

Reducing Costs for Meeting Stormwater Regulations for Small to Mid-Size Communities in Massachusetts

WROC Team:

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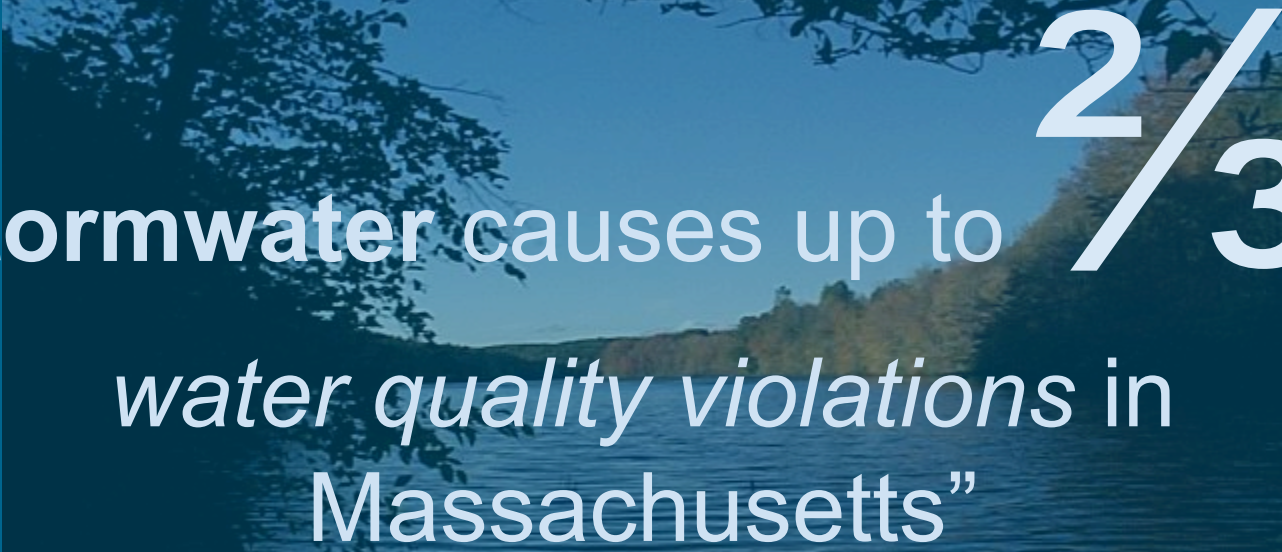
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MassDEP

Stormwater





“**Stormwater** causes up to $\frac{2}{3}$ of
water quality violations in
Massachusetts”

Neponset River Watershed Association, 2016



Municipal Stormwater Separate Sewer Systems (MS4)

Six Minimum Control Measures:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Site Runoff Control
- Good Housekeeping/Pollution Prevention

Costs of New Regulations

Suburban Community		2003				2014			
Minimum Control Measure		Cost		Hours		Cost		Hours	
		Low	High	Low	High	Low	High	Low	High
Public Education		\$3,000	\$40,500	30	400	\$11,200	\$73,800	112	730
Public Participation		\$7,000	\$14,000	60	120	\$9,000	\$17,000	80	150
IDDE		\$37,500	\$65,100	370	619	\$86,900	\$267,000	806	2510
Construction Site Control		\$4,200	\$21,600	32	96	\$4,200	\$21,600	32	96
Post Construction Site Control		\$6,000	\$12,000	40	80	\$21,200	\$38,400	182	324
Good Housekeeping	Rented Trucks	\$26,000	\$383,000	72	84	\$278,000	\$557,000	602	1190
	Purchased Trucks	\$307,000	\$678,000	72	84	\$390,000	\$852,000	602	1190
Total	Rented Trucks	\$124,000	\$602,000	996	2140	\$454,000	\$1,060,000	2210	5750
	Purchased Trucks	\$405,000	\$897,000	996	2140	\$556,000	\$1,350,000	2210	5750

Project Goal

Assist small to mid-size communities in Massachusetts with fulfilling new MS4 requirements

Provide a set of recommendations that towns can use as guidelines to reduce costs of implementation



