



Stormwater Utility District: An option for funding stormwater management in Bristol?

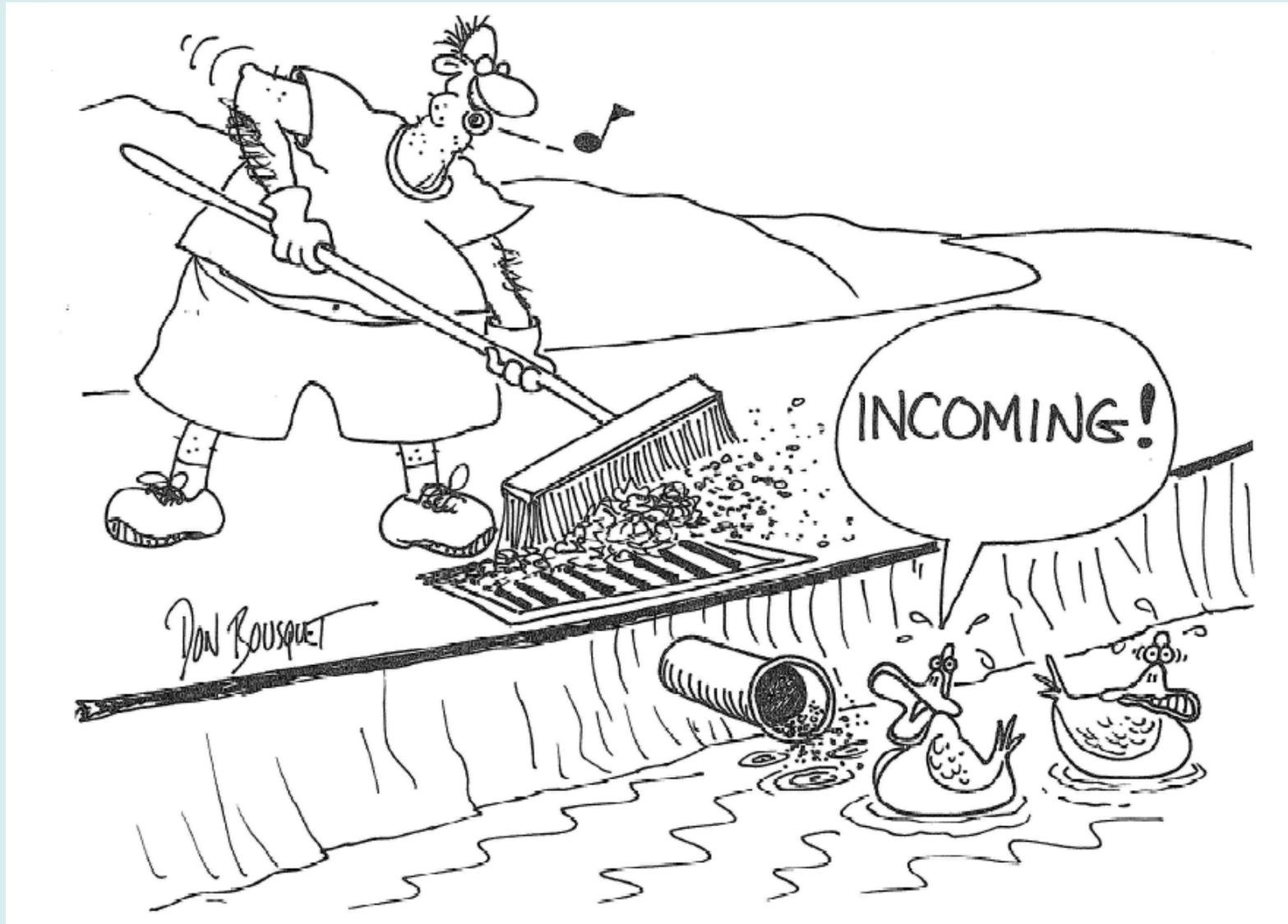
Presentation to the Bristol Town Council
September 19, 2012

Elizabeth Scott, Deputy Chief of Office of Water Resources
RI Department of Environmental Management

