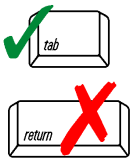
Massachusetts Department of Environmental Protection
Bureau of Water Resources – Wastewater Management Program

Combined Sewer Overflow Final Public Notification Plan

1. Facility Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



City of New Bedford
Name of Permittee (Facility or System)

Jamie Ponte | Jamie.ponte@newbedford-ma.gov | 508-979-1556
Permittee Contact Name | Email Address | Phone number

1105 Shawmut Avenue, New Bedford, MA,
Permittee Mailing Address

0100781
NPDES Permit #

System contains (check all that apply):

☒ Collection system ☒ Pump station(s) above 1MGD ☒ Wastewater treatment plant

Location of WWTP discharge, if applicable: Buzzards Bay (MA 95

☒ **Attach** a map with locations of discharges and affected waterbodies. Include other supporting information as needed.

2. Identification of Environmental Justice Populations

Are there Environmental Justice (EJ) populations that would potentially be affected by your wastewater treatment plant discharge(s) or a combined sewer overflow? See the Instructions file for more detail. ☒ Yes ☐ No

If there are EJ populations that would potentially be affected, do 25% or more of households lack English-language proficiency, and at least 5% of the population self-identify as "do not speak English very well"? See the Instructions file for more detail. ☒ Yes ☐ No

Provide a list of all languages that notifications will be translated into:

English, Portuguese, Spanish, French Creole

Attach a description of how translations of public advisory notification and signage required by these regulations will be provided to EJ populations in the languages listed above. Include:

☒ A description of the third party or internal resource used to produce the translations

☒ A description of how the translation will be accessed by a public advisory notification recipient

☒ A description of how the translation will be accessed by someone reading the signage at CSO outfalls and public access points

3. Discharges, Overflows, and Public Notification Content

When public notification is required: (check box to affirm)

☒ Permittee is aware that all events covered under 314 CMR 16.03(1)(a-e) require a public notification.

Required content of public notification: (check box to affirm)

☒ Permittee is aware of all required information for public notifications under 314 CMR 16.04(10)

Attach a description of how the permittee will meet the requirements under 314 CMR 16.04(10), including the following:

☒ How the permittee will determine or discover that an event has occurred

☒ How the permittee will estimate the volume of discharges or overflows

☒ How the permittee will estimate the commencement times, cessation times, and duration of discharges or overflows

☒ A list of the waters and land areas affected by the permittee's discharges or overflows

Permittee can meet all requirements of 314 CMR 16.04(10) ☒ Yes ☐ No

If no, please describe in detail which components the permittee is not able to meet and the measures needed to comply. Include a schedule for compliance.

Components that cannot be met

Schedule for compliance

4. Discovery and Required Timeline for Notification Following Discharge or Overflow

Requesting approval of an alternative method:

Is the permittee requesting approval to use a method other than metering to detect a discharge? (Requires approval of MassDEP Commissioner) ☒ Yes ☐ No

☒ If yes, **attach** additional information on the method to detect a discharge

☒ If yes, **attach** a letter to the Commissioner with the approval request

Discovery of a Discharge or Overflow:

☒ **Attach** a description of the steps the permittee will take to determine or discover that a discharge or overflow from its outfall or sewer system is occurring

Can the permittee discover an event under 314 CMR 16.04(5)(a), (b) & (c) within the required timeline? ☒ Yes ☐ No

☐ If no, **attach** a description specifying the limitations to meeting these requirements and potential remedies. Include and a schedule for implementing potential remedies.

Issuance of Public Notification:

Permittee can meet the notification requirements in 314 CMR 16.04(4) to notify as soon as possible, but no later than two hours after discovery. ☒ Yes ☐ No

☐ If no, **attach** a description specifying the limitations, potential remedies, and a schedule for implementing potential remedies.

☐ If no, **attach** a letter to the Commissioner requesting approval for a longer time period for notification.

Continuation of Public Notification:

Permittee can meet the notification requirements in 314 CMR 16.04(7) to issue an update 8 hours after the public advisory notification, if the initial notification does not indicate that the event has ceased. ☒ Yes ☐ No

☐ If no, **attach** a description of which requirement cannot be met, what measures are needed for compliance, and a schedule for compliance.

Cessation of Public Notification:

Permittee can meet the notification requirements in 314 CMR 16.04(8) to continue issuing 8 hour updates for ongoing events, and notify within 2 hours of when the event ceases or is projected to cease. ☒ Yes ☐ No

☐ If no, **attach** a description of which requirement cannot be met, what measures are needed for compliance, and a schedule for compliance.

Retraction of Public Notification:

Permittee can meet the notification requirements in 314 CMR 16.04(9) to issue a retraction if the permittee becomes aware within 48 hours of issuing the public advisory notification that no discharge or overflow actually occurred. ☒ Yes ☐ No

☐ If no, **attach** a description of which requirement cannot be met, what measures are needed for compliance, and a schedule for compliance.

5. CSO Permittee Website

Does the permittee/sewer authority have an existing website or web page where relevant information is posted? ☒ Yes ☐ No

If yes, provide the URL:

https://www.newbedford-ma.gov/public-infrastructure/wastewater/new-bedford-cso-report/

Describe the subscriber-based system where the public can sign up to receive your notifications.

https://public.coderedweb.com/CNE/en-US/BF8FCA03EBFC

Permittee's website is able to meet the requirements under 314 CMR 16.04(3) ☒ Yes ☐ No

Permittee's website is able to meet the requirements under 314 CMR 16.05(1)(a-e) ☒ Yes ☐ No

If any website requirements can not be met, specify limitations to meeting these requirements, potential remedies, and a schedule for compliance:

☒ **Attach** a description of how the Permittee will update the website with requirements under 314 CMR 16.04(3) and 314 CMR 16.05(1)(a-e)

6. Signage

Permittee has consulted with the Board of Health/Health Departments in municipalities affected by their discharges for public access sign location points as required by 314 CMR 16.05(3)? ☒ Yes ☐ No

☒ **Attach** a list of locations where signs will be installed and dates when signs will be installed.

Permittee is able to meet the signage requirements under 314 CMR 16.05(2)? ☒ Yes ☐ No

If no, specify limitations to meeting these requirements, potential remedies, and a schedule for compliance:

Permittee is able to meet the signage requirements under 314 CMR 16.05(3)? ☒ Yes ☐ No

If no, specify limitations to meeting these requirements, potential remedies, and a schedule for compliance:

7. Public Notification Recipients

Media Outlets

List the two media outlets serving the area near the discharge or outfall that the permittee will contact to provide a public notification. Include name of organization, name of contact, and contact's email address or fax number.

South Coast Today – see attachement for contact detail
Name of media outlet #1

WBSM – see attachment for contact detail
Name of media outlet #2

If permittee has determined that an EJ population could potentially be affected by a discharge or overflow, which of these media outlets serves the EJ population? If neither does, then provide at least one additional news organization that primarily serves the EJ population(s) within the impacted municipalities. (Include name of organization, name of contact, and contact's email address or fax number.)

New Bedford Light, Portuguese Times
Name of additional media outlet serving EJ population if neither media outlet above serves EJ population

☒ **Attach** a description explaining how the identified media outlets serve potentially affected EJ populations.
See Instructions for list of **Required Public Notification Recipients** (314 CMR 16.04(4)(a)).

☒ **Attach** a list of your required contacts.

8. Detection method maintenance

If metering is used, will the Permittee perform the requirements in 314 CMR 16.06(2)(b) below?

Calibrate metering equipment on an annual basis, at minimum ☒ Yes ☐ No

Properly maintain metering equipment ☒ Yes ☐ No

If models are used and approved, will the Permittee perform the following requirements in 314 CMR 16.06(2)(d) below?

Review and update the model input data as needed	☒ Yes	☐ No
Maintain any data collection equipment providing critical input to the model	☒ Yes	☐ No
Assess model predictions annually, at a minimum	☒ Yes	☐ No
Provide a description of actions taken in writing on or before March 1st of each year	☒ Yes	☐ No

9. Public Notice

Submit a public notice to the Environmental Monitor at the same time this plan is submitted to MassDEP. Indicate below that the permittee will submit the public notice as follows:

☒ Email the public notice to MEPA@mass.gov at the same time the plan is submitted to MassDEP

☒ Include in the body of the email, "Please publish the attached public notice as 'Notice of Combined Sewer Overflow (CSO) Final Public Notification Plan.'"

☒ Attach the public notice to the email as a PDF

☒ Permittee will place a public notice in at least one media outlet that serves the EJ population(s) in the municipalities impacted by the discharge. Indicate media outlet(s) below:
New Bedford Light, Portuguese Times

Include the following in the Public Notice, required under 314 CMR 16.06(2):

☒ A statement that a CSO Public Notification Plan has been prepared and submitted to the Department

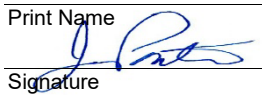
☒ A link to a website where an interested party can review the plan

