



Massachusetts Water Resources Authority

Somerville Marginal CSO Facility and CSO Monitoring, Performance Assessment and Reduction Efforts

Presentation to Mystic River
Steering Committee

June 4, 2020



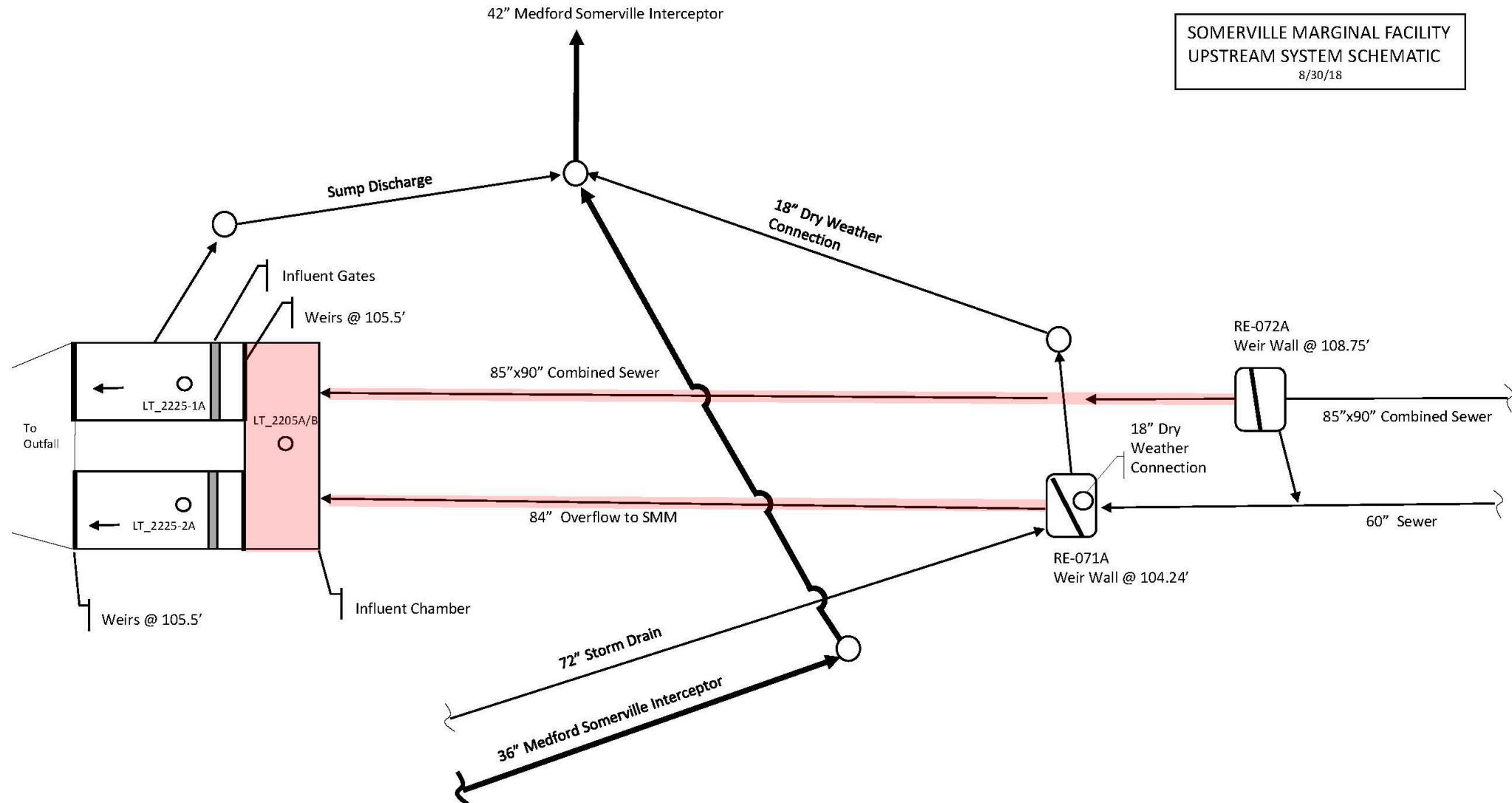
Somerville Marginal Tributary System



