Village of Ridgefield Park Supplemental CSO Team

Meeting Number 10

Commissioner's Conference Room

Village of Ridgefield Park Municipal Building

February 5, 2020 10:00 AM

Attendees – See attached sign in sheet

Presentation slides attached

Group Meeting Minutes

1. Introductions
    a. Meeting began at 10:00 AM with John Dening welcoming new attendees and introductions.
    b. John Dening expressed his appreciation for the SCSO team commitment to addressing CSO issues. He reminded everyone the end of current phase of the Long Term Control Plan (LTCP) is June 1 and noted that most of the Team has been participating for the entire process.
    c. John Dening stated that the revised Development of Alternatives Report which addressed NJDEP comments was submitted to the NJDEP on November 27, 2019.
    d. John Dening opened the meeting with a safety minute presentation on jump starting the car, see attached presentation.
    e. John Dening presented a summary of the topics discussed at the previous meeting. John explained the purpose of this meeting and the role of the SCSO team. John opened for questions on prior meeting, but no questions were asked at this time.
    f. John Dening indicated that meeting minutes are posted on the Ridgefield Park website.

2. Presentation by John Dening on the Preliminary Selection of Alternatives, see attached presentation.

3. Discussion and Questions – The following outlines questions that were asked during the presentation and the discussions that followed:

    a. Question: Will NYC CSO influence on WQ in Hudson River change overtime?

        Answer: The water quality in Hudson River will experience changes as a result of implementation of long-term control projects in both New Jersey and New York as well as from other factors such as stormwater controls. Ridgefield Park CSO program is a part of a larger effort to improve the

WQ.

b. Resident Comment: Costs need to be ranked highly as they will be of great interest to the residents.

c. Resident Comment: We are concerned about the potential impact of future regulations.

d. Resident Comment: It looks like Program #2 is the best candidate.

e. Resident Comment: The Village Master Plan calls for open space along the waterfront, which includes both consolidation sites. The resident recognized potential for belowground CSO storage tanks to be integrated into future Village open space projects.

f. Resident Comment: Maintenance costs should be considered as well as construction costs. Ability to maintain complex equipment is a concern.

   Response: Preliminary alternative cost estimates include 20 years of maintenance costs.

g. Resident Comment: Apache Auto Wreckers along the Hackensack River waterfront and the vacant land along the Overpeck Creek, as identified in the reports, seem to be the most appropriate locations for future CSO.

h. Resident Comment: According to preliminary estimates, complete sewer separation is a costly alternative. It will also require additional measures to address stormwater quality.

i. Question: Will there be an odor issue with End of Line Treatment facilities?

   Answer: Potentially, these facilities would be designed with odor control. Some, such as disinfect may also be covered to mitigate odors.

j. Resident Comment: Agree that green infrastructure could work as supplementary to other alternatives due to its cost and limited impact on CSO volumes. It could be considered in some areas as educational tool to raise public WQ awareness.

k. SCSO Team members proposed different options for CSO material distribution to the Village residents. The following information outlets were discussed:
   - regional newspaper – there is no longer a local paper.
   - church letter – St. Francis church was mentioned.
   - advertising flyer
   - Digital bulleting board in front of the municipal building.
   - Direct mailing.

- Village newsletter

l. John Dening stressed that public participation is an important part of the process and that it is not limited to the SCSO team.

4. The next meeting is planned for late March early April. The intent is to use the meeting to build the presentation for the public meeting on May 5th. John Dening will reach out with some dates.

5. Meeting concluded at 11:20 AM.

Village of Ridgefield Park
Supplemental CSO Team
Meeting Number 10 – Alternatives Analysis
Commissioner's Conference Room
Village of Ridgefield Park Municipal Building
February 5, 2020; 10:00 AM

Initials	Name	Organization	Email
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MOTT MACDONALD

Preliminary Selection of Alternatives

Village of Ridgefield Park
Supplemental CSO Team

Meeting #10

February 5, 2019

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Ridgefield Park Supplemental CSO Team

Meeting No. 10 Agenda

- Introduction
- Safety moment
- Review of Last Meeting
- Water Quality Modeling
- Selection of Alternatives
- Input on Alternatives
- Financial Capabilities Analysis
- Selection and Implementation of Alternatives
- Future Public Involvement
- Upcoming Schedule

2

Safety Topic

Jumpstarting a Car

1

Don't let cars touch.

Wear Safety Glasses.

2

Read the Manual.

3

Unless manual says otherwise connect cables: Red to dead and back to black.

4

Start booster car first. Run for a few minutes then start dead car.

5

Remove cables in reverse order.

http://safetytoolboxtopics.com/

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Ridgefield Park Supplemental CSO Team

Meeting No. 9 Review

In meeting #9 we covered:

- Submissions Status
- Development and Evaluation of Alternatives
  - Control Programs
  - Performance
  - Cost
- Financial Capabilities Analysis
- Selection and Implementation of Alternatives
- Public Participation
- Upcoming Schedule

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Ridgefield Park Supplemental CSO Team

Long term control plan submission and NJDEP review status

Step 1.

- System Characterization Report – NJDEP Approval on 3/11/2019
- Baseline Compliance Monitoring Program Report – NJDEP Approval on 3/1/2019
- Consideration of Sensitive Areas Report – NJDEP Approval on 4/8/2019
- Public Participation Process Report – NJDEP Approval Pending

Step 2.

- Development and Evaluation of Alternatives – Due on 7/1/2019

Step 3.

- Selection and Implementation of Alternatives Report
- Final LTCP – Due on 6/1/2020

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Ridgefield Park Supplemental CSO Team

NJ CSO Group

Water Quality Modeling

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Models

- Hydrodynamic Model (ECOMSED)
  - Water Elevation
  - Currents
  - Temperature
  - Salinity
- WQ Model (RCA)
  - Salinity
  - Tracer
  - E. coli
  - Fecal coliform
  - Enterococci
- Both models are run on the same grid (segmentation)
  - 10 vertical layers

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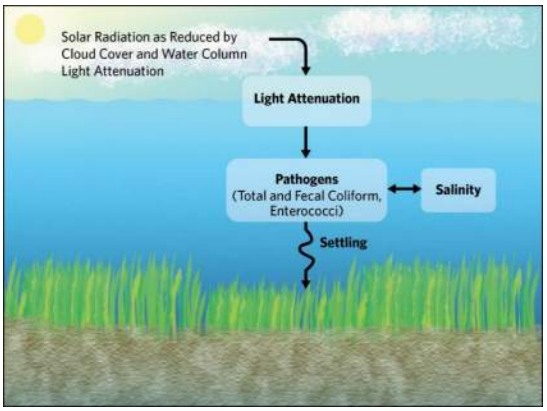
Pathogen Model

