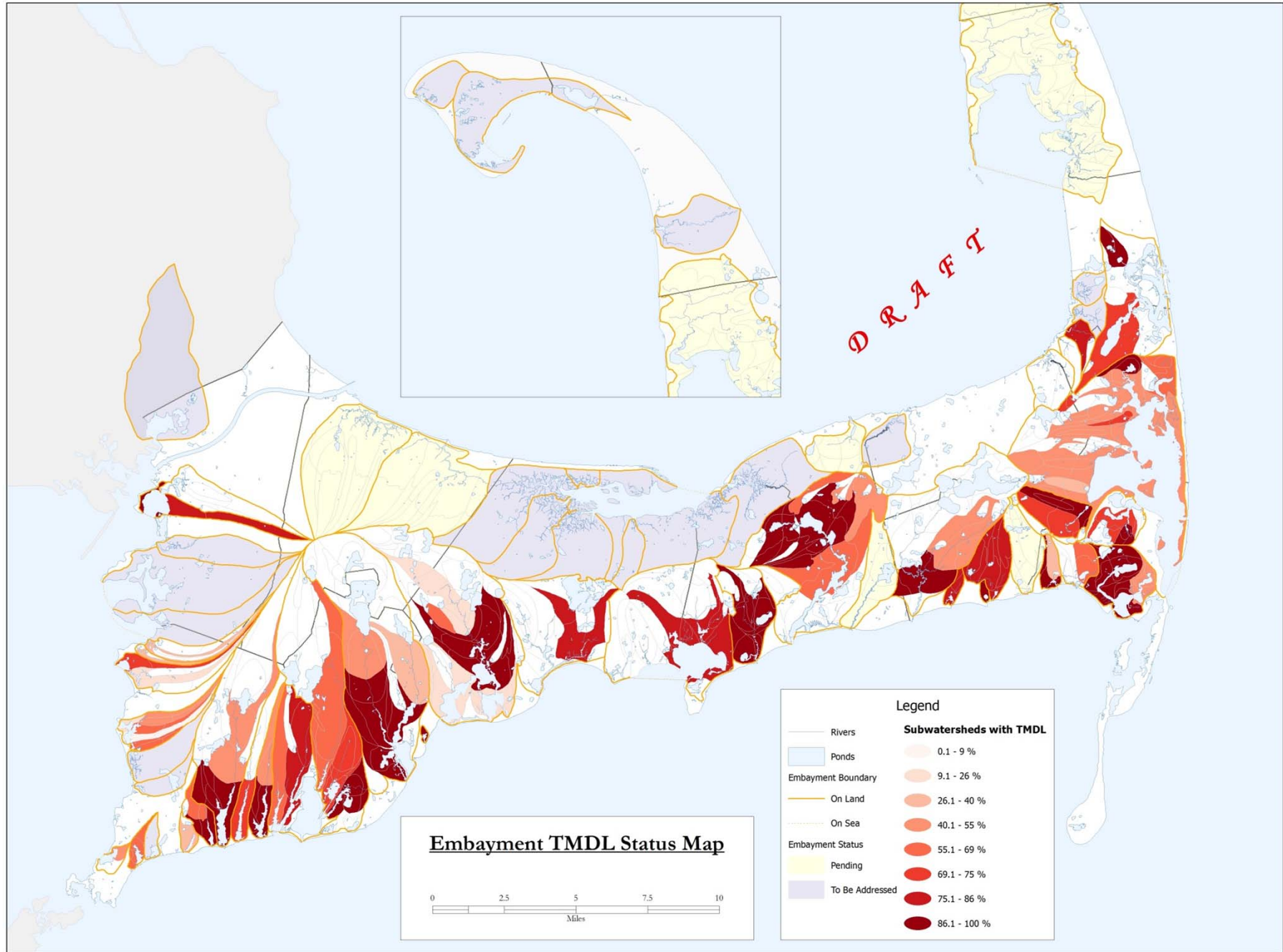
Annual Cost (Total: \$20,847,000.00)

