DISCUSSION ITEMS 8

MIAMI BEACH

COMMITTEE MEMORANDUM

TO: Land Use and Sustainability Committee Members

FROM: Eric Carpenter, City Manager

DATE: March 11, 2025

TITLE: DISCUSS THE NORTH BEACH WATER QUALITY AND PARK VIEW CANAL REPORT

RECOMMENDATION

The Administration recommends the Committee discuss the results and actions recommended in the North Beach Water Quality and Park View Canal report.

BACKGROUND/HISTORY

At the December 13, 2023 City Commission meeting, item C7 L Resolution No. 2023-32852 (Attachment A) authorized the Administration to procure the services of Dr. Solo-Gabriele of the University of Miami (UM) to conduct a post-study after the implementation of short-term actions in North Beach, as they relate to the Park View Canal water quality improvement efforts and Action Plan. The item was sponsored by Commissioner Kristen Rosen Gonzalez.

At the March 13, 2024 City Commission meeting, item C7 N Resolution No. 2024-32954 (Attachment B) directed the Administration to prioritize, as part of the FY 2025 Budget process, funding for improvements to address the water quality concerns relating to the Park View Island Canal. The item was sponsored by Commissioner Alex J. Fernandez.

At the February 3, 2025 City Commission meeting, item C4 Q (Attachment C) referred the Phase II University of Miami Park View Canal Water Quality Report to the Land Use and Sustainability Committee for discussion.

ANALYSIS

The City of Miami Beach is committed to maintaining and improving the quality of its waterways and protection of Biscayne Bay. The Administration continues to move forward with prioritized improvements funded through City Commission approval to address water quality concerns related to North Beach Water Quality and Park View Canal (PVC). The action plan includes above-ground sanitation, below-ground infrastructure improvements, canal dredging design and permitting evaluations and additional research conducted by Dr. Solo-Gabriele, water quality expert from the University of Miami. The report notes that an improvement has been observed since short term improvements such as air release valves and pipe lining were conducted in 2023. Despite the improvements, the canal still has fecal indicator bacteria concentration that exceeds recreational water quality standards established by the Florida Department of Health for ocean beach standards for bathing.

The initial study completed in 2023 highlighted that rainfall is the main predictor of poor water quality in the canal, with sediments from the canal shoreline, the streets, and sediments in catch basins and shallow groundwater entering the canal from the 81-acre catchment area to the east. Despite rigorous sanitary sewer testing, the system including private connections is aging and could not be ruled out. Sanitary sewer upgrades have been made including closed-circuit

television studies and lining the sewer lines from 73 to 76 Street as well as rehabilitated manholes where needed, including North Beach pump station wet well rehabilitations. Stormwater treatment to reduce litter is underway by retrofitting the current gravity stormwater system with advanced water quality treatment devices, in addition, the North Beach Town Center Neighborhood Improvement Project planned to address additional aging infrastructure. The 2023 study also identified many additional sources contributing to degraded water quality, including exotic and feral animal feces, the homeless population, dog waste, litter, and leaking dumpsters in commercial areas.

In addition to completed and planned infrastructure upgrades, the City has increased inspections and services. Code Compliance continues focusing on proactive patrols while enforcing the cleanup of pet waste, Parks & Recreation continues its roaming patrols, and Environment & Sustainability staff, alongside the Public Works Operations team continue to work with Homeless Outreach on their increased routine site visits. Sweeping and hand litter collection continue on Park View Island and additional pet waste dispensers were installed in high-traffic areas.

The new Phase II data collection by UM has been completed and was compiled and analyzed in the form of a final report. The following was conducted as part of the study:

- Collected stormwater before catch basins (catch system under grate before basin) to determine how much fecal bacteria is coming from the streets vs groundwater.
- Sampled groundwater directly utilizing direct push technology for samples of upper groundwater to determine the background levels of fecal bacteria.
- Tested within catch basins with biomarker source tracking (i.e. bird, dog, human) to determine how much fecal bacteria is coming into the system and from which source.
- Analyzed groundwater elevations to tie the elevation of the canal to groundwater, along with a comparison to pipe elevations.
- Reviewed and updated the City's historical data with information and testing that has been made available since the Phase I study concluded, from both Surfrider's Bluewater Task Force and the City's datasets.

