

Bridgeport Wastewater Treatment Plants Public Scoping Comment Response Document

Compiled Responses from CT DEEP, Bridgeport WPCA and CDM Smith representing the Bridgeport WPCA December 22, 2020

The City of Bridgeport Water Pollution Control Authority (WPCA) submitted a Wastewater Treatment Facilities Plan in accordance with Administrative Order WRMU19001 to the CT Department of Energy and Environmental Protection (DEEP). The Bridgeport WPCA retained CDM Smith as their engineering consultant to complete this Facilities Plan. As part of the requirements of the Connecticut Environmental Policy Act (CEPA), a virtual public scoping meeting was scheduled by DEEP and advertised to the public. This public information session was held on October 29, 2020. CDM Smith presented the recommended plans for upgrading both the East Side and West Side WWTPs on behalf of the Bridgeport WPCA.

Public comments on the presentation and the project were accepted through November 5, 2020. The questions and comments received as part of this public participation progress are included herein. Many of these questions and comments have been abbreviated, but the substance of the public comment has not been altered. DEEP, CDM Smith and the Bridgeport WPCA have provided corresponding responses in italics.

Public Comment 1 (Submitted via Email): From Bill Lucey, Long Island Soundkeeper, Save the Sound:

- A. "I am interested if there has ever been an effects analysis completed examining cumulative impacts from permitted sewage outfalls as part of the issuance of a NPDES permit."

Response to 1A:

DEEP RESPONSE: Yes, by looking at the effects of multiple discharges on a waterbody. CT DEEP requires chronic toxicity testing for waters that are impaired or dominated by discharges. Part of the chronic test requires testing of the receiving water upstream and downstream of the discharge. Water health as measured through the toxicity report. Ambient monitoring (program is run by Chris Bellusci) is completed for indicators of chronic and biological health. All of this is considered into whether there is an impact or impairment on the water. CT DEEP is just starting to implement the WQ based targets for P so must wait to determine effect(s). CT has a TMDL for N for LIS and all facilities have their limits. EPA and states will update model and update the N TMDL for the open water sound. CT DEEP is starting studies in coastal embayments, so no basis for changing permit requirements yet for WWTPs until embayment studies are completed by that plant outfall or EPA updates LIS N TMDL. CT DEEP Will get to all the embayments eventually but cannot get them all at once. CT DEEP has partnered to do Statewide SPF testing with private groups including USGS year one. CT DEEP has hired a modeling contractor and there is testing of rivers and lakes. The Pawcatuck project with RI is the demo project for this. Using freshwater impact of nutrients and what goes down to the LIS. Mystic and Norwalk are the next 2 embayments to be done. MS4 program has additional requirement to manage stormwater and nutrients in stormwater that are discharging to P streams and N BMP installation. CT DEEP is using HSPF modeling – Hydrologic Simulation P Fortran. The model will provide a better basis for updating permit limits.

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- B. “Understanding that there are certain allowances within “Zones of Influence”, what is the responsibility of the permit holder when discharging into an impaired water body? More specifically what is the course of action when the impairment encompasses both the ZOI as well as the rest of the waterbody in cases where the waterbody is an enclosed harbor or bay?”

Response to 1B:

DEEP RESPONSE: The permittee’s responsibility it to meet the permit limits whether MS4 or WWTP. If an impairment moves beyond the permit and requires a TMDL or if the cause is unknown, a study is performed to determine the cause and then CT DEEP floats a load allocation that gets incorporated in the permit(s). The permittee doesn’t do anything. A watershed plan is made and then the TMDL is put into the permit during the next revision.

- C. “Has there ever been **mitigation** required during a permitting or CEPA process for chronic inputs of nutrients and solids from a permitted discharge when these activities are identified as the primary source of the impairment?”

Response to 1C:

DEEP RESPONSE: Permits generally do not go through a CEPA process. Are you talking natural resource damages? CT DEEP does not put that in a permit. Chronic issues (not meeting effluent limits) will go into an order. Newly discovered issues (not meeting a metals limit) going into a permit during renewal. If a designated use is impaired, CT DEEP would determine the issue and then consider a TMDL.

- D. “Physical and chemical impacts include interruption of diurnal DO cycling, chronic hypoxia associated with high BOD and conversion of pre-discharge benthic sediments to post-discharge sediments characterized by high carbon concentrations and fine particle loading.”

“Biological impacts include reduction in biomass and diversity of aquatic species and fish kills.”

“Finally, understanding that in CT SLR is taken into consideration when upgrading facilities with state funds, are the effects of warming waters on chemical processes within the zone of influence (ZOI) and the impaired waterbody also considered?”

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Response to 1D:

DEEP RESPONSE: DEEP does not have a good model yet to evaluate and implement temperature changes however, the ZOI for thermal is not expected to be as large as the total ZOI.

- **Public Comment 2 (Submitted via Email):** From Kevin Blagys, Bridgeport Resident, Business Owner of KB Dive Services, and Coordinator of the Black Rock Harbor Study
 - A. “Kevin Blagys, Bridgeport Resident, business owner of KB Dive Services and Coordinator of the Black Rock Harbor Study. I attended the Zoom meeting and asked 2 questions regarding the CSO tunnel and plans for moving the outfall pipe.”

“Having just played the video presentation again, and studied the questions and answers, here are my thoughts as a resident who works on the water, and has been studying Black Rock Harbor since 2019.”

“The 14-minute zoom presentation by Dan and Joe of CDM Smith was the first time seeing the actual expansion plans of the East and West treatment plants.”

“It seems that a project of this scale is being rushed through without appropriate time for public Comment. Black Rock harbor just completed its 2nd year, monitoring the harbor for the Unified Water Study (UWS) (monitoring program through Save the Sound). Prior to 2019 Black Rock was not included in the Long Island Sound Report published by Save the Sound.”

Response to 2A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The WPCA’s Administrative Order with CT DEEP required the submittal of this Facilities Plan by November 30, 2020. Over the last 12 months CDM Smith has been working diligently with the WPCA to assess both treatment plants and develop a long-term vision of the capital needs of the facilities to improve the performance and reliability of the treatment facilities over the 30-year planning period. The plan is also designed to dovetail with the recommendations in the CSO Long Term Control Plan (LTCP) and provide a holistic view of the collection and treatment systems to result in the most cost-effective, timely solutions to improve water quality in the receiving waters. Numerous meetings have been conducted with the WPCA Board to keep them abreast of the project; these meetings are open to the public. Moving forward additional public meetings will be conducted with the WPCA Board, the public and the neighborhoods to ensure stakeholders are engaged in the solution. The recommended plan developed takes advantage of existing infrastructure and results in improved water quality in the receiving waters in a cost-effective and timely fashion.

