



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

# Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Kathleen A. Theoharides  
Secretary

Martin Suuberg  
Commissioner

**Meeting Summary**  
**Stormwater Advisory Committee - Meeting #4**  
**October 15, 2020, 10:00 AM – 1:00 PM**  
**Online via Zoom**

## ATTENDANCE

### ADVISORY COMMITTEE MEMBERS

Name	Affiliation
Henry Barbaro	MA Department of Transportation (MassDOT)
Jeffrey Brem	Home Builders and Remodelers Association of MA (HBRA-MA)
Sandra Brock	MA Association of Conservation Commissioners (MACC)
Ronald Burns	Boston Society of Civil Engineers Section
Rich Claytor	Member At Large
Ian Cooke	MA Rivers Alliance (MRA)
Cindy Delpapa	MA Department of Fish and Game
Patty Gambarini	Pioneer Valley Planning Commission (PVPC)
Ariela Lovett	MA Municipal Association (MMA)
Robert Lowell	MA Department of Conservation and Recreation (MassDCR)
Stacy Minihane	Association of MA Wetland Scientists (AMWS)
Stephanie Moura	Massachusetts Department of Environmental Protection (MassDEP)
Chip Nysten	National Association of Industrial and Office Properties (NAIOP)
Vandana Rao	MA Executive Office of Energy and Environmental Affairs (EEA)
Lisa Rhodes	MassDEP
Heidi Ricci	MA Audubon Society (MA Audubon)
Newton Tedder	U.S. Environmental Protection Agency (U.S. EPA)
Guy Webb	Home Builders and Remodelers Association of Central MA (HBRA-Central MA)
John Woodsmall, III	Central MA Regional Stormwater Coalition (CMRSWC)

### MASSDEP, PROJECT TEAM, AND PRESENTERS

Name	Affiliation
Kathleen Baskin	MassDEP
Lealdon Langley	MassDEP
Thomas Maguire	MassDEP
Stephanie Moura	MassDEP
Jill Provencal	MassDEP
Lisa Rhodes	MassDEP

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: [www.mass.gov/dep](http://www.mass.gov/dep)

Printed on Recycled Paper

# Meeting Notes

<b>Laura Schifman</b>	MassDEP
<b>Judy Schmitz</b>	MassDEP
<b>Alice Smith</b>	MassDEP
<b>Kate Barrett</b>	Regina Villa Associates (RVA)
<b>Kyle Olsen</b>	RVA
<b>Amanda Poggenburg</b>	RVA

## PUBLIC

<b>Name</b>	<b>Affiliation</b>
<b>Ellie Baker</b>	Horsley Witten Group
<b>Gorden Bergeron</b>	Lowell Regional Wastewater
<b>Janet Bernardo</b>	
<b>Andrea Braga</b>	Jacobs
<b>Randy Brown</b>	Southwick Water Department
<b>Adam Burney</b>	Town of Lunenburg
<b>Lauren Caputo</b>	VHB
<b>Jennifer Carlino</b>	MA Society of Municipal Conservation Professionals
<b>Eileen Coleman</b>	Burlington Conservation Department
<b>Eilish Corey</b>	Town of Auburn
<b>Mark Costa</b>	VHB
<b>Gregory Coyle</b>	Lowell Regional Wastewater Utility
<b>John Digiacomo</b>	Town of Natick
<b>Stephen Dookran</b>	Town of Concord
<b>Kathryn Eagan</b>	BSC Group
<b>Jon Goddard</b>	Town of Southwick
<b>Caroline Hampton</b>	VHB
<b>Kevin Hardiman</b>	Town of Tewksbury
<b>Jennifer Hughes</b>	Merrimack Valley Planning Commission
<b>Lori Kennedy</b>	Horsley Witten Group
<b>Joe Kietner</b>	City of Westfield DPW
<b>Niels La Cour</b>	University of Massachusetts Amherst
<b>Melissa LaBonte</b>	
<b>Rebekah Lacey</b>	Miyares and Harrington LLP
<b>Andrea Langhauser</b>	Town of Easton Planning Department
<b>Jennifer Letourneau</b>	City of Cambridge
<b>Tara Lewis</b>	Cape Cod Commission
<b>Nancy Lin</b>	MassDEP
<b>Fred Litchfield</b>	Town of Northborough
<b>Douglas McDonald</b>	Northampton DPW
<b>William McDowell</b>	Town of Natick DPW
<b>Dorothy McGlincy</b>	MA Association of Conservation Commissions
<b>Theresa McGovern</b>	VHB
<b>Julie Meyer</b>	Wellesley Wetlands Protection Committee
<b>Anna Meyer</b>	Town of Milton
<b>Heather Miller</b>	Charles River Watershed Association
<b>Janet Moonan</b>	Tighe & Bond
<b>Cynthia O'Connell</b>	Town of Braintree