Factors that affect bacteria

- Natural die-off
- Temperature
- Solar radiation
- Salinity
- Settling



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Required Hydrodynamic Model Inputs

- Physical Dimensions
  - Shoreline
  - Bathymetry
- Boundary Conditions
  - Tides
  - Temperature
  - Salinity
- Freshwater Sources
  - Rivers
  - CSOs
  - Storm Sewers
  - Direct Drainage
  - WWTPs
- Meteorology

9

Landside Pathogen Concentration Stations

Figure 10 – Ridgefield Park Village (BCUA)

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WQM Component Analysis

- WQ Component Analysis:
  - E. coli
  - Fecal
  - Enterococci
- Components:
  - NJ CSO
  - NJ SW/Runoff
  - NJ STP
  - NJ/NY/CT Rivers
  - Hudson River
  - Dry-weather
  - NYC CSO+SW
  - NY/CT STP

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CLEAN WATERWAYS
Healthy Neighborhoods

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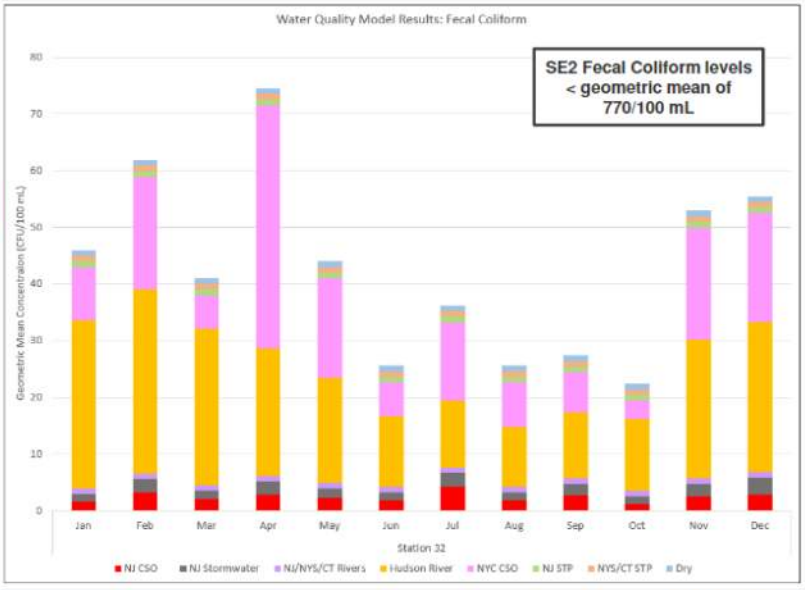
WQM Component Analysis – Fecal Coliform-Hudson River



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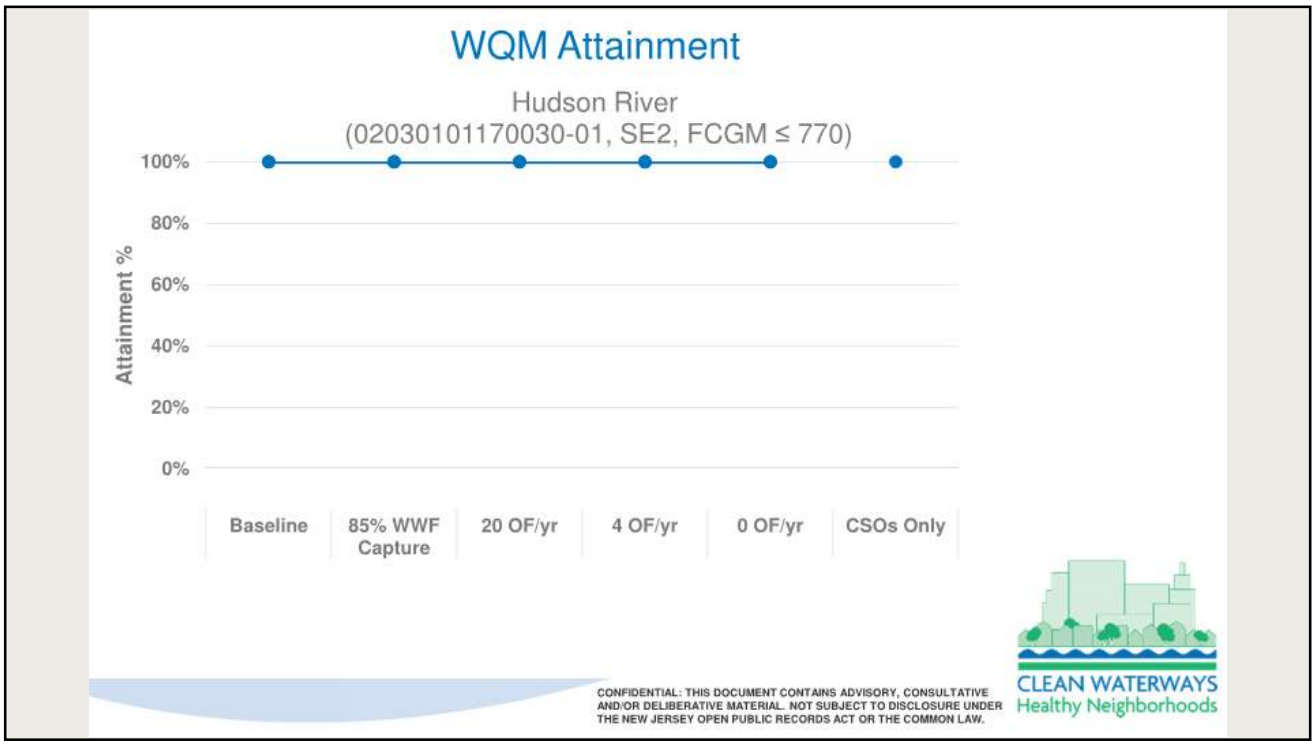
WQM Attainment
Hudson River
(02030101170030-01, SE2, FCGM ≤ 770)
Attainment %
100%
80%
60%
40%
20%
0%
Baseline
85% WWF Capture
20 OF/yr
4 OF/yr
0 OF/yr
CSOs Only
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Healthy Neighborhoods

