Public Facilities Committee Report

City of Newton
In City Council

Wednesday, November 17, 2021

Present: Councilors Norton (Vice-Chair), Leary, Laredo, Kalis, Danberg, Gentile, Kelley and Crossley

Also Present: Downs and Bowman

City Staff Present: City Engineer Lou Taverna, Commissioner of Public Works Jim McGonagle

#416-21 **Petition for Grant of Location in Wells Ave**
ROSCITI CONSTRUCTION COMPANY/CROWN CASTLE petitioning for a grant of location to install 267' ± of 1.5" pcv pipe for telecommunications from the handhold on the northeast side of Wells Avenue to a proposed handhold in front of #145 Wells Avenue then running easterly to the building at #145 Wells Avenue. (Ward 8)

Action: **Public Facilities Approved 7-0 (Councilor Leary not voting)**

Note: Brent Valerien, Crown Castle representative, presented the request for a grant of location in Wells Ave. Mr. Valerien explained that the proposal is to stay in the grass area in the public right of way between the curb and the sidewalk to provide service to Boston Children's Hospital at #145 Wells Avenue.

The public hearing was opened and with no member of the public wishing to speak, the public hearing was closed.

Councilor Kalis motioned to approve which passed unanimously.

#415-21 **Request for a grant of location in Commonwealth Ave, Mary Ellen and Evelyn Rd**
NATIONAL GRID petition for a grant of location to install and maintain gas main in Commonwealth Ave, Mary Ellen Road and Evelyn Road as follows:

- 830' ± of 8" plastic main in Commonwealth Avenue from the existing 12" cast iron main at #1324 Commonwealth Avenue to the intersection of Fuller Street and Evelyn Road to replace 60' ± of 12" cast iron and , ~~425'~~ 725 ± of 8", cast iron
- 1760' ± of 8" plastic main in Evelyn Road from the intersection of Commonwealth Avenue and Fuller St to replace 1135' ± of 6" bare steel main and 625' ± 4" bare steel main

- 1395' ± 4" plastic main in Mary Ellen Road from #119 Evelyn Road to #175 Evelyn Road to replace 1395' ± of 4" bare steel main (Wards 3 & 5)

Action: **Public Facilities Approved as Amended 6-0 (Councilors Leary and Gentile not voting)**

Note: Mary Mulroney, National Grid Representative presented the request for a grant of location in Commonwealth Avenue, Mary Ellen Road and Evelyn Rd. It was noted that the following portion of the request will need to be amended from 425' to 725'.

830' ± of 8" plastic main in Commonwealth Avenue from the existing 12" cast iron main at #1324 Commonwealth Avenue to the intersection of Fuller Street and Evelyn Road to replace 60' ± of 12" cast iron and , ~~425'~~ 725 ± of 8", cast iron

Lou Taverna, City Engineer explained that the City recently paved that portion of Commonwealth Avenue and the contractors will need to mill & pave the trench curb to curb.

The public hearing was opened.

Eddie Tang, Newton Resident questioned if there will be any interruption to services while the work is being completed? He also questioned if the abutters are notified before construction starts and if there would be any road closures?

Mr. Butler explained that their intention is to not have any interruption in service. He further explained that the current plan is to do the work over the summer when gas usage is at its lowest. The abutters will also be notified when the work begins. Additionally, the decision for road closures is made during the construction process.

Marcia Cooper, 170 Evelyn Road explained the comments from Nathan Philips regarding the project, which dealt with the length of the pipe and why it was being replaced instead of repaired. Ms. Cooper expressed her concern for replacing the pipes instead of repairing the existing structure.

Mr. Butler explained that at this time the leaks in this area are only Grade 3 but National Grid tries to stay proactive and fix the pipes before they get worse.

Carol Wein, Newton Resident explained that the pipes in this area have frozen in the past and that has caused interruptions in service. Ms. Wein expressed concern about going through another winter without the water intrusion being solved.

Ellie Goldberg, Newton Resident explained that there should be an analysis on the pipes that this system is connected to. She also questioned if the changing weather has been a part of the engineering analysis?

Mr. Butler explained that they would like to replace all of the leak prone pipe at one time but that is not possible. He further explained that the more streets that are added to the project the more likely the roadway was recently paved by the City. Bill Jerome, National Grid Representative explained that National Grid does have a goal to be carbon neutral by 2050.