<b>Angela Panaccione</b>	Town of Palmer
<b>Hung Pham</b>	MassDOT
<b>Martin Pillsbury</b>	Metropolitan Area Planning Council
<b>Kerry Reed</b>	CMRSWC
<b>Jen Restab</b>	Horsley Witten Group
<b>Bill Renault</b>	Town of Wakefield
<b>Dominic Rinaldi</b>	BSC Group
<b>George Saraceno</b>	Town of Wellesley DPW
<b>Emily Scerbo</b>	Tighe & Bond
<b>Josh Schimmel</b>	
<b>James Shuris</b>	Town of Northbridge
<b>Frank Singleton</b>	Weymouth Conservation Commission
<b>Kenneth Staffier</b>	
<b>Marielle Stone</b>	MassDEP
<b>Greg Swan</b>	Easton DPW
<b>Vincent Thai</b>	Town of Shrewsbury
<b>Dan Van Schalkwyk</b>	Town of Ayer
<b>Michelle Vuto</b>	EPA
<b>Theresa Wolejko</b>	University of MA
<b>Catherine Woodbury</b>	Cambridge DPW
<b>Cameron</b>	Belchertown Conservation Commission

This document summarizes the discussion at the October 15, 2020 MassDEP Stormwater Advisory Committee meeting<sup>1</sup>. All references to slides relate to the presentation posted on the [website](#).

## WELCOME AND INTRODUCTIONS

Kathleen Baskin, MassDEP, welcomed the Advisory Committee members and welcomed discussion on the proposed updates to the MassDEP Stormwater Handbook.

Stephanie Moura, MassDEP, reviewed the meeting agenda and objectives and noted the importance of getting Advisory Committee input and feedback on the issues presented. She then introduced the MassDEP team and presenters.

Kate Barrett, Regina Villa Associates (RVA), outlined the meeting process via Zoom. She asked that all panelists remain muted during the presentation and to hold all questions and comments until after each presentation. At the conclusion of each presentation, Advisory Committee members could virtually raise their hand to submit a question or comment, waiting for Ms. Barrett to recognize them before unmuting themselves and speaking. After sharing their question or comment, they should mute themselves again. All public participants would be muted during the presentations but could send written questions at any time through the “Q&A” feature. Attendees could also virtually raise their hand to verbally submit a question or comment. During the public Q&A portion, the presenters would respond to written questions submitted through the “Q&A” feature before unmuting those who virtually raised their hands in the order which they were raised. Ms. Barrett encouraged attendees to submit any further questions or comments through the form on the Advisory Committee webpage if there was not enough time to respond to all questions during the meeting.

## STORMWATER MANAGEMENT FRAMEWORK IN MA

Lisa Rhodes, MassDEP, presented an overview of the Stormwater Regulatory Framework and proposed updates to Wetlands Protection Act Regulations, Water Quality Certification Regulations, and the MassDEP Stormwater Handbook, which have been

<sup>1</sup> Please note that DEP is not recording the Advisory Committee meetings.

# Meeting Notes

reviewed over a series of Advisory Committee meetings earlier this year. She then compared the NPDES MA 2016 Small MS4 Permit requirements and WPA/WQC regulations and explained that the alignment of the Post-Construction Stormwater Management Minimum Control Measure and the MassDEP Stormwater Standards would be reviewed at this meeting. She noted the presentations would review proposed changes to Standard 3 – Recharge, Standard 4 – Water Quality, Standard 7 – Redevelopment, and the proposed new Standard 11 – TMDL Compliance.

