



Charles River Stormwater Permitting

Agency Residual Designation Review - Process Overview Presentation
EPA Region 1 – New England
September 2020



Webinar Outline

- Charles River watershed overview
- Water Quality Standards & Pollution Sources
- Clean Water Act discussion
- 2019 Residual Designation petition summary
- Plan for EPA Engagement in 2020 & 2021

CHARLES RIVER: INTRODUCTION & OVERVIEW

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Water Division Director

EPA Region I



Human Uses

- Upper Charles
 - Recreational Boating
 - Fishing
- Lower Charles
 - Recreational Boating
 - Sailing and Rowing Clubs
 - Swimming*
 - Public Events



Photos: epa.gov/charlesriver

Clean Water Act History of Success



- Significant Reduction in Sewer Overflows
- 2003 Municipal Stormwater General Permit (2016 and 2020 updates)
- Removal of illegal sewage discharges into storm drains
- 2020's 25th Anniversary Charles River "Report Card"



Progress has been made; however, work remains

- Progress on Bacteria

- Reduced sewer overflows
- Stormwater improvements

- Need to Reduce Phosphorus

- Phosphorus triggers algal blooms - some are toxic
- MA and EPA set reduction targets
- Municipal wastewater plants have achieved a 90%+ reduction
- **Biggest remaining source is stormwater** – municipalities reducing, but private property is a large source



Where Do We Go From Here?

- Solve algae/phosphorus problem
 - Respond to petition
- Stakeholder input



CHARLES RIVER: WATER QUALITY MANAGEMENT

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Water Quality Stressors & Sources

- Bacteria
 - Combined Sewer Discharges, Stormwater Discharges, Sanitary Sewer Overflows, Illicit Discharges, Animal Waste
- Excess Nutrients
 - Stormwater Runoff From Impervious Area, Lawn & Landscaping, Wastewater Facilities, Sanitary Sewer Overflows, Illicit Discharges, Atmospheric Deposition



Set Standards



Monitor Waterways



Manage Impairments

Designated Uses
(e.g., fishable,
swimmable)

Criteria Needed to
Support Uses

- Narrative
- Numeric

How much
phosphorus is
too much?

WQ Monitoring

- Discharge Site Sampling
- Ambient Monitoring
- Citizen Science

Impaired Waters List
(State-updated every
2 years)

Where is there
too much
phosphorus?

Planning Tools:

- TMDLs
- Alt-TMDLs
- Watershed Plans
- Non-Point Programs

Permit Tools

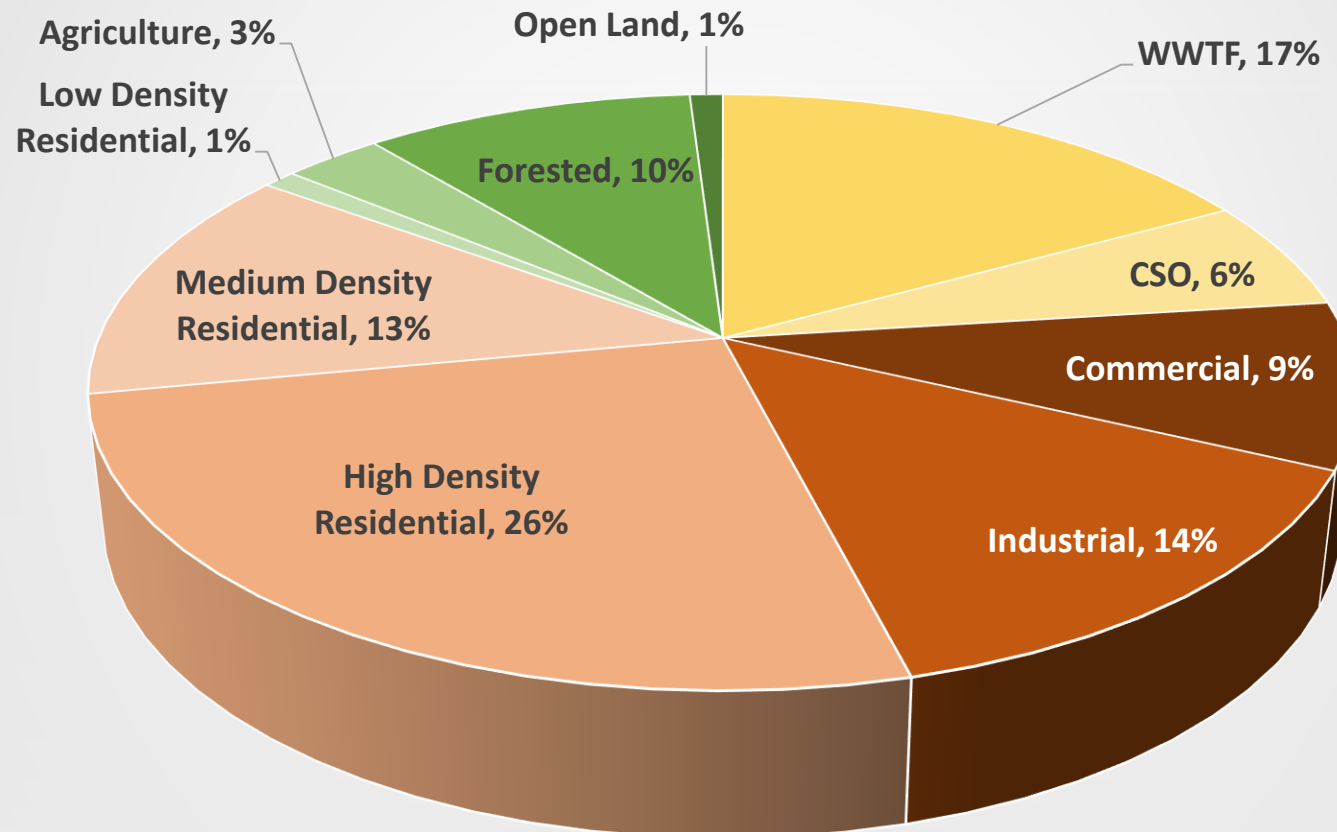
- Individual Permits
- General Permits

How do we get
back to healthy
phosphorus
levels?

TOTAL MAXIMUM DAILY LOAD (TMDL)

- **TMDL** - a plan to determine the amount of pollutant reduction needed for a waterbody to meet **Water Quality Standards**
- A TMDL identifies the sources of pollution as either point source (municipal, industrial, urbanized stormwater, etc.) or non-point source (agriculture, atmospheric deposition, unregulated stormwater, septic systems, etc.) and assigns reductions to these sources known as Waste Load Allocations (WLA) for point sources and Load Allocations (LA) for non-point sources
- Two Phosphorus TMDLs for the Charles River:
 - Lower Charles River TMDL completed in 2007
 - Upper Charles River TMDL completed in 2011