Case Studies of Grafton and Wellesley

Wellesley is in Norfolk County in Massachusetts, with a population of just under 28,000 as of 2010



Morse Pond - Wellesley, MA

Grafton is in Worcester County in Massachusetts, with a population of approximately 18,000 as of 2010

Lake Ripple - Grafton, MA

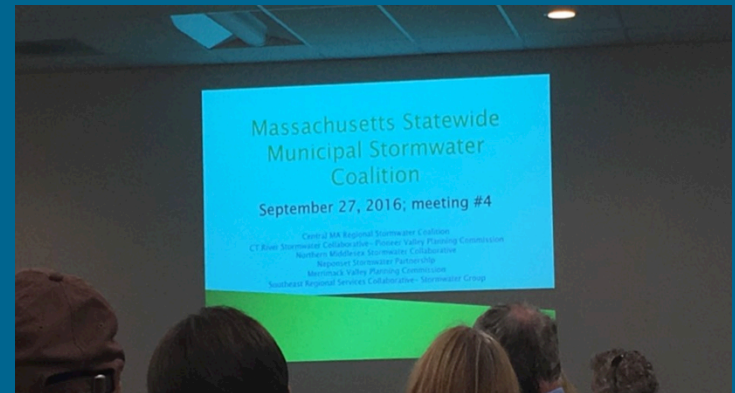


Massachusetts Municipal Stormwater Coalitions

1. Central Massachusetts Regional Stormwater Coalition (CMRSWC)
Annual Meeting
2. Connecticut River Stormwater Committee
3. Northern Middlesex Coalition
4. Neponset River Watershed Association
Ian Cooke, Neponset River Watershed Association
Steven McCurdy, MassDEP
5. Merrimack Valley Stormwater Coalition
6. Southeast Regional Stormwater Coalition

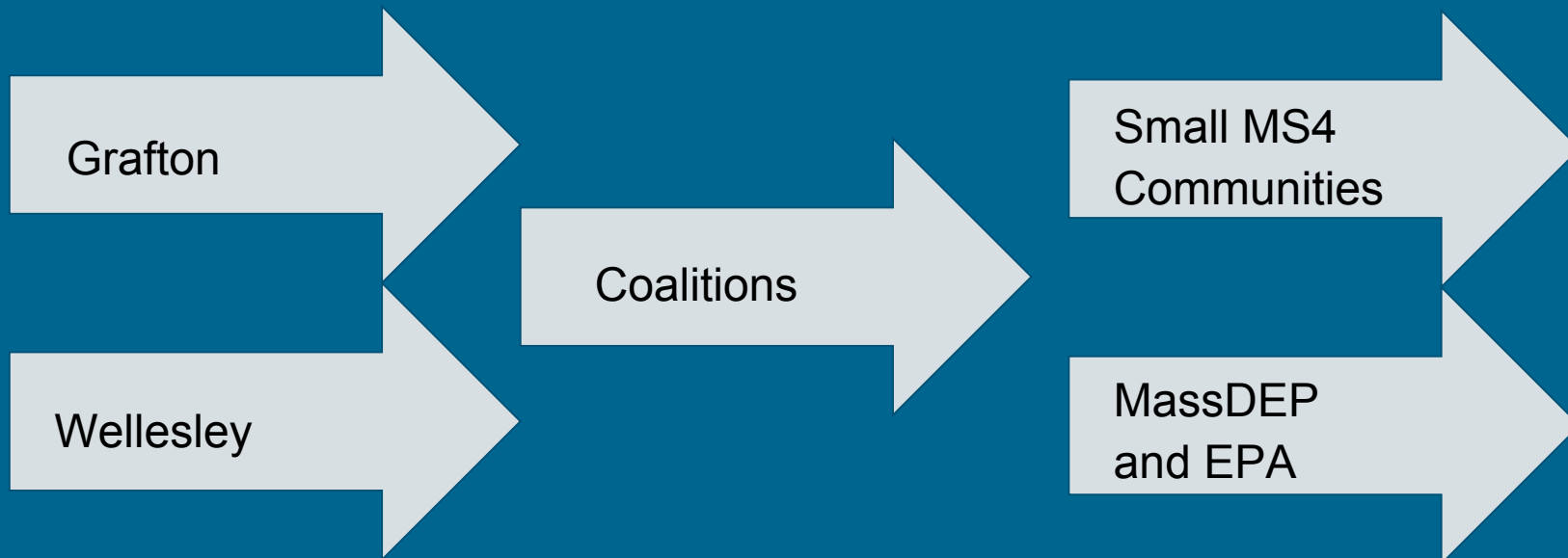


Central Massachusetts Regional Stormwater Coalition Annual Meeting, Holden Town Hall, September 20, 2016