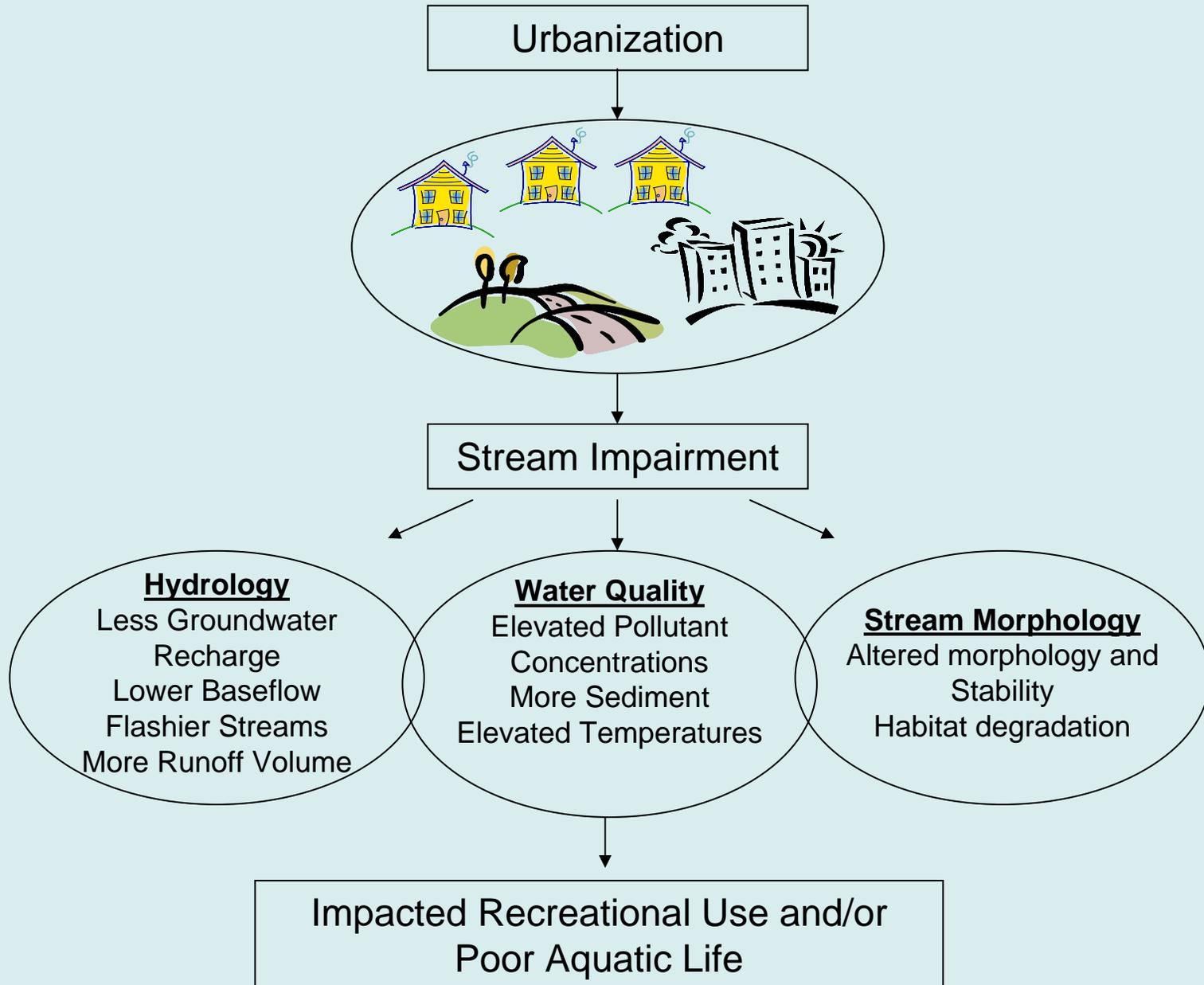
Outline of Presentation

- Describe the problem:
 - flooding,
 - beach closures or other water quality problems,
 - undersized and/or deteriorating infrastructure, and
 - compliance with Phase II permit requirements
- Describe current stormwater management program and future program needs
- Determine current spending to manage stormwater and estimate future program needs
 - Operation and Maintenance costs
 - Capital improvement costs: Drainage projects and Equipment purchases
- Describe Stormwater Utilities
- Describe process to calculate preliminary rate structure using basic rate methodology

What's the problem?



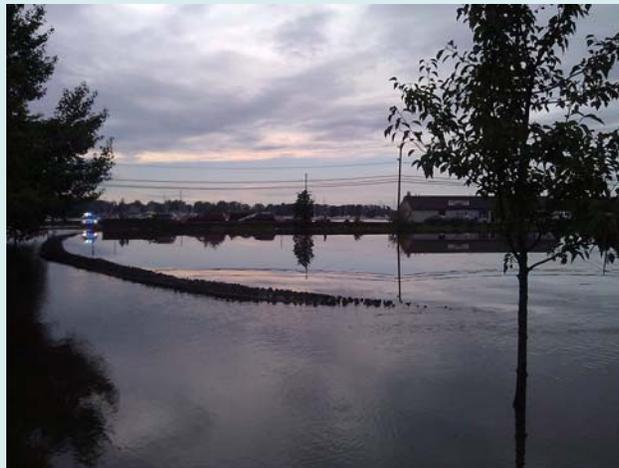
Impervious Cover as Predictor of Water Quality Impairments



