

Bergen County Utilities Authority
Supplemental CSO Team Meeting #12
Selection and Implementation of Alternatives
July 21, 2020, 10:00 am - 12:00 pm
via Microsoft Teams
Meeting Minutes (DRAFT)

Attendees:

- John Dening, Sabina Martyn – Mott MacDonald for BCUA and Ridgefield Park
- Lewis Goldshore – Special Environmental Counsel for Ridgefield Park
- Bob Appelbaum – Fort Lee
- Gary Grey, Yingying Wu – HDR for Fort Lee
- Ryan Westra, Susan Banzon, Michael McAloon – Hackensack
- Frank Belardo – Arcadis for Hackensack
- Susan Rosenwinkel, Marzooq Alebus, Nancy Kempel, Stephen Seeberger, Dwayne Kobesky – NJDEP
- Michele Langa – Hackensack Riverkeeper
- Sam Gronner – Resident of Fort Lee
- Sal Pagano – Resident of Fort Lee

Presentation slides attached.

Minutes:

1. Introductions
 - JD welcomed everyone to the meeting and presented the meeting agenda.
2. Safety Minute
 - JD presented on driving safety, see attached presentation.
3. Selection of CSO Control Alternatives - Permittee Presentations
 - See attached presentations.
 - JD presented the status of BCUA's LTCP efforts, indicating that their focus would be on evaluating conveying and treating additional flow. This would be done through regulator modifications, interceptor improvements and eventually increasing treatment capacity at the plant.
 - SR asked how the baseline year relates to the typical year. JD explained that the same rainfall does not occur in any two given years, so an analysis was done to identify a "typical year" for rain conditions, identifying 2004 as the

typical year, to provide a common point of comparison. 2004 had about 48” of rain which is slightly more than average. The “baseline year” refers to a point in time used as a reference point for the LTCP improvements. 2015 was used as the baseline year, because it represents the start of the current LTCP. SR asked if the baseline model is run using 2004 typical year rainfall with 2015 infrastructure. JD confirmed that this is the case.

- JD presented on Ridgefield Park indicating that a storage tank has been tentatively selected as the preferred CSO control alternative. (See attached presentation slides)
- GG presented on Fort Lee indicating that the main CSO LTCP projects proposed are flow meters, green infrastructure pilot program, and sewer separation. (See attached presentation slides)
- FB presented on Hackensack indicating that the main CSO LTCP projects proposed are the green infrastructure program, Court Street subdrainage area stormwater project, localized sewer separation, and Anderson Street storage tank. (See attached presentation slides)

4. CSO Community Input

- JD provided an opportunity for the group to provide input on the proposed CSO control projects. NK indicated that the information presented was helpful for NJDEP but she has no questions at this time.
- SR asked the group: noting that the LTCP will be submitted to NJDEP on or before October 1st following which the new permit will be issued, how would the group like to see public involvement moving forward? She asked if there is a need for public to be involved once the plan is established. ML responded that the focus should be on making sure that the outline of the plan is being followed and that there is oversight. ML indicated that she is not sure how public would be involved, but it would be helpful to share updates or progress reports to demonstrate that everything is going according to plan and schedule.
- BA indicated that he assumes that annual updates would be presented to the public on a website or by email, with information such as what the project is, what is the objective of the program, how many years will projects take for implementation, and what was accomplished during the past year, so that the public can keep in touch with progress.
- SG suggested that, like COVID-19 communications, the Mayor or council should summarize and provide a long-term picture of the proposed work so that when the plan is approved by the council it doesn't take the residents by surprise in terms of impacts to their bill. He suggested that a YouTube video could be done to provide this information. GG noted that in Fort Lee the council meetings are televised, and are available to view online.
- SG asked, when the town approves new multi-family projects, is there a mandate that a separate sewer system must be constructed to convey effluent. GG indicated that recent development had been separating sewers. NK noted for GG that the N.J.A.C 7:8 stormwater management rules were updated this year and will not be effective

until March 2021, however the update requires green infrastructure to be evaluated in any major development project.

- MA noted that the water quality model referenced throughout the presentation has not been received or approved by the NJDEP, so it should be noted as such (e.g. “draft”) in presentations and reports.

5. Discussion of Public Meeting

- BA asked why the public meeting would be combined for the three municipalities, rather than one meeting for each town. JD indicated that it is meant to be a regional approach, due to the shared impacts of water quality on these communities, for example actions taken by Hackensack would impact water quality in Ridgefield Park located right across the river. JD indicated that the regional approach provides a bigger picture and greater context. SG responded that people’s interests are typically focused on local impacts, as such meetings should be local rather than county-wide. He noted that he found the Twitter and text message notifications provided by Fort Lee useful. GG responded that if the group could physically meet, the common regional aspects could be discussed, and then the group could split out to discuss each town’s projects, however he was not sure how this could be done online. He suggested an approach like PVSC, who posted boards online, however this platform does not allow interaction. JD suggested that Zoom has the capability to do breakout rooms, so local items could be addressed that way.
- BA suggested that in the same way some places are producing weekly YouTube video for COVID-19, a similar approach could be taken to provide CSO LTCP information. He noted that posting on YouTube would provide the public with the opportunity to post questions. He suggested giving a week for questions to be posted, then posting responses to these questions. Although this would not be in real-time, it would give people who are not otherwise available to attend a meeting at a particular time the opportunity to view the information and provide feedback.
- FB agreed, suggesting that in order to make it more interactive, municipalities could post the presentation to their Facebook page and respond to feedback that way.
- BA suggested that there could be one YouTube presentation for the BCUA region, with each town also posting their own local presentation.
- ML also agreed with GG’s suggestion of a joint meeting with breakout groups. She noted that it would also be helpful to record the meetings and make them available to the public to view and comment on for a period of time afterwards. BA indicated that this would allow people to not be restricted by time and would allow them to provide feedback later.
- SG suggested a live audio conference call and sharing visuals beforehand, with some moderating of conversations during the call to address any questions on the previously shared materials.
- ML also suggested including the public meeting ideas for what the average person can do: alerting people to illicit connections, impervious pavement on properties, rain

barrels, etc. She noted that people would be more invested in the process when they feel there is something they can do about it.

- JD thanked everyone for their input on the next public meeting. He asked if the public would be most interested in local impacts, including schedule, cost, and location of projects. SG responded that the presentation should be simplified for the general public and not be so technical and in the weeds, focusing on how the projects would impact individual residents and taxpayers in the town. JD asked whether the history and explanation of what is a CSO should be included. SG responded that yes, everything should be explained so it is understandable, without acronyms, including how the sewer system works, its impact on the environment, etc.

6. Next Steps

- MA asked JD for a copy of the presentation. JD indicated that slides and minutes would be prepared and distributed for comment, following which they would be posted on the BCUA website.
- JD asked whether NJDEP would like to remain in the call to address any more detailed questions, or whether a separate meeting should be organized. JD indicated that the project team will be meeting on Thursday at 10am, and NK and SR indicated that they would be available to attend and answer their questions. JD would forward the meeting invitation to SR, NK, MA, SS and Dwyane Kobesky.



