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MWRA 7572

Updated CSO Control Plan - Draft Scope of Work and Schedule

April 1, 2022

1. Background

1.1. Present summary of projects implemented and CSO reduction achieved to date in Variance waters, as documented in the December 2021 Final CSO Post Construction Monitoring Program and Performance Assessment Report.

1.2. Summarize regulatory framework for updated CSO control plans
- 1.2.1. 2019 Variance Requirements
- 1.2.2. EPA CSO Policy - demonstration approach
- 1.2.3. DEP 1997 Guidance for Abatement of Pollution from CSO Discharges
- 1.2.4. Relationship to Second Stipulation requirements

2. Characterization, Monitoring and Modeling of the CSO System, Existing Level of CSO Control

2.1. Reference Task 6 Report to document characterization, monitoring and modeling to support Post Construction Monitoring Program and Performance Assessment

2.2. Typical Year/climate change analysis

2.2.1. In coordination with Cambridge and Somerville, develop proposed updated typical year and design storms to be used in the development of updated CSO control plans in Variance waters

2.2.2.Typical Year Update:

A. Select one representative rain gauge to serve as the initial basis for a review of recent historical rainfall data.

B. Develop rainfall statistics at the selected gage, including total rainfall, total number of storms, and number of storms within various "bins" of storm total accumulation and peak intensity over an agreed to historic period.

- Develop the statistics for the full historical period being assessed, and for the past 10 years, to see if more recent statistics are substantially different.
- Provide comparison of current Typical Year to updated Typical Year.

C. Review the historical period to identify a recent year that provides a reasonable match to the historical average statistics for the selected representative gauge

D. If necessary, add historical storms to (and/or subtract existing storms from) the selected year to improve the match to the historical average statistics. To the extent practical, add new storms in on the actual days that they occurred. If an existing

storm overlaps with a new storm to be added, shift one or the other to a different day or days within the same general season.

E. Evaluate the use of multiple rain gauges to distribute the rainfall spatially throughout the collection system.

F. Review existing projections of sea level rise and assess sensitivity of collection system performance to sea level rise. Consider adjustment of tidal elevations associated with selected Typical Year if appropriate.

2.2.3. Design Storm Update

A. For assessing levels of control greater than the Typical Year, design storms will be identified using current publications to support the development of alternatives.

2.2.4. Review the updated Typical Year and design storms with DEP/EPA and other stakeholders.

2.3. CSO elimination

2.3.1. Coordinate with Cambridge and Somerville to define the criteria for CSO elimination (e.g., controlling CSOs in a specific large design storm, closing all CSOs, or other). Coordinate with DEP/EPA on criteria for CSO elimination.

2.4. In coordination with Cambridge and Somerville, establish system conditions to be used as a baseline for subsequent evaluations of CSO control

2.4.1. Identify existing and planned projects to be included in the Baseline Conditions (this approach is analogous to the "Future Planned Conditions" baseline established for the 1997 CSO Facilities Plan and Environmental Impact Report).

2.4.2. Establish basis for dry weather flows and planning horizon

2.5. In coordination with Cambridge and Somerville, establish a unified collection system model to be used for subsequent evaluations of CSO control

2.6. Using the unified model, the defined Baseline Conditions and the revised Typical Year, establish the new Baseline CSO activation frequency and volume for the CSO outfalls to the Variance waters

2.7. If the new Baseline CSO, stormwater, and/or boundary loadings are substantially different from the loadings documented in the 2021 Final CSO Post Construction Monitoring Program and Performance Assessment Report, run the water quality models for the Variance waters to assess attainment with water quality criteria.

3. Nine Minimum Controls (NMC)

3.1. Document compliance with NMC for MWRA outfalls.

3.1.1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls

3.1.2. Maximum use of the collection system for storage

3.1.3. Review and modification of pretreatment requirements to ensure that CSO impacts are minimized

3.1.4. Maximization of flow to the POTW for treatment

3.1.5. Elimination of CSOs during dry weather
3.1.6. Control of solid and floatable materials in CSOs
3.1.7. Pollution prevention programs to reduce contaminants in CSOs
3.1.8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts
3.1.9. Monitoring to effectively characterize CSO impacts and efficacy of CSO controls

4. Alternative Development and Evaluation

4.1. Charles River outfalls (MWR010, MWR018, MWR019, MWR020, MWR023, and Cottage Farm)

4.1.1. Identify Sensitive Use Areas as defined in EPA CSO Policy
4.1.2. Identify Environmental Justice Communities within the watershed
4.1.3. Develop Alternatives to attain additional levels of CSO control including elimination
A. MWR010
B. MWR018/MWR019/MWR020
C. MWR023
D. MWR201 (Cottage Farm CSO Facility)
– Coordinate with Cambridge on alternatives being considered by Cambridge at CAM005 and CAM007
4.1.4. Evaluate Alternatives
A. Develop estimated project costs
– capital cost, annual O&M cost, and net present value
B. Assess CSO reduction performance using the unified collection system model described in task 2.4 and the updated typical year and larger design storms described in task 2.2.
C. Assess Water Quality Impacts
D. Run water quality model only if loading conditions are substantially different from conditions presented in the 2021 Final CSO Post Construction Monitoring Program and Performance Assessment Report.
E. Assess Potential Implementation Issues
- Identify and qualitatively assess potential implementation issues such as siting limitations, utility conflicts, property acquisition needs, potential permitting requirements, impacts to Environmental Justice communities, etc.