Chronic Flooding Problems



09-05-2012 Flooding



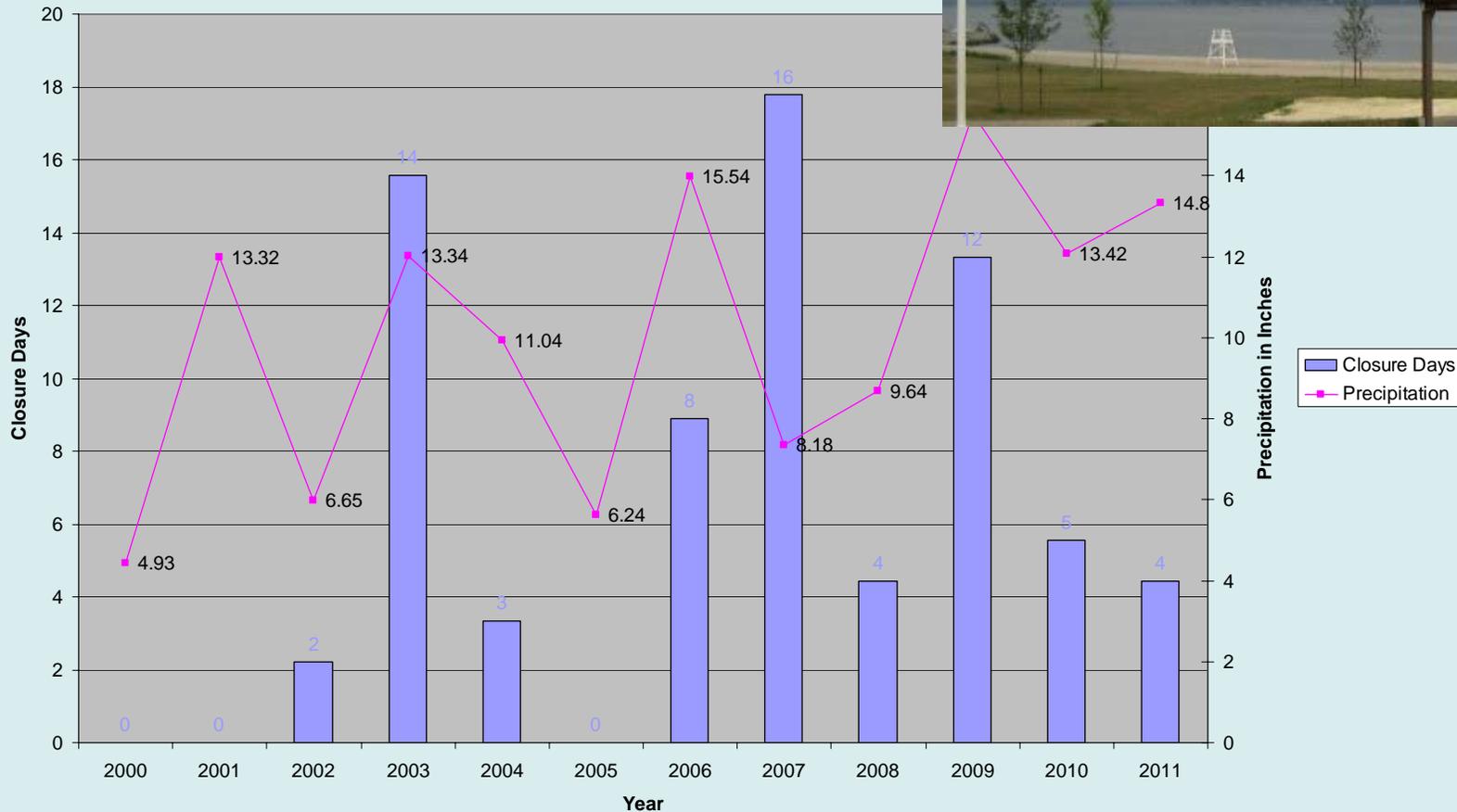
Aging Infrastructure



Wet Weather Beach Closures



Bristol Town Beach Closures



Other Water Quality Problems

- Resolution of town's sanitary sewer overflow (SSO) problems requires drainage infrastructure to be properly operating and maintained.
- Bacteria contamination of Silver Creek and other areas identified by town stormwater sampling results
- Wet weather shellfish growing area closures in Kickemuit River and Mt. Hope Bay, and other sources identified in TMDL document



What is a TMDL?

- The federal Clean Water Act requires states to monitor the quality of their waters and identify those that do not meet WQ standards.
- Impaired waters placed on state's 303(d) list – States required to prepare water quality restoration plan.
- These plans, Total Maximum Daily Loads (TMDL), are water body and pollutant specific and specify the amount of a pollutant that a waterbody can receive and still meet water quality standards.
- TMDLs identify corrective actions necessary to improve water quality and restore designated uses.

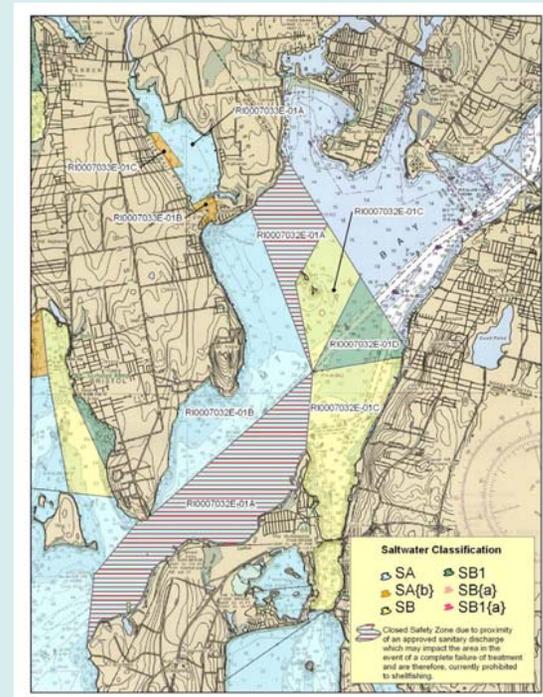
TOTAL MAXIMUM DAILY LOAD STUDY FOR BACTERIA
MOUNT HOPE BAY AND THE KICKEMUIT RIVER ESTUARY



303(d) listings addressed in this study:
Kickemuit River (RI0007033E-01A)
Kickemuit River (RI0007033E-01B)
Kickemuit River (RI0007033E-01C)
Mount Hope Bay (RI0007033E-01A)
Mount Hope Bay (RI0007033E-01B)
Mount Hope Bay (RI0007033E-01C)
Mount Hope Bay (RI0007033E-01D)

State of Rhode Island
Department of Environmental Management
Office of Water Resources
Surface Water Protection Section

Final
January 2010



Priority Sources located in Bristol

Table 4.3 Priority Outfalls located in the Town of Bristol.

Bristol, Rhode Island				Max. Concentration During Dry Weather		Max. Concentration During Wet Weather	
Source ID	Receiving Water	Location	Description	Fecal (fc/100 ml)	Phage (pfu/100 ml)	Fecal (fc/100 ml)	Phage (pfu/100 ml)
17-14	MHB	State boat ramp south of Annawamscutt Dr.	Stream	2,400	29	23,000	4530
17-45	MHB	Roger Williams University	Stream from detention pond	4,300	2270	23,000	2054
17-7	MHB	Bristol Landing Condominiums	Stream	4,600	7	24,000	297
5-1	KR	Kickemuit mouth north of Narrows Rd.	Stream	430	1	2,300	232
17-13	MHB	Viking Dr.	18" culvert	NS	NS	≥24,000	>800
17-15	MHB	Annawamscutt Dr.	36" culvert	23,000	0	93,000	7

MHB=Mount Hope Bay KR=Kickemuit River NS=No Sample

What is Bristol doing to address these problems?