The milestone dates included in the Administrative Order, that the WPCA is required to comply with, contribute to the seemingly rushed schedule. That said, as you understand, the treatment plants are in desperate need of upgrade so the sooner that this can be accomplished the better for Black Rock Harbor.

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DEEP RESPONSE: In addition to what is stated above, there will be a chance to review the facility plan, response to comments and the environmental impact statement and submit comments sometime in the first half of 2021. Please watch the CT CEQ website (<https://portal.ct.gov/CEQ>) for updates to the Environmental Monitor. The facility plan is still a draft and has not been approved by DEEP. Approvals cannot be issued until the EIE scoping and post-scoping is complete. There is still plenty of time to review and comment.

- B. "With the community seeking answers to the water quality in the harbor, a group of resident volunteers and students from the Aquaculture school began monitoring Black Rock Harbor for 5 months From May thru Oct. We go out on a boat before sunrise and sample 6 locations in the harbor 2 times per month."

"The 2019 Results for our sampling show Black Rock Harbor with an overall grade of D. Consisting of 5 parts:

- 1) Dissolved oxygen – F
- 2) Macrophyte (seaweed) D
- 3) Chlorophyll a (plankton) D
- 4) Oxygen Saturation B
- 5) Water clarity A

The results of our 2020 sampling will not be available till 2021."

"My business is KB Dive Service, maintaining boats underwater and marine services. I have been diving in Black Rock harbor since 2006 when I started the business. I dive regularly in the harbor from April thru November. Being on the front lines of actually diving in the harbor has made me aware of how stressed Black rock harbor is as a direct result of the Westside Treatment plant. It is because of the state of the harbor that I got involved in studying it, in an effort to save it. And I am not alone. The participation in the UWS water study was led by the Ash Creek Conservation Assoc, and funded through local Business leader: Santa Fuel."

"The Community and businesses are invested in cleaning up the harbor..."

"Having reviewed the proposal: The improvements in treatment of the Westside plant and expansion are welcome for the 90mg/d. However, expanding the plant, doubling it...to 200mg/d are not welcome without relocating the Outfall pipe from in the harbor to outside the harbor. (As was originally planned, and as Fairfield does)"

"Reduction of CSOs seems to be the main focus of this plan, and the problem isn't the CSO's....it's what comes out of the Outfall pipe."

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"Black Rock harbor has been on the front line of what comes out of the treatment plant, and the harbor is basically fertilized by the nitrogen, and that reduces the oxygen in the water which has been stressing plant, animals."

"If the plant is going to expand to 200 mg/d then relocating the outfall pipe under Seaside park into the sound would be recommended. Relocating the Pipe was also addressed by CT Rep Steve Stafstrom."

Response to 2B:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: We appreciate your commitment to the environment and your efforts in sample collection and documentation of the water quality conditions in Black Rock Harbor. This will not only provide baseline water quality conditions but will also help to assess the positive impacts resulting from an upgraded treatment facility.

It is clear, as documented in the Facilities Plan, that the West Side Wastewater Treatment Plant suffers from aging, undersized and inadequate treatment processes which directly and indirectly impact the ability of the treatment facility to meet permit limits. The Wastewater Facilities Plan has developed a plan to remedy the situation through the design and construction of a state-of-the-art treatment facility that will dramatically improve the efficiency, effectiveness and reliability of the treatment processes while reducing the pollutant load to the receiving waters.

We agree that Black Rock Harbor is stressed, and that some of the stress is due to the effluent from the West Side WWTP discharge. Stressors also include the four combined sewer overflows discharging to Black Rock Harbor, as well as non-point source due to urban runoff, stormwater discharges and landfill leachate from the Seaside Landfill. The prime focus of this Facilities Plan was to address the upgrade to the treatment facilities to improve effluent quality. Concurrently, we assessed the system holistically to identify the most cost-effective solutions that integrate CSO control with treatment plant upgrades to simplify operations and avoid sunk costs.

With the treatment plant upgrade we expect that the annual total nitrogen mass loading of 1,041 lb/day will be consistently achieved, which was not the case in the three years between 2017 and 2019. In fact, process modeling shows an expected annual total nitrogen load of 938 lb/day in the design year 2050, 10 percent less than permitted. In addition, under average conditions, it is expected that the 5-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) discharged will be consistently below 10 mg/L.

Currently, during storm events, the existing treatment plant is incapable of accepting more than 80 mgd for treatment (due to the current pumping and treatment capacity) at the West Side plant. Influent flow, up to 58 mgd, receives secondary treatment and disinfection. Influent flow greater than 58 mgd, receives primary treatment and disinfection prior to discharge to Black Rock Harbor. Combined sewer flow (sanitary sewer flow and storm water) beyond the current capacity of the WWTP is discharged

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through combined sewer overflow (CSO) outfalls with no treatment. There are four such combined sewer overflows tributary to Black Rock Harbor. During a 1-year, 24-hour storm event it is estimated that 44.4 MG of CSO from the West Side service area is discharged to receiving waters.

Increasing the West Side WWTP's wet weather capacity to provide preliminary treatment, primary treatment and disinfection for flows up to 200 mgd will reduce the volume of untreated CSO that is discharged by over 50 percent on the West Side during a 1-year, 24-hour storm event. Given the new, expanded preliminary treatment, primary filtration system and UV disinfection systems proposed, the primary effluent bypassed during high flow events is expected to achieve superior removal efficiencies, further improving the effluent quality of the discharge.

It is important to understand the expected frequency of these peak flows. Based on the collection system modeling, under existing conditions (2017-2019), influent flow is expected to be greater than 90 mgd only 10 percent of the time (36 days per year). Influent flow is expected to be greater than 120 mgd only 5 percent of the time (18 days per year). Again, based on 2017-2019 conditions, the peak flow that was conveyed to the West Side plant over the three-year period modeled was 186 mgd. We elected to increase the peak flow capacity to 200 mgd, since with some collection system improvements, more flow could be conveyed to the plant and further reduce CSOs to Black Rock Harbor.