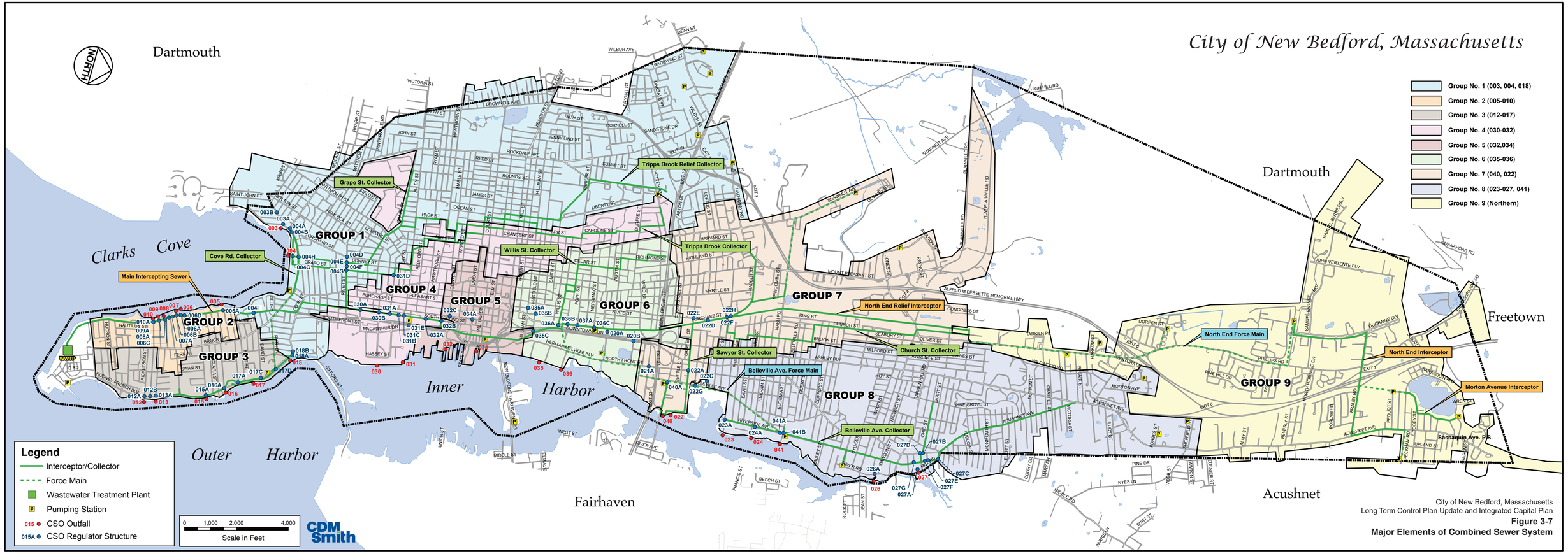
☒ A statement that written comments on the plan can be submitted to MassDEP and the permittee for a period of 30 days after the date of publication in the Environmental Monitor or media outlet, whichever date is later. Explicitly list the end date for submission of public comments

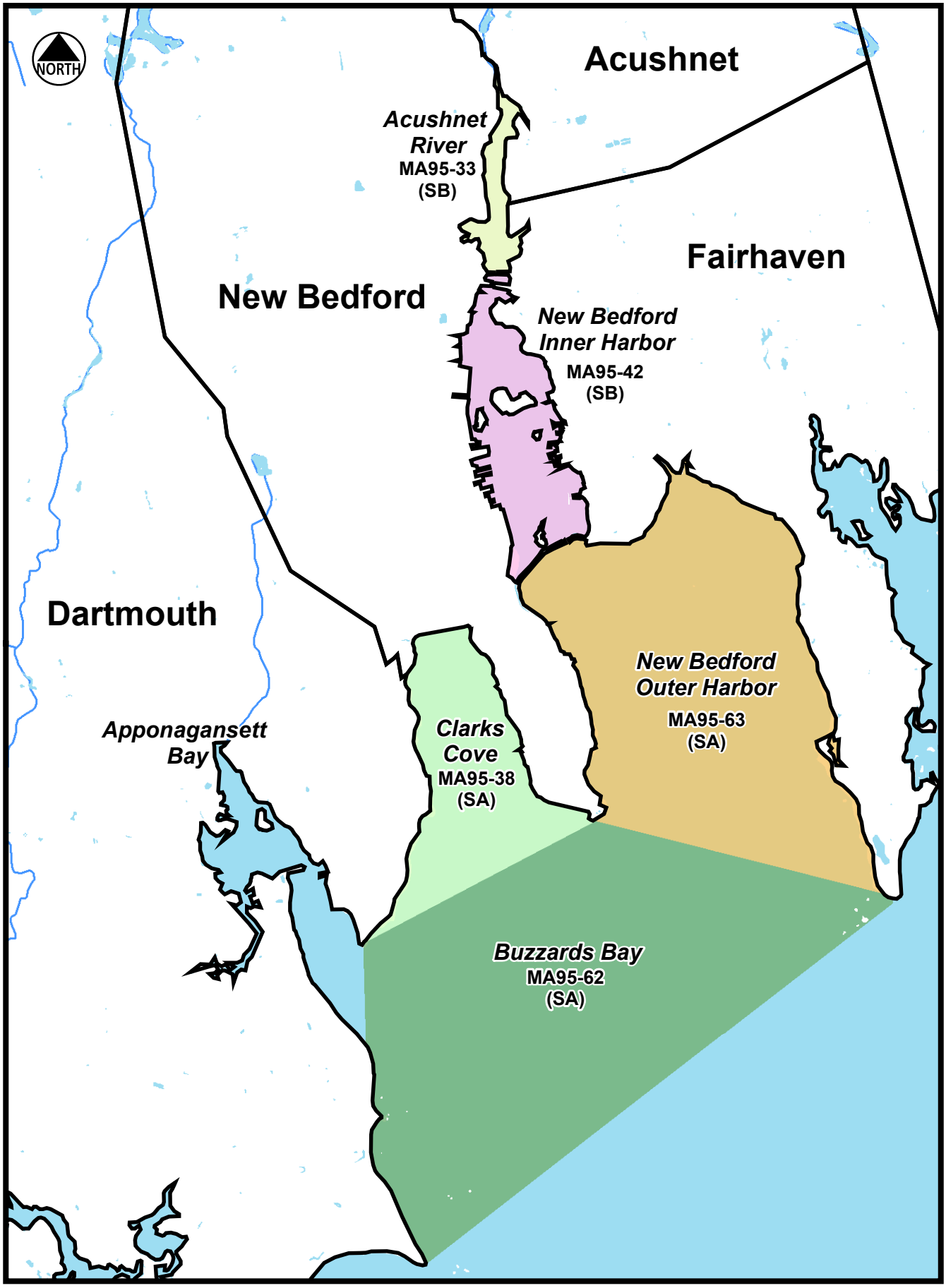
☒ Translations of the Public Notice in languages most appropriate for neighborhoods within the impacted municipalities that are identified as environmental justice populations due to lacking English language proficiency

Certification

I attest that I have examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certifying statement. The information contained in this submittal is, to the best of my knowledge, true, accurate, and complete. I am fully authorized to make this attestation on behalf of the facility.

Jamie Ponte	Commissioner, Department of Public Infrastructure
Print Name	Title
	6/30/23
Signature	Date