Bristol's Stormwater Management Program

- Town-wide Stormwater Management Program consistent with RIPDES Phase II Permit requirements:
 - Public Education/Involvement
 - Ordinances to control construction site and post construction runoff
 - Detection and Elimination of Illicit Discharges to Storm Drains
 - Dry weather sampling of outfalls 2x during 5 yr permit term
 - GIS Mapping of stormwater structures
 - Pollution Prevention:
 - Street sweeping
 - Annual inspection of all catch basins; cleaning, as necessary



Capital Improvement projects

Drainage improvements at town beach to prevent wet weather closures



Drainage improvements to address chronic flooding and flood related damage

Tanyard Brook flood mitigation project



Ongoing Infrastructure repair/replacement



What more needs to be done?



Ongoing Work

- Continue necessary operation and maintenance to fully comply with all “minimum measures” under Phase II permit requirements
 - Catch basin cleaning and maintenance reactive as opposed to pro-active
 - Projects are predominately reactionary, little preventive or scheduled maintenance of infrastructure
- Because of the interconnection between stormwater & wastewater in resolving sanitary sewer overflow issues, sewer enterprise funds used to address inter-related stormwater issues. Funding needed to address stormwater infrastructure needs identified.
- Continue infrastructure improvement projects to eliminate chronic flooding: Tanyard Brook (State Street Reservoir) and Annawamscutt
- Conduct follow-up sampling & investigation to identify & eliminate sources contributing to elevated bacteria levels in Silver Creek and other town identified areas.
- Prepare TMDL implementation plan and undertake necessary operational enhancements and infrastructure improvements to address stormwater sources contributing to shellfish area closures in Mt. Hope Bay and Kickemuit River

Requirements to restore shellfishing use to Kickemuit River and Mt. Hope Bay

- Prepare TMDL Implementation Plan describing add'l structural and non-structural best management practices necessary to address stormwater sources
 - Eliminate illicit discharges
 - For five priority areas, if problems not resolved by addressing apparent sewage sources, town must address wet weather sources of bacteria
 - Conduct study to identify where and what type of structures can be constructed to reduce runoff volume and/or bacteria concentrations
 - Design and construct structural retrofits beginning with TMDL identified priority outfalls.
 - Revise ordinances to better control stormwater sources of bacteria from new construction and re-development sites.

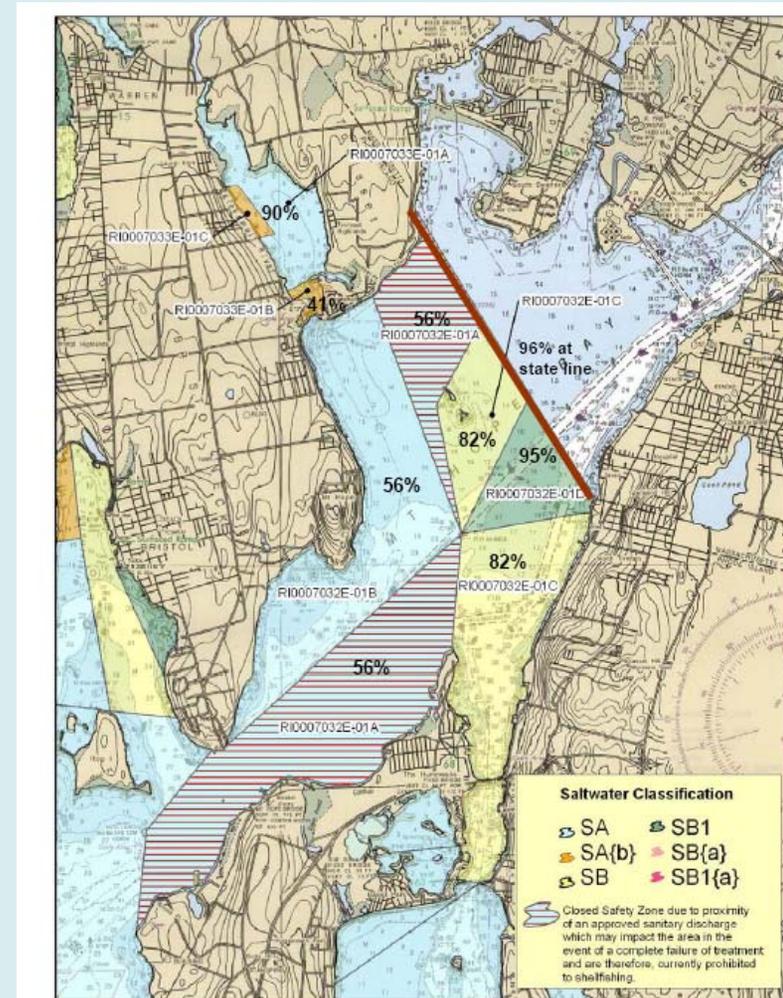


Figure 5.2 Graphical display of required waterbody segment reductions the study area.

What is the cost of managing stormwater ?

Current Cost of Stormwater Management:

Operation & Maintenance:	\$ 520,000
Large Scale Drainage Projects	<u>\$1,000,000</u>
	\$1,520,000

Estimated Future Cost of Stormwater Management:

Operation & Maintenance:	\$ 720,000
Large Scale Drainage Projects:	<u>\$1,500,000</u>
	\$2,220,000

Estimated Funding Gap = \$700,000 annually

What is a stormwater utility?