4.2. Alewife/Mystic River Outfalls (MWR003 and MWR205A)

4.2.1. Identify Sensitive Use Areas as defined in EPA CSO Policy
4.2.2. Identify Environmental Justice Communities within the watershed
4.2.3. Develop Alternatives to attain additional levels of CSO control including elimination
A. MWR003
- Coordinate with Cambridge on potential impact of alternatives being considered by Cambridge and Somerville at the other Alewife Brook CSO outfalls
B. MWR205A

C. Regional Alternative (MWR003 and other Alewife Outfalls) to be developed in coordination with Cambridge and Somerville

4.2.4. Evaluate Alternatives

A. Develop estimated project costs
   – capital cost, annual O&M cost, and net present value

B. Assess CSO reduction performance using the unified collection system model described in task 2.4 and the updated typical year and larger design storms described in task 2.2.

C. Assess Water Quality Impacts
   - Run water quality model only if loading conditions are substantially different from conditions presented in the 2021 Final CSO Post Construction Monitoring Program and Performance Assessment Report.

D. Assess Potential Implementation Issues
   - Identify and qualitatively assess potential implementation issues such as siting limitations, utility conflicts, property acquisition needs, potential permitting requirements, impacts to Environmental Justice communities etc.

5. Public Participation

5.1. Charles River

5.1.1. Public Meeting No. 1 - meeting to be held to discuss updated Typical Year, large event analysis, hydraulic model updates *(Same meeting as in task 5.2.1)*
   - This public meeting will be a joint meeting with Cambridge and Somerville

5.1.2. Public Meeting No. 2 meeting to be held during the development of alternatives
   - This public meeting will be a joint meeting with Cambridge

5.1.3. Public Meeting No. 3 – meeting to be held after the submittal of the Draft Updated CSO Control Plan, to present the proposed recommended plan and to hear public comments on the plan
   - This public meeting will be a joint meeting with Cambridge

5.1.4. Prepare responses to comments. Comments received at Meeting Nos. 1 & 2 to be incorporated in the Draft Updated CSO Control plan and comments received at meeting No. 3 to be incorporated in in the Final Updated CSO Control Plan.

5.2. Alewife Brook/Mystic River

5.2.1. Public Meeting No. 1 - meeting to be held to discuss updated Typical Year, large event analysis, hydraulic model updates *(Same meeting as in Task 5.1.1)*
   - This public meeting will be a joint meeting with Cambridge and Somerville

5.2.2. Public Meeting No. 2 - meeting to be held during the development of alternatives
   - This public meeting will be a joint meeting with Cambridge and Somerville

5.2.3. Public Meeting No. 3 – meeting to be held after the submittal of the Draft Updated CSO Control Plan, to present the proposed recommended plan and to hear public comments on the plan
   - This public meeting will be a joint meeting with Cambridge and Somerville

5.2.4. Prepare responses to comments. Comments received at Meeting Nos. 1 & 2 to be incorporated in the Draft Updated CSO Control plan and comments received at meeting No. 3 to be incorporated in in the Final Updated CSO Control Plan.

5.3. Conduct ad hoc meetings with watershed groups and other stake holders

6. Affordability Analysis

Prepare an affordability analysis consistent with EPA's November 24, 2014 *Memorandum on Financial Capability Assessment Framework for Municipal Clean Water Act Requirements.*

6.1. Collect and review relevant data

6.2. Confirm service area and households served

6.3. Confirm current and projected CWA program Costs for the MWRA

6.4. Develop residential indicator

6.5. Obtain and organize financial capability indicator information for MWRA and for each service area community

6.6. Develop financial capability matrix score

6.7. Conduct supplemental analyses

6.8. Prepare Draft Financial Capability Assessment

6.9. Prepare Final Financial Capability Assessment

7. Recommended Plan and Schedule

7.1. Based on cost/performance evaluations, implementation considerations, impacts to sensitive areas and Environmental Justice communities and public comments, select a recommended plan for MWRA-owned outfalls in Alewife Brook/Upper Mystic River and the Charles River

7.2. Summarize Recommended Plan Components, Performance, Cost and potential implementation issues

7.3. Prepare an Implementation Schedule based on projects included in Recommended Plan
- Coordinate implementation schedule for MWR outfalls with implementation schedules developed by Cambridge and Somerville for CSO outfalls to the Variance waters

7.4. Develop an Operation and Maintenance Plan to minimize CSO impacts from recommended control facilities where CSOs will not be eliminated.

7.5. Develop a Post Construction Compliance Monitoring Program

8. Prepare Updated CSO Control Plan

8.1. Document the findings from Tasks 1 to 7 in a draft Updated CSO Control Plan for Alewife Brook/Upper Mystic River and Charles River for submittal to EPA/DEP
- Updated CSO Control Plan will address MWRA-owned outfalls to Alewife Brook/Upper Mystic River and Charles River. CSOs to the Variance waters owned by Cambridge and Somerville will only be addressed in the context of regional alternatives, if such alternatives have been evaluated, or if alternatives proposed by Cambridge and/or Somerville would affect the performance of MWRA-owned outfalls.

