

MIAMIBEACH

COMMISSION MEMORANDUM

TO: Mayor Dan Gelber and Members of the City Commission

FROM: Jimmy L. Morales, City Manager

DATE: December 11, 2019

SUBJECT: MEETING OF THE SUSTAINABILITY AND RESILIENCY COMMITTEE (SRC)
ON WEDNESDAY, OCTOBER 23, 2019

A meeting of the Sustainability and Resiliency Committee was held on Wednesday, October 23, 2019 in the City Hall Commission Chamber. Commissioners in attendance: Commissioner Mark Samuelian, Commissioner John Elizabeth Aleman, Commissioner Joy Malakoff, Commissioner Micky Steinberg, and Commissioner Ricky Arriola. Members of the administration and the public were also in attendance.

1. REVIEW OF RESILIENCE STRATEGY WORKPLAN - PLANNED AND IN PROGRESS RESILIENCY PROJECTS

Pierre De Agostini, Palm, Hibiscus, Star Island Homeowner Association President, addressed the committee. Mr. De Agostini stated the Palm, Hibiscus, and Star Island are still experiencing issues with the roadway project. He stated the Capital Improvement Projects (CIP) department has informed the residents that they are still waiting on the plans to be sealed and approved by the surveyors. Mr. De Agostini asked the committee to assist in investigating why the underground roadway plans have not been delivered to the city. He stated there is still issues with the harmonization project. He explained that there are 91 homes that are being affected by the slow pace of the project and requested for the city to work with the Miami-Dade County Environmental Resources Management department (RER) to expedite the harmonization roadway projects.

Commissioner Mark Samuelian explained the committee has been putting a focus on the neighborhood improvement projects. The committee has been provided updates on the Palm and Hibiscus Islands projects that demonstrated the projects have not been progressing at the expected rate. Commissioner Samuelian contacted Commissioner Eileen Higgins, Miami-Dade County District 5 Commissioner, to collaborate to expedite the projects on the islands. Commissioner Higgins requested to bring Lee Hefty, DERM Director, and his team to the committee to provide background information and advise the committee what is needed from the city to continue the projects.

Mr. Hefty stated under Miami-Dade County regulations, a permit is required from the County if a city is building drainage systems that discharge to surface water. He explained the city's roadway project included drainage system that required a permit, to which the city received a permit for and began construction on the roadway. After construction began, the city needed approximately 200 additional drains associated with the roadway permit and work began without approval from the County that requires DERM approval prior to being done. He stated DERM needs the design

of the additional drains submitted to them with the proper engineer certification to be reviewed and approved. He explained the responsibility of designing drains that meet the County's requirements that protects water quality and provides proper drainage is of the engineer and the city and DERM's responsibility is the review and issue regulatory permits. Mr. Hefty stated he took a tour of the projects with Assistant City Managers Susanne Torriente and Eric Carpenter to get a sense of the issues that the city is having with construction of the road. He stated that he believes what should have occurred before embarking on the roadway project was a decision on how the city would handle the harmonization slopes. He stated it is not efficient to begin construction to then go back and work with property owners on how to deal with harmonization on each individual property. For future projects, Mr. Hefty recommended the city to review the entire project, including harmonization to adjoining properties, so the design does not have to be changed once permits have been approved and construction has begun. He stated DERM is waiting and expecting for the city to provide details on what designs need permitting because there is an open violation.

Commissioner Higgins stated the county is dealing with the city not obtaining proper permits prior to construction and recommends permits being submitted and issued before beginning construction as to not stall the project's progress. Commissioner Higgins asked what the city's timeline is for responding to DERM. She stated once DERM receives the plans, she will ensure DERM approves them quickly. Commissioner Higgins stated she cannot force DERM to issue a permit when the city has not been able to provide an engineer certifying that the drains that were installed are capable of keeping Biscayne Bay clean. Commissioner Higgins asked Mr. Hefty how quickly can DERM issue the permits once they are received from the city. Mr. Hefty stated the permits can be issued with one week upon receipt. He stated that Palm and Hibiscus Island are under the same permit. Commissioner Higgins asked if they can be separated into two permits, so construction is not stalled for both islands if one island is approved for construction. Mr. Hefty confirmed that the permits can be separated.