DEEP RESPONSE: To add to the above, the CSOs affecting Black Rock Harbor are addressed in the CSO Long-Term Control Plan (LTCP) which went through the CEPA process of scoping and post-scoping starting October 3, 2017. As part of that document, it was noted that historically there were 9 CSOs that discharged directly into Burr Creek, Cedar Creek and Black Rock Harbor. Of those, only 4 remain: 1 in Burr Creek, 2 in Cedar Creek and 1 in Black Rock Harbor. All of these historical discharges have led to the current conditions in the harbor. By increasing the plant size and reducing the amount these untreated raw sewage discharges occur, the water quality in this embayment should continue to improve. In addition, the CSO LTCP also requires additional work on the collection system in the area surrounding Black Rock Harbor to ensure that initial discharge in a 1year 24hour storm is captured. That being said, the facility plan we are discussing here only addresses the upgrades at the wastewater treatment plants.

Refer to Comment Response 2D and 3B for a discussion of a new outfall pipe.

- C. As a "rate payer" to the WPCA for its service, I disagree with the comment that "We can only pay so much"

"This project is looking for funding from the Clean Water Act, and but residents should not be held responsible for plan.... The Clean Water Act is Responsible."

Response to 2C:

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CDM SMITH / BRIDGEPORT WPCA RESPONSE: CT DEEP's Clean Water Fund (CWF) provides grants and loans for these types of projects. Grants typically provide 50% funding for CSO projects, 30% for biological nitrogen removal (BNR) components, and 20% for general WWTP upgrade projects, with the balance eligible for a low interest loan. The final grant percentage awarded to the project would be based on the combination of the grants as eligibility for certain aspects of the treatment plant upgrades vary. However, the grant will not cover the entire project cost and the remainder would be funded through the CWF with a 2% loan payable over a 20-year period.

DEEP RESPONSE: While the Clean Water Act may be "responsible" for holding the Bridgeport wastewater treatment plants to a certain standard in order to meet water quality standards, it is not responsible for the operations, maintenance and any required upgrades. That falls to the City and the ratepayers. Federal funds are provided to the state through the Clean Water Fund and the state provides matching monies used to enable CT to award some of the largest grants under the Clean Water State Revolving Fund program nationwide.

- D. "Also commented was: what's the priority? All 3 are a priority, CSO, Plant and Outfall."

Response to 2D:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The project priority is to develop a cost-effective plan to holistically address water quality issues across Bridgeport – this is accomplished through CSO reduction and improving the performance and reliability of the two WWTPs. Cost-effectiveness is the critical component to the plan. By increasing the treatment plant capacity at both plants, we found we were able to significantly reduce CSOs sooner for less money, than previously recommended in the CSO LTCP. The cost-effectiveness of a new outfall was also assessed. The analysis revealed an estimated cost of a new outfall discharging about 11,000 ft offshore would cost on the order of \$200 million, whereas the benefit of the extended outfall, especially with improved effluent quality from the West Side plant was not immediately apparent. It is recommended that the water quality in Black Rock Harbor continue to be assessed subsequent to the proposed wastewater treatment plant improvements. If at that time, water quality in Black Rock Harbor is not showing signs of improvement, the WPCA could re-evaluate outfall relocation.

DEEP RESPONSE: Water quality is the priority. Because of that a plan is developed to address areas that affect water quality, in this case both of the treatment plants and all of the CSOs. In addition to what was said above in 2E and 3B regarding the outfall, it is not as simple as just "moving" the outfall. There is a lot of permitting and approvals that would be involved including the Army Corp of Engineers. Moving the outfall can not be done in the timeframe required by the Order to update the treatment plants but is something that DEEP is monitoring. The Municipal Wastewater Facilities Unit has

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requested that the Black Rock Harbor embayment be considered for the next round of testing and modeling described in answer 1A above.

- E. "I hope that the EIE plan under consideration shows that Black Rock Harbor has been directly affected over the years by the Current plant, and if the plant is going to increase its size, then now is the time to relieve the harbor and relocate the outfall pipe."

Response to 2E:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: As presented in the response to Comment 2B, the age and condition of the existing West Side WWTP has impacted its performance and there is no question that the facility needs to be upgraded to improve the effluent quality discharged. The increase in capacity of the West Side WWTP, however, is not expected to increase the loading to Black Rock Harbor. On the contrary, the increased capacity is expected to significantly decrease the volume of combined sewer overflows that discharge untreated wastewater into the Harbor sooner than would be accomplished under the CSO LTCP.

Although relocation of the effluent outfall could be considered in the future, we are confident that the investment in the treatment plant and collection system infrastructure will result in measurable improvements to Black Rock Harbor. Therefore, it is recommended that the relocation of the outfall be deferred until additional water quality data can be collected to justify or refute the need.

Public Comment 3 (Submitted via Chat during Public Meeting): From Kevin Blagys, Bridgeport Resident, Business Owner of KB Dive Services, and Coordinator of the Black Rock Harbor Study

- A. "Please explain the CSO tunnel and reduction of CSOs....in Black Rock we have 4 CSOs, will they be reduced with the CSO tunnel?"

Response to 3A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The CSO tunnel was recommended in the WPCA's 2011 LTCP. The 2011 LTCP recommended a schedule of collection system projects that achieved a 1-year level of CSO control by the year 2039 as required in the WPCA's CSO consent order. The 1-year control is defined as no CSO discharges during the 1-year, 24-hour storm. The CSO tunnel was proposed to be constructed toward the end of the LTCP schedule (2039). Upon completion of the LTCP projects, all CSOs on the West Side (including Black Rock Harbor) would not be expected to overflow in rain events smaller than the 1-year, 24-hour level. Several CSOs on the East Side would remain active upon implementation of the LTCP projects.

You are correct, there are 4 CSOs that currently discharge to Black Rock Harbor (ARBOR, WORD, ANTH and SEAB). Under our proposed plan to increase the capacity of the West Side WWTP ANTH, WORD, and SEAB will be controlled under the 1-year, 24-

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hour storm event. Discharges from ARBOR will be reduced by approximately 60 percent during the 1-year event. Because of the complex nature of the collection system hydraulics, it is proposed that additional collection system metering, modeling and calibration be conducted subsequent to the proposed improvements to determine what more, if anything, needs to be done to control the remaining CSO.

- B. "Follow up....Will the Main outflow pipe be addressed? Is extending the pipe under seaside park an option? Today 10/29 at 4pm the main outflow was clearly in Bypass event."

