





Route 1 Falmouth Commercial District

Stormwater Planning for Long-Term Sustainable Growth

This presentation was prepared by the Town of Falmouth under award NOAA CZM NA10NOS4190188 to the Maine Coastal Program from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration or the Department of Commerce.



Study Partners

- Town of Falmouth
- Falmouth Conservation Commission
- Casco Bay Estuary Partnership
- Maine Department of Transportation

Granting Agency: Grant Amount: Maine Coastal Program \$50,000

Project Consultant: Woodard & Curran



How did this Project come about?

Route 1 has been discussed since 2002. Current work has two components:

- Zoning Town land use rules
- Infrastructure -Town financial investment
 - o Traffic
 - Utilities, incl. stormwater management
 - Streetscape/Landscaping

February 2012: Maine Competitive Coastal Community Grant Program



Stormwater Project Goals

Through a collaborative partnership between State, Town and private property owners:

- 1. Identify opportunities for shared runoff management versus conventional approach, i.e. where each property owner manages stormwater runoff on their own property.
- 2. Evaluate the potential cost savings and reduce permitting requirements for managing stormwater runoff in the project area.
- 3. Enhance capacity for future commercial growth.
- 4. Create roadmap to better water quality in Mill Creek, Mussel Cove and Casco Bay.



What About Drainage?

- Drainage is <u>not</u> the sewer we often think of, but it *is* an underground system of pipes that maintains our urban built environment.
 - Drainage systems convey fallen rainwater, called stormwater, from paved streets, parking lots, our lawns and basements (via sump pump) to prevent pooling and flooding.



What About Drainage?







Drainage Prevents Damage

Stormwater is drained away to prevent expensive damage to our infrastructure.

basementsImage: crackingstreetsImage: floodingbeneath roadwaysImage: heaving





Polluted Stormwater

- Unfortunately, our drainage systems also carry pollutants like oil, fertilizers, sediment and trash.
- Rainwater that falls on paved streets, lawns, parking lots and sidewalks becomes <u>polluted stormwater</u>.





Stormwater & Maine Water Pollution

- So, polluted stormwater from our neighborhoods runs directly to streams and water bodies, including the Casco Bay.
- Did You Know: polluted stormwater runoff is the largest source of water quality problems for Maine's waters?

Water chemistry data summer 1996. Parameters (unit) Upstream (250) Ownstream (257) Criteria Origination (250) Output (2	
Water chemistry data summer 1996 Water Quality Criteria Parameters (unit) Upstream (256) Downstream (257) Criteria tosphorus (mg/L) 0.012 0.140 0.031 spended Solids (mg/L) 5.5 2.5 NC metals MD 0.5 ND 0.5 0.64 0.32 upper (ug/L) 2.8 34 NC 1.000 000 opper (ug/L) 2.8 040 NC 1.000 000	
Water chemistry data summer 1996. Water Quanty Criteria Water Quanty Criteria Parameters (unit) Upstream (250) Downstream (257) Criteria usphorus (mg/L) 0.012 0.140 0.031 ¹ uspended Solids (mg/L) 5.5 NC metals ND 0.5 0.64 0.32 ummun (ug/L) 2.8 3.4 NC 1.000 upper (ug/L) 2.80 610 NC 1.000 007 121 125 Nr upper (ug/L) 2.80 510 NC 10.52 0.92 121 125 Nr upper (ug/L) 2.80 2.99 2711 125 125 Nr	
Parameters (unit) Upstream (256) Downstream Close hosphorus (mg/L) 0.012 0.140 NC NC spended Solids (mg/L) 5.5 2.5 NC NC metals ND 0.5 ND 0.5 0.64 0.32	
Parameters (cm/L) 0.012 0.140 NC sspended Solids (mg/L) 5.5 2.5 NC metals MD 0.5 ND 0.5 0.64 0.32 idmium (ug/L) 2.8 3.4 3.89 2.99 pper (ug/L) 2.8 3.4 NC 1.000 on (ug/L) 2.8 3.4 NC 1.000 on (ug/L) 2.80 610 NC 1.000 on (ug/L) 2.80 2.99 27.1 1.000	
Supported Solids (mg/L) 5.5 2.3 CNC ² CCC ² Same 15 July Same 15 July Ware Quality Cr metals ND 0.5 ND 0.5 0.64 0.32 0.1 0.4 0.1 NC speer (ug/L) 2.8 3.4 NC 1.000 0.7 0.1 NC NC 0.001 NC 0.01 NC 0.01 <t< td=""><td>-</td></t<>	-
Inspended Solids (mgr17) CMC ² CCMC ²	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Water Out
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	- Quality Cr
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	NC
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	NC NC
on $(\mu g/L)$ <2 2 29.9 27.1 $(\mu g/L)$	0.71
	0.031
ead (ug/L) ND 4 ND 4 NC NC 4 2 00000 MC	NC
	NC
inc (ug/L) 13 75 2634 40.4	949 2.3 142 2.3
and (119/L) ND 4 ND 4 NC NC 2 2 -00052 -00054	0
	NC 949 2.1
12 (1) 12 12 12 10 4 10 4 10 4 10 4 10 10 10 10 10 10 10 10 10 10 10 10 10	949 2.3 142 2
inc ($\mu g/L$) 13 1/2 363.4 40.4	142 2.7
ead (µg/L) ND 4 ND 4 NC NC 44 20 3 2 40003	



