

Lewes BPW
WWTF Workshop Minutes
April 12, 2023

1. **Welcome**
2. **Roll Call**

Board Members

Thomas Panetta, President
Earl Webb, Vice President
D. Pres Lee, P.E., Secretary
Richard Nichols, Treasurer

Ex-Officio

Austin Calaman, BPW General Manager
Robin Davis, BPW Assistant General Manager

Others

Hans Medlarz, Sussex County
Tom Biagioli, GHD
Jeff Sturdevant, GHD
Sharon Sexton, BPW
Charlie O'Donnell, GMB
Barbara Curtis
Sumner Crosby
Jerome Virden
Mark Prouty
Ann Marie Townshend, City Manager

3. **Continued discussion of the long-range planning on the Lewes BPW wastewater treatment facility. INFORMATION/DISCUSSION**

President Panetta stated that this is the fourth public workshop concerning the WWTF long-range planning and reviewed next meeting dates: May 17, 2023, at City Hall Council Chambers and June 14, 2023, at the Rollins center, at 6:30pm.

FAQS are available on the BPW website.

County held a tour of South Coastal County facility. There will be a tour will be of Wolf Neck the existing site, not reflective of what will be there in the future.

President Panetta addressed the Cape Gazette article. Clarified that the Board is pursuing option three and staff is working with the county to draft an agreement. For option three to be viable, the Board will need to address cost, environmental, and controllership issues. If option two or three option is chosen the current WWTF will be demolished.

There were some suggestions of temporary hardening. President Panetta stated that it would be spending money for a long-term solution.

Mr. Biagioli presented.

1. Option 1 Visualizations

- Option 1 (existing site hardening) upgrades include new perimeter flood barrier and new treatment structures.
 - View Number 1- Key differences:
 - site entrance viewed from American Legion Road.
 - New site fence
 - Compacted earth fill- finish would be a grass seeded bank.
 - Slope of 1 and 2.
 - New 3.05 MG Flow equalization tank.
 - Rise of the road to the top of the perm is approximately 6 feet above the existing grade.
 - View Number 2- site perimeter viewed from E. Savannah Road
 - EQ obscure the view of existing headworks building.
 - Sheet pile wall has lower footprint but more expensive.
 - New site fence
 - Compacted earth fill
 - View Number 3- site perimeter viewed from Theo C. Freeman Memorial Highway (Rt. 9)
 - Land is currently owned by city and BPW. Will need to be subdivided.
 - New MBR Building
 - New equalization tank
 - New perimeter flood barriers
 - Higher than the Gils Neck view.
- Mr. Crosby 558 Pilottown Road, questioned how much larger the equalization tank is. Mr. Biagioli stated that it is six times the volume.
- Barbara Curtis, 17 Shipcarpenter Square, questioned the need for such a larger tank. Mr. Biagioli stated that the tank provides a buffer for incoming flows and sized up for the future 2050 horizon flows and the best practice for the industry. President Panetta stated that the current average summer peak is 1.1 million gallons flow, and the plan is to size for 1.75 million gallons. Ms. Curtis questioned why the existing tank could not just be heightened. Mr. Biagioli stated that there would be structure stability issues and pumps would have to be considerably more powerful. Mr. Sturdevant stated that the MBRs has a fixed capacity at which flows can be passed through. Based on MBR design. Ms. Curtis questioned where the new aeration tanks in the wetlands and would there be a permit issue? Mr. Biagioli stated that yes, the aeration tanks would be in the wetlands and there will be a need for permitting. Both issues are factored into the MCA scoring.
- Jerry Virden, King's Highway, questioned why the impacted barrier could not be extended instead of a fence and use the natural trees. Mr. Virden suggested a 99-year lease on this property, like the rest of Lewes Beach.

Mr. Biagioli there would be concerns whether trees and plantings would provide impermeable barrier, flood proofing. Clay or a plastic would be used in the barrier.

2. Costs Estimates

- The approach used to develop the Preliminary Capital Cost estimates was as follows:
 1. Engineering analysis and calculations
 - Establish key technical parameters for flood defenses, treatment equipment, storage tanks, pumping stations, pumps, and pipelines using established industry standards and best practice.
 - For detailed calculations and sizing assumptions refer to:
 - Option 1 Process Upgrades: Report Section 3.2.2
 - Option 1 Flood Defenses: Report Section 3.2.3
 - Option 2 Treatment Plant: Report Section 3.3.2
 - Option 2 Network Hydraulics: Report Section 3.3.3 and Appendix C
 - Option 3 Network Hydraulics: Report Section 3.4.4 and Appendix C
 2. Physical Process Sizing and Land Use
 - Physical Process and Land use
 - the critical parameters identified in step 1 to develop physical dimensions for proposed upgrades.
 - Estimate land areas required for Option 2 sites (includes access roads, treatment facilities, treated effluent storage, and treated effluent distribution.
 - Estimate land areas required for pumping station upgrades.
 - Estimate pipeline lengths for flow transfers.
 3. Estimate Base Cost for construction, including:
 - Quality extent of demolition work required.
 - Estimate temporary facility requirements (excavation supports, pumping, traffic management, storm water management facilities, etc.)
 - Calculate earthworks quantities.
 - Calculate pipeline diameters and trench dimensions.
 - Calculate paving reinstatement required for existing public roads.
 - Calculate concrete volumes for new structures.
 - Estimate Architectural costs for new buildings (building superstructures, cladding and finishes, ventilation, and cooling)
 - Coordination with equipment suppliers to specify and request quotes for major process equipment including flow transfer pumps, screens, grit removal, blowers, clarifier mechanisms, UV reactors, sludge dewatering equipment.
 - General contract conditions and electrical & instrumentation works are estimated as a percentage of the itemized project costs.
Percentage allocated on based recent overserved market trend.
 4. Apply Uplifts for project delivery.