Response to 3B:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The West Side WWTP currently discharges through a 72-inch pipe at the headwall along the north side of Cedar Creek in Black Rock Harbor near the Captain's Cove Seaport restaurant and marina across from the Seaside Landfill. Options for the West Side Plant outfall evaluated in the Facilities Plan included:

- No Action, maintaining the existing outfall as is*
- Inspect, clean and rehabilitate existing outfall as necessary (note that an inspection was performed as a part of the planning process and the outfall was deemed to be in good condition)*
- Move outfall offshore to about 28-ft deep water (MLW) west of the terminus of the dredged channel*
- Move outfall further offshore to about 50-ft deep water (MLW) south of Penfield Reef.*

The location south of Penfield Reef was eliminated from consideration because the mixing at the site near the dredged channel was judged to be sufficient to not warrant the higher cost of an outfall to the south of Penfield Reef location. Planning level cost for cleaning and rehabilitating the existing outfall is estimated at \$100,000 to \$150,000. Planning level estimate for an extended to location near the terminus of the dredged channel is in the range of \$200 million. Due to the improved effluent quality from the new West Side plant, ability to meet the requirements of the plant's NPDES permit, potential impacts to shellfish lease holders, cost, required permitting, and construction risks associated with the extended outfall, it is recommended that a new outfall pipe be deferred until the water quality conditions in the harbor can be assessed after the new treatment facility is operating.

Public Comment 4 (Submitted via Email): From Peter D. Spain, MPH, Bridgeport Resident:

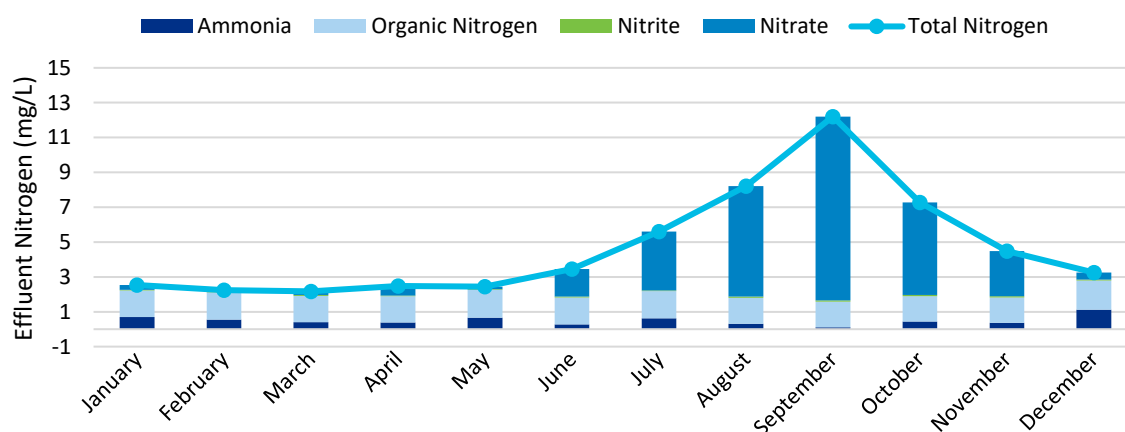
- A. "If the proposed improvements are made, what is the expected change in the average nitrogen ppm to Cedar Creek and Black Rock Harbor -- on or around the first day of each month of the year?"

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Response to 4A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The existing West Side WWTP has not met the annual total nitrogen mass loading limit of 1,041 lbs/day over the last three years (2017-2019), ranging from an annual average load of 1,277 to 1,761 lbs/day. During this period the annual effluent Total Nitrogen (TN) concentration ranged from 8.5 to 10.6 mg/L (ppm). The proposed treatment plant improvements incorporating a four-stage nitrogen removal process with integrated fixed film activated sludge (IFAS) will increase the plant’s capacity to achieve total nitrogen limits under all flow and load conditions and under all influent temperatures with an estimated annual average TN loading of 938 lbs/day (4.7 mg/L) in the design year (2050). Expected monthly TN from the West Side discharge is presented in the Figure 1 below. If supplemental carbon is added to the treatment process the annual load could be reduced to 664 lbs/day (3.4 mg/L). Understand, the results below are based on process modeling which is often conservative. Actual results could be even more favorable when the new treatment facility is put into operation.

Figure 1 - Projected Monthly Total Nitrogen Discharges from the West Side WWTP



- B. “If the proposed improvements are made, what will be the maximum number of gallons a day that the Bridgeport WPCA can process at the West Side Plant? How much will this improvement and increased capacity cost?”

Response to 4B:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: With a plant peak capacity of 200 mgd, the Bridgeport WPCA will be able to process 58 million gallons per day through primary and secondary treatment, and an additional 142 million gallons per day through the wet weather treatment system (preliminary treatment, primary treatment, and disinfection). The cost of the West Side WWTP upgrade and expansion, including engineering and contingencies, escalated to the midpoint of construction is \$383 million. The cost of the West Side WWTP upgrade with a 90 mgd peak flow capacity is \$297 million. There is an economy of scale realized with the increased plant capacity (that is, the 90 mgd facility equates to \$3.3/gallon treated versus \$1.9/gallon treated for the 200 mgd facility). The

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\$86 million differential between the two, plus the some anticipated collection system modifications (estimated between \$20 and \$60 million) result in a 50 percent reduction of CSOs in the West Side service area in a 1-year, 24-hour storm event, and the complete control 7 of the 19 CSOs in the service area (WORD, RAILS, TIC, CEM/MAPE, DEW, and SEAB), including two of the four CSOs that discharge into Black Rock Harbor. This cost differential can be compared against the estimated cost included in the CSO LTCP of \$496 million (2020 dollars) to control all 19 CSOs in the West Side service area. It is our hope that subsequent to the construction and operation of the expanded and upgraded treatment facility additional collection system metering and modeling could be conducted to result in limited additional work, at a reduced cost, to control the remaining CSOs.

DEEP RESPONSE: In addition to the CDM Smith / Bridgeport WPCA answer, the City is not seeking to increase the Design Flow Rate from 30MGD. The plant would continue to function as it currently does during a storm: All flows during a storm up to 58MGD flow through the plant and are fully treated; Flows above 58MGD flow through a side stream that receives primary treatment and is disinfected before being recombined with the treated effluent and is discharged through the existing effluent pipe. This combined treated effluent must still meet all the requirements of the NPDES permit.

- C. “Any thought to integrating the management of the plant and the environmental monitoring of the harbor with the adjacent Aquaculture Regional Magnet School?”

Response to 4C:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Yes. We believe that there could be significant synergy between the treatment facility on the West Side and the Aquaculture school. The proposed layout of the new administration, laboratory and control building faces the Aquaculture School to provide a welcoming connection between the two. The WPCA administration will be moved from the East Side to the West Side and it is anticipated that a new visitor/educational center will be incorporated into the lobby of the new control building to highlight the benefits of and need for wastewater treatment. The upgraded West Side WWTP will be a “plant of the future” with vastly improved treatment processes that can be highlighted and provide educational opportunities for individuals of all levels. There would appear to be value for both parties in a partnership with the aquaculture school.

