

FINAL MA MS4 GENERAL PERMIT

Making Stormwater Great Again



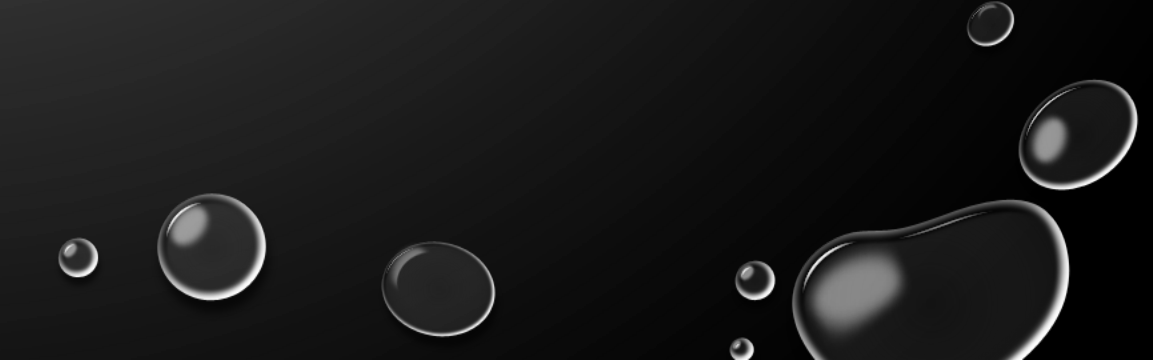
NEWTON TEDDER

EPA REGION 1

BOSTON

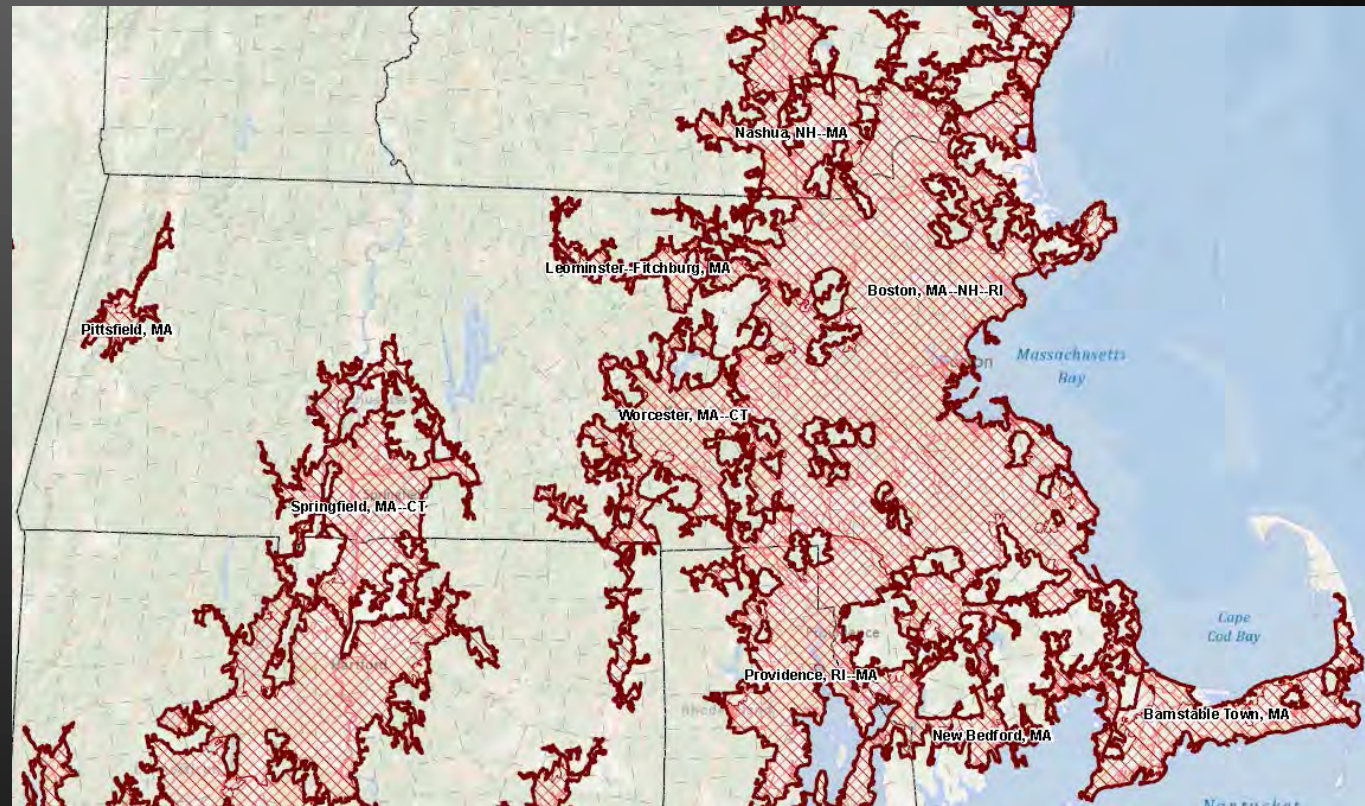


PRESENTATION OVERVIEW

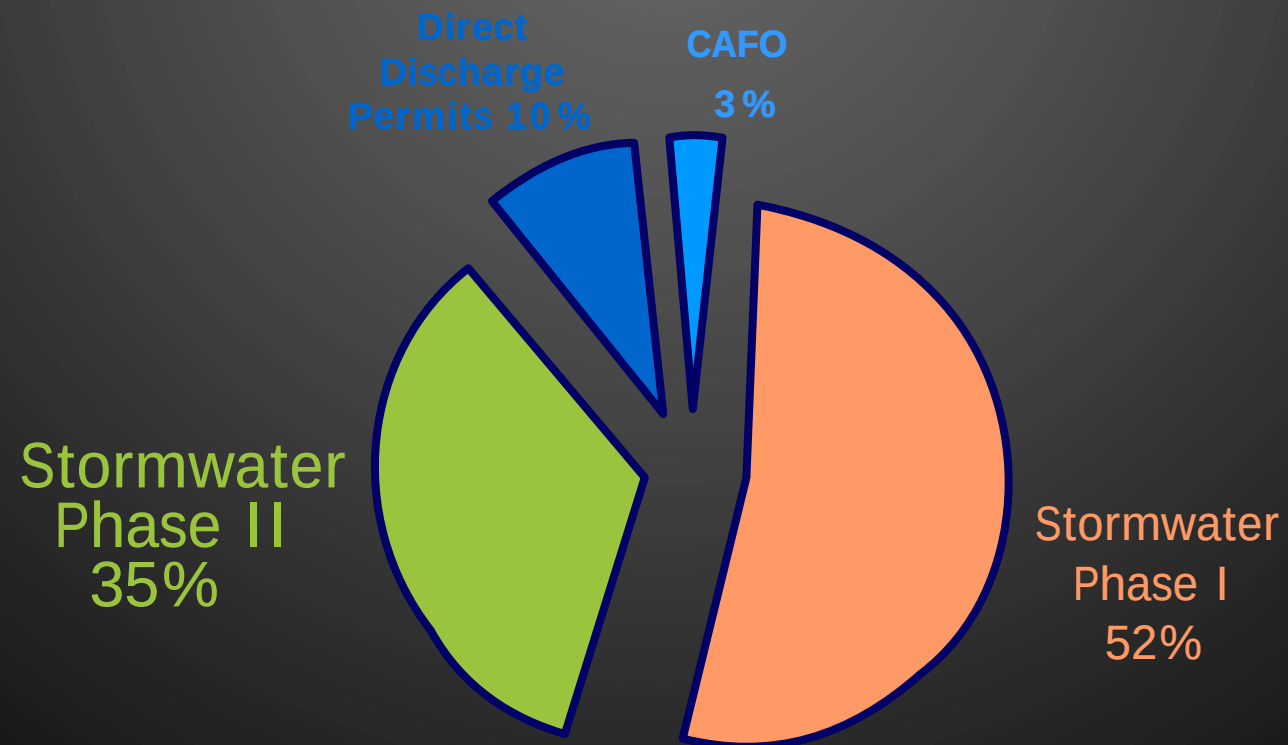
- HISTORY
 - GENERAL OVERVIEW MS4 PERMIT REQUIREMENTS AND CHANGES FROM THE DRAFT PERMIT
 - EPA TOOLS DISCUSSION
 - MASSDEP TOOLS (FRED CIVIAN)
 - QUESTIONS
- 