8.2. Address comments received on the draft Updated CSO Control Plan for Alewife Brook/Upper Mystic River and Charles River, and submit Final Plan to EPA/DEP

Updated CSO Control Plan Schedule:

- Draft Recommended Plan to be submitted to EPA/DEP by June 30, 2023
- Final Recommended Plan to be submitted to EPA/DEP by December 31, 2023

United States Environmental Protection Agency
Region 1 – EPA New England
5 Post Office Square – Suite 100
Boston, MA 02109-3912

Sent Via Email (dated as indicated in electronic signature)

Mr. Brian Kubaska, P.E.
Assistant Director, Engineering
MWRA, Wastewater O&M
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129

Re: MWRA Updated CSO Control Plan – Draft Scope of Work and Schedule

Dear Mr. Kubaska:

The United States Environmental Protection Agency ("EPA") has received and reviewed the "Updated CSO Control Plan - Scope of Work and Schedule" submitted by the Massachusetts Water Resources Authority ("MWRA") in accordance with the Variance for Combined Sewer Overflow ("CSO") Discharges to Alewife Brook/Upper Mystic River Basin and the Variance for Combined Sewer Overflow Discharges to the Charles River Basin (collectively referred to as the "Variance" or "Variances").

EPA has reviewed the Updated Scope of Work and appreciates the thought and effort MWRA has put into the document. EPA has reviewed the separate but related Updated Scopes of Work produced by the City of Cambridge, MA and the City of Somerville, MA and will be sharing respective comments with all parties in an effort to encourage consistency amongst all parties.

If you have questions regarding these comments, please contact Todd Borci at 617-918-1358 or borci.todd@epa.gov.

Sincerely,

Todd J. Borci
Enforcement Officer
Environmental Compliance Assurance Division
US EPA Region 1

cc: David Coppes, MWRA
Richard Raiche, City of Somerville
Kathy Watkins, City of Cambridge
Eric Worrall, MassDEP
Kevin Brander, MassDEP
Michael Wagner/EPA
Jeff Kopf/EPA

Attachment

Section 2.2 - Typical Year/Climate Change Analysis

Continued collaboration between the MWRA, the City of Somerville, and the City of Cambridge in developing a revised "typical year" that incorporates future predicted precipitation events with respect to both overall storm size and storm intensity is warranted. As noted by recent National Oceanic and Atmospheric Association ("NOAA") guidance[1] and peer-reviewed studies[2], precipitation events have increased in both event intensity and overall total precipitation, and acutely so here in the Northeast. These increased precipitation events, in both frequency and intensity, have already had a significant impact on area infrastructure and therefore must be incorporated into a revised typical year. EPA believes that an assessment incorporating the past 20 to 25 years of precipitation data, in addition to future projections regarding climate change impacts on storm intensity and precipitation volumes (up to certain set points such as anticipated conditions in 2050 or 2070) must be completed for this stage of CSO control design. EPA also expects MWRA to look at select precipitation events that coincide with high tide and how such events will be influenced by current climate change projections for sea level rise. EPA notes that such events have occurred several times over the past few years, and each has had an acute impact on respective CSO and SSO discharge events. EPA encourages MWRA to collaborate with the City of Cambridge, as it has conducted detailed analyses of precipitation events, storm surge, and operation of the Amelia Earhart Dam to determine flooding scenarios that will impact concurrent CSO discharges, as well as with the City of Somerville as it has looked at detailed climate change scenarios and how they affect Somerville. Such an approach would be consistent with both Somerville's "Somerville Climate Forward" initiative [3], as well as with Cambridge's "Resilient Cambridge"[4] and "Climate Change Preparedness and Resilience"[5] efforts. EPA encourages MWRA to collaborate with Cambridge and Somerville to propose an appropriate "typical year" design scheme for further discussion with EPA and MassDEP. We know that our wastewater infrastructure will need to evolve over time as the climate continues to change; decisions about CSO control alternatives need to take this into account.

Section 2.6/2.7

EPA notes the Cities of Somerville and Cambridge will incorporate Phosphorous, TSS, and other pollutants of concern into their baseline pollutant loading evaluation. EPA encourages this approach, and would expect MWRA to coordinate with the Cities in their approach.

Section 4 – Alternatives Development and Evaluation

EPA notes the framework proposed by MWRA does not contain a significant level of detail as far as specific alternatives that will be evaluated. This effort is meant to be a forward-looking evaluation of additional CSO controls that may be achieved after the current Federal Court Order is satisfied for those CSO discharges within the Variance waters. EPA's expectation is that

[1] https://www.weather.gov/media/owp/oh/hdsc/docs/Atlas14_Volume10.pdf
[2] https://journals.ametsoc.org/view/journals/hydr/18/6/jhm-d-16-0195_1.xml
[3] https://www.somervillema.gov/departments/programs/somerville-climate-forward
[4] https://www.cambridgema.gov/CDD/Projects/Climate/climatechangeresilianceandadaptation
[5] https://www.cambridgema.gov/~/media/Files/CDD/Climate/CCPR/ccprpreparednesshandbook_cambridge.pdf

MWRA, as the regional sewer authority, take a leadership role for the combined efforts of Somerville, Cambridge, and other interconnected member communities in the development of alternatives to reduce or eliminate CSO discharges to the Variance waters.

EPA strongly encourages MWRA, along with the City of Cambridge and the City of Somerville, to undertake a holistic evaluation regarding CSO discharges, flooding, and Inflow and Infiltration ("I/I") within not only the Variance communities but also the upstream communities. The significant levels of I/I in those upstream communities create and compound the downstream CSO issues, particularly in the Alewife/Lower Mystic River.

