



# Storm water management in Acton *or* *complying with NPDES II*

WRAC, November 18, 2009



## What and why?

- Storm water runoff caused by impervious surfaces
  - All paved areas, rooftops, compacted soils
- Storm water affects surface and groundwater
- EPA has mandated stringent storm water focus
- Storm water illegal discharge by-law  
*a required first step*



# EPA Mandate: Illegal discharge detection & elimination (IDDE)

- Map stormwater outfalls *(partly done)*
- IDDE bylaw *(in process)*
- IDDE program: *(needs to be ramped up)*

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 1  
1 Congress Street, Suite 1100  
BOSTON, MA 02114-2023

*Bob M...  
10/23/09*

You are receiving this letter because your municipality operates a Phase II small municipal storm sewer system (MS4) permitted to discharge storm water to waters of the United States by the United States Environmental Protection Agency (EPA). Your storm water permit, issued in 2003 (2003 Permit), requires your community to control storm water discharges to waters of the United States through implementation of a storm water management program comprised of control measures specified by the Permit. One such requirement is the implementation of an Illicit Discharge Detection and Elimination (IDDE) Program.

The IDDE program is designed to prohibit the discharge of sources of non-storm water, such as raw sewage, to storm sewer systems to eliminate the discharge of polluted stormwater into water bodies. Such discharges can include raw sewage from illegal sewer connections, infiltration from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain. These discharges contribute bacteria, heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria to New England waters. In fact, polluted urban storm water runoff, which includes storm sewer discharges, are a primary cause of impaired water quality in the United States. Such discharges cause approximately 70% of surface water pollution in New England.

EPA understands the economic pressure faced by many cities and towns. However, the elimination of this significant environmental threat is something we must all seek to achieve. Consequently, to increase protection of our rivers, ponds, lakes, streams and coastal waters, more stringent MS4 permits will be issued in the near future to communities in New Hampshire and Massachusetts. These updated permits will require the implementation of more stringent storm water management programs. This includes more rigorous IDDE control measures than required by your current permit. IDDE control is an issue throughout New England, and we are working cooperatively with all the New England states to address this important problem.

Unfortunately, EPA has documented significant instances of municipal noncompliance with the 2003 Permit, which continues to be in effect. In response, our regional office recently initiated civil penalty enforcement actions against MS4s concerning Massachusetts and New Hampshire. These actions address failures by those municipalities to:

- Identify and map their storm water outfalls;
- Pass municipal regulations prohibiting illicit discharges; and
- Create and implement an IDDE program.

3



# Acton's storm water management plan



- 5 year plan filed with the EPA in 2003
- Illicit discharge bylaw required as per SWMP
- Concord has been fined \$50,000
- Acton bylaws up against EPA deadline

Practice/Responsible Dept. Contact	Year 1 (Mar 03 - Mar 04)	Year 2 (Mar 04 - Mar 05)	Year 3 (Mar 05 - Mar 06)	Year 4 (Mar 06 - Mar 07)	Year 5 (Mar 07 - Mar 08)
BMP #ID 1 Generate a comprehensive Storm Drain Map for the Town/Doug Halley BOH	Drainage Map with Watershed delineations (completed)  Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960.  Update map as new drainage is installed or replaced  Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960.  Update map as new drainage is installed or replaced  Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960.  Update map as new drainage is installed or replaced  Reassess eligibility criteria	Field Verify drainage map features for 25% streets older than 1960.  Update map as new drainage is installed or replaced  Reassess eligibility criteria
BMP #ID 2 Implement a Town By-Law/ Roland Earl Planning Dept. & Doug Halley BOH		Review & Analyze existing bylaws and rules and regulations.  Develop bylaw if required with stated penalties governing illicit discharges	Continue to develop bylaw with stated penalties governing illicit discharges	Present Bylaw and Regulations to Public for comment.	Bring bylaw in front of Town Meeting
BMP #ID 3 Perform an illicit discharge detection campaign/ Doug Halley BOH	Submit Grant proposal to conduct Acton Watershed Health Monitoring and Management Plan to identify potential problem areas	Conduct investigation and sampling of outfalls discharging to Assabet River (an impaired waterway on 303(d) list)	Conduct testing in areas identified as potential locations for illicit connections.	Conduct dry weather flow observation effort and sampling program.	Pinpoint sources of illicit discharges