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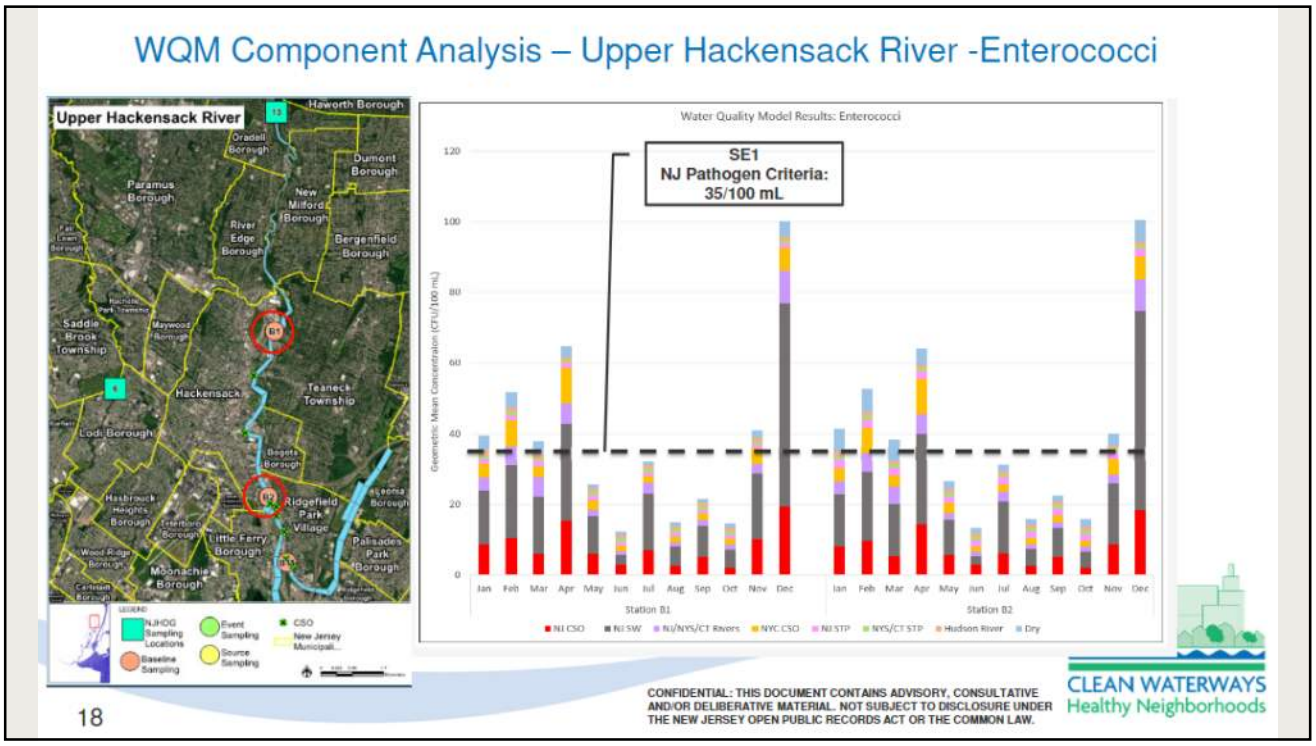
WQM Component Analysis – Upper Hackensack River -Enterococci
Upper Hackensack River
Haworth Borough
Oradell Borough
Dumont Borough
Paramus Borough
New Milford Borough
River Edge Borough
Bergenfield Borough
Saddle Brook Township
Maywood Borough
Hackensack
Teaneck Township
Lodi Borough
Bogota Borough
Hasbrouck Heights Borough
Ridgefield Park Village
Little Ferry Borough
Palisades Park Borough
Moonachie Borough
Carlstadt Borough
NJHOG Sampling Locations
Baseline Sampling
Event Sampling
Source Sampling
CSO
New Jersey Municipal...
Water Quality Model Results: Enterococci
SE1
NJ Pathogen Criteria:
35/100 mL
Geometric Mean Concentration (CFU/100 mL)
120
100
80
60
40
20
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Station B1
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Station B2
NJ CSO
NJ SW
NJ/NYS/CT Rivers
NYC CSO
NJ STP
NYS/CT STP
Hudson River
Dry
18
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CLEAN WATERWAYS
Healthy Neighborhoods

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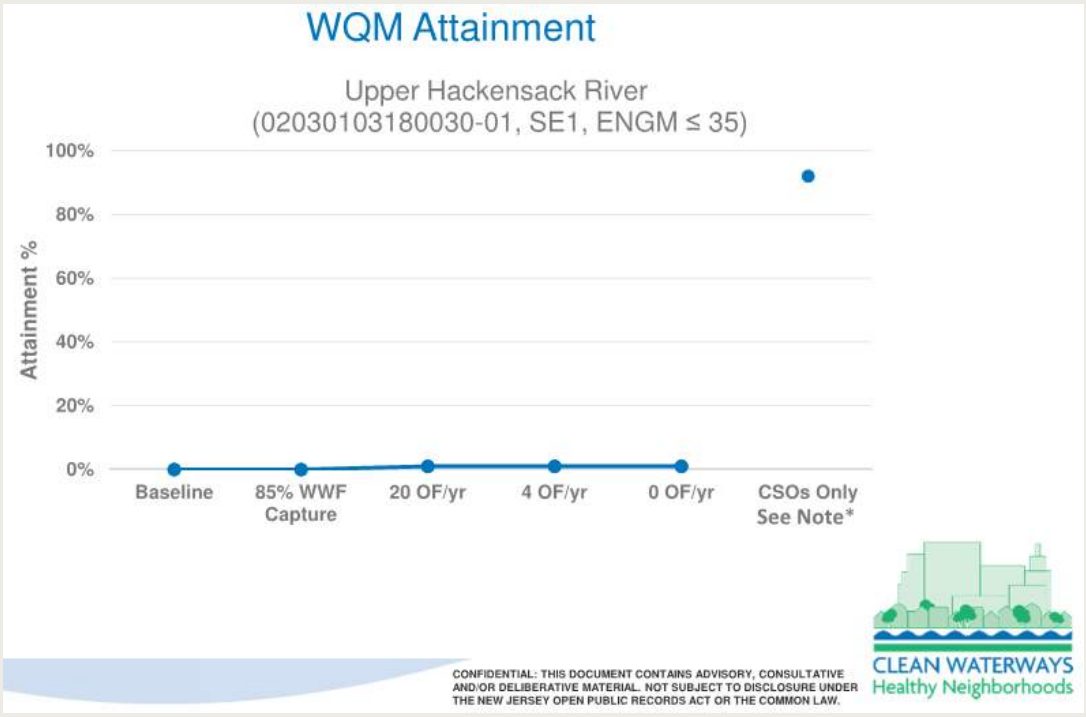

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Ridgefield Park Supplemental CSO Team