Somerville Marginal Sewer Shed

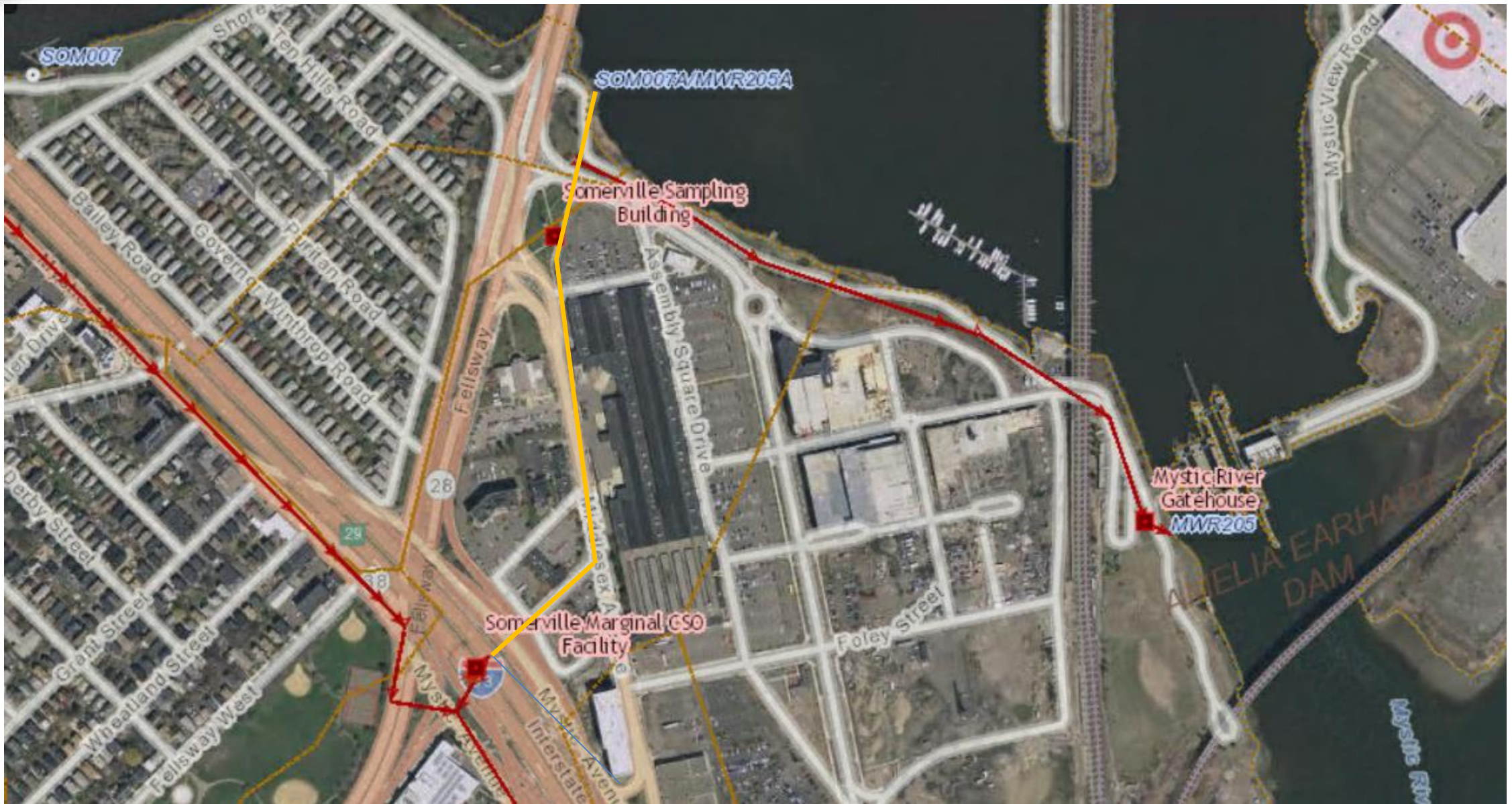


Somerville Marginal Operational Overview





Somerville Marginal Operational Overview





MWRA Hydraulic Model Calibrations and Comparison to Meter Data

Table 3-10. Summary of January 1-December 31, 2019 Modeled and Metered CSO Discharges

