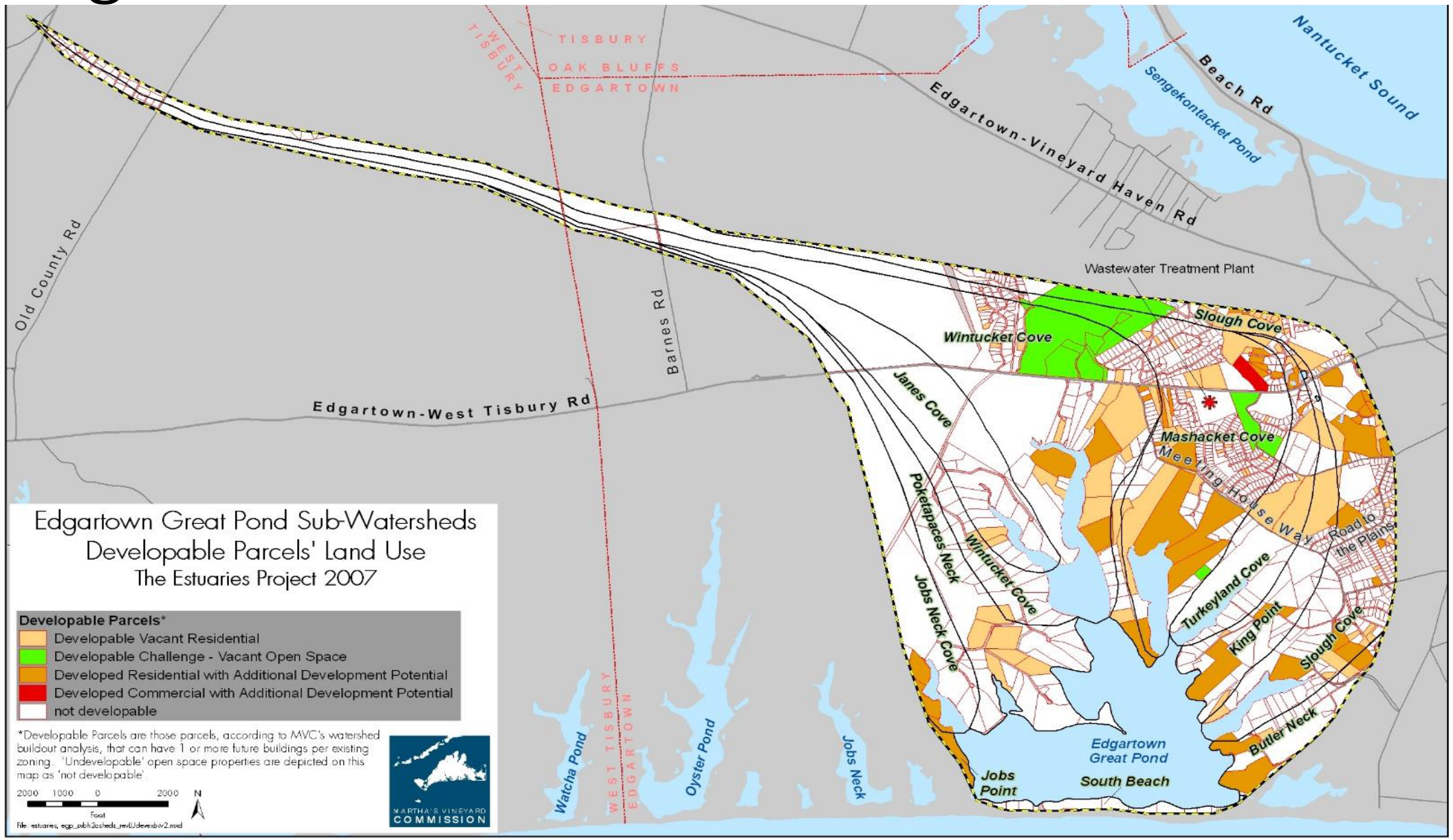
A Watershed Nitrogen Mitigation Plan

Implementation to Meet a TMDL

Edgartown Great Pond and Watershed



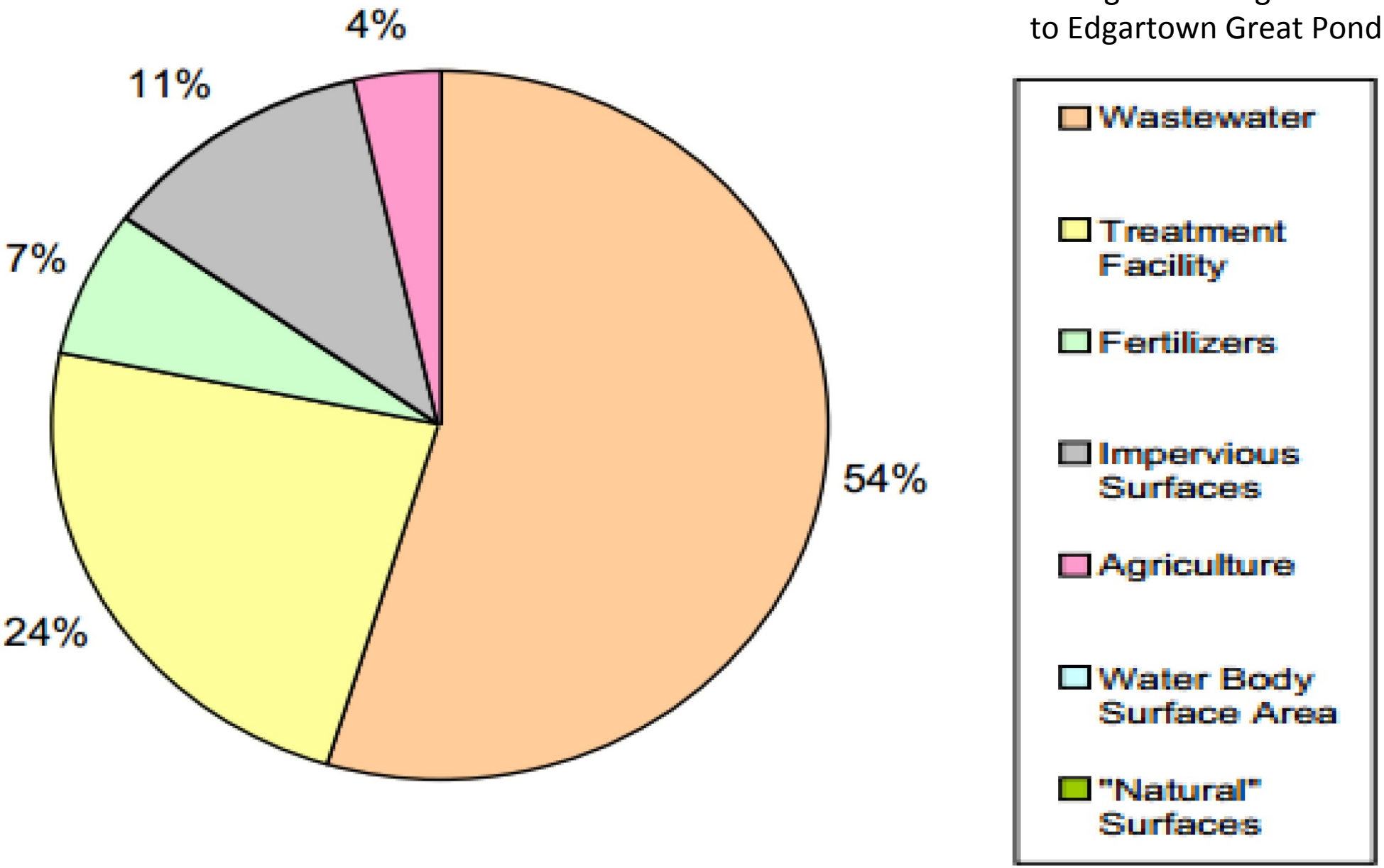
Edgartown Great Pond

- 1. Pond impacted by development-algae and loss of eelgrass, decline of shellfish.
- 2. Lawsuit blames 1995 upgraded Facility for importing nitrogen from outside the watershed.
- 3. Town agrees to help fund MEP study to be issued in 2004.
- 4. 1999 Martha's Vineyard Commission study leads to **Special condition (g)** added to Discharge Permit of 2004.

MVC recommendations

- 1. Sewer in watershed in suitable areas
- 2. Regular pond openings and dredging
- 3. Re-establishment of shellfish and historic herring runs
- 4. Fertilizer limits, lawn limits, shoreline setbacks.
- 5. Alternative systems in more sparsely settled areas-*More on that later.*

Nitrogen Loading Factors
to Edgartown Great Pond



Special Condition (g) filed with DEP 1/26/2004

- 1. Wastewater Commission agrees to set an Operational Goal of <5 mg/L Total Nitrogen
- 2. Commission agrees to retain the plant capacity to remove 300 septics from the watershed.