Ms. Rhodes introduced Thomas Maguire, MassDEP, who reviewed the proposed changes to Stormwater Standard 3 – Recharge.

## STORMWATER STANDARD 3 – RECHARGE

Mr. Maguire presented an overview of Stormwater Standard 3, the recharge process, and Hydrologic Soil Groups (HSG) and recharge volume. Mr. Maguire then reviewed annual precipitation trends, and the need for increased recharge. He explained MassDEP’s proposed changes to Standard 3, which would change the recharge requirements to one inch for all soil types while allowing for maximum extent practicable (MEP) for Soil Group D. See slides 9-22.

## FACILITATED Q&A WITH ADVISORY COMMITTEE

- **Heidi Ricci:** Asked if MassDEP plans to address low-impact development (LID) in their proposed changes. She suggested that the team also look at zoning and site regulations. Ms. Ricci noted that there are other resources available that can be used by municipalities such as a local bylaw tool developed by Mass Audubon.  
**MassDEP response:** The team is planning to look at including more tools for stakeholders and wants to promote LID, such as narrow roads, smaller building footprints, etc., that can be cost effective long-term by lowering operating and maintenance costs. The team would need to take into consideration what is identified as LID before creating an ordinance. MassDEP is also considering revising the credit system to incentivize LID.
- **Henry Barbaro:** Asked if the team has checked the data on how precipitation increases have manifested and if they have seen changes that parallel the precipitation increase, such as enlarged wetland areas or rivers and streams.  
**MassDEP response:** The team has not looked into that at this time, but the team could investigate through baseflow analysis. There has been an increase in some wetlands, primarily due to beaver-related activity.
- **Henry Barbaro:** Asked for clarification around recharge expectations for the different soil types.  
**MassDEP response:** Recharge comes in pulses to rivers and streams and can happen over a 3-day period rather than immediately flowing into the groundwater.
- **Ronald Burns:** Noted that he could see how increased precipitation would affect the overall baseflows. He asked if this approach only delays the problem if the regulations only maintain the current recharge rates.  
**MassDEP response:** We will fall behind if recharge systems don’t expand. By maintaining the existing regulations - wetlands areas and rivers will reduce in size over time and more precipitation will runoff causing more flooding and erosion downstream. Increased recharge will increase base flow in streams and maintain wetland water levels thereby preserving the wetland function of filtering pollutants and slowing flood flows. Recharge goes into rivers and streams over a period of time, it is stored in the ground and released in the summer when it’s needed. Without increased recharge, there will be increased runoff as a result of increasing precipitation.
- **Jeffrey Brem:** Asked for clarification on Slide 16, about recharge depth.  
**MassDEP response:** The chart shows annual precipitation from 14 locations across Massachusetts through 2014. For example, East Wareham had about 72 inches in 1996. The yearly precipitation for the locations is shown using multiple linear regression, which shows an upward trend. The blue line until the break shows recharge expected at 70% of precipitation. The break, at about 1994, happens because recharge is static and does not reflect the increasing trend. The red line follows the same trajectory as the black line, the annual precipitation trend.
- **Jeffrey Brem:** Asked what the standard deviation is, noting that the linear progression analysis does not look directly relatable and shows a lot of simplified information. He said it may be too much data to create an accurate prediction of the future and that it goes from precipitation to groundwater flow. He questioned the methodology

used to draw conclusions, noting that the team is making assumptions about imperviousness and, in general, infiltration is not being updated.

**MassDEP response:** Mr. Maguire will follow up by email with the standard deviation. The Mann Kendall Trend Test shows a significant upward trend (slide 14) and the team started looking at the data for normalities. Regarding the groundwater flow, Slide 11 shows the baseflow analysis and a significant portion of baseflow is from the groundwater. Some stations have a very long period of record.

- **John Woodsmall, III:** Noted that the MS4 Permit does not look at hydrologic soil differences. If the MassDEP Stormwater Standards distinguish between soil types requiring one inch and MEP, then it is different than the MS4 requirement and might not meet what is required under the MS4 Permit.

**MassDEP response:** The MS4 Permit provides different options for pollutant removal and can be met by retention or a combination. The important distinction is the difference between retention and recharge. There are different forms of retention and in the case of D soils where MassDEP proposed to require recharge to the MEP, retention can be utilized to meet the MS4 requirement.