Preliminary Selection and Implementation of Alternatives

BCUA CSO Group Supplemental CSO Team Meeting #12
Virtual Meeting
July 21, 2020

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BCUA CSO Group Supplemental CSO Team Meeting No. 12 Agenda

- Introductions
- Safety Minute
- Tentative Selection of CSO Control Alternatives
 - Permittee Presentations
- CSO Community Input
- Discussion of Public Meeting
- Next Steps
- Open Discussion

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Safety Topic

Remembering How to Drive



Practice:

- 1 Turning radius
- 2 Signal before turning
- 3 Putting on seatbelt
- 4 Parallel parking
- 5 Which side your gas tank is on

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Long term control plan submission and NJDEP review status

Step 1.	Step 2.	Step 3.
<input checked="" type="checkbox"/> System Characterization Report – NJDEP Approval on 1/17/2019	<input checked="" type="checkbox"/> Development and Evaluation of Alternatives – Due on 7/1/2019	<input type="checkbox"/> Selection and Implementation of Alternatives Final LTCP – Due October 1st
<input checked="" type="checkbox"/> Baseline Compliance Monitoring Program Report – NJDEP Approval on 3/1/2019		(Extension from June 1 to October 1 due to COVID-19)
<input checked="" type="checkbox"/> Consideration of Sensitive Areas Report – NJDEP Approval on 4/8/2019		
<input checked="" type="checkbox"/> Public Participation Process Report – NJDEP Approval on 2/7/2019		

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BCUA Update Support of Alternatives

BCUA CSO Group Supplemental CSO Team Meeting #12

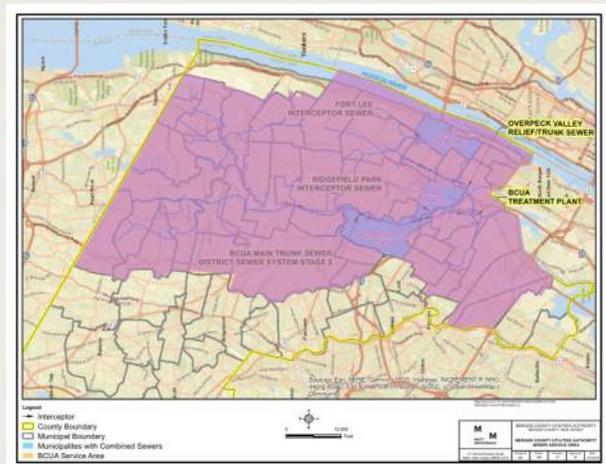
July 21, 2020

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BCUA CSO Group Supplemental CSO Team

BCUA Support of Alternatives

- **Level of Control**
 - Coordinating with municipalities to develop based on:
 - Hydraulically Connected System



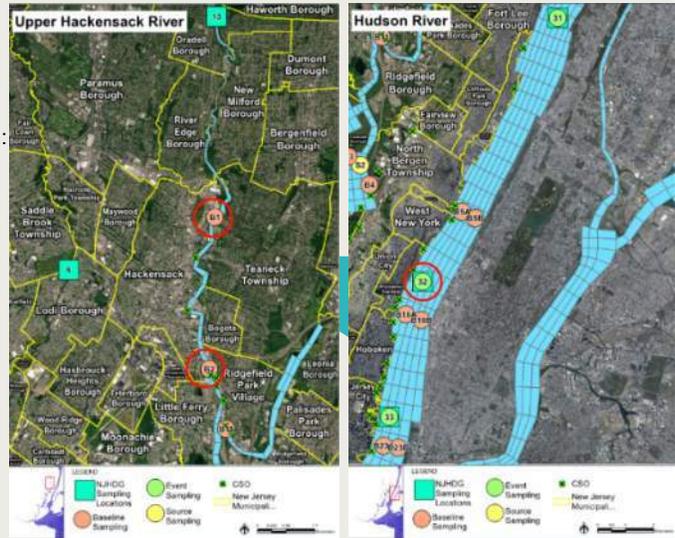
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BCUA CSO Group Supplemental CSO Team

BCUA Support of Alternatives

Level of Control

- Coordinating with municipalities to develop based on:
 - Hydraulically Connected System
 - Segmentation of System
 - Hudson River
 - Fort Lee
 - Hackensack River Basin
 - Hackensack
 - Ridgefield Park



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BCUA Systemwide 2015 Baseline Performance

459

Million gallons per year
Total combined sewer
overflow volume BCUA
System-wide

309

Million gallons per year
Total combined sewer
overflow volume to
Hackensack River Basin

56

Overflows during the
Typical Year to the
Hackensack River Basin

71.7%

Wet Weather Capture in
the Hydraulically
Connected System.

1,620

Million Gallons (MG) of
Wet Weather Inflow

150

Million gallons per year
Total combined sewer
overflow volume to
Hudson River

58

Overflows during the
Typical Year to the
Hudson River

74.5%

Wet Weather Capture to
the Hudson River

70%

Wet Weather Capture in
Hackensack River Basin

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BCUA CSO Group Supplemental CSO Team

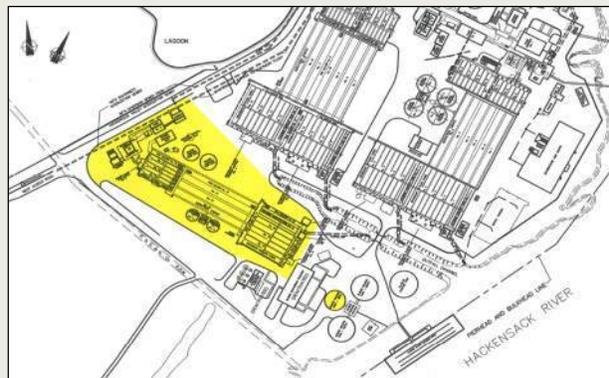
BCUA Support of Alternatives

- **BCUA is not implementing alternatives**
 - Providing support for municipalities
- **Convey and Treat or Store Additional Flow**
 - Considered under DEAR
 - Consider broader elements.
 - Revised WWTP Permit
 - Stricter effluent limits

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BCUA Support of Alternatives

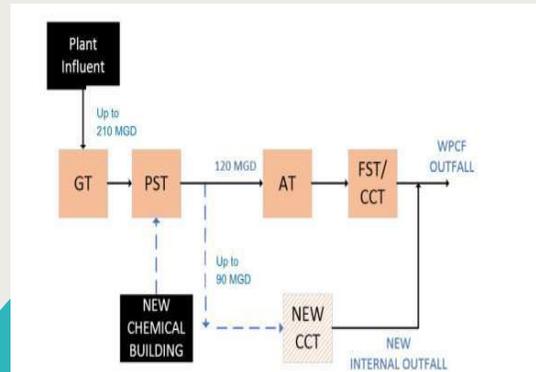
- **BCUA is not implementing alternatives**
 - Providing support for municipalities
- **Evaluated:**
 - Based on prior plant permit.
 - Plant Design Capacity – 120 MGD wet weather.
 - Interceptor Capacity – 210 MGD
 - Increased full treatment to add 29-115 MGD capacity
 - \$310M to \$730M



BCUA CSO Group Supplemental CSO Team

BCUA Support of Alternatives

- **BCUA is not implementing alternatives**
 - Providing support for municipalities
- **Evaluated:**
 - Plant Design Capacity – 120 MGD wet weather.
 - Interceptor Capacity – 210 MGD
 - Increased full treatment to add 29-115 MGD capacity
 - \$310M to \$730M
 - **High rate primary treatment with secondary treatment bypass.**
 - Increase plant treatment rate to 210 MGD for \$77M-130M
 - Increase plant treatment rate to 300 MGD for \$103M-179M



BCUA CSO Group Supplemental CSO Team

BCUA Support of Alternatives

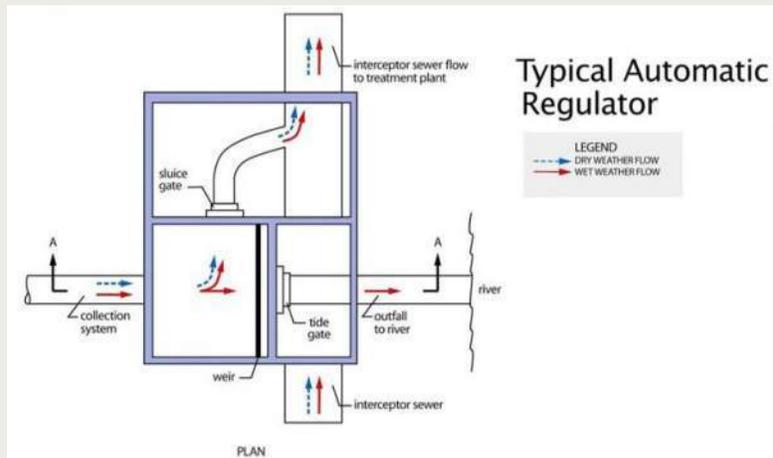
- **BCUA is not implementing alternatives**
 - Providing support for municipalities
- **Evaluated:**
 - Plant Design Capacity – 120 MGD wet weather.
 - Interceptor Capacity – 210 MGD
 - Increased full treatment to add 29-115 MGD capacity
 - \$310M to \$730M
 - High rate primary treatment with secondary treatment bypass.
 - Increase plant treatment rate to 210 MGD for \$77M-130M
 - Increase plant treatment rate to 300 MGD for \$103M-179M
 - **Inline storage in interceptors – Limited volume available (approx. 1.3 MG)**
 - **On site storage volume – up to 40 MG \$270 M**