NPDES PERMITTING FOR SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

- 1987 AMENDMENT MANDATED THAT STORMWATER WAS TO BE REGULATED UNDER THE NPDES PROGRAM
- PHASE II REGULATIONS REQUIRED THESE PERMITS – 1999
- 260 MUNICIPALITIES COVERED IN MASSACHUSETTS

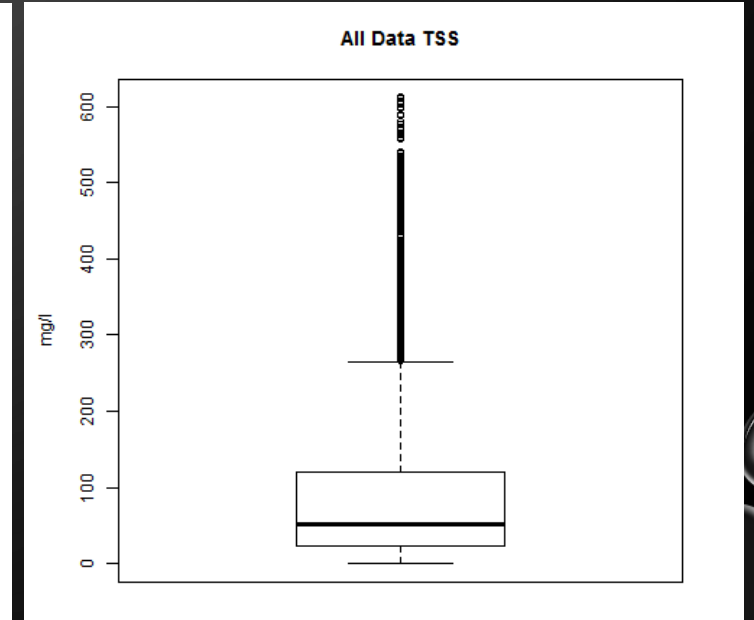
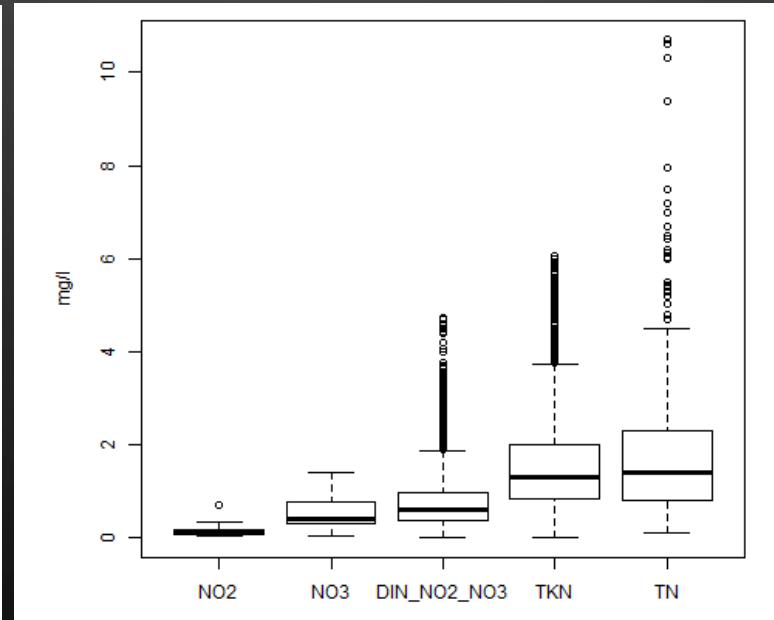
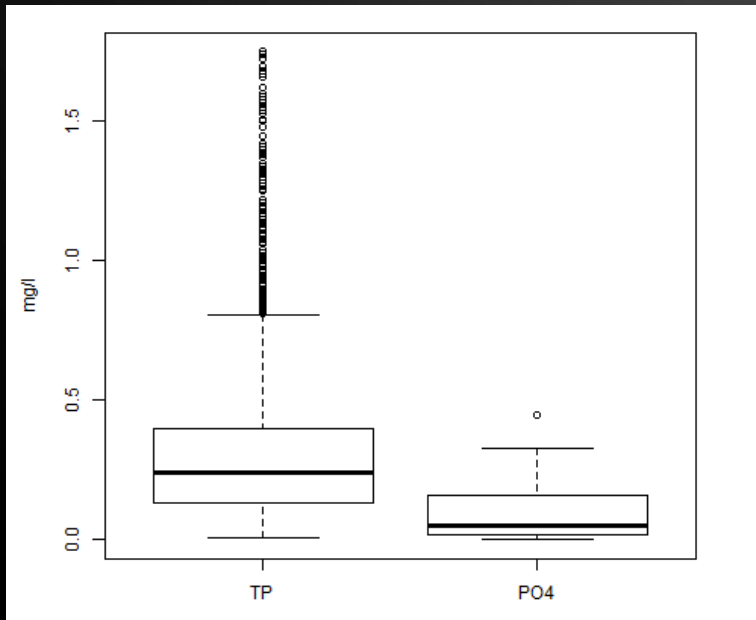


