

Proposed Modification Request to Approved Alley Creek Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP)

Public Presentation

February 5, 2026

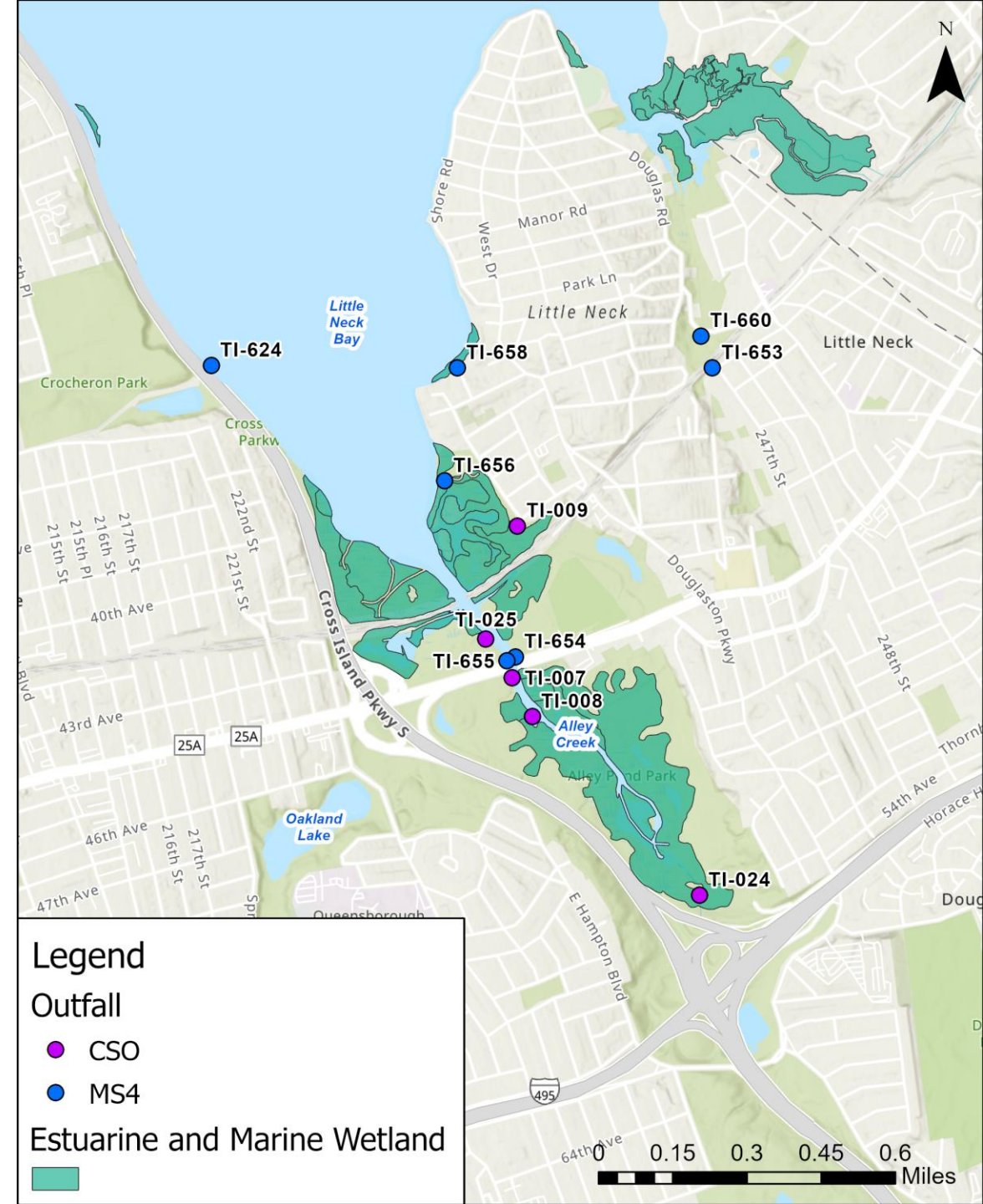


Why are we here?

- **DEP intends to submit a modification request to NYSDEC before the end of March 2026 to propose a substitute project to the approved CSO LTCP**
 - Goal: Provide description and justification of proposed modification request to the public
- **DEP intends to publish a supplement to the DEC approved Alley Creek LTCP to support the modification request before the end of March 2026**
 - Goal: Explain CSO LTCP process and content of 2026 Supplemental CSO LTCP
- **Upcoming public comment period: Pending NYSDEC review of the modification request, it will be published in the Environmental Notice Bulletin (ENB) for public comment**
 - Goal: Ensure there is an understanding of the next opportunity submit official comments

Agenda

1. What is a CSO & the Long-Term Control Plan Process
2. Proposed Modification to Alley Creek Long Term Control Plan Updates
3. Oakland Lake and Ravine Stormwater Diversion Concept
4. Next Steps

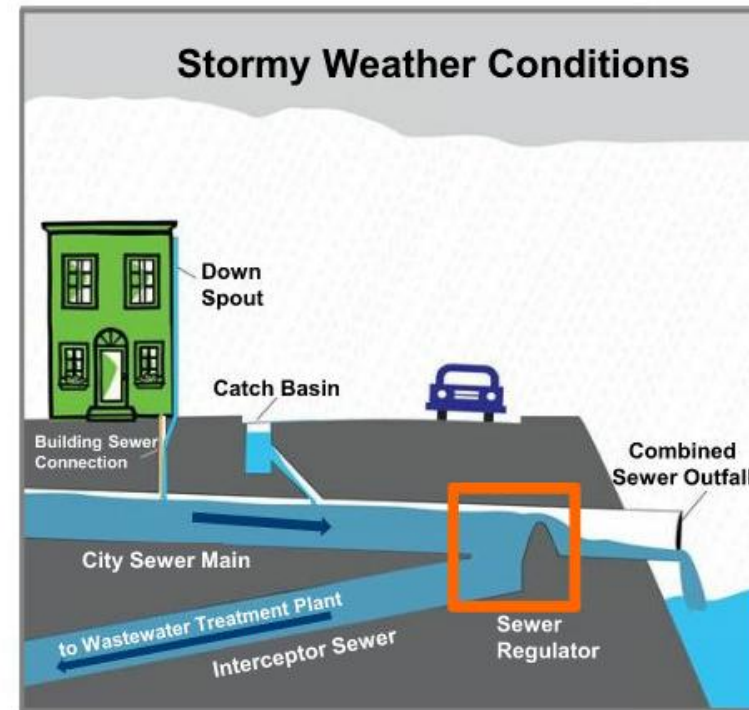
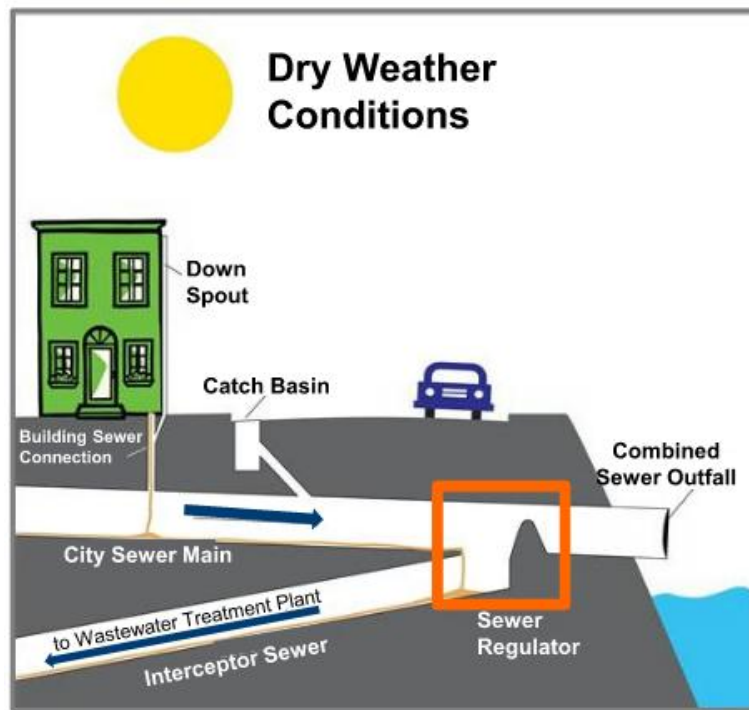


What is a CSO & the Long-Term Control Plan Process



What is a Combined Sewer Overflow (CSO)

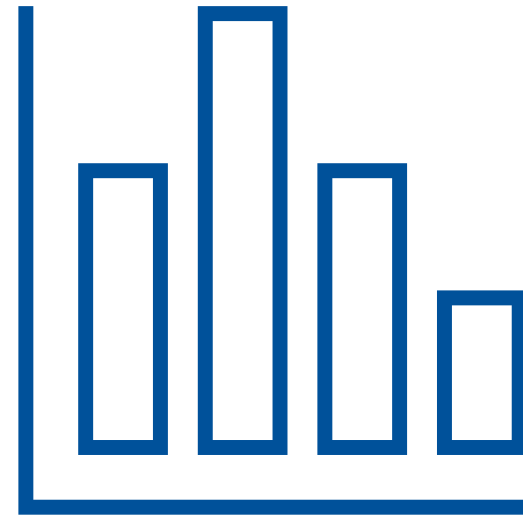
- NYC's sewer system is approximately 60% combined, which means it is used to **convey both sanitary and storm flows**
- When the sewer system is at full capacity, a diluted mixture of rain water and sewage may be released into local waterways. **This is called a combined sewer overflow (CSO)**
- 65% to 90% of combined sanitary & storm flow is captured at treatment plans



Long-Term Control Plan (LTCP) Process

- **What is an LTCP?**
 - Required under NYC SPDES permits pursuant to the Clean Water Act (CWA) and Federal Combined Sewer Overflow (CSO) Control Policy
 - Evaluate long-term solutions for CSO controls and improve water quality in waterbodies and waterways
 - Identify appropriate CSO controls necessary to achieve waterbody-specific water quality standards
- **The LTCP process:**
 - Assesses feasibility of attaining current water quality standards
 - Builds on Waterbody/Watershed Facility Plans or the first phase of the planning process
 - Requires robust, targeted public process
 - Identifies grey-green balance for different watersheds