Commissioner John Elizabeth Aleman stated the Palm and Hibiscus Islands roadway projects were designed and launched without the individual home connections. She stated residents were concerned with elevating the right of way because the islands were originally built to have private properties drain into public right of way and into the public system. Commissioner Aleman stated the city commission endorsed the residential tie in if the homeowners' finished floor was below the future crown of road. She stated the stormwater that falls onto those properties will still be draining into the public system like before with the additional drains, however, it will be cleaner due to the upgrade stormwater system. Commissioner Aleman asked DERM if they require any documents from the homeowners to proceed with the permit approval process. Mr. Hefty explained that he understands the city is responsible for the entire drainage system including the drains located on private property, therefore, the city is responsible to illustrate what runoff is going to be going through the system and if the system is adequately designed to treat it so that the water quality going into Biscayne Bay meets the County's requirements.

Commissioner Aleman stated the city cannot force a private homeowner to make modifications to their personal property to capture and retain the first inch and a half of stormwater. Mr. Hefty stated the city has not provided DERM with what drains they want to eliminate, keep, or remove. Commissioner Samuelian summarized DERM's request of needing the location of the drains and engineer approval that the city's designs meet the county's regulations.

Mr. Carpenter stated the city has been working with DERM for approximately six months on the permitting process. Mr. Carpenter presented pictures of Coconut Lane in 2012 and 2019 to demonstrate the flooding that occurred before and after flood mitigation. He explained the city

moved quickly to find solutions because of past flooding issues. He stated the city went through Class 2 permitting process in 2015 and in 2016, the city received permits for the entire collection system on Palm and Hibiscus Island and they have been installed. During the process of the project, the city took a different path to connecting private properties to the public stormwater system, resulting in about 108 locations needing private connections to the public stormwater system. He stated the city has been collaborating with DERM to find a solution that meets the needs of the residents and the County's requirements. Mr. Carpenter stated the city submitted the as-built plans for Hibiscus Island on June 18, 2019, where they installed three additional drains within the right of way and did not install two drains that were permitted. The city received DERM's comments on June 28, 2019 and the city provided a response on July 8, 2019. DERM responded on August 7, 2019 and the city submitted a second response on October 2, 2019. Mr. Carpenter stated Palm Island is much more of a challenge because there are about 88 private property connections where there are temporary connection drains because by raising the roads the private properties could experience flooding during construction activity. He stated these temporary connection drains will be either converted to a private property drain or if harmonization cannot be resolved with the private property owner, the city will permit the temporary drains as a permanent drainage structure. Each of those 88 private properties need their own drainage calculation to prove retention of an inch and a half of stormwater runoff on the property. In some cases, the city is modifying the inlet elevation so water stages on the property up to a certain point and proceeds to flow into the public water system before there is any impact to the finished floor elevation of the property.

Commissioner Samuelian asked Mr. Carpenter if there is date when the engineering certification will be finalized. Mr. Carpenter stated the city is working on closing the existing conveying system permit process so they can submit the permits for the individual private properties for what has been installed. Mr. Carpenter stated the city has 69 of the 88 private property agreements worked out. He stated the city has met with approximately 40 private properties owners to agree to the harmonization project on their individual property because they need to provide an easement to access the drain within their property to maintain it long-term. He stated once the city has met with all 88 homeowners, they will submit the proper documentation to DERM.

Commissioner Samuelian asked if there is a master drainage plan of what drains will remain and which ones will be removed. Mr. Carpenter stated there were 64 swale drains that were installed as part of the original conveying system permit and the three and two modifications on Hibiscus Island resulted in one total net difference in drainage structure. The as-built has been submitted to DERM. On Palm Island, there were 17 drainage structures that were relocated as a result of landscaping challenges and the as-built was submitted as a permit modification to DERM on August 9, 2019. DERM responded on October 7, 2019 and the city anticipates having a response for DERM by October 25, 2019. He stated the 88 temporary edge drains installed in the public right of way were not part of the original permit submitted, however, they will be converted to either private property drains if a harmonization agreement can be reached or permitted as a permit structure, to which modifications will need to be made to make it permanent. He stated there are 10 properties that requested to get private property drains at the time of construction, which were installed by the private property owners tying into the public system. These permit applications were submitted to DERM and DERM has responded. The city is now working on more details for those permits.