Alternatives Recommendations

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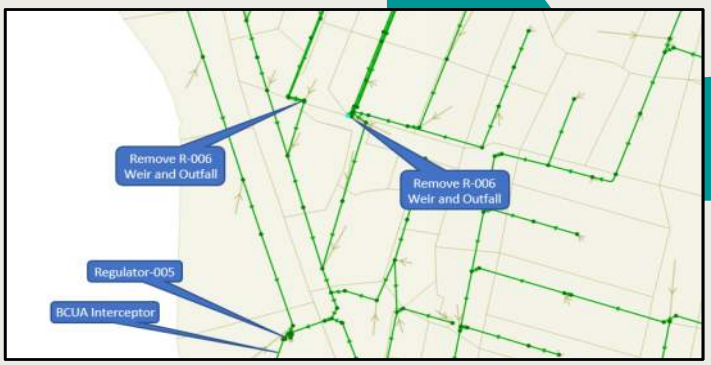
Alternatives Evaluation

Control Program 1 - Elimination of Outfall 006A

Small overflow volume at 006A

- Pros:
  - Work in public right-of-way; no new land needed
  - Opportunity for current system renewal and reconstruction
  - Elimination of outfall
- Cons:
  - Mild disruptive to roads and traffic
  - Minor separation might be required, need for stormwater controls and treatment.



RECOMMEND - RETAIN TO REDUCE CONSOLIDATION COSTS

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Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage

Tanks retain overflows and return them to sewer and WWTP

- Pros:
  - Relatively simple
  - Elimination of outfalls, 6 reduced to 2
  - Area above tank can be used for other purposes
  - Effective CSO reduction
- Cons:
  - Challenging construction
  - Disruption to streets from consolidation piping

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Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage Contd.

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Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage Contd.

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Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage Contd.

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Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage Contd.

003A-
006A

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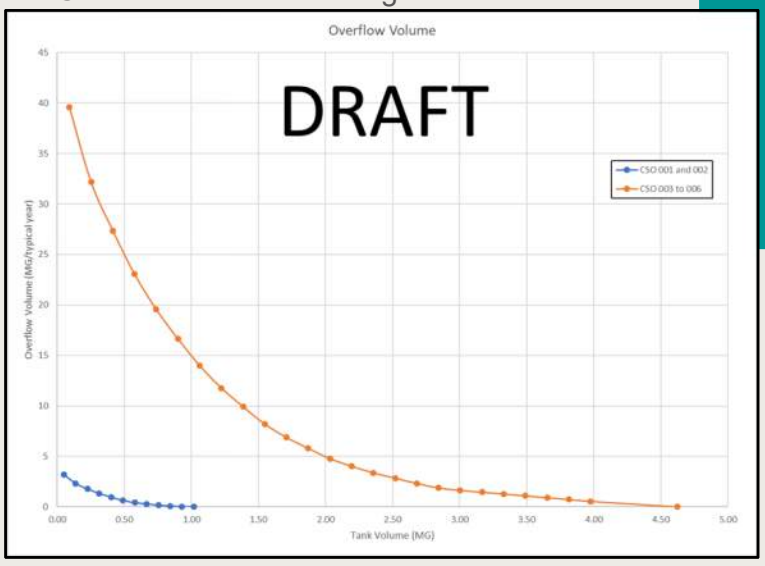
DRAFT - Preliminary Alternatives Selection

Control Program 2 - Consolidated Tank Storage



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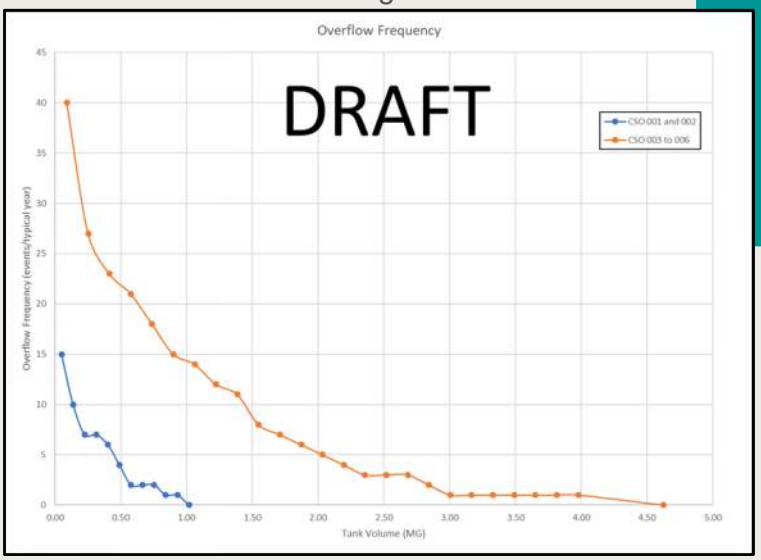
DRAFT - Preliminary Alternatives Selection

Control Program 2 - Consolidated Tank Storage



Alternatives Evaluation

Control Program 2 - Consolidated Tank Storage

Tanks retain overflows and return them to sewer and WWTP

Control Program 2 - End of Pipe Storage (Consolidated Sites)					
Overflows per Year	0	4	8	12	20
Capital Cost ($ Million)	$73.8	$46.6	$45.4	$40.6	$29.1
O&M Cost ($ Million)	$0.7	$0.4	$0.4	$0.4	$0.3
Net Present Worth ($ Million)	$83.9	$53.9	$51.8	$46.6	$34.2

$34-$84 M (Class 5 Cost Estimate: -50%+100%)

$1.1-1.7/gal of CSO removed during typical year.
RECOMMEND – RETAIN, BEST RATING AND LESS COMPLEX

Alternatives Evaluation

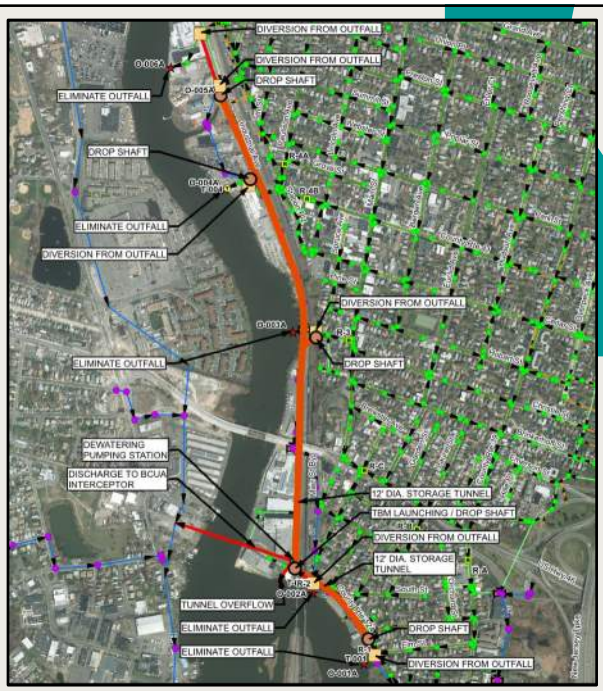
Control Program 3 - Consolidated Tunnel Storage

All outfalls will be consolidated into one, central tunnel

- Pros:
  - Minimal surface impacts
  - Elimination of outfalls, 6 reduced to 1
- Cons:
  - Challenging construction
  - More complex system, deep pumping station, screenings and grit
  - Higher cost

Alternatives Evaluation

Control Program 3 – Consolidated Tunnel Storage Contd.