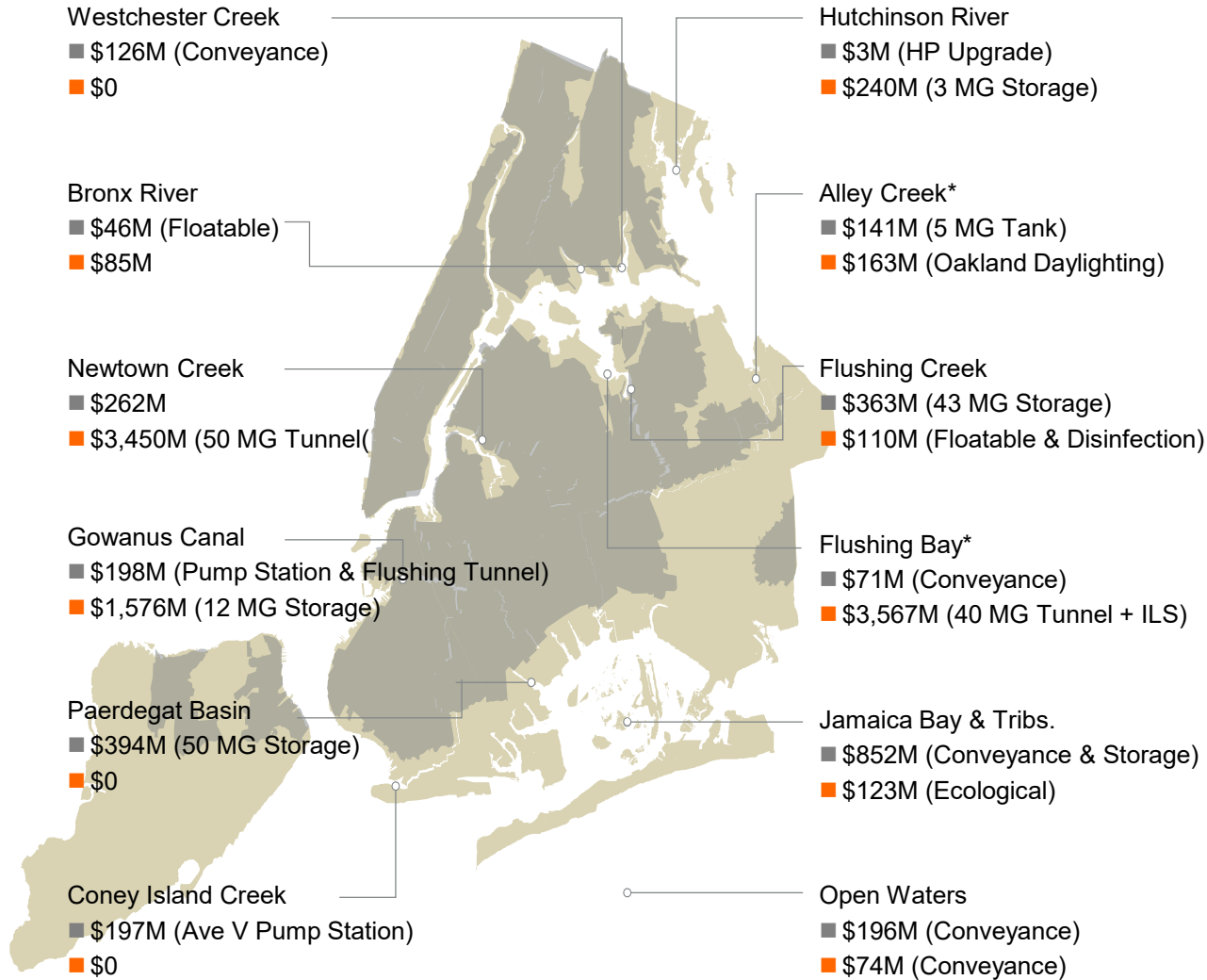
Proposed Modification to Alley Creek Long Term Control Plan



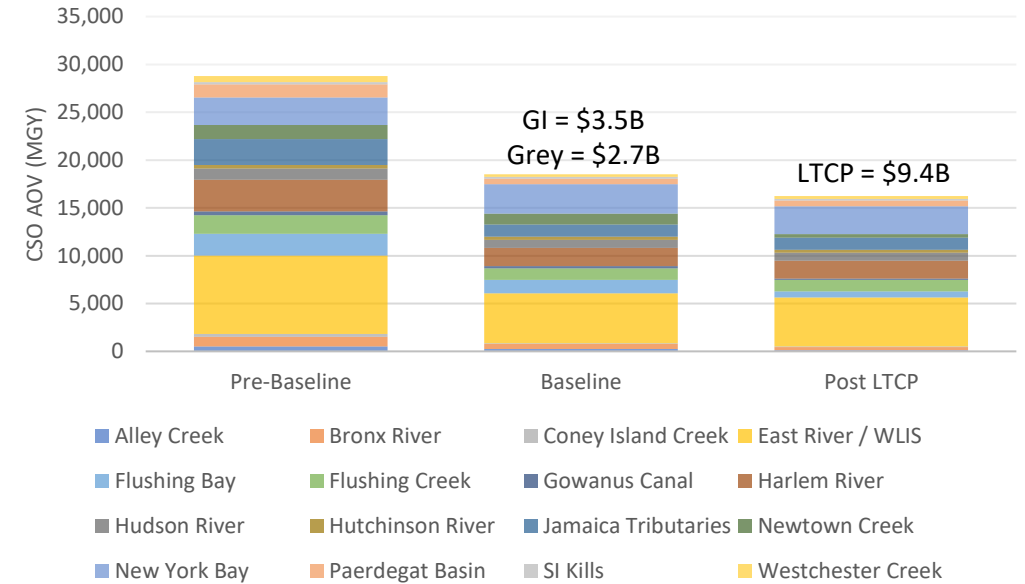
Updates on Citywide LTCPs

■ Baseline Grey & Green

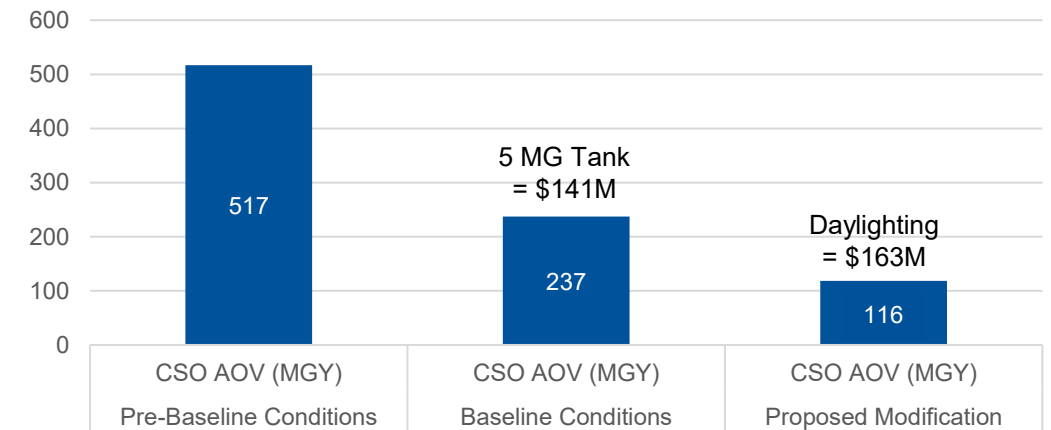
■ LTCP Projects



CITYWIDE CSO AOV (MGY)



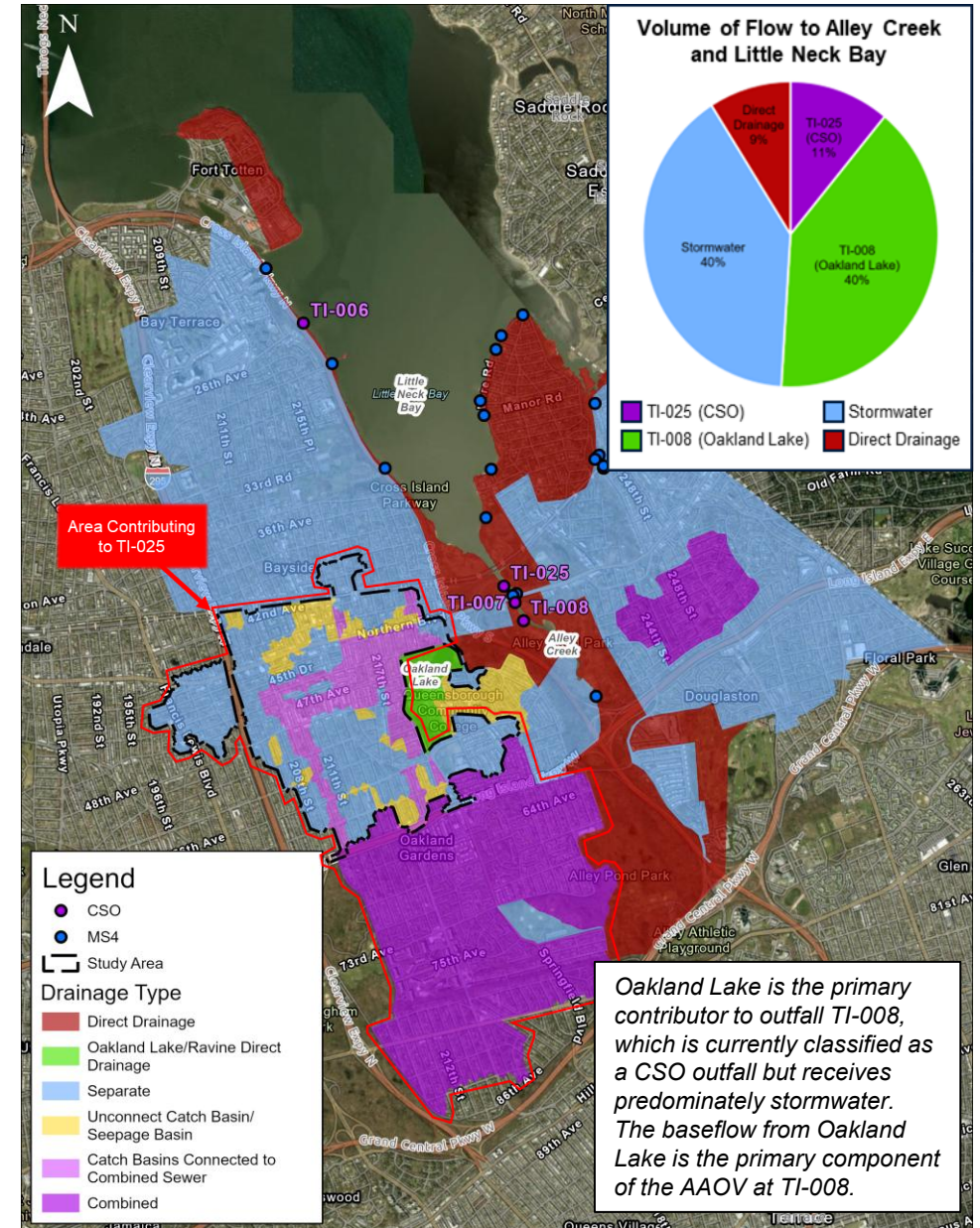
Alley Creek CSO AOV



■ TI-025

Alley Creek Watershed Characteristics

- Tidally influenced creek with natural, vegetated shorelines and tidal mudflats
 - Surrounding land use is largely Parkland or open space
- Tributary to East River & Long Island Sound with Alley Creek Headwaters in Alley Pond Park
- DEP wet weather discharges include both CSO and storm (MS4) outfalls
 - Nassau County also has wet weather discharges to Alley Creek/Little Neck Bay
- NYSDEC list of impaired waterbodies
 - Dissolved oxygen, floatables, and pathogens

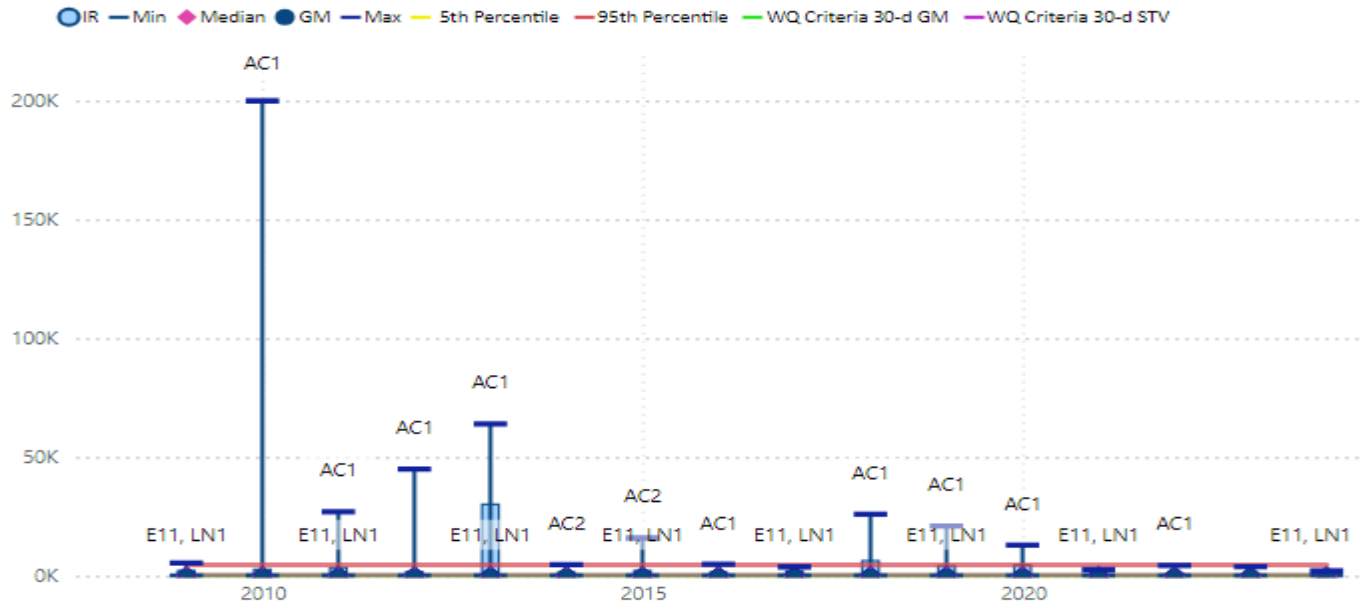


Alley Creek Waterbody Characteristics

- Class I waterbody suitable for secondary contact uses.
- Thriving wetlands and ecological system with limited access for recreational use.
- Limited circulation and during low tides a large portion of Alley Creek becomes a mudflat.
- Improving trends in water quality reflect in part DEP efforts in implementing source control and Illicit Discharge Detection & Elimination program.

