

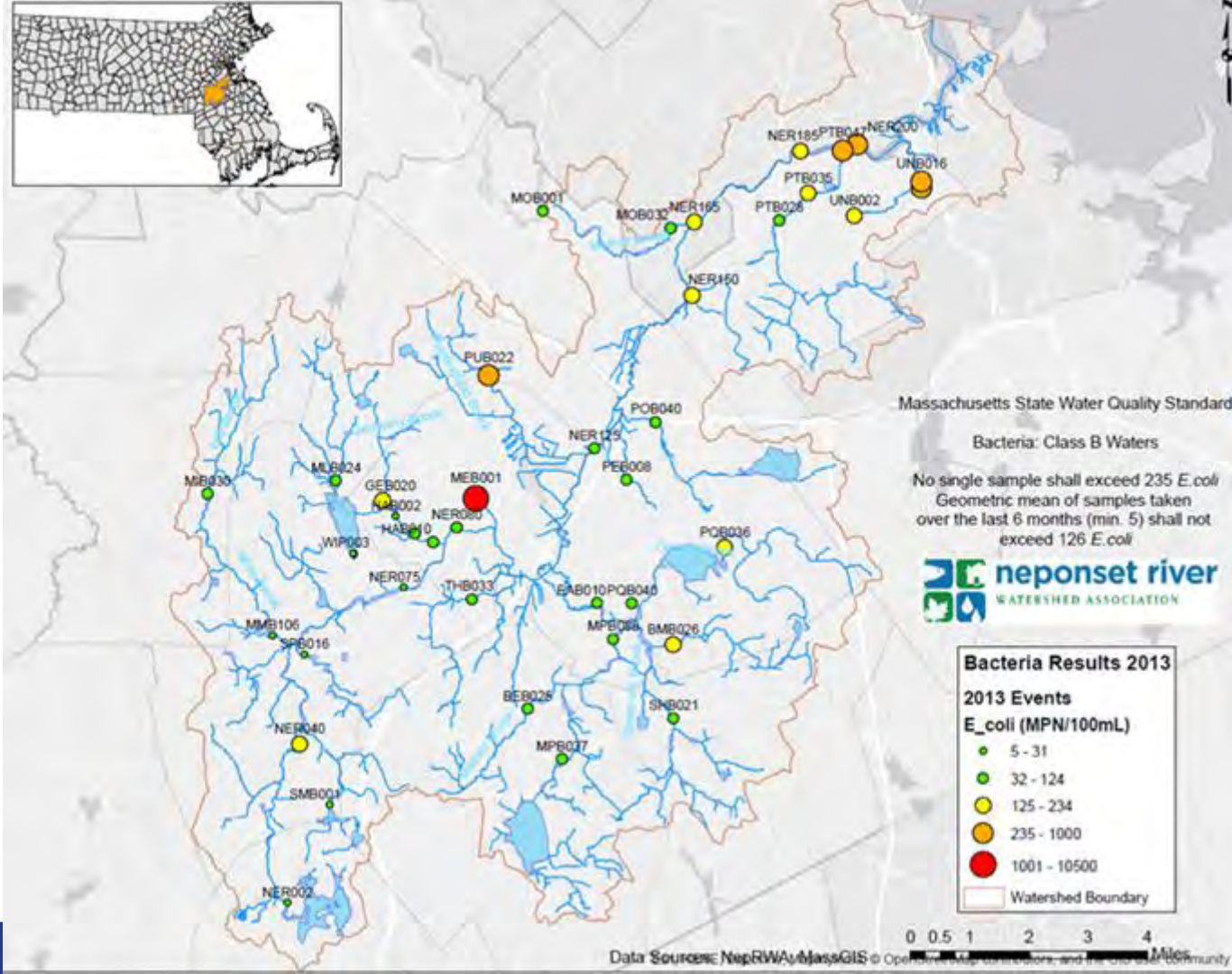
# Preparing for MS4 in the Neponset Valley