- 300 x 4BR x 110 gal.=132,000 gal.
- 300 x 7BR x 110 gal.=231,000 gal.

MEP Report issued 2008

1. Lawsuit fades away-New Facility effluent plume actually diluting watershed N.

2. Edgartown Meadows low-pressure sewer starts-109 septics eligible to be removed as Town water goes in to address groundwater contamination.

3. Pumps are free if connection is done by June 2009.

4. Surprising number of residents decline-about 70 tie in.

The Low Pressure Sewer Option in Retrospect

- 1. The Good: initial cost, minimal disruption, gravity issues in flat glacial outwash plain avoided

- 2. The Problematic: pump service in a hard to reach location, and the case for the Continuity of Service argument.

- 3. The Bad: eventual Capital Replacement cost of pumps.

The Slowing of the Process and its Effects

- 1. Underutilization of the force mains.
- 2. The Bedroom Regs of 2009 and the New American Dream House.
- 3. The Capacity Set-aside and negotiating flow from outside the watershed.
- "A residence outside the watershed imports 7mg. of N, a residence inside the watershed removes 35 mg. of N."

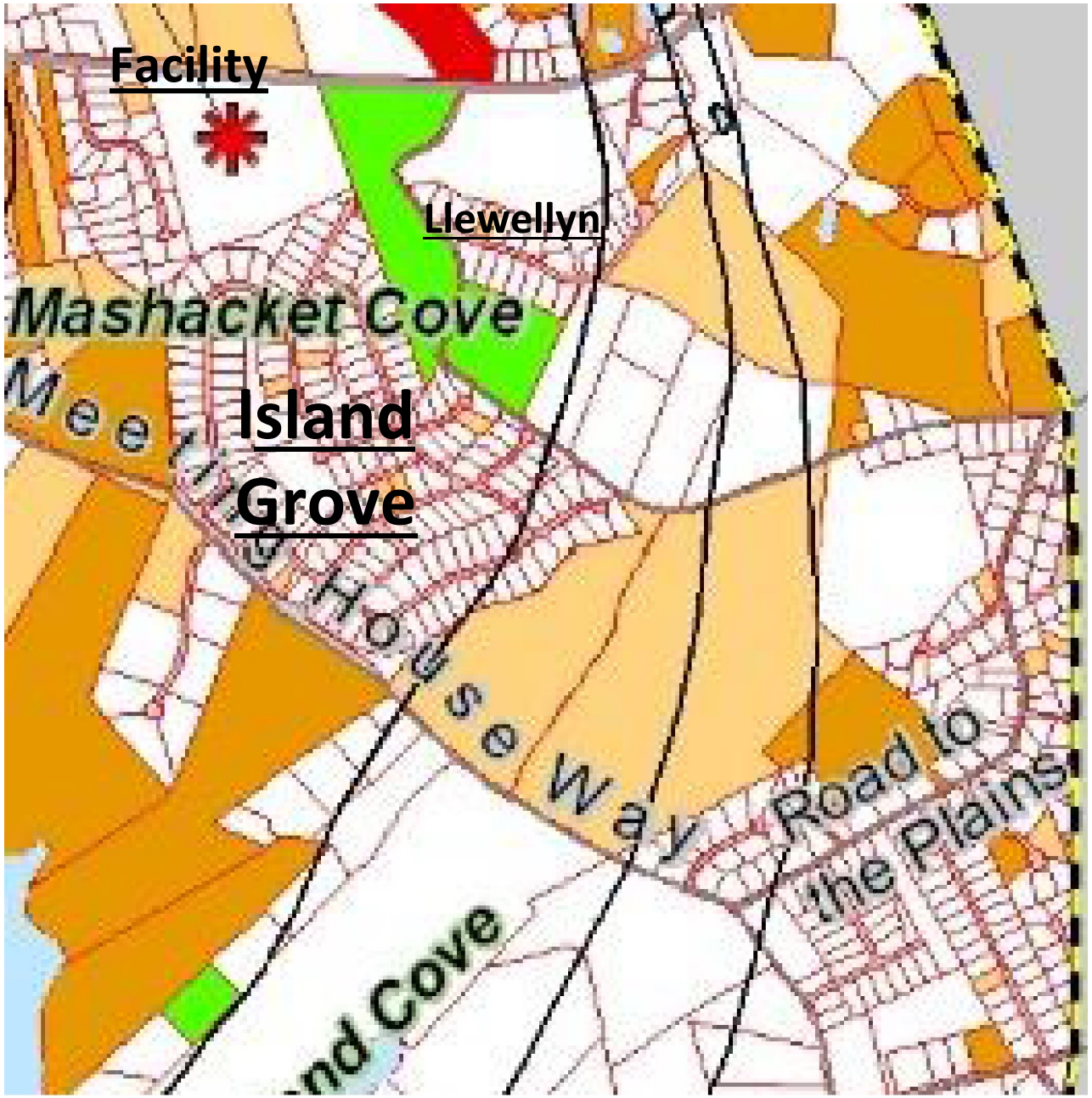
4. The Field Club trade-off: immediate 25 lots outside for 15 lots inside the watershed, plus future 300+ at Island Grove.