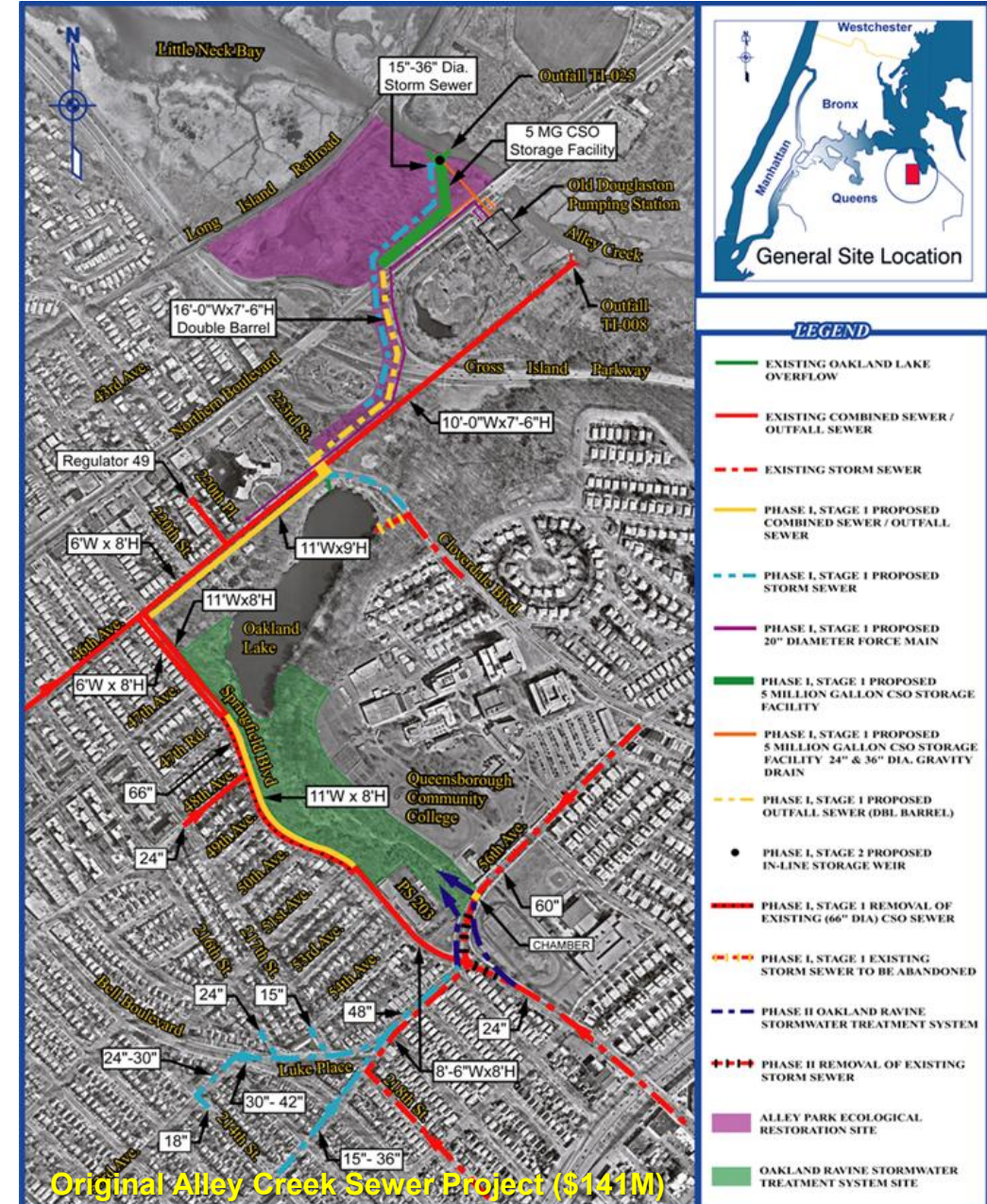


Enterococcus



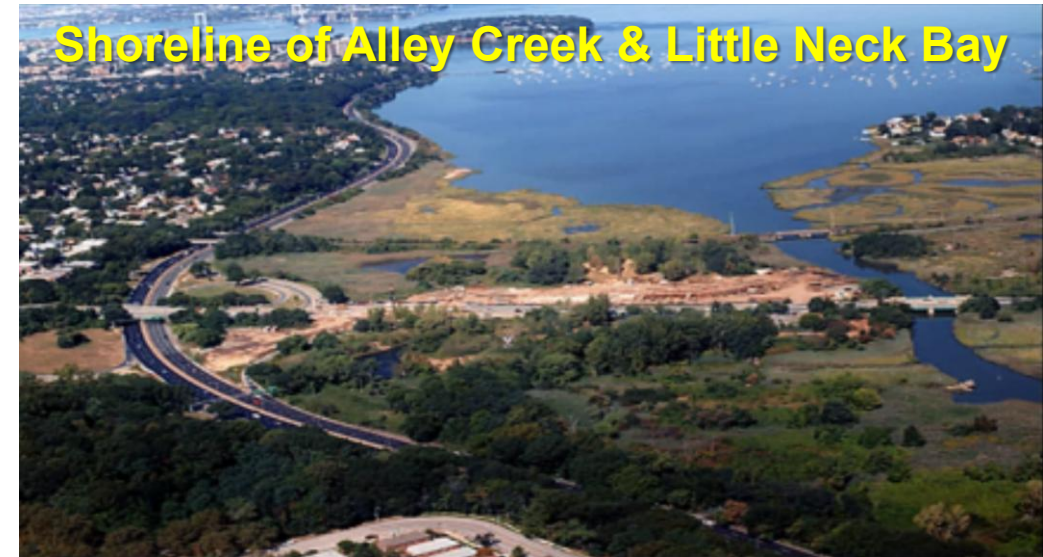
Approved Alley Creek LTCP

- Prior to the Alley Creek LTCP, DEP spent about \$141M (shown on the right):
 - Significant sewer upgrades to mitigate inland flooding
 - 5 MG CSO Storage Tank that reduced CSOs by over 50%
 - Upgrades to Old Douglaston Pump Station
 - Alley Creek Wetland Restorations
- Alley Creek LTCP was approved on March 7, 2017; and included the following:
 - Recreational season disinfection (Chlorination & Dechlorination) at the 5 MG Alley Creek CSO Tank
 - Treatment limits of 99% or greater bacterial reduction and effluent total residual chlorine limit of no greater than 0.1 mg/L



Alley Creek CSO LTCP Timeline

- **2013 - 2015** DEP submission and resubmissions of Alley Creek CSO LTCP + **sewer work completed**
- **2017** 2014 Alley Creek LTCP approved by NYSDEC for construction and operation of chlorination and dechlorination "disinfection system" during the recreational season
- **2019** After initiating design for disinfection, DEP first proposed evaluation of alternatives to disinfection given newly identified operation and siting concerns
- **2022** Order modified to defer disinfection milestones and add new milestones for review of alternatives - Wetlands Monitoring/Design and Oakland Lake Daylighting Feasibility Study.
- **2024** DEP submitted Oakland Lake Daylighting Feasibility Report to NYSDEC recommending the stormwater diversion to Oakland Lake/Ravine
- **2026** DEP to submit proposed modification request and Supplemental CSO LTCP to NYSDEC



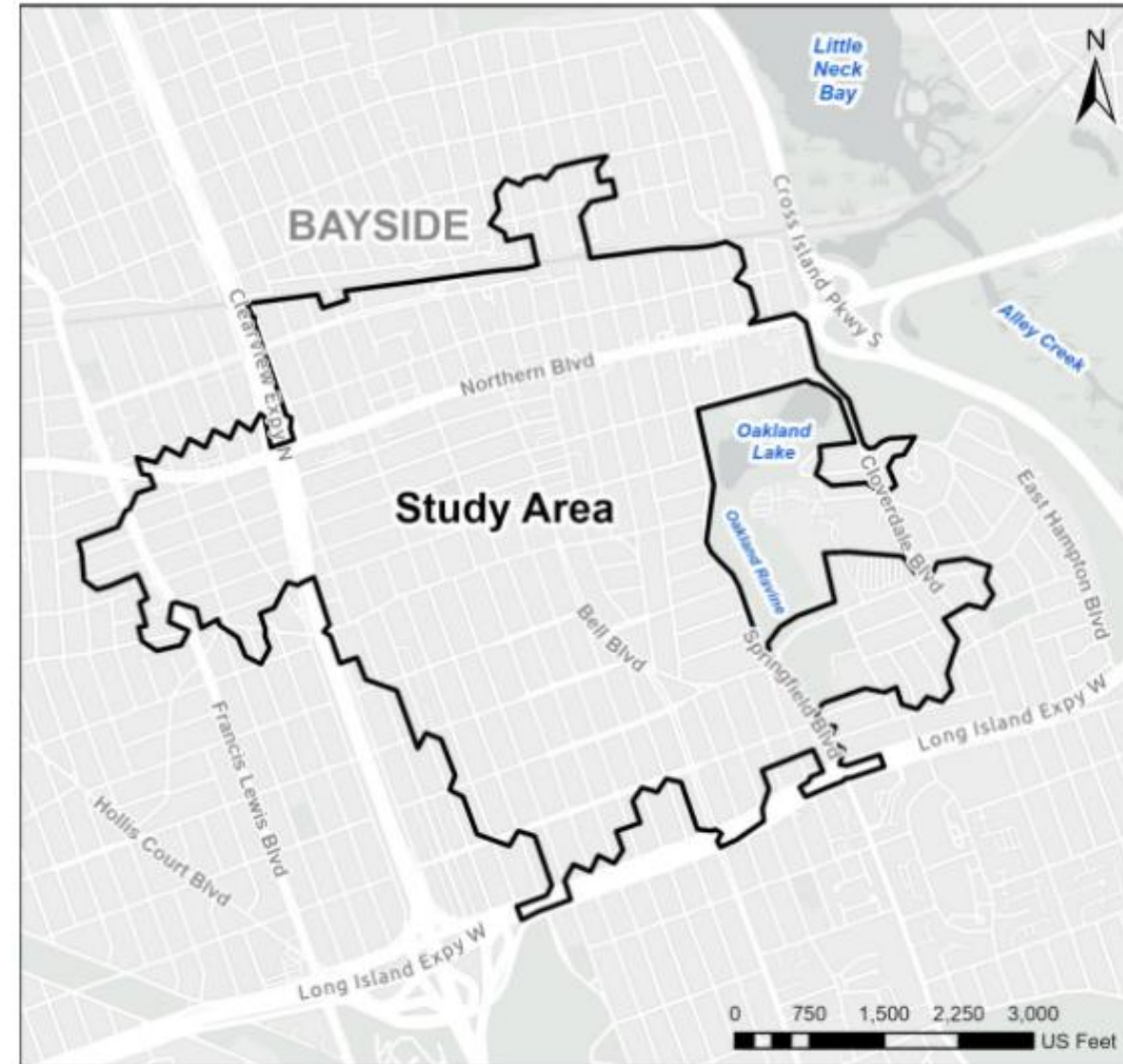
Stormwater Diversion Study Overview

- **Study Area**

- Oakland Lake and Ravine
- 711-acre area tributary to Alley Creek CSO Retention Facility and CSO Outfall TI-025 in Bayside, Queens