Alternatives Evaluation

Control Program 3 –
Consolidated Tunnel Storage Contd.

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Alternatives Evaluation

Control Program 3 - Consolidated Tunnel Storage

All outfalls will be consolidated into one, central tunnel

Control Program 3 - Tunnel					
Overflows per Year	0	4	8	12	20
Capital Cost ($ Million)	$88.4	$72.3	$72.3	$67.3	$62.3
O&M Cost ($ Million)	$2.0	$1.7	$1.7	$1.7	$1.6
Net Present Worth ($ Million)	$118.5	$98.6	$98.6	$92.5	$86.3

$86-$118 M (Class 5 Cost Estimate: -50%+100%)

$2.20-$2.40/gal of CSO removed during typical year.
RECOMMEND - ELIMINATE DUE TO COST AND COMPLEXITY

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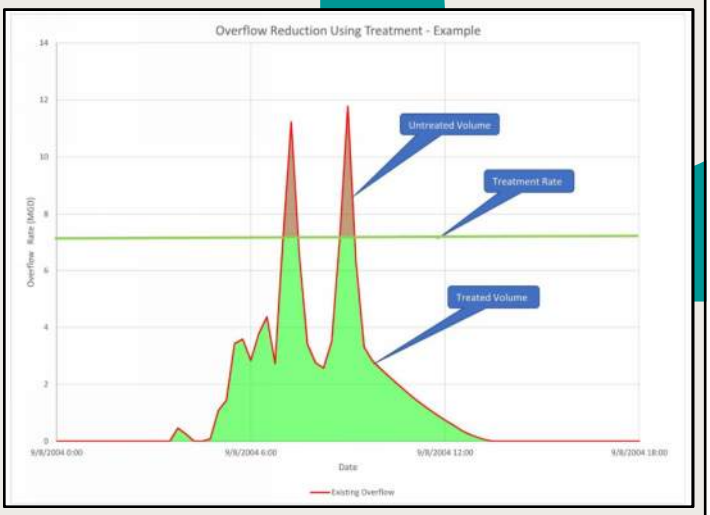
Alternatives Evaluation

Control Program 4 - Consolidated End of Pipe Treatment Contd.

- Pros:
  - Elimination of outfalls, 6 reduced to 2
  - Provides full or partial treatment at all times
- Cons:
  - Most complex system
  - Surface facilities
  - Higher cost
  - Potential future effluent limits



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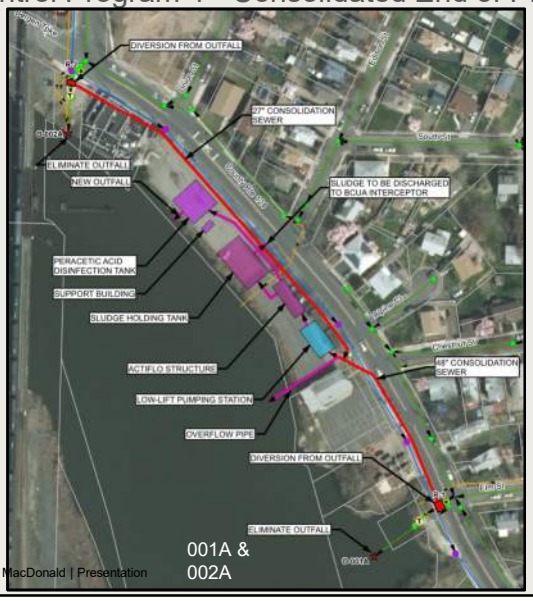
Alternatives Evaluation

Control Program 4 - Consolidated End of Pipe Treatment Contd.



001A & 002A

003A-006A

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Alternatives Evaluation

Control Program 4 - Consolidated End of Pipe Treatment Contd.

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Alternatives Evaluation

Control Program 4 - Consolidated End of Pipe Treatment

Control Program 4 - End of Pipe Treatment (Consolidated Sites)					
Overflows per Year	0	4	8	12	20
Capital Cost ($ Million)	$75.2	$65.8	$65.8	$65.5	$49.7
O&M Cost ($ Million)	$0.8	$0.7	$0.7	$0.7	$0.6
Net Present Worth ($ Million)	$87.3	$77.0	$77.0	$76.7	$59.5

$60-$87 M (Class 5 Cost Estimate: -50%+100%)

$1.30-$1.70/gal of CSO removed during typical year.

RECOMMEND - ELIMINATE DUE TO COST AND COMPLEXITY

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Alternatives Evaluation

Control Program 5 - Sewer Separation

Effectively removes the Village from being a CSO community

- Pros:
  - Work in public right-of-way; no new land needed
  - Opportunity for current system renewal and reconstruction
  - Elimination of outfalls
- Cons:
  - Highly disruptive to roads and traffic
  - Need to redirect every sanitary service connection on the street
  - Need for stormwater controls and treatment in the future
  - Issues are general for large-scale construction in urban areas
  - Pollutant loads (excepting some pathogens) to receiving water will increase

Alternatives Evaluation

Control Program 5 - Sewer Separation

Effectively removes the Village from being a CSO community

$193M (Class 5 Cost Estimate: -50%+100%)

$3.8/gal of CSO removed during typical year

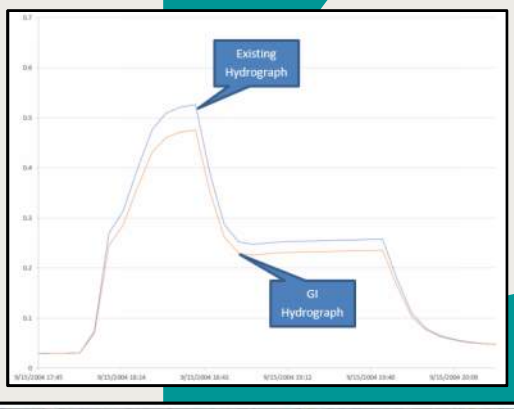
RECOMMEND - ELIMINATE DUE TO COST AND DISRUPTION FUTURE WATER QUALITY CONCERNS

Alternatives Evaluation

Control Program 6 - Green Infrastructure

Distributed storage or detention throughout the village

- Pros:
  - Community/Societal benefits
  - Public acceptance
  - Creates public awareness
  - Simple construction
- Cons:
  - Cannot meet permit requirements
  - Long term performance
  - High installation cost and maintenance costs



Alternatives Evaluation

Control Program 6 - Green Infrastructure

Distributed storage or detention throughout the village

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Alternatives Evaluation

Control Program 6 - Green Infrastructure

Distributed storage or detention throughout the village

$2.7-$12 M* (Class 5 Cost Estimate: -50%+100%)

$5.80 - $9.10/gal of CSO removed during typical year

*For controlling 2.5%-10% of Village impervious area with GI, estimated a maximum of 4% could be feasibly controlled.