Alex Kilmov, 202 Evelyn Road questioned where the pressure reducing equipment is installed?

Mr. Butler explained that it would be just downstream from the meter.

The public hearing was closed.

Councilors asked the following questions:

Q: Would the entire street be repaved?

A: Mr. Taverna explained that he believes that they will pave the trench portion of the street. The City would make an attempt for them to repave the entire surface of Commonwealth Avenue area not including the carriageway. Jeremy Butler, National Grid Representative explained that they will be paving curb to curb.

Q: What is the need to increase the pressure in this area and does this deal with anticipating more gas uses?

A: Mr. Butler explained that the issue for these pipes is water intrusion. Currently, the mains in this area all low pressure which operate at 14 inches of water column meaning that if there is water above that it will go into the pipe. This also means that the pipes may freeze which can result in customer outages. Additionally, he explained that he believes that water intrusion on the leak prone pipes have been a problem throughout Newton and the 22-pound system helps with security against that. Mr. Butler also noted that adding more gas users is not the driver for this request. The larger system also will help when fixing the leak prone pipes that are just outside of this project.

Councilors made the following comments:

National Grid should be coordinating their work with the City so that a road is not being opened after it was just paved.

Councilors chose to set a condition on the Council Order that in advance of construction there shall be a community meeting a month before work starts with the Ward 5 councilors and National Grid. The abutters also need to be sent notice of this meeting.

Councilor Laredo motioned to amend the docket item which passed 6-0 with Councilor Leary and Gentile not voting.

Councilor Crossley motioned to approve the item as amended including the above condition which passed 6-0 with Councilor Leary and Gentile not voting.

Chair's Note: *The Committee received an update from the Department of Public Works on the MS4 requirements.*

Note: The discussion for the above Chair's Note will be available at a later date. The PowerPoint that was presented is attached to this report.

Respectfully Submitted,

Emily Norton, Vice-Chair

DRAFT #415-21

CITY OF NEWTON

IN CITY COUNCIL

DRAFT

ORDERED:

That, in accordance with the recommendation of the Public Facilities Committee through its Chair Alison M. Leary, the following public utility petition be and is hereby approved by the City Council:

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Condition: In advance of construction there shall be a community meeting a month before work starts with the Ward 5 councilors and National Grid. The abutters also need to be sent notice of this meeting.

Under Suspension of Rules
Readings Waived and Approved
DRAFT

(SGD) CAROL MOORE
City Clerk

Newton's Municipal Stormwater (MS4) Permit Program Updates

Presentation to Public Facilities Committee: November 17, 2021

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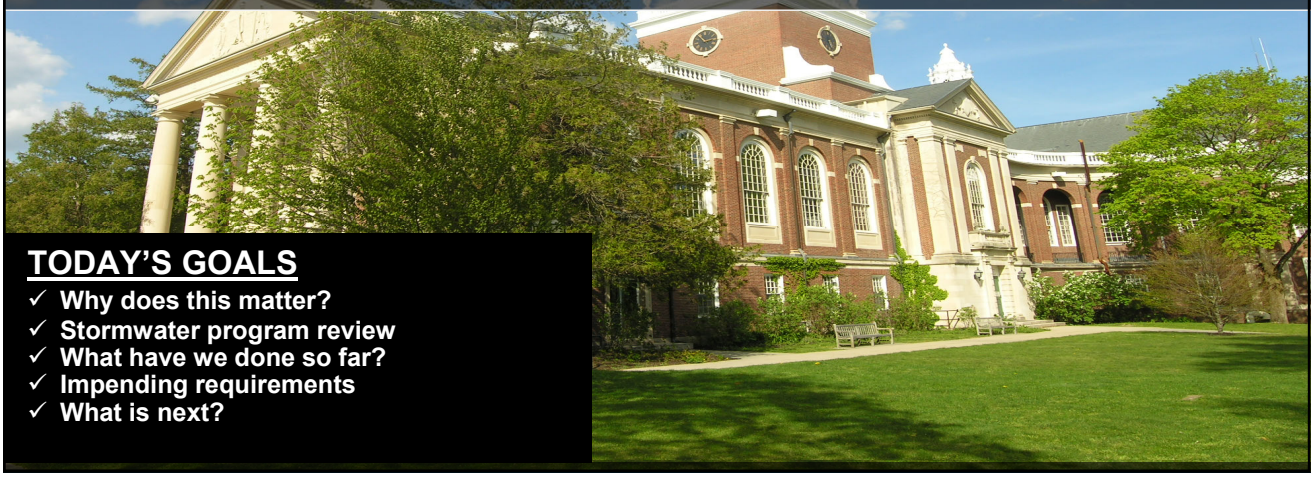

TODAY'S GOALS

- ✓ Why does this matter?
- ✓ Stormwater program review
- ✓ What have we done so far?
- ✓ Impending requirements
- ✓ What is next?