Charles River TMDL Loadings



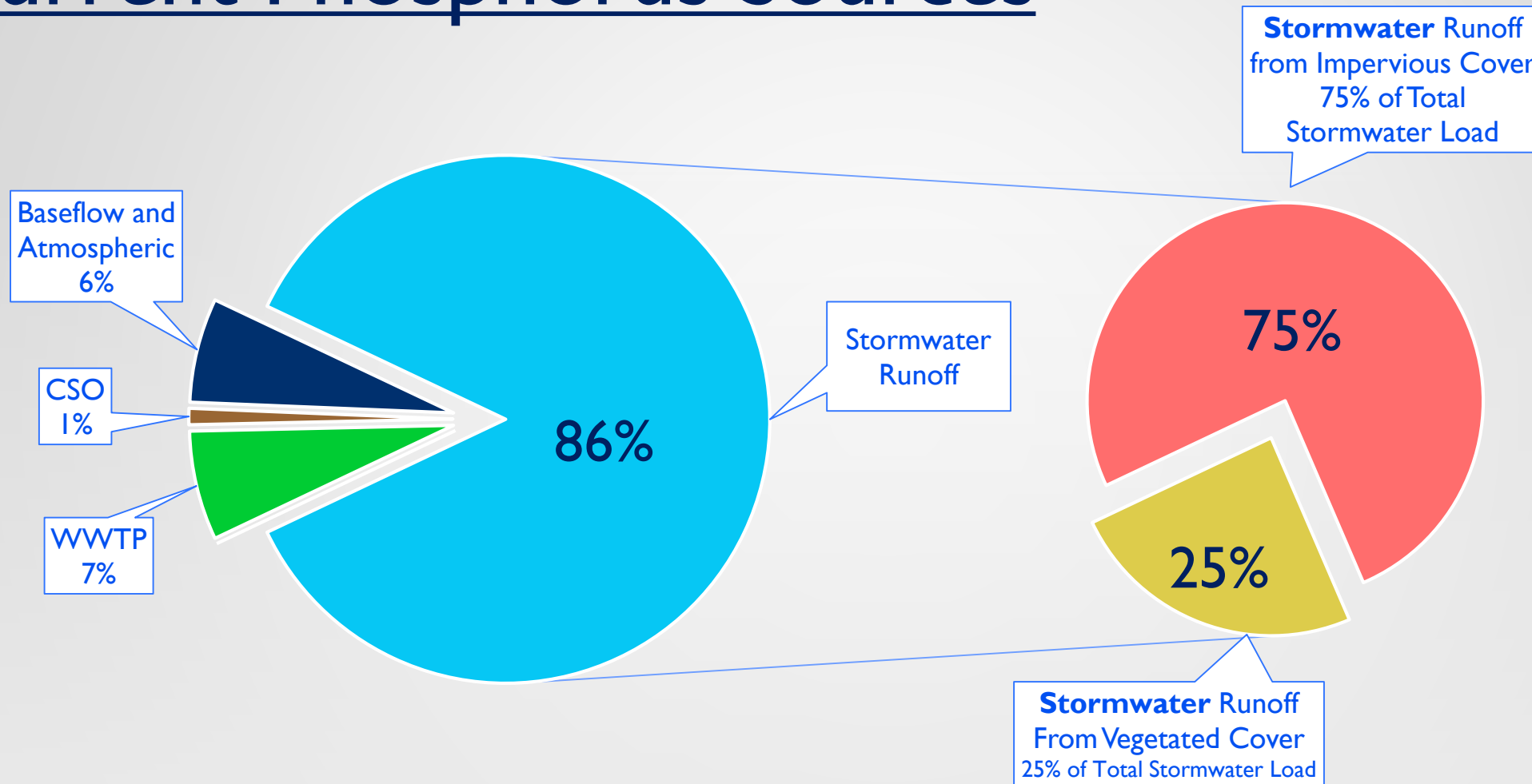
Lower Charles Phosphorus TMDL, 2007

Charles River TMDL WLAs



Land Use Group	Upper TMDL WLA % Reduction Rate	Lower TMDL WLA % Reduction Rate
Commercial	65%	62%
Industrial	65%	62%
High Density Residential	65%	62%
Medium Density Residential	65%	62%
Low Density Residential	45%	62%
Highway	65%	62%
Open Space	35%	62%
Agriculture	35%	62%
Forest	0%	0%

