Rehoboth Board of Commissioners

Special Meeting

November 15, 2021

Sussex County Outfall Access Proposal

City of Rehoboth – Sussex County History

1983

Partners since 1983, the year of the first wastewater agreement

July 2018

County financed Phase 2A of the plant upgrades – electrical

- $6.0 million, 10-year, 0% interest alternative financing

July 2020

County financed additional plant upgrades – oxidation ditch failure

- $1.67 million, 42% / 58% debt service split, 2% interest (same as State Revolving Fund)

Aug. 2017

Current wastewater agreement signed – before award of the first construction outfall construction contract

- County allocation is 42%, which can be increased to 50% after first year of upgraded plant operation

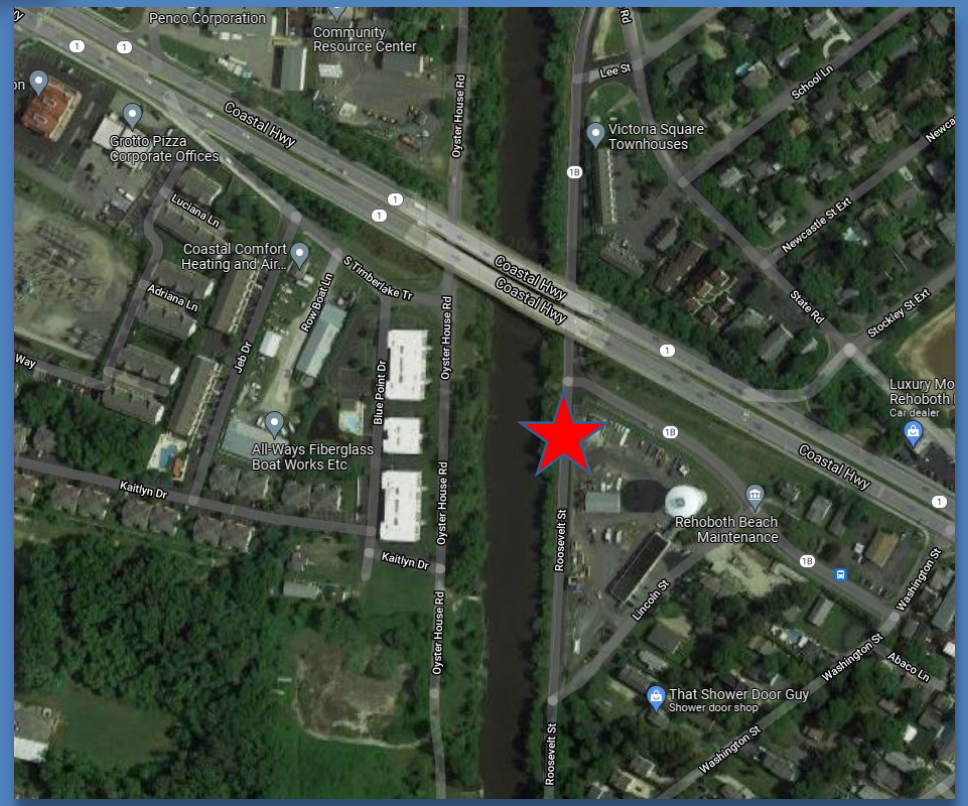
June 2019

County financed additional plant upgrades – influent screen failure

- $3.0 million, 42% / 58% debt service split, 2% interest (same as State Revolving Fund)

City of Rehoboth – Sussex County Cooperation

- Class B Biosolids Agreement
  - City and County integrated facility design upgrades for biosolids treatment
  - County transports biosolids from Rehoboth to Inland Bays plant
  - City pays prorated annual debt service; City does not pay for operational costs
- West Rehoboth Connection
  - 2017 agreement established third connection point
  - Third connection point was installed at County's expense
  - Bi-directional connection allows for diversion of +/-25% of average daily inflow from Rehoboth to Wolfe Neck in case of an emergency at City plant



Sussex County Proposal

- The proposal, is to send treated wastewater from its upgraded, fully flow equalized Wolfe Neck Regional Wastewater Facility to the Rehoboth ocean outfall.
- The County proposes to purchase 2/5th of the average daily pound-based waste load allocation under the City's NPDES Permit, equivalent to 2.0 MGD of the ocean outfall capacity, for $7.6 million.
- The County will design, permit and construct an effluent pipe connection of limited size (12-inch diameter), valved for bidirectional flow. The new pipe will connect to the outfall pipe within the City at a to-be-determined location.
- Final terms of agreement will require County Council approval.