NPDES PERMITTED UNIVERSE

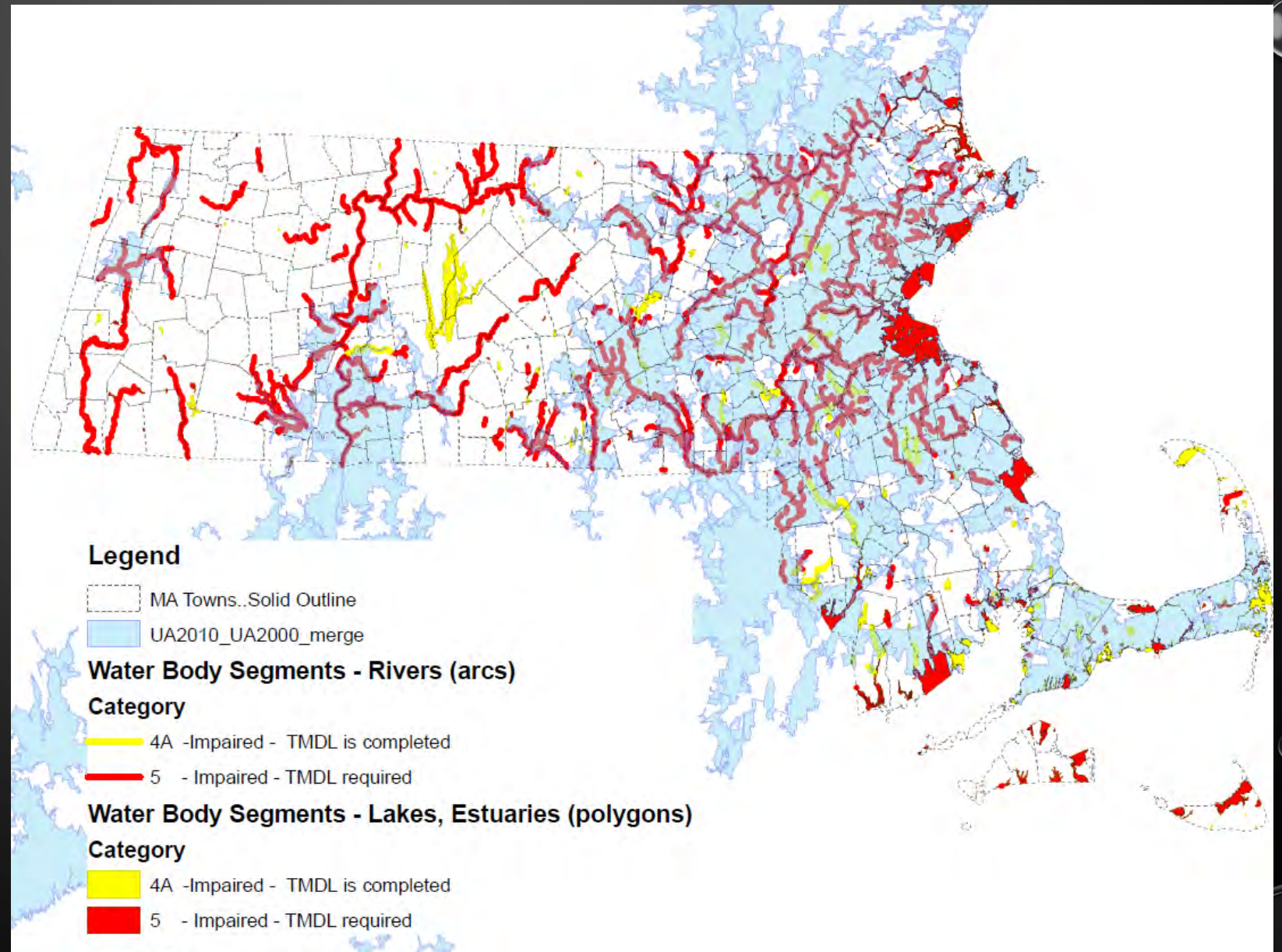


STORMWATER

- NATIONWIDE URBAN RUNOFF PROGRAM (1983)
 - FOUND HIGH LEVELS OF HEAVY METALS, FECAL COLIFORM, TSS, NUTRIENTS AND HYDROCARBONS IN URBAN RUNOFF
- NATIONAL STORMWATER QUALITY DATABASE (2015)
 - EMC DATA FOR STORMWATER CONSTITUENTS



STORMWATER
DISCHARGES ARE
CAUSING OR
CONTRIBUTING TO AT
LEAST OF THE **55%**
IMPAIRMENTS IN ALL
MASSACHUSETTS'
ASSESSED WATERS



TIMING

- CO ISSUED FINAL WITH MASSDEP APRIL 2016
- EFFECTIVE DATE **JULY 1, 2017**
- NOTICE OF INTENT DUE **SEPTEMBER 29, 2017**
- STORMWATER MANAGEMENT PLAN **JULY 1, 2018**

MASSACHUSETTS MS4 GENERAL PERMIT

SIX MINIMUM CONTROL MEASURES

- PUBLIC EDUCATION
- PUBLIC INVOLVEMENT
- ILLICIT DISCHARGE DETECTION & ELIMINATION
- CONSTRUCTION SITE RUNOFF
- POST-CONSTRUCTION STORMWATER MANAGEMENT
- GOOD HOUSEKEEPING/POLLUTION PREVENTION

WATER-QUALITY BASED REQUIREMENTS

- IMPAIRED RECEIVING WATERS
 - NITROGEN OR PHOSPHORUS
 - METALS
 - SOLIDS
 - BACTERIA OR PATHOGENS
 - CHLORIDE
 - OIL AND GREASE
- W/ OR W/O A TMDL

MCM -1 PUBLIC EDUCATION AND OUTREACH

REQUIREMENTS

- FOUR AUDIENCES
 - RESIDENTS
 - BUSINESSES AND COMMERCIAL FACILITIES
 - DEVELOPERS
 - INDUSTRIAL FACILITIES
- TWO MESSAGES TO EACH AUDIENCE OVER THE PERMIT TERM

MAJOR CHANGES

- IF AN AUDIENCE DOES NOT EXIST WITHIN A PERMITTEES JURISDICTION THEN NO EDUCATION MESSAGES REQUIRED

MCM – 2 PUBLIC INVOLVEMENT AND PARTICIPATION

REQUIREMENTS

- PUBLIC REVIEW OF SWMP
- ALL REPORTS AVAILABLE TO THE PUBLIC

MAJOR CHANGES

- NONE

MCM 3 - ILLICIT DISCHARGE DETECTION AND ELIMINATION

- MORE PRESCRIPTIVE THAN 2003 PERMIT
- BASED ON REGION 1 ENFORCEMENT ACTIONS:

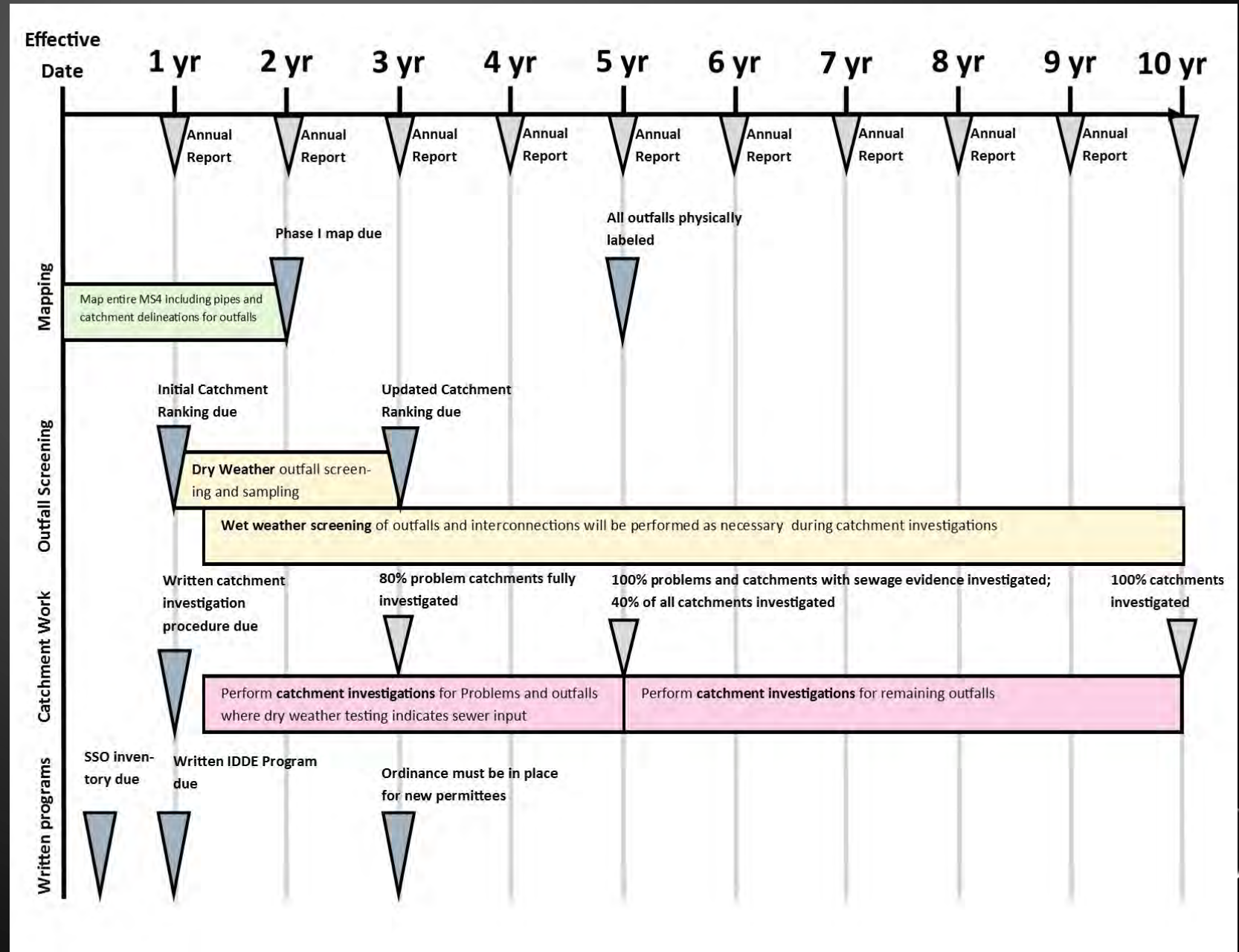
EX: OVER 58 MILLION GALLONS PER YEAR OF SEWAGE REMOVED FROM STORMWATER IN THE BOSTON HARBOR WATERSHED



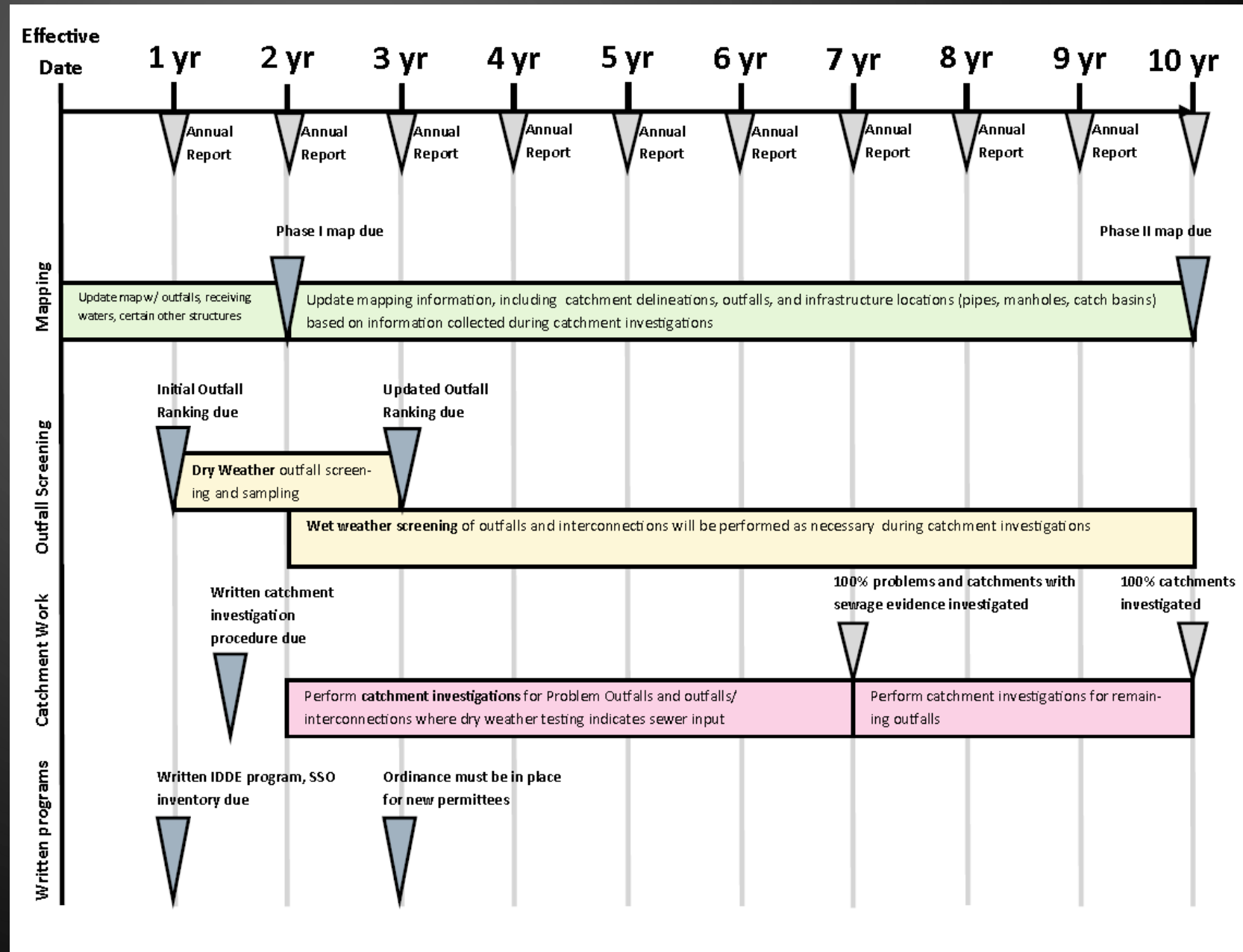
- THIS SECTION HAS BEEN REORGANIZED SEQUENTIALLY FOR CLARITY
- STILL A 10-YEAR IMPLEMENTATION TIMEFRAME