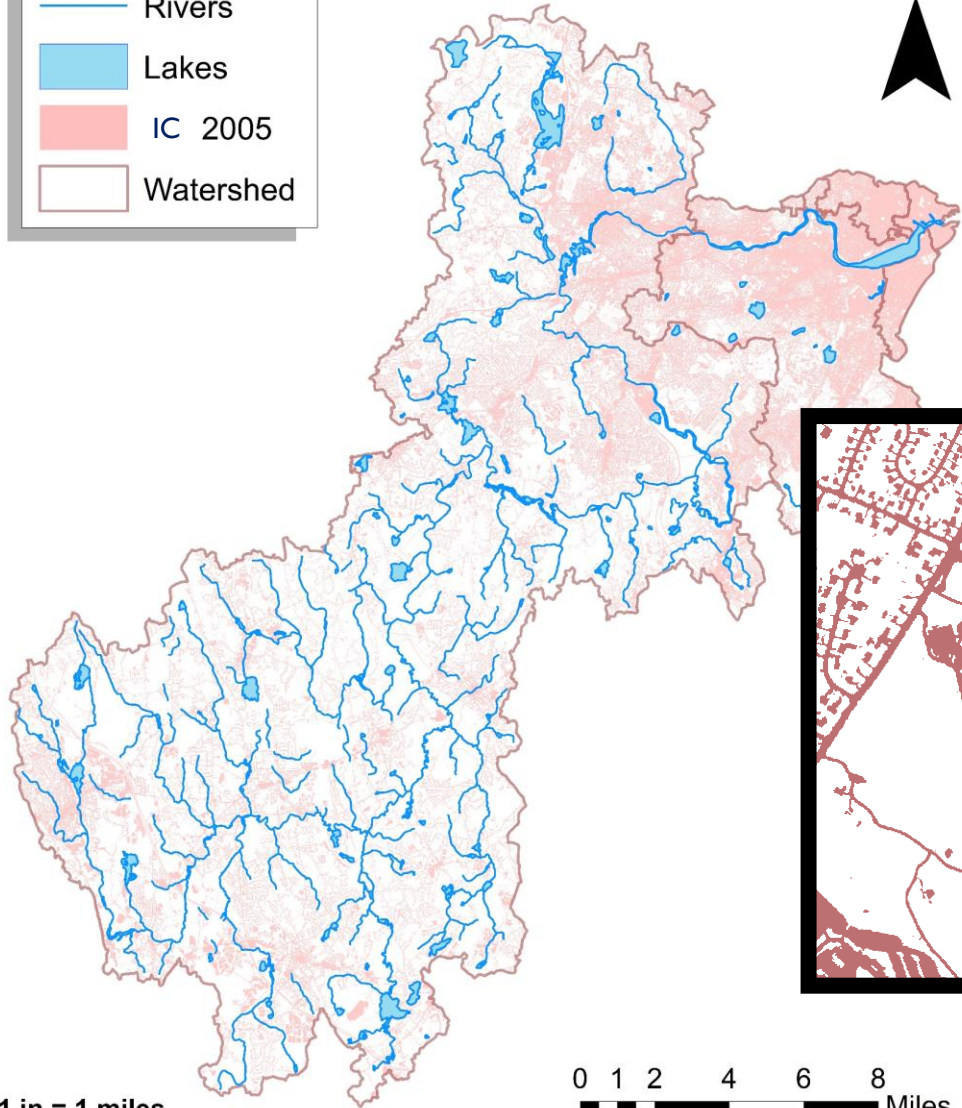
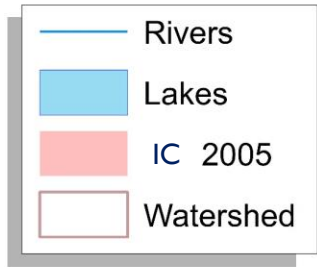
Current Phosphorus Sources



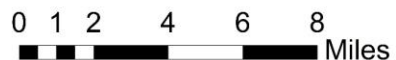


2005 Impervious Surface Area in the Charles River Watershed

Map Created by: Michael Silano
Projection: Lambert Conformal Conic
Coordinate System: NAD 1983 StatePlane MA Mainland FIPS 2001



1 in = 1 miles



Impervious Cover is a large source of phosphorus

Impervious surfaces:

- rooftops
- pavement

Rain washes phosphorus off these surfaces into the river system in every storm

Phosphorus Control Strategies

1. **Reduce or disconnect impervious cover**
2. Small-scale infiltration practices (e.g., rain gardens, tree trenches, dry wells, infiltration trenches)
3. Stormwater capture (e.g., irrigation cisterns, rain barrels, green roofs)
4. Filtration practices (e.g., biofiltration, gravel wetland)
5. Non-Structural control strategies (e.g., leaf litter pickup, street/parking lot sweeping)





Phosphorus Control Actions

- Enforcement – Illicit Discharge Elimination
- NPDES Permit Programs
 - **CSO reductions:** 99.5% reduction in untreated sewage discharges
 - **WWTP Permits** required over 90% reduction in phosphorus.
 - **2016 MS4 Permit** requiring up to a 64% reduction in stormwater phosphorus loads from Charles River communities



Role of the MS4 Permits in RD Petition Review

EPA's 2016 MA small municipal separate storm sewer system (MS4) general permit covers 34 communities in the Charles River watershed.

Permit effective date: 7/1/2018.