Sussex County Proposal - Financial

- The entire Ocean outfall project cost was $38.5 million.
- Based on a conservative velocity of 5 feet per second, the minimum hydraulic capacity is 10.1 MGD.
- The highest capacity unit cost is therefore $3.8 million per 1.0 MGD.
- The County is offering to purchase 2.0 MGD x $3.8 million/MGD = $7.6 million.
- The County suggested a one-time payment tied to a future County NPDES permit issuance.

City of Rehoboth – Sussex County
Responses to Questions

What oral and written proposals has the County provided Rehoboth and when were they provided?

June 2021

The County first met with City officials and staff to discuss proposal (oral)

July 2021

The County discussed proposal with DNREC

Aug. 2021

The County continued discussion of proposal with DNREC

Sep. 2021

The County and City staff met with GHD regarding plant treatment process limitations

Oct. 2021

The County presented written proposal to City officials and staff

City of Rehoboth – Sussex County *Responses to Questions*

Does the County know how much sewer capacity it needs long-term? Has the County planned for their sewer needs?

In short, yes, the County has conducted extensive planning to ensure its sewer demands are met.

The County projects a 20-year sewer capacity need for the northern planning area of 3.25 MGD. The County has planned to meet this need by designing upgrades at its Wolfe Neck and Inland Bays facilities costing $44 Million over the next 4 years.

In addition, the County has agreements with Artesian Wastewater Resources, Inc., Lewes Board of Public Works, and the City of Rehoboth Beach for additional wastewater treatment and flow diversification. These efforts will ensure the County meets its projected demands.

City of Rehoboth – Sussex County *Responses to Questions*

What factors for County growth were used to project the long-term impact?

The 20-year growth projections are updated on a regular basis using the average number of the sewer system connections of the previous three years.

Beyond 20-years, ultimate needs cannot be reasonably predicted. However, all DNREC permits require initiation of capacity expansion when the 80% capacity point of the permitted capacity is reached.

City of Rehoboth – Sussex County *Responses to Questions*

What other options will the County pursue if the City declines the request? What is the County's timeline?

The County is currently undergoing a 20-year expansion project at the Inland Bays facility costing $30 million. The Rehoboth proposal provides the County additional options to diversify its flow between its facilities. If the Rehoboth option is declined, the County will pursue all options currently under DNREC permit review for the Inland Bays facility.

The County's timeline for a decision by Rehoboth is tied to the DNREC issuance of the Inland Bays permits, expected in Q1 of 2022.

City of Rehoboth – Sussex County *Responses to Questions*

Why doesn't the County build its own ocean outfall located at the Wolfe Neck facility?

- In 2017, the County and the City agreed to extend its long history of partnership and to build a state-of-the-art ocean outfall. Both municipalities are "generally" 50-50 partners.
- The Rehoboth ocean outfall will serve the needs of Rehoboth and the County for the next 50+ years while only using 33 percent of its average daily hydraulic design capacity.
- Building a second ocean outfall at that location to serve the same regional customer base doesn't make good financial and environmental sense.

City of Rehoboth – Sussex County *Responses to Questions*

What does the City's NPDES permit allow?

- The current NPDES permit allows for the daily average discharge of up to 425 lbs. of biological oxygen demand (BOD) and total suspended solids (TSS) without flow limitation.
- GHD, the City's consultant, reviewed the necessary underlying treatment limitations for a shared allocation and concluded that an average concentration of 10 parts per million (ppm) is consistently achievable given the City's existing and the County's proposed treatment systems.
- In a dual permitting world, the average daily 425 lbs./day load would not change, and a reduction of daily average lbs. in the City's permit would be coupled with an equal allocation of lbs. in a future County NPDES permit.
- Maintaining the permitted waste load allocation allows the underlying ocean pollution mixing modeling to remain valid.

City of Rehoboth – Sussex County *Responses to Questions*

Will Sussex County rescind the offer if the future NPDES Permit had nutrient limits versus monitoring requirements? If so, why?

- Yes, the County would rescind the offer because the Wolfe Neck facility is a land treatment system which does not require nutrient removal. To meet the 10 ppm BOD/TSS limits, the County will install tertiary treatment i.e., filtration, at Wolfe Neck.
- If the NPDES Permit required nutrient removal in addition to filtration, this would result in unnecessary capital and operational expenses to the County.