- **John Woodsmall, III:** Suggested clarification and guidance around MEP or for the team to consider basing MEP on actual infiltration rates that would not meet an inch over 3 days. Without clarification, MEP could be a point of debate between developers and municipalities.

**MassDEP response:** If there is a range of infiltration rates with Soil Group D and MassDEP could provide guidance or examples. E.g. even if a soil infiltration rate is 0.06 in/hr (D soil) MEP could achieve 1 inch. Assuming steady infiltration, the rate could be as low as 0.014 in.hr and still meet the 1 in requirement over 3 days.

- **Sandra Brock:** Asked if MassDEP is considering a different approach for measuring infiltration rates. The current practice does not address that. She also asked if there is a way to calculate and demonstrate the overall average for the year rather than a day-to-day storm. She suggested using a continuous simulation to calculate for the year.

**MassDEP response:** The team has not looked into the issue of infiltration rate or back to back storms. Recharge volume is meant to approximate over a yearly basis, but for design, it has to be scaled for any given day. The precipitation data reviewed was a daily resolution, considering each day separately and assuming events are independent. A continuous simulation would require increasing the level of sophistication from engineers and site designers and currently MassDEP relies on static methods. MassDEP would need to roll out information on what methods are acceptable and run workshops on how to do a continuous simulation.

Ms. Rhodes introduced Laura Schifman, MassDEP, who reviewed the proposed changes to Stormwater Standard 4 – Water Quality.

## STORMWATER STANDARD 4 – WATER QUALITY

Ms. Schifman provided an overview of Stormwater Standard 4 and explained MassDEP's proposed changes, which would require removal of 90% TSS and 60% TP from most sites using the EPA BMP Performance Curves. MassDEP proposed that sites that discharge to Critical Areas or Outstanding Resource Waters, fall under land uses with potentially higher pollutant loads, are comprised of either entirely A or D soils, have bedrock near the surface, are a 21E site, or a BMP is being sized for pre-treatment - design to 1-inch water quality volume instead of sizing to the pollutant load reduction. She then reviewed different options for meeting the proposed standard and SCM sizing methods. See slides 23-37.

## FACILITATED Q&A WITH ADVISORY COMMITTEE

- **Ian Cooke:** Asked for clarification around the interaction of the requirement and the different options. He asked if there is a situation when someone would design with the EPA curve since everyone is recharging to one inch.

**MassDEP response:** Yes, someone can use the EPA curves with the combination approach. Everyone can meet the requirement by recharging to one inch, but the team wanted to allow flexibility in sizing and use of multiple BMPs. If multiple BMPs are used, a weighted average approach would have to be used to meet the % pollutant removal

requirement and ensure that runoff from the entire site is being treated to the stated pollutant removal, even if BMPs are spaced across the site/subbasins.

- **Henry Barbaro:** Asked why the BMP rating curves cannot be used with Soil Group D.  
**MassDEP response:** The curves can be used with Soil Group D if it is designed to a one-inch depth. Designers would have to make sure they are meeting the load reduction, which could be trickier. MassDEP is proposing to require a 1-inch design for D soils for water quality treatment.
- **Patty Gambarini:** Asked how the off-site mitigation ties in with Standards 3 and 4.  
**MassDEP response:** The team will talk more about that with redevelopment work.

After a 10-minute break, Ms. Rhodes re-introduced Ms. Schifman who reviewed the proposed changes to Stormwater Standard 7 – Redevelopment.

## STORMWATER STANDARD 7 – REDEVELOPMENT

Ms. Schifman provided an overview of Stormwater Standard 7 and explained MassDEP’s proposed changes to TSS removal, which would require removal of 80% TSS and 50% TP and allow off-site mitigation within HUC 12. She then reviewed TSS removal and load reductions in redevelopment and compared MS4 requirements with MassDEP requirements. Ms. Schifman explained that numeric load reduction standards provide higher water quality protection and a combination approach for on- and off-site treatment. She then reviewed the additional changes proposed, such as regulations around 5-9 units, the definition of impervious area, and LID. See slides 38-50.

