MIAMIBEACH

COMMISSION MEMORANDUM

TO: Honorable Mayor and Members of the City Commission

FROM: Eric Carpenter, City Manager Eric Carpenter

DATE: March 19, 2025

TITLE: A RESOLUTION OF THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA, ACCEPTING THE RECOMMENDATION OF THE LAND USE AND SUSTAINABILITY COMMITTEE AT ITS MEETING ON MARCH 11, 2025, AND APPROVING "OPERATION CLEAN WATER" TO URGENTLY ADDRESS STREET LEVEL POLLUTANTS IN THE NORTH BEACH WATERSHED ENTERING THE STORMWATER SYSTEM AND IMPACTING PARK VIEW CANAL WATER QUALITY, AS IDENTIFIED IN THE REPORT DATED FEBRUARY 24, 2025, ENTITLED "ASSESSMENT OF ENTEROCOCCI IN GROUNDWATER AND STORMWATER AT THE MIAMI BEACH PARK VIEW CANAL."

RECOMMENDATION

The Administration recommends the City Commission accept the selected recommendations of the North Beach Water Quality and Park View Canal report entitled "Assessment of Enterococci in Groundwater and Stormwater at the Miami Beach Park View Canal" and adopt the "Operation Clean Water" Resolution to urgently address the specific outfalls and street level pollutants entering the stormwater system and impacting the Park View Canal water quality.

BACKGROUND/HISTORY

At the September 28, 2022 City Commission meeting, item R7 H Resolution No. 2022-32331 ratified the City Manager's emergency engagement of services from the University of Miami to conduct water quality contamination research and analysis for Park View Canal. The item was sponsored by Commissioner Alex Fernandez and co-sponsored by Commissioner Kristen Rosen Gonzalez.

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 Phase II 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 Fernandez.

At the February 3, 2025 City Commission meeting, item C4 R (Attachment C) referred the

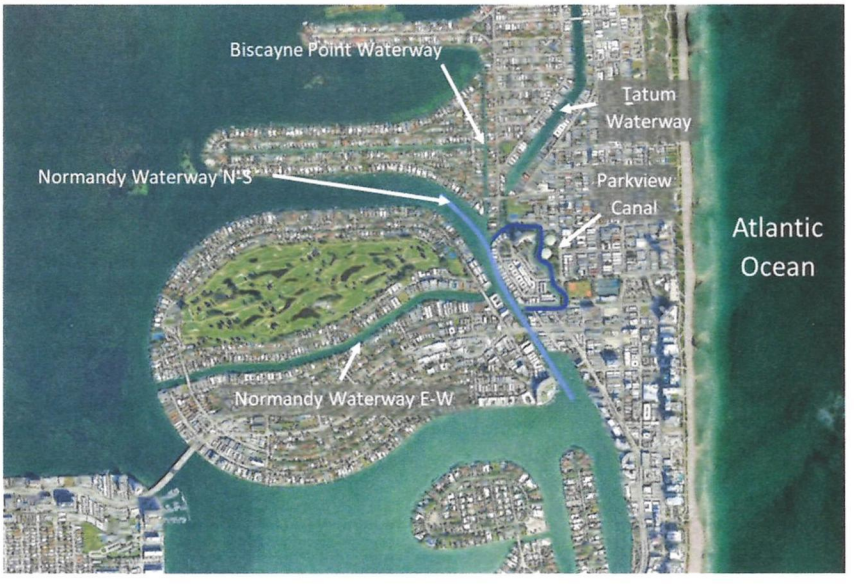
Phase II University of Miami Park View Canal Water Quality Report to the Land Use and Sustainability Committee for discussion. The Item was sponsored by Commissioner Kristen Rosen Gonzalez and Commissioner Alex Fernandez.