1

Why Are We Here?

- Municipal Separate Storm Sewer (MS4) General Permit reissued by EPA in 2016 and became effective **July 1, 2018**
- This federal Clean Water Act permit requires multi-faceted municipal implementation – Utilities, Planning, Operations, Engineering, GIS-Information Technology, Communications – **It Takes a Community!**
- **Impending requirements** will be **very challenging** and we will need everyone to understand the implications and needs.

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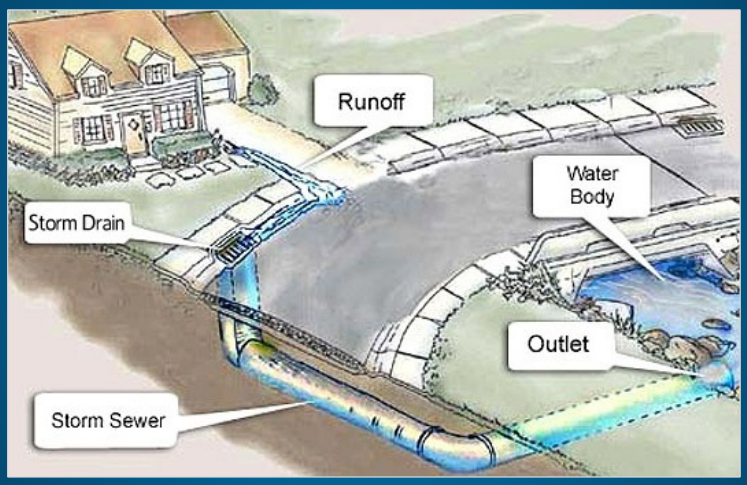
Municipal Drainage System 101



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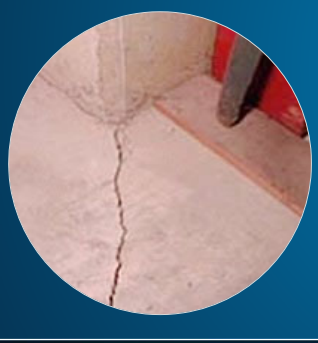
Drainage Prevents Damage

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

Basements	→	Cracking
Streets	→	Erosion
Beneath Roadways	→	Road Heaving



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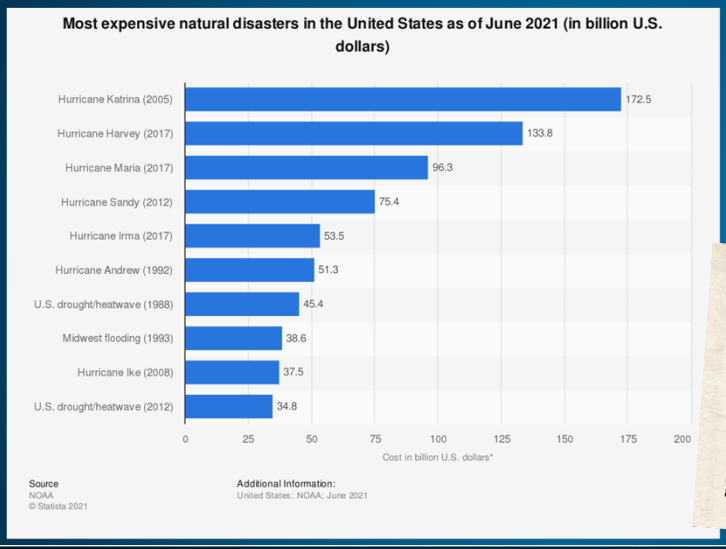
Drainage Services Are Essential



Insurance co. sues Will County, 12 towns over flood damage

April 29, 2014 | By Geoff Ziezulewicz / Tribune reporter

"The common, central and fundamental issue in this action is whether the Defendants have failed to safely operate retention basins, detention basins, tributary enclosed sewers and tributary open sewers/drains for the purpose of safely conveying stormwater," the lawsuit states.