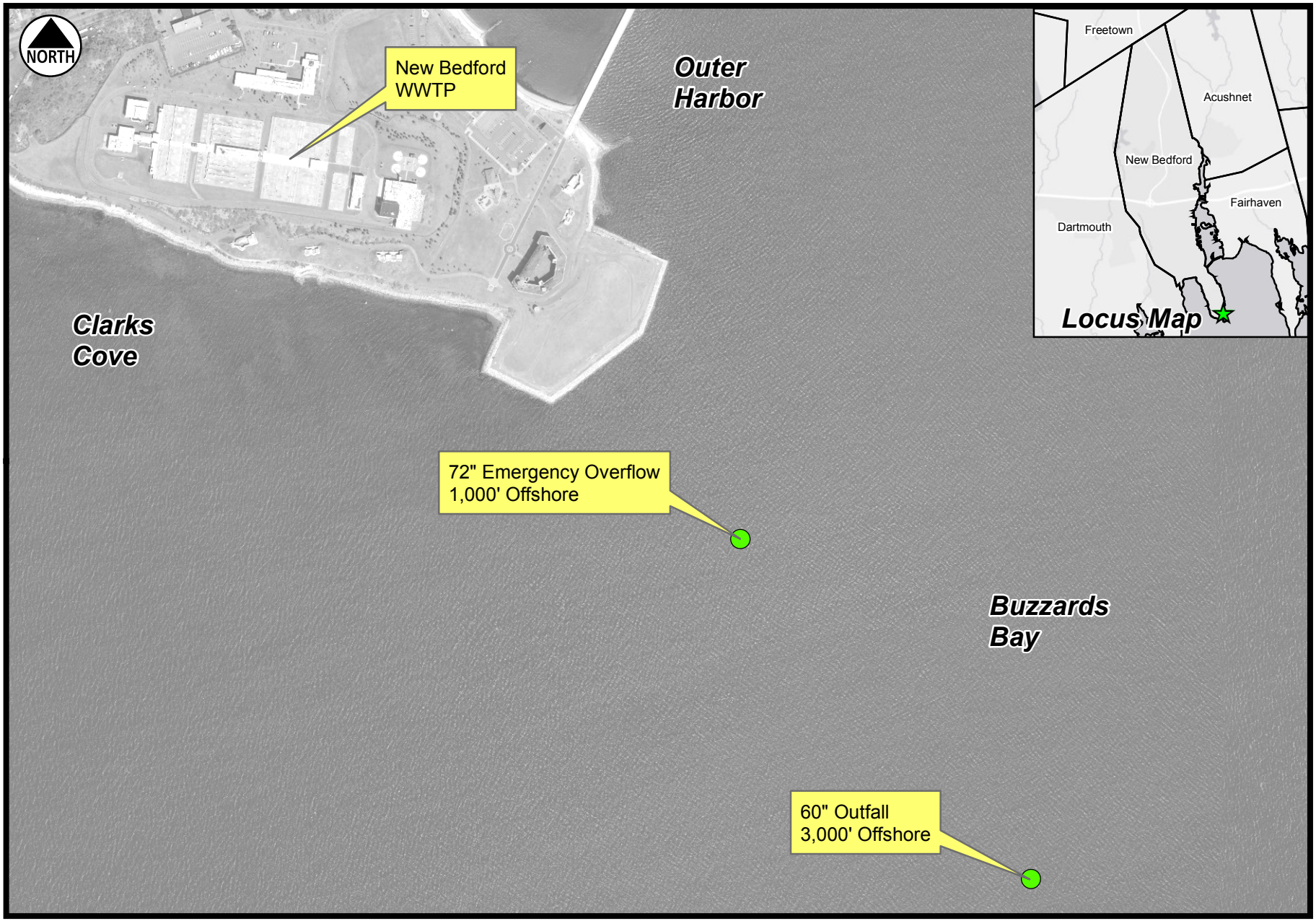

City of New Bedford, Massachusetts
NORTH
Dartmouth
Clarks Cove
Inner Harbor
Outer Harbor
Fairhaven
Acushnet
Freetown
Dartmouth
GROUP 1
GROUP 2
GROUP 3
GROUP 4
GROUP 5
GROUP 6
GROUP 7
GROUP 8
GROUP 9
Grape St. Collector
Tripps Brook Relief Collector
Tripps Brook Collector
Willis St. Collector
Cove Rd. Collector
Main Intercepting Sewer
North End Relief Interceptor
Sawyer St. Collector
Church St. Collector
Belleville Ave. Force Main
Belleville Ave. Collector
North End Force Main
North End Interceptor
Morton Avenue Interceptor
Sassaquin Ave. P.S.
WWTP
Group No. 1 (003, 004, 018)
Group No. 2 (005-010)
Group No. 3 (012-017)
Group No. 4 (030-032)
Group No. 5 (032,034)
Group No. 6 (035-036)
Group No. 7 (040, 022)
Group No. 8 (023-027, 041)
Group No. 9 (Northern)
Legend
Interceptor/Collector
Force Main
Wastewater Treatment Plant
Pumping Station
CSO Outfall
CSO Regulator Structure
0 1,000 2,000 4,000
Scale in Feet
CDM Smith
City of New Bedford, Massachusetts
Long Term Control Plan Update and Integrated Capital Plan
Figure 3-7
Major Elements of Combined Sewer System



City of New Bedford, Massachusetts
Long Term Control Plan Update and Integrated Capital Plan

CDM Smith

Figure 2-1
New Bedford Area Receiving Waters



0 600 1,200
Feet

CDM Smith

City of New Bedford, Massachusetts
Long Term CSO Control and Integrated Capital Improvements Plan

Figure 5-3
Wastewater Treatment Plant Outfall Locations

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

7/1/2022

Dear City of New Bedford,

In accordance with 314 CMR 16.04(2) use of any method other than, or in addition to, metering to determine or discover a CSO or Partially Treated discharge requires approval from the Commissioner. Use of an extended timeline for issuing the Public Advisory Notification, if the method of detection will not provide timely or reliable information, requires approval from the Commissioner.

According to Department records, you proposed the following:

1. Alternative to metering:

> The City of New Bedford seeks preliminary approval from the Commissioner to utilize a hybrid system consisting of a digital twin, calibrated weir equations, a calibrated SWMM model, block testing, and real time level sensor meters to determine the volume, frequency, and duration of CSO discharges. The city has been working with the EPA, MassDEP, and DMF on the above approach since 2018. This approach has been vetted via a two-year pilot program and is documented in the technical memoranda titled CSO Monitoring Pilot Program Results dated November 15, 2019, and CSO and Collection System Monitoring Plan dated January 15, 2020. Based on the pilot program and subsequent data analysis, the approach was determined to be a viable approach to accurately report CSO activations, volumes, and durations. A significant number of resources has been put into the development of this program. The results of the pilot program clearly document the success and results of the hybrid approach to achieve the intent of the regulations included in 314 CMR 16.00. The city feels that the hybrid approach is the best approach for monitoring of CSOs in the city and requests permission to continue to utilize the hybrid system for CSO validation.

Your request for permission to use an alternative to metering has been reviewed and approved for use with your Preliminary CSO Public Notification Plan.

2. Timeline extension

The intent of the city's notification plan is to inform the public within the 2-hour timeframe established in 314 CMR 16.04. If the planned automation has a network failure or other downtime that could prohibit the timely transmission of data, the city requests the Commissioner's approval to allow for a time extension to send notifications of a discharge discovery. If a manual notification of a discharge is needed, the city will ensure that the notification will be submitted at the beginning of the next normal business day once the downtime issues has been resolved. For the purposes of this program, normal business hours as defined as Monday through Friday, 7:30am to 4:00 pm excluding local, state, and federal holidays.

Your request for a timeline extension for issuing the Public Advisory Notification has been reviewed and acknowledged. MassDEP is aware of technical difficulties that may arise with automated systems. In appropriate circumstances, MassDEP can exercise enforcement discretion if established and approved systems experience temporary failure. In individual cases of automated system failure, upon request MassDEP may, at its discretion, authorize a timeline extension to issue public advisory notification not to exceed 24 hours after discovery.

This is an interim approval, which is in effect as of the date of this letter, and it will remain in effect until your final CSO Public Notification Plan is approved by MassDEP. A further request for approval of a method other than, or in addition to, metering must be submitted with your proposed final CSO Public Notification Plan.

This interim approval may be modified, suspended, or revoked for cause, included but not limited to violation of any terms of this approval, 314 CMR 16.00, or the Massachusetts Clean Waters Act, G.L. c. 21 §§ 26-53.

For further information, please contact David Burns at david.burns2@mass.gov.

Yours truly,

Martin Suuberg
Commissioner

CITY OF NEW BEDFORD
Jonathan F. Mitchell, Mayor

Department of Public Infrastructure

Jamie Ponte
Commissioner

Water
Wastewater
Highways
Engineering
Cemeteries
Park Maintenance
Forestry

Memorandum

TO: *Massachusetts Department of Environmental Protection*

FROM: *Shawn Syde, P.E. – City Engineer*
James Costa – Superintendent of Wastewater
Jamie Ponte – Commissioner
Justin Chicca – Deputy Commissioner

DATE: *January 12, 2023 – Revised June 16, 2023*

SUBJECT: *City of New Bedford, Massachusetts*
314 CMR 16.00 Compliance
Final CSO Public Notification Plan

In accordance with 314 CMR 16.06, the City of New Bedford (City) Department of Public Infrastructure (DPI) hereby submits the City's final Combined Sewer Overflow (CSO) Public Notification Plan (Final CSO Plan). The City's Final CSO Plan builds off the approach outlined in the previously approved Preliminary CSO Public Notification Plan (Preliminary CSO Plan) dated May 2, 2022 including approved waiver requests (**Attachment A**). The Final CSO Plan provides a final approach for determining those outfalls that have discharged including justification for using flow estimates from the City's calibrated Stormwater Management Model (SWMM) as an alternative to installing continuous flow monitoring devices for any specific CSO regulators or outfalls. This Final CSO Plan meets the requirement that the City provide a plan to the Massachusetts Department of Environmental Protection (MassDEP) by January 12, 2023.

This Final CSO Plan includes the following:

- A description of the method(s) the City intends to use at each of its outfalls to determine or discover when a discharge (wet weather or dry weather) occurs, a method to establish the volume of discharge and an approach on how the City will inform the public within the 2-hour permitted timeframe as established in 314 CMR 16.04;
- A request to the MassDEP Commissioner seeking approval to use the City's calibrated SWMM model, calibrated weir equation models, the collection system digital twin and block testing data (in addition to metering data) to determine and/or discover a discharge;

- A request to the MassDEP Commissioner seeking approval to allow for a time extension to send notification of discharge discovery if automation/notification system failure occurs.

- A summary of how the City intends to maintain the level only meters, SWMM model and collection system digital twin to ensure the systems are up to date.

- A summary of how the City will comply with the requirements related to development of a website, installation of signage, and public advisory notifications for applicable discharges and overflows. Special consideration will be given to how communication with the Environmental Justice population will be coordinated.

Combined Sewer System Overflow Background

The City owns the wastewater collection and treatment facilities that service about 69 percent of the City's area, and 96 percent of the population. The wastewater treatment plant (WWTP) and pumping stations are operated by Veolia Water North America under a 20-year service agreement and the collection system is operated by the City. The system consists of approximately 180 miles of older combined sewers in the south and central parts of the City, plus approximately 117 miles of separate sewers in the northern end. Wastewater is conveyed to the City's 30 mgd secondary WWTP at Fort Rodman. (Note: The City's WWTP can treat up to 75 mgd under storm flow conditions.)

The City's wastewater collection system dates to the 19th century when it was believed that dual-purpose pipes (for sewage and stormwater conveyance) would result in more manageable and cost-effective collection systems. While the pipes were originally sized to carry sewage and stormwater, intense storm events have historically taxed the capacity of the City's interceptors, which cannot handle the large wet weather flows from the combined system.

A complex system of diversion structures, control gates, overflow weirs and pumping stations are required to keep sewage flows routed to the City's WWTP without surcharging. Surcharging would be common during rainstorms without pressure relief points (CSOs) at key locations in the collection system.

Since 1983, the City has eliminated a total of 15 CSO regulators and 9 end-of-pipe discharge points. As a result, there are currently 52 CSO regulators and 20 intra-system regulators for a total of 72 regulators in the combined sewer system. (It should be noted that the intra-system regulators do not directly contribute to the total CSO volume discharged to the receiving waters.) These regulators are tributary to 27 end-of-pipe National Pollution Discharge Elimination System (NPDES) discharge points that convey a varying mixture of stormwater and CSO to the City's three receiving waters: Clarks Cove, the Inner New Bedford Harbor and the Outer New Bedford Harbor. Over the past 27 years, through the commitment of $430 million (2022 dollars), the City has significantly reduced the discharge volume of CSOs from an estimated 3.1 billion gallons in 1990 to approximately 183 million gallons in 2016; a reduction of more than 90 percent. This significant

reduction in CSO discharges had resulted in the opening of 12,000 acres of previously closed shell fishing beds and nearly eliminating all beach closures that once were prevalent.