The ultimate solution to these issues will involve not only separation of combined sanitary sewer systems or off-line storage of CSO volume, but also the removal of significant amounts of stormwater and groundwater that enter the sanitary sewers through direct connections, cracks, and other defects. Removal of I/I, which makes up a significant source of sanitary flows for many communities[6], will also result in a significant amount of additional stormwater that will need to be managed to prevent flooding and other issues. The channelized nature of Alewife Brook, as well as the amount of sediment in the Alewife constructed channel that takes up flood storage capacity (this sediment volume was estimated by USGS in 2005 to take up approximately 0.5 million cubic feet[7]), exacerbates the flooding issue. MWRA has the technical staff and state public authority status to take a leadership role in convening additional agencies such as the Massachusetts Department of Conservation and Recreation (owner of the Alewife Brook and Mystic River Reservations) to start to identify potential projects.

EPA expects MWRA to closely examine wide-ranging projects, including those not in the immediate Alewife, Mystic, or Charles River areas, to include upstream storage and pump back facilities, upstream flow diversion/balancing, and emerging opportunities such as the Revere/Boston Water and Sewer Commission ("BWSC") discussions on a new pump station and connection downstream of the Caruso Pump Station. Such a large regional project may have significant positive impact on not only those communities but regional north system capacity issues as well.

EPA would also encourage MWRA to include initial alternatives that combine major facility upgrades, such as expansion or rebuilding of the Caruso Pump Station. The Caruso Pump Station, the key connection point for the MWRA North System, is known to be a flow restriction in significant storm events. An examination of what size and type of events cause capacity issues, the magnitude of those capacity issues, and potential solutions and their effect on upstream CSO events would seem necessary (and MWRA may be able to use past work such as the draft North System Hydraulic Study). Even if such alternatives are excluded from further detailed study, initial estimates of these costs will also provide perspective of which regional alternatives are truly the most cost-effective. In addition, examination of which facilities are nearing the end of their expected life cycle may provide opportunities for expansion of system capacity as life cycle upgrades are implemented.

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[6] https://www.mwra.com/harbor/pdf/infinf.pdf

[7] Breault, R.F., Durant, J.L., and Robbat, Albert, Jr., 2005, Sediment quality of lakes, rivers, and estuaries in the Mystic River Basin, eastern Massachusetts, 2001–03: U.S. Geological Survey Scientific Investigations Report 2005-5191, 110 p.

Finally, EPA is asking MWRA re-interpret its Regional Infiltration/Inflow Reduction Plan and its work under the I/I Task Force. These efforts were a significant undertaking by MWRA and numerous stakeholders in the late 1990s and early 2000s. Much has been learned since that undertaking - relining technologies and costs, a better understanding of the necessity of concurrent building lateral relining, and a much better understanding of MWRA and community infrastructure performance over time. MWRA's I/I Loan Program is a national model, and MWRA should leverage what we have learned with these resources into providing more specific recommendations and technical support within its member communities. MWRA should create the technical capacity to serve as a technical support clearinghouse on best practices, assist its member communities in identifying those sources of I/I that contribute to downstream capacity issues and local SSO issues, and leverage some portion of its I/I Loan Program to address those specific issues.

EPA will continue to work with MWRA, Cambridge, and Somerville, as well as all the MWRA member communities upstream of the Alewife/Lower Mystic area to address the collective issues that directly impact CSO volume discharged.

Section 5. Public Participation

EPA appreciates the detail MWRA has provided regarding how to engage the public during this process. EPA would expect MWRA to hold public meetings designed to solicit feedback from the public on proposals that are still in the draft stage, such that appropriate and meaningful feedback can be incorporated into the proposal prior to finalization. EPA routinely hears from stakeholders that they do not want to attend a public meeting where they are presented with a final plan with no opportunity for feedback. Based on stakeholder feedback to date, it appears the public would like an opportunity to weigh in on both the updated "typical year" and to have input on the early stages of CSO control alternatives development, before a sub-set is selected for detailed analysis. EPA is willing to discuss with MWRA, MassDEP, and other interested and related parties how to achieve the appropriate level of meaningful public engagement.

Section 6 – Affordability Analysis

EPA encourages MWRA to ensure that the cost/benefit analysis will capture any reductions in loadings of phosphorous and any other pollutants of concern that will be evaluated in Sub-Task 4.1(c), as those reductions will reduce the cost of compliance with the Mystic River Alternative TMDL as well as any potential future additional permitting costs.

EPA expects MWRA to explore a comprehensive financial capability analysis in accordance with existing EPA guidance and policies[8,9], and to work with its member communities to consider alternative or tiered rate structures to avoid adverse impacts on lower income residents.

Section 7. Recommended Plan and Schedule

EPA requests MWRA incorporate their proposed schedule into an appropriate chart, such as was provided by Somerville and Cambridge, for tracking and comparison of timelines.

[8] https://www.epa.gov/sites/default/files/2015-10/documents/csofc_0.pdf
[9] https://www.epa.gov/sites/default/files/2015-10/documents/municipal_fca_framework_0.pdf

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May 13, 2022

Mr. Brian Kubaska, P.E.
Assistant Director, Engineering
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, MA 02129

Re: MWRA Updated CSO Control Plan - Draft Scope of Work and Schedule

Dear Mr. Kubaska:

The Massachusetts Department of Environmental Protection (MassDEP) has received and reviewed the Massachusetts Water Resources Authority's (MWRA) Updated CSO Control Plan Draft Scope of Work and Schedule submitted for MassDEP review and approval on April 1, 2022. The Scope of Work was submitted in accordance with the Variance for Combined Sewer Overflow ("CSO") Discharges to the Alewife Brook/Upper Mystic River Basin and the Variance for Combined Sewer Overflow Discharges to the Charles River Basin (collectively referred to as the "Variance" or "Variances").