Commissioner Joy Malakoff asked how fast the city can respond to DERM to get all pending permits approved and what can be done for future projects to arrange homeowner harmonization agreement before construction begins. Mr. Carpenter stated the city is currently having one on one meetings with the private property owners for the West Avenue project so the harmonization

designs can be added into the initial permits rather than after. Commissioner Malakoff expressed the message of having homeowners understand how private property drains need to be added to keep the roads dry during road rising construction. Commissioner Samuelian asked if harmonization agreements are in place, if they are required for DERM, and what happens if they are not obtained. Mr. Carpenter stated harmonization agreements are not required but are preferred. The city designed the systems in the event that if an agreement cannot be made, they can still make it work. The city is in the process of the "make it work" scenario, but the city does not want to finalize it because they believe there is a better solution that can be made with the homeowners' approvals. Mr. Carpenter stated Mr. Hefty met with Jimmy Morales, City of Miami Beach City Manager, to establish that harmonization agreements will be sufficient for the homeowner's sign off, rather than each homeowner completing a formal permit application.

Commissioner Aleman stated the County and city need to continue to work together because the roadway project on Palm and Hibiscus Island are vital to the residents' quality of life. Commissioner Aleman asked what is needed from the commission to assist the administration with providing the designs for DERM approval. Mr. Carpenter stated the administration will come back to the commission if additional assistance is needed, but currently he believes they are on the right path to completing the designs. Commissioner Samuelian expressed concern and does not agree that the city is on the right path to completing the designs and submitting them to DERM for approval. He stated this project is going to be heard at the October 30, 2019 Commission meeting and he requested more clarity on how the city is going to meet the engineering requirements and have the designs in place.

Commissioner Aleman asked if there was a delay in the harmonization agreements because homeowners are not responding or not participating in the one on one meetings, which is now delaying construction on the rest of the island. Mr. De Agostini explained in order to move forward, the homeowners need to feel confident that the solution offered by the city is the adequate solution. He stated the original designs were explained to the homeowners as being outside the properties and the plans were changed to install them inside the property, so homeowners need to be reassured that this new design is the most efficient one. Mr. De Agostini stated the homeowners are not delaying the project, but they need more reassurance as to how the design offered is the best one for their individual property.

Commissioner Aleman asked if there is a document with a shared deliverable between the city and DERM listing every outstanding component that requires a permit. Mr. Carpenter stated that the city is working diligently with DERM to complete all responses by the requested deadline. Mr. Hefty stated the city has his commitment on assisting the city to complete the designs and submit it to DERM for expedited approval.

ACTION: The administration to take the feedback from the residents and DERM and the open offer from the commission to assist with endorsement or policy to develop an action plan to continue the project's progress, as requested by Commissioner Samuelian.

Bob Kunst, We Love Lake View President, expressed his recommendation of a better coordinated approach to addressing sea-level rise and climate change throughout the city.

Commissioner Samuelian asked for an update on the West Avenue project progression, engagement with the residents, and lessons learned from the Palm and Hibiscus Islands project. David Gomez, CIP Division Director, provided an update on the West Avenue project. He stated there is a policy in place on how private property drains are going to be connected to

the public system. He stated city staff has begun to meet with each individual homeowner to review the connections as well as hold several community meetings, in advance of completing the designs and permitting.

Stephan Ginez, Palm View resident and hotel owner on West Avenue, addressed the committee on West Avenue concerns. He stated there is currently no agreement for multi-family or commercial buildings about drainage and it needs to be addressed. Mr. Ginez recommended having a standing meeting to build trust between the residents and the city. Commissioner Aleman asked Mr. Ginez if he has contacted the project information officer (PIO) associated with the West Avenue project. He stated that he has spoken to the PIOs, however, the residents have had only one meeting with the project's architect.

ACTION: City staff to provide a pectoral of the current stage and future projection dates for each stage of construction of the West Avenue project at the December 18, 2019 SRC meeting, as requested by Commissioner Samuelian.

Mike Alvarez, former City of Miami Beach employee, addressed the committee on the Palm and Hibiscus project.