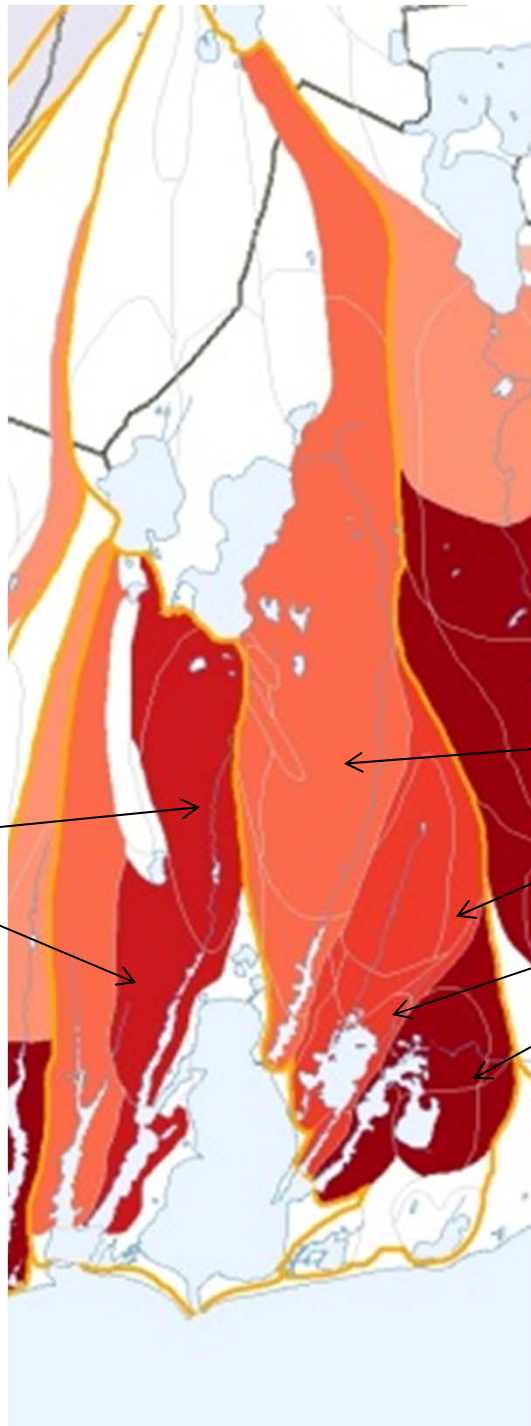
See Detailed Comparison

Total Cost	\$20,847,000.00
O&M Cost	\$1,694,000.00
Capital Cost	\$19,153,000.00