- D. “In line with, but adding to, point raised by State Rep Stafstrom during the Q&A: Has the draft proposed upgrade plan for the West Side plant to “potential 200[million gallons per day]” capacity (see the slides) been evaluated for its potential adverse impacts, in terms of noise and air pollution and daily/nightly nuisance, from the perspective of the next-door residents in the PT Barnum Apartments complex? If not, when will this evaluation take place, how long will it take, and how many public meetings will it include? How will members of the community know about this/these meeting(s)?”

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Response to 4D:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The West Side WWTP site is extremely space limited. When evaluating site layouts for varying treatment plant capacities our designers were cognizant of the proximity of the adjacent apartment complex and considered how best to minimize impacts to the abutters, while also enabling the construction of the new treatment facility while maintaining operation of the existing facility. It is proposed that the new treatment plant headworks (influent pumping, screening and grit removal) be constructed on the northern portion of the site adjacent to the public housing complex.

The buildings proposed to abut the PT Barnum Apartments would be completely contained. Building openings facing the apartments will be limited to mitigate fugitive odors and noise. New odor control units will be provided to further reduce the impact of odors, and HVAC and other noise generating equipment will be designed to contain noise. In addition, landscaping along the northern property line will soften the visual impact of the new facility. The WPCA and our consultant welcomes further discussions with the neighborhood to refine and improve the design to further mitigate impacts. As the design develops 3D tools can be used to portray the new facilities from different vantage points at public meetings to be scheduled in 2021. CDM Smith and the WPCA conducted a site visit with State Representative Stafstrom and City Council member Scott Burns on November 12, 2020 to visit the location and further discuss the potential concerns.

- E. "In line with, but adding to, point raised by State Rep Stafstrom during the Q&A: Does the plan include a way to extend the large pipe that now spills out, and for decades has spilled out, from the West Side plant into the harbor (just below the office building at Captain's Cove) and to run the pipe out of the harbor and into the Sound for significantly greater flushing/dilution of the plant's outflows? Like Fairfield's and other towns'. What would be the time and money required to do this?"

Response to 4E:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Please see the response to public comment 2D and 3B regarding the effluent outfall.

Public Comment 5 (Submitted via Chat during Public Meeting): From Peter D. Spain, MPH, Bridgeport Resident:

- A. "For West Side plant upgrade: What will be expected life expectancy of this, if it is online around 2026?"

Response to 5A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: In general, for planning purposes, the life of new structures (buildings and concrete tankage) are expected to be 50 to 100 years, process equipment is expected to be 20 to 30 years, and electrical systems and

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instrumentation and controls are expected to have a 15 to 20 year life. The design of the new facilities have considered expected sea level rise and all critical structures and equipment will be designed to protect against the 100-year flood elevation plus 3-feet.

Public Comment 6 (Submitted via Email): From Peter D. Spain, MPH, Bridgeport Resident:

- A. “Thank you for the WPCA’s presentation and public Q&A last night on the facility planning update for the two wastewater treatment plants in Bridgeport.

“It was good that the Zoom meeting could be resumed and completed.”

“I would like to be sure that people in the community – especially those who either (A) prematurely left the Zoom meeting due to prurient piracy (AKA Zoom blitzing), or (B) could not attend the meeting but are interested – can access the excellent slides that CDM Smith presented last night.”

Response to 6A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The WPCA appreciates and acknowledges the feedback. The slides from the public meeting are included as an attachment to this memorandum. In addition, the entire report including an Executive Summary will be made available on the WPCA and CT DEEP websites.

Public Comment 7 (Submitted via Email): From Roger Reynolds, Senior Legal Counsel, Save the Sound

- A. “We are writing to comment upon the Scoping for City of Bridgeport Facilities Planning for East Side and West Side Wastewater Treatment Plants. Save the Sound strongly urges a strong Environmental Impact Evaluation in full compliance with the Connecticut Environmental Policy Act (“CEPA”) that will fully and comprehensively address the environmental problems of ongoing water quality impairments in Black Rock harbor due to nitrogen discharges and combined sewer overflows. We request that the following significant environmental impacts be studied in substantial detail: (1) the impact of the continuing nitrogen discharge onto Black Rock Harbor, (2) requiring monitoring of the harbor system going forward to fully understand the environmental impacts and necessary actions, (3) a full evaluation of alternatives to address the negative impacts from the discharge including additional nitrogen treatment and relocation of the discharge pipe, (4) a full analysis of whether, and to what extent, the upgrades can shorten the amount of time to implement the Long Term Control Plan for combined sewer overflows, (5) whether and to what extent there is opportunity to capture combined sewer overflows above and beyond the proposed 280 MGD, (6) whether the upgrades will violate a DEEP Consent Order, and (7) whether and to what extent the Consent Order non-compliance will impact the environment.”

“Finally, we would note that the responses to these and other comments should be addressed BEFORE DEEP receives and/or approves any facilities plan or moves forward with it under the Consent Order. If that did not occur, this would be a cynical

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and meaningless exercise, and frustrate the letter and spirit of CEPA as well as the public's ability to understand and to influence these plans."

Response to 7A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Please see the WPCA's responses to the above concerns as outlined in Public Comments 7B through 7E.

B. "The City of Bridgeport should address the impact of the continuing nitrogen impact on Black Rock Harbor including long term monitoring of the system and a full evaluation of alternatives to address the activity causing or contributing to such impairment."

"Under CEPA, C.G.S. Sec. 22a-1b, for an action significantly impacting the environment, an Environmental Impact Evaluation must provide a "detailed written evaluation of its environmental impact" and alternatives to avoid or mitigate environmental impacts. Thus, under law, the various environmental impacts, as detailed below, and alternatives to address them must be thoroughly studied."

"Black Rock Harbor is a severely polluted and impaired water body according to the 2020 Integrated Water Quality Report issued by DEEP pursuant to the federal Clean Water Act. It does not support aquatic life, recreation or shell fishing. Causes of these impairments include the nitrogen discharge from the pipe as well as combined sewer overflows, each of which are impacted by this project. According to a 2016 study of embayment's across Connecticut, approximately 95% of the nitrogen impairment for Black Rock Harbor can be directly attributed to the sewage treatment plants. (Vaudrey, J. M., Yarish, C., Kim, J. K., Pickerel, C., Brousseau, L., Eddings, J., & Sautkulis, M. (2016). Comparative analysis and model development for determining the susceptibility to eutrophication of Long Island Sound embayment's. Connecticut Sea Grant Final Project Report, 38.)"