A man crosses a flooded Plainfield street on April 18, 2013. ...

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Unintended Consequences of Effective Drainage

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

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Stormwater Permitting Programs

- Construction General Permit (CGP): Runoff from >1 acre soil disturbance
- Industrial Multi-Sector General Permit (MSGP): Runoff from Industrial Facility per SIC Code
- **Municipal MS4 General Permit**

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Problems We Are Trying to Solve

Water Quality

Capacity

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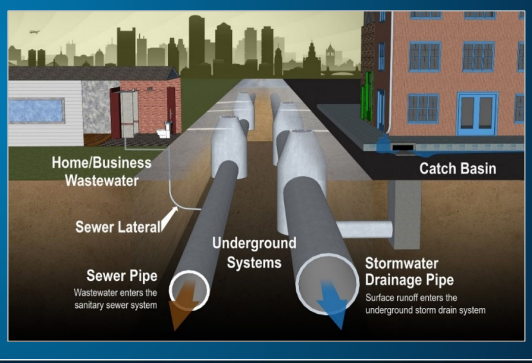
What is an MS4?

A Municipal Separate Storm Sewer System is:

- A conveyance or system of conveyances owned by a state, city, town, or other public entity that discharges to waters of the U.S and is:
  - Designed or used for collecting or conveying stormwater
  - Not a combined sewer
  - Not part of a publicly-owned treatment works



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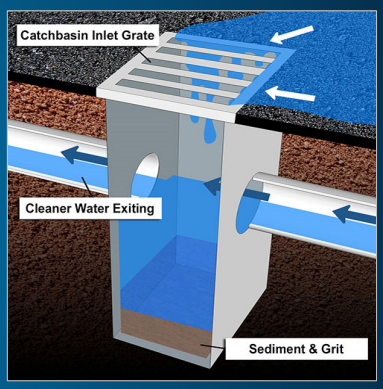
Newton's MS4

Drainage System Facts:

- 320 miles of stormwater drainage pipe
- 12,750 catch basins
- 5,852 of Manholes
- 2 pump stations
- 183 exterior outfalls/interconnections
- 201 Interior outfalls
- 14 miles of streams
- Ditches and Swales as well…



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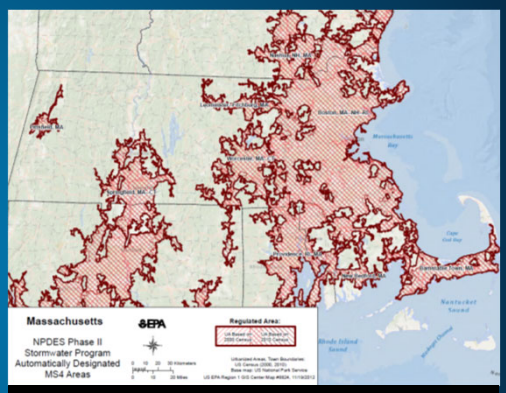
What is the MS4 General Permit?

Clean Water Act requires EPA to regulate any discharges from the MS4 based on 1987 Amendments to the Act

- The MS4 general permit is based on development density and population
- ~260 Municipalities Covered in MA
- In most states, the state administers this permit – MA is EPA regulated
- Every five years a new permit is drafted and issued (in theory)
- Each permittee is required to develop a 5-Year Stormwater Management Plan consistent with the general permit
- Currently in "Permit Year 4"



EPA administers NPDES permits in Massachusetts

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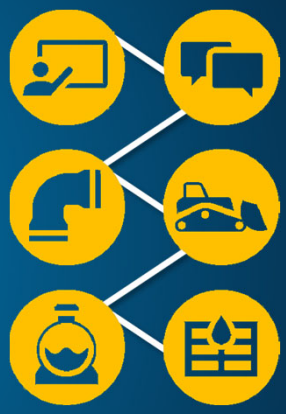
Municipal Stormwater Compliance

Six Primary Control Measures

1. Public Education
2. Public Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Stormwater Management
6. Good Housekeeping and Pollution Prevention



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Public Education

Implement public education programs to help the community understand its role in keeping water clean.