## FACILITATED Q&A WITH ADVISORY COMMITTEE

- **Stacy Minihane:** Asked if there is any consideration to change exemptions, especially as relates to commercial projects sized like a single-family home.  
**MassDEP response:** The team has not considered changing exemptions in the Stormwater Handbook, except for the regulations for 5-9 units. Single-family homes are exempt from stormwater standards, but commercial developments often have associated parking or more phosphorus at the start. The team welcomed Advisory Committee members to share via email or online form examples of commercial development that might not develop much runoff.
- **Henry Barbaro:** Asked what the comment period is for the Stormwater Handbook changes.  
**MassDEP response:** There is an ongoing comment form on the website for anyone who wants to submit a comment. The team is currently working on updating the Stormwater Handbook with draft regulations that will go out for public comment in spring 2021. If there are any comments or discussions from the Advisory Committee meetings, the team would like to receive those as soon as possible so they can be taken into account prior to the release of the draft Stormwater Handbook for public comment.
- **Jeffrey Brem:** Asked what the objective of the Advisory Committee is. He also stated that it is a mistake to throw away MEP and expressed concern that the team did not consider the significant changes.  
**MassDEP response:** The MassDEP team is looking for input from the Advisory Committee to guide adaptations to the initial proposed changes. The team believes the best way to get feedback is to present a proposal and seek feedback from the Advisory Committee. Input from the Committee will be taken into consideration before a formal regulatory promulgation process with public comment. Due to the complexity and importance of the topics, the MassDEP team will have a fifth meeting with the Advisory Committee to allow more time for input and discussion.
- **Heidi Ricci:** Complimented the team on ensuring the website is updated regularly with information discussed at the meetings. She said that she will share it as an example to other groups. She also said that the redevelopment regulations are critically important and if they are not addressed, rivers and streams will never get clean.
- **Robert Lowell:** Asked for clarification around pervious and impervious pavements and if multiuse paths require mitigation.

**MassDEP response:** Porous pavement is defined as impervious surface for calculating recharge volume to size the reservoir beneath it. EEA has been working with DCR about best practices for shared use paths, including on where impervious pavement can be used and types of mitigation that should be done given space constraints. They are looking at a high-level guidance document and regulation change to address some of the right-of-way restrictions and restrictions in space, etc.

Ms. Rhodes introduced Lealdon Langley, MassDEP, who reviewed the proposed addition of Stormwater Standard 11 – Total Maximum Daily Load (TMDL) Support.

## STORMWATER STANDARD 11 – TMDL SUPPORT

Mr. Langley provided an overview of the proposed Stormwater Standard 11 to improve success in meeting TMDL goals. He explained that MassDEP wants to provide specific guidance in the Stormwater Handbook to support TMDLs to identify needs in water restoration. See slides 51-52.

Ms. Rhodes summarized the major changes proposed to the MassDEP Stormwater Handbook and reviewed the scenarios that would be discussed at the final Advisory Committee meeting in November.

## FACILITATED ADVISORY COMMITTEE DISCUSSION

Ms. Barrett invited the Advisory Committee to provide further comments and questions on any of the presentations.

- **Henry Barbaro:** Noted that MassDEP did not align the definitions of development and redevelopment with the MS4 Permit so the changes seem major for MassDOT or DPWs working on roadways. He suggested further discussion on the topic.  
**MassDEP response:** The macro approach as presented in August for special highway considerations allows regulations to be met across a broader area. For other areas that would not meet the macro approach, off-site mitigation would be a possibility. MassDEP did not want to change standards in a way that they would be less stringent than they currently are and aligning with MS4 regulations would have done that.
- **Heidi Ricci:** Asked if MassDEP is planning to promote, support, or pilot any regulations or watershed-based approaches for redevelopment and allowing for off-site mitigation. She noted that there are some regional technical assistance programs in the Southeast New England Project (SNEP) network to encourage innovation in that area and suggested MassDEP connect with innovative financing in the SNEP network.  
**MassDEP response:** While the team frequently discussed off-site mitigation, it can be difficult to track or ensure maintenance if it is in another municipality.
- **Heidi Ricci:** Asked if all feedback provided would be available to the Advisory Committee before the final meeting.  
**MassDEP response:** The team will look at the comments provided through the website and will do their best to make those questions and comments visible to the Committee. The team has not received many submissions.
- **John Woodsmall, III:** Noted that TS4 is stricter than MS4 when applied to stormwater standards. He said that while TS4 is specific to highway projects, it could also apply to municipal roadway projects.
- **Jeffrey Brem:** Asked if the Advisory Committee meetings are recorded.  
**MassDEP response:** No, but the meeting summary and presentation will be available on the website.
- **Henry Barbaro:** Asked how the proposed Standard 11 for TMDLs compares with MS4 Appendix F and how it would add to or clarify the guidelines and instructions from EPA.  
**MassDEP response:** The team does not have a specific standard for TMDLs yet, but the TMDLs that exist are identified in Appendix F. There may also be others that lie outside MS4 jurisdiction. In the Stormwater Handbook, those would still be implemented.
- **Ian Cooke:** Encouraged MassDEP to not tie the list of TMDLs to Appendix F because the appendix is static and new TMDLs will not be reflected. He suggested MassDEP take Appendix H, which has some requirements on BMPs, into consideration for consistency.