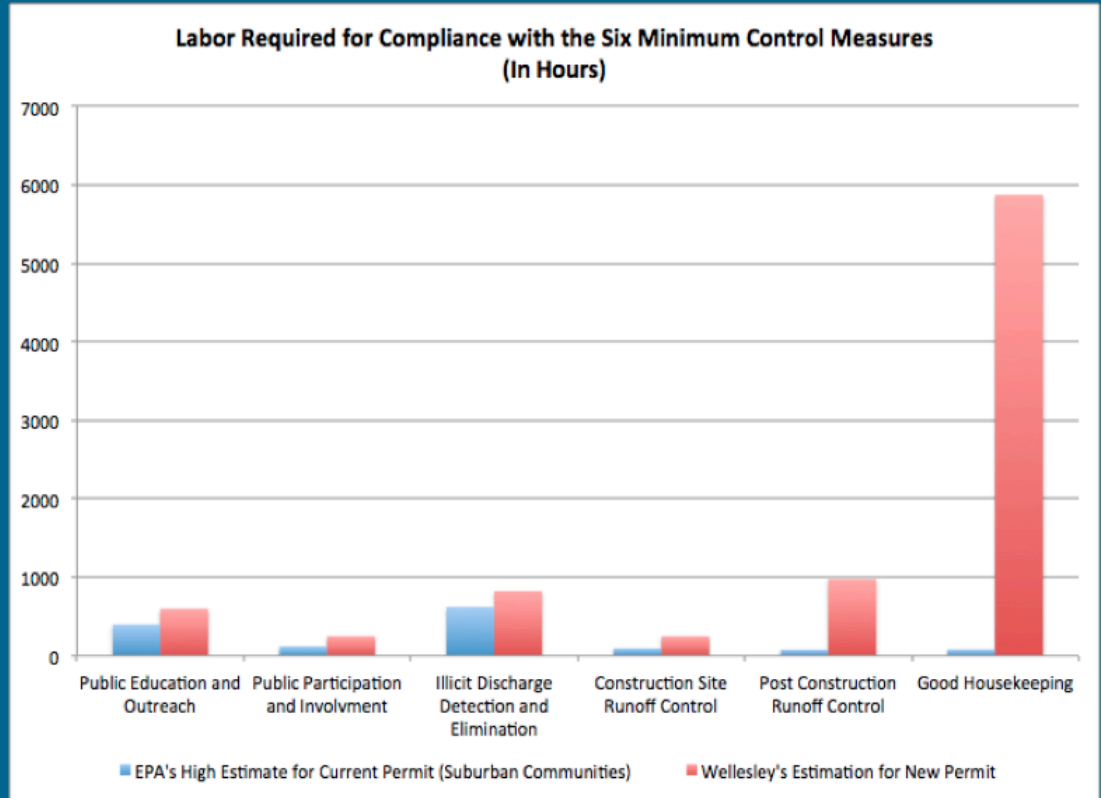
Massachusetts Municipal Stormwater Coalitions Meeting, MassDEP Worcester, September 27, 2016