"Under the Clean Water Act and Connecticut law, it is illegal to maintain a discharge that causes or contributes to a violation of water quality standards. The Environmental Impact Evaluation must document (1) whether and to what extent the water quality is impaired, (2) whether and to what extent the discharge from the plant and the combined sewer overflows are causing and contributing to this impairment and (3) the measures available to address these impairments."

"To do this effectively, DEEP should require a period of long-term monitoring of the harbor. Because this project is explicitly designed to address this impairment, it should include long term modeling of such impairment and its causes to fully understand the dynamics of the waterbody and how it should be addressed."

"The second thing that needs to be addressed is the evaluation of alternatives that would address this impairment. With respect to the aquatic life and dissolved oxygen impairments, the nitrogen discharge from the sewage treatment plant should be fully addressed. The two most obvious alternatives would be (1) the additional treatment of nitrogen from the pipe and (2) the relocation of the pipe such that it is not discharging into the inner harbor. The analyses should include whether and to what extent each of

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these would address the impairment and any other measures that might be necessary or feasible.”

Response to 7B:

DEEP RESPONSE: It has already been determined that an EIE will be prepared for the project. The effluent must meet the NPDES permit standards and in doing so is considered to not impair the water quality that already exists with the current exception of Nitrogen. The wastewater treatment plant is required to address the Nitrogen shortfall. The harbor is monitored by several groups and the information that has been shared with DEEP is available through the Water Quality unit. In addition, there will be targeted monitoring and modeling done on each embayment along the Long Island Sound. However, none of that affects the current permit or the standards used to determine the requirements of the upgrade. The Nitrogen requirements are being addressed in the upgrade with the added benefit of removing the first storm flush from the 4 remaining CSOs in Black Rock Harbor which will removed non-source point Nitrogen.

C. “The City of Bridgeport should more fully document what alternatives are available to speed up the implementation of the Long-Term Control Plan and how those alternatives will impact water quality in Bridgeport”

“Combined sewer overflows from the West and East side plants are also causing and contributing to the impairments and impeding recreation and shell fishing. On page 14 of the PowerPoint presented at the scoping meeting, entitled, “Upgraded Plants Will Provide CSO Reduction” there is a chart indicating that the facilities plan may lead to a more gradual reduction in CSOs over time, rather than a sudden reduction once a tunnel is constructed in 2040. This chart is unclear and confusing on many levels. First, it is unclear why the assumed level of CSO capture, 280 MGD, would not accelerate the time in which the CSOs are reduced to the level of the one-year storm. In both scenarios, it would not be until 2040 until the CSOs were reduced this substantially. Accelerating the time to eliminate these CSOs would have a huge environmental impact and thus, under law, must be studied as an alternative. Moreover, it is not clear from a logical basis why, if a final tank will no longer have to be constructed, the time frame to reduce the CSOs would not be substantially shortened. This should be fully explored including all of the environmental benefits that such an acceleration in time frame would entail.”

“While the City stated, in the scoping meeting, that it did not feel that it had to address this because this project was not necessarily designed to decrease combined sewer overflows, such reduction is clearly a major environmental consequence of this action. Indeed, the ability to address CSOs and the extent to which they will be addressed take up several pages of the presentation. A full analysis of this issue must include the various alternatives to use this extra storage to accelerate the time schedule to complete the CSO reductions.”

“Second, if the west side upgrades won’t be completed until 2026 and the East Side upgrades not until 2030, it is unclear why it shows a gradual decrease until that time, instead of a sudden drop once those projects are completed.”

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“Finally, it is unclear how the 200 and 80 MGD storage capacities were reached. The EIE should set out other alternatives, such as having even more capacity for CSOs, along with their feasibility and environmental benefits.”

Response to 7C:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The WPCA contracted with CDM Smith to prepare the Wastewater Treatment Plant Facilities Plan as required by the Administrative Order. The goal of the facilities plan was to assess both treatment plants and develop a long-term vision of the capital needs of the facilities to improve the performance and reliability of the treatment facilities over the 30-year planning period. The plan was also designed to dovetail with the recommendations in the CSO Long Term Control Plan (LTCP) and provide a holistic view of the collection and treatment systems to result in the most cost-effective, timely solutions to improve water quality in the receiving waters. Early in the planning process CDM Smith recognized that the Bridgeport collection system had the capability of conveying much more flow to the treatment facilities than the treatment facilities can currently accept. In addition, surprisingly, the CSO Long Term Control Plan (prepared by others) did not assess increasing the capacity of the two plants as a means of controlling CSOs nor did it consider the cost to upgrade the plants. As a part of the wastewater treatment facilities plan, CDM Smith then assessed, through collection system modeling, the impact of increased plant capacity on CSO reduction. This assessment, as documented in the Facilities Plan, revealed that increasing the plant capacity had a profound impact on the reduction of CSOs (over 50 percent) and could be implemented, cost-effectively, as part of the treatment plant upgrades, to reduce CSOs in a more timely fashion.

The WPCA agrees that the graph originally presented in the public meeting did not accurately represent the benefits of increasing the plant capacity. A revised version of this graph is included below. The full CSO benefit of the increased plant size will not be seen until the WWTP construction is completed, at which point the WWTP can treat a larger peak flow, and thus reduce the volume of CSO in the 1-year, 24-hour design storm. After the completion of the East Side WWTP upgrade, more than half of the CSO volume is eliminated during the 1-year storm.