MassDEP has prepared the following comments on the Draft Updated CSO Control Plan Scope of Work and Schedule:

1. Regulatory Framework: This section must provide better detail regarding the distinction between the requirements of the federal court order and the requirements of the CSO variance, and describe the need to integrate the final CSO control recommendations into the water quality standards:

    - Collaboration with Cambridge and Somerville: MWRA appears to be interpreting its obligations to end when it achieves the level of CSO control required under the Second Stipulation in the Boston Harbor Court Case, which has not yet been met at many of the outfalls in the Variance areas. This will surely confound an alternatives analysis in each of the Variance watersheds, since the community and MWRA CSO outfalls are hydraulically connected (i.e., recommendations by either

will affect overflow activations and volumes of both). Since all three parties are required to do CSO control plan updates, without close collaboration (and potentially cost-sharing agreements) on recommended CSO abatement work, the highest feasible level of CSO control, collectively and individually amongst the parties, may be difficult to determine. MWRA should describe more fully the collaboration efforts to be incorporated into the development of the Updated CSO Control Plan.

- Water Quality Standards: Where the recommended CSO Control Plan falls short of eliminating MWRA CSO discharges, such plan must be supported by a demonstration that further CSO Controls are not feasible pursuant to one or more of the criteria in 314 CMR 4.03(4). If such a plan is advanced, as a watershed-based alternative to CSO elimination, MWRA must also document how the alternative CSO control plan provides superior environmental benefits to the receiving waters in supporting existing and proposed uses and associated water quality standards.

2. Schedule and Deliverables: The draft scope does not explicitly include the list or schedule for deliverables, which will be key to providing critical milestones for regulatory and public review of the technical information that will form the basis for the Updated CSO Control Plan. MWRA should provide a Gantt chart showing the deliverables, and a schedule for its transmittal, along with public participation actions. The deliverables must include, at a minimum:

   - Technical Memorandum on Development of the Typical Year;
   - Technical Memorandum on Assessment of Nine Minimum Controls;
   - Affordability Analysis;
   - Alternatives Development and Evaluation Report;
   - Draft Updated CSO Control Plan; and
   - Final Updated CSO Control Plan.

3. Typical Year/Climate Change Analysis: This is a critical issue in understanding the effectiveness of any CSO abatement plan. The "typical" rainfall year needs to be updated and assessed, as there have been significant changes since the use of calendar year 1992, the basis of the MWRA's 1997 CSO Control Plan.

   - MWRA proposes to base the (new) typical year and design storm rainfall analysis initially on data from a single range gauge. MassDEP finds this approach to be limited in scope and believes it should be expanded to evaluate other gauges/data sources that will further support defining the current typical year.

   - MWRA proposes to develop the updated typical year statistics based on the historical period of record (i.e., 1948 to 2021 and "the past 10 years of record") for the climate change analysis. No basis for selection of the last 10 years was provided.

   - Monthly rainfall data for Boston during the period of 1996 to 2021 (National Weather Service) appears to provide a robust 25-year period of record database to

perform this analysis, as it captures a wider range of historically wet months than the proposed past 10-year analysis, and better reflects current conditions. This and other sources for the past 25 years of data should be considered in developing the updated Typical Year.

- The recent NOAA Atlas 14 data should also be reviewed for individual storm events in the typical year to check for correlation with that data set where available.

4. Alternatives Development and Evaluation: This element of the Scope does not include a specific list of CSO abatement alternatives to be considered. The alternatives evaluated must include, at a minimum, sewer separation, CSO storage, CSO treatment, green infrastructure alternatives, and modifications to regional collection system/operations to further reduce CSO discharges and their impacts. The evaluation must also consider resultant water quality impacts to the pollutant loads of any non-CSO sources. M.G.L. c. 30, § 61 states that "In considering and issuing permits, licenses and other administrative approvals and decisions, the respective agency, department, board, commission or authority shall also consider reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise. Therefore, climate change resiliency should be a factor considered in the evaluation of CSO control alternatives in a revised scope and during the MEPA process discussed below.

5. Public Participation:

   - The Gantt chart/schedule needs to include provisions for public meetings at critical junctures, which must include meetings/presentations, at a minimum, on the Typical Year Development; Alternatives Development and Evaluation; and Final Plan/Recommendations.

   - MWRA failed to include any indication in the scope that a MEPA filing will be made. MWRA should confer with MEPA staff to establish the type of submittal that will be required to meet their regulatory requirements. This is a variance requirement and will be a critical element of the public participation plan. A public meeting should also be included during the MEPA review period(s) to better facilitate public comment.

   - All deliverable technical documents and meeting presentations must be posted on the MWRA website in a timely manner.

6. Affordability Analysis: MWRA has cited use of the EPA's November 24, 2014 *Memorandum on the Financial Capability Assessment Framework for Municipal Clean Water Act Requirements*. The Analysis also needs to incorporate the requirements of the EPA's 1997 *Financial Capability Assessment Guidance*.