- **Project Goals**

- Evaluate alternative options of diverting stormwater ahead of the Alley Creek CSO Retention Facility for CSO volume reduction
- Recommend an alternative that is cost-effective, reduces CSOs, and balances constructability and impacts to the community

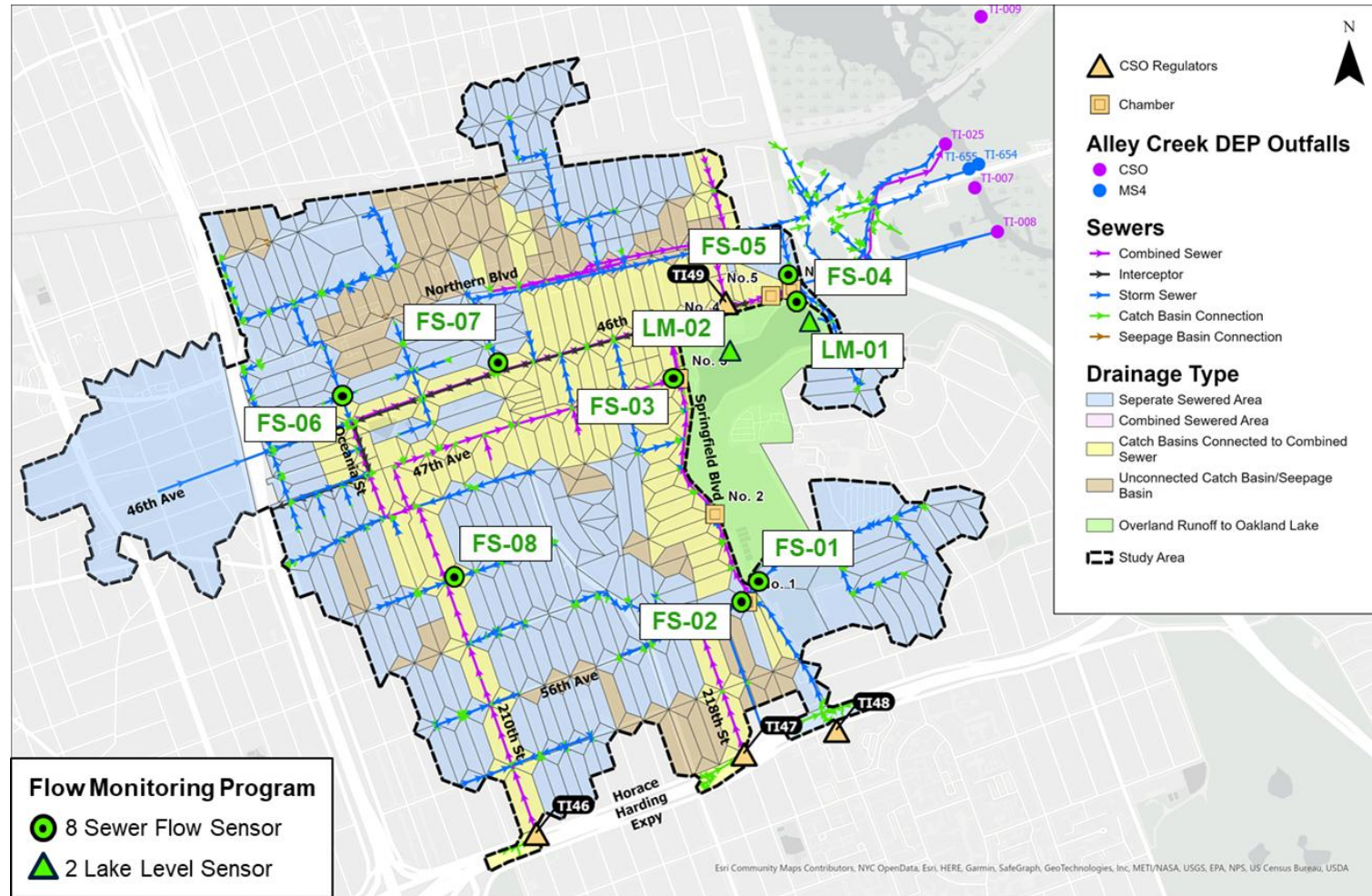


Stormwater Diversion Study Model Updates

- Refined collection system model within the study area, which resulted in changes to drainage boundaries and impervious cover
- Flow data collected from 8 meters and used to recalibrate within the study area
- Updated model resulted in new Alley Creek baseline condition

Outfall	Average Annual Overflow Volume (AAOV) (MGY) ¹	
	2023 Oakland Lake Baseline Model	2014 LTCP Baseline Model
TI-025	237	132

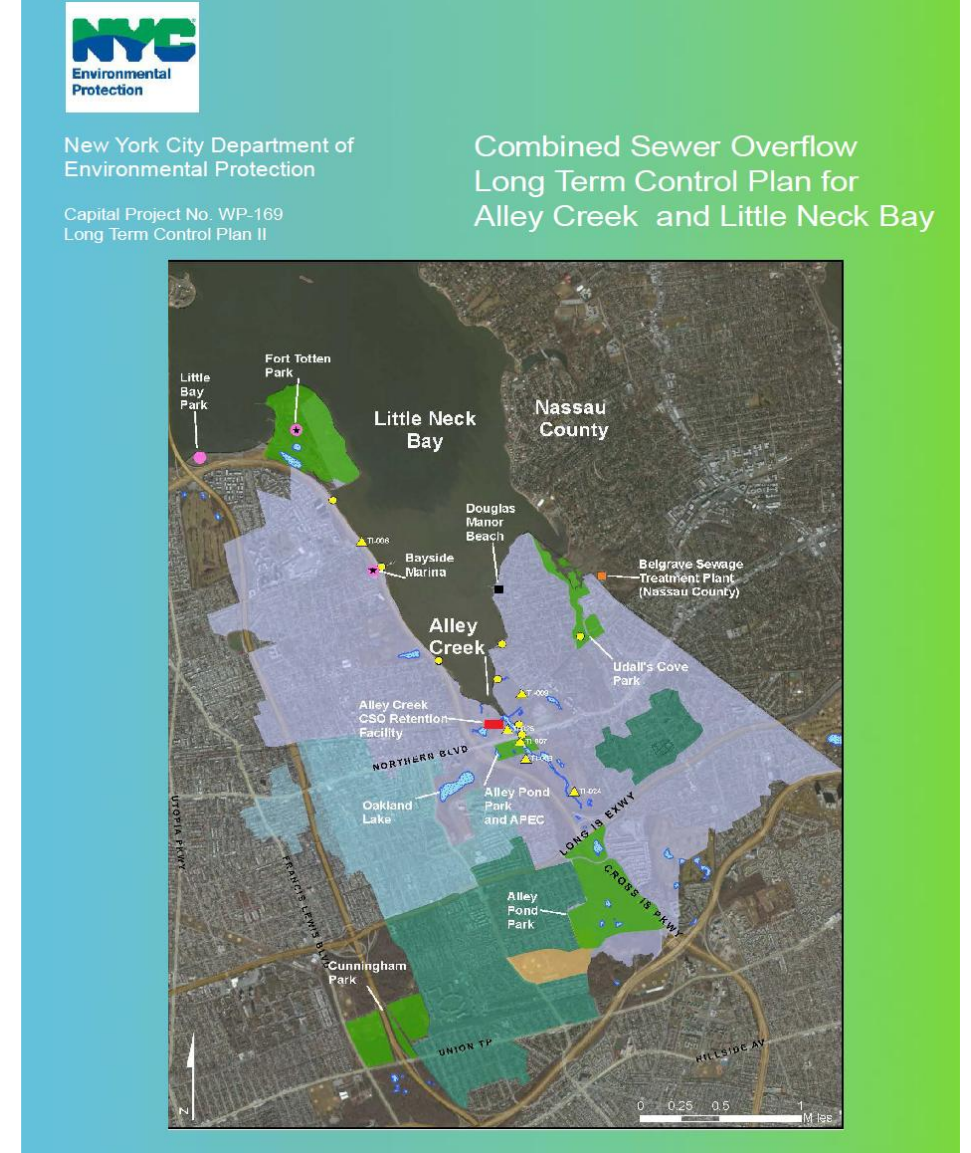
¹ NYCDEP's Typical Rainfall Year, 2008



Esri Community Maps Contributors, NYC OpenData, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Overview of 2026 Supplemental CSO LTCP

- NYSDEC requires DEP to submit a supplemental LTCP to reflect changes in landside modeling and new Oakland Lake Daylighting Alternative.
 - Executive Summary (**Replace**)
 - Section 2. Watershed/Waterbody Characteristics (Revise)
 - Section 6. Baseline Conditions and Performance Gap (**Replace**)
 - Section 7. Public Participation & Agency Coordination (Revise)
 - Section 8. Evaluation of Alternatives (**Replace**)
 - Section 9. Long Term Control Plan Implementation (**Replace**)



Retained Alternatives – Tanks

Alternative 2A – 2.5 MG Retention

- designed to capture 25 percent of the CSO volume
- traditional shallow tank located north of and abutting the existing tank but south of the marsh grass



Alternative 2B – 8.0 MG Retention

- designed to capture 50 percent of the CSO volume
- traditional tank located south of Northern Boulevard
- would likely require depths that extend below the drainpipe at the existing Alley Creek CSO Retention Facility and will therefore require new pump facilities to dewater them between rain events.



Retained Alternatives – Tanks

Alternative 2C – 17 MG Retention

- designed to capture 75 percent of the CSO volume
- required tank depth would extend below the drainpipe at the existing Alley Creek CSO Retention Facility, and would therefore require new pump facilities to dewater the tank



Alternative 2D – 41 MG Retention

- designed to capture 100 percent of the CSO volume.
- comprised of a 41 MG rectangular tank and a pumping facility to dewater the tank between rain events



Retained Alternatives – Disinfection

Alternative 3 - Disinfection in Existing Alley Creek CSO Retention Facility



- retrofitting the tank with chlorination and dechlorination systems
- adding buildings to house the delivery, storage, and feed equipment for each of the chemicals
- requires ancillary electrical, controls, and HVAC systems , along with an operations area.
- Two chemicals :
 - sodium hypochlorite (NaOCl) for chlorination (disinfection)
 - sodium bisulfite (NaHSO_3) for dechlorination

Recommended Oakland Lake Daylighting Alternative

Approach:

- Upstream diversions and downstream disconnections to divert storm flow from the combined sewer to Oakland Ravine and Lake

CSO Reduction:

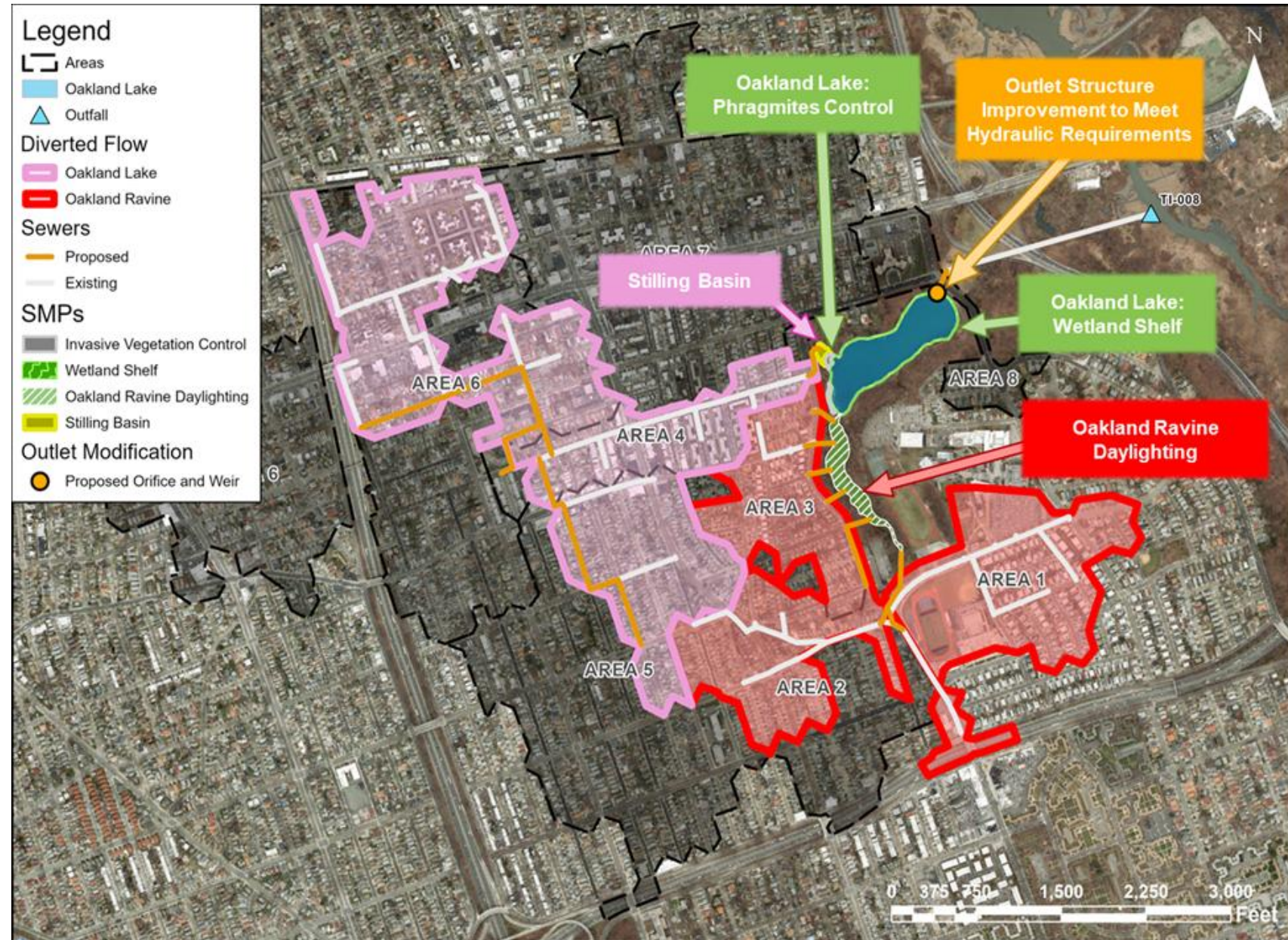
- AAOV reduction of 121 MGY (51%) at TI-025

Oakland Ravine Components:

- Divert flow upstream and along Oakland Ravine
- Limited sewer construction
- Daylighted channel and constructed wetlands

Oakland Lake Components:

- Divert flow to stilling basin/pocket wetland
- Utilize existing large sewer along 47th Ave
- Wetland shelf and invasive vegetation control
- Retrofit outlet structure with orifice-weir combination



Supplemental - Retained Alternatives

Alternative	2008 Typical Year CSO Volume (MGY)	CSO Volume Reduction Percent	Constructability Constraints	Co-Benefits, in addition to WQ	Total Present Worth (Million)
Baseline Conditions	237	-	-	-	
2A. 2.5 MG Additional Downstream Retention	179	25%	Medium	-	\$508
2B. 8 MG Additional Downstream Retention	118	50%	Medium	-	\$755
2C. 17 MG Additional Downstream Retention	58	75%	High	-	\$1,359
2D. 41 MG Additional Downstream Retention	1	100%	High	-	\$2,918
3. Disinfection in Existing Alley Creek CSO Retention Facility (Rec. Season)	104 ¹	56% ¹	High	-	\$28
4. Oakland Ravine Daylighting and Stormwater Diversion Concept	116	51%	Medium	Ecological restoration, community amenities	\$163

¹Remaining untreated CSO volume during the non-recreational season.

CSO = combined sewer overflow; MG = million gallons; MGY = million gallons per year

Alley Creek and Little Neck Bay Waterbody Criteria & Water Quality Modeling

2025 Existing WQ Criteria

Station	Classification	Applicable Bacterial Criteria	
		Fecal Coliform	Enterococcus
AC1	I	Annual Monthly GM \leq 200 cfu	Annual 30-d GM \leq 72 cfu Annual 30-d STV \leq 266 cfu
OW2	SB		Recreational Season 30-d GM \leq 35 cfu
LN1	SB		
E11	SB		Recreational Season 30-d STV \leq 130 cfu
DMA	SB		

cfu/100 mL = colony-forming units per 100 milliliters
 GM = Geometric Mean;
 STV = 90th Percentile Statistical Threshold Value;

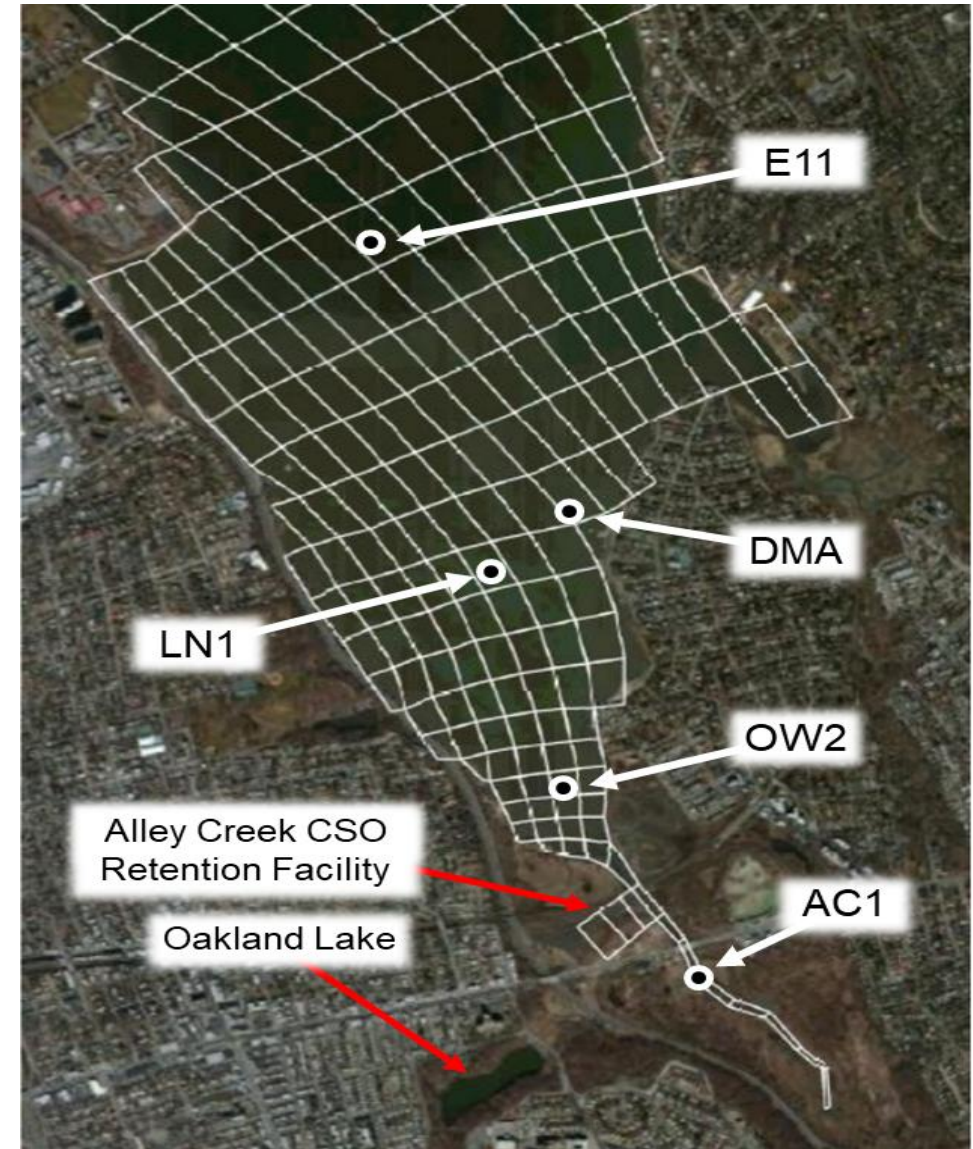
Fecal Coliform Standards

- Average Monthly GM = Over the whole year, the monthly geometric mean amount of Fecal Coliform must stay at or below the specified limit of 200 cfu

Enterococcus Standards¹

- Annual 30-d GM = At all times during the year, the geometric mean Enterococcus level over any 30-day period must stay at or below the specified limit based on classification
- Annual 30-d STV = At all times during the year, the 90th percentile Enterococcus level over any 30-day period must stay at or below the specified limit based on classification

¹For class SB, additional Enterococcus standards apply during the recreational season.



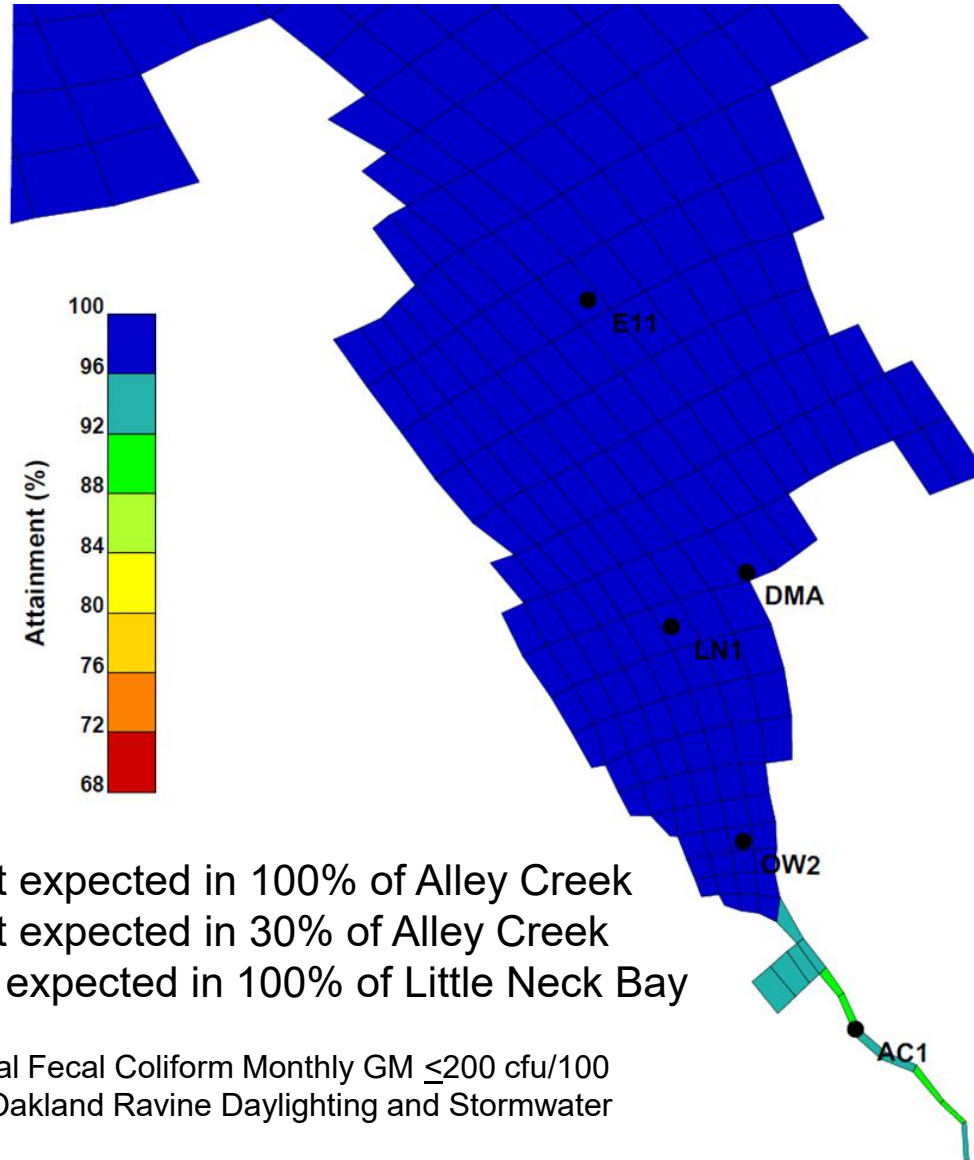
Alley Creek and Little Neck Bay Projected CSO AAOV & Water Quality Assessment

- **Water quality Attainment** defines the percentage of time that the waterbody meets the specified criteria (*i.e., attainment of 90% means that the waterbody meets the specified criteria 90% of the time*)
- 10-year attainment model results were compared for the following four scenarios; the following slides will present this comparison alongside the full mosaic for the recommended alternative

Alternative	CSO Volume (MGY)	CSO Volume Reduction Percent
Baseline Conditions	237	-
Oakland Ravine Daylighting and Stormwater Diversion Concept	116	51%
Disinfection in Existing Alley Creek CSO Retention Facility (Rec. Season)	104	56% ¹
No CSO	1	100%

¹ Percent CSO reduction for disinfection is the projected bacterial reduction not CSO volume reduction.