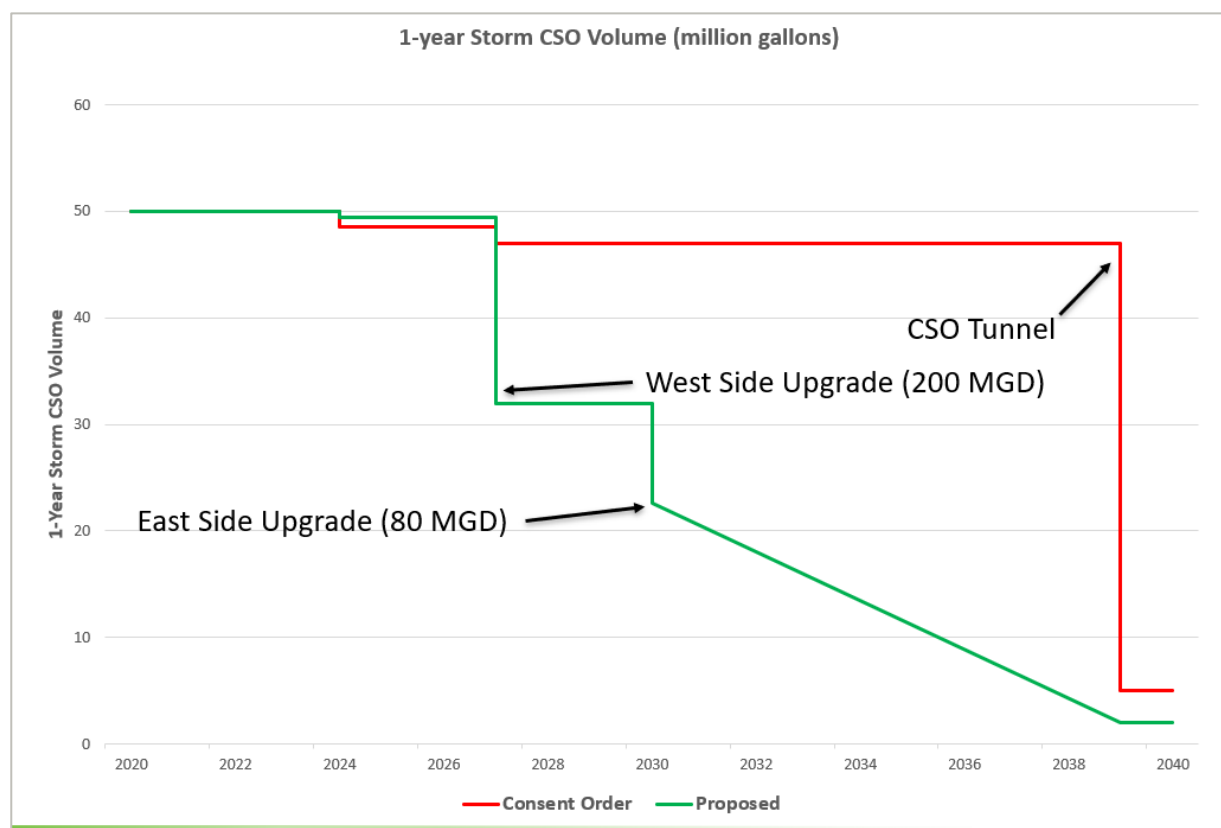
The WPCA is under a CSO consent order to abate all CSOs to 1-year level of control by 2039. The gradual decrease from completion of the East Side WWTP until 2039 represents the removal of the remaining CSO volume in the system to reach the 1-year control level as defined in the order. This decline would not be provided by the WWTPs but instead would need to be achieved through collection system improvements, such as sewer separation or other methods, that have yet to be fully defined or scheduled. Because of the complexity of the combined sewer collection system, we recommend additional metering and modeling subsequent to the construction of the expanded treatment facilities to better understand how to best control the remaining CSOs.

In assessing treatment plant capacities, the wastewater Facilities Plan assessed peak flow capacities of 80, 90, 140, 180 and 200 mgd at the West Side Plant and 35, 40, 60 and 80

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mgd at the East Side plant. The recommended 200 and 80 mgd peak flow capacities of the two plants, represented the most cost-effective capacities to enable the reduction of CSOs. These values were reached through hydraulic modeling to determine the flow that could reach the WWTPs and the commensurate reduction of CSOs. Currently the West and East Side WWTPs can pump and treat a maximum of approximately 80 and 35 mgd, respectively. However, the collection system can deliver 200 and 80 mgd to the plant during larger storms. Today, flow to the two plants is restricted by partially closing the influent gates to avoid flooding of the influent pumping. When the influent gates are partially closed, the collection system backs up, ultimately resulting in CSO discharges.



Updated Chart from Slide 14 of the Public Meeting Slides

DEEP RESPONSE: Regarding the upgraded graph, the first bump down is due to collection system improvements that are in process and not part of this facility plan.

- D. “The EIE must address whether and to what extent the facilities plan complies with orders issued by DEEP and, if not, what impact such non-compliance will have on the environment.”

“A consent order entered by DEEP on March 1, 2019 required the West and East side plants to be fully upgraded no later than 2739 days after the date of the order which occurs in late 2026. This was to address the discharge and the impairment to Black Rock Harbor and Long Island Sound. Yet the scoping power point, with no explanation,

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puts the completion date of the East Side plant at 2030. The EIE must explain whether and to what extent this complies with the Consent Order and, if not (as it appears), what the impact of that non-compliance will be, and the alternatives available to remedy this.”

Response to 7D:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The Administrative Ordered schedule for the wastewater treatment plants is summarized in the table below:

Date	Action
On or before November 30, 2020	Submit Facilities Planning Report
On or before May 31, 2022	Submit 100% design plans and specifications for WWTP upgrades
No later than August 2023	Commence construction of remedial actions
No later than August 2026	Complete construction of remedial actions

The Facilities Planning Report has been submitted in accordance with the schedule. Based on the information presented in this Facilities Plan, the WPCA will be requesting a modification to the design and construction project schedule to accommodate the significant amount of work that is necessary to mitigate current issues at both plants and the significant impacts on sewer use rates to the citizens of Bridgeport.

First, it is proposed that the design and construction of the two facilities occur sequentially, versus concurrently as presented in the Administrative Order. All previous projects, whether large or small, conducted for the WPCA occurred sequentially to enable the limited resources at the WPCA to provide adequate and timely input and review of the design documents and construction issues, and to better manage the costs incurred by the WPCA. It is proposed that the construction at the West Side Plant commence first, followed by the construction at the East Side Plant.

Second, because of current difficulties securing SRF funding for design, it appears that the design start will be delayed. Previously, a December 2020 start date was anticipated.

Lastly, the Administrative Order proposed a three-year (36 month) construction duration. Given the complexity of the improvements, especially regarding maintenance of plant operations during construction and the need to get certain systems up and running before others can be decommissioned and demolished to make room for new facilities, a minimum 42-month construction schedule, and more likely at least 48 months will be necessary.

Based on these factors, a revised schedule is proposed. As presented, the West Side WWTP upgrade and expansion will be completed one year after the original construction

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date presented in the Administrative Order. The East Side WWTP will be completed by the end of 2029. Achieving these milestones will require SRF funding in addition to timely reviews and approvals of submittals by the CT DEEP.

DEEP RESPONSE: While expediency is always desired, DEEP must factor in affordability. This City will make its pitch for a longer timeframe and DEEP will consider the effect(s) to the environment and the ability of the users to pay in addition to other criteria spelled out in the EPA Affordability Analysis documents.