Background

Enforcement Orders and Integrated Planning

On September 26, 2012, the City was issued an Administrative Order (AO) Docket No. 12-010 requiring the development of an approach and schedule for the installation and calibration of continuous flow monitoring devices to quantify and record discharges from the City's CSO outfalls. This plan was submitted to the MassDEP and the United States Environmental Protection Agency (EPA) on January 24, 2013. The flow monitoring plan outlined an approach for using the City's calibrated SWMM model and the initiation of a temporary flow monitoring program at targeted regulators to validate the effectiveness of the model and to locate areas that may need further calibration. This approach aligned with the City's intention to complete significant model upgrades needed to comply with other requirements of the AO. This AO also required the City to develop an approach and schedule for a new Long Term CSO Control Plan.

In 2013, the City requested to the EPA that in lieu of a Long Term CSO Control Plan, that the City be allowed to develop a Long Term CSO Control and Integrated Capital Improvements Plan (Integrated Plan) under EPA's 2012 Framework titled Integrated Municipal Stormwater and Wastewater Planning Approach Framework. The goal of the City through the Integrated Plan was to align the City's Clean Water Act (CWA) obligations in a single capital plan that prioritized the most pressing needs given the City's limited resources.

In January 2017, the City submitted a draft Integrated Plan to the EPA and MassDEP. The 20-year recommended schedule of projects balanced affordability, water quality, and infrastructure needs to improve water quality and protect public health and safety. The total cost of all identified projects in the Integrated Plan totaled approximately $1.62 billion (2022 dollars). Implementation of all the resolution concepts was deemed to be unaffordable. Because of this, the most pressing projects were prioritized to fit within the City's affordability constraints. This included approximately $426.5 million (2022 dollars) in projects over a 20-year schedule spread over eight core areas: wastewater treatment plant, pumping stations, CSO, wet weather flooding, collection system, stormwater, flood control and organizational improvements.

On December 16, 2019, the City of New Bedford (City) entered into a new AO with the EPA; Docket No. CWA-AO-R1-FY20-15 regarding compliance with its National Pollution Discharge Elimination System (NPDES) Permit MA 0100781 and Small MS4 Permit No. MAR041140. The 2019 AO supersedes the City's previous 2012 Capacity Management Operations and Maintenance (CMOM) AO; Docket No. 12-010 that was in effect between September 26, 2012 and December 15, 2019. The 2019 AO codifies the schedule agreed to between the EPA and City for implementing the first seven years of the City's 20-year Integrated Plan. The 2019 AO includes CSO projects, non-CSO projects, and MS4 projects aimed at meeting the first seven years of projects outlined in the Integrated Plan.

The 2019 AO also required that the City develop a revised approach to monitoring and reporting on discharges from its CSO outfalls to update the recommendation provided in 2013. These requirements are found in Paragraph IV Part 10.b and 10.c of the 2019 AO.

Flow Monitoring Pilot Program

The draft Integrated Plan identified CSO monitoring as a priority of the City; however, given all of the other needs, was not recommended for immediate implementation. In New Bedford, the cost of implementing permanent monitoring would be significant due to system characteristics requiring monitoring of most of the system's 72 CSO regulators. Through development of the Integrated Plan, the City determined that investment in permanent monitoring at all CSOs would divert critical resources away from the implementation of system improvements to address the City's CWA obligations. Although the Integrated Plan did not prioritize investment in a permanent CSO monitoring system, the City determined that it would be in its best interest to assess the possibility of implementing remote monitoring of targeted CSOs to streamline collection system operations. Historically, the City used a block testing program to assess CSO activity. Although relatively effective, the block testing program is labor intensive and prone to both human error and spurious data.

Block testing has been employed by the City for more than 20 years as a reliable approach for checking overflows. This simple but labor-intensive method relies on a wooden block placed on the overflow weir wall. After storms of more than 0.1-in on Clarks Point/0.3-in elsewhere in the City or during extended dry weather periods, a crew visits each CSO regulator containing a block and notes whether the block is dislodged. Not all regulator configurations can be monitored using block testing, as it requires a suitable weir wall for placement of the block and easy access to the regulator.

The City recognizes the importance of understanding its system, evaluation of implemented projects, and streamlining operations and maintenance through the use of advanced technology. At its own initiative, in 2018 the City began a pilot program at five regulators selected to represent the diverse conditions in the collection system. The pilot program assessed the viability of implementing different types of meters including level sensor and area-velocity meters and installation/maintenance approaches for different regulator configurations.

The level sensors used in the pilot program were selected because they can be easily installed and maintained without the need for a confined space entry, and they can be easily relocated. This flexibility was an important factor for the City when selecting a meter type. The level sensors installed can provide accurate information on timing and duration of overflow events, as well as allowing real-time alarms. The level sensors used by the City provided continuous system monitoring using a narrow-beam ultrasonic sensor. The use of both extension rod and wall mount installations allowed for easy removal, resetting, or relocating of the sensors as needed, and maintaining them when routine system maintenance was required. Data was transmitted wirelessly to a centralized dashboard system with alarms set at predefined elevations.

The area-velocity meters used in the pilot program were able to record flow at 5-minute increments. Area-velocity meters measure depth and velocity in the overflow pipe. Installation and maintenance requires a confined space entry and direct access to the pipe being metered. Calibration of area-velocity meters is challenging in outfall pipes that are normally dry. Tailwater or tidal conditions and connecting storm drain flows discharging directly on sensors can also affect flow monitoring in outfall pipes. Accurate flow measurement requires correct depth, velocity, and cross-sectional area data. Consequently, system operation and maintenance, debris, surcharging, and flow surge may dramatically affect the accuracy of velocity, depth, and channel section data used to calculate flows. Unfortunately, due to regulator configurations, not all regulators in the pilot program were able to be metered using the area velocity meters. Both meter types were installed, calibrated and maintained by specialty metering contractors.

At the completion of the program, metering data from both types of meters were compared to the block testing data and the SWMM results to validate overflow activation. Each metering method was evaluated in terms of cost, ease of implementation, data accuracy, maintenance needs and other considerations. The program concluded that level sensors were found to provide more valuable data on overflow activity compared with block testing and area-velocity meters because they continuously record water depths that can be compared with weir elevations to determine overflow occurrence, duration, and severity. In addition, the area-velocity meter accuracy was impacted by intermittent flows, tail water, debris, and sideline inflow sources (i.e., catch basins) discharging near the meters causing unstable hydraulics (i.e., turbulent or non-laminar flow conditions).

In addition to validation of the effectiveness of various metering technologies to report overflow activation, overflow estimates at each regulator were calculated based on reported depths and regulator-specific weir equations and compared to the existing SWMM. The equations used to calculate overflow volume depended on the regulator type and structure configuration. Equations were selected based on system hydraulics at the regulator as well as historical use of similar approaches in other communities where long-term monitoring data has been used to define the most appropriate equation based on regulator configuration.

Overflow estimates from the level sensors were compared to flows measured with area-velocity meters. The study found that the level sensors matched the general number of events recorded by the block testing and area-velocity meters in outfalls; however, in several instances overflow volumes were determined to be either over- or under-estimated by the area-velocity meters. Metered flow results were compared to flows calculated from site-specific weir equations using data from the level sensors. The results demonstrated that it was appropriate to develop site-specific weir equations to provide calculated overflow volumes. In some locations, tailwater and downstream conditions influenced overflow volumes driving the need to recommend additional meters either upstream or downstream of regulators to validate overflow results.

The results of the overflow volume analysis under the pilot program concluded that the level only meters in conjunction with weir equations and the use of the City's existing calibrated SWMM model are an effective method of determining the volume and frequency of CSO discharges from the City's regulators to meet the 2019 AO requirements. This approach was documented and submitted to the EPA and MassDEP in technical memoranda dated November 15, 2019 and January 15, 2020.

Digital Solutions

The metering approaches described above provided data in electronic formats and viewable on web-based dashboards. As part of the pilot program, this information was collected and compared to the City's SWMM. The City wanted a solution that reduced the labor and effort to complete data analysis, reporting and integrate data sources for easy comparison with the SWMM. To analyze the flow monitoring/level data and allow for future real-time comparison of system operations to the SWMM, in 2020 the City began development of a solution that involved using a digital twin. The digital twin was developed in a PipeCast platform. By integrating the continuous feed of data into the platform, the simulated twin was compared against observed conditions for validation of expected system performance. This approach allowed the City to answer questions about actual system performance and what should be expected according to the model compared with what actually was happening according to meter data.

PipeCast accessed flow meter and level data via an integrated application programming interface (API) and simulated system performance in SWMM using this data. It also incorporated rainfall data collected by the City, using tipping bucket rainfall gauges along with public domain data relevant to the receiving waters such as tidal data from the National Oceanic and Atmospheric Administration (NOAA). The cloud-based platform then analyzed the data and model results. Model simulation results and data were posted to a secure web viewer for easy access and viewing.

Expansion of Metering Program

The results of the pilot metering program and digital twin implementation identified a cost-effective solution achieving the City's vision of developing a program using the latest technology to streamline system operations integrated with the SWMM. As a result, between 2020 and 2022, the City initiated rollout of an expanded and targeted monitoring program. The monitoring program expanded the five meters and single rain gauge installed under the pilot program to 57 level meters and three rain gauges. The additional 52 level meters were deployed at regulators, tide gates, in tailwater locations and within the collection system to provide information on maintenance and operation.

The monitoring program now monitors overflow events at a total of 42 out of 52 contributing regulators, capturing key insights into discharges to receiving waters. Ten additional meters provide information at key locations in the collection system or at regulators/outfalls to capture additional tailwater or hydraulic information. Metering locations were selected to provide a

representative assessment of impacts to receiving waters, as well as to help refine system understanding where additional information may be useful to operations and engineering staff.

This expanded metering effort has been developed in collaboration with the Massachusetts Division of Marine Fisheries (DMF). Working together, an approach to streamlined reporting on CSO volumes, durations, and frequency of discharges is being developed in PipeCast supporting development for the framework a new Memorandum of Understanding (MOU) for management of the shell fishing beds in the City's receiving waters. The DMF is in support of this approach. As such, the City is currently making the needed changes to PipeCast, the SWMM, and completing field investigations to support this effort.