At the March 11, 2025 Land Use and Sustainability Committee Meeting, Item 8 "Discuss the North Beach Water Quality and Park View Canal Report" was heard. The Committee passed a motion for the Administration to present an urgent six-month "Operation Clean Water" plan at the March 19, 2025 City Commission meeting. The intent of the plan is to aggressively address the street level pollutants entering the stormwater system and impacting Park View Canal water quality as identified in the North Beach Water Quality and Park View Canal report entitled "Assessment of Enterococci in Groundwater and Stormwater at the Miami Beach Park View Canal" led by Helena Solo-Gabriele, Ph.D., P.E., from the University of Miami Department of Chemical, Environmental, and Materials Engineering. The item was sponsored by Commissioner Fernandez, Commissioner Bhatt, Commissioner Dominguez, Commissioner Rosen Gonzalez, and Commissioner Suarez.

ANALYSIS

The City of Miami Beach is committed to maintaining and improving the quality of its waterways and protection of Biscayne Bay. As documented in local water quality monitoring efforts throughout Miami-Dade County, Broward County, and study literature, urban waterways are susceptible to pollution. Park View Canal is an angled canal within the Tatum Waterway canal, within the broader Biscayne Bay, refer to Sketch No. 1 The canal has limited natural flushing to dilute pollutants associated with urban runoff. The Administration continues to move forward with prioritized improvements funded through City Commission approval to address water quality concerns. The action plan developed in 2023 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. Despite the improvements, the canal still has fecal indicator bacteria concentrations that exceed recreational water quality standards established by the Florida Department of Health for ocean beach standards for bathing. However, the Phase II report highlights significant improvements in water quality.

Sketch No.1



Phase I Study (Initial Study)

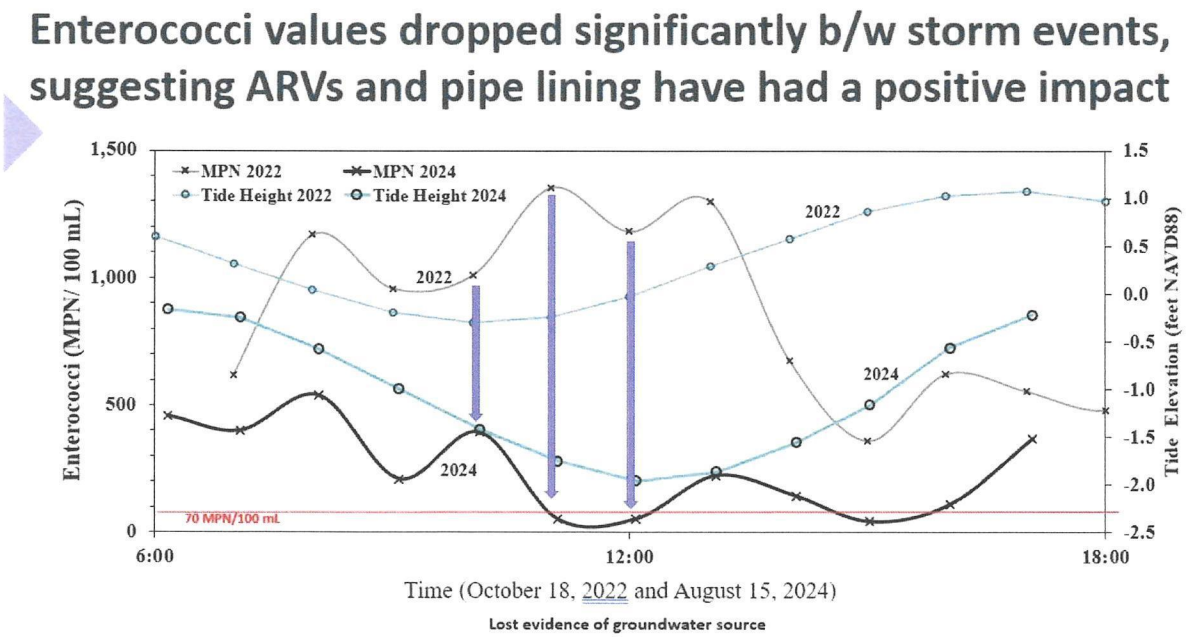
The initial study completed in 2023 highlighted that rainfall is the main predictor of poor water quality in the canal, with sediments from the canal shoreline, the streets, and sediments in catch basins and shallow groundwater entering the canal from the 81-acre catchment area to the east. Despite rigorous sanitary sewer testing, the system including private connections is aging and could not be ruled out as a potential source. However, since the first study, sanitary sewer upgrades have been made including closed-circuit television studies and lining the sewer pipes from 73 to 76 Street as well as rehabilitated manholes, new air release valves where needed, including North Beach pump station wet well rehabilitations. Stormwater treatment to improve water quality is being designed(in the design process) by retrofitting the current gravity stormwater system with advanced water quality treatment devices consistent with current best practice. In addition, the North Beach Town Center Neighborhood Improvement Project plans to address aging infrastructure.