Each community is assigned a phosphorus reduction requirement consistent with a TMDL and WLA.

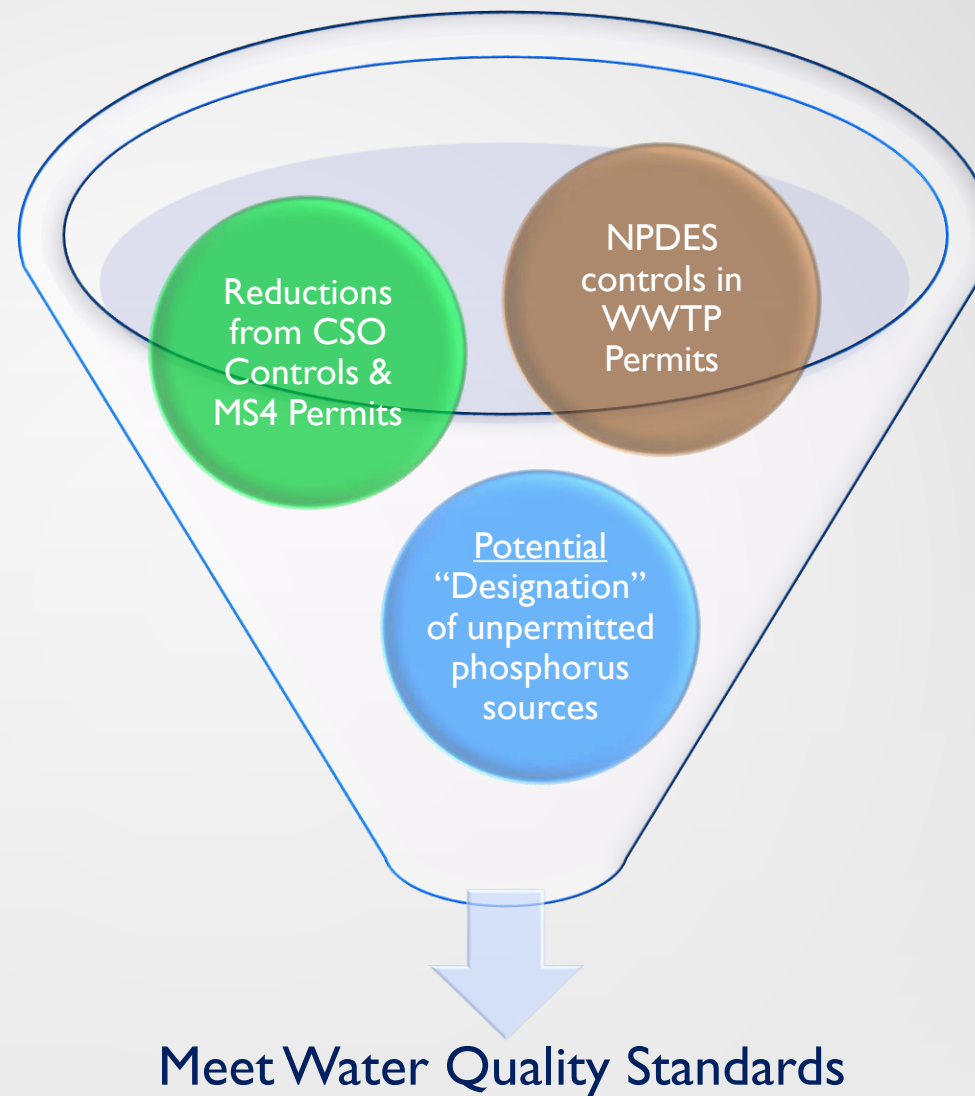
Requires communities to develop a plan for reducing phosphorus in any stormwater discharged via their system (regardless of source).



Phosphorus Management

- ✓ Set Water Quality Standards
- ✓ Monitor
- ✓ Review Impairments
- ✓ Set TMDL
- ✓ Insert TMDL Limits into:
 - ✓ NPDES WWTP Point Sources
 - ✓ CSO & MS4 Programs

Review whether TMDL goals will be met or more is needed



CHARLES RIVER: THE CLEAN WATER ACT & RESIDUAL DESIGNATIONS

Erin Flannery-Keith

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Residual Designation Authority (RDA)

- RDA is the agency's authority to require NPDES permits for stormwater discharges not otherwise required to have permits.
 - See, Clean Water Act (CWA) Section 402(p)
- A Residual Designation decision can be made...
 - By the EPA, acting on its own volition, or
 - As the result of a petition
- A discharge may require a permit under this authority if it:
 - Is contributing to a water quality violation, or
 - Is a significant contributor of pollutants to a water of the United States.