Summary

The CSO Monitoring Pilot Program concluded that use of level sensors combined with site-specific weir equations and the calibrated SWMM was cost-effective and offered the preferred means to estimate frequency and volume of CSO. Area-velocity meters in outfalls are not a viable long-term monitoring solution due to the complexities associated with tailwater impacts, stormwater system inflows, meter calibration requirements, and installation/maintenance challenges that limit flexibility for meter relocation. The results also determined that a hybrid solution, including level meters, block testing, and a digital twin, would be the most cost effective and appropriate long-term solution for the City. The hybrid approach will allow the City to meet EPA's requirements under the NPDES permit and AO for reporting CSO volume. More importantly, it would provide the City with the means to streamline system operations and advance from reactive to proactive maintenance and emergency response.

The use of a digital twin is allowing the City to selectively deploy CSO monitoring meters and evaluate system performance without having meters at all outfalls or regulator structures. This is possible due to the functionality of the digital twin platform, which allows the City to compare observed and expected performance and to integrate all data as it is collected. This process inherently helps the City make sense of the data, identifying anomalies in measurements or model results, so that appropriate action can be taken to check meters, improve model representation if necessary, and adapt the monitoring plan or the overall Integrated Plan based on the information gathered. Through implementation of the pilot program and development of the digital twin, the City was able to identify a sensible metering approach while satisfying EPA and MassDEP requirements. The approach provides useful data to City engineering and operational staff beyond just CSO metering.

The metering approach combined with PipeCast bridges the gap between City engineering and operational staff allowing them to work together to quickly assess system performance and issues. Coupled with the flexibility of the level sensors, DPI staff can proactively adjust metering locations based on the current system information. This approach allowed the City to cost-effectively leverage both metering data and the model, both of which represent considerable investments for the City. The City believes the hybrid approach of metering, modeling, and digital twin integration

will be the most cost effective and balanced approach to achieve a complete assessment of system performance and achieve compliance with 314 CMR 16.00.

Public Notification Plan

CSO Validation

Since 2018, the City has been working to implement a CSO validation and collection system monitoring program. This program has been developed in coordination with the EPA, MassDEP and DMF through the following efforts:

- The City's ongoing initiatives to streamline collection system operations and maintenance,
- The recommendation from the Integrated Plan including project costs, impact on the City's overall recommended CSO abatement plan, and project validation of effectiveness to address the issues identified in the Integrated Plan,
- The ability to implement the program in the City's collection system given the impacts from upstream stormwater systems and downstream tailwater and tide gates.
- The City's intent to integrate the latest in technology to system operations, maintenance and reporting.

The above factors represent the primary reasons for moving forward with the use of a combination of real time level sensor meters at selected locations, the City's calibrated SWMM model, calibrated weir equations and PipeCast as the primary sources for CSO notification and validation. The City has invested a considerable amount of money in this effort. In addition, this approach has been developed in coordination with the EPA, MassDEP, and DMF through numerous technical meetings, correspondences, and alternatives analysis on the most viable approach to achieve a balanced solution to meet the City's needs and the needs of the regulatory agencies.

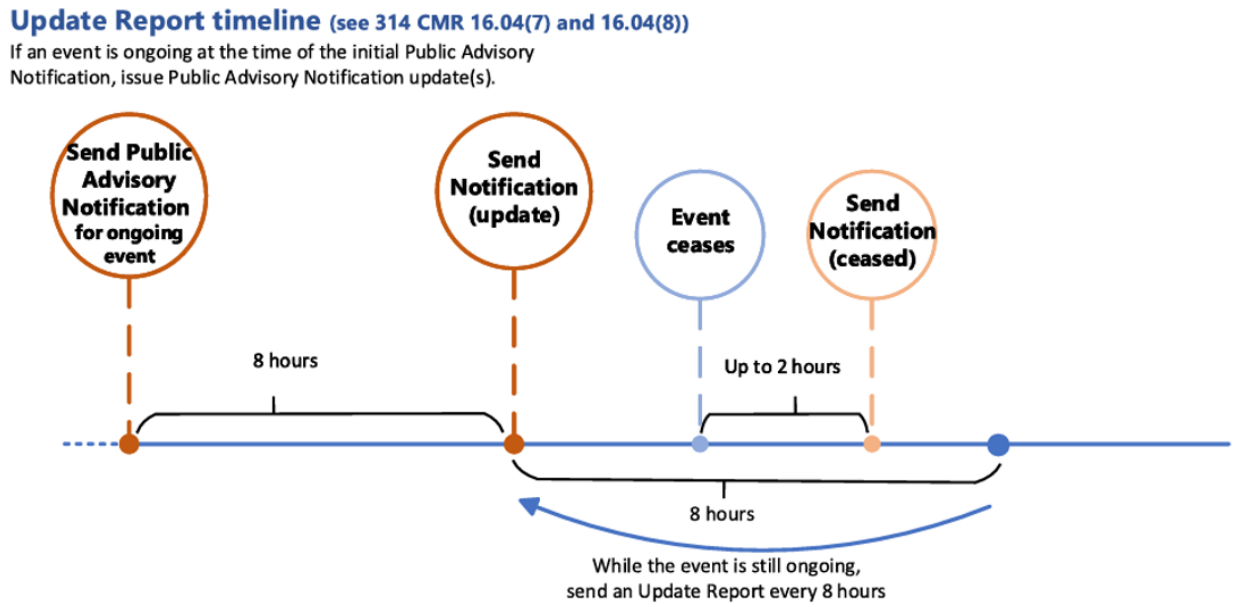
It is not the City's intent to meter all 72 regulators. The locations selected for metering will be continuously assessed for calibration with the SWMM and may only include those regulators that directly contribute to actual CSO volumes. Meters may be relocated periodically depending on calibration or collection system changes to validate project effectiveness under the Integrated Plan. Those locations that do not have a meter will be assessed using PipeCast. The City currently has 57 level sensors installed at 42 regulators and ten locations in the collection system. In addition, three rain gauges are located at strategic locations throughout the City to accurately capture site specific rainfall. The sensors record and transmit depth of flow every five minutes. Alarms at each location are set a key threshold (i.e., top of weir or ground surface for flooding) and alarm wastewater staff as flow levels exceed these established thresholds.

The level sensors used by the City are ADS Echo Meters; the same level meters used during the pilot program described above. Level meter data is transmitted directly to PipeCast which is simultaneously evaluated with near real time model runs using the City's calibrated SWMM. CSO

volumes are then assessed and calculated from either the SWMM model or calibrated site-specific weir equations depending on meter placement and regulator weir equation(s). As noted above, meter placement is dependent upon several factors. The ADS Echo Meters allows the flexibility for movement within the collection system depending on a particular need. They are easy to install and can be done by the City's maintenance crews.

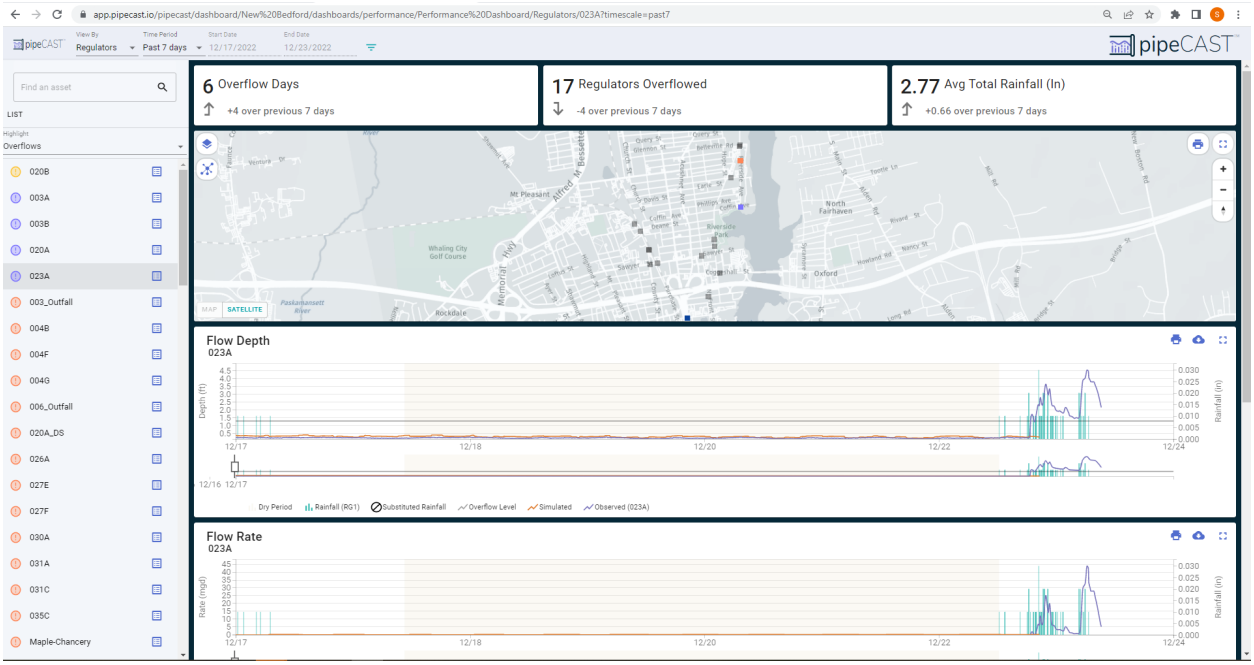
Since issuance of the Preliminary CSO Plan in May 2022, the City has worked to advance the automated reporting features to address the 2-hour time frame and continued reporting every 8-hours stipulated within 314 CMR 16.04. This near "real" time reporting is completed through a combination of SWMM model data, digital twin automation and meter sensor data. Custom APIs have been developed linking the digital twin and ADS Echo meters. Background algorithms process the meter data and SWMM data via PipeCast and assess the overflow feasibility. If it is determined that an overflow has occurred, through the use of the SWMM model or weir equations (depending on meter placement), overflow volumes and durations are calculated. If the overflow event is longer than 8-hours, then additional reports are posted until the overflow ceases. **Figure 1** below is a graphic outlining the data analysis and reporting workflow.