- A stormwater utility is primarily a revenue generating mechanism that allows municipalities to better manage stormwater by creating a designated fund for stormwater management.
- Like a water or sewer utility, a stormwater utility generates revenue through user fees that are based upon the amount of stormwater generated on a property.
- These fees are assessed by measuring the amount of impervious cover within a parcel, are determined by the financial needs of the municipality and can be adjusted over time to meet changing needs
- Today, over 2,000 stormwater utilities nationwide that either partially or completely fund municipal stormwater services

Rhode Island Stormwater Management and Utility District Act of 2002

- Authorizes cities and towns to adopt ordinances creating stormwater management districts
- Purpose: to eliminate and prevent the contamination of the state's waters, and to operate and maintain existing stormwater conveyance systems.
- Establish a fee system and raise funds for administration and operation of the district.
- The fee system shall be reasonable and equitable so that each contributor of runoff to the system shall pay to the extent to which runoff is contributed
- State properties exempted from fee system



What activities can stormwater utilities fund?

- Operation and maintenance of existing structures
- Retrofitting existing structures to improve water quality and alleviate downstream flooding or erosion
- Preparation of stormwater management plans
- Planning & Engineering
- Site Inspections

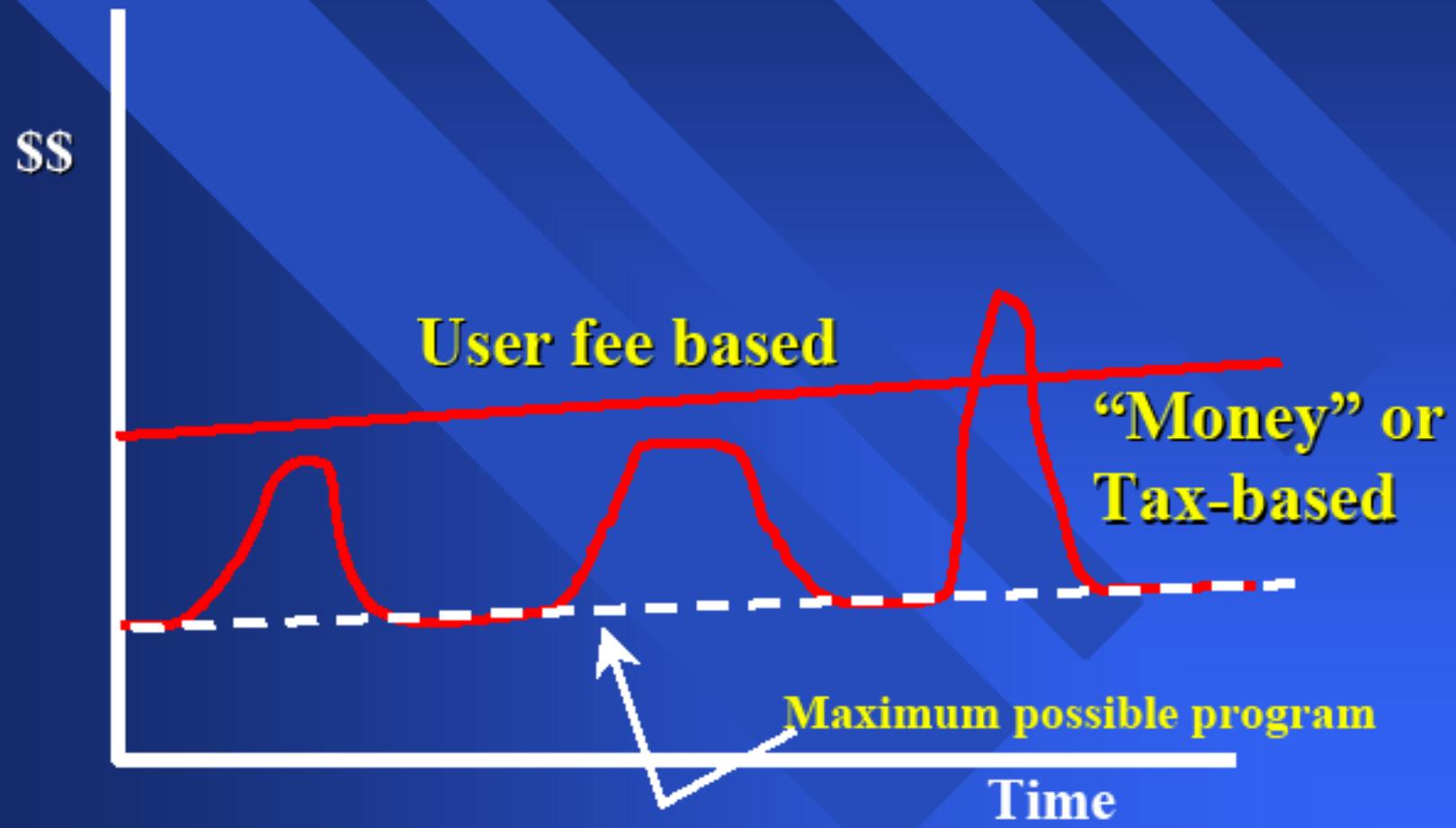


What are benefits of a Stormwater Utility?

- **It is Stable** – it is not as dependent on the vagaries of the annual budgetary process as taxes are.
- **It is Adequate** – the fee is based on a well thought out stormwater program to meet the needs and demands of the community.
- **It is Flexible** – it can adapt to changing program and funding needs over time.
- **It is Equitable** – the cost is borne by the user on the basis of demand placed on the drainage system (and receiving waters).