In addition to completed and planned infrastructure upgrades, the City 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, the Public Works Operations team, and Homeless Outreach have increased routine site visits. Street sweeping and hand litter collection continue on Park View Island and additional pet waste dispensers were installed in high-traffic areas.

Phase II Study (Post Study)

The new Phase II report highlighted many recommendations, with the full list in Chapter VI (Attachment D). The report notes that improvements have been observed since short term efforts such as air release valve replacements and pipe lining were conducted in 2023. Specifically, the fecal indicator bacteria enterococci values have dropped significantly between storm events due to this work ensuring that sanitary sewer leaks are no longer a source, refer to Chart No. 1. While the pipe lining was helpful for any remaining potential small leaks, it is important to note that smoke testing, dye testing, and CCTV had previously ruled out significant sanitary sewer leaks.

Chart No. 1



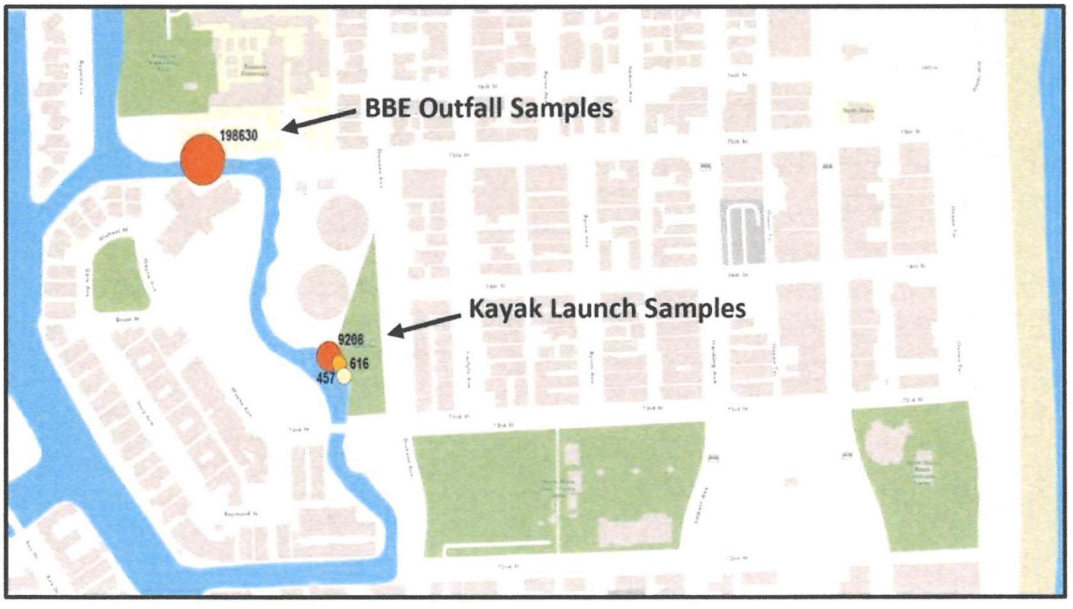
There was an observable decrease in the percent of the samples that have exceeded the 70 MPN/100 mL guideline level. Before 2022 the percent exceedance of the guideline was at 92% and after 2023 the percent exceedance dropped to 70%. This decrease was statistically significant.