Figure 1: Reporting Timeline Workflow



Both metering data and model data are captured in the PipeCast dashboard system. Each regulator is visually available to show the comparison of the meter and model data to assess system performance. This allows the City to determine if an issue is occurring and assess if it is normal operating conditions or an actual system maintenance issue causing the anomaly. **Figure 2** below shows a sample PipeCast dashboard.

Figure 2: Sample PipeCast Dashboard



Daily reports are produced advising the City of potential overflow events or actual events. Depending on the instance, data regarding each location is provided and summarized in tabular format and through an additional custom API, notifications are further pushed to the City's CodeRed notification system. **Figure 3** below shows a sample email report produced by PipeCast.

Figure 3: Sample PipeCast Overflow Report

pipeCAST

2022-12-23 pipeCAST Daily Alert Summary: New Bedford
Reporting Period: **2022-12-22 06:00 AM EST - 2022-12-23 06:00 AM EST**

Wet Weather Overflows:	Dry Weather Overflows:	Level Warnings:	Rainfall (Inches):
10	0	20	0.92

10 Wet Weather Overflow Events

Regulator	Start Time	End Time	Duration (Hours)	Reporting Method	Volume (MG)	Rainfall Intensity (Inches/Hour)	Event Rainfall (Inches)	Max ARI
023A	2022-12-22 22:25 EST	2022-12-23 06:50 EST	8.42	Sensor	1.83	0.16	0.49	< 1 year
020B	2022-12-22 23:30 EST	2022-12-23 02:40 EST	3.17	Sensor	0.13	0.16	0.49	< 1 year
003A	2022-12-22 23:30 EST	2022-12-23 02:20 EST	2.83	Sensor	0.53	0.16	0.49	< 1 year
003B	2022-12-23 00:10 EST	2022-12-23 03:45 EST	3.58	Sensor	0.53	0.16	0.49	< 1 year
022G	2022-12-23 00:50 EST	2022-12-23 01:45 EST	0.92	Sensor	0.0062	0.16	0.49	< 1 year
031B	2022-12-23 01:00 EST	2022-12-23 03:15 EST	2.25	Sensor	0.18	0.16	0.49	< 1 year
004H	2022-12-23 01:00 EST	2022-12-23 02:10 EST	1.17	Sensor	0.18	0.16	0.49	< 1 year
022E	2022-12-23 01:00 EST	2022-12-23 02:10 EST	1.17	Sensor	0.03	0.16	0.49	< 1 year
004B	2022-12-23 01:05 EST	2022-12-23 02:30 EST	1.42	Sensor	0.32	0.16	0.49	< 1 year
018B	2022-12-23 01:45 EST	2022-12-23 01:55 EST	0.17	Sensor	0.0005	0.16	0.49	< 1 year

The City has made great progress in the automation of the CSO reporting system. This system is functioning ahead of the March 2023 deadline provided in the Preliminary CSO Report and currently meets the requirements of 314 CMR 16.04; however, the City intends to make continued updates and progress on the system. Automation through the APIs have minimized the effort of manually pushing notifications to the public; however, there may be unintended system downtime that could result in violation of the 2-hour mandate (Please refer to the waiver requests.).

System Maintenance

Model and Digital Twin Maintenance and Updates

The City's SWMM was originally developed in 2004 and later updated in 2012 to incorporate major system changes and to reflect completion of cleaning of the City's Main Intercepting Sewer. The model was further expanded in 2015 to include major components of the sanitary system and recalibrated as part of the development of the City's Integrated Plan. Since 2015, minor changes have been made including incorporating completed projects and changes based on new field data.

Annually on September 30, the City is required to submit to the EPA a CSO report that summarizes the data required under Paragraph 1.F.2.e of the City's National Pollution Discharge and Elimination System (NPDES) permit, the CSO monitoring plans, and any modifications to the CSO monitoring plans. This CSO report ensures that the model is updated at a minimum annually to reflect system modifications and changes. As part of the City's AO, assessment of CSO abatement from completed projects is required. As such, model updates are made to reflect those system changes and to assess their impacts on the collection system. This CSO report is currently submitted to both the MassDEP and EPA and is intended to be used to address compliance with 314 CMR 16.06(2)(d)3.

The City currently utilizes an on-call contracts to complete model maintenance and updates to the digital twin with our consulting engineer, CDM Smith Inc. and Trinnex who manages the digital twin PipeCast. This ensures that the model and digital twin are kept up to date and changes are made based on the collected metering data or changes to the system based on completed projects.

To ensure that model data is as accurate as existing information can support, as part of the development of the digital twin and calibrated weir equations, the City will be implementing a regulator inspection program. The inspection program will include visiting each regulator and completing a detailed inspection to gather the needed information to update the weir equations and SWMM. Each regulator will be surveyed, and detailed site maps developed. This information will be integrated into the SWMM and weir equations will be updated based on actual field data. The predicted CSO overflow volumes from the model will then be compared to those calculated from the weir equations and level sensors and adjustments will be made. Where model and weir overflow volumes match well, the City may relocate the meter at that location to a location that may need further calibration. These updates will begin in spring 2023 and take approximately one year to complete given the number of regulators that need to be inspected and calibrated.

The SWMM currently models groundwater and system flows dynamically such that it can determine the impact of rainfall dependent infiltration and inflow (RDII) on CSO volumes. This process is intended to be updated to streamline the model so that it can calculate these impacts faster which will support integrating the data into the digital twin more frequently allowing for even more "real" time comparison of meter and model results.

In parallel, the City will be expanding its use of PipeCast to take advantage of additional features available through the software to facilitate proactive, data-driven decisions on system operations, maintenance and facilities planning. These additional features have included the integration of electronic field reports integrated with GIS and the City asset management system, the comparison of expected performance with real-time performance to assess high O&M areas, and the incorporation of SCADA systems to monitor system operations. After fully implemented, the City will be able to access real-time SCADA output, continuously monitor depths at CSO regulators, and track CSO discharge volumes and system control gate operations. These upgrades will continue as funding allows.

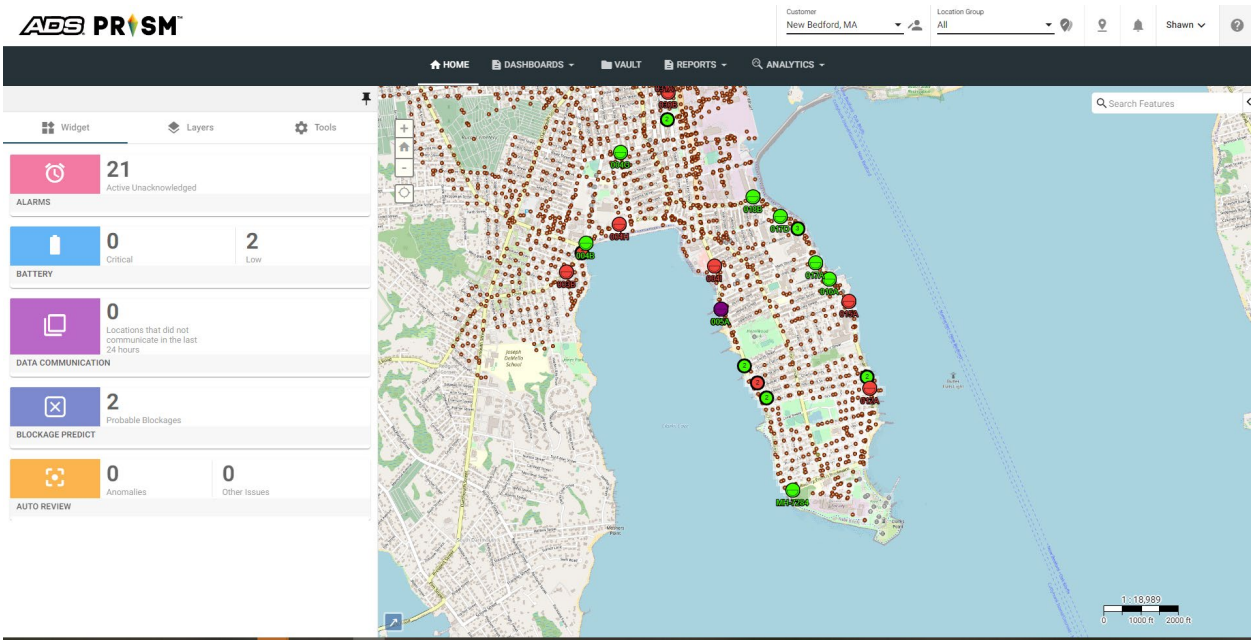
Meter Maintenance

The City's ADS Echo meters are leased from ADS Environmental (ADS). The rental of the meters is through a multi-year full-service agreement that combines meter installation, calibration, maintenance, and data QA/QC. Data from the meters is transmitted wirelessly to a centralized dashboard system that ADS and the City can access for raw meter data. An ADS data analyst reviews the data two times per week for any service issues which, if identified are escalated to the field manager for service crews to address.

In addition, the dashboard tracks meter health and other hydraulic conditions. The meters send alarms via email and are posted to the dashboard when issues are reported such as low battery

power, connectivity or meter placement issues. An ADS data analyst reviews the sites daily for such issues as blockages, communication and batter power. If meters are found to be faulty, they are replaced with new meters under the City's agreement with ADA. Based on the City's use of the system to date, service issues such as communication failures, batter replacement needs, depth deviations from what would be expected, alarm maintenance and rain gauge comparison are typical service related issues. **Figure 4** below shows a copy of the ADS dashboard system.

Figure 4: Sample ADS Dashboard



Waiver Requests

In May 2022, two waiver requests were submitted to the Commissioner of the MassDEP for preliminary approval of the use of alternative CSO monitoring and timing of data entry in the event of a system failure. These requests were submitted under 314 CMR 16.05(1)(b) and were included in the Preliminary CSO Report. In June 2022, those preliminary waiver requests were granted and are attached to this Technical Memorandum in **Attachment A**.