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Public Education and Outreach

- Eight (8) educational messages over Permit Term. Two for each target audience:
  - Residents
  - Businesses / Institutions
  - Developers / Construction
  - Industrial Facilities
- Three messages per year for phosphorus
- Annual message for bacteria
- Measure outreach and message effectiveness

Visit our stormwater webpage: www.newtonma.gov/stormwater

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Public Involvement

Engage the public in decision-making throughout the program.

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Public Involvement and Participation

- Public review and comment on SWMP
- Annual reports available to the public
- Report on public participation activities, for example:
  - Website
  - Hotline / customer service
  - Charles River / stream clean-ups
  - Educational programs
  - Crystal Lake Conservancy

Community engagement in Newton

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Illicit Discharge Detection and Elimination

Find and fix failing sewers that might be leaking or incorrectly connected to the drainage system.

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What are Illicit Discharges?

"any discharge to a MS4 that is not composed entirely of stormwater"

Indirect Discharge	Direct Connection
May come from a variety of sources • Failed septic system • Hazardous waste spills • Leaky sewer line • Grass clippings, leaf litter, pet waste or other solid material dumped into MS4	A non-stormwater pipe connected to the Drainage System • Washing machine • Sewer lateral

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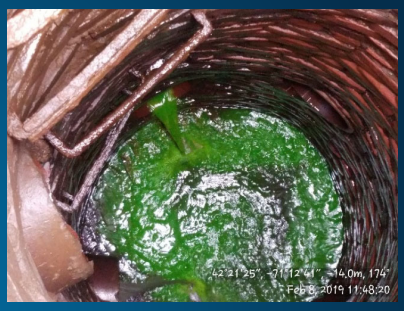
IDDE Program



- Complete system mapping
- Ordinance to prohibit & eliminate
- Outfall / Interconnection Inventory
- Written IDDE Plan
- Assessment & priority ranking of catchments
- IDDE program implementation – 50 miles investigated each year. On track for 100% investigated by Permit Year 10!
- Sanitary Sewer Overflow (SSO) inventory and elimination
- Employee training
- Track program success

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Construction Site Runoff Control

Ensure that construction projects do not pollute runoff with sediments and debris.

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Construction Site Stormwater Runoff Control

- Implement / Enforce program for land disturbance > 1 acre
- Ensure construction site runoff controls
- Ordinance requiring construction site sediment & erosion control
- Requirements for construction site operators
- Written procedures for site plan review, inspections and enforcement

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Post-Construction Stormwater Management

Ensure that new development and redevelopment control and treat runoff before it leaves private property.

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Post Construction Stormwater Management

- Implement & enforce program to address post-construction stormwater runoff >1 acre
- Retain volume of runoff ≥ 1" for all new impervious surfaces; and remove 90% TSS and 60% of Phosphorus – *new development*
- Retain 0.8", Remove 80% TSS and 50% TP for *redevelopment*
- Modify existing or develop new ordinance
- Require as-builts
- Require long-term Operations & Maintenance (O&M) plans
- **Track constructed stormwater control systems**
- Assess current street design and parking lot guidelines & develop report
- Assess existing local regulations with respect to promoting LID Practices
- Identify 5 City properties that can be retrofitted*

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Good Housekeeping and Pollution Prevention

Engage in municipal best practices such as cleaning drainage systems, sweeping streets, leaf litter collection and ensuring municipal activities like vehicle washing and lawn maintenance do not contribute to pollution.

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Good Housekeeping & Pollution Prevention

- Develop written O&M procedures for City-owned facilities – goal of preventing and reducing pollutant runoff and protecting water quality
- Ensure Spill Prevention Plans are in place, where required
- Schedule and prioritize Catch Basin (CB) cleaning
- Investigate CBs >50% full, after two consecutive cleanings
- Document plan for optimizing CB Cleaning in SWMP
- Report maintenance stats in the Annual Report

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Good Housekeeping & Pollution Prevention

- Develop and implement procedures for street sweeping
- Develop and implement Stormwater Pollution Prevention Plans (SWPPP) for DPW yards, maintenance garages and recycling center
- Establish and implement procedures for winter road maintenance (salt storage, minimize use)
- Establish and implement procedures for City-owned stormwater treatment structures (i.e., swales, infiltration, Stormceptors, etc)
- Conduct employee training on SWPPP and SPCC plans

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Total Maximum Daily Load (TMDL) and Impaired Waters