Project Tasks

- Identification of opportunities for shared runoff management and cost savings.
 - Mapping
 - Evaluation of private and public stormwater management
- Integration with Route 1 Infrastructure Study
 - Build Out Analysis
 - Zoning modifications
- Enhanced capacity for future commercial growth.
 - Stormwater management on cooperative basis
- A Roadmap to better water quality in Mill Creek, Mussel Cove and Casco Bay.
 - MDOT Demonstration project



Mill Creek

Webes Creek

> Mussel Cove









Rite Aid Wetpond

Key Bank Soil Filter



Maine Med Dry Detention Basin



Falmouth Shopping Center Dry Detention Basin



Norway Savings Below-Grade Stormwater Management Facility



Soil Filter - South Portland



Streetscape Esplanade Filter



Tree Box Filter - South Portland



Rainwater Harvesting



Sidewalk Tree Filters - Portland

The Future of SW Management Infrastructure



Performance Summary & Unit Costs

Stormwater Retrofit Opportunity Area	Stormwater Management Benefit	Example BMP(s)	Total Cost (+/-)	Unit Used as Cost Basis	Quantity
1. The Falmouth Shopping Center Dry Detention Basin Retrofit	Quality	Gravel Wetland Retrofit	\$135,000	Per SF of Available Space	6,910 SF
2. The Falmouth Shopping Center Plaza Quality Enhancements	Quality & Quantity	Gravel Wetland/Below- Grade Filter System	\$795,000- \$1,315,000	Per CF of WQV	36,400 CF
3. Clearwater Drive Flow Control	Quantity	Flow Control	\$30,000	Per Each unit	1
6. The Falmouth Inn Greenspace Retrofit	Quality	Gravel Wetland	\$220,000	Per SF of Available Space	10,970 SF
10. Bucknam Road Gateway Retrofit	Quantity & Quality	Filtration Swale/Soil Filter	\$210,000- \$260,000	Per SF of Available Space	14,790 SF
11. Route 1 Roadway	Quality	Catch Basin Insert/Filter Box	\$35,000- \$45,000 ¹	Per Each Unit	1
12. The Wal-Mart Plaza Quality Retrofits	Quality	Raingarden/ Below-Grade Filter System	\$90,000- \$1,305,000	Per CF of WQV	36,100 CF



Critical Infrastructure Areas

1-11



Retrofit Opportunities



Wal Mart Plaza Raingarden



Hat Trick Drive Flow Control



Bucknam Road Gateway



Ordinance Considerations

- Reduce Impediments to Low Impact Development Design and Construction
 - Use of Setbacks for Treatment Zones
 - Flexible Off-Street Parking Requirements
- Reduce Individual Site Requirements Under a Managed Plan
- Create Overlay District?



Funding Considerations

- Route 1 South Tax Increment Financing District (TIF)
- Grants
- General Fund Revenues
- User Fees



Opportunities?

- Get Ahead of Regulatory Requirements (avoid "Long Creek")
 Re-Vision Route 1
- Shared Installations Often Less Expensive than Individual Ones
- Shared Private Property Management (Landscaping, Winter Operations, Sweeping)



Next Steps

- 1. Communications of Report Results
- 2. Public Retrofit Construction
- 3. Possible Town Assistance with Private Retrofit Construction
- 4. Zoning Amendments



Step 1: Communications

- 1. Post Report Results on Town Website
- 2. Present to Town Council in process
- 3. Re-contact MDOT regarding Bucknam Road Retrofit
- 4. Contact Commercial Property Owners of Sites Involving Potential Retrofits
- 5. Send Message to Public That Attended Two Forums



Step 2: Public Retrofits

- 1. Incorporate and Prioritize Retrofits
 - Located in Public Right-of-Way (Route 1, Fundy Road, Bucknam Road) in the Route One Infrastructure Plan.
- 2. Include MDOT-funded Bucknam Road Retrofit in Route One Infrastructure Plan, if possible (otherwise: develop separate scope for Bucknam Road Retrofit).



Step 3: Future Private Retrofits

- 1. Design a Prioritization Process for Potential Retrofits on Commercial Properties:
 - Site Redevelopment Opportunities
 - Cost-Benefit Review
- 2. Determine Town Assistance Mechanism/Criteria
- 3. Prepare Prioritized Retrofit List
- 4. Incorporate Retrofit List into Route One South TIF District Financial Schedule
- 5. Execute Retrofit Agreement(s)



Step 4: Zoning

- 1. Part A will be part of Route One Zoning Amendments (May 2013)
 - Reduction of Parking Requirements
- 2. Part B is remainder of the recommendations (to be completed by December 2013)

Ouestions 8 Discussion