81% Removal

POWERED BY





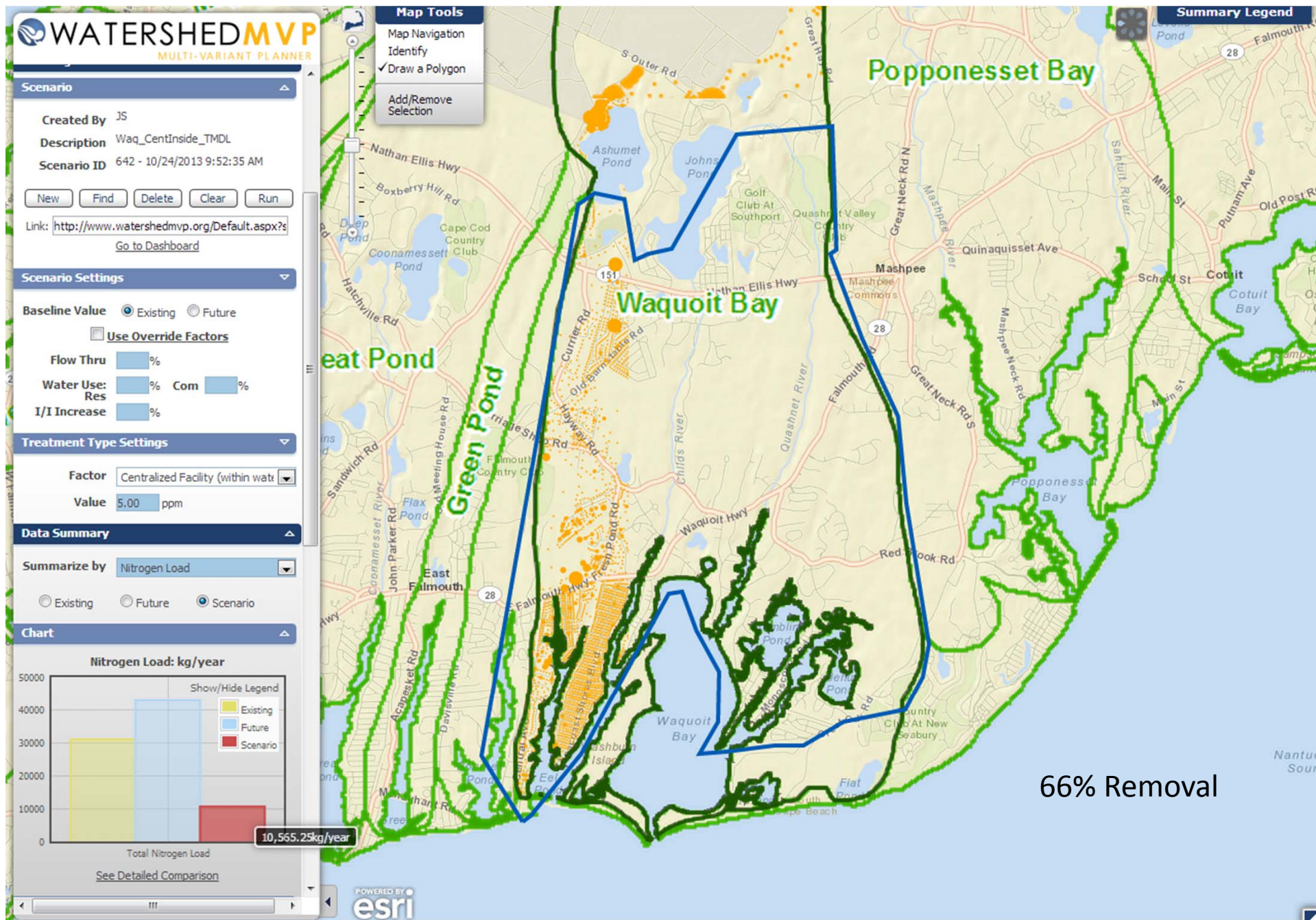
Targeted Septic Removal

80%