BCUA CSO Group Supplemental CSO Team

Additional Analysis

- **Convey and Treat Additional Flow**
 - Phase 1 modify regulators
 - Increase Ft. Lee pumping capacity



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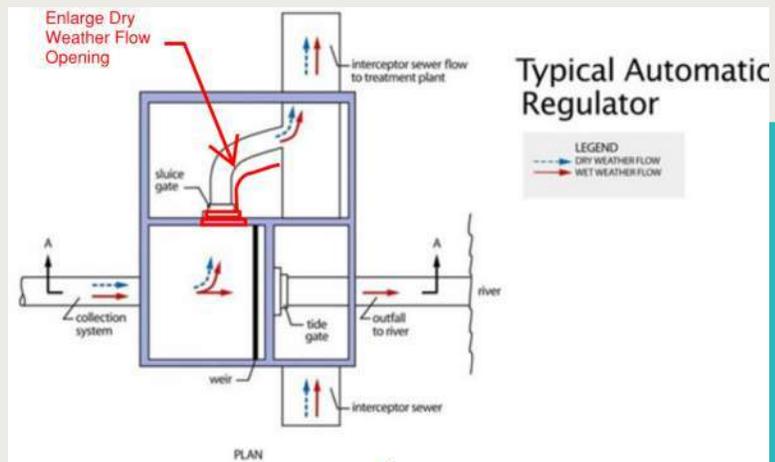
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BCUA CSO Group Supplemental CSO Team

Additional Analysis

- **Convey and Treat Additional Flow**
 - Phase 1 modify regulators
 - Increase by 25%
 - Increase by 50%



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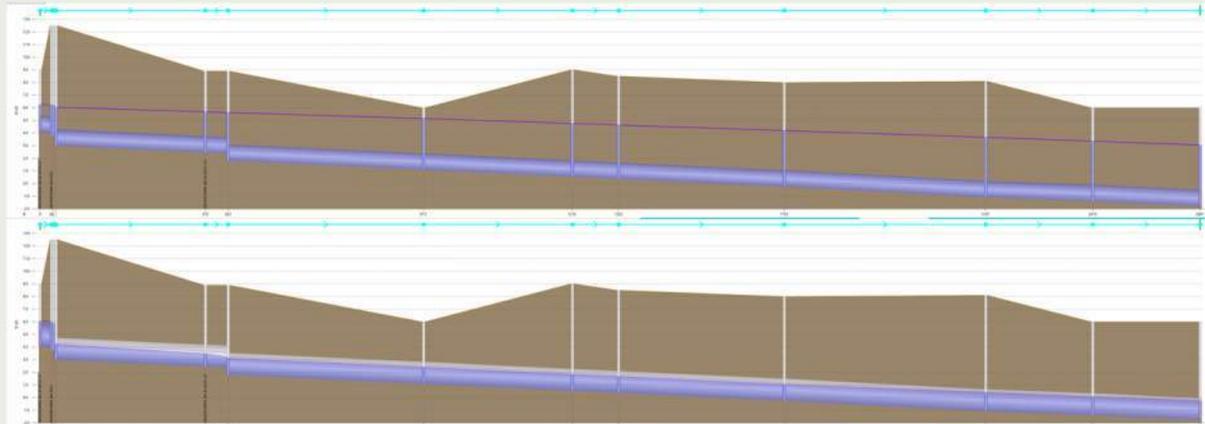
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BCUA CSO Group Supplemental CSO Team

Additional Analysis

- Convey and Treat Additional Flow
 - Phase 2 modify interceptors



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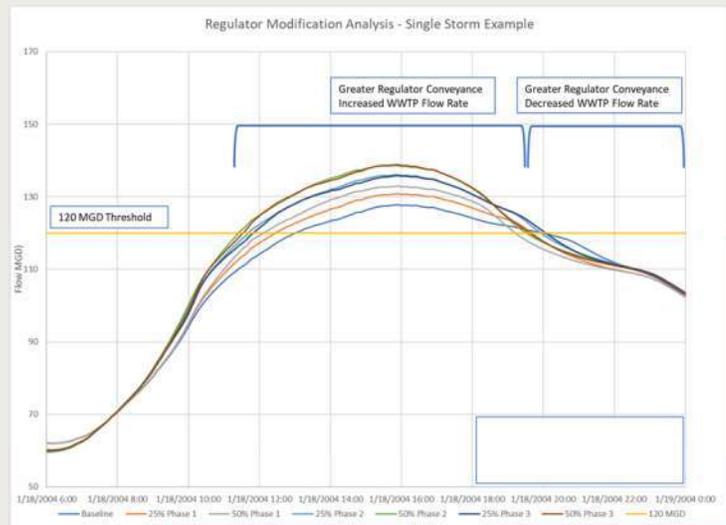
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BCUA CSO Group Supplemental CSO Team

Additional Analysis

- Convey and Treat Additional Flow
 - Phase 2 Impact at Plant



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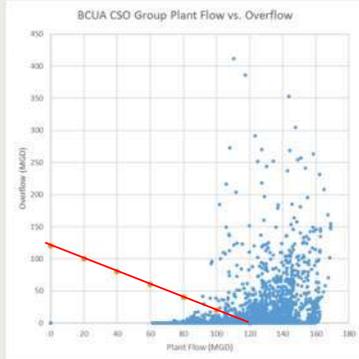
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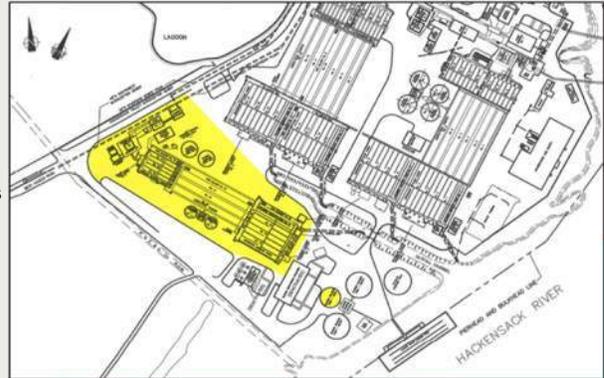
BCUA CSO Group Supplemental CSO Team

Additional Analysis

- **Convey and Treat Additional Flow**
 - Phase 3 modify plant capacity
 - Based on current permit
 - Developing Costs – More expensive than Municipal Costs



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Ridgefield Park Update Tentatively Selected LTCP

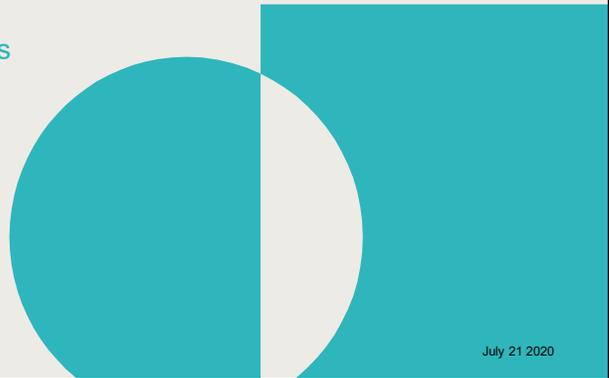
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Ridgefield Park – Tentative LTCP

Outline

- Overview
- Alternatives
- Selection Process
- Tentative Selection of CSO Control Alternatives
- Schedule
- Costs
- Post Construction Compliance Monitoring
- Adaptive Management



Ridgefield Park 2015 Baseline Performance

2004

NJDEP approved
Typical Hydrologic Year

48.4"

Total rainfall depth in
2004 Typical Year

53

MG Typical Year
Overflow Volume

216

MG Wet Weather Inflow

73

Storm events in 2004
Typical Year with greater
than 0.1" of rainfall

459

Million gallons per year
Total combined sewer
overflow volume BCUA
System-wide

55

Typical Year Overflow
Frequency

75.5%

Wet Weather Capture

Alternatives Evaluation

Control Programs Evaluated



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Rating of Ridgefield Park Alternatives

From Development and Evaluation of Alternatives Report

Requested SCSO Team input on rankings

Control Program	Cost	CSO Volume Reduction	CSO Frequency Reduction	Institutional Issues	Implementability	Public Acceptance	Weighted Score
1. Eliminate CSO-006A	NA	NA	NA	NA	NA	NA	NA
2. Consolidated Tank Storage	4	5	5	4	3	3	4.0
3. Tunnel	3	5	5	4	2	2	3.5
4. Consolidated End of Pipe Treatment	4	5	5	2	3	2	3.6
5. Sewer Separation	2	5	5	3	2	2	3.1
6. Green Infrastructure	1	1	1	5	4	5	2.7
Weighting	25%	15%	15%	15%	15%	15%	100%

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Control Approach Selection

Presumption Approach Targeting 85 Percent Capture

- Alternatives evaluation included evaluation of range of control levels (0, 4, 8, 12, and 20 overflows per year and 85% capture), in typical year conditions
- Calculate in conjunction with other permittees.
- Meets requirements of National CSO Policy.
- Evaluate effectiveness of increased level of control (knee of the curve).