   - MassDEP/EPA Coordination: MWRA should confer with MassDEP/EPA on the approach to be used to determine MWRA's affordability. While the cited references above should be used, they can and should be supplemented where

additional information or factors need to be considered in establishing affordability.

MassDEP looks forward to its collaboration with MWRA on the development of the Updated CSO Control Plan. Please contact Kevin Brander at kevin.brander@mass.gov, or at (978) 694-3236 with any questions, or if you require additional information.

Sincerely,

for Eric Worrall
Regional Director

Cc: David Coppes, MWRA (via e-mail)
Richard Raiche, City of Somerville (via e-mail)
Kathy Watkins, City of Cambridge (via e-mail)
Kathy Baskin, MassDEP Assistant Commissioner/BWR (via email)
Lealdon Langley, MassDEP, Director of Watershed Permitting (via email)
Todd Borci, EPA (via e-mail)
Michael Wagner, EPA (via e-mail)
Jeff Kopf, EPA(via e-mail)

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June 09, 2022

Mr. Eric Worrall
Regional Director, MassDEP
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

RE: Response to DEP's Comments on MWRA Updated CSO Control Plan – Draft Scope of Work and Schedule

Dear Mr. Worrall,

The Massachusetts Water Resources Authority (MWRA) received your comments on our Updated CSO Control Plan - Draft Scope of Work and Schedule on May 13, 2022. After reviewing these comments, MWRA has prepared the following responses:

DEP Comment 1. Regulatory Framework: This section must provide better detail regarding the distinction between the requirements of the federal court order and the requirements of the CSO variance, and describe the need to integrate the final CSO control recommendations into the water quality standards.

MWRA Response: *MWRA will clarify the distinction between the Court Order requirements and the requirements of the Variance. The regulatory framework section will also further describe the relationship between the final CSO control recommendations and the water quality standards to be established for the Variance waters.*

DEP Comment 1a: Collaboration with Cambridge and Somerville: MWRA appears to be interpreting its obligations to end when it achieves the level of CSO control required under the Second Stipulation in the Boston Harbor Court Case, which has not yet been met at many of the outfalls in the Variance areas. This will surely confound an alternatives analysis in each of the Variance watersheds, since the community and MWRA CSO outfalls are hydraulically connected (i.e., recommendations by either will affect overflow activations and volumes of both). Since all three parties are required to do CSO control plan updates, without close collaboration (and potentially cost-sharing agreements) on recommended CSO abatement work, the highest feasible level of CSO control, collectively and individually amongst the parties, may be difficult to determine. MWRA should describe more fully the collaboration efforts to be incorporated into the development of the Updated CSO Control Plan.

MWRA Response: *MWRA and the Cities of Cambridge and Somerville have already instituted a series of regular meetings to coordinate on issues related to the development of the CSO Plans for the Variance waters. MWRA will continue to coordinate with the Cities of Somerville and Cambridge regarding the development of alternatives for the Variance waters, including potential relationships between alternatives developed to meet the Federal Court Order levels of*

control and alternatives developed as part of the Variance-required CSO Plans.

DEP Comment 1b: Water Quality Standards: Where the recommended CSO Control Plan falls short of eliminating MWRA CSO discharges, such plan must be supported by a demonstration that further CSO Controls are not feasible pursuant to one or more of the criteria in 314 CMR4.03(4). If such a plan is advanced, as a watershed-based alternative to CSO elimination, MWRA must also document how the alternative CSO control plan provides superior environmental benefits to the receiving waters in supporting existing and proposed uses and associated water quality standards.

MWRA Response: *MWRA intends to include assessment of the impact of alternatives on attainment of water quality criteria and designated uses. It is anticipated these assessments will draw on the results of water quality modeling runs conducted for the December 2021 Final CSO Post Construction Monitoring Program and Performance Assessment Report, with additional water quality model runs conducted if necessary.*

DEP Comment 2. Schedule and Deliverables: The draft scope does not explicitly include the list or schedule for deliverables, which will be key to providing critical milestones for regulatory and public review of the technical information that will form the basis for the Updated CSO Control Plan. MWRA should provide a Gantt chart showing the deliverables, and a schedule for its transmittal, along with public participation actions. The deliverables must include, at a minimum:

- Technical Memorandum on Development of the Typical Year;
- Technical Memorandum on Assessment of Nine Minimum Controls;
- Affordability Analysis;
- Alternatives Development and Evaluation Report;
- Draft Updated CSO Control Plan; and
- Final Updated CSO Control Plan.

MWRA Response: *MWRA will prepare a schedule in chart form. With regard to the proposed list of deliverables, MWRA agrees that it will be useful to prepare a technical memorandum on the development of the Typical Year. It is not clear that a separate technical memorandum on the Nine Minimum Controls is needed, as compliance with the Nine Minimum Controls is required by MWRA's NPDES permit MA0103284, and the intent was to summarize MWRA's implementation activities in the CSO Control Plan. However, a memorandum reflecting the text that is intended to go into the CSO Plan could be developed without creating a burden on the schedule for completion of the CSO Plan. Regarding the deliverables listed above related to the affordability analysis and alternatives development, MWRA acknowledges the need to get EPA and DEP input during the process of developing the affordability analysis and the CSO control alternatives. Given the schedule constraints on the program, however, MWRA would prefer to obtain EPA and DEP input through a series of meetings/workshops on these topics, rather than take the time to develop interim submittals for review and comment.*

DEP Comment 3. Typical Year/Climate Change Analysis: This is a critical issue in understanding the effectiveness of any CSO abatement plan. The "typical" rainfall year needs to be updated and assessed, as there have been significant changes since the use of calendar year 1992, the basis of the MWRA' s 1997 CSO Control Plan.