- 35% construction contingencies: allows for funding risk associated with, for example: ground conditions, material cost fluctuations and contractor availability (among others)
- 20% legal and engineering cost; typical value observed for professional services on large capital projects.
- 5% administration costs; allows for the BPW to administer and oversee the project delivery.

Mr. Nichols questioned the amount of area to solicitate information on the suppliers and contractor costs. Mr. Biagioli stated that for equipment costs, GHD spoke with local representatives in the Delaware area. For general contractor costs, GHD used an average across the industry from North Carolina up to New York.

Barbara Curtis is concerned with the cost estimate and the design upon which they were based. Depending on the treatment process, the impact on the cost estimate would vary if different technologies were selected. Ms. Curtis also is concerned with the possible technology that will be used in option three. Mr. Medlarz stated that the treatment option plays important cost factor. In option one, there is no choice in option one, as the current treatment is to be expanded. President Panetta stated that given the tight space it will be extremely difficult to change technology while keeping the facility operational.

Mr. Biagioli stated that the itemized cost estimates are in Appendix D of the report.

There are a few key cost differentiators:

Option 1: Requires an increase in the WWTF site area of approximately 0.3 acres to accommodate new aerations basins and MBR building extension. Lewes BPW owns the land around the existing WWTF and therefore no additional land purchase is required for Option 1. Mr. Calaman stated that this would need an adjustment, as this is city land.

Option 2a: Entirely new plant requires a 250-acre site, including 230 acres for spray irrigation at an application rate of 2 inches per acres per 7-day period. Land purchases represents 13.6% of the construction subtotal for option 2a.

Mr. Lee feels that this cost be low for this areas market. Ms. Curtis stated that she was impressed with no odor at South Coastal and so close to residences. Ms. Curtis questioned if the BPW could lease land from the state of Delaware. President Panetta stated that leasing land was considered but the available Cape Henlopen Park parcels are still close to the ocean.

Option 2b and 2c: Entirely new plant requires a 20-acre site. Treated effluent is discharges via canal or ocean outfall respectfully and therefore spray irrigation area is not required. Land purchase represents 1.5% and .9% of the construction subtotals for option 2b and 2c, respectively.

Option 3a and 3b: The new county WWTF would be constructed on land already owned by the county and would not require a capital cost contribution from the Lewes BPW. Therefore, no additional land purchase is required for Option 3a or 3b.

Mr. Webb questioned if GHD has the same confidence in the numbers today, as when the report was produced. Mr. Biagioli stated that he does have the same confidence, but the report is in 2022 dollars. Mr. Sturdevant stated that once an option is selected, the costs will be updated and will fluctuate.

Example Cost differentiators #2: Network Upgrades

Option 1: existing site will remain operational therefore no additional network upgrades are required for Option 1.

Option 2a: a new wastewater pump station is required to transfer network flows to new WWTF site Treated effluent is discharged via spray irrigation, close to the WWTF site. Network upgrades represent 10.3% of the construction subtotal for option 2a.

Option 2b: a new wastewater pump station is required to transfer network flows to new WWTF site Treated effluent is discharged via spray irrigation, close to the WWTF site. Network upgrades represent 20.0% of the construction subtotal for option 2b.

Option 2c: a new wastewater pump station is required to transfer network flows to new WWTF site Treated effluent is discharged via spray irrigation, close to the WWTF site. Network upgrades represent 44.3% of the construction subtotal for option 2c.

Mr. Webb questioned if 16" pipe was appropriate. Mr. Medlarz stated that it is the right size.

Option 3a and 3b: BPW are only responsible for a new raw wastewater pump station and raw wastewater delivery main up to the existing BPW/County scope boundary. Network Upgrades represent 34.8% of the construction subtotal for option 3a and 3b.