Water Quality Modeling

- Receiving water is the Hackensack River
- A complex water quality model was developed with regional communities (NJ CSO Group) to determine water quality of receiving waters, based on typical year.
- Hackensack River in the vicinity of BCUA is an SE1 water:
 - Enterococcus criterion of 35 cfu/100mL geometric mean is exceeded → water quality criteria is not attained:
 - under dry weather flow conditions; and
 - when CSOs are eliminated.

Table 6-2. AU Attainment in SE1 Waterbodies under Baseline and 100% Control Conditions

Assessment Unit Name	Assessment Unit Number	Baseline % Attainment	100% Control % Attainment
Hackensack R (Oradell to Old Tappan gage)	02030103170060-01	100.0	100.0
Hackensack R (Fort Lee Road to Oradell gage)	02030103180030-01	0.0	0.0

Source: Calibration and Validation of Pathogen Water Quality Model Report (Draft, produced by NJ CSO Group / PVSC in April 2020)

Water Quality Modeling



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Stormwater has almost equal contribution to CSOs, significant dry weather sources:

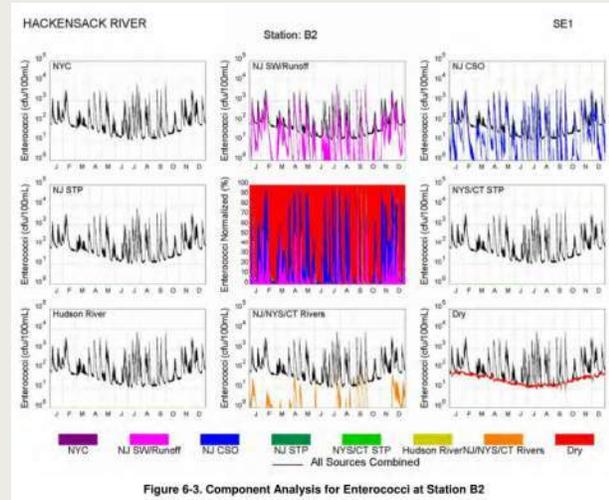


Figure 6-3. Component Analysis for Enterococci at Station B2

Source: Calibration and Validation of Pathogen Water Quality Model" Report (Draft, produced by NJ CSO Group / PVSC in April 2020)

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Control Approach Selection

Presumption Approach Targeting 85 Percent Capture

Presumption Approach (performance based)

- No less than 85 percent capture of annual overflow volume;
- No less than the equivalent mass of the pollutants causing water quality impairment; or
- No more than 4 overflows in the typical year

SELECTED as best balance between permit compliance, water quality benefit and allocation of municipal funds.

Demonstration Approach (water quality based)

- Use receiving water model to identify control level needed to meet WQ-based requirements

NOT SELECTED: WQ modelling not very insightful in demonstrating WQ improvements in receiving waters.

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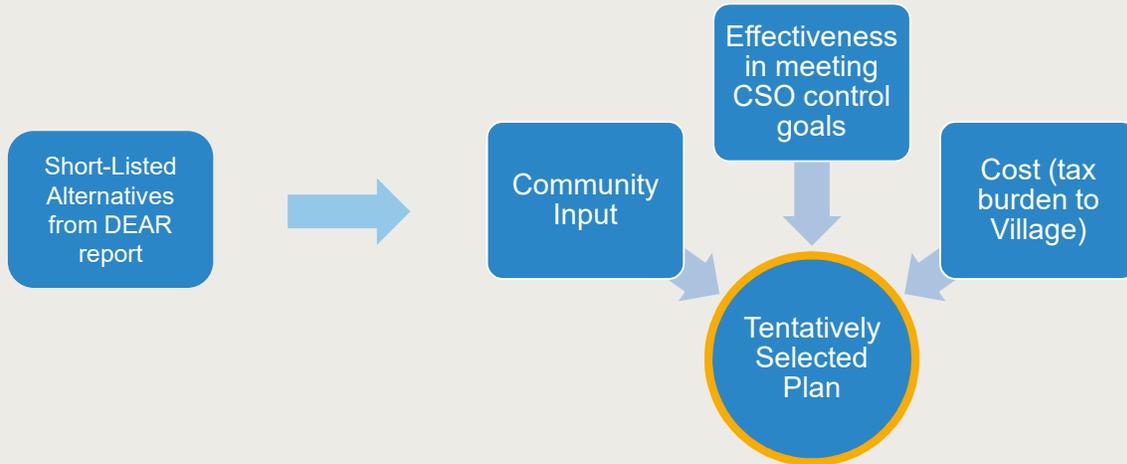
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Tentatively Selected Plan

Presumption Approach Targeting 85 Percent Capture



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Summary of Community Input

From previous Supplemental CSO Team meetings

1. Cost is a priority for residents (both maintenance and capital)
2. Odor mitigation should be employed
3. Green infrastructure can be used as educational tool to supplement other CSO control alternatives due to cost and limited impact on CSO volumes.
4. Concern about the potential impact of future regulations, including for stormwater quality in sewer separation.
5. Belowground CSO storage tanks can be integrated into future open space projects along waterfront.

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Tentatively Selected Plan – Subject to Change

Presumption Approach Targeting 85 Percent Capture



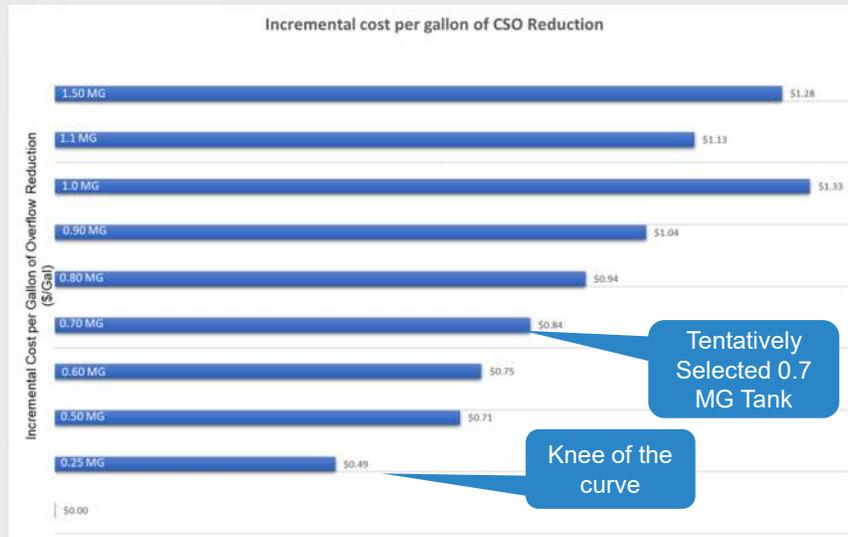
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Tentatively Selected Plan