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4



## Storm water overview

- Impacts of storm water include:
  - degraded water quality,
  - Increased frequency and severity of flooding
  - Decreased aquifer recharge
  - Altered stream flow
- Watershed health may be impaired by more than 10% impervious cover
- Significant impacts may occur with more than 25% impervious cover

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5



## Impervious surfaces ..



Source: Google Maps

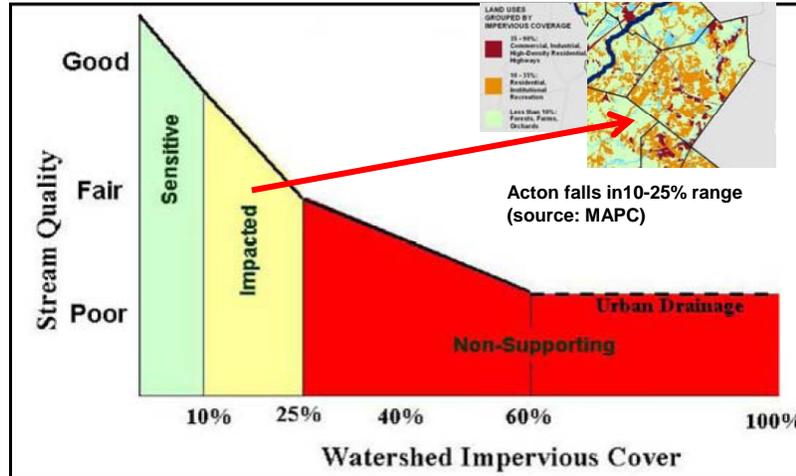
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6



## Have a direct impact on stream quality



Watershed IC vs. stream quality. (Source: Center for Watershed Protection: Impacts of Impervious Cover on Aquatic Systems)

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## Leading to increasing stormwater runoff in Acton

- Stormwater collects and runs off from impervious surfaces
- Collected by stormwater system
- Enters MS4 (municipal separate storm sewer system)
- ... reducing groundwater recharge

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Photos: R Beck, 11-09



## ... and directly impact surface waters

- Runoff to surface waterways adds load and pollutants to streams and ponds
- ... adds to rising wetland levels
- ... makes storm water system challenging to maintain

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Photos: R Beck, 11-09

9



## EPA requires Acton to eliminate illegal sources now

- Undocumented outfall



- Unknown source



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Photos: R Beck, 11-09



## Illegal discharges bylaw "U"

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- Defines illegal discharges to storm system
- Identifies exempted sources
- Permits clean discharges
  - sump pumps, crawl space pumps
- Enforcement and reporting by Board of Health
- Conforms with EPA NPDES mandates

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11



## What are illegal discharges ?

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- Discharges of pollutants or process water [§8.1]
- Illicit connections [§ 8.2]
- Obstructions [§ 8.3]

*Photo R Beck, 11-09*

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12



## What will be allowed ?

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- exemptions [§ 9] include:
  - firefighting
  - street sweeping
  - natural flows
  - foundation & footing drains
  - lawn fertilizer & pesticides when used properly
  - fund-raising car washing
  - street de-icing salt application

*[sixteen total items]*

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13



## What will be required

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- End all illicit discharges to MS4
- Timely notification of releases of prohibited materials
- Permits required for sump pumps and the like

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14



## What will Acton get?

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- Compliance with EPA conditions
- Improved surface and ground water conditions
- Better long term safeguarding of water supply
- Improved maintenance of storm water system

Main St crosses water supply zone one

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15



## Other programmatic activities

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- Improved Public education
- Monitoring and identification
- Public reporting

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16



## Construction / post construction storm water bylaw

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- In initial drafting and review
- To be developed over winter / spring
- To be considered by a future town meeting

17

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## Timeline and process

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- Development of first bylaw:
  - WRAC meetings August - October
  - 4 Subcommittee meetings
  - researched approaches of comparable towns
- Public information and feedback
  - Nov '09 - Jan '10
- Town meeting vote spring 2010
- Implementation of bylaw
- Development of second bylaw

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18

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## Consequences of no action

- Town in violation of Clean Water Act
- EPA typical actions:
  - comprehensive monitoring requirements
  - extensive program activities required
  - inspections and oversight
  - financial penalties