The final report and results of the study (Attachment D) have been shared via Letter to Commission prior to the March 11, 2025 Land Use and Sustainability Committee Meeting.

Phase II Study Results

Private Outfalls

A hotspot adjacent to the Park View Canal was discovered near the outfall from Biscayne Beach Elementary School, where the levels were well above the detection limit and significantly above levels observed at the Kayak Launch. The Administration has offered support to the school, offering meetings and on-site visits, and has asked the Miami-Dade County Public Schools to collaborate with the City to mitigate the elevated levels near the outfall.

Private property should continue to be investigated as sources of pollution to the Park View Canal. However, this poses a challenge for the City of Miami Beach which does not have the authority for enforcement of private stormwater systems maintenance. Private property owners should have Class II stormwater permits with Miami-Dade County and properly maintain the system as to not contribute to water quality degradation.

Genetic Markers

Additional testing was performed for genetic markers to determine the source of contamination including human, dog, and bird fecal waste. While the groundwater had no levels of dog nor human fecal waste, the bird marker was found in most samples of groundwater, stormwater, and canal water, with the highest levels observed within the canal water.

It can be hypothesized that birds are a significant source of fecal waste interior to the PVC, likely depositing fecal matter on the banks and shore of the PVC which is then washed in with the tides. It is also possible that the waste from the canal backwashes into the groundwater, leading to the detectable bird marker in the groundwater samples.

2 out of 11 samples showed dog marker and 2 out of 11 samples showed human marker in the stormwater. This irregular presence of the dog and human marker in stormwater collected at the street was believed to come from "aged" fecal waste, where the original fecal signal has been degraded. The consistently high enterococci levels observed in stormwater at the street surface, all obtained from aged dog and human sources, intermittent fresh dog and human sources, and bird sources, emphasize that remediation efforts should focus on reducing enterococci in the street-level stormwater runoff.

City efforts to improve the water quality in Park View Canal

Sanitary Sewer Improvements

Public Works completed $640,000 of Phase I Park View Sewer Trenches Rehabilitation upgrades and sewer force main air release valve replacements. In addition, $2.5 million was appropriated for the Phase II of the North Beach and Park View Extended Area Project. The project is 90% complete and invoiced. This scope included closed-circuit television studies, lining of sewer lines from 73rd to 76th Streets, as well as the rehabilitation of manholes wherever needed. In January of 2025, 100% of sewer lining, including all five (5) North Beach pump station wet well rehabilitations were completed. Public Works also concluded a citywide force main leak detention, which results found zero leaks in the system. A new force main system will be installed as part of the $70 Million, 72nd Street Community Complex Project, which includes removing old lines that can become a potential future source of contamination.

Stormwater Treatment

Public Works is adding stormwater treatment to existing stormwater outfalls. A consulting firm has been contracted for the design of the stormwater treatment system, with hydrodynamic separators planned to reduce trash and sediment discharge. The cost is $2.2 million and construction is expected in in late 2026.

The North Beach Town Center/ North Shore D Neighborhood Improvement Project will have significant water quality benefits by moving stormwater outfalls to new locations and meeting today's water quality requirements. The City received a $10 million grant for the design and permitting of the project, however, construction funding will be needed. The project will replace the stormwater pipe network between 69th and 73rd Streets and include features like injection wells, stormwater pump stations, and filtration systems.

Pursuing Dredging to Increase Flow/ Flushing

Environment and Sustainability is utilizing $500,000 funded for dredging design and permitting to improve water exchange rates and remove sediment and marine debris from the canal. The department contracted T.Y. Lin International to develop the construction documents necessary for the project, which involves environmental regulatory agency-required bathymetric and geotechnical surveys within the waterways. Bathymetric and geotechnical surveys are complete and were compiled by the consultant's engineering team to conduct a flushing analysis. The results of these evaluations are being carefully reviewed for desired water quality outcomes and the appropriate next steps which may include application submittals to the regulatory permitting agencies. Project mobilization is recommended to coincide with the hydrodynamic separator installation to reduce sediment inputs into the canal following dredging.