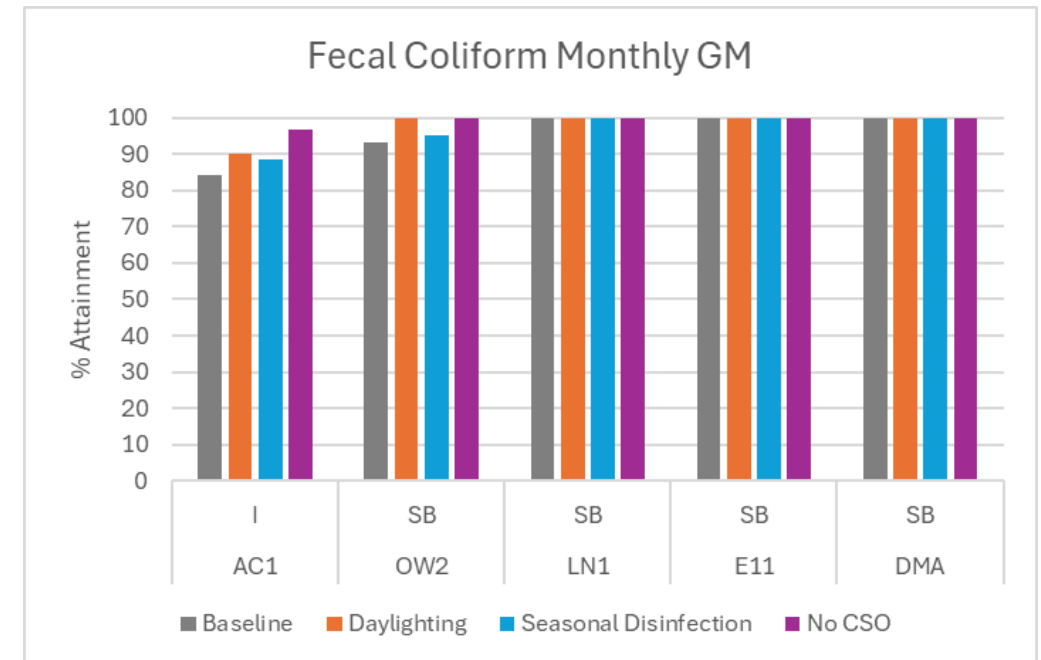
Alley Creek and Little Neck Bay Fecal Coliform Water Quality Attainment



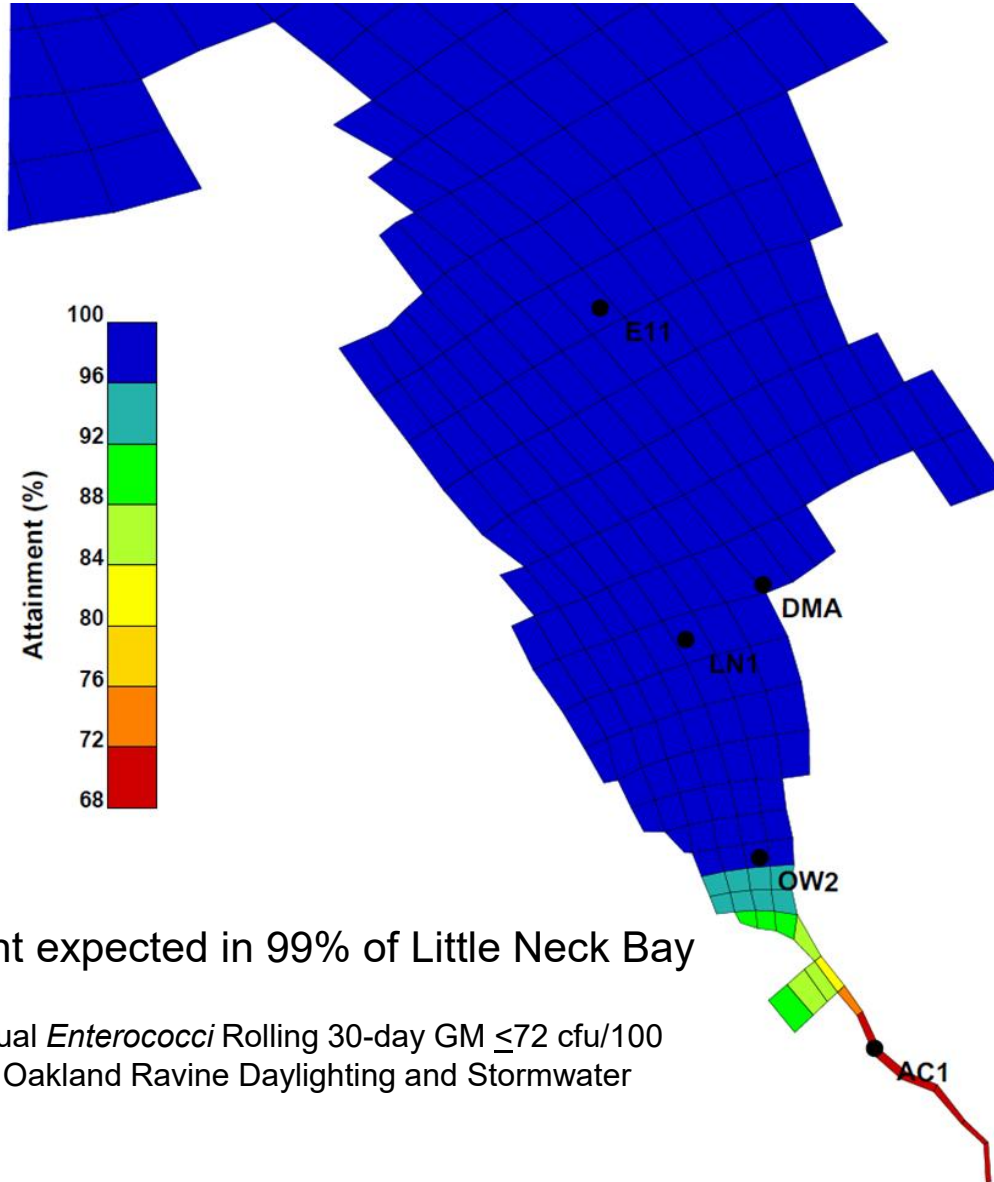
≥ 90% attainment expected in 100% of Alley Creek
 ≥ 95% attainment expected in 30% of Alley Creek
 100% attainment expected in 100% of Little Neck Bay

Modeled 10-year Annual Fecal Coliform Monthly GM ≤200 cfu/100 mL Attainment for the Oakland Ravine Daylighting and Stormwater Diversion Concept

- Attainment is identical for all alternatives at stations LN1, E11, and DMA
- Recommended alternative achieves slightly higher attainment than seasonal disinfection at OW2
- Recommended alternative achieves similar attainment to seasonal disinfection at AC1



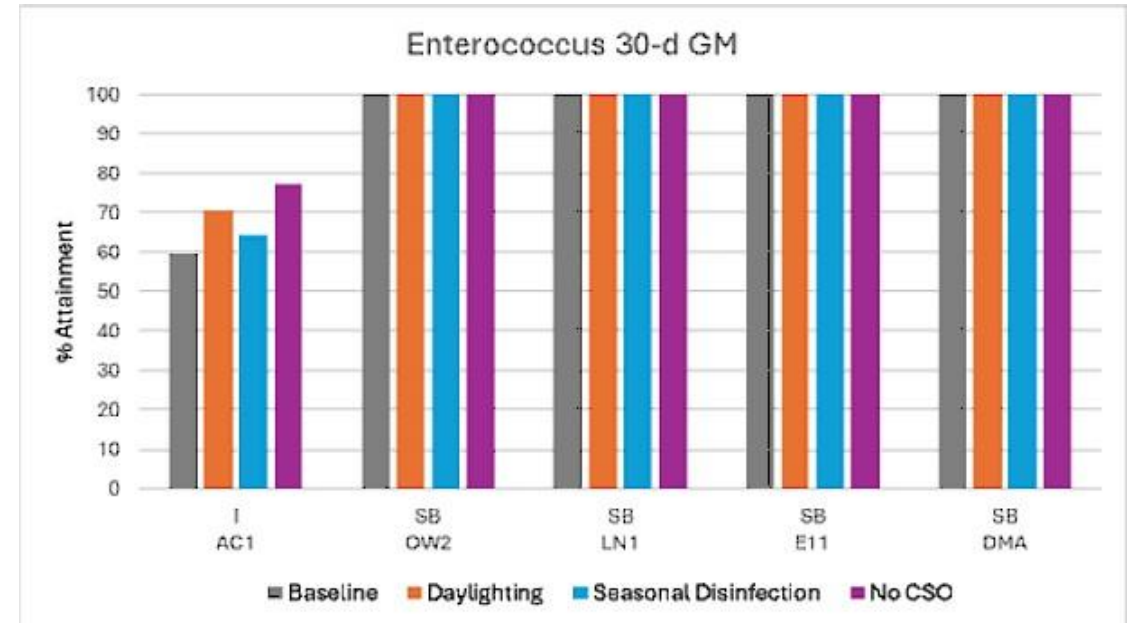
Alley Creek and Little Neck Bay Enterococci Water Quality Attainment