Development of Recommendations



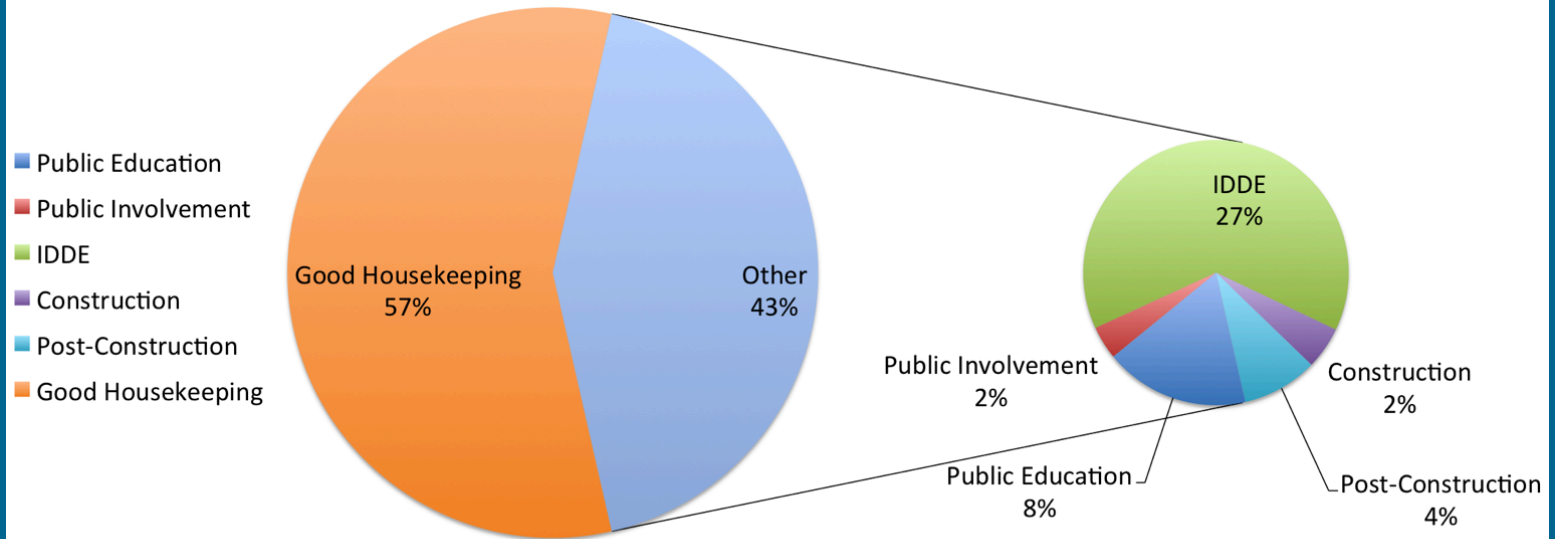
Labor and Time Requirements are an Issue for Many MS4 Communities

We recommend that communities assess internal staffing needs for the new permit requirements



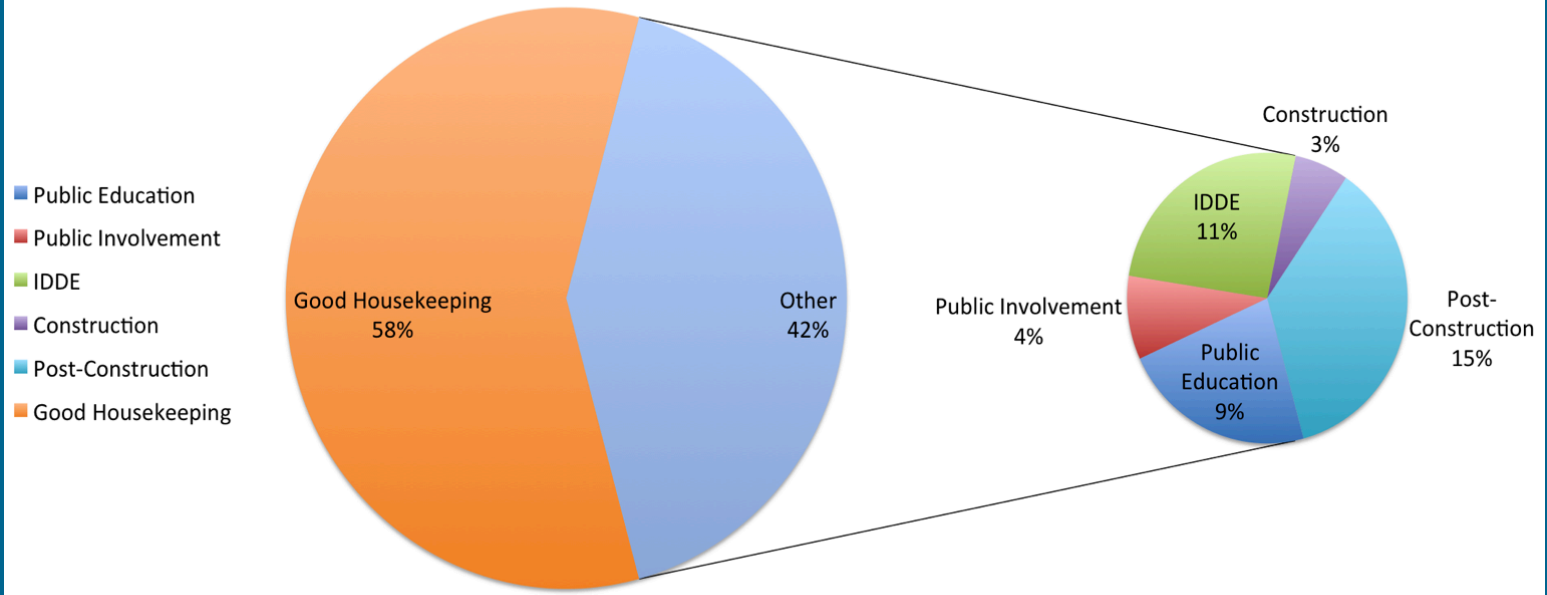
Good Housekeeping Has the Highest Expected Cost in the New Permit