# Meeting Notes

- **John Woodsmall, III:** Asked if the plan for the next meeting, with the scenarios, is to compare the differences in water quality and infiltration values between the current and proposed standards.  
**MassDEP response:** The scenarios will look at development under the existing standards and proposed standards with LID.
- **Chip Nylen:** Commented that this was a very important meeting. Suggested further discussion on redevelopment at the next meeting. He also suggested that MassDEP encourage redevelopment rather than new development in new areas. He stressed the importance of alignment with EPA and inquired if it is manageable to meet the 80/50 pollutant removal standard for redevelopment.
- **Patty Gambarini:** Suggested MassDEP provide recommendations and strategies on managing the transition from the current Stormwater Handbook regulations.  
**MassDEP response:** The team is considering putting something out and will provide an update at the next meeting.

## GENERAL Q&A WITH THE PUBLIC

Ms. Barrett invited questions from the public.

- **Andrea Langhauser:** Asked how the proposed new standard 11 would deal with bacteria TMDLs.  
**MassDEP response:** Bacteria is considered a pollutant and with bacteria TMDL, there is some intersection with nutrients, such as phosphorus, so structural BMPs that address phosphorus would address bacteria through infiltration practices. The standard is still being written so there will be more guidance in the future.
- **Jennifer Carlino:** Asked if the regulation for one-inch recharge across all soil groups would increase the required recharge for Areas of Critical Environmental Concern (ACEC).  
**MassDEP response:** The current proposal does not increase for ACECs or other critical areas. It will require one-inch recharge across the board.
- **Kerry Reed:** Expressed concern about the June 2021 deadline for updating bylaws and ordinances as municipalities rely on the MassDEP Stormwater Handbook for design challenges. She requested guidance and asked the team to do anything they can to finalize the updated handbook for the deadline or provide advocacy for leniency for cities and towns on the deadline.  
**MassDEP response:** The EPA MS4 Settlement Agreement that is in the process of being adopted refers to the 2008 Stormwater Handbook for more stringent regulations. If municipalities develop bylaws and reference the 2008 Stormwater Handbook, they would be consistent with the MS4. It would be ideal if the new standards were in place in time for adoption of the new bylaws, but it is uncertain if the timing will work. If the handbook is adopted and the provisions are considered more stringent, the bylaws could be amended or could be amended after the MS4 is renewed.
- **Rebekah Lacey:** The majority of MS4 municipalities have referenced the Stormwater Standards as the design standards they are imposing. The MS4 includes some requirements that go beyond the 2008 Stormwater Standards, such as the water quality treatment requirements and requiring LID. Municipalities will have to update bylaws to reference EPA standards to meet the requirements instead of referencing the MassDEP Stormwater Handbook if it is not updated before that time.  
**MassDEP response:** MassDEP will take that under advisement and will consult with counsel on that topic.

Ms. Barrett directed attendees to submit any additional questions or comments through the website or via email to Ms. Rhodes.

Ms. Moura thanked attendees for the quality of discussion and input. She stated that the meeting summary and presentation would be posted on the website and the team would email the group when they are available. She noted that the fifth and final meeting would be scheduled for November and the team will contact the Advisory Committee for scheduling.