Above Ground Sanitation

Public Works conducts hand crew and mechanical sweeping three times a week within Park View Island. The Sanitation team hand crew also conducts detail cleaning once a week from 71 street to 75 street. The City also installed five additional doggie bag dispensers in the area of 71 street to 75 street to encourage proper disposal of pet waste and assist with above-ground cleanliness.

Overall, these efforts are expected to improve water quality in the PVC, though major investments in infrastructure are still needed to achieve more significant improvements to be implemented in the North Beach Town Center/ North Shore D project.

New Recommendations

The new Phase II report highlighted many recommendations, with the full list in Chapter VI (Attachment D). In addition to the current strategies for water quality, the Administration has highlighted the following:

1. Address the stormwater and sanitary system at Biscayne Beach Elementary School in light of the hotspots observed in groundwater and from the stormwater outfall.
2. Miami-Dade County should investigate private outfalls as sources of pollution to the Park View Canal.
3. More street sweeping in the North Beach watershed, which would require a new parking program that limits parking on certain days to allow for more robust street sweeping.
4. Include smaller scale street sweepers in addition to the industrial scale street sweeping, to ensure that the sediment accumulating in gutters and curbs can be cleaned.
5. Deep cleaning of grassy areas, gutters, and anywhere animal waste is seen and exploring UV disinfection.
6. In addition to encouraging pet owners to pick up after their pets, staff recommends designated pooper scoopers followed by possible environmentally friendly disinfection to further clean up areas with visible feces and adding more pet waste stations.
7. Homeless population use of the canal and storm drains for waste was documented. Additional attention should be given to this community as public access to sanitation facilities is limited and extended hours should be explored.
8. Consider re-evaluating the fecal indicator bacteria standard used to determine recreational safety; the standard used is for beach bathing, but the City can consider secondary recreational usage standards for activities such as kayaking. The FDOH enterococci single sample limit for recreational beach use is 70 MPN/100mL whereas the US EPA single sample limit for enterococci for kayaking in calm water is 371 MPN/100ML. Due to the Park View Canal's geometry and characteristic as a "canal within a canal within a bay" with limited flushing, it may be immensely difficult to reach beach standards for bathing. Beaches have higher standards due to the probability of ingesting water while recreating for longer periods of time and also have significant water exchange rates ocean-side that dilute pollution.
9. There are several recommendations to minimize loose trash. An updated educational campaign can be developed targeted to North Beach on above-ground sanitation efforts from the public to assist City efforts. This can include information on proper garbage disposal for residents and businesses, anti-littering messaging, pet waste pick-up importance, and sediment and erosion control best management practices for construction sites or sidewalk disinfection procedures.
10. Improve shorelines to limit the erosion of sediments and transport of trash by runoff along the shoreline. The City has received a federal appropriation agreement for $963K which will be used towards the design of the North Beach Living Shorelines Project.

FISCAL IMPACT STATEMENT

N/A

Does this Ordinance require a Business Impact Estimate?
(FOR ORDINANCES ONLY)

The Business Impact Estimate (BIE) was published on .
See BIE at: https://www.miamibeachfl.gov/city-hall/city-clerk/meeting-notices/

FINANCIAL INFORMATION

The study was funded for $75,000.

CONCLUSION

The Administration recommends the Committee discuss the actions outlined in the report, such as: the potential to consider the recreational standards of fecal indicator bacteria currently used to evaluate safety, adding more street sweeping with a parking program in the broader North Beach drainage basin, urging the Miami-Dade Public School System provide resources to mitigate the concerns related to Biscayne Beach Elementary, and request Miami-Dade County to take action on private outfalls for which the City does not have authority.

Applicable Area

North Beach

Is this a "Residents Right to Know" item, pursuant to City Code Section 2-17?	Is this item related to a G.O. Bond Project?
Yes	No

Was this Agenda Item initially requested by a lobbyist which, as defined in Code Sec. 2-481, includes a principal engaged in lobbying? No

If so, specify the name of lobbyist(s) and principal(s):

Department

Environment and Sustainability

Sponsor(s)

Commissioner Kristen Rosen Gonzalez

Co-sponsor(s)

Commissioner Alex Fernandez

Condensed Title

NB Water Quality and Park View Canal Report. (Rosen Gonzalez/Fernandez) EN