Stable

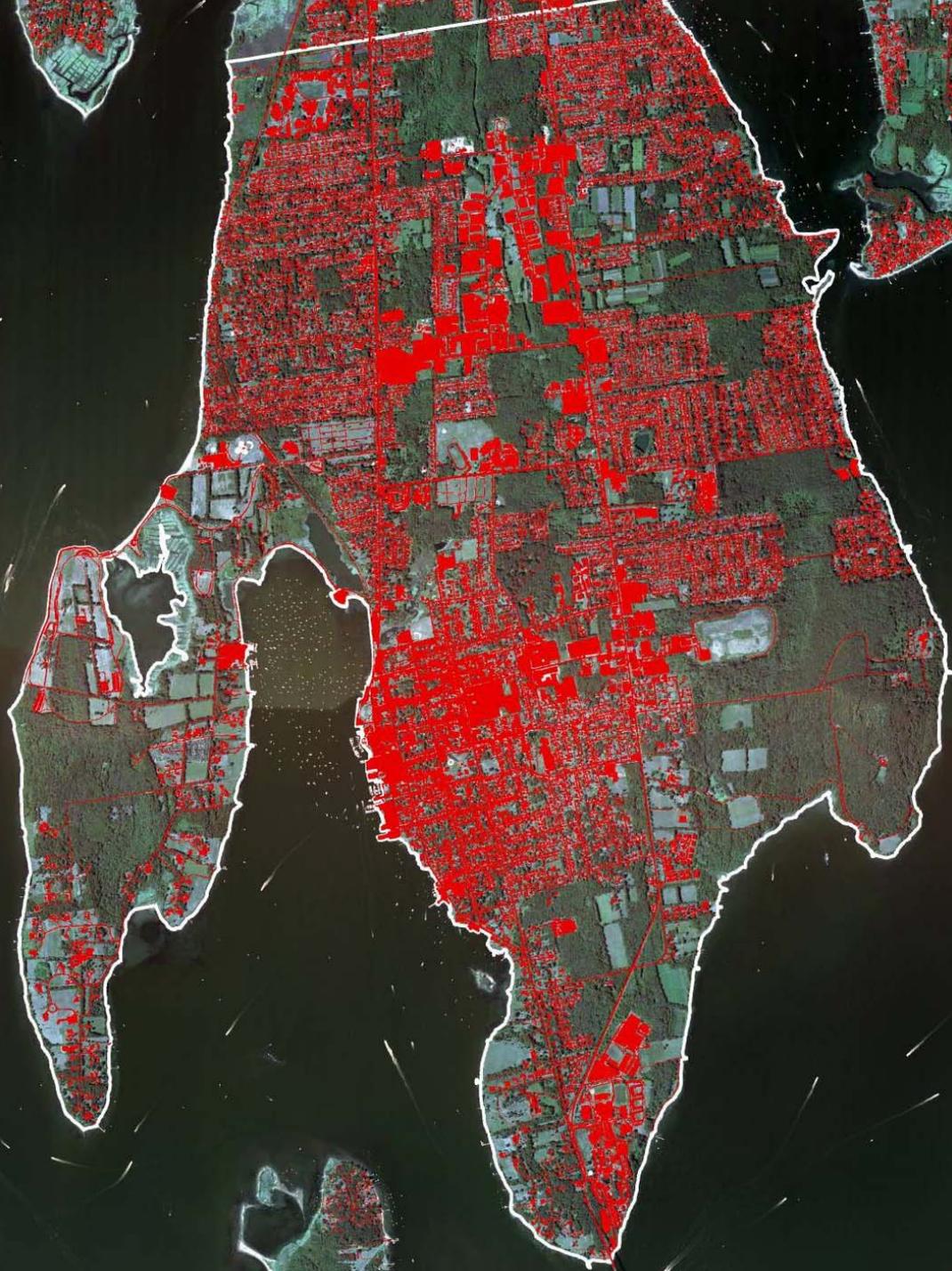
Utility vs. Tax or "Money" Funding



Feasibility Analysis for Bristol

- Assumptions: Town-wide but excludes state property
- Use the Equivalent Residential Unit (median amount of impervious cover in a typical residential parcel) as the billing unit