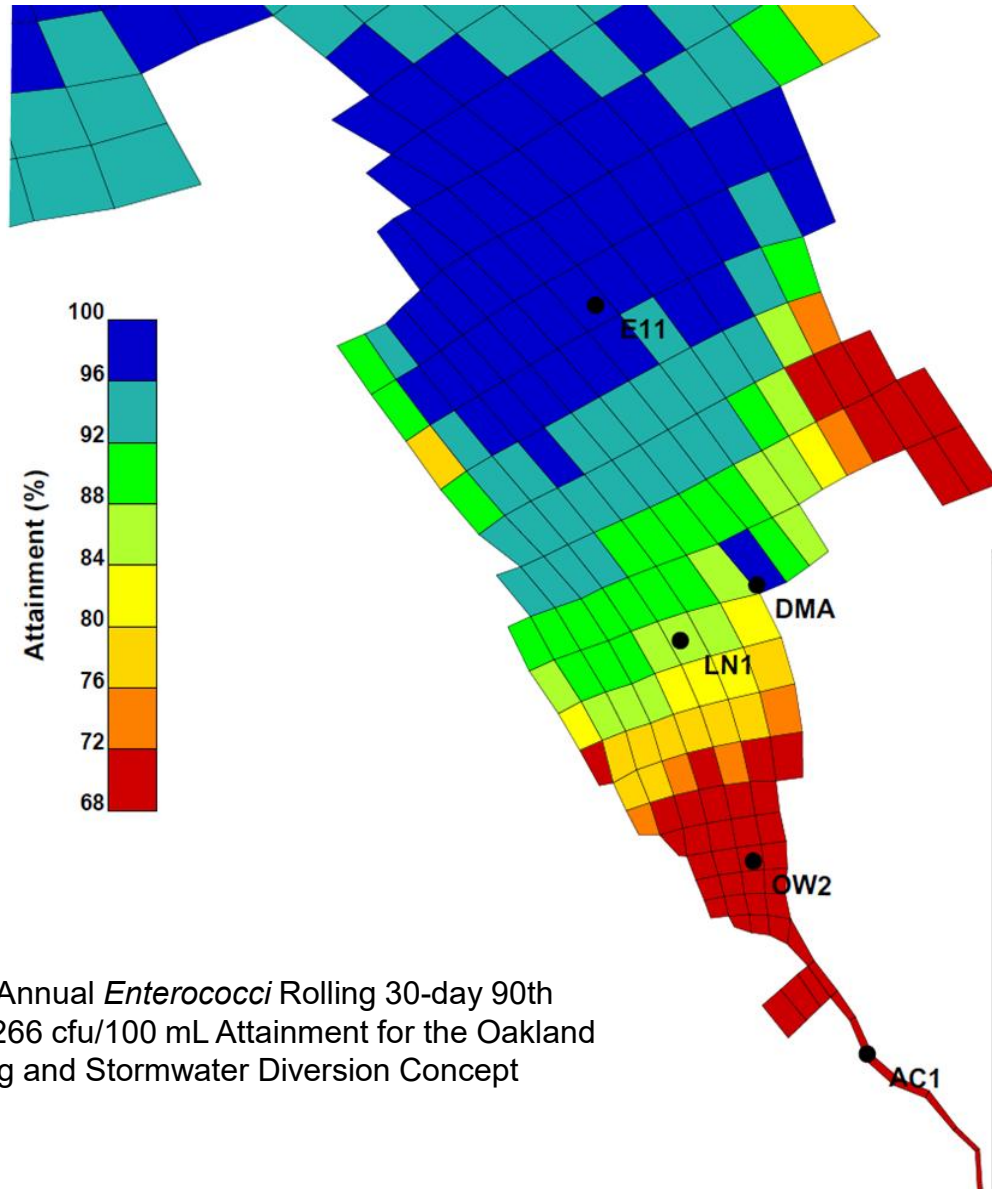
≥ 95% attainment expected in 99% of Little Neck Bay

Modeled 10-year Annual *Enterococci* Rolling 30-day GM ≤ 72 cfu/100 mL Attainment for the Oakland Ravine Daylighting and Stormwater Diversion Concept

- No CSO alternative only achieves ~78% attainment at AC1
- Recommended alternative achieves lower attainment than seasonal disinfection at OW2
- Recommended alternative achieves similar attainment to seasonal disinfection at AC1

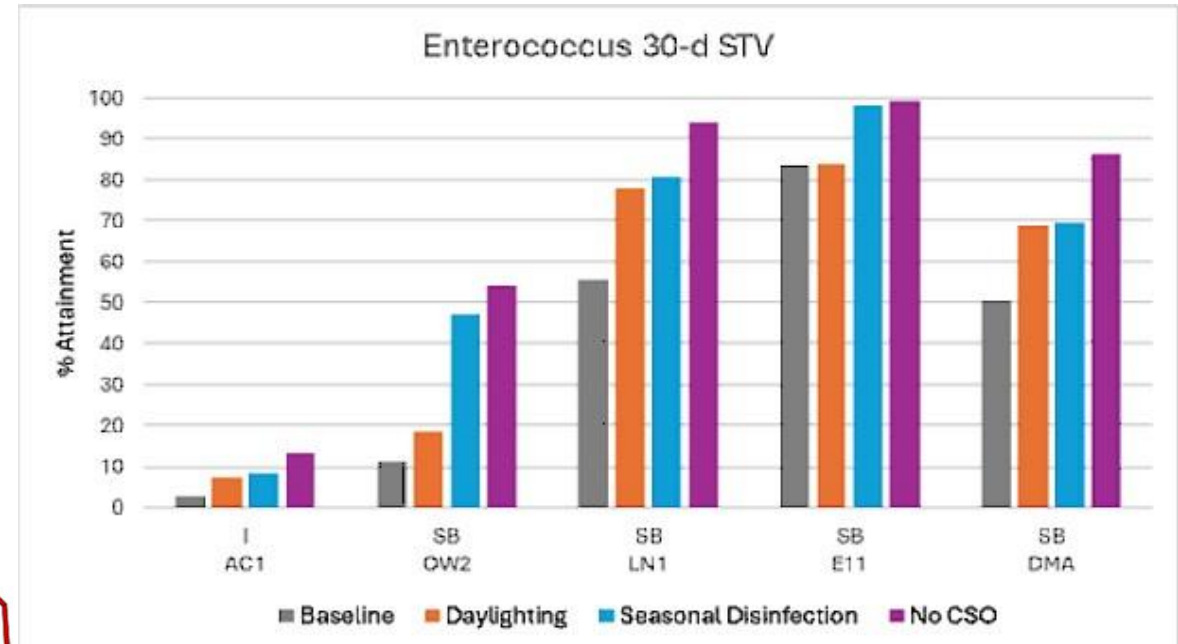


Alley Creek and Little Neck Bay Projected CSO AOV & Water Quality Attainment



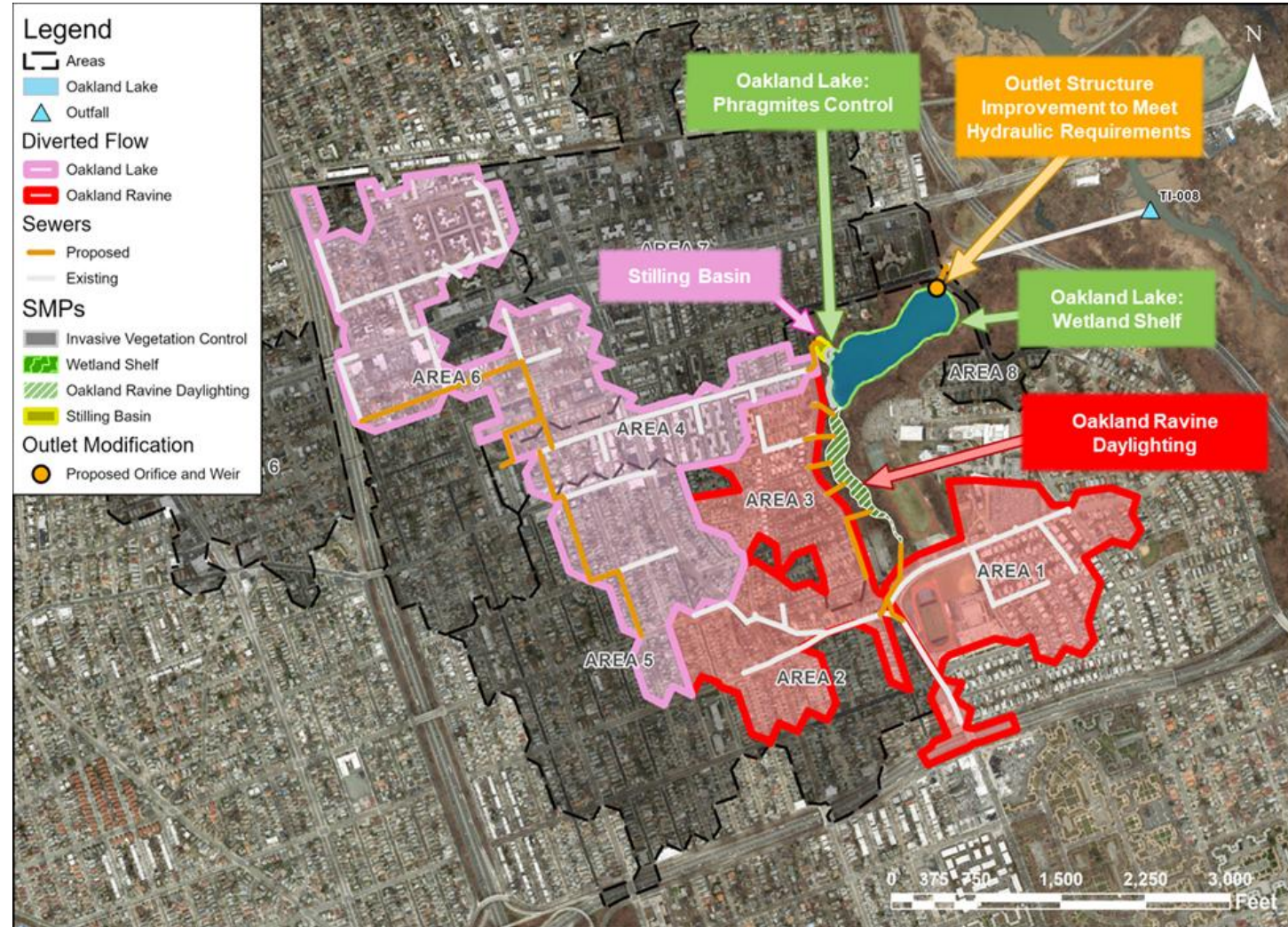
Modeled 10-year Annual *Enterococci* Rolling 30-day 90th Percentile STV ≤ 266 cfu/100 mL Attainment for the Oakland Ravine Daylighting and Stormwater Diversion Concept

- No CSO alternative only achieves ~20% attainment at AC1
- Recommended alternative achieves slightly lower attainment than seasonal disinfection at OW2, LN1, E11, and DMA
- Recommended alternative achieves similar attainment to seasonal disinfection and No CSO at AC1



Summary of Proposed Modification

- Achieves comparable water quality attainment to disinfection, but unlike disinfection, will reduce CSO discharges by about 50% and provide some ancillary water quality benefits.
 - Limited circulation in Alley Creek and mud flat conditions during low tide projected to increase risk of chlorine toxicity from disinfection.
- Although overall cost is greater than disinfection, **proposed Oakland Lake/Ravine Daylighting is more cost effective as compared to other alternatives evaluated.**
- The drainage area is already separated, and the topography provides a **unique opportunity to divert stormwater from the combined sewer and restore some natural flow back into Oakland Lake and Ravine.**
- Daylighting will also provide some drainage improvements and opportunities for Green Infrastructure.