Since submittal of the Preliminary CSO Report and acceptance of the preliminary waivers, the City has implemented the combined digital twin, SWMM and metering systems into a fully automated system that meet compliance with 314 CMR 16.04. This automated system has significantly reduced the burden on the City's wastewater collection staff avoiding manual entry of data to emails and pushing of notifications while meeting compliance with the regulations. The following sections request final waivers in accordance with 314 CMR 14.04(2) and align with our current fully implemented and functioning system.

Metering Waiver

In accordance with 314 CMR 16.04(2), the City hereby seeks final approval from the Commissioner of the MassDEP to utilize a hybrid system consisting of a digital twin, calibrated weir equations, a calibrated SWMM model, block testing and real time level sensor meters to determine the volume, frequency, and duration of CSO discharges.

The City has been working with the EPA, MassDEP, and DMF on the above approach since 2018. This approach has been vetted via a two-year pilot program and is documented in the technical memoranda titled CSO Monitoring Pilot Program Results dated November 15, 2019 and CSO and Collection System Monitoring Plan dated January 15, 2020. Based on the pilot program and subsequent data analysis, the approach was determined to be a viable approach to accurately report CSO activations, volumes, and durations.

With results of the pilot program and preliminary waiver received in June 2022, the City moved forward with full scale implementation of the hybrid system. A significant amount of resources has been put into the development and implementation of this system. The system has been developed in collaboration with the regulatory agencies and aligns with the recommendations of the Integrated Plan and AO. The results of the pilot program and full scale implementation clearly document the success and results of the hybrid approach to achieve the intent of the regulations included in 314 CMR 16. The City feels that the hybrid approach is the best approach for monitoring of CSOs in the City and requests permission to continue to utilize the hybrid system for CSO validation.

2-hour Response Waiver

The City's fully automated system that is in place and has been developed to be able to determine if an overflow has occurred, calculates the overflow volume and is able to report within the 2-hour permitted time period required under 314 CMR 16.04(4). This occurs through a complex system of metering data, APIs allowing several different systems to transmit data, and SWMM analysis. If the planned method of automation has a network failure or other downtime that could prohibit timely transmission of data, the City requests the MassDEP Commissioner's approval to allow for a time extension to send notification of discharge discovery. Please note that the City is **NOT** requesting a waiver from 314 CMR 16.04(4) as the City is currently in compliance; <u>this is a request for a waiver should the automation fail</u>. If a manual notification of discharge is needed, the City will ensure that the notification will be submitted within 24-hours of the determination of an overflow event.

Public Notifications and Advisory

Requirements for Public Advisory Notification

314 CMR 16.04 outlines specific requirements regarding notification of the occurrence of CSO and sanitary sewer overflow (SSO) discharges including but not limited to the need for a web site, near real time communication with key stakeholders and environmental justice populations, and the need for updated signage at outfall location and both contact and non-contact recreational areas.

The Preliminary CSO Report outlined an approach for notification via the City's website, Code Red (Onsolve) system and signage. Since submittal of this report, the City has implemented this recommended approach with minor changes based on lessons learned. As such, the following summarizes the City's final approach to comply with these requirements:

City Website

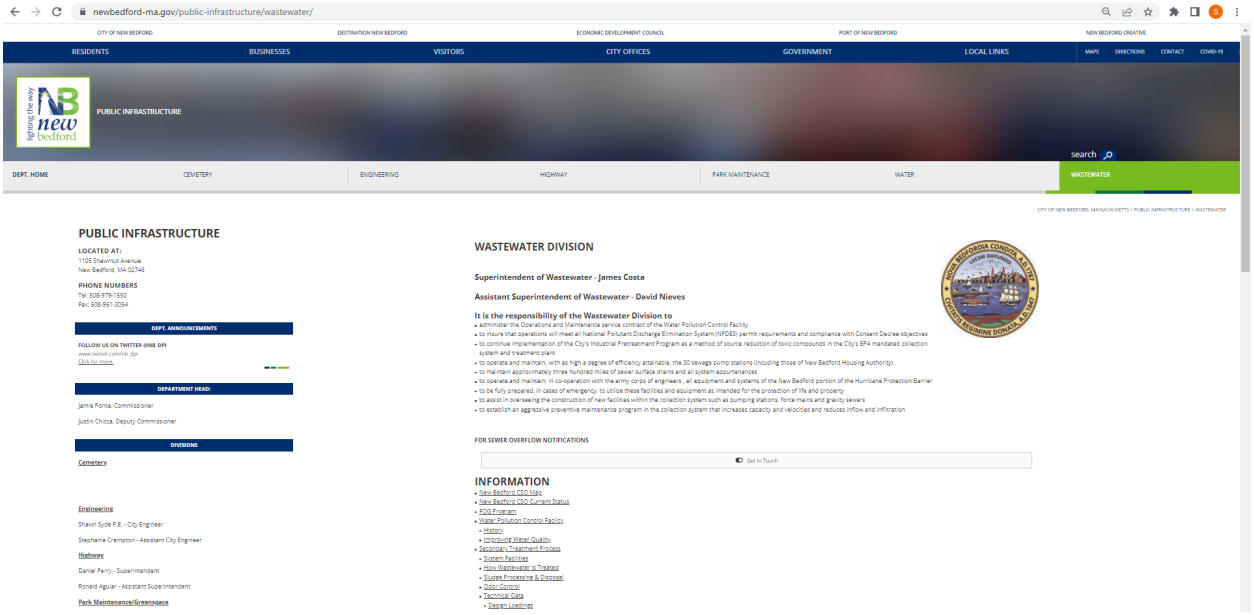
314 CMR 16.04(3) mandates that a website be developed and implemented providing the public with information regarding CSO activations, and general information related to the CSO system, treatment practices and updates on shellfishing bed status, contact recreational and non-contact recreational use status.

The New Bedford Health Department currently maintains an active website that provides the status of the seven swimming beaches in the City. They are also responsible for the required sampling to determine if the waters are safe to recreate in. This sampling program is conducted in cooperation with the City's Municipal Marine Laboratory. It is intended that the Health Department will continue this practice and maintain swimming beach status on their website.

The status of shellfishing beds is reported via a system outlined in a MOU with the DMF. This MOU outlines a flag system whereby the City changes flag colors depending on the status of the shellfishing beds. Shellfishing bed status is regulated by the MOU and the DMF and is dependent on the volume and frequency of rainfall, CSO discharges, proximity to existing outfalls, and water quality sampling. It is intended that this practice will continue. The City is currently working with the DMF to revise the MOU.

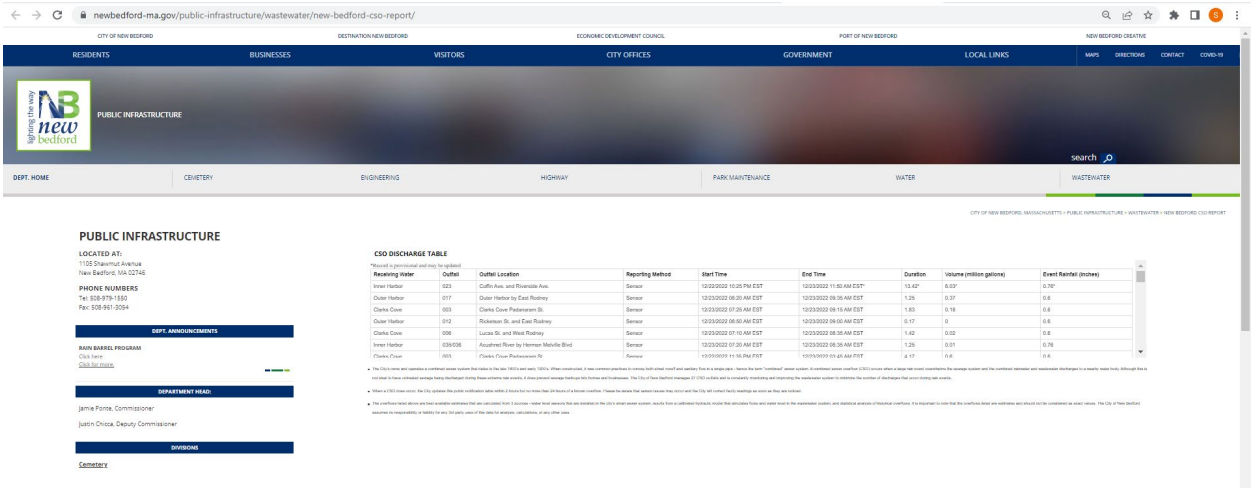
To address immediate compliance with 314 CMR 16.04, as noted in the Preliminary CSO Plan, via the City's Wastewater Division webpage, separate links have been created to sign up to receive notifications through the Code Red System and access CSO data. As shown **Figure 5** below, the screenshot shows the sign-up link to receive public notification of CSO discharges.

Figure 5: Wastewater Division Website



In addition, the Wastewater Division webpage provide links to information for browsers on the City's collection system, the management structure, capital planning efforts such as the City's Integrated Plan and to access information on CSO discharges. The separate website for CSO discharges provides a near real time update on CSO discharges summarized in a table. The CSO discharge table is updated automatically via an API from PipeCast within the 2-hour mandated time period. A screenshot of the CSO summary page is shown in **Figure 5**.

Figure 6: CSO Discharge Summary Table



Although these pages meet the requirements of 314 CMR 16.04(3), it is the City's intention to continue to make updates to the website. The updated website is envisioned to provide a map

showing CSO locations and allow the user to find information on the activation status of each outfall including activation data for the previous three years. Links to useful websites such as the New Bedford Health Department's website on beach status or DMF regarding shellfishing will also be provided. Information on the City's compliance status with the Integrated Plan, and CSO reports will be provided via annual reports as required by the City's AO. A link to the Integrated Plan will be provided for additional information (Note – this is already available on the Wastewater Division's website but will be relocated to this new webpage.). Development of this webpage will be completed as funding allows. To support this effort, the City has applied for a grant through the MassDEP and is awaiting notice of award.