December 4, 2015

# 2013 Data

Samples represent average of 6 sampling events

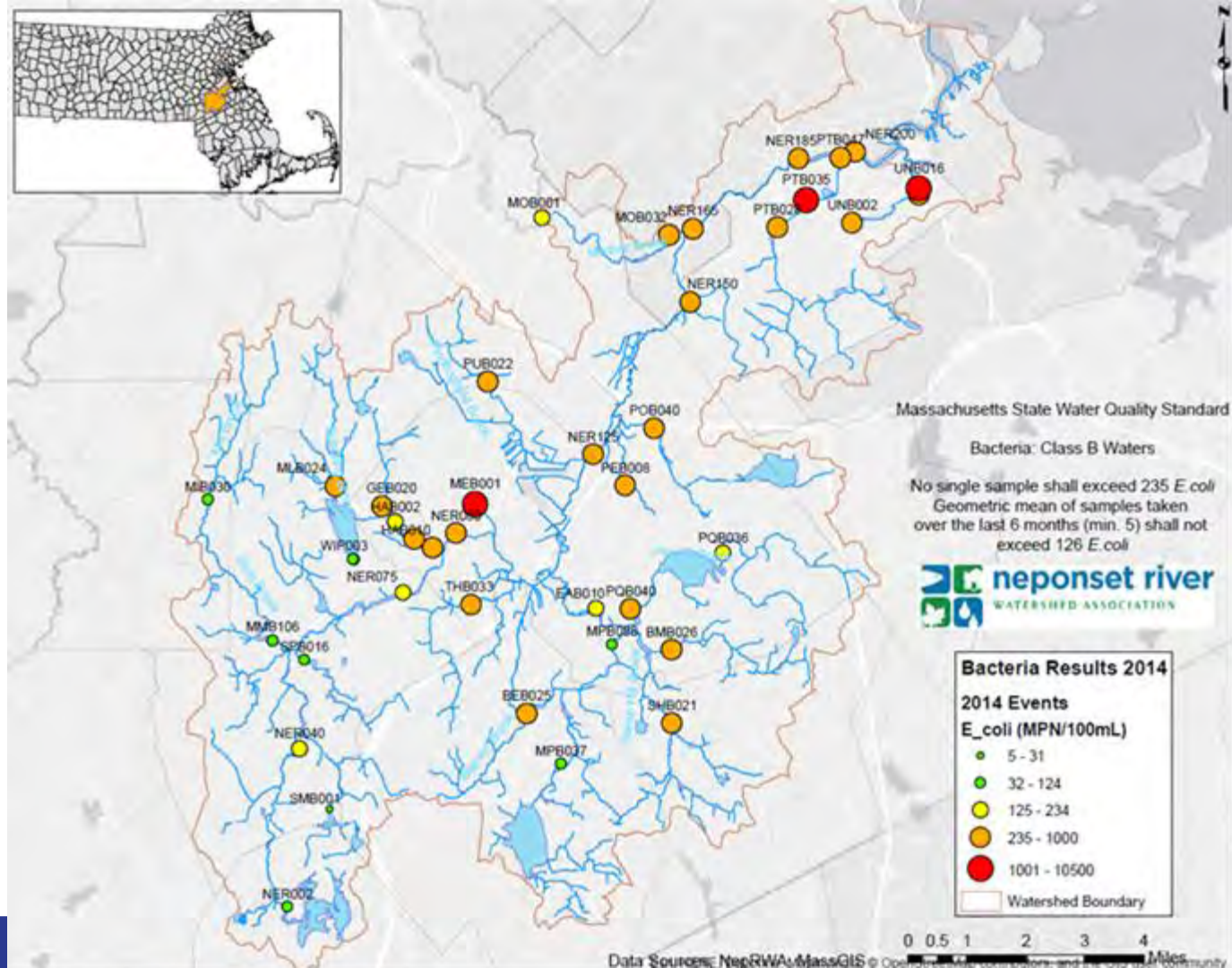
**2 out of 6** sampling events took place following rain



# 2014 Data

Samples represent average of 6 sampling events

**4 out of 6** sampling events took place following rain







# Walpole MA Statistics

1 sq mi Roads

2.2 sq mi Other

411 Outfalls

84 mi of Pipe

3,362 Catch Basins

# Overview of 2014 Draft MS4 Permit

Builds on requirements of 2003 permit

More detailed and rigorous

Written stormwater management plan

Extensive reporting places a premium on data collection and sharing among departments

Requirements affected by local impaired waters and TMDLs

Numerous deadlines



# Six Minimum Control Measures

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Stormwater Runoff Control
5. Stormwater Management for New Development and Redevelopment
6. Good Housekeeping



# Estimated Compliance Costs

Costs will depend on language of final permit

Costs are seldom tracked under a single line item

Costs are distributed across multiple departments

Costs are heavily dependent on existing level of effort

Estimates vary based on the estimator

# Annual Costs as Estimated by Communities

<b>Community</b>	<b>Present</b>	<b>Expected</b>
Canton	767,000	1,380,000
Milton (year 1 only)	610,000	830,000
Dedham	?	+1,056,611