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Residual Designation Permits

If EPA finds there is a need to use its RD Authority and issue a permit for a stormwater discharge, tools available include:

- General permits for certain classes of sites, facilities, or entities;
- Individual permits for individual stormwater discharges; or
- A combination of these approaches.



Residual Designation History

2008

- EPA RI proposed to designate stormwater discharges from sites with ≥ 2 acres of impervious surfaces in 3 Charles River Towns & public noticed draft permit

2013

- RDA petitions in EPA Regions 1, 3, & 9.
- Regions 3 and 9 denied petitions.
- Region 1 neither granted nor denied; said further analysis needed.

2015

- CLF & CRWA filed citizen suits in 2015 in US District Courts in Mass. and Rhode Island regarding TMDLs-as-RDA decisions. RI prevailed in both. On appeal, the First Circuit affirmed.

2018-19

- Environmental groups that submitted 2013 petitions in R3 and R9 sued in US Dist. Ct. and won.
- Denials remanded to EPA in 2019.



2019 Charles River RD Petition

On May 9, 2019 petition from the Conservation Law Foundation and Charles River Watershed Association asking EPA to exercise its residual designation authority (RDA) to regulate certain stormwater discharges from privately-owned **commercial, institutional, industrial, and multi-family residential properties** that are **one acre or greater** in the Charles River watershed.



EPA's Charles River RD Process



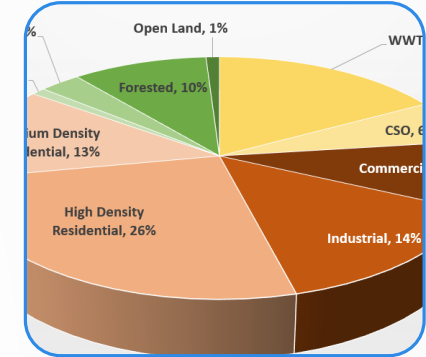
EPA PETITION REVIEW & ENGAGEMENT PLAN

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Summary



Heavily-Used Watershed

- 35 towns
- Significant impervious cover
- Heavily used for recreation

Progress So Far

- CSO Capture
- Deer Island
- Enforcement
- MS4 Permits
- Water Quality Monitoring

Work Still Underway

- Implementing TMDLs
- Removing Sewer Connections
- Municipal Stormwater Permit

Addressing Phosphorus & Bacteria

- NPDES ✓
- MS4 ✓
- CSO ✓
- Residual Designation?

2020-2021

- MS4 Permit Planning
- EPA Review of RDA Petition
- Stakeholder Engagement



EPA's Petition Review

EPA needs to consider:

- Whether to grant the petition—in whole or in part
- How stormwater permits for privately-owned sites would relate to municipal stormwater permits
- What types/sizes of facilities would be included
- What the permits would require
- Whether to use general or individual permits (or both)
- What would be a realistic schedule to implement the permits



Engagement Timeline





Stakeholder Engagement

- EPA is working with Consensus Building Institute (CBI) for this process
 - CBI is an independent, non-partisan facilitator with no stake in the outcome
- CBI, in close coordination with EPA's team, will engage with you directly in the coming months to work to better understand:
 - What key questions you need answered, and
 - How you want to be involved as EPA moves forward with this review
- For more, please contact Pat Field, Senior Mediator at CBI (pfield@cbi.org) or Ellie Tonkin at EPA (Tonkin.Elissa@epa.gov)



Thank You!

To be informed of all upcoming open meetings and be alerted to all agency news on the RD petition consideration process, sign up at:

Charles.River.RDA@epa.gov

To find this presentation and copies of all other materials, visit:

www.epa.gov/charlesriver/environmental-challenges-charles-river#ResidualDesignationAuthority