City of Rehoboth – Sussex County *Responses to Questions*

If nutrient monitoring requirements were removed from the City's permit would the City's process change?

No. The City employs a biological nutrient removal type system. The system relies on the nitrification – denitrification process and the facility's performance in terms of pollution concentration levels would not change.

City of Rehoboth – Sussex County *Responses to Questions*

Does the current NPDES Permit allow for splitting of the daily average waste load allocation? Has Sussex County reached out to DNREC to gage support splitting the waste load allocation and was City a part of these discussions?

- No, the current permit does not allow for splitting. This would come in a permit modification with a waste load allocation transfer.
- Yes, the County has reached out to DNREC. The City was not part of the discussion but was contacted prior to the engagement for concurrence to approach DNREC.
- As the authorizing agency, DNREC's participation in these proposal discussions must be limited.

City of Rehoboth – Sussex County *Responses to Questions*

Why not wait until the current NPDES permit is renewed?

The County's proposal should remain separate from the City's permit renewal. The City's permit renewal process can take many months depending on the City's ask; for example, the City could seek the removal of nutrient monitoring and associated special conditions.

[See next slide for more discussion.]

City of Rehoboth – Sussex County *Responses to Questions*

What is the timeline for the County to build the necessary infrastructure if their proposal is approved?

In short, 3-4 years.

The County will have to develop a Wolfe Neck facility upgrade design and a discharge pipeline design complete with right-of-way acquisitions. Both will require DNREC construction permits subject to public hearings.

In addition, the County will have to prepare and submit a standalone NPDES permit application and a City NPDES permit modification application subject to public hearings.

This process would start after the City permit has been reissued and take a minimum of 3,more likely 4 years, lining up with the City's next permit renewal cycle.

City of Rehoboth – Sussex County *Responses to Questions*

Will this proposal affect the outfall pumps, pipe, diffusers?

The City's Engineer has completed a preliminary review of the current pumping system and offers the following:

"When both systems discharge at the same time, the outfall pipe velocity will increase, resulting in a higher pump discharge pressure at current summer flows of 11.3 psi (3.5 psi higher than existing). The current pumping system has the capability of conservatively operating at 24 psi of discharge pressure."

In the unlikely event it is necessary, the County's project would pay for the upgrades.

City of Rehoboth – Sussex County *Responses to Questions*

How will the County's contribution exactly affect the City's sewer debt and the County's repayment?

- The $7.6 million payment is not a debt buydown.
- The City will decide how to spend the County's proposed contribution to best benefit the City.
- The County will continue to pay 42% of the entire outfall debt.
- The County's debt percentage may increase in the future if the County elects to increase its reserve capacity, per the Agreement.
- Eligible future debt incurred under phases 3 and 4 of the City's plant upgrade project will also be shared as per the Agreement.

City of Rehoboth – Sussex County *Responses to Questions*

What are the outfall operational and maintenance costs savings to the City?

- The County will pay an increased share of “special” expenses associated with the outfall such as inspections, studies, and repairs, etc.
- The County’s share of these “special” expenses will be based on total (raw & treated) waste flow contributions.

City of Rehoboth – Sussex County *Responses to Questions*

Has the City conducted a study to ensure there is enough sewer capacity to serve the City if Rehoboth allocates more flow to the County?

The City has not recently conducted a Sewer Planning Study. However, for the City fiscal year ending March 31st, 2021, the Rehoboth Beach Wastewater Facility is discharging less than 10% of their allowable waste load allocation. If the City chooses to further consider the County's Outfall Proposal, the City would commission a sewer planning study to be completed by the Planning and Engineering Department to confirm there is adequate capacity.

City of Rehoboth – Sussex County *Responses to Questions*

How will the piping be configured to serve as an emergency connection between the City plant and Wolfe Neck plant?

The County would install proper valving to allow flow diversion of non-compliant treated effluent to the Wolfe Neck facility.

Once the City plant's compliance is reestablished, discharge to Wolfe Neck would continue with higher disinfectant dosing until bacteria levels are within permit limits. Only at that point would permitted ocean discharge resume.

City of Rehoboth – Sussex County *Responses to Questions*

How will Rehoboth not be liable for anything that the County sends to the outfall that does not meet permit?

Each facility will have a separate point of compliance established under the new/modified NPDES average daily permit limit. This limit is proposed to be 10ppm of BOD/TSS.