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19



## Who has been involved

- Committee members:
  - Ron Beck, Chairman
  - Carol Holley, ACES
  - Helen Probst, Citizen
  - Barry Rosen, Acton Water District
  - Joanne Bissetta / Michael Kreuze, Acton Board of Health
- Health Department staff, Justin Snair
- Acton Water District staff, Matt Mostoller
- Board of Selectmen liaison, Lauren Rosenzweig
- Numerous interested citizens

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20



## What you can do ...

- Never dump anything down a storm drain
- Reduce usage of phosphorus and nitrogen-rich fertilizers and pesticides
- Pick up pet wastes and dispose of properly
- Adopt low impact develop measures to reducing your storm water runoff:
  - Rain barrels, pervious paving, rain gardens
- Report spills and hazardous conditions
- Non-phosphate car washing
- Use a drip pan when changing oil

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21

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## Total phosphorus loadings to Assabet River a Clean Water Act concern

**Acton watersheds contributed 0.9 – 20.1 % of phosphorus load**



Table 5-21 Total Phosphorus Loadings to the Assabet River: A Compilation of Point Source and Non-Point Source Loadings During Six (6) Field Surveys

Sample Location	Watershed Area (miles <sup>2</sup> )	Intensive Summer July 1999 Survey		Dry-weather Survey 2 - Feb. 8-9, 2000		Wet-weather Survey 1 - March 16, 2000		Wet-weather Survey 2 - March 27, 2000		Wet-weather Survey 3 - Sept. 12, 2000		Intensive Summer August 2000 Survey						
		Load lbs/day	% of Total	Load lbs/day	% of Total	Load lbs/day	% of Total	Load lbs/day	% of Total	Load lbs/day	% of Total	Load lbs/day	% of Total					
<b>Point Sources</b>																		
30 Westborough POTW		26.2	38	95.2	34	213.9	15	39.7	23	38.8	59	32.4	48					
23.6 Marlborough POTW		17.3	25	96.4	35	50.3	4	16.1	9	3.20	5	3.50	5					
15.7 Hudson POTW		16.9	25	9.0	3	27.7	2	14.2	8	14.7	22	23.0	34					
6.7 Maynard POTW		5.6	8	25.4	9	23.6	2	13.6	8	3.40	5	5.34	8					
<b>Non-Point Sources</b>																		
23.7 Hop Brook	9.3	0.17	0.2	0.54	0.2	40.2	2.9	5.20	3.0	0.32	a	0.5	0.16	0.2				
24.5 Cold Harbor Brook	11.5	0.15	a	0.2	3.30	a	1.2	23.7	1.7	0.45	b	0.3	0.40	a	0.6	0.05	0.1	
23.1 Stirrup Brook	4.9	0.07	a	0.1	1.41	a	0.5	35.7	2.6	0.77	0.4	0.01	0.0	0.23	0.3			
22.5 North Brook, Berlin	18	0.24	a	0.4	0.58	0.2	134	9.6	11.2	6.4	0.62	a	0.9	0.16	0.2			
17.5 Hog Brook, Hudson	6.3	0.08	a	0.1	1.81	a	0.7	31.9	2.3	3.24	1.8	0.90	1.4	0.10	0.1			
17.3 Mill Brook, Hudson	6.6	0.09	a	0.1	1.89	a	0.7	78.6	5.6	5.57	3.2	0.52	0.8	0.20	0.3			
13.0 Ft. Meadow Brook	13.4	0.12	a	0.2	2.55	a	0.9	15.4	1.1	4.69	2.7	0.09	0.1	0.11	0.2			
9.5 Elizabeth Brook, Maynard	20	0.27	a	0.4	1.50	a	0.5	183	13.2	4.78	2.7	0.12	b	0.2	0.42	0.6		
4.3 Second Division Brook	2.13	0.03	a	0.0	0.61	a	0.2	12.9	a	1.10	a	0.6	0.07	a	0.1	0.05	a	0.1
30 Nashoba Brook	47.6	0.59	a	0.9	24.7	a	8.9	281	20.1	20.5	11.7	1.64	a	2.5	1.45	2.1		
1.3 Spencer Brook, Concord	7.7	0.10	a	0.1	2.21	a	0.8	33.2	2.4	16.7	9.5	0.21	0.3	0.16	0.2			
Other Non-point Sources	34.3	0.45	0.7	9.92	3.6	209	15.0	17.8	10.1	1.19	1.8	0.70	1.0					

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22

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