Mr. Webb questioned the options that will take longer and if this taken into consideration, including inflation. Mr. Biagioli stated that the capital costs are 2022 dollars and the rates supplied at bid stage. Mr. Webb questioned how bidders will calculate the cost for a project that could take place over several years. Mr. Sturdevant stated that option 2c could take 5 to 10 years to permit and there is more risk with the longer projects. The biggest risk is the land application and outfall, in Mr. Sturdevant's opinion. Mr. Webb questioned if a 5-year factor should be modelled. GHD could do this, but judgement would have to be used and would not be perfect. President Panetta stated that any option is going to take a minimum of 5 years. Mr. Lee stated that the planning is still in the conceptual stage and will be difficult to get more firm numbers. President Panetta stated that more information is needed and the options will need to be narrowed down.

Mr. Nichols questioned when does the cost start to affect customers. Mr. Medlarz stated that it would be the day that the loan closed. Mr. Nichols questioned what the timeframe for is closing on a loan for any option from the time a decision is made. Mr. Medlarz stated that it is a minimum of 24 months.

Mr. Webb is concerned that they are 2022 numbers with no projection and at some point, there is a need to do the long-term math. Mr. Medlarz stated that Rehoboth went with a rate study through consultant to establish rates. President Panetta stated that there are currently too many options.

Mr. Crosby stated that option 2 is crazy and should be knocked out. Mr. Crosby questioned the costs for operations and maintenance (O&M) for all the options. President Panetta stated that the O&M expenditures are included. Mr. Crosby agreed that the cost to the customers is important to know and eliminating some options may be beneficial. Mr. Biagioli stated that for the maintenance costs GHD did include allowances for inflation. President Panetta stated that MBR has higher energy costs. The agreement with the county will be pro rata flow split with county.

MCA (multi criteria analysis) factors in the weightings costs and non-costs, such as risk components like permitting complexity.

Water Quality Criteria:

- The graphics represent the waste load allocation, in terms of total nitrogen and total phosphorus, for treated effluent.
- Represent the current plant and the options outlined in the report.
- The permit limit is the expected performance of the existing wastewater treatment facility.
- Any future treatment facility will meet all the requirements of the permit.

Mark Prouty questioned the total nitrogen for the spray irrigation option and if there would be zero nitrogen. Mr. Medlarz and Mr. Biagioli stated that the effluent would still contain nitrogen and based on annual average and measured in the percolate. Mr. Biagioli stated that at the point treated effluent leaves the treatment facility, it is subject to the permit limits and bound by these restrictions. BPW and the County made the decision to stay within the permit limits. President Panetta stated that this is the permit loading at the discharge of the plant not to the environment. Mr. Lee stated that the spray irrigation system will be designed to meet the criteria of the needs of the vegetation.

Mr. Crosby questioned the graph showing the current facility discharging 40 pounds of nitrogen and the other options will be discharging 100 pounds of nitrogen. What does it cost to add more retention and is it prohibitively more expensive? More facilities would be needed, and the cost would increase. The BPW did not want another complex system as it is costly electric wise and difficult to get qualified personnel to Delaware to operate the system. Mr. Crosby's greatest concern is the impact to the receiving water. President Panetta stated that option three has not accounted for only discharging on the outgoing tide. The others are a constant. The BPW does not have the ability to put in the retention lagoons at current site. Same concentration, double flow. Mr. Crosby recommends exploring the county options further.

Ms. Curtis questioned if other pollutants other than nitrogen and phosphorus in wastewater are a concern. Will these pollutants change when combining with county? Are new regulations that are coming considered? Mr. Sturdevant stated that the other constitutes the NPDES has is waste load allocations for Total Suspended Solid (TSS) and Biochemical Oxygen Demand (BOD). All treatment options stay within the regulations will be the same or less. Mr. Medlarz stated that Ms. Curtis was referring to forever chemicals, like PFAS and pharmaceuticals. Mr. Sturdevant stated that it is unknown what the limits are going to be for a treatment facility for PFAS and PFO. Having a centralized location is easier to update as regulations change.

Mr. Crosby questioned the technology under option three and the capability to remove bacteria. Mr. Biagioli stated that this was included in the parameters. No matter the technology chosen for disinfection can remove bacteria to the required levels. President Panetta stated that if a chemical is used, then it would need to be fully de-chlorine before discharged.

Mr. Webb stated that there is starting to be a shift from the environment being the top concern to the cost of a new or upgraded treatment plant. Mr. Webb feels that the options need to be narrowed down and gather more information on those selected options.

Barbara Curtis stated that there is people in the community concerned about control when partnering with the county. Ms. Curtis stated that if the BPW could participate and negotiate with the county, the community would be more comfortable. President Panetta stated that this is the idea behind creating a draft agreement.

Jerry Virden stated that he is very leery of partnering with the county, because the county is larger and can out vote Lewes.

Tour of Wolf Neck will be April 28th at 3:30pm. RSVP through BPW office. Public is welcome.

4. Executive Session.

None

5. Return to open session.

6. Discussion and action on items from Executive session, if applicable.

7. Adjournment

ACTION: *Mr. Lee motioned to move to adjourn. Mr. Nichols seconded the motion, which passed unanimously.*

President Panetta adjourned the workshop at 8:35pm.