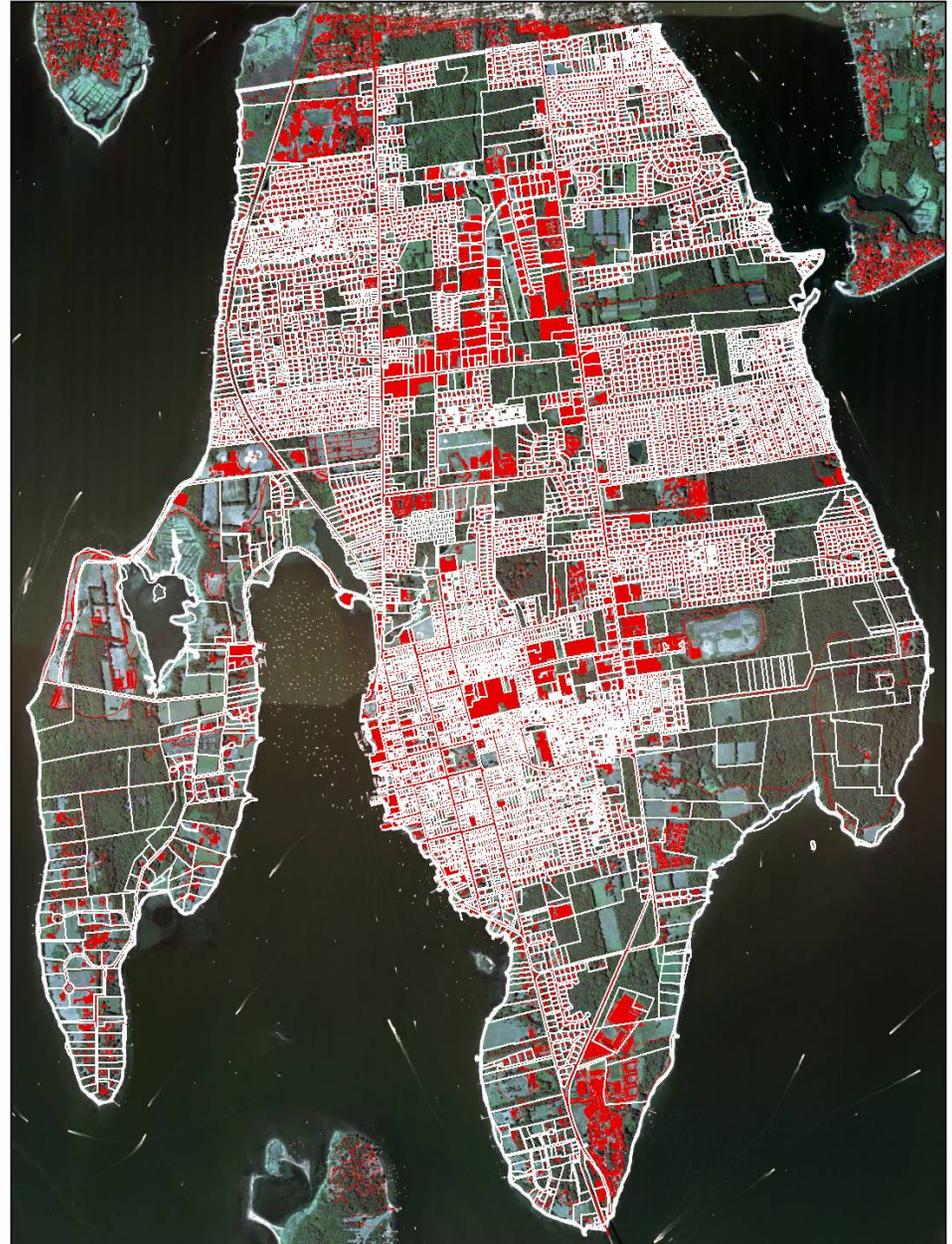




Analyzed satellite
imagery to produce
2011 Impervious
Cover GIS layer

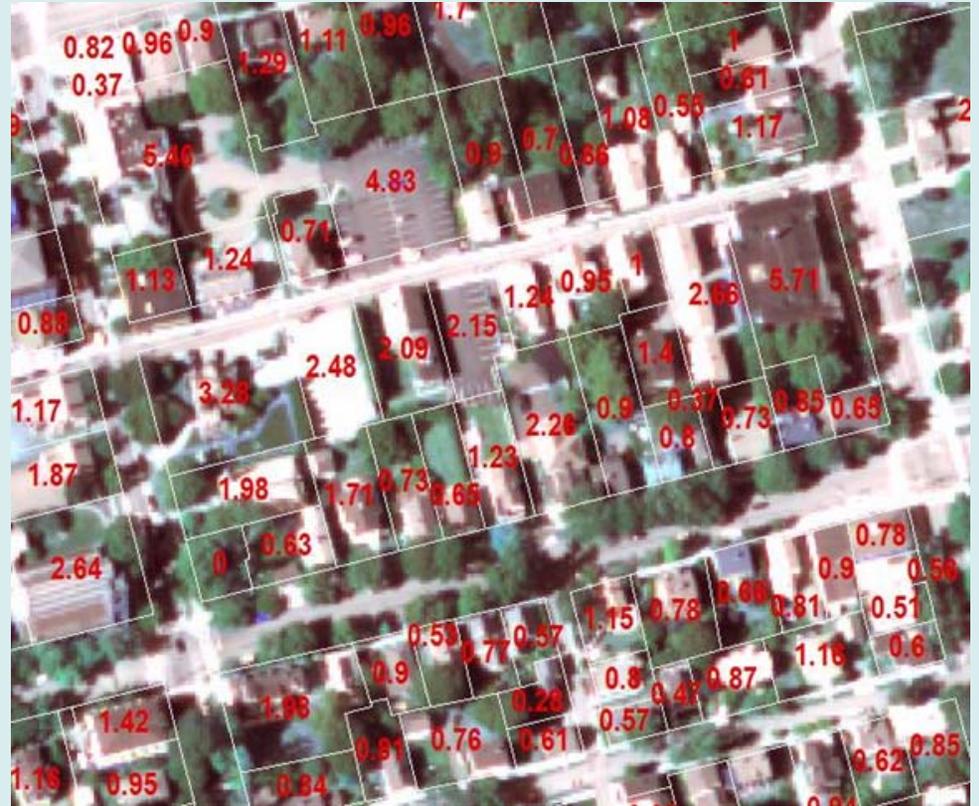
ERU Analysis

- Determined impervious cover of each parcel
- Classified properties:
 - residential (single and other)
 - non-residential
 - non-billable
- Calculated median impervious cover for single family lots town-wide = Equivalent Residential Unit