# Neponset Stormwater Partnership

Working together on a regional basis

Sharing best practices

Reducing costs

Improving effectiveness

Initially 11 towns participating

Initial funding through CIC and local matches

Present funding through local matches and MAPC

Similar efforts in other areas of state

# Neponset Stormwater Partnership Tasks

1. Collaboration and Coordination
2. Outreach and Public Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Stormwater and Non-Stormwater Bylaws
5. Evaluation of Parcel and Roadway Retrofit Opportunities
6. O&M Database Concept
7. Stormwater Good Housekeeping Tools
8. Stormwater Financing

# Outreach and Public Participation


- Web site with Outreach materials [www.neponsetstormwater.org](http://www.neponsetstormwater.org)
- Model Public Outreach and Education and Public Participation SWMPs

## Stormwater Pollution Prevention Guide FOR HOMEOWNERS

### It's Easy to Prevent Stormwater Pollution Around Your Home

Make sure that anyone that does work around your house (landscapers, contractors, handymen) adhere to the same rules as well!

#### Pick-up After Your Pets

 Pet waste carries high levels of bacteria, E. coli bacteria and other pathogens. Dog waste left on the lawn or sidewalk is a major contributor to local water pollution, plus it's just nasty.

- Always carry a plastic bag when you walk your dog, and dispose of pet waste in a trash can.

#### Lawn & Garden

• Use lawn chemicals sparingly and never up any spills on paved areas.

• Choose organic and phosphate-free fertilizers whenever possible, and never use more than the directions call for.

• Don't pile grass clippings, leaves or other yard waste in streams or wetlands.

- Prevent yard waste from being washed into storm drains.
- Ask your landscaper what they do with your yard waste.

• Consider starting a compost pile.

• Don't allow irrigation to runoff onto pavement. Any water that ends up on the pavement contributes to polluted runoff, and is wasted water.

• Redirect downspouts away from pavement and onto grassy areas, where runoff from your roof can soak into the ground.

• Use pervious materials in landscape designs. Stricks, gavers and stones allow water to slowly filter into the ground. Plus they look neat!

- Set a rain barrel under your downspout to capture water for another use.
- Plant rain gardens to help filter and soak up water before it runs onto the street.

#### Chemicals

• Use the least toxic products available for all projects around your home.

• Avoid spilling oil, gasoline, antifreeze, and paint on paved areas or onto the soil.

• If a chemical spill occurs, clean with rags or absorbent material such as sand or kitty litter. Sweep up absorbents and dispose of in the trash.

• Collect all used oil, antifreeze, and other vehicle fluids in containers with tight fitting lids and recycle at a local service station.

• Dispose of hazardous waste through the local Household Hazardous Waste Program.



• Sweep up all construction areas on a regular basis and dispose of debris in the trash.

• Never use a hose to wash down the driveway or sidewalk. Just only down the wash pollutants into storm drains, it's a waste of water.

• Don't pour washwater or chemicals down stormdrains.

• Store chemicals in leak proof containers inside a building or shed, or under cover. Do not expose hazardous materials to rainwater.

• Avoid oversteering walkways and driveways in the winter, and use non-toxic products whenever possible.

#### Washing Cars and Boats

• Park your car or boat in a spot where the soap will run off onto grass, rather than into the street and down the storm drain.

• If practical, park your car or boat on your lawn when washing it.

• Use mild detergents, and never hose or pressure wash the undercarriage of a car at home. The oil, grease and other pollutants from this activity can contaminate shallow ground-water.

• Always use a hose nozzle with a trigger, and shut it off when you're not using it to conserve water.

• Skip the horse treatment and wash your car professionally, but use a carwash that recycles its water!

#### Automotive Repair

• Store automotive parts, such as batteries, engines, transmissions, and other parts that may have oily or greasy residue on them, under cover and off the ground, to minimize rainwater runoff. Rainwater can wash pollutants off these parts and into stormdrains.

#### Swimming Pools and Hot Tubs

• Never discharge pool water directly into a storm drain.

• Dechlorinate pool, hot tub or spa water with neutralizing chemicals, if water is to be discharged into the ground.

• If water cannot be dechlorinated, the water must be collected by a pool maintenance company.