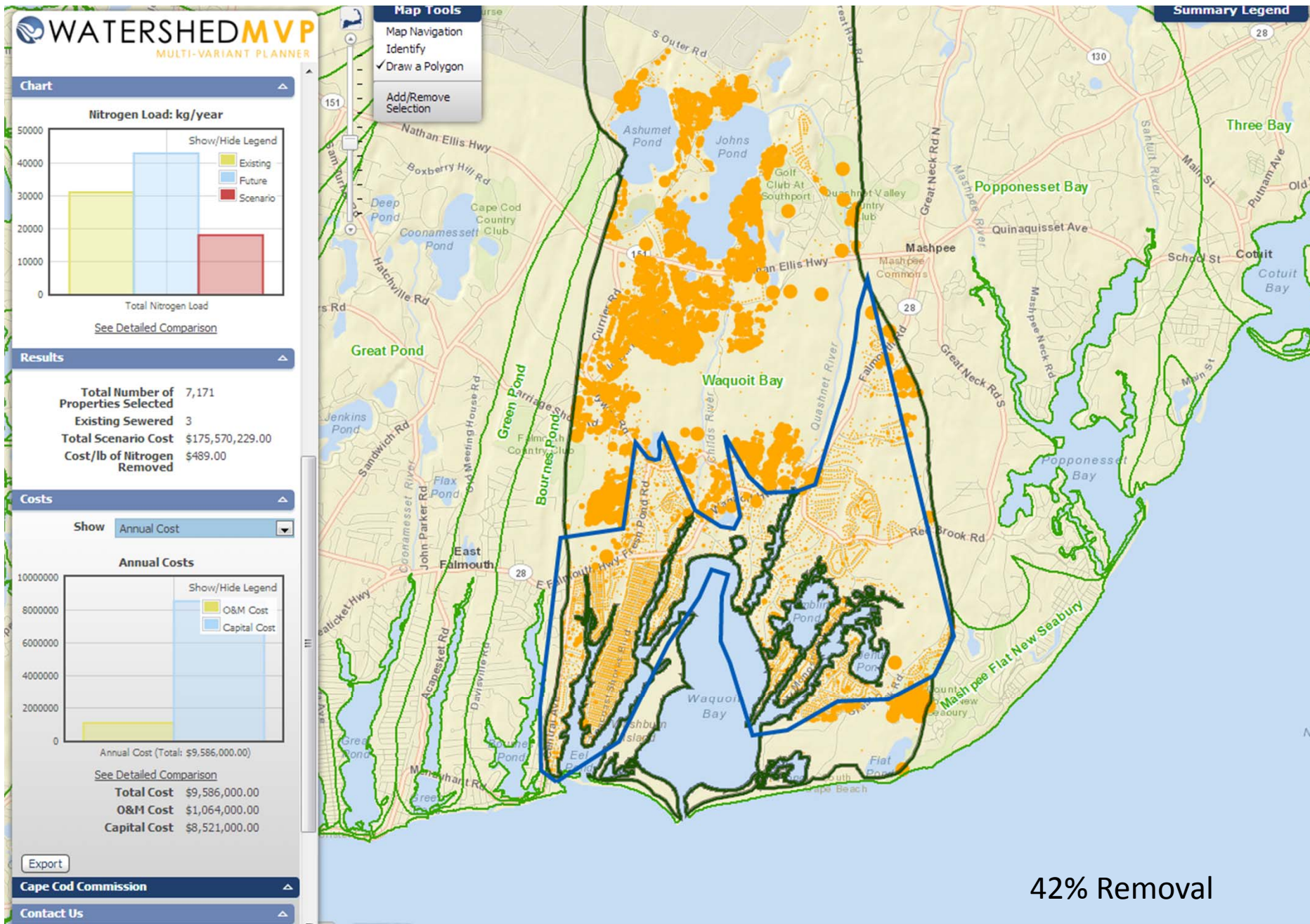
67%

100%

Waquoit Scenario #1 – Centralized Inside Watershed for TMDL Compliance

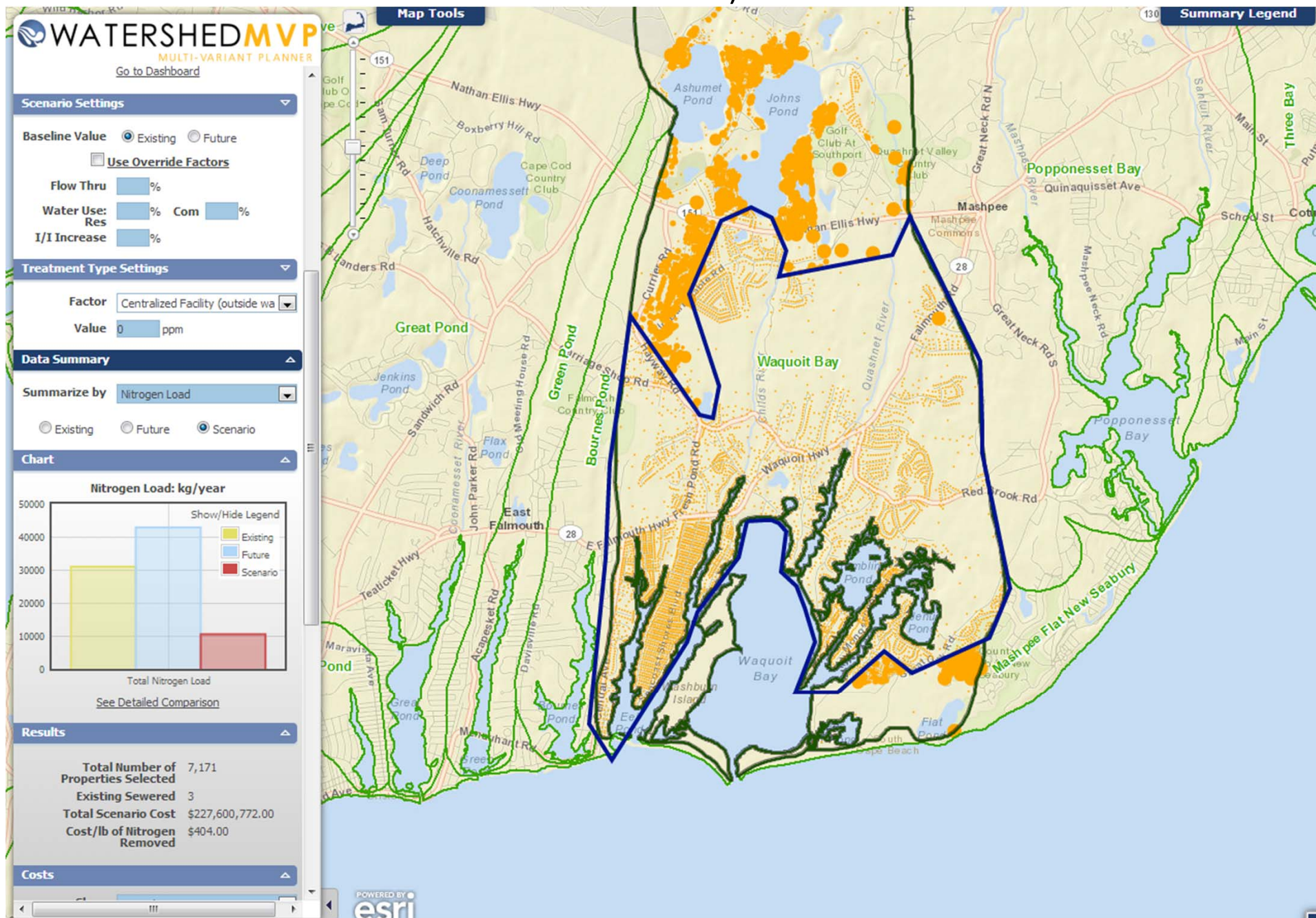


Waquoit Scenario #1 – Fert/Storm 50 % Reduction Centralized Inside Watershed for TMDL Compliance (Upper Sheds Removed)