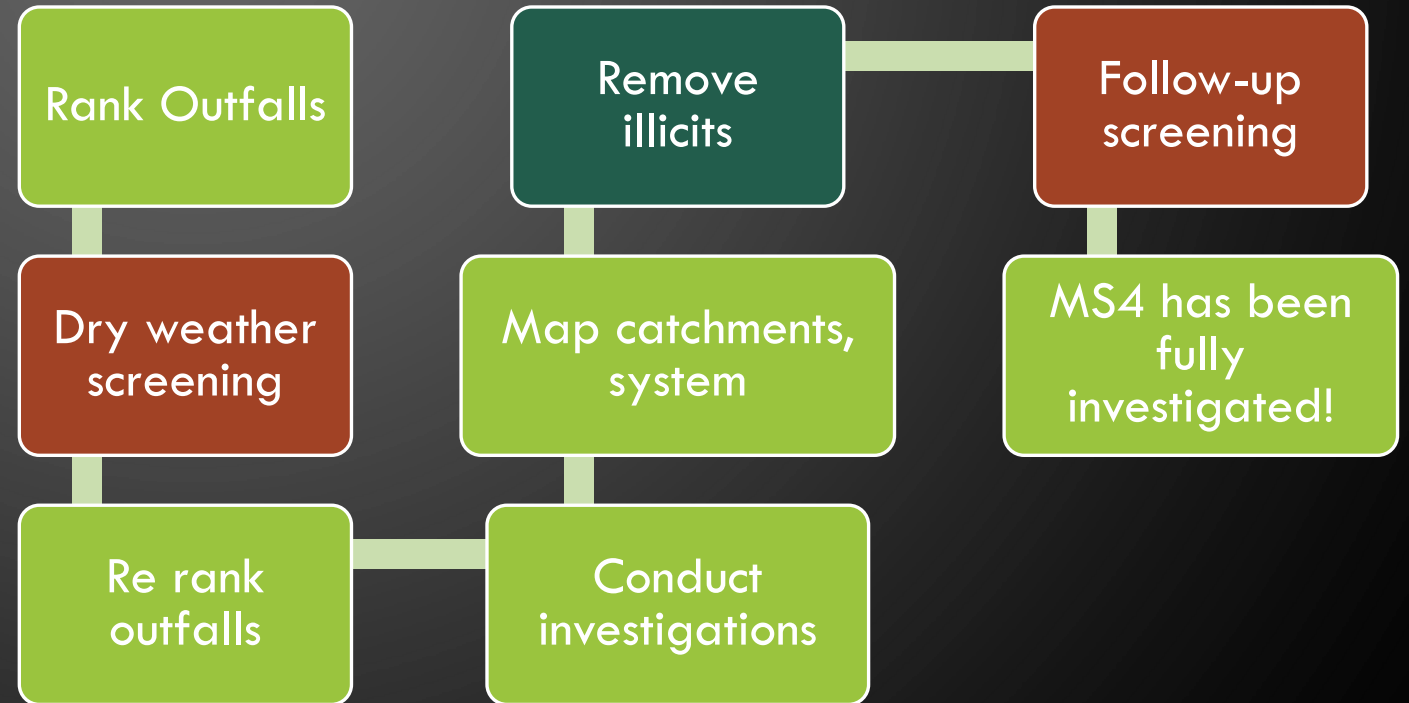
MA FINAL PERMIT: CHANGES BASED ON COMMENTS ON THE IDDE REQUIREMENTS



MA FINAL PERMIT: CHANGES BASED ON COMMENTS ON THE IDDE REQUIREMENTS



- CRITERIA TO RANK OUTFALLS HAVE BEEN MADE MORE EXPLICITLY FLEXIBLE FOR TOWNS TO DETERMINE THEIR OWN PRIORITY OUTFALLS
- CERTAIN SYSTEM VULNERABILITY FACTORS (WET WEATHER SCREENING) HAVE BEEN MADE DISCRETIONARY



MCM-4 CONSTRUCTION SITE STORMWATER CONTROL

REQUIREMENTS

- ORDINANCE
- SITE INSPECTION PROCEDURES
- SEDIMENT CONTROL REQUIREMENTS
- REQUIREMENTS TO CONTROL WASTE
- SITE PLAN REVIEW

MAJOR CHANGES

- NONE

MCM -5 POST CONSTRUCTION STORMWATER MANAGEMENT

NEW DEVELOPMENT

- COMPLY WITH MASSACHUSETTS STORMWATER STANDARDS 1, 2, 3, 5, 6 AND 9 FULLY
- RETAIN THE FIRST 1 INCH OF RUNOFF FROM IMPERVIOUS AREA ONSITE OR DESIGN TREATMENT SUCH THAT 90% OF THE AVERAGE ANNUAL LOAD OF TOTAL SUSPENDED SOLIDS (TSS) AND 60% OF THE AVERAGE ANNUAL LOAD OF TOTAL PHOSPHORUS GENERATED FROM THE IMPERVIOUS AREA ON THE SITE IS REMOVED PRIOR TO DISCHARGE

REDEVELOPMENT

- COMPLY WITH MASSACHUSETTS STORMWATER STANDARDS 1, 2, 3, 5, 6 AND 9 TO THE MAXIMUM EXTENT FEASIBLE
- RETAIN THE FIRST 0.8 INCH OF RUNOFF FROM IMPERVIOUS AREA ONSITE OR DESIGN TREATMENT SUCH THAT 80% OF THE AVERAGE ANNUAL LOAD OF TOTAL SUSPENDED SOLIDS (TSS) AND 50% OF THE AVERAGE ANNUAL LOAD OF TOTAL PHOSPHORUS GENERATED FROM THE IMPERVIOUS AREA ON THE SITE IS REMOVED PRIOR TO DISCHARGE
 - OFFSITE MITIGATION IS ALLOWED

MCM – 5 POST CONSTRUCTION STORMWATER MANAGEMENT

OTHER MAJOR CHANGES

- REPORT ASSESSING STREET DESIGN AND PARKING DEADLINE EXTENDED TO 4 YEARS
- LINEAR PROJECT EXEMPTION
- INVENTORY OF RETROFIT SITES NOW REQUIRES IDENTIFICATION OF 5 SITES, NOT ALL SITES
- REQUIREMENT TO TRACK DCIA HAS BEEN REMOVED

MCM – 6 GOOD HOUSEKEEPING

REQUIREMENTS

- O&M PROCEDURES
- CATCH BASIN CLEANING
- STREET SWEEPING
- SWPPP

MAJOR CHANGES

- DEADLINES FOR O&M PLANS AND FULL STORMWATER POLLUTION PREVENTION PLANS (SWPPPS) FOR MUNICIPALLY-OPERATED PROPERTIES HAVE BEEN COORDINATED AT 2 YEARS FOR BOTH
- REQUIREMENTS TO MEASURE MATERIAL CLEANED OUT OF INDIVIDUAL CATCH BASINS HAS BEEN REMOVED