Knee of the curve



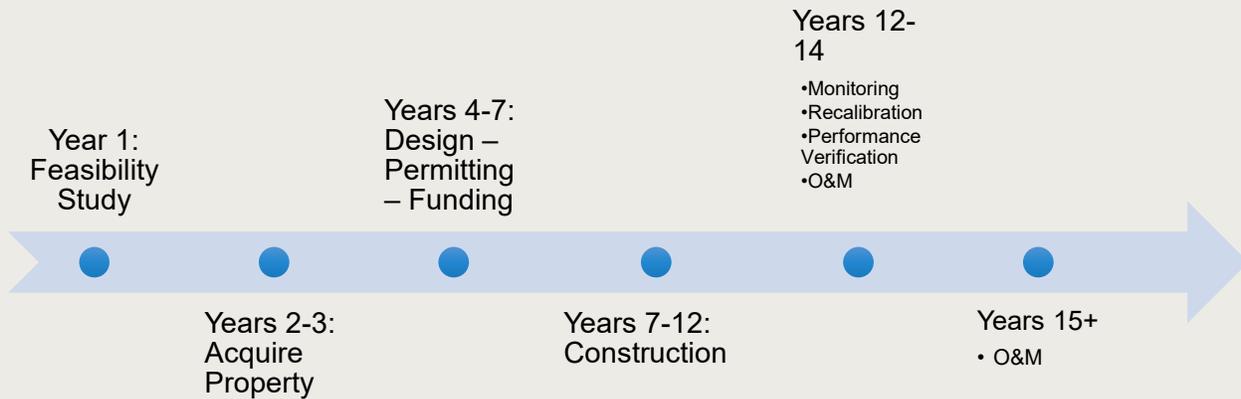
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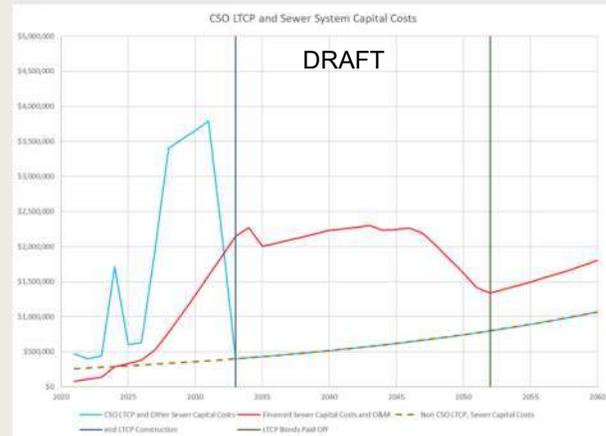
Implementation Schedule (DRAFT)



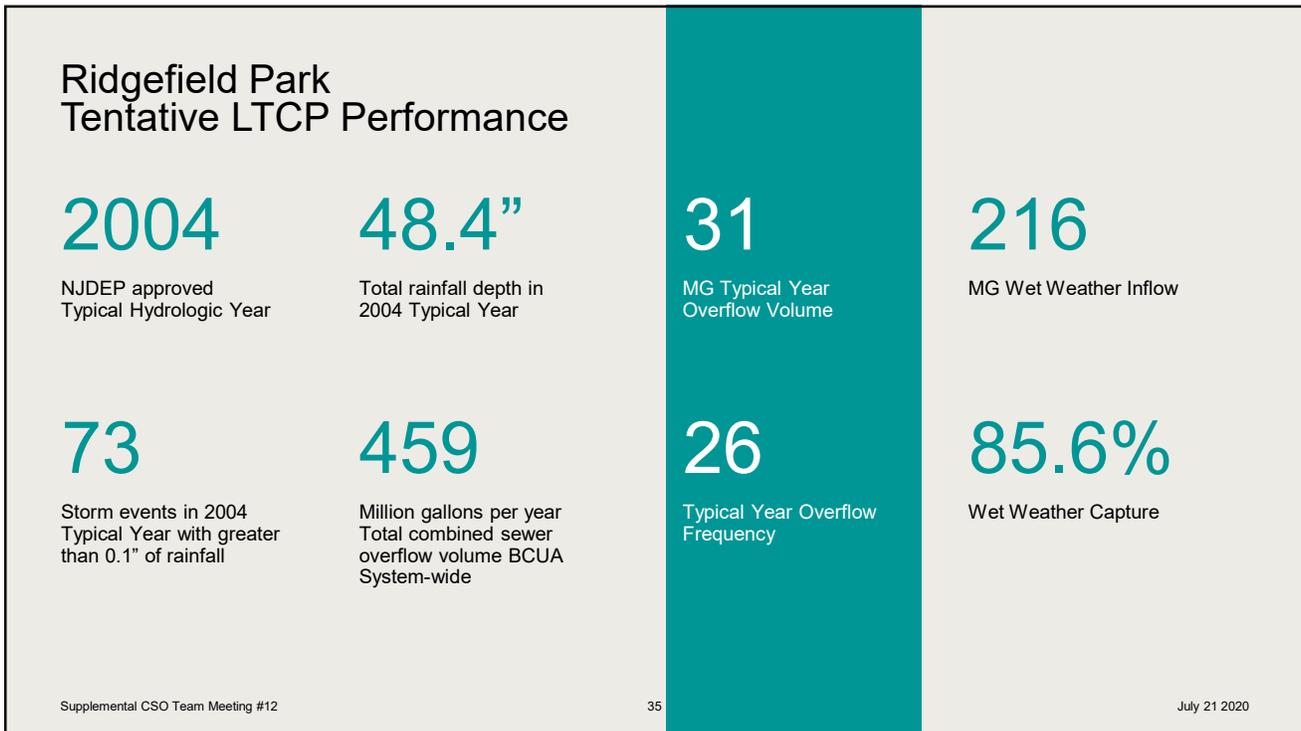
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Cost Considerations

- Heavy tax burden, need to control costs.
- Village has many financial constraints, which makes even the recommended affordability consideration of 2% of MHI highly burdensome.
- COVID-19 pandemic may impact affordability and implementation schedule for CSO LTCP projects
 - Potentially reduced household incomes and sewer utility revenues.
 - Affordability analysis done for LTCP may no longer be accurate.



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Post-Construction Compliance Monitoring

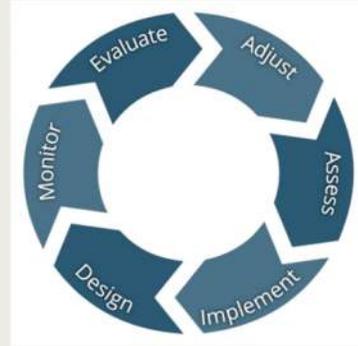
1. **Receiving water quality conditions**
 - Will be monitored and modeled by NJ CSO Group in coordination with sampling program from NJ Harbor Dischargers Group routine sampling program.
2. **CSO facilities performance**
 - Will be monitored and modeled by VRP to characterize performance based on Typical Year modeling of system with CSO facilities in place
 - Data will be used to recalibrate/verify the collection system model to determine compliance with the NJPDES permit
 - Compliance based on Typical Year conditions, as compared to the baseline model.

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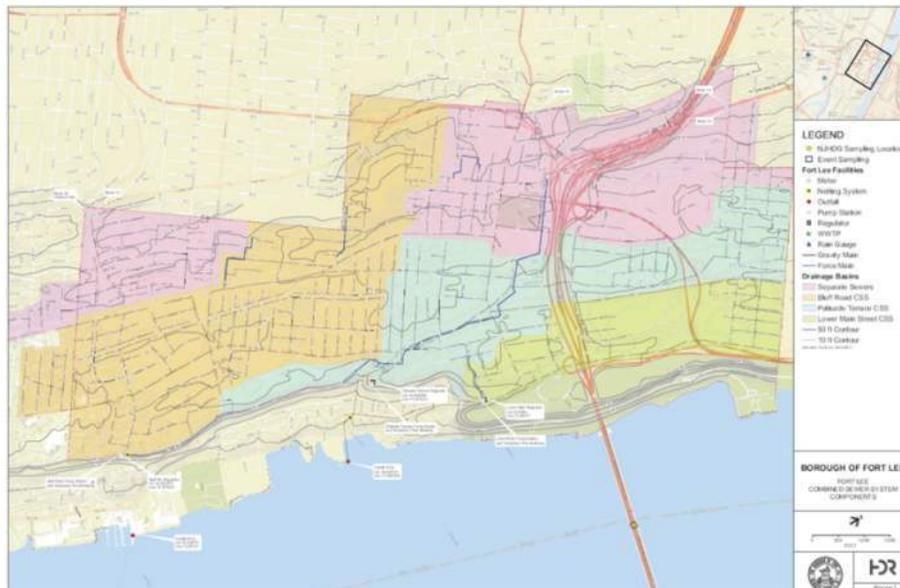
Adaptive Management