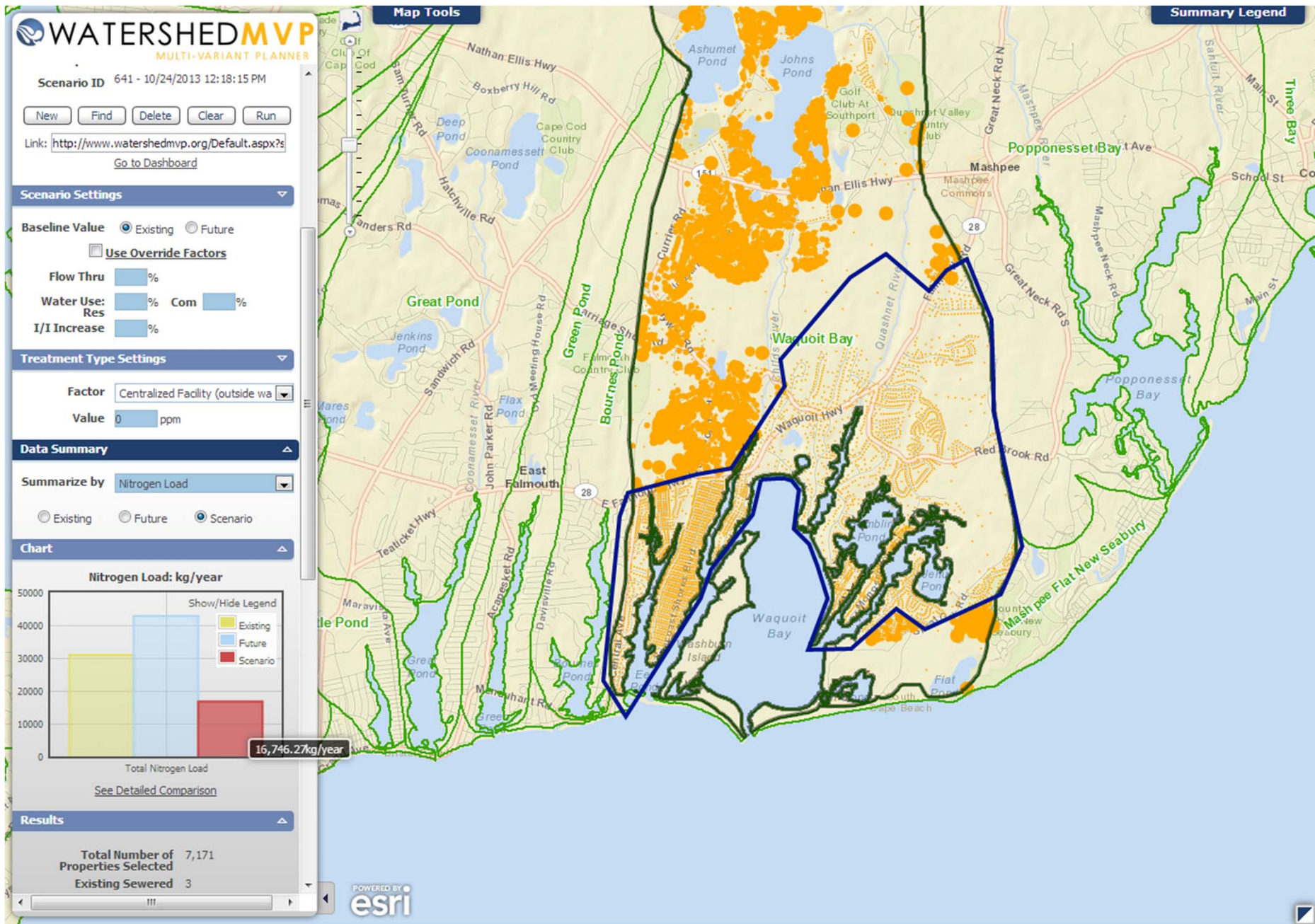


42% Removal

Waquoit Scenario #1 – Centralized Outside Watershed for TMDL Compliance (Upper Sheds Removed)



Waquoit Scenario #1 – Fert/Storm 50 % Reduction Centralized Outside Watershed for TMDL Compliance (Upper Sheds Removed)



Waquoit Scenarios Achieving TMDL Compliance			
Scenario Description	Total Cost Millions	Percent Septic Removal	Sewered Wastewater Flow (1000 g/day)
Total Watershed IA @ 19 ppm	\$385	31	914
Total Watershed Centralized inside	\$391	81	914
Centralized Inside Treatment (5 ppm)	\$291	T-66	667
Fert/Storm Centralized Inside Treatment (5 ppm)	\$176	T-42	417