This arrangement has existed with the Town of Selbyville at the County's South Coastal facility outfall for over 30 years.

The entire max daily allocation will remain with the City, resulting in a 20ppm concentration allowing for significant weather events.

The Wolfe Neck facility's storage capacity (lagoons) allows for pre-checking water quality before discharge, avoiding permit violations.

City of Rehoboth – Sussex County *Responses to Questions*

What type of consideration was given to climate change factors in the proposal?

Climate change plays an important role in the strategic approach. With rising sea levels, land-based sewer collection systems, including the City's, are being submerged more frequently, resulting in a higher chloride load to the treatment plants.

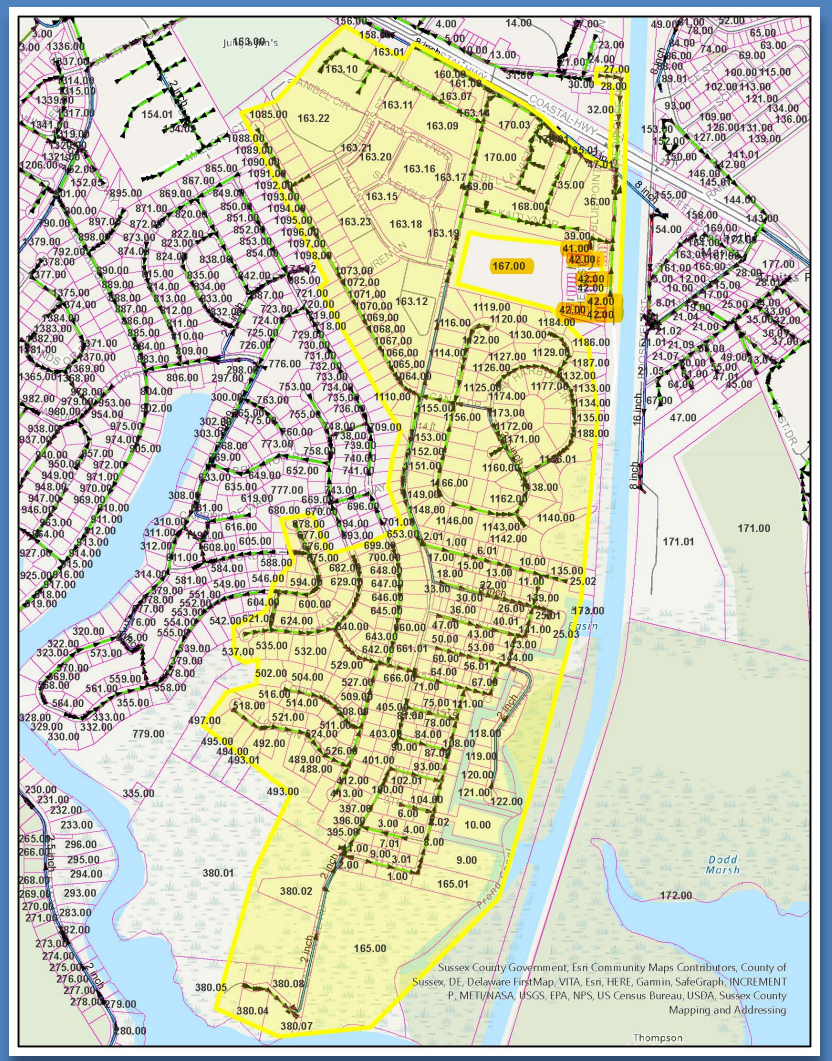
Land treatment systems are susceptible to chloride accumulations in the soil, unlike systems with ocean outfalls which discharge in a high chloride environment.

The Wolfe Neck Facility's spray irrigation fields range in elevation from 10 feet above mean sea level (MSL) to 20+ feet. These fields will be viable for land treatment system permitting for the extent of the 50-year lease with the State of Delaware.

City of Rehoboth – Sussex County
Responses to Questions

Is the County sending wastewater from West Rehoboth customers to the Rehoboth plant instead of the Wolfe Neck facility, today?

- Yes. Per the 2017 agreement, the County made an inter-connection to the Rehoboth plant in the area of Pump Station 202, near the Coastal Highway bridge. This connection sends raw flow to the Rehoboth plant for treatment and disposal.
- This connection accounts for 300,000-400,000 gallons per day, depending on the season.
- The additional flow increases the County's operational payment to the City, per the Agreement.



Pump Station 202 catchment area