In addition, the study showed that the city's sanitary sewer leaks are no longer a source to the Park View Canal. This does not include the Biscayne Beach Elementary School properties' infrastructure which is identified as a potential source and a new hotspot. Between storm events during low tide (which is when groundwater enters the Park View Canal) the enterococci levels were in the 600 to 1,300 MPN/100 mL range in 2022 (before intense mitigation efforts). In 2024, after the intense mitigation efforts the levels were much lower between 40 and 540 MPN/100 mL. These results suggest that groundwater is no longer serving as a source of enterococci to the Park View Canal. The drop during low tide between storm events dropped by a factor of about 30 (from 1300 MPN/100 mL to 40 MPN/100 mL). The more important aspect is the trend – in 2022 the enterococci went up during low tide, whereas in 2024 the enterococci went down during low tide. Low tide is when groundwater contributes to the Park View Canal. Because the concentration dropped in 2024 during low tide, it indicates that the groundwater is no longer a source of enterococci impacting the Park View Canal water.

The report further highlights that the main water type contributing to elevated enterococci levels in the Park View Canal is stormwater with the microbial source being birds, humans, and dogs from street runoff. The report also documented a new hotspot in Park View Canal near the outfall connected to the infrastructure from Biscayne Beach Elementary School, where the levels were well above the detection limit and significantly above levels observed at the Kayak Launch, refer to Sketch No. 2. 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.

Sketch No. 2

Enterococci in PVC water



Additionally, the report recommended that private property outfalls 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. 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. The bird marker was found in most samples of groundwater, stormwater, and canal water, with the highest levels observed within the canal water. According to the water quality experts engaged for this study, there is no current methodology to analyze for specific cat/feline, racoon or iguana. However, outreach to experts is underway to understand any new developments.

OPERATION CLEAN WATER: SIX-MONTH PLAN

The Land Use and Sustainability Committee, on March 11, 2025, noted the progress and water quality improvements that have been made since the Phase I Study and discussed the Phase II Study Results, stressing the need to aggressively continue improvements. The Committee adopted a motion recommending that the City Commission authorize the Administration to develop "Operation Clean Water", an urgent six-month action plan based upon the findings of the water quality report. Based on the direction from the Committee, the Administration recommends the following items listed in the accompanying Resolution:

1. Urge the Miami-Dade County Public Schools to address the stormwater and sanitary system at Biscayne Beach Elementary School considering the hotspots documented in groundwater and from the school's infrastructure leading to the stormwater outfall to the Park View Canal.

2. Urge Miami-Dade County to examine private outfalls as sources of pollution to the Park View Canal.

3. Develop a more rigorous pilot stormwater system cleaning program that doubles the level of service within the 81-acre drainage basin from three times per year to three times in the upcoming six-month period (to coincide with the rainy season). Based on the cleanliness of the catch basins, they can be evaluated for more frequent cleanings such as those closest to the street-level hotspots or those closest to the Park View Canal. (Public Works' Stormwater Division).

4. Add catch basin filter fabric and sediment filter socks to key stormwater catch basins and gutters in the Park View Island and extended North Beach watershed. This will require monitoring and frequently clearing of debris. Adjust as needed during the rainy season to avoid increasing flooding. (Public Works' Stormwater Division).

5. Conduct more frequent sweeps of the watershed to provide services to homeless individuals and explore increased access to sanitation facilities. (Homeless Outreach and Community Services with collaboration from the Police Department).

6. Explore additional street and sidewalk cleaning mechanisms to include smaller scale

equipment, including pooper scoopers to remove visible animal waste, increased hand crew collection, and potentially a restricted parking program to ensure street sweeping measures are effective. (Public Works' Sanitation Division, with support from the Parking Department if applicable).