RECOMMEND - POTENTIALLY RETAIN FOR PUBLIC OUTREACH AND EDUCATION

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Costing

NPW Calculations

Control Program	Cost per Gallon Volume CSO Reduction ($/gal)				
Level of Control	0	4	8	12	20
1) Eliminate Outfall 006	NA	NA	NA	NA	NA
2) Storage (Consolidated)	$1.7	$1.2	$1.2	$1.1	$1.2
3) Tunnel	$2.4	$2.2	$2.2	$2.2	$2.2
4) Treatment (Consolidated)	$1.7	$1.5	$1.5	$1.5	$1.3
5) Sewer Separation	$3.8	NA	NA	NA	NA
	Volume Reduction for Impervious Area Managed (MG)				
	2.50%	5%	7.50%	10%	
6) Green Infrastructure	$9.1	$7.2	$6.3	$5.8	

Control Program	NPW Summary - Overflows per Year ($M)				
Level of Control	0	4	8	12	20
1) Eliminate Outfall 006	NA	NA	NA	NA	NA
2) Storage (Consolidated)	$84	$54	$52	$47	$34
3) Tunnel	$118	$99	$99	$92	$86
4) Treatment (Consolidated)	$87	$77	$77	$77	$60
5) Sewer Separation	$193	NA	NA	NA	NA
	NPW Summary - % of Impervious Area Managed ($M)				
	2.50%	5%	7.50%	10%	
6) Green Infrastructure	$2.7	$6	$9	$12	

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Alternatives Rating

Rating Procedure

Control Programs rated 1 (Worst) to 5 (Best) on several categories and a weighted average found

- Cost
  - Normalized by $/gallon
  - Based on 4 overflows per year and 5% GI
  - 25% weight
- CSO Reduction
  - Overall reduction of CSO volume in Typical Year
  - Reduction in CSO Events
  - 15% weight each
- Institutional Issues
  - Ranked according to possibility of permitting delaying project six (6) months or more
  - 15% weight
- Implementability
  - Ranked according to project being delayed by other factors for six (6) or more months
  - 15% weight
- Public acceptance
  - Ranked according to how we think the public would welcome and support the plan
  - 15% weight

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Alternatives Rating

Ranking – **NO SELECTION MADE AT THIS PHASE!**

Control Program	Cost	CSO Volume Reduction	CSO Frequency Reduction	Institutional Issues	Implement-ability	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. Consoldiated 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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Input on Alternatives

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Ridgefield Park Supplemental CSO Team

Public Outreach Opportunities

- Input on the selection process?
  - What is your strongest interest?
    - Cost
    - Environmental benefit
    - Other
  - Are your/community interests being considered?
    - Suggestions
  - Comments on locations of facilities?
  - Comments on types of facilities?
  - Comments on costs?
- Do you have a preference?

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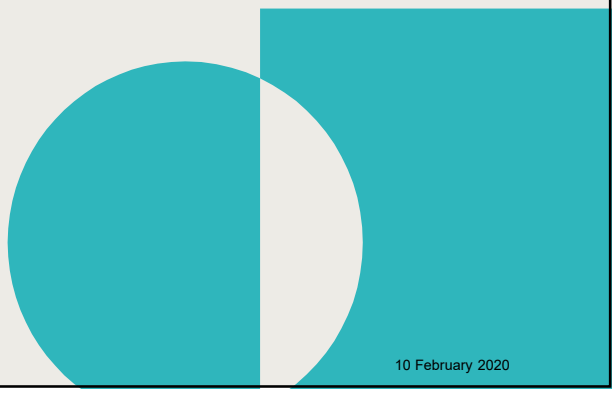
Financial Capability Assessment

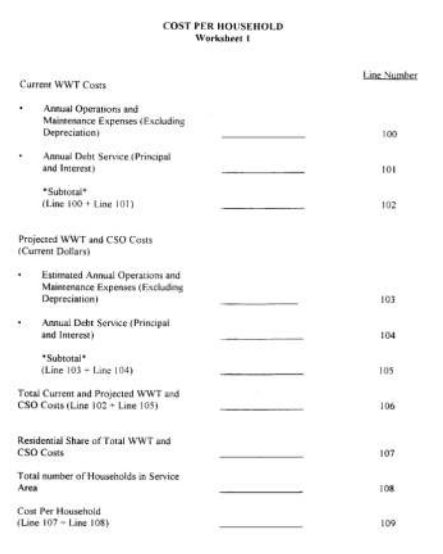


Ridgefield Park Supplemental CSO Group

Financial Capabilities Assessment

Goal is to determine impact on residential population and to allow the LTCP extent and schedule to incorporate those impacts.

- EPA Methodology
  - Snapshot based on current conditions.
  - Allows for flexibility and additional factors to be considered.
  - Very limited view of affordability.
- "Dynamic" Model
  - Accounts for inflation
  - Accounts for expected project schedule.



COST PER HOUSEHOLD
Worksheet 1

		Line Number
Current WWT Costs		
• Annual Operations and Maintenance Expenses (Excluding Depreciation)	_____	100
• Annual Debt Service (Principal and Interest)	_____	101
Subtotal (Line 100 + Line 101)	_____	102
Projected WWT and CSO Costs (Current Dollars)		
• Estimated Annual Operations and Maintenance Expenses (Excluding Depreciation)	_____	103
• Annual Debt Service (Principal and Interest)	_____	104
Subtotal (Line 103 + Line 104)	_____	105
Total Current and Projected WWT and CSO Costs (Line 102 + Line 105)	_____	106
Residential Share of Total WWT and CSO Costs	_____	107
Total number of Households in Service Area	_____	108
Cost Per Household (Line 107 ÷ Line 108)	_____	109

Ridgefield Park Supplemental CSO Team

Financial Capabilities Assessment - EPA Indicators

How much CSO Control can the Municipality afford?