IMPAIRED WATERS REQUIREMENTS

- NITROGEN
- PHOSPHORUS
- METALS
- SOLIDS
- BACTERIA OR PATHOGENS
- CHLORIDE
- OIL AND GREASE

ALL REQUIREMENTS IN
APPENDIX H

BACTERIA/PATHOGEN REQUIREMENTS

REQUIREMENTS

- ADDITIONAL PUBLIC EDUCATION MESSAGES
- CATCHMENTS RANKED AS HIGH PRIORITY FOR IDDE

MAJOR CHANGES

- EDUCATION MESSAGES CAN BE COMBINED WITH OTHER IMPAIRED WATERS REQUIREMENTS
- RELIEF FROM REQUIREMENTS AVAILABLE UNDER CERTAIN CONDITIONS

NUTRIENT IMPAIRED WATERS

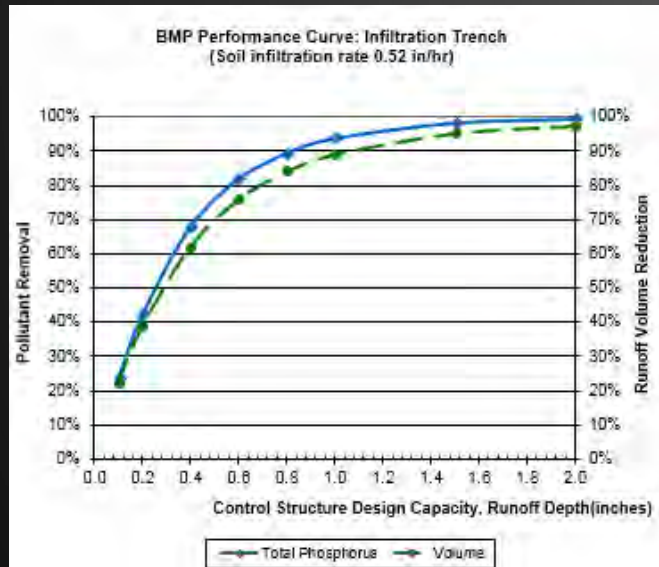
REQUIREMENTS

- ADDITIONAL PUBLIC EDUCATION MESSAGES
- ADDITIONAL NEW AND REDEVELOPMENT REQUIREMENTS
- ADDITIONAL GOOD HOUSEKEEPING REQUIREMENTS
- NUTRIENT SOURCE IDENTIFICATION REPORT

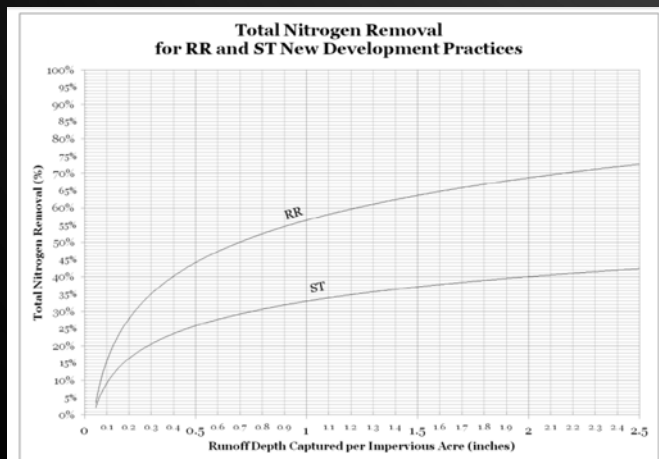
MAJOR CHANGES

- EDUCATION MESSAGES CAN BE COMBINED WITH OTHER IMPAIRED WATERS REQUIREMENTS
- RELIEF FROM REQUIREMENTS AVAILABLE UNDER CERTAIN CONDITIONS

NUTRIENT SOURCE IDENTIFICATION REPORT



- Due Year 4
- Delineate potential N or P sources
- ID potential retrofits
- 1 demonstration project by year 6
- Tracking of N or P reductions through implementation of structural BMPs



CHLORIDE IMPAIRED WATERS

REQUIREMENTS

- SALT REDUCTION PLAN
- ADDITIONAL PUBLIC EDUCATION MESSAGE
- MECHANISM TO ENSURE PRIVATE INDUSTRY AND COMMERCIAL SITES COVER SALT PILES
- ADDITIONAL NEW AND REDEVELOPMENT REQUIREMENTS

MAJOR CHANGES

- RELIEF FROM REQUIREMENTS AVAILABLE UNDER CERTAIN CONDITIONS

SEDIMENT, METALS OR OIL AND GREASE IMPAIRED WATERS

REQUIREMENTS

- ADDITIONAL GOOD HOUSEKEEPING REQUIREMENTS
- ADDITIONAL NEW AND REDEVELOPMENT REQUIREMENTS

MAJOR CHANGES

- RELIEF FROM REQUIREMENTS AVAILABLE UNDER CERTAIN CONDITIONS

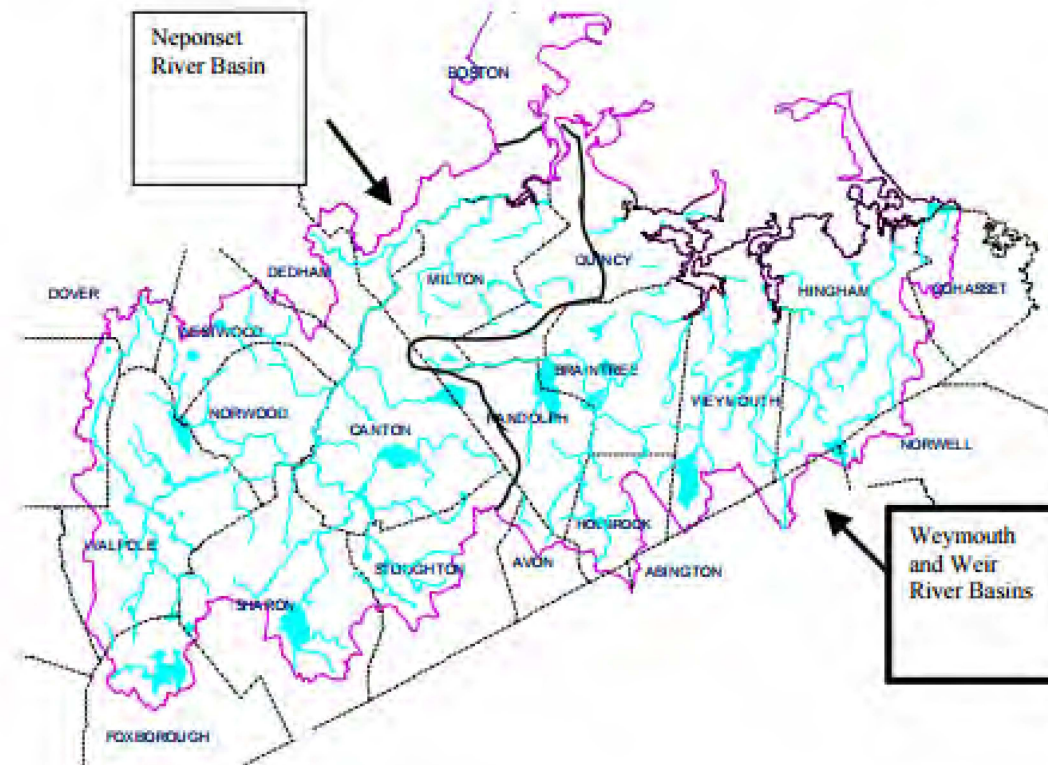
RELIEF FROM IMPAIRED WATERS REQUIREMENTS