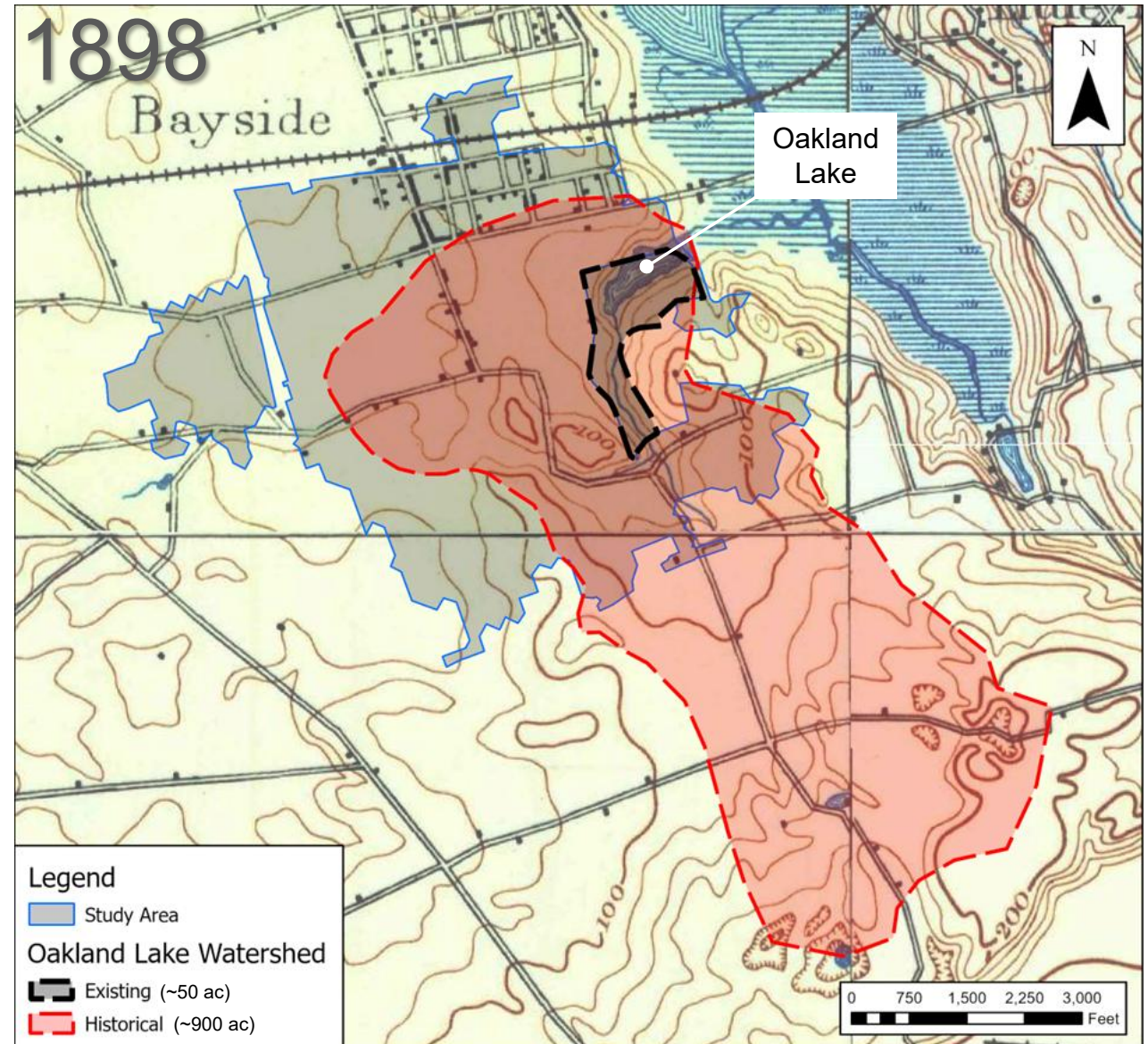


Oakland Lake and Ravine Stormwater Diversion Concept



Oakland Lake and Ravine Characteristics

- Oakland Lake:
 - 10-acre lake in Bayside, Queens
 - Fed by Oakland Ravine and natural groundwater springs (dry weather flow of ~2 MGD)
 - Outflow is piped to sewer outfall TI-008 in Alley Creek
- Drainage Area:
 - Historically had a large, natural drainage area of ~900 acres
 - Sewering efforts reduced the drainage area to ~50 acres
 - Recommended alternative aids in restoring the natural drainage area, diverting an additional ~180 acres



Oakland Lake Daylighting Scope of Work

- **Phase 1**

- Facility Planning (Drainage Plan Amendment)

- **Phase 2**

- Invasive vegetation control and install wetland shelf

- **Phase 3**

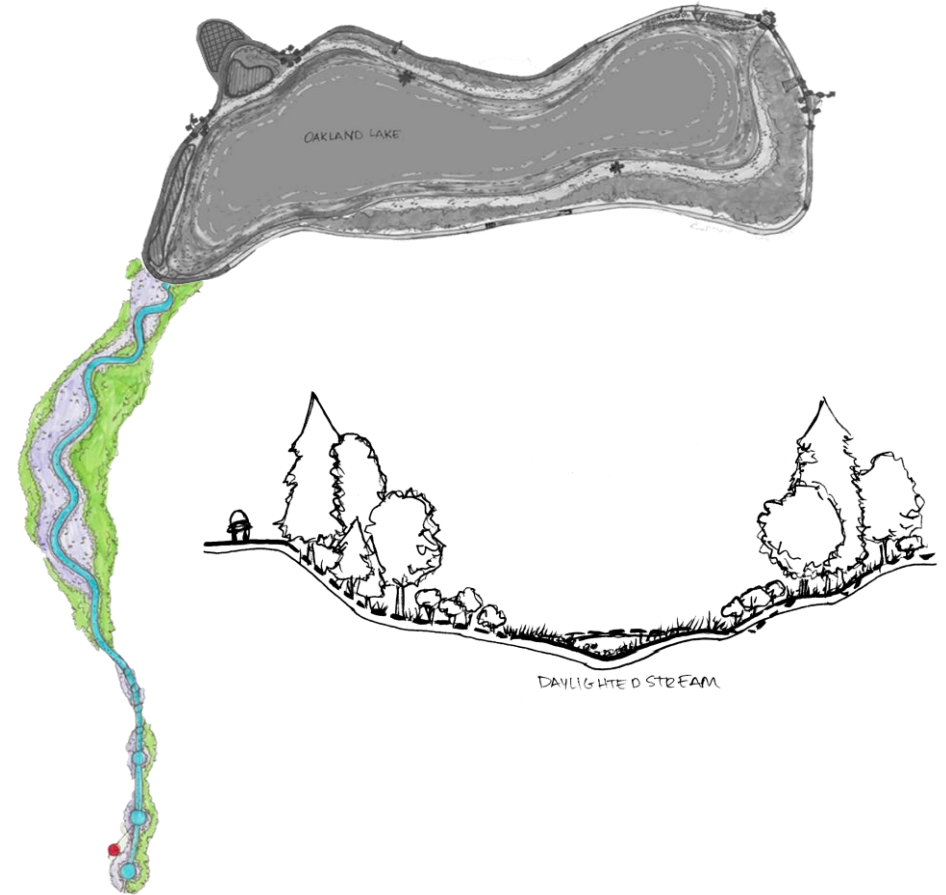
- Lake outlet structure improvements
- Oakland Ravine Enhancements: Install step pools and constructed wetlands, and implement natural stream morphology and daylighting
- Sewer diversions to redirect flows to Oakland Ravine
- Install stilling basin for diverted stormwater flows being conveyed to Oakland Lake
- Install sewers to divert flows to Oakland Lake (and ROW GI, if applicable)



Phase 3: Oakland Ravine

Stormwater Diversion/Daylighting

- Divert storm flow to the Oakland Ravine system to reduce CSO to Alley Creek.
- Restoration of Oakland Ravine.
- Utilizes nature-based solutions to improve water quality, flow attenuation, and sediment capture.

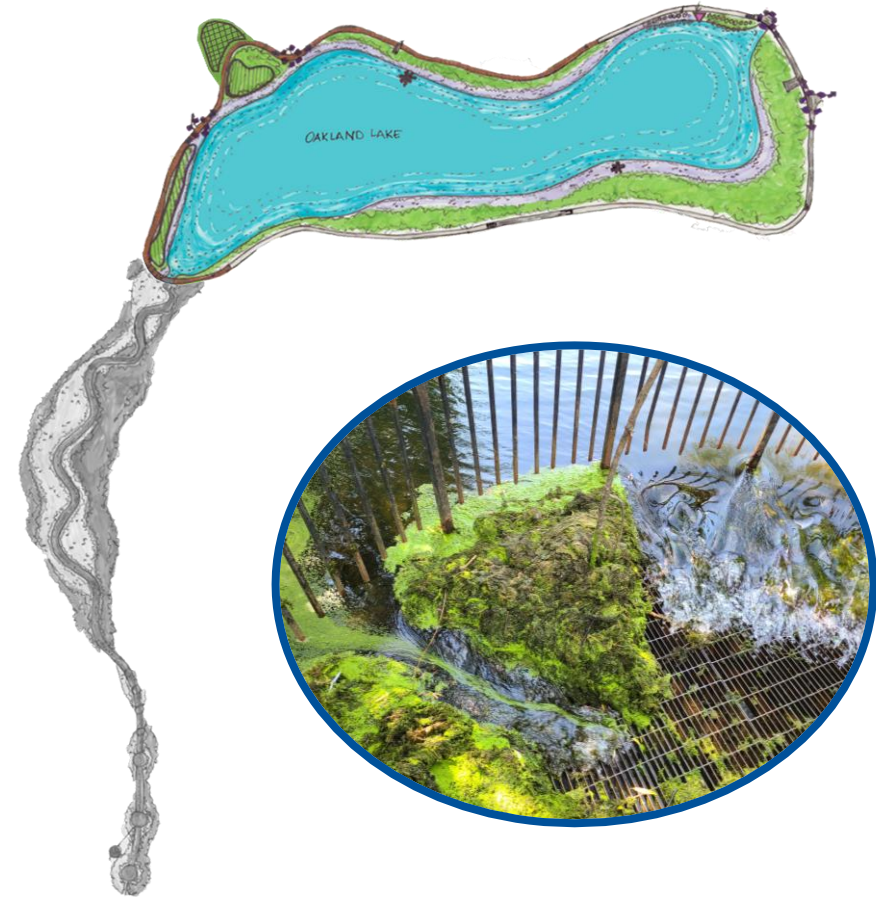


Project Phase	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Year 12							
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Design, CEQR, and Permitting																																																				
Construction Procurement of BMPs and Sewer																																																				
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Phase 3: Oakland Lake

Outlet Structure Improvements

- Retrofit Outlet Structure to manage additional flow diverted to Oakland Lake.
- To provide extended detention and promote flushing of the Lake.
- Improve water quality of the Lake and reduce nutrient accumulation.



Project Phase	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Year 12			
	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12
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Phase 3: Oakland Lake

Stormwater Diversion

- Divert storm flow to the Oakland Lake system to reduce CSO to Alley Creek.
- Restore some historic hydrology of Oakland Lake.
- Green infrastructure opportunities where new sewers are being constructed.
- Synergies with flood reduction in some areas.



Project Phase	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Year 12			
	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12				
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Projected Project Cost & Schedule

Project Phase	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6				Year 7				Year 8				Year 9				Year 10				Year 11				Year 12			
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1. Facility Planning (Drainage Plan)	18 months																																															
2. Wetland Shelf and Invasive Vegetation Removal/Control		75 months																																														
Design Procurement		18 months																																														
Design and Permitting							15 months																																									
Construction Procurement									12 months																																							
Construction										30 months																																						
3. Diversion Project					126 months																																											
Design Procurement					18 months																																											
Design, CEQR, and Permitting									42 months																																							
Construction Procurement of BMPs and Sewer																	12 months																															
Construction of BMPs and Sewer																					54 months																											

Project Component	Phase 2		Phase 3		Total	
	Invasive Vegetation Control and Wetland Shelf		BMPs, Oakland Lake/Ravine, and Parkland Improvements			Sewer Work
Design/DSDC	\$150,000		\$3,500,000		\$9,100,000	\$12,750,000
Construction	\$1,500,000		\$35,000,000		\$91,000,000	\$127,500,000
CM	\$270,000		\$6,300,000		\$16,380,000	\$22,950,000
Total	\$1,920,000		\$44,800,000		\$116,480,000	\$163,200,000

Next Steps



Next Steps

- **Modification Request**

- Submit a CSO Order modification request and supplemental LTCP to NYSDEC by the end of March 2026
 - DEP intends to request to eliminate disinfection project and replace with the Oakland Lake/Ravine Stormwater Diversion concept and proposed schedule
 - Supplemental LTCP includes new modeling results and corresponding updates to alternatives evaluation to support the request
- Pending NYSDEC's review, CSO Order modification request will be published on their Environmental Notice Bulletin webpage for public comment (30 days)

- **Project**

- Initiate Facility Planning (Phase 1 of proposed schedule) including agency partner coordination

- **Community engagement**

- Will continue with follow ups on latest information

Questions?