Outfall	Regulator	Level Only		January 1 - December 31, 2019			
				Meter		Model	
				Activation Frequency	Volume (MG) ⁽²⁾	Activation Frequency	Volume (MG)
Upper Mystic River							
SOM007A/MWR205A		Y		12	N/A	8	14.52
Mystic/Chelsea Confluence							
MWR205 (Somerville Marginal Facility)				27	96.41	26	98.89

Table 3-11. Summary of April 15-December 31, 2018 Modeled and Metered CSO Discharges

Outfall	Regulator	Level Only	April 15-December 31, 2018			
			Meter		Model	
			Activation Frequency	Volume (MG) ⁽¹⁾	Activation Frequency	Volume (MG)
Upper Mystic River						
SOM007A/MWR205A		Y	15	N/A	12	35.82
Mystic/Chelsea Confluence						
MWR205 (Somerville Marginal Facility)			33	103.68	26	99.67



MWRA Hydraulic Model Typical Year Predictions

TYPICAL YEAR MODEL SIMULATION RESULTS FOR BASELINE 1992 CONDITIONS, 2019 CONDITIONS AND LONG-TERM CSO CONTROL PLAN (LTCP)

Outfall	1992 SYSTEM CONDITIONS ⁽¹⁾		2019 SYSTEM CONDITIONS (Before Model Calibration)		2019 SYSTEM CONDITIONS (After Model Calibration)		LONG TERM CONTROL PLAN ⁽²⁾	
	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)	Activation Frequency	Volume (MG)
UPPER MYSTIC RIVER								
SOM007A/MWR205A	9	7.61	2	1.85	6	4.95	3	3.48
SOM006 ⁽⁴⁾	0	0.00	Closed	N/A	Closed	N/A	N/I ⁽⁴⁾	N/I ⁽⁴⁾
SOM007	3	0.06	Closed	N/A	Closed	N/A	Closed	N/A
TOTAL		7.67		1.85		4.95		3.48
MYSTIC/CHELSEA CONFLUENCE								
MWR205 (Somerville Marginal Facility)	33	120.37	22	67.91	39	109.63	39	60.58



Recent and Ongoing Investigations to Reduce CSO Discharge

Investigation into Higher Stormwater Flows from Tributary System

- ☐ Examining recent construction projects to determine if stormwater has been redirected to the Somerville Marginal CSO Facility.
- ☐ Working with the City of Somerville and MBTA to confirm the drainage conveyance system from the GLX Project is not contributing additional stormwater

Evaluated Raising Stop Planks Upstream of Influent Gates

- ☐ Performed Typical Year Model Simulations to determine Benefit of Stop Plank Adjustment.
- ☐ Predicted CSO reduction was determined to be not worth the risk of increasing the potential of upstream flooding.

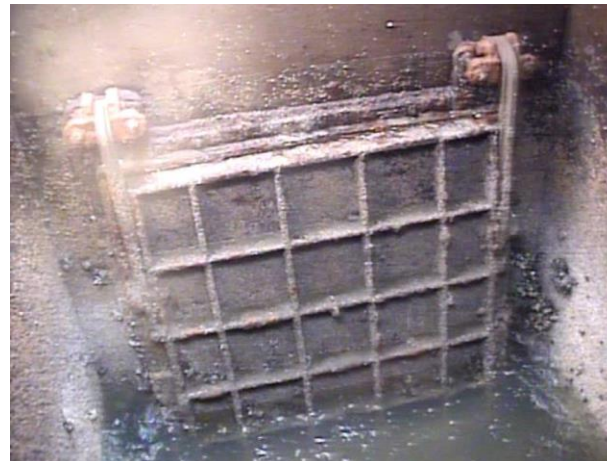
Evaluating and Working to Repair Leaking Tide Gate at MWR205



Recent and Ongoing Investigations to Reduce CSO Discharge



- Task Order was executed for Kleinfelder to conduct an inspection of the tide gate and hinge assembly to determine if the gate will be repaired or replaced.
- Tide gate inspection scheduled for June 9th.
- Model simulations were performed predicting a 0.2 MGD volume reduction in a typical year when the tide gate is operating properly.





CSO Variance Required Project Evaluations

Alewife Brook P.S. Optimization

CSO Optimization: CSO regulators trib. to Charles River and Alewife Brook/Upper Mystic River

Somerville-Marginal CSO Facility