- Primarily based on EPA Guidance
  - 2% of Median Household Income (MHI)
- Implications of affordability:
  - Implementation schedule
    - Prioritize projects with highest cost effectiveness
  - Level of control
  - Required annual rate increases

Ridgefield Park Supplemental CSO Team

Financial Capabilities Assessment - EPA Indicators

Residential Indicator	Current system costs (combined, sanitary, and stormwater)	
	Percent residential share = Typ. 75-85%	
	Cost per residential household – should be less than 2% of MHI	
Financial Indicator	Debt Indicators	Bond Ratings
		Overall Net Debt as % of Full Market Property Value
	Socioeconomic Indicators	Unemployment Rate
		Median Household Income
	Financial Management Indicators	Property Tax Revenues as % of Full Market Property Value
		Property Tax Revenue Collection Rate

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Financial Capabilities Assessment - EPA Indicators

FINANCIAL CAPABILITY MATRIX
Table 3

Permittee Financial Capability Indicators Score (Socioeconomic, Debt and Financial Indicators)	Residential Indicator (Cost Per Household as a % of MHI)		
	Low (Below 1.0 %)	Mid-Range (Between 1.0 and 2.0%)	High (Above 2.0 %)
Weak (Below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (Between 1.5 and 2.5)	Low Burden	Medium Burden	High Burden
Strong (Above 2.5)	Low Burden	Low Burden	Medium Burden

FINANCIAL CAPABILITY GENERAL SCHEDULING BOUNDARIES
Table 4

Financial Capability Matrix Category	Implementation Period
Low Burden	Normal Engineering/Construction
Medium Burden	Up to 10 years
High Burden	Up to 15 Years*
	*(Schedule up to 20 years based on negotiation with EPA and state NPDES authorities)

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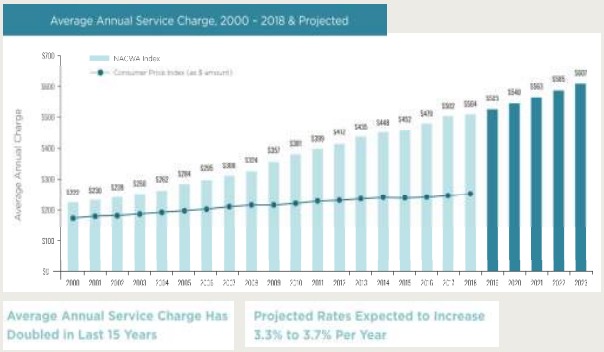
Financial Capabilities Assessment - Additional Items to Consider

- Sewer utility costs likely to rise faster than income growth over next 20-30 years
- Consider future non-CSO costs and obligations
- Income and Cost Considerations
  - Burden by income distribution brackets
  - Poverty rates
  - Unemployment and labor force participation rates



Source: NACWA, 2018 Cost of Clean Water Index, https://www.nacwa.org/docs/default-source/news-publications/pub-5-index-1-web-final.pdf

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Financial Capabilities Assessment

So what is this all about?

- It's like buying a house or car.
  - What are my current expenses?
  - How much money do I make now and in the future?
  - When will I buy it?
  - How expensive is it?
  - How much will it cost to maintain?
  - What will my payments be?
  - What is the interest rate?
  - What is the inflation rate?
  - What is my mortgage term?

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Financial Capabilities Assessment

So what is this all about?

- So now we turn it into a LTCP
  - What are my Wastewater and Stormwater expenses?
  - What is my Median Household Income (MHI) and is it growing?
  - What projects will I build and when?
  - What do the projects cost?
  - How much will it cost to maintain?
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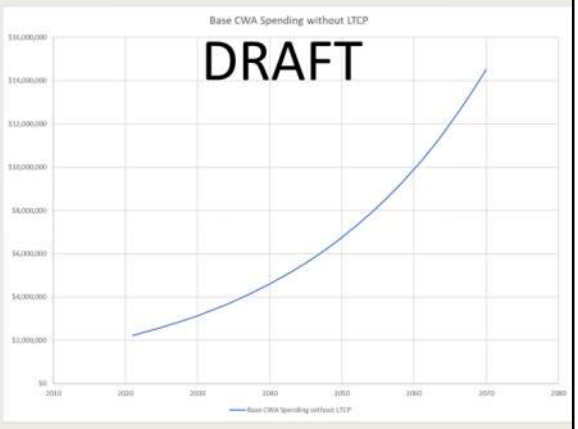
Financial Capabilities Assessment



So what is this all about?

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Current Expenses

- BCUA $1.4 M
- Estimated other expenses $0.7 M

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Financial Capabilities Assessment

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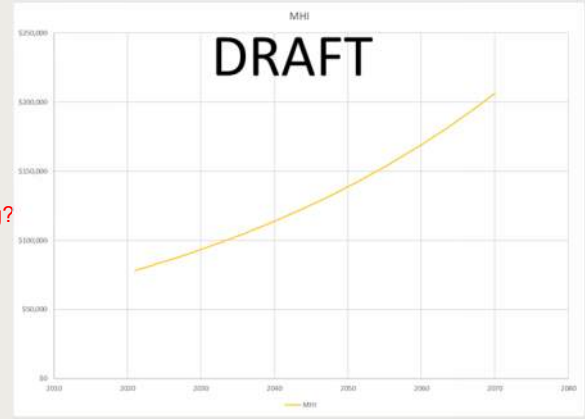

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Financial Capabilities Assessment

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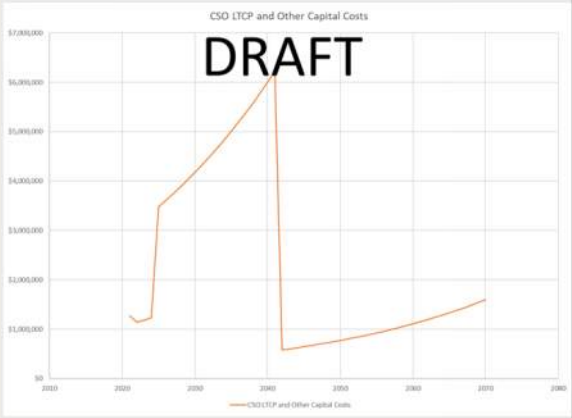

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Financial Capabilities Assessment