Results of ERU Analysis

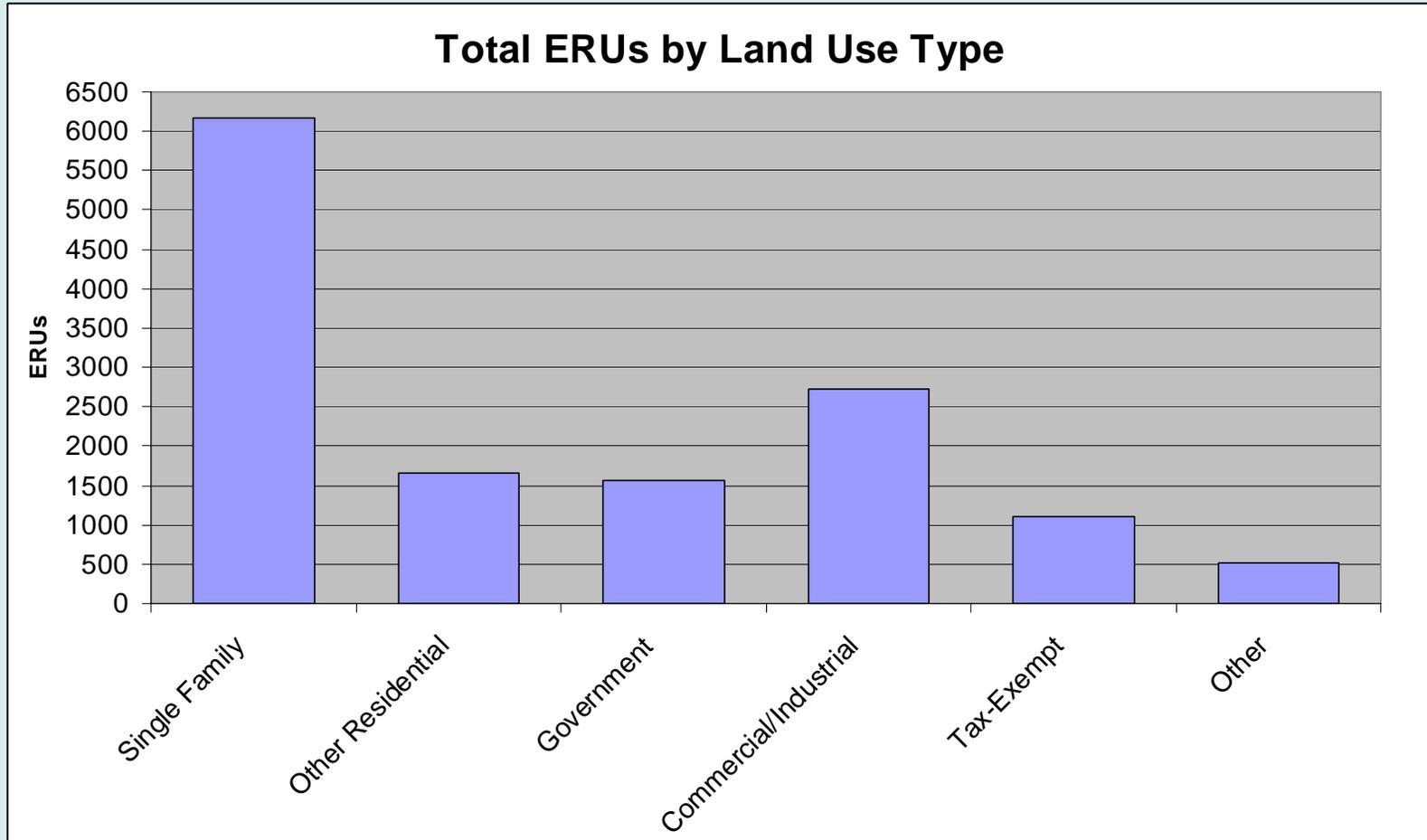
- ERU = 3,391 sq ft
- Average Residential: 1 ERU
- Average “Other” property: 5.3 ERUs
- Total # of ERUs = 13,765



Total # of ERUs by Major Property Type

Single Family	Other Residential	Non-Residential	TOTAL ERUs
6,164	1,657	5,944	13,765

Distribution of ERUs by Land Use Type



Preliminary Analysis of Rates

- Rate Structure: Equitable System
 - Flat rate assesses the same fee per ERU to every property, residential or otherwise
- Evaluated rates to support current expenditures and estimated future needs.

Total Desired Revenue	\$1.5 M/yr	\$2.2 M/yr
Stormwater utility fee for typical homeowner (1ERU)	\$108.97/yr or \$9.08/mo	\$160.88/yr or \$13.41/mo
Stormwater utility fee for average “other” property (5.3 ERU)	\$577.54/yr or \$48.13/mo	\$852.66/yr or \$71.06/mo

Credit System

- Offset for on-site management of stormwater
- Increasingly important in stormwater utilities to create incentives for property owners
- Drive physical change in how stormwater is managed on the ground – reduces town's burden

Reasons to give further consideration to a stormwater utility

- Significant strides made in establishing stormwater management program and addressing stormwater related issues but considerable work remains to be done to protect public health, preserve residents' quality of life, and ensure compliance with applicable regulations.
 - Resolution of sanitary sewer overflow problems requires properly functioning drainage infrastructure
 - Timely completion of on-going drainage improvement projects to eliminate chronic flooding problems and replace deteriorated and/or undersized drains
 - Resolution of wet weather closures at Bristol Town Beach & water quality concerns in other surface waters including Mt Hope Bay and Kickemuit River
 - Continuation of necessary operation and maintenance activities to comply with Phase II stormwater permit

Reasons to give further consideration to a stormwater utility

- A funding gap of approximately \$700,000 to establish more “robust” stormwater management program
- A dedicated funding source ensures adequate funding to implement improvements in operations and to establish more predictable schedule of capital infrastructure improvements
- Establishing a stormwater utility would make town eligible for outside revenue sources which require revenue bonding authority.
- Including a credit system drives private investment by creating an incentive for property owners to manage stormwater by treating it where it is generated, thus reducing burden on town drainage systems
- A utility is a more equitable approach to finance stormwater costs than property tax – shifts burden off residential tax payers. Properties contributing to the problem pay more proportional share - “the more you pave, the more you pay”

Questions and Discussion