MWRA Response: *MWRA intends to update the Typical Year. See responses to Comment nos. 3a to 3d below.*

DEP Comment 3a. MWRA proposes to base the (new) typical year and design storm rainfall analysis initially on data from a single rain gauge. MassDEP finds this approach to be limited in scope and believes it should be expanded to evaluate other gauges/data sources that will further support defining the current typical year.

MWRA Response: *MWRA has revised the scope to base the updated typical year on historical rainfall data from three gauges that had appropriate available data. Two of the gauges are operated by MWRA (BO-DI-2, located at Columbus Park Headworks and CH-BO-1, located at Chelsea Creek Headworks, both with 15-minute data), and the third gauge is the NOAA gauge at Logan Airport (hourly data).*

DEP Comment 3b. MWRA proposes to develop the updated typical year statistics based on the historical period of record (i.e., 1948 to 2021 and "the past 10 years of record") for the climate change analysis. No basis for selection of the last 10 years was provided.

MWRA Response: *The historical record being assessed was initially assumed to be from 1993 to present, as that represented the extent of 15-minute data available for the MWRA's two gauges at Columbus Park and Chelsea Creek. Based on additional feedback, MWRA has also considered the period from 1996 to present. The intent of also looking at the past 10 years was to address concerns expressed by the public that recent years have seen more higher-intensity storms.*

DEP Comment 3c. Monthly rainfall data for Boston during the period of 1996 to 2021 (National Weather Service) appears to provide a robust 25-year period of record database to perform this analysis, as it captures a wider range of historically wet months than the proposed past 10-year analysis, and better reflects current conditions. This and other sources for the past 25 years of data should be considered in developing the updated Typical Year.

MWRA Response: *See response to comment 3b above.*

DEP Comment 3d. The recent NOAA Atlas 14 data should also be reviewed for individual storm events in the typical year to check for correlation with that data set where available.

MWRA Response: *MWRA is including analysis of Atlas 14 recurrence intervals in developing the distribution of storms for the updated Typical Year.*

DEP Comment 4. Alternatives Development and Evaluation: This element of the Scope does not include a specific list of CSO abatement alternatives to be considered. The alternatives evaluated must include, at a minimum, sewer separation, CSO storage, CSO treatment, green infrastructure alternatives, and modifications to regional collection system/operations to further reduce CSO discharges and their impacts. The evaluation must also consider resultant water quality impacts to the pollutant loads of any non-CSO sources. M.G.L. c. 30, § 61 states that "In considering and issuing permits, licenses and other administrative approvals and decisions, the respective agency, department, board, commission or authority shall also consider reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects,

such as predicted sea level rise. Therefore, climate change resiliency should be a factor considered in the evaluation of CSO control alternatives in a revised scope and during the MEPA process discussed below.

MWRA Response: *MWRA concurs with the list of alternatives to be considered, and intends to consider water quality impacts of non-CSO sources. With regard to climate impacts, MWRA has begun collaboration with the Cities of Somerville and Cambridge over the development of a new Typical Year that will be based on analysis of the past 26 years of rainfall data. MWRA, Somerville and Cambridge are currently assessing the extent to which storms with characteristics reflecting future potential climate conditions could be incorporated into an alternatives analysis. However, MWRA has concerns with incorporating 'future' rain events, as the MWRA is unaware of any precedent for including climate change projections within the regulatory framework of the Clean Water Act. Developing a new approach to a typical year that is legally and scientifically defensible is a complicated and time-consuming process that would require significant public participation and substantial schedule extension.*

MWRA intends to assess the sensitivity of collection system performance to projections of sea level rise and storm peaks coinciding with high tide. It is noted that with the exception of outfall SOM007A/MWR205A, none of the outfalls to the Variance waters would be directly influenced by tide elevation

DEP Comment 5. Public Participation

DEP Comment 5a. The Gantt chart/schedule needs to include provisions for public meetings at critical junctures, which must include meetings/presentations, at a minimum, on the Typical Year Development; Alternatives Development and Evaluation; and Final Plan/Recommendations.

MWRA Response: *MWRA will prepare a schedule in chart form that reflects the meetings noted.*

DEP Comment 5b. MWRA failed to include any indication in the scope that a MEPA filing will be made. MWRA should confer with MEPA staff to establish the type of submittal that will be required to meet their regulatory requirements. This is a variance requirement and will be a critical element of the public participation plan. A public meeting should also be included during the MEPA review period(s) to better facilitate public comment.

MWRA Response: *MWRA will coordinate with MEPA regarding the appropriate filings needed to meet regulatory requirements.*

DEP Comment 5c. All deliverable technical documents and meeting presentations must be posted on the MWRA website in a timely manner.

MWRA Response: *MWRA intends to continue to post deliverables and presentations to the website in a timely manner.*

DEP Comment 6. Affordability Analysis: MWRA has cited use of the EPA's November 24, 2014 Memorandum on the Financial Capability Assessment Framework for Municipal Clean Water Act Requirements. The Analysis also needs to incorporate the requirements of the EPA's

1997 Financial Capability Assessment Guidance.

MWRA Response: *MWRA intends to coordinate closely with DEP and EPA on the development of the affordability analysis.*

DEP Comment 6a. MassDEP/EPA Coordination: MWRA should confer with MassDEP/EPA on the approach to be used to determine MWRA's affordability. While the cited references above should be used, they can and should be supplemented where additional information or factors need to be considered in establishing affordability.