- **Adaptive management** to be included in LTCP
- COVID-19 Impacts
- Re-assess affordability throughout implementation schedule, based on emergent economic conditions beyond permittees' control
- Include provisions to re-evaluate, revise and/or reschedule CSO controls as appropriate to reflect new technologies, new conditions and potential new funding sources

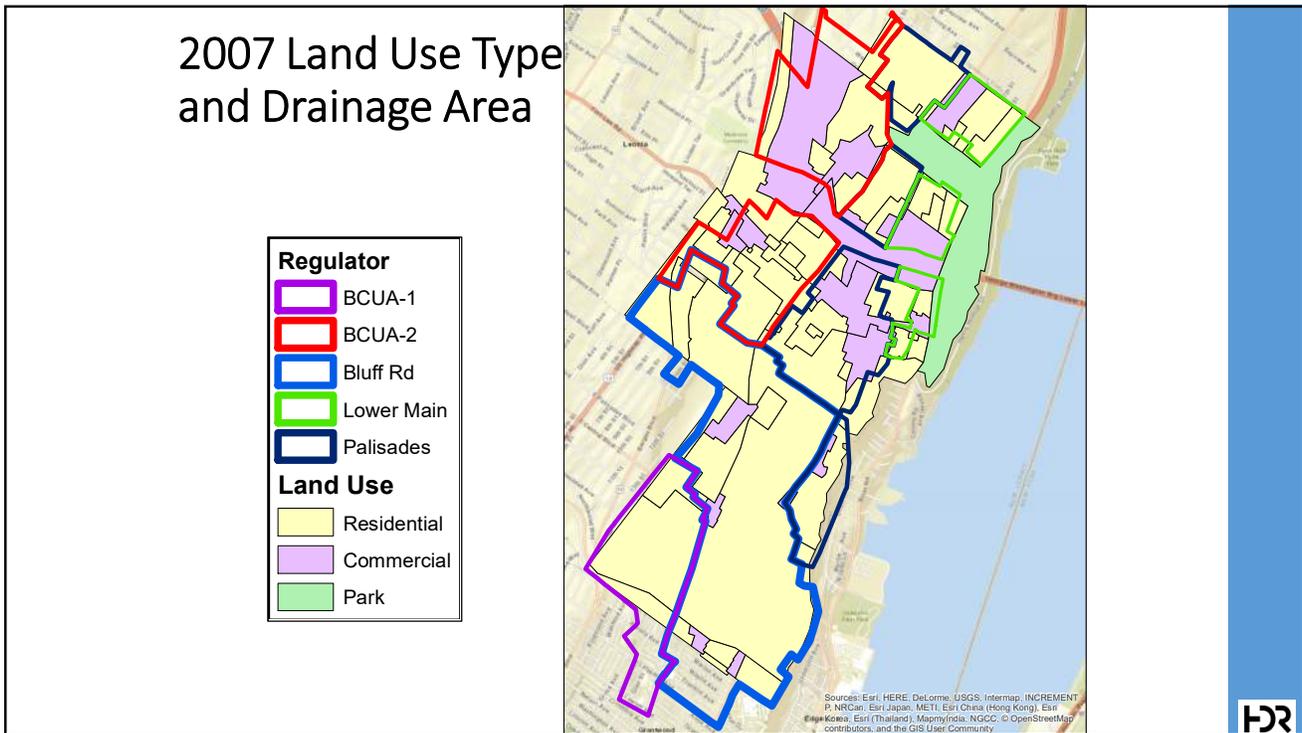


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Fort Lee - NJPDES Permit No. NJ0034517 SCSO Meeting – July 21, 2020 Preliminary LTCP



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CSO Permit Requirements

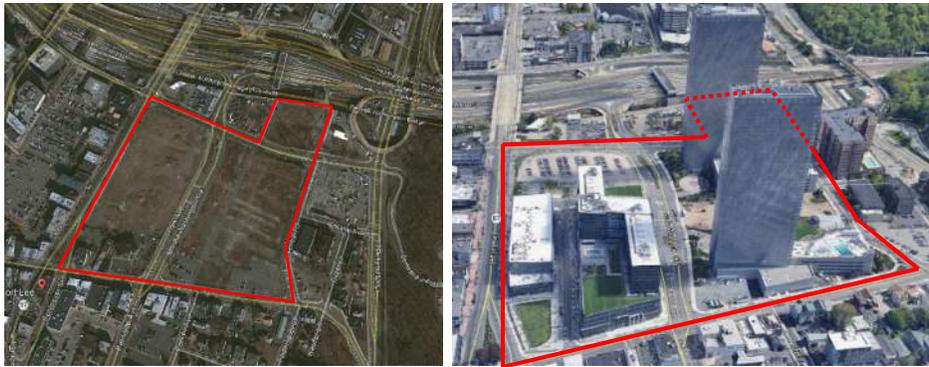
“A program that meets any of the criteria listed below would be presumed to provide an adequate level of control provided the permitting authority determines that such presumption is reasonable”

- i. No more than an average of four overflow events per year...
- ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis...
- iii. The elimination or removal of no less than the mass of pollutants, identified as causing water quality impairment..., for the volumes that would be eliminated or captured for treatment under paragraph ii... ” (Section II.C.4.a.)

HDR

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Model Improvements Since 2007 The Towers and Hudson Lights (~16 acres) Lower Main Drainage Area



2012

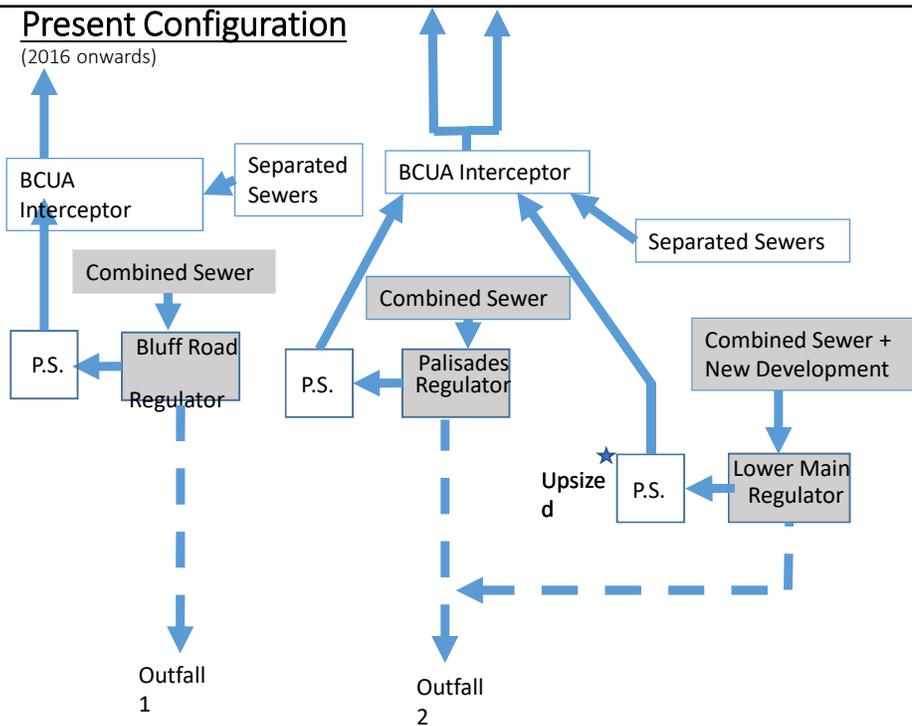
2019



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Present Configuration

(2016 onwards)



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Projected Overflows for 2004 Typical Year

Condition	Outfall 001 (Bluff Road)		Outfall 002 (Palisade Terrace)		CSO Capture
	Overflows	Volume	Overflows	Volume	
2015 InfoWorks ICM (Baseline)	58	124.5	35	25	74.5%
2017 InfoWorks ICM (The Towers Separated)	58	124.5	25	18.8	76.3%
2045 InfoWorks ICM (The Towers and Hudson Lights separated)	59	132	17	11	79.1%

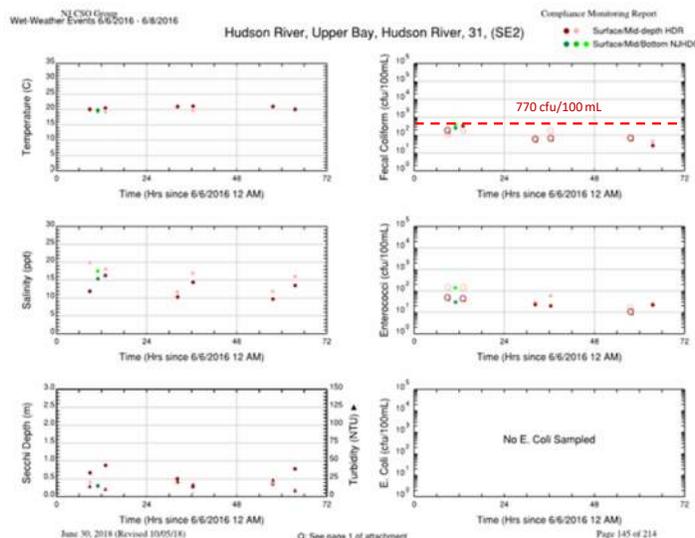
Long Term Control Plan Goal – **85% Capture**

Break the LTCP to ~4 Phases



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Water Quality Sampling Results



No water quality impairment. The Hudson River meets current SE2 Criteria.