Commissioner Samuelian asked for an update on the Indian Creek landscaping project. Rodney Knowles, Greenspace Management Division Director, stated Greenspace Management engaged with Craven Thompson & Associates, Inc, landscape architects, to help devise a plan to restore landscaping that was removed to construct the seawall. After hosting several community meetings, Craven Thompson & Associates developed two landscape concepts based on the community's feedback. Scott Peavler, Senior Supervising Landscape Architect, presented two conceptual landscaping designs based off of the design plans for the seawall and roadway and public feedback. The project expands from 24th Street to 41st Street on the east side of Indian Creek. In concept 1, there are three anchor points along Indian Creek at 41st Street, the pedestrian bridge at 28th Street, and the south end overlooking Lake Pancoast. These three points can connect the Indian Creek area along the drive and Indian Creek. In concept 1, there are proposed connectivity for pedestrians by bringing pedestrians closer to the water with seating areas and an iconic specimen tree flanked by royal palm trees, which would be replicated at each anchor point. The 28th Street pedestrian bridge allows pedestrians to cross over from the neighborhood. South of the bridge is a proposed path along the barrier wall and seawall through the landscaping to Lake Pancoast, where a third interest point will view of Lake Pancoast. This third interest point is where the city's mangrove planter project is going to be installed with possible educational signage relating to mangroves' function in waterways. In regard to the landscaping in between the anchor points and the connectivity, concept 1 proposes varied layers of landscaping to buffer the barrier wall, to screen and open some views up, and plant large shade trees at the road intersections with Indian Creek to limit light pollution into the residential neighborhoods. Mr. Peavler stated the connectivity narrows between 29th Street and 39th Street so that the distance between the seawall and the barrier wall begins to constrict, therefore, it does not allow room for both a walkway and landscape. Concept 1 includes landscaping instead of a walkway to soften the aesthetics of Indian Creek at these narrow points. Mr. Peavler concept 2 only has pedestrian paths in the bus stop at anchor point #1 and the pedestrian bridge at anchor point #2 and lush, layered landscaping with shade, intermediate, and palm trees in between. In both concepts, there are open views for the buildings on the east side to Indian Creek.

Commissioner Malakoff asked if there is room to add mangroves on the west side of the seawall in the areas where there is not much landscaping. Mr. Peavler stated mangroves require a shallow area of water and the depth along those portions of the seawall is over 11 feet. In order to plant

mangroves there the ground would have to be built up, however, this will encroach into the area that is ran by the U.S. Army Corps of Engineers.

Alicia Casanova, Mid Beach Neighborhood Association member, addressed the committee regarding the painting of the barrier wall with art deco colors and advocating for concept 1.

Annamarie Melo, Mid Beach Neighborhood Association member, address the committee on the support for concept #1 and expressed concern that the anchor points will become a refuge for illegal behavior if the paths are broken up. She asked if there is a third concept that incorporates the landscaping and connects the pathway. Mr. Knowles stated there is not a third concept, however, the landscaping and pathway will both be implemented as far as the pathway can go before it becomes too narrow. Landscape will be placed in lieu of a pathway in places where there is a conflict between a pathway or landscaping.

Ms. Melo asked if there was another option other than installing poles to separate the bike lane and the road. She stated the community has experienced a great burden with the street project and has recommended to the Transportation, Parking, and Bicycle-Pedestrian Facilities Committee in July 2019 to have both lanes opened, especially during Art Basal and Superbowl weekend, however, the Sustainability and Resiliency Committee did not approve of this recommendation in July because construction was going to open up for the second lane in October and she has not seen the construction begin.

Commissioner Aleman asked how long the pathway is. Mr. Peavler stated there is a pathway from 39th Street to 41st Street and 25th Street to 28th Street. Commissioner Samuelian asked if there was an opportunity to adjust the location of the crosswalks to get more pedestrian space. Mr. Knowles stated he would have to work with the Transportation department to see if that is possible. Commissioner Samuelian stated he would prefer as much pathway as possible to maximize the pedestrian experience.

Commissioner Aleman and Commissioner Samuelian stated support for concept #1 with as much space as possible for the pathway. Commissioner Samuelian requested a walkthrough with the public once the designs have been finalized. Commissioner Samuelian asked the administration to look into putting back landscaping for those residents on the east side that had landscaping removed.

Commissioner Aleman asked if the landscaping palette has been selected. Mr. Knowles stated about 95% of the landscaping palette will be native species and some non-native species to provide color. Commissioner Aleman requested for the palette to be completely Florida friendly, if applicable.