For more information on how you can reduce stormwater pollution, please visit [www.neponsetstormwater.org](http://www.neponsetstormwater.org)

### Consider how your actions impact water quality.

The EPA estimates that stormwater runoff causes **more than half** of the pollution in our waterways.



### If You See it, Please Report it!

If you ever see anything suspicious being poured or washed into a storm drain, please call your local Water Department or Conservation Agent.



**Remember—Storm Drains Aren't Trash Cans**  
Anything that gets dumped, thrown or washed into a storm drain eventually gets discharged to a river, stream, pond, or wetland.



# Illicit Discharge Detection and Elimination (IDDE)

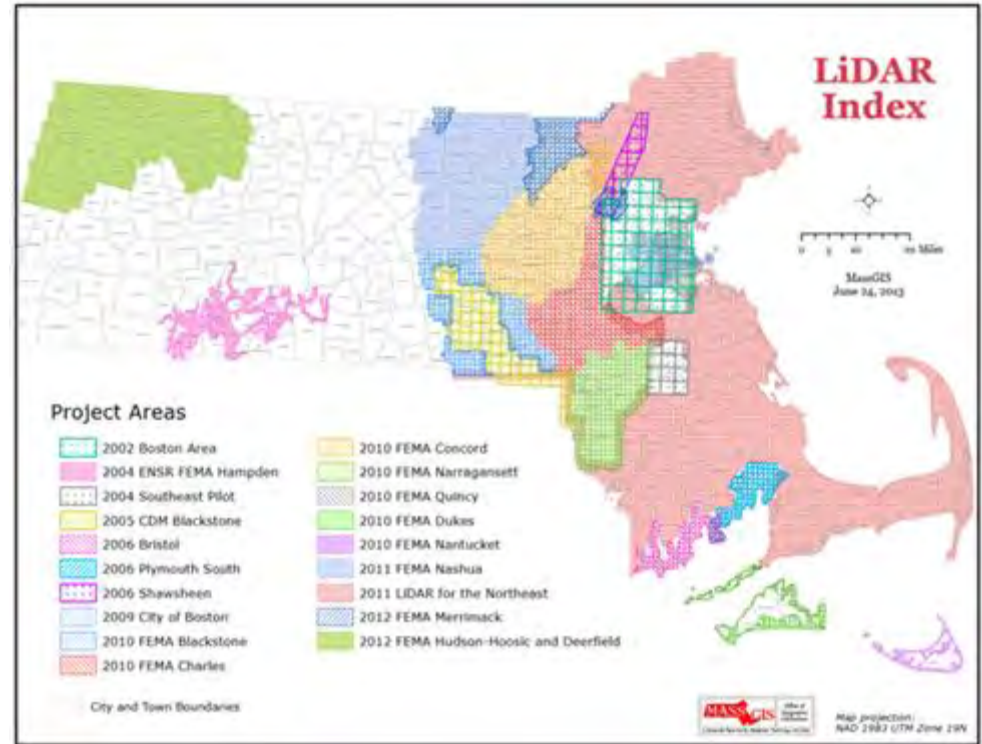
Outfalls discharging to waters impaired for bacteria subject to bacteria TMDL

	Outfalls that need to be High or Problem	Total Number of outfalls	Percentage
<b>Canton</b>	214	277	77%
<b>Dedham</b>	125	200	63%
<b>Medfield</b>	322	426	76%
<b>Milton</b>	167	178	94%
<b>Randolph</b>	222	564	39%
<b>Sharon</b>	20	237	8%
<b>Stoughton</b>	53	207	26%
<b>Walpole</b>	227	411	55%
<b>Westwood</b>	230	372	62%



# IDDE Task Overview

- ▶ Tracing sources of pollution from the receiving water to the contributing land area.
- ▶ Connecting outfalls to Impaired Waters.
- ▶ Ranking outfall catchments according to their likelihood to contribute illicit discharges.