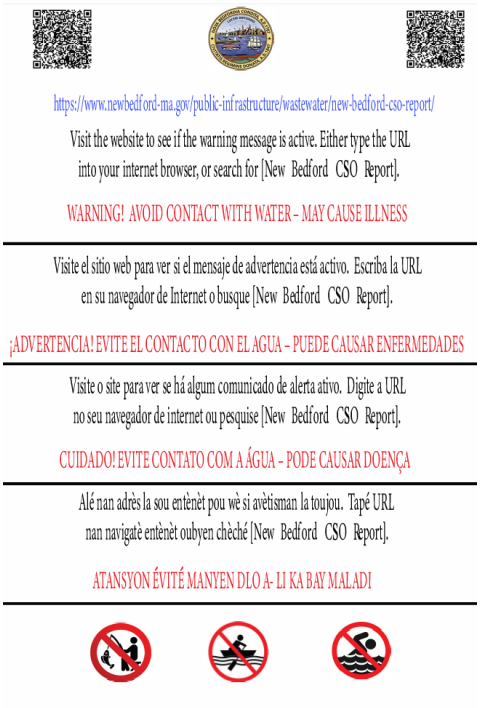
CSO Signs

The City currently maintains signs in accordance with its NPDES Permit No. MA0100781 Part I, Paragraph F.2.f which requires signs be posted with specific information. All CSO outfalls have the proper signage per the nine minimum control requirements.

Per 314 CMR 16.05(2) the above-mentioned signs will be maintained in addition to the placement of new signs at public access points to the City's receiving waters per 314 CMR 16.05(3). MassDEP GIS data (https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=1dde2a22f3e8474c8571e000008d0545) defines public access points in New Bedford. Signs will be in English, Portuguese, Spanish, and French Creole. A QR code and website URL will provide access information on CSO posting(s) and the City's website. Permanent signs will be installed at the following locations in the City no later than August 1, 2023. The locations have been selected from points marked on the MassDEP CSO's and Beach/Boat Access GIS layer.

- East Rodney French Boulevard Boat Ramp
- Davy's Locker Beach (Adjacent to CSO 015)
- Beach (North of Aquidneck St)
- East Beach (by Nina Street)
- West Rodney French Boulevard Boat Ramp
- West Beach (South of Valentine Street)
- Gifford Street Boat Ramp

Figure 7: CSO Sign Example



Sign locations for the Town of Dartmouth were provided by Mr. Chris Michaud, and will be installed by the Town at the following locations:

- Anthonys Beach
- Oak Hill Beach
- Jones Beach
- Hidden Bay
- Rogers Street Boat Ramp

Per 314 CMR 16.09 (5) Temporary signs are not required at permitted bathing beaches or shellfish growing areas. The public access areas in the City are either bathing beaches or shellfish growing areas that are monitored and posted pursuant to the Health Department and/or the Division of

Marine Fisheries. As such, compliance with the requirement under 314 CMR 16.09 (5) is addressed through compliance with 314 CMR 16.05 (3).

Public Advisory Notifications

314 CMR 16.04(4) outlines a prescriptive requirement for public notification of CSO and SSO discharges to the receiving waters. There are four water body segments impacted by the City's CSO discharges:

- Inner New Bedford Harbor – MA94-42: 6 outfalls
- Outer New Bedford Harbor – MA95-63: 6 outfalls
- Acushnet River – MA95-33: 7 outfalls
- Clarks Cove – M95-38: 8 outfalls

Each of these waterbody segments has numerous CSO outfalls at various locations where flow is discharged. In total there are 27 permitted outfalls in the City's system. In the Preliminary CSO Plan, it was noted that the City was going to issue notification by water body segment; however, following discussions with OnSolve and CodeRed, combining emails was not feasible at this time. As such, notifications are provided by email for each of the City's 27 outfalls.

Given the number of outfalls to each receiving water body, the City is requesting if OnSolve and PipeCast are able to develop a system to group emails, to be able to send four separate notifications; one for each water body per 314 CMR 16.04(6) in lieu of the 27 individual emails. This will minimize the total number of notifications needed while achieving compliance with the intent of the regulations. In addition, depending on the type and extent of the wet weather event, some receiving waters may need a notification and others may not.

As shown in **Figure 1**, timing of the notifications will be in accordance with those outlined in 314 CMR 12.04(5), (8) and (9) with the requested stipulation that should the API or automated process experience downtime during the required timeframes, notifications will be pushed during the next normal business day. With the use of the real time level sensors and SWMM integrated with PipeCast, this approach can be managed more efficiently, minimize manual entry of data or pushing of notifications ensuring practicable compliance with the 2-hour, 4-hour and 8-hour reporting requirements depending on the type and duration of overflow.

Public requests to receive notifications will be made using the City's existing CodeRed Reverse 911 system. In addition to those who subscribed to receive notifications, those listed in 314 CMR 16.04(4)(a) will be notified including the DMF, the Massachusetts Department of Conservation and Recreation, the Massachusetts Division of Fisheries and Wildlife, and the New Bedford Department of Parks and Recreation. Information outlined in 314 CMR 16.04(10) will be provided. For those

wishing to receive the notifications in an alternative language, translations will be made available in Portuguese, Spanish and French Creole. As shown in **Figure 5**, a link is available on the City's website to sign up to receive public notifications via email.

The following list summarizes the required contacts and their contact information:

- Southcoast Today – Kevin Andrade – Senior Reporter – Kandrade@gannett.com
- WBSM (Townsquare Media) - Mark Stachowski – Market President mark.stachowski@townsquaremedia.com
- New Bedford Light – Steve Taylor – Publisher / President - staylor@newbedfordlight.org
- Mass DMF – Jeff Kennedy – Program Manager – Jeff.Kennedy@mass.gov
- Mass DMF – Doug Cameron – doug.cameron@mass.gov
- Mass DCR – MEMA.StateControl@mass.gov
- Mass DEP – Massdep.sewagenotification@mass.gov
- Mass DEP – David Burns – david.burns2@state.ma.us
- Mass DEP – Gerard Martin – Gerard.martin@mass.gov
- USEPA – R1.EPANotifications@epa.gov
- USEPA – David Turin – Turin.david@epa.gov
- Mass DPH – DPHToxicology@mass.gov
- New Bedford Parks, Recreation – Mary Rapoza – Director – mary.rapoza@newbedford-ma.gov
- New Bedford Board of Health – Stephanie Sloan – Director – Stephanie.Sloan@newbedford-ma.gov
- Dartmouth Board of Health – Chris Michaud – Director – cmichaud@town.dartmouth.ma.us
- Fairhaven Board of Health – boh@fairhaven-ma.gov
- Acushnet Board of Health – Joe Correia – Health Agent – boh@acushnet.ma.us
- New Bedford Shellfish Warden – Thomas Ringuette – thomas.ringuette@newbedford-ma.gov
- New Bedford Shellfish Warden – Teague Crampton – teauge.crampton@newbedford-ma.gov

- The Portuguese Times – Eduardo Sousa Lima- Fairhaven Harbormaster / Shellfish Warden – Tim Cox – tcox@fairhaven-ma.gov

- Dartmouth Harbormaster / Shellfish Warden – Steve Mello – smello@town.dartmouth.ma.us

Figure 8: Sample Notification Email

From: admin@onsolve.com <no-reply@onsolve.com>
Sent: Wednesday, October 5, 2022 3:53 PM
To: Yu, Da <da.yu@trinnex.io>
Subject: CSO Discharge Notification

Receiving Water: Inner Harbor
Outfall Number: 035/036
Outfall Location: Acushnet River by Herman Melville Blvd
Reporting Method: Sensor
Start Time (EDT): 10/04/2022 13:50
Stop Time (EDT): 10/04/2022 23:45
Duration (hours): 9.92
Volume (million gallons): 0.3
Event Rainfall (inches): 1.02

*Record is provisional and may be updated
The City's owns and operates a combined sewer system that dates to the late 1800's and early 1900's. When constructed, it was common practices to convey both street runoff and sanitary flow in a single pipe - hence the term "combined" sewer system. A combined sewer overflow (CSO) occurs when a large rain event overwhelms the sewage system and the combined rainwater and wastewater discharges to a nearby water body. Although this is not ideal to have untreated sewage being discharged during these extreme rain events, it does prevent sewage backups into homes and businesses. The City of New Bedford manages 27 CSO outfalls and is constantly monitoring and improving the wastewater system to minimize the number of discharges that occur during rain events.

When a CSO does occur, the City updates this public notification table within 2 hours but no more than 24 hours of a known overflow. Please be aware that sensor issues may occur and the City will correct faulty readings as soon as they are noticed.

The overflows listed above are best available estimates that are calculated from 3 sources - water level sensors that are installed in the city's smart sewer system, results from a calibrated hydraulic model that simulates flows and water level in the wastewater system, and statistical analysis of historical overflows. It is important to note that the overflows listed are estimates and should not be considered as exact values. The City of New Bedford assumes no responsibility or liability for any 3rd party uses of this data for analysis, calculations, or any other uses.

Notification to the two largest news providers in the region; SouthCoast Today and WBSM are completed by email (See recipient list above). In addition, given the large Environmental Justice population in the City, notification are made to New Bedford Light (NoticiasNB) for Spanish and Portuguese Times for Portuguese speaking populations. The French Creole population does not have a media outlet; however, notices on the City's website are published in French Creole.

Translations were completed using in-house staff that are fluent by both languages. French Creole was translated using an on-line language translator. To date, no complaints or issues have been received regarding these translations. Should any issues be received, updates will be made as required.

Attachments:

Attachment A: Preliminary waiver request approval notice.

Attachment B: CSO Abutters Memo