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CSO Controls

Source Controls:

Green infrastructure, I&I Reduction, Sewer separation, BMPs, Nine Minimum Controls

Collection System Controls

Gravity sewers, pump stations, hydraulic relief structures, in-line storage, outfall relocation/consolidation, regulator modification

Storage Technologies

Above and below ground storage tanks, storage tunnels

Treatment Technologies

Screening and disinfection, vortex separation, retention/treatment basins, high rate filtration/clarification, chlor/dechlor disinfection, PAA disinfection (with or without filtration), UV disinfection, WWTP plant expansion



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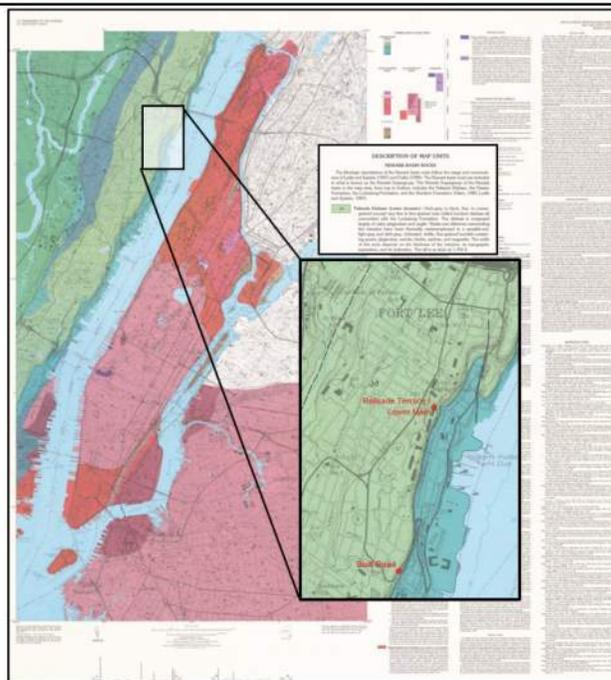


Figure 6-3. Bedrock Map of New York and Parts of Kings and Queens Counties, New York and Bergen and Hudson Counties, New Jersey

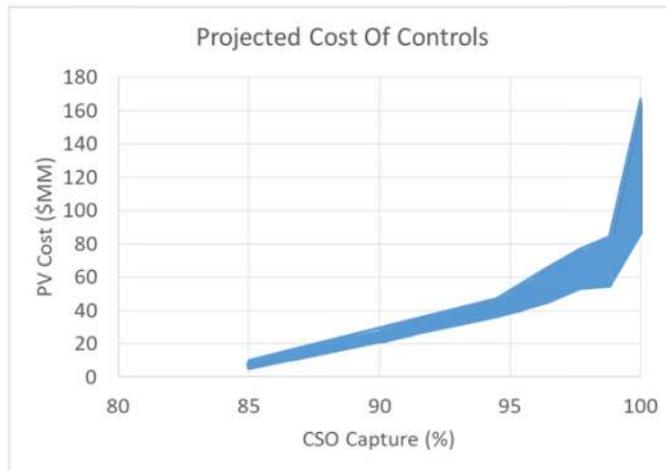
Green Infrastructure

Ft Lee is underlain by Palisade bedrock which will impede recharge and potentially limit green infrastructure effectiveness. Pilot test this alternative.



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Cost Range of CSO Controls



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Preliminary LTCP to get to 85% Control

- Install Flow Meters on Bluff Road and Palisade Outfalls (\$70 to \$80K per year)
- Construct two pilot scale green infrastructure CSO alternatives (perVIOUS pavers and bioswale) to see how effective they are (\$250K)
- Sewer separation in four phases for 46 acres at \$300,000 per acre (\$13.8 M)

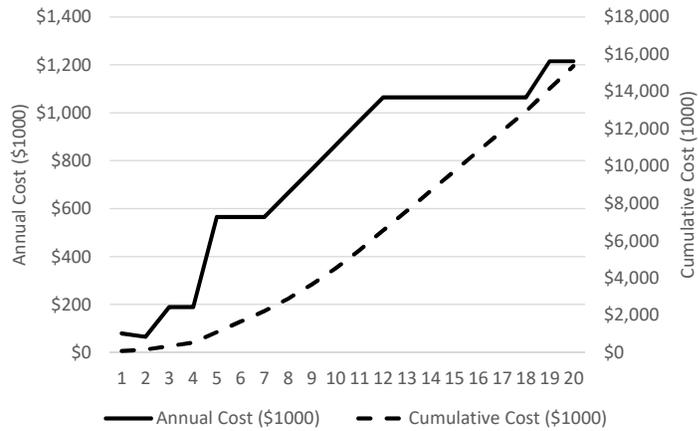


(The LTCP is yet to be adopted by the elected body)



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Preliminary LTCP Costs Schedule



(The LTCP is yet to be adopted by the elected body)



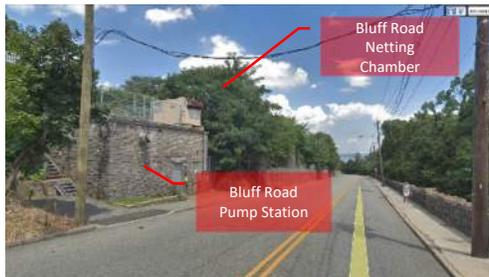
Gary Grey
HDR Inc.
gary.grey@hdrinc.com

Yingying Wu
HDR Inc.
yingying.wu@hdrinc.com



Bluff Road

Bluff Road netting facility is on the boarder of Ft Lee and Edgewater on the Palisades. Access is from Claremont Road on Manatauck Avenue.



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CITY OF HACKENSACK

Combined Sewer System LTCP

Selected Plan Update

Supplemental CSO Team Meeting, July 21, 2020

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Agenda

- Overview of Hackensack’s Combined Sewer System (CSS)
- Development and Evaluation of Alternatives (DEAR) Review
- Selection and Implementation of Alternatives (SIAR) Update
 - Selection of Approach – “Presumption” or “Demonstration”
 - SIAR Selected CSO Control Plan
 - Projects
 - Implementation Schedule / Phased Approach
 - Updated Cost Estimate
- Next Steps

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CSS Overview

- Approximately 31 miles of combined sewers
- Approximately 50% of Hackensack’s population is served by the CSS
- Screening facilities installed for both outfalls



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DEAR Control Alternatives Review

- Development and Evaluation of Alternatives Report (DEAR)
 - Submitted to NJDEP on June 30, 2019
 - Approved by NJDEP on February 12, 2020

Alternative	Percent Capture	Total Estimated Costs
Baseline Conditions for 2004	68%	-
Full City-wide Sewer Separation	100%	\$560M
Pretreatment and Disinfection	-	\$50M
GI - 10% Impervious Area	70%	\$43M
Removal of I&I	68%	\$11M
Tunnel Storage - 85%	86%	\$74M
Satellite Storage Tanks - 85%	85%	\$66M
Regional Storage Tank - 85%	85%	\$63M

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DEAR Control Alternatives Review

- Storage Tank Alternative



© Arc... Dearborn, Michigan: <http://www.we-technologies.com/wastewater-projects.php>