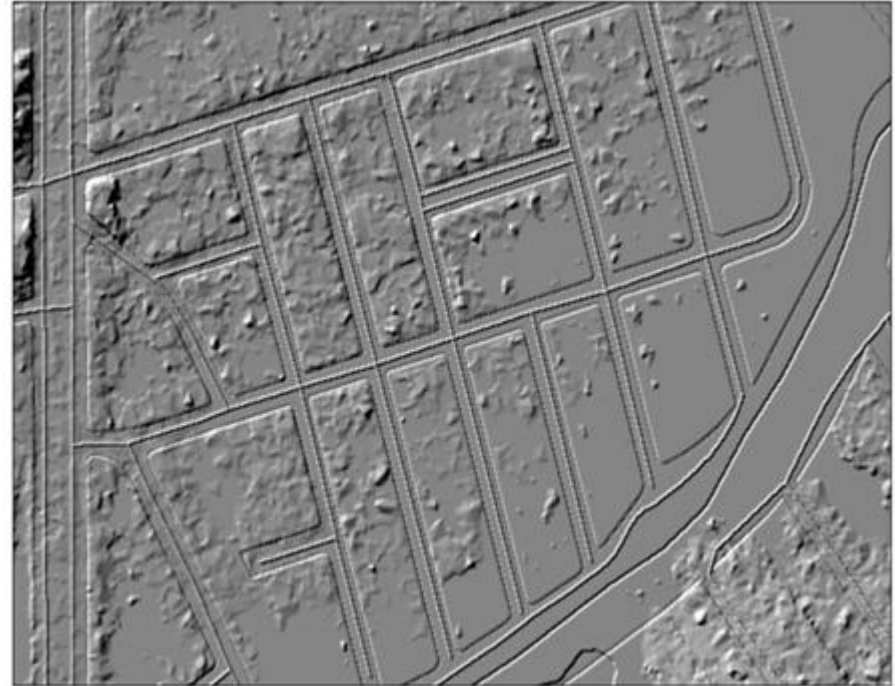


# Catchment Delineation

## Step 1: Process Digital Elevation Model

Download and mosaic lidar images

“Burn” in urban landscape features



# Catchment Delineation

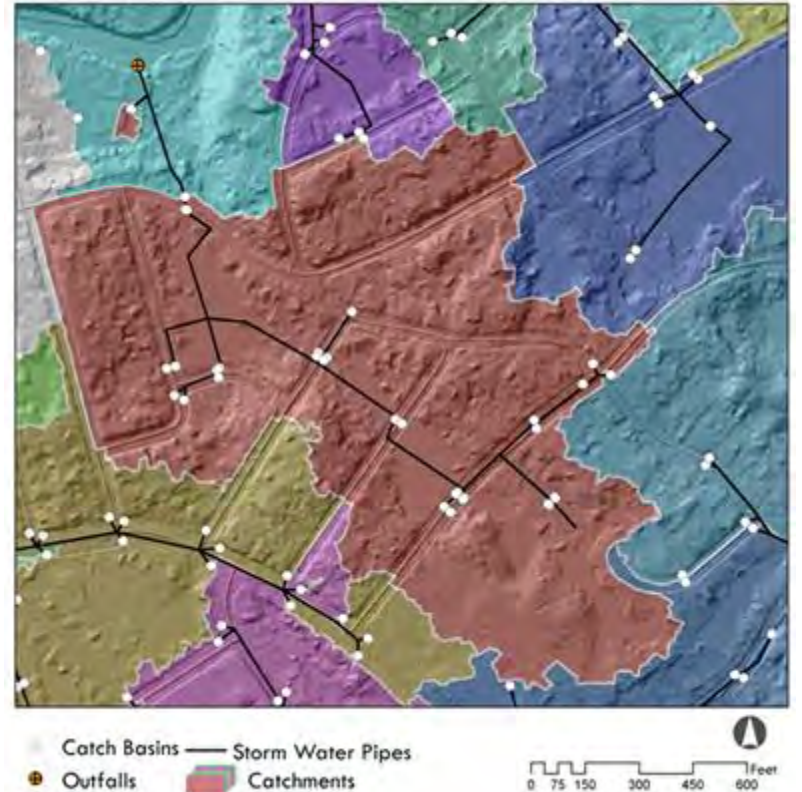
## Step 1: Process Digital Elevation Model

Download and mosaic lidar images

“Burn” in urban landscape features

## Step 2: Create Catch Basin catchments

## Step 3: Dissolve Catch Basin catchments into Outfall catchments



# Stormwater and Non-Stormwater Bylaws

Stormwater & Non-Stormwater Bylaw evaluation checklists  
 Model Stormwater Bylaw & Guidance on Bacteria  
 Town-by-Town Analysis of Stormwater and Non-Stormwater Bylaws

Priority Non-stormwater Bylaw Recommendations R = Recommended Action	Canton	Dedham	Milton	Sharon	Stoughton	Westwood	Medfield	Norwood	Randolph	Walpole
Limit tree clearance in zoning and subdivision regulations.	R	R	R		R	R	R			
Allow by-right construction of open space residential developments.	R	R	R	R			R	R		R
Don't require more than 3 parking spaces per 1,000 SF of floor space in professional buildings.	R			R			R			
Establish parking maximum standards for all uses.	R	R	R	R	R	R	R	R	R	R
Allow for reduction of parking requirements if parking is shared.	R				R		R		R	