Island Grove Project

1. Initial mitigation: 60 BR/15 lots/6,600 gpd.
2. Island Grove: 600 BR/150 lots/66,000 gpd.
3. Road to the Plains: 540 BR/ 135 lots/ 59,400 gpd.
4. Llewellyn Way: 100 BR/25 lots/11,000 gpd
5. Town project: 40 BR/10 lots/4,400 gpd.

Total: 1340 BR/335 lots/ 147,400 gpd.

THESE ARE ALL LOW PRESSURE GRINDER PUMPS.....



Other programs

- 1. Dredging to increase circulation, and regular pond openings.
- 2. Oyster program, restoration of Crackatuxet herring run.
- 3. New Fertilizer Regulations.
- 4. the Alternative systems option:

These systems have not proven themselves effective in seasonally occupied residences. Do we continue to endorse this option as a way to have large parcel owners "have skin in the game"?

Things to think about while formulating your plan.

Plan feature

a. Geographically define specific Nitrogen Mitigation zones or districts. Target goals for N reduction should be stated, and growth or size limitations explicitly delineated.

Parcels in thinly settled areas should be contemplated for Alternative Systems, as much to have "skin in the game" with other residents as for their more limited mitigation potential.

b. Bedroom Regulations: 4 BR for first 10,000 sq/ft of land, one additional for each additional 5000 sq/ft, up to a limit of 7 BR. This does not apply to business zone.

Effects:

a. Targets mitigation area, likely project cost, and defines capacity to be reserved for mitigation. Allows for "horse trading" where imported N can be exchanged for financing N removal in the watershed. Such projects help focus parties inside and outside the watershed on a common goal instead of an "us and them" mindset.

b. New connections and associated new construction are scaled to adjacent Title V parcels. Reserved and remaining capacity equitably allocated.

Things to think about.....

Plan feature	Effects
c. Capacity set-asides for N mitigation.	c. Allocates plant capacity between watershed and non-watershed areas. Sets limits of expansion outside the watershed while mitigation plan is implemented. Facilitates proposals for non-watershed development in exchange for mitigation, towards a defined target.
d. Deadline for tie-in in Mitigation areas once infrastructure is in place.	d. The Town and the current users are carrying the freight for non-participants while they realize the enhanced value of sewered property. At some point this must be acknowledged and addressed. There are also issues when pressure sewer is used....

Things to think about.....

Plan feature

e. Pressure Sewer:

Low cost and flexibility.

Basic maintenance by wastewater staff should be contemplated and reflected in overall rates-the Continuity of Service Argument.

Rates for pressure sewer users to contain a Capital Replacement surcharge-or fair warning to owners of consequences of substantial replacement cost.

Effects

e. Initial low cost, but continuing maintenance, service and eventual Capital Replacement Cost-to be borne by who? Unused laterals prone to clogging.

The Continuity of Service Argument:

Sewer customers, gravity and pressure, are all paying at similar rates and pump customers should be able to expect the same Continuity of Service as gravity customers. If your pump fails, the Wastewater Dept. will replace it with a working one immediately, no charge.

Sources:

- "Edgartown Great Pond: Nutrient Loading and Recommended Management Program, 1996-1998" Martha's Vineyard Commission, William M. Wilcox et al. 1999
- "Nutrient Management Study Report Pursuant to Special Condition I(A)(g) of Groundwater Discharge Permit SE #2-24" Edgartown Wastewater Commission. 1999
- "Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Threshold for the Edgartown Great Pond System, Edgartown, MA." Mass. Estuaries Project, SMAST, MADEP. Final Report, December 2008.
- "Ownership of Pressure Sewer Systems "the only thing we have to fear is fear itself" Henry S. Albro, NEWEA, January 29, 2014


QUESTIONS???