E. “These and other comments should be considered and addressed BEFORE DEEP approves the proposed facilities plan”

“This should be obvious, but before approving any facilities plan that would have a significant impact on the outstanding DEEP consent order or the Long Term Control Plan, DEEP and/or the City of Bridgeport should address these and other comments received through the scoping process. Otherwise, this would be a meaningless and cynical exercise, violating both the spirit and the letter of the Connecticut Environmental Policy Act.”

Response to 7E:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The WPCA agrees with this sentiment. Addressing concerns of customers and the public is a priority. We believe that this Facilities Plan recommends improvements at each WWTP that will provide great environmental benefit for years to come, while also being mindful of our rate payers and what is affordable at this time.

DEEP RESPONSE: There are a few more steps before approval can occur including the response to comments, post-scoping of the initial planning post, completion and scoping of an EIE and then making a final determination and post-scoping. Once all these steps are completed, then DEEP will determine whether to approve the plan or not.

Public Comment 8 (Submitted via Email): From Suzanne Murray, Bridgeport Resident:

- A. “I am writing to you to express my support to upgrade plans for the West End Treatment Plant as soon as possible. Damage done by excess nitrogen and the fecal bacterial pollution is obvious as our health and our water quality are put at risk every day. Further, it contributes to Cumulative ecological damage that must not be ignored.”

“The good news: It is a SOLVABLE problem. We must eliminate all CSOs as part of our overall resiliency planning to adapt to the imminent changes that global warming brings. Doing this NOW is the right step for our water and earth neighborhoods and for our planet.”

Response to 8A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: The WPCA appreciates and acknowledges the feedback.

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Public Comment 9 (Submitted via Email): From Tim Kendzia:

- A. "I read about the scoping notice for facilities planning for Bridgeport's wastewater treatment plants."

"I'm very interested in staying updated on this and other coastal infrastructure projects in the state. I have two comments and a question on this project."

"I think that an anaerobic digester should be considered for this project, especially if consolidation is being proposed. I am not the most well versed in the capacity requirements, but I think generally an anaerobic digester needs a large population base to contribute several millions of gallons per day to be efficient. Bridgeport, being the largest municipality in the state, ought to meet the sizing requirements for an anaerobic digester. The benefits of anaerobic digestion can include odor control, a reduction in nutrient effluent, and biogas production. Biogas can be used directly to power generators onsite, or it can be converted into hydrogen gas and usable in fuel cell applications. Surely the WWTP has some form of on-site generation in the case of emergencies, but with a biogas generator it can reduce its use of fossil fuels and increase the projects ability to function during storm events."

Response to 9A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Anaerobic digestion was evaluated as part of the facilities planning process. It was not included in the recommended improvements due to the space limitations at the West Side WWTP site and added cost and operability of the system. The most pressing needs at this time are water quality improvements, so at this time the primary focus is the liquid treatment train. It is recommended that the facility continue to truck thickened sludges off-site for disposal.

- B. "The second comment is in regard to preserving and enhancing natural infrastructure along the coast. The project must be consistent with the Connecticut Coastal Management Act which calls for "feasible, less environmentally damaging alternatives" to flood and erosion control structures. Among the alternatives is to consider moving the infrastructure further landward. As both the plants are located adjacent to the coast, they both will be at heightened risk of flooding via storm surge. Flooding the WWTPs would be an extreme risk to public health and the environment. To mitigate the risk, these facilities either can be surrounded by protective infrastructure (potentially nature-based such as living shorelines, or the facilities can be relocated further inland. I propose that for the scoping of this project that relocation is given serious consideration as an alternative."

"My question is related to sea-level rise forecasting. I am curious what the planning horizon is for this project and to what height sea level rise is being planned for."

Response to 9B:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Relocation or consolidation of both WWTPs was evaluated during the facilities planning process. Through this evaluation, relocation

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and/or consolidation of the plants was determined to be infeasible. Bridgeport is heavily developed City, with few, if any, open areas available for construction of a new WWTP. The recommendation to relocate either or both facilities would certainly delay implementation due to the expected push-back from parcels and neighborhoods adjacent to the proposed site. Additionally, relocation of either WWTP would require extensive collection system alterations to convey the flow to the new site for treatment. The relocation or consolidation of WWTPs was determined to not be infeasible at this time.

Due to both the treatment plants' proximity to the Long Island Sound, tidal flooding occurs at the plant sites during intense storms and hurricanes. Tidal flooding is typically the result of several factors such as tidal fluctuation, intense rainfall (which cannot drain from the sites when tides are high) and wind driven coastal storm surge. With the current threat of sea level rise, TR-16 design guidelines were revised in 2016 to incorporate significant modifications to flood protection and resiliency. This includes requiring existing treatment plants that are planned for upgrade or expansion be improved to the maximum extent possible to meet the following flood protection criteria:

Provide for uninterrupted operation of all units during conditions of a 100-year (1% annual chance) flood, and

Be placed above or protected against the structural, process and electrical equipment damage that might occur in an event that results in a water elevation above the 100-year (1% annual chance) flood.

Critical equipment should be protected against damage up to a water surface elevation that is 3 feet above the 100-year flood elevation

Non-critical equipment should be protected against damage up to a water surface elevation that is 2 feet above the 100-year flood elevation

The planning horizon for these projects was 30 years. The above criteria were the planning basis for this Facilities Plan and will be adhered to in the final design of these facilities.

Public Comment 10 (Submitted via Email): From Brad Burns-Howard, Bridgeport Resident:

- A. "Does the plan include a way to extend the large pipe that now spills out, and for decades has spilled out, from the West Side plant into the harbor (just below the office building at Captain's Cove) and to run the pipe out of the harbor and into the Sound for significantly greater flushing/dilution of the plant's outflows? Like Fairfield's and other towns'."

"The answer last night: No. The consultant engineer suggested that the costs for that pipeline would be hard to cover in addition to the costs for the planned major overhaul to the two plants."

"These "costs for that pipeline" should be specifically identified in relation to the costs of the existing plans and publicized to Bridgeport residents, as well as Fairfield County and Connecticut residents who are adversely affected by poor quality water as a result

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of effluent discharges into Long Island Sound.”

“With the additional costs identified, residents and voters will be able to bring educated public opinion to bear on city, county and state officials and force them to FIND THE MONEY!”

Response to 10A:

CDM SMITH / BRIDGEPORT WPCA RESPONSE: Please refer to responses to Comment 2C, 2D and 3B.