7. Investigate the feasibility and cost of implementing UV disinfection of street level hotspots in a heavily urbanized environment, perhaps utilizing similar technologies to yoga studios. (Environment and Sustainability with support of Dr. Solo-Gabriele at a cost not to exceed $10,000).
8. Implement a weekly shoreline cleaning program along Crab Alley within reach of the path adjacent to Biscayne Beach Elementary, regardless of ownership. Examine strategies for specialized trash removal within the mangroves in alignment with high tides in an environmentally sensitive manner to avoid trampling of vegetation. (Public Works' Sanitation).
9. Implement a Cleanliness Index pilot program to survey the 81-acre drainage basin plus Crab Alley adjacent to Biscayne Beach Elementary to occur over the 2025 rainy season in an amount not to exceed $10,000. (Public Works Administration, with the support of Environment and Sustainability).
10. Investigate and work with the Miami-Dade County Division of Environmental Resources Management (DERM) to see what temporary measures might be applicable and available to treat stormwater runoff. (Public Works' Engineering Division).
11. Conduct monthly inspections in the areas immediately adjacent to the Park View Canal to route visual concerns to respective Departments as needed. (Environment and Sustainability).
12. Increase community engagement by examining ways to support and expand the Park View Island Sustainable Association community cleanups in a manner similar to beach cleanups. (Environment and Sustainability and Neighborhood Affairs).
13. Implement an advanced education campaign to include collateral such as PSAs and drain markers indicating stormwater leads to the Park View Canal/Biscayne Bay. (Environment and Sustainability with collaboration from the Office of Marketing and Communications).
14. Conduct weekly walk-throughs in the watershed area to proactively investigate concerns such as overflowing dumpsters, pet waste pick-up, the feeding of feral animals, and illicit discharges. (Code Compliance).
15. Add doggie bag stations at locations where no dog stations exist and where sampling analysis showed evidence of dog waste. (Public Works' Sanitation).

PARK VIEW CANAL BACKGROUND INFORMATION AND DATA

City efforts to improve the water quality in Park View Canal

More than $8 million has been allocated to infrastructure upgrades to improve water quality in the Park View Canal with projects in various stages of completion. In addition, a $10 million grant was awarded for the design and permitting of the North Beach Town Center project, however, construction funding will be needed.

Sanitary Sewer Improvements

Public Works completed $640,000 of Phase 1 Park View Sewer Trenchless 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 pipes 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 citywide force main leak detection, which results found zero leaks in the system. A new force main system will be installed as part of the 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 of $2.2 million, is currently budgeted, and construction is expected 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 from the State of Florida 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 implementing $500,000 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. The dredging cost is estimated to be $2 million and currently allocated.

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. These investments are to be implemented in the North Beach Town Center/ North Shore D project.

FISCAL IMPACT STATEMENT

$20,000 for potential contracted work with the Cleanliness Index pilot and University of Miami to investigate the feasibility of UV disinfection. Strategies for additional litter cleanup along the crab alley will need to be explored specifically for the environmentally sensitive mangrove area. The additional items outlined in "Operation Clean Water" are intended to utilize existing City resources and staff time.

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

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

FINANCIAL INFORMATION

Prior Funding and or appropriations have been as follows:

- $70,000 – Prior funding for smoke testing, sampling, third party analysis.
- $122,000- Prior appropriations to identify potential sources of indicator bacteria and recommendations (Phase I Study).
- $75,000 - Prior appropriations to understand progress and further analysis of potential sources of indicator bacteria and study non-point sources (Phase II Study).
- $640,000 – Prior funding Phase 1 Park View Sewer Trenchless Rehabilitation upgrades and sewer force main air release valve replacements.
- $2.5 million- Prior funding Phase II North Beach and Park View Extended Area project. Included closed-circuit television studies, lining of sewer pipes from 73rd to 76th Streets, as well as the rehabilitation of manholes wherever needed, all five (5) North Beach pump station wet well rehabilitations.
- $2.5 million- Prior appropriations for dredging planning, design, and construction.
- $2.2 million – Prior appropriations to retrofit existing gravity stormwater treatment.
- $10 million - North Beach Town Center/ North Shore D Grant funding for design and permitting that will include long-term water quality improvements.

CONCLUSION

The Administration recommends the City Commission accept the selected recommendations of the North Beach Water Quality and Park View Canal report entitled "Assessment of Enterococci in Groundwater and Stormwater at the Miami Beach Park View Canal" and adopt the "Operation Clean Water" Resolution to urgently address the specific outfalls and street level pollutants entering the stormwater system and impacting the Park View Canal water quality.

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 Alex Fernandez
Commissioner Tanya K. Bhatt
Commissioner Laura Dominguez
Mayor Steven Meiner
Commissioner Kristen Rosen Gonzalez
Commissioner David Suarez

Co-sponsor(s)

Condensed Title

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

Previous Action (For City Clerk Use Only)