Name	Impairments
Saw Mill Brook	- Chloride - E. coli - Sewage Biological Indicators - Dissolved Oxygen (DO) - Total Phosphorus
Charles River	- Oil and Grease - pH - Nutrient/Eutrophication Biological Indicators - E. coli - Total Phosphorus - Dissolved Oxygen - Chlorophyll-a
Charles River	- Oil and Grease - E. coli - Total Phosphorus - Nutrient/Eutrophication Biological Indicators

Name	Impairments
South Meadow Brook	- Turbidity - Total Phosphorus - Dissolved Oxygen - E. coli
Cheese Cake Brook	- Excess Algal Growth - Dissolved Oxygen - Total Phosphorus - E. coli
Bulloughs Pond	- Excess Algal Growth - Nutrient/Eutrophication - Biological Indicators

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Nutrients as a Pollutant

Public Health Advisory: Algae Bloom At Crystal Lake

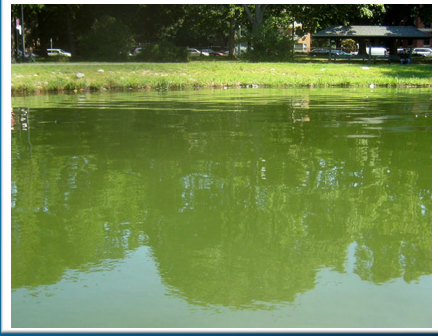
– August, 2019

Public health officials are advising folks to stay out of Crystal Lake if you're not swimming in the swimming area, and to keep pets out.

BIOLOGICAL & ECOLOGICAL STRESS

Health Officials Warn Of Blue-Green Algae Bloom in Charles River

August 31, 2016 2:45 PM



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Clean Charles River Initiative

- 1995: EPA New England launched the Clean Charles initiative.
- The EPA and MassDEP established Total Maximum Daily Load (TMDL) for all discharges
  - 2007, Final TMDL for Nutrients in the Lower Charles River Basin (Lower TMDL)
  - 2011, TMDL for Nutrients in the Upper/Middle Charles River (Upper TMDL)
- TMDL Requirements:
  - Phosphorus WWTF discharge limits for summer/winter at 0.1/0.3 mg/L
  - Stormwater phosphorus reductions are significant!

Medium Density Residential
3,578 kg/yr

High Density Residential
3,876 kg/yr

Commercial / Industrial
4,091 kg/yr

~12,000 kg/yr reduction from stormwater sources

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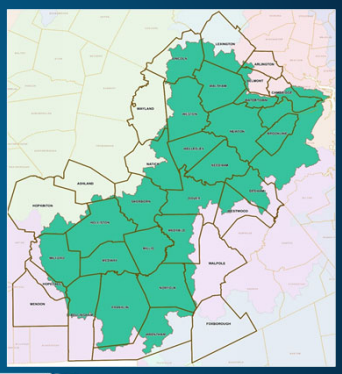
NPDES MS4 Discharger Obligations

- Municipalities are required to create a Phosphorus Control Plan (PCP)
  - Priority ranking of areas and infrastructure for the implementation of structural phosphorus controls
  - Establish O&M program for those structural controls
  - Identify non-structural stormwater controls that will support the reduction of phosphorus loading



...Funding Assessment	Control Plan	Implementation	Reduce TP by 25%	By 50%

2018 2020 2023 2026 2028 2033

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NPDES MS4 Discharger Obligations

- The MS4 General Permit defines load reduction targets for individual communities
- 34 regulated communities will be required to meet the Load Reduction Requirement **by 20% in the first eight years of the permit term** (2018-2026)…and by 25% in the first ten years

Newton - 473 kg/yr

Dedham - 81 kg/yr

Lexington - 48 kg/yr

Wayland - 4 kg/yr

Communities Shown Here for Example Only – 30 others included in discharge requirements

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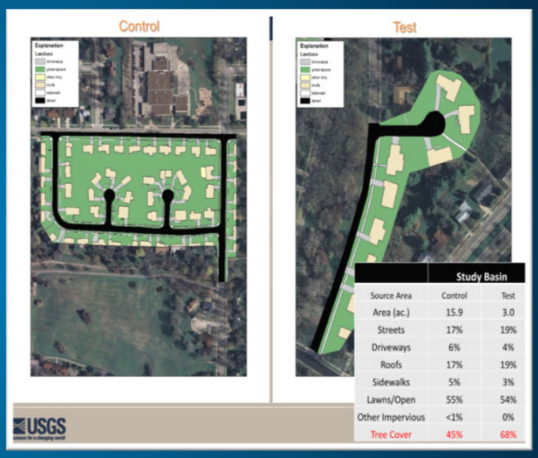
Recent USGS Research on Leaf Litter Cleanup