- RECEIVING WATER (INCLUDING DOWNSTREAM RECEIVING WATERS FOR NUTRIENT IMPAIRMENTS) DETERMINED TO BE NO LONGER IMPAIRED
- A TMDL INDICATES ADDITIONAL MUNICIPAL STORMWATER CONTROLS ARE NOT NECESSARY TO ADDRESS POLLUTANT OF CONCERN IN WASTE LOAD ALLOCATIONS
- THE PERMITTEE'S DISCHARGE IS DETERMINED TO BE BELOW APPLICABLE WATER QUALITY CRITERIA
 - (BACTERIA, METALS, SEDIMENT, CHLORIDE, OIL AND GREASE IMPAIRMENTS ONLY)

TMDL REQUIREMENTS

- **BACTERIA AND PATHOGEN TMDLS**
- **CHARLES RIVER PHOSPHORUS TMDLS**
- LAKE AND POND PHOSPHORUS TMDLS
 - CAPE COD NITROGEN TMDLS
 - ASSABET RIVER PHOSPHORUS TMDLS
- LONG ISLAND SOUND NITROGEN TMDL
- PHOSPHORUS AND METALS TMDLS FOR RHODE ISLAND WATERS

**Total Maximum Daily Loads of Bacteria for
Neponset River Basin**



BACTERIA/PATHOGEN REQUIREMENTS

REQUIREMENTS

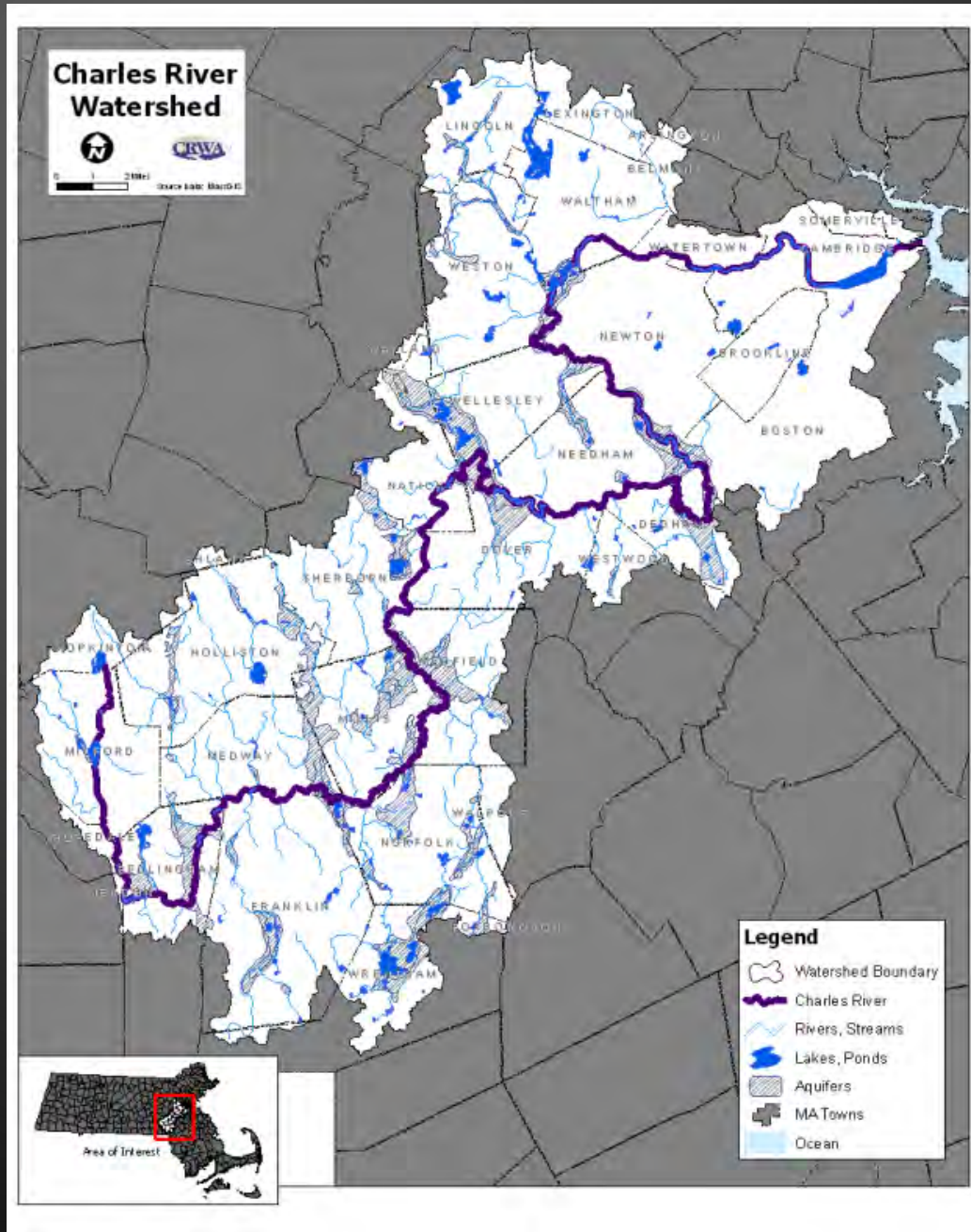
- ADDITIONAL PUBLIC EDUCATION MESSAGES
- CATCHMENTS RANKED AS HIGH PRIORITY FOR IDDE

MAJOR CHANGES

- EDUCATION MESSAGES CAN BE COMBINED WITH OTHER IMPAIRED WATERS OR TMDL REQUIREMENTS
- RELIEF FROM REQUIREMENTS AVAILABLE UNDER CERTAIN CONDITIONS

CHARLES RIVER TMDLS

Appendix F



PCP – PHASED APPROACH

5 years after permit effective date	5-10 years after permit effective date	10-15 years after permit effective date	15-20 years after permit effective date
Create Phase 1 Plan	Implement Phase 1 Plan		
	Create Phase 2 Plan	Implement Phase 2 Plan	
		Create Phase 3 Plan	Implement Phase 3 Plan

PHASE 1..... FIRST 5 YEARS

Component	Year 1	Year 2	Year 3	Year 4	Year 5
Legal analysis					
Funding source assessment.					
Define scope of PCP (PCP Area) Baseline Phosphorus Load and Phosphorus Reduction Requirement and Allowable Phosphorus Load					
Description of Phase 1 planned nonstructural controls					
Description of Phase 1 planned structural controls					
Description of Operation and Maintenance program for structural controls					
Phase 1 implementation schedule					
Estimated cost for implementing Phase 1 of the PCP					
Complete Written Phase 1 PCP					