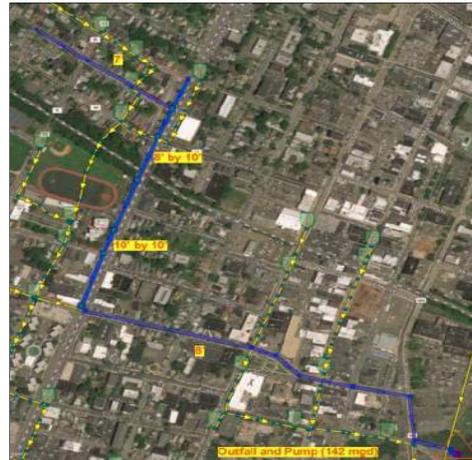
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Sewer Separation Control Alternative

- **Supplemental Alternative - Court Street Subdrainage Area Stormwater Project:**

- Mitigates flooding issues and increases CSO capture
- Stormwater interceptor with in-line storage along Railroad Avenue
- Pump Station near the Hackensack River



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SIAR CSO Approach Selection

- Selection of approach: “Presumption” or “Demonstration”?
- Due to water quality compliance issues in the Hackensack River, the “presumption” approach is selected.
- **Goal:** Increase system-wide percent CSO capture in Hackensack from 68.5% (baseline) to a minimum of 85%

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SIAR Selected CSO Control Plan

- **Selected CSO Long-Term Control Plan Projects:**
 - Green Infrastructure Program
 - Court Street Subdrainage Area Stormwater Project
 - Additional Localized Sewer Separation Projects
 - Anderson Street Storage Tank

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SIAR Selected CSO Control Plan

- **Green Infrastructure (GI) Program:**
 - A certain amount of funds, including grant funding, per year of the LTCP (to be determined) will be allocated towards a green infrastructure program
 - Create an ordinance to require more GI for developers to install
 - The green infrastructure program will serve as a functional and educational program for the public:
 - Provides localized benefits of stormwater management and aids in flooding mitigation
 - Provides awareness of the impact of CSOs and impervious coverage on the environment
 - Potential GI sites and technologies will be evaluated, designed and installed during the LTCP



Permeable Pavement



Bioswale



Rain Garden

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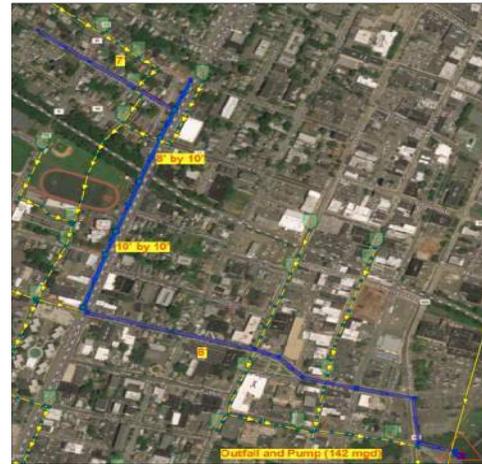
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SIAR Selected CSO Control Plan

- **Court Street Subdrainage Area Stormwater Project:**

- Stormwater mitigation project located in the Court Street Subdrainage Area
- Project objectives based on Court Street Stormwater Study completed by Arcadis
- Dual benefit project: flood mitigation and CSO reduction



Court Subdrainage Area (Outfall 002A)	
	% CSO Capture
Baseline (existing)	72.0%
Stormwater Project	88.3%

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SIAR Selected CSO Control Plan

- **Localized Sewer Separation Projects:**

- The City currently has two sewer separation projects in construction on Main Street
- These projects will contribute to localized sewer separation projects noted in the City's LTCP
- Approximately 22 acres* of contributing runoff area reduced from the CSS, primarily in Court Street area
- The City will undertake additional localized sewer separation projects and construct adequately sized stormwater outfalls during the LTCP
 - Additional sewer separation project locations to be developed after submission of SIAR Report



*Does not account for all roof runoff that may still connect to combined sewer system after construction
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SIAR Selected CSO Control Plan

- Localized Sewer Separation Projects:



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SIAR Selected CSO Control Plan

- Anderson Street Storage Tank:

- Storage tank in the Anderson Street subdrainage area to reach the minimum 85% capture system-wide goal is still anticipated
- Storage Tank size:
 - Approximately 2.5 MG
 - Approximately 100 feet deep by 65 feet in diameter
- Storage Tank will be primarily underground and potentially underneath the parking lot near Johnson Park
- Stored CSO will be pumped back to BCUA when the BCUA interceptor has adequate capacity to receive the flow



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SIAR Selected CSO Control Plan

- Summary Model Results:**

- Court Street Subdrainage Area Stormwater Project
- Localized Sewer Separation Projects (x2 ongoing Main Street projects thus far)
- Anderson Street Storage Tank

Area	Overflow Volume (MG)	Captured Volume (MG)	% Capture
Baseline Conditions Total CSS	256.6	558.1	68.5%
Anderson Street Area (Outfall 001A)	40.1	204.8	83.6%
Court Street Area (Outfall 002A)	37.5	353.6	90.4%
Total Hackensack CSS	77.7	558.4	87.8%

- Conservatively above the 85% capture goal

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SIAR Selected CSO Control Plan

- Implementation Schedule / Phased Approach**

- 30-year implementation to reach system-wide 85% capture goal
- Phased implementation approach DRAFT:

Year	0-5	6-10	11-15	16-20	21-25	26-30
Main Street Sewer Separation Projects (ongoing)	Ongoing					
Court Street Stormwater Project	Start			Completion		
Additional Localized Sewer Separation Projects	Start			Evaluate		
Anderson Street Storage Tank					Re-evaluate	
Green Infrastructure Program	Start					Completion

- The size and necessity of a storage tank at Anderson Street will be re-evaluated after construction of additional localized sewer separation projects. A flow monitoring program and model recalibration process would be required to determine the system-wide percent capture prior to final design of a storage tank.

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SIAR Selected CSO Control Plan

- **Revised Opinion of Probable Cost**

- Updated the capital costs based on 30-year schedule to reach 85% capture goal
- Utilized PVSC cost reference guide from 2020 for consistency amongst CSO communities

Selected Plan	Capital Cost (\$M)
Main Street Sewer Separation Projects (ongoing)	\$5.8
Court Street Stormwater Project	\$61
Additional Localized Sewer Separation Projects	TBD
Anderson Street Storage Tank	\$42
Green Infrastructure Program (\$100K/year - TBD)	\$3
Total (without additional sewer separation projects)	\$111.8

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Next Steps

- Refine cost estimates
- Finalize the Financial Capabilities Analysis (FCA)
- Finalize Implementation Schedule
- Host a public meeting for the residents of Hackensack
 - Date to be determined
 - Virtual or In-person meeting to be determined
- Finalize SIAR Report – submit to NJDEP by October 1, 2020

- **Questions?**

- Website: www.Hackensack.org/cso
- Email: csoteam@hackensackdpw.org



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M
MOTT
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BERGEN COUNTY
UTILITIES AUTHORITY

THE VILLAGE OF FORT LEE BERGEN COUNTY

CITY OF HACKENSACK
NEW JERSEY

The Village of Ridgefield Park
Served in 1895

Preliminary Selection and Implementation of Alternatives

BCUA CSO Group Supplemental CSO Team Meeting #12

Virtual Meeting

July 21, 2020

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BCUA CSO Group Supplemental CSO Group Community Input

- **Input on tentatively selected alternatives?**
 - Are your interests being considered?
 - Comments on:
 - Locations of facilities?
 - Types of facilities?
 - Cost?
- **Preferences for implementation?**
 - Concerns about construction disturbance?
 - Implementation sequence and schedule

Supplemental CSO Team Meeting #12

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July 21 2020

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Open Public Meeting

Tentatively Scheduled for Tuesday August 18th

Format / Venue

- Will likely be held remotely due to COVID-19
 - Microsoft Teams
 - Zoom
 - Youtube / Facebook Live

Advertising

- Newspaper
- Social Media
- Community Groups
- Community Text Message
- Other?

Content

- Background on CSO LTCP process
- Alternatives considered
- Tentatively selected CSO control program
 - Schedule
 - Cost
 - Location
- Opportunities to provide input

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Tentative CSO LTCP Schedule for Completion



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Questions?



July 21 2020 Supplemental CSO Team Meeting #12 38

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Thank You!



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