- Recent leaf litter research indicates leaves in suburban* landscapes are a major source of phosphorus
  - Up to 60% of the annual phosphorus load occurs from leaf litter in the fall
- Phosphorus is primarily in the dissolved phase
  - **Leaf clean up and collection may be one of only a few management options**



	Study Basin	
Source Area	Control	Test
Area (ac.)	15.9	3.0
Streets	17%	19%
Driveways	6%	4%
Roofs	17%	19%
Sidewalks	5%	3%
Lawns/Open	55%	54%
Other Impervious	<1%	0%
Tree Cover	45%	68%

Courtesy of William Selbig, USGS - Wisconsin Water Science Center
Selbig, W.R., 2016, Evaluation of leaf removal as a means to reduce nutrient concentrations and loads in urban stormwater, Science of the Total Environment, 571, pp. 124 - 133

* Medium-density residential landscapes with significant tree canopy cover

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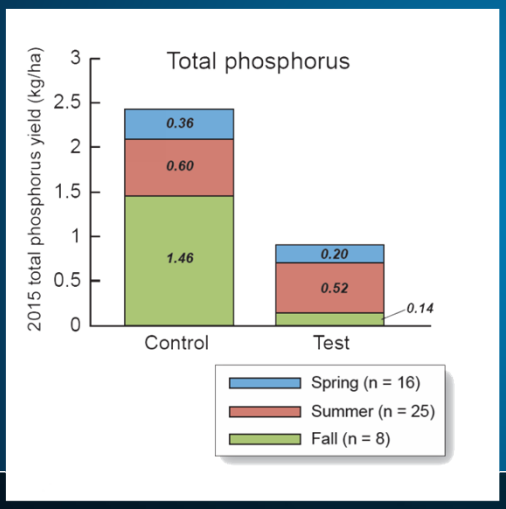
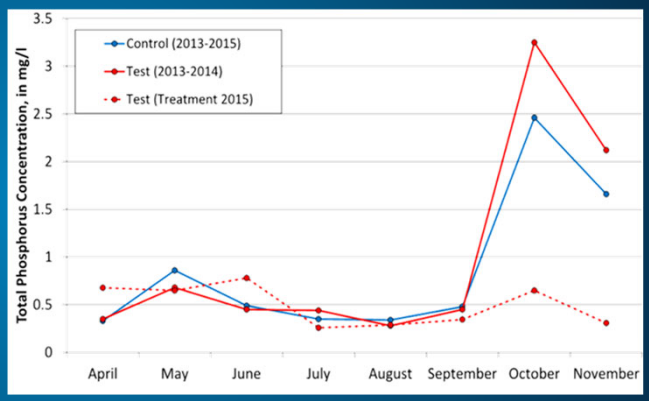
Research indicates leaves are a large part of nutrient runoff!





Courtesy of William Selbig, USGS – Wisconsin Water Science Center wrselbig@usgs.gov
Selbig, W.R., 2016, Evaluation of leaf removal as a means to reduce nutrient concentrations and loads in urban stormwater, Science of the Total Environment, 571, pp. 124 – 133.

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Phosphorus Control Plan (PCP)

- Develop a multi-phase plan to achieve TMDL goal. Reduce Total Phosphorus by 61% or 5,214 lbs by 2038 (Phase 1, 2 and 3 PCP).
- Underway on accounting for existing public and private stormwater controls constructed since 2005
- Current projections are that existing “credits” can account for about 1/3 of Permit Year 8 target
- About 700 lbs of TP will still need to be targeted for removal through structural retrofits and advanced non-structural controls on public and private properties
- Develop Phase I PCP (by 2023)

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In Summary

- Excellent progress on the majority of stormwater permit obligations!
- Stormwater Ordinance and management of redevelopment/development will be critical to long-term improvement of stormwater runoff conditions
- Tracking of private and public stormwater control systems crucial to cost-effective implementation of Charles River PCP
- Integration of community economic development vision with clean water programs will reduce costs and accelerate progress on Clean Charles Initiatives

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Questions / Discussion

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