CHOOSE A SCOPE

Regulated Area Required Reductions

Community	Baseline Watershed Phosphorus Load, kg/yr	Phosphorus Load Reduction Requirement, kg/yr	Allowable Stormwater Phosphorus Load, kg/yr	Percent Reduction in Phosphorus Load (%)
Bellingham	801	291	510	36%

Jurisdictional Area Required Reductions

Community	Baseline Phosphorus Load, kg/yr	Phosphorus Load Reduction Requirement kg/yr	Allowable Stormwater Phosphorus Load, kg/yr	Percent Reduction in Stormwater Phosphorus Load (%)
Bellingham	947	331	616	35%

PHASE 1 MILESTONES

Year 8

$$P_{exp} \leq P_{allow} + (P_{RR} \times 0.80)$$

Year 10

$$P_{exp} \leq P_{allow} + (P_{RR} \times 0.75)$$

DEMONSTRATING COMPLIANCE

$$P_{exp} \left(\frac{\text{mass}}{\text{yr}} \right) = P_{base} \left(\frac{\text{mass}}{\text{yr}} \right) - \left(P_{Sred} \left(\frac{\text{mass}}{\text{yr}} \right) + P_{NSred} \left(\frac{\text{mass}}{\text{yr}} \right) \right) + P_{DEVinc} \left(\frac{\text{mass}}{\text{yr}} \right)$$

Equation 1. Equation used to calculate yearly phosphorus export rate from the chosen PCP Area. P_{exp} =Current phosphorus export rate from the PCP Area in mass/year. P_{base} =baseline phosphorus export rate from LPCP Area in mass/year. P_{Sred} = yearly phosphorus reduction from implemented structural controls in the PCP Area in mass/year. P_{NSred} = yearly phosphorus reduction from implemented non-structural controls in the PCP Area in mass/year. P_{DEVinc} = yearly phosphorus increase resulting from development since 2005 in the PCP Area in mass/year.

BATT AUTOMATED CALCULATIONS

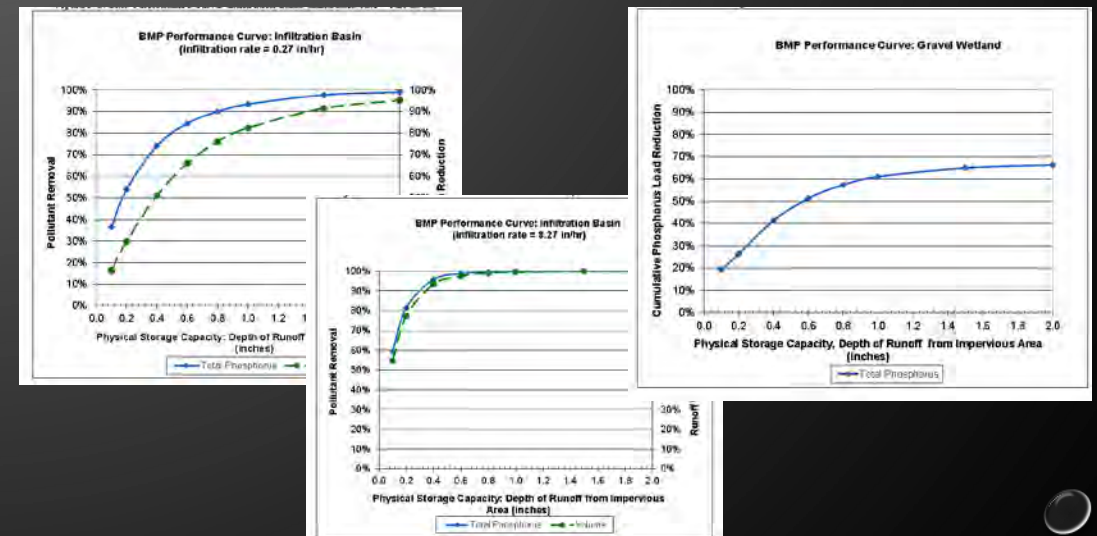
LAND AREA POLLUTANT LOADING:

- BASED ON LAND USE, SOIL TYPE, IMPERVIOUS AREA
- ANNUAL PHOSPHORUS LOAD EXPORT RATES (PLERS) FROM PERMIT BUILT INTO TOOL



BMP POLLUTANT REDUCTIONS:

- EPA/TETRATECH WORK ON BMP CURVES FOR STRUCTURAL BMPS IN PERMIT AND BUILT INTO TOOL



- LITERATURE VALUES FOR NON-STRUCTURAL BMPS FROM PERMIT BUILT INTO TOOL

BATT

Add/Edit Project

Select a Jurisdiction

Existing Project

Select a Structural BMP Project

Select a Non-Structural BMP Project

Select a Land Use Conversion Project

New Project

View Project Summary

BMP Projects

Select a Jurisdiction

Structural BMPs

Non-Structural BMPs

Land Use Conversion

Project Summary Credit

	Structural	Non-Structural	LU Conversion	Total
Phosphorus Reduced Load (lb/yr)				
Nitrogen Reduced Load (lb/yr)				
Sediment Reduced Load (lb/yr)				

PCP PHASE 2 AND 3

Complete By Year 10 and 15

Update Legal analysis

Description of Phase 2 or 3 planned nonstructural controls

Description of Phase 2 or 3 planned structural controls

Updated description of Operation and Maintenance Program

Phase 2 or 3 implementation schedule

Estimated cost for implementing Phase 2 or 3 of the PCP

Complete written Phase 2 or 3 Plan

PHASE 2 AND 3 MILESTONES

Year 13

$$P_{exp} \leq P_{allow} + (P_{RR} \times 0.65)$$

Year 15

$$P_{exp} \leq P_{allow} + (P_{RR} \times 0.50)$$

Year 18

$$P_{exp} \leq P_{allow} + (P_{RR} \times 0.30)$$

Year 20

$$P_{exp} \leq P_{allow}$$

RELIEF FROM TMDL REQUIREMENTS

- IF THE TMDL HAS BEEN MODIFIED/REVISED/WITHDRAWN WITH EPA APPROVAL
- A NEW TMDL INDICATES ADDITIONAL MUNICIPAL STORMWATER CONTROLS ARE NOT NECESSARY TO ADDRESS THE POLLUTANT OF CONCERN IN THE WASTE LOAD ALLOCATIONS

ASSISTANCE TOOLS AND WORKSHOP/WEBINAR IDEAS

THINGS WE HAVE

- OPTI-TOOL
- BATT
- COST ESTIMATOR SPREADSHEETS
- IDDE TIMELINE
- LOW IMPACT DEVELOPMENT RESOURCES
- MASSDEP WEBSITE

OTHER IDEAS

- TIMELINE FOR PERMIT DELIVERABLES
- PERMIT CHECKLISTS
- TEMPLATES FOR ANNUAL REPORT, SWPPP
OTHERS?
- TARGETED WORKSHOPS /WEBINARS ON
SPECIFIC TOPICS (E.G.: IDDE)

QUESTIONS

EPA MA MS4 WEBSITE:

[HTTPS://WWW3.EPA.GOV/REGION1/NPDES/STORMWATER/MS4_MA.HTML](https://www3.epa.gov/region1/npdes/stormwater/ms4_ma.html)

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