MWRA Response: *See response to comment no. 6 above.*

Schedule Considerations:

As acknowledged in your letter, the interdependence of the MWRA, Cambridge, and Somerville sewer systems necessitates substantial and sustained coordination in the development of an Updated CSO Control Plan, while participation of EPA, MassDEP, and the public is also critical to the plan's success. While cooperation is integral to the successful development and implementation of the CSO Control Plans, it is also labor intensive and time consuming. We are aware that Cambridge and Somerville have suggested that a schedule extension is appropriate and MWRA has no objection to this request.

Thank you for considering these responses. If you have any questions, please contact me at 617-305-5797.

Sincerely,

Brian L. Kubaska

Brian Kubaska
Assistant Director, Engineering, MWRA

cc: David Coppes, MWRA (via email)
Carolyn Fiore, MWRA (via email)
Todd Borci, EPA (via email)
Michael Wagner, EPA (via email)
Jeff Kopf, EPA (via email)
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Kathy Watkins, City of Cambridge (via email)
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Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

July 22, 2022

Mr. Brian Kubaska, P.E.
Assistant Director, Engineering
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, MA 02120

Re: Response to DEP's Comments on MWRA Updated CSO Control Plan - Draft Scope of Work and Schedule

Dear Mr. Kubaska:

The Massachusetts Department of Environmental Protection (MassDEP) has received the Response to DEP's Comments on the Massachusetts Water Resources Authority (MWRA) Updated CSO Control Plan – Draft Scope of Work and Schedule as submitted on June 9, 2022. MassDEP previously provided comments to the MWRA on May 13, 2022 on the Updated CSO Control Plan Draft Scope of Work and Schedule, which was submitted for MassDEP review and approval on April 1, 2022. The Scope of Work and Schedule was submitted in accordance with the Variance for Combined Sewer Overflow ("CSO") Discharges to the Alewife Brook/Upper Mystic River Basin and the Variance for Combined Sewer Overflow Discharges to the Charles River Basin (collectively referred to as the "Variance" or "Variances").

The scope of work and schedule includes characterization, monitoring, and modeling of the CSO system, determination of the existing level of CSO control, typical year/climate change analysis, design storm update, CSO control alternatives analysis for the Charles River outfalls (MWR010, MWR018, MWR019, MWR020, MWR023 and Cottage Farm) and the Alewife/Mystic CSO outfalls (MWR003 and MWR205A), public participation, financial/affordability analysis, recommended plan and schedule, and preparation of an updated CSO Control Plan.

MassDEP has reviewed the Response to DEP's Comments on the MWRA Updated CSO Control Plan – Draft Scope of Work and Schedule, and hereby approves the scope of work and schedule, subject to the following conditions and clarifications:

1. All project deliverables shall be posted in a timely fashion on MWRA's website.

2. MWRA, and the cities of Cambridge and Somerville shall coordinate their activities with respect to the evaluation of existing conditions, development of the typical year design storm, CSO alternatives analysis, public participation, affordability analyses, and development of the updated control plans.

3. As noted in MWRA's response regarding schedule and deliverables (DEP Comment 2), MassDEP acknowledges MWRA's request to solicit MassDEP and EPA input during the process of developing the CSO alternatives analysis and affordability analysis through a series of meetings and workshops, rather than developing and submitting interim deliverables for review and comment. MWRA, in conjunction with the cities of Cambridge and Somerville, shall coordinate the meeting/workshop agendas with MassDEP and EPA and prepare meeting minutes or other appropriate written documentation to memorialize the discussions, results, action items, and conclusions of such meetings/workshops, and provide the documentation to MassDEP and EPA for review and concurrence.

4. MassDEP acknowledges that the City of Cambridge requested a schedule extension and that MWRA supports this request. If MWRA wishes to pursue a schedule extension, by September 1, 2022, MWRA and the cities of Cambridge and Somerville shall submit a combined Gantt chart that shows a proposed detailed schedule for completion of all deliverables under the Variances, and MWRA shall submit a formal extension request that justifies the need for additional time. MassDEP will review these submittals and continue to monitor the progress of the work, in collaboration with EPA, and determine if a schedule extension is warranted to the dates in the Variance and/or the conditions of this approval.

5. MassDEP favors the City of Cambridge's approach that MWRA, Cambridge, and Somerville prepare a common Updated CSO Control Plan provided that MWRA and Somerville agree.

6. The Draft Updated CSO Control Plan shall be submitted to MassDEP and EPA for review and approval on or before June 30, 2023.

7. The Final Updated CSO Control Plan shall be submitted to MassDEP and EPA for review and approval by December 31, 2023.

8. Any changes to the scope of work or schedule shall be submitted to MassDEP and EPA in writing for approval.

MassDEP looks forward to its collaboration with MWRA on the development of the Updated CSO Control Plan. Please contact Susannah King at Susannah.king@mass.gov with any questions, or if you require additional information.

Sincerely,

Eric S. Worrall
Regional Director
Northeast Regional Office

Cc: David Coppes, MWRA (via e-mail)
Richard Raiche, City of Somerville (via e-mail)
Kathy Watkins, City of Cambridge (via e-mail)
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