MOTION: Concept #1 of the Indian Creek landscaping project to be taken to full commission. By acclamation.

Nelson Perez-Jacome, City Engineer, introduced Hazen and Sawyer, contractors for the city's water and sewer master plan. Nandita Ahuja, Hazen and Sawyer, presented the water system master plan. The water system master plan elevated the capacity of using hydraulic modeling, the above ground assets, and the underground assets (risk assessment). Commissioner Aleman asked what the normal useful life of the pipes are. Ms. Ahuja stated the normal useful life is based on the pipe material and diameter but can range between 50-60 years for cast iron and ductile iron pipes. In terms of evaluation, Hazen and Sawyer ensure there was adequate pressure and fire flow. They also conducted a water age analysis and what-if scenarios. For aboveground

assets, a physical condition assessment was conducted, and several critical assessments and critical rehabilitation projects were identified. Lastly, a R&R project prioritization was developed based on a risk analysis that combined consequence of failure (CoF) and probability of failure (PoF). The pipes that scored high on the PoF and CoF are deemed to be replaced first. Based on the results, 49 CIP projects were identified, 18 capacity-based improvements were identified, 31 R&R based improvements were identified, with a total of CIP cost of \$167 million through 2045 for the water system master plan.

Kathryn Snyder, Hazen and Sawyer, presented the sewer system master plan. She stated the same approach that was done on the sewer system master plan was done with the water system master plan. They evaluated the pipe diameter, age, and material. A hydraulic model was used to evaluate the pipe's capacity and to identify several projects based on the capacity of the sewer system going through 2045. They looked at the aboveground assets and identified some pump stations and aerial crossings that need replacement or rehabilitation. For the underground assets, the gravity mains were evaluated based on infiltration and remaining useful life to prioritize basins for the gravity main projects. Lastly, they evaluated the sewer underground assets by combining CoF and PoF to identify sewer force mains and develop timeframes for replacement for the high-risk force mains. Through the evaluation, Hazen and Sawyer identified 64 CIP projects, 9 capacity-based improvements, 55 R&R based improvements, with a total CIP cost of \$116 million through 2045 for the sewer system master plan.

Commissioner Aleman asked if the conditions of intra-neighborhood sewer systems were evaluated. Jason Page, Hazen and Sawyer, stated they did include the neighborhoods' sewers system in their evaluations and suggests Jacobs Engineer to use their geographic information system graphs to stack projects up and break ground at the same time for similar projects. Commissioner Samuelian asked when the last time was the city did a similar assessment and what transpired after. Mr. Page stated there has been work done from several master plans and water models. About 15-20 years ago, there was a pump station planned to be installed at South Pointe, which was carried out to a certain degree and then modified. Hazen and Sawyer also improved the pipeline by carrying it across Government Cut. Mr. Page stated Hazen and Sawyer has presented a draft to the city, received comments on certain area cost estimates and locations, and will provide a revision by the end of the month.

Mr. Coley stated Hazen and Sawyer identified many water assets, especially those hanging off of bridges that were showing a very high probability of failure and likelihood of failure because of their condition. He stated this is a product of decades of deferred maintenance and there are 20-40-year-old pipes that should have a lot of life left in them, but they do not. If they are not replaced, there will be high consequence of failure.

Commissioner Samuelian stated there are intersecting needs of water and sewer with stormwater and the administration needs to consider how these can come together as part of the Jacobs Engineering task order.

Mr. Coley stated the administration has reviewed the drafts and will have a presentation from Hazen and Sawyer next week to finish the item. Once the project has been finalized, city staff will be ready to recommend a financing plan to the Finance and Citywide Projects Committee.

Mr. Coley stated city staff has worked closely with the fire chief to ensure the land planning zoning is being used to make sure there is enough fire flows in all the areas moving forward.

ACTION: Commissioner Samuelian recommended referring the water and sewer system master plan to be referred to the Finance and Citywide Projects Committee to think through funding sources and impact on operating cost.

2. SUSTAINABILITY COMMITTEE UPDATE

ACTION: Continued to the December 18, 2019 Sustainability and Resiliency Committee meeting.

3. DISCUSSION ON ARTIFICIAL REEFS

Commissioner Ricky Arriola stated that he visited the University of Miami Rosenstiel School of Marine and Atmospheric Science campus to tour the ULINK program team's facility and learned how their research