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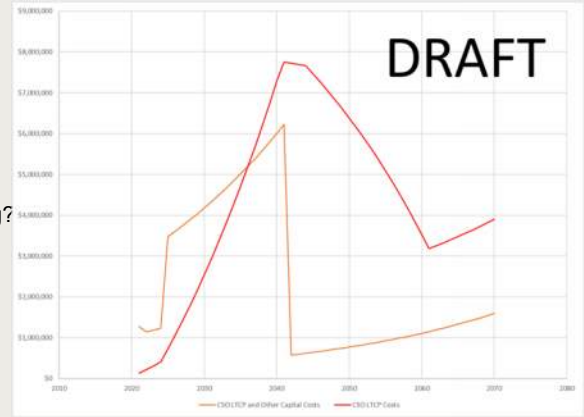

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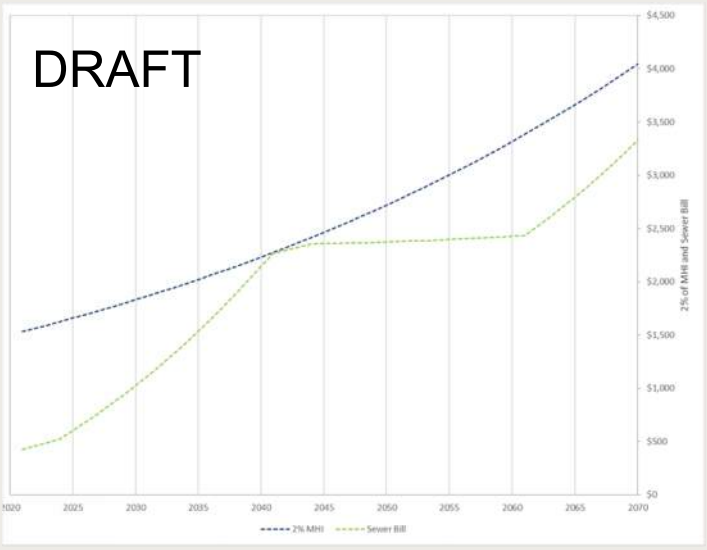
Financial Capabilities Assessment

What is the impact to me?



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Financial Capabilities Assessment

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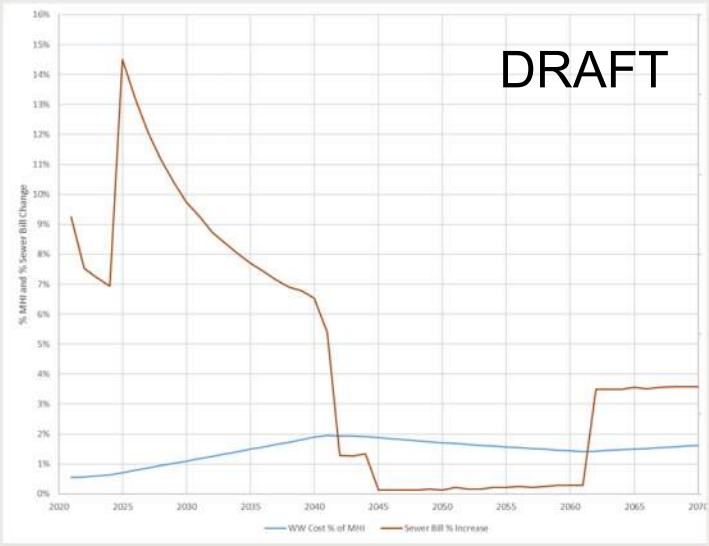

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Financial Capabilities Assessment

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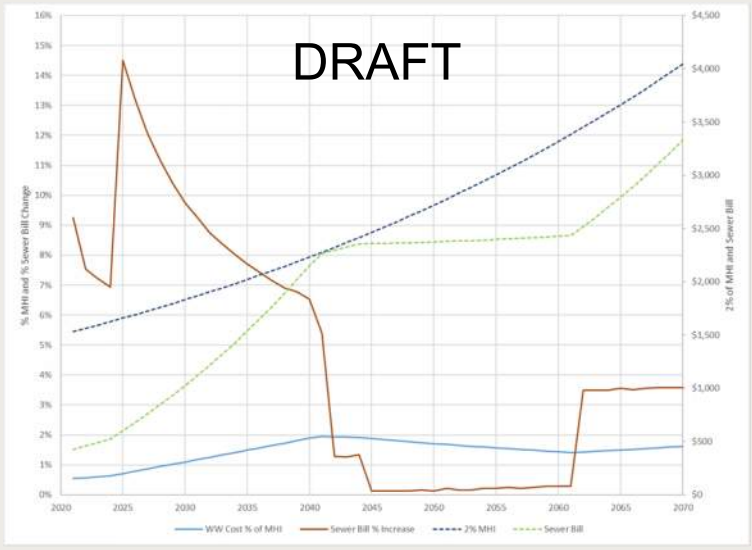

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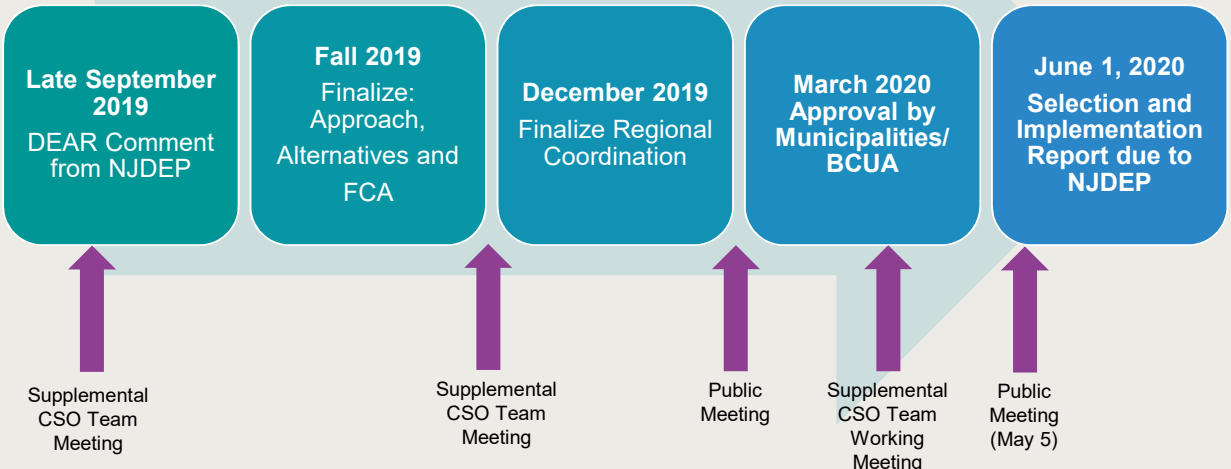
Upcoming Schedule



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10 February 2020

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Final Questions?

Mott MacDonald | Presentation

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10 February 2020

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