EPA's Cost Estimates for the New MS4 Permit



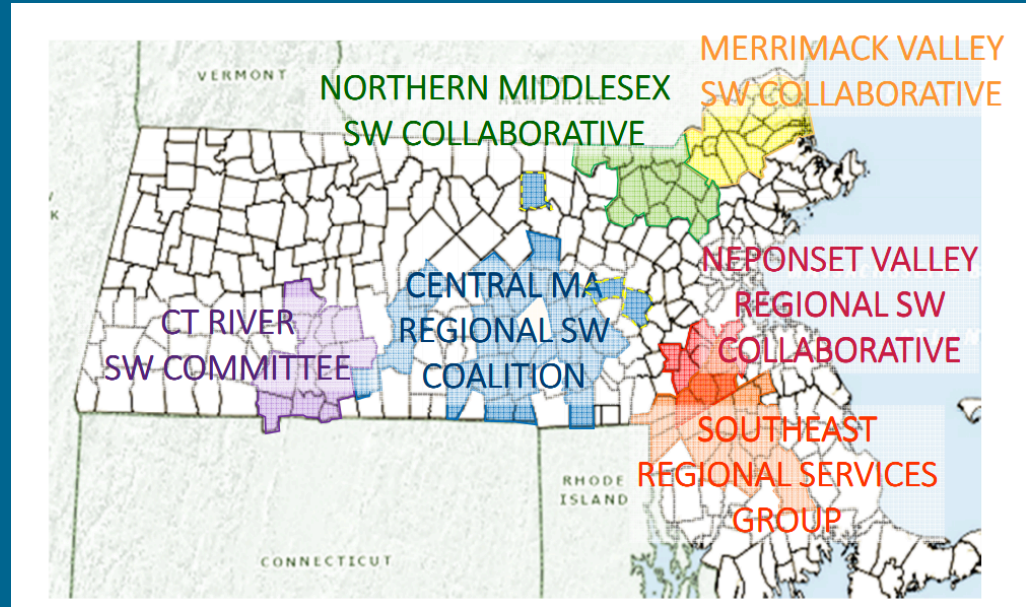
Good Housekeeping Has the Highest Expected Cost in the New Permit

Wellesley's Cost Estimates for the New MS4 Permit



Stormwater Coalitions are Beneficial for Providing Assistance

Communities requiring additional assistance with stormwater management should join a coalition or collaborative if not involved in one.