# Evaluation of Parcel & Roadway retrofits

- Evaluation methodology & Geodatabase of results
- Based on soil type, historic storm data, and amount of impervious coverage





# O&M Database: Municipal User Plan Report

Plan # 500; 3 Main Street; 3M LLC

BMP Type	Task	Due Date	Description	Corrective Action	Status	Issue Enforcement
Hydro Separator	Clean-out	1/1/15	Cleaned	None	Delayed	<input type="checkbox"/>
General	Inspect Parking Lot	12/15/14	Inspected	Picked up trash	Not Complete	<input type="checkbox"/>
Sweeping	Sweeping	11/1/14	Swept	None	Not Complete	<input type="checkbox"/>
Bio-retention	Mulch	1/1/15	Maintained	Replanted & mulched	Complete	<input type="checkbox"/>

“Issue Enforcement” generates boilerplate letter/email to Owner/Operator point of contact

# O&M Database: Owner/Operator: Reporting Module

BMP Type	Task	Due Date	Description	Corrective Action	Documentation (receipts / inspection reports, photos, etc)	Status
Hydro Separator	Clean-out	<input type="checkbox"/> 1/1/15	Cleaned	None	<a href="#">Upload</a>	<input type="checkbox"/> Delayed
General	Inspect Parking Lot	<input type="checkbox"/> 12/15/14	Inspected	Picked up trash	<a href="#">Upload</a>	<input type="checkbox"/> Not Complete
Sweeping	Sweeping	<input type="checkbox"/> 11/1/14	Swept	None	<a href="#">Upload</a>	<input type="checkbox"/> Not Complete
Bioretention	Mulch	<input type="checkbox"/> 1/1/15	Maintained	Replanted & mulched	<a href="#">Upload</a>	<input type="checkbox"/> Complete



Swear by pains of perjury that this is an accurate record of inspection and maintenance

SUBMIT

# Stormwater Good Housekeeping Tools

- Pollution prevention plan training materials
- Data management training materials

## Data Management in MCM 6

### **MCM 6: Good Housekeeping & Pollution Prevention**

- Catch Basin Cleaning
  - Total # of basins
  - Number inspected each Permit Year
  - Number cleaned
  - Volume or mass removed from each (impaired waters)
  - Volume or mass removed from whole system
- Facility Inspections (SWPPP)
- Street Sweeping
  - Curb-miles swept
  - Volume or mass of material removed

# Stormwater Financing

<b>NEW Stormwater Expenditures</b>	<b>Description</b>	<b>Estimated Costs (\$) **</b>
<b>General Maintenance &amp; Operations</b>	Routine cleaning, general maintenance and day to day service operations	
<b>Stormwater Cleaning &amp; Treatment</b>	Costs of privately contracted facility to treat stormwater runoff.	
<b>NPDES Permit Compliance</b>	Includes annual reporting and private consulting services.	
<b>MS4 Stormwater Permit Administration</b>	Review of permits annually by consultants paid for by the developer(s)	
<b>Illicit Discharge Detection and Elimination</b>	Assume 10% of outfalls have illicit discharge. Estimate cost to identify source at appx. \$1200 per hit. Removal costs should be the owner's responsibility.	
<b>Administrative Expenses</b>		
<b>Utility Fee Implementation Costs</b>	Capital expenses associated with establishing HR to manage the new program.	
<b>Billing Costs</b>	Costs associated with preparing and distributing invoices.	
<b>Administrative Fees</b>	General office operations and overhead.	
<b>Utility Fee Credits</b>	Costs for administering and deducting expenses for properties that meet set compliance standards to reduce runoff.	
<b>Collection Fees, Delinquencies</b>	Costs for processing receivables with contingencies for late or non-payments.	
<b>Subtotal</b>		
<b>Funding to be Covered Under Fee</b>		

# Stormwater Financing

1. Determining Fee – Impervious Analysis
2. Town data on driveways, parking lots, buildings, decks
3. Match impervious area to parcel
4. Calculate the impervious area per parcel.
5. Divide impervious area by total parcel area to derive the percentage of impervious coverage per parcel.
6. Calculate the average impervious coverage for each land use (residential, commercial).





Future?