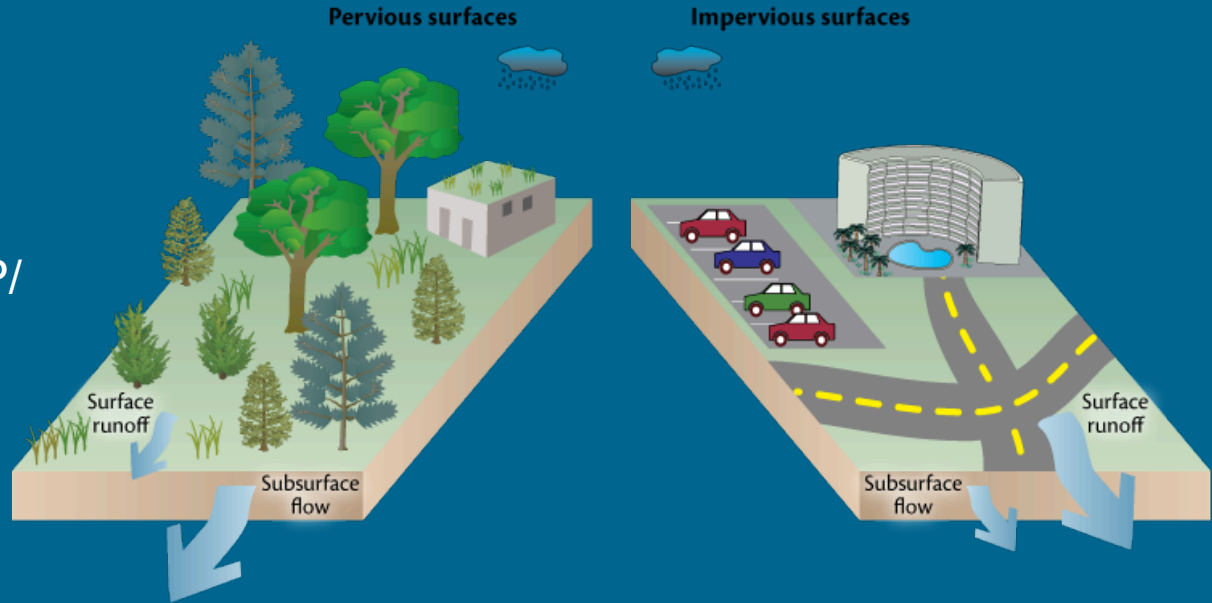


Consider Alternative Methods of Funding

Stormwater Coalitions

Stormwater Utilities

Grants from MassDEP/
EPA



Many Town and Coalition Public Education and Outreach Materials Overlap in Content

The Public Education and Outreach control measure target the following audiences:

- 4 Target Audiences
 - Residents
 - Businesses
 - Institutions (Churches, Hospitals)
 - Commercial Facilities

The Public Education and Outreach control measure:

- Has been estimated to cost up to \$73,800 for Suburban Communities and take up to 730 hours
- Needs to measure “effectiveness” of outreach methods

Recommendations to Towns

1. Assess internal staffing needs for the new permit requirements
2. Ensure to allocate enough funding for Good Housekeeping, which can cost over half of the budget for stormwater management
3. Communities requiring additional assistance with stormwater management should join a coalition or collaborative if not involved in one.
4. Consider alternative methods of funding, such as stormwater utilities

Thank you!



Questions?



Acknowledgements

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David Crouse - Highway Superintendent

Maria Mast - Conservation Agent for Grafton

Ian Cooke - Executive Director for the Neponset River Watershed Association

Works Cited

<http://www.mass.gov/eea/docs/dep/water/resources/n-thru-y/poster-wet.jpg>

http://centralmastormwater.org/pages/CRSC_Documents/Six%20MA%20Stormwater%20Coalitions_graphic.pdf

<http://northgeorgiawater.org/wp-content/uploads/2015/05/ARC-Stormwater-v1-01.jpg>

<http://www.mdcoastalbays.org/content/images/pervious%20diagram.png>

<http://cityofrockhill.com/Home/ShowImage?id=3841&t=635628984290370000>

<http://freepages.history.rootsweb.ancestry.com/~history/grafon/viewfromback.jpg>

<http://img.grouponcdn.com/deal/9Go5sF6zwEXPs1Ph5ejB/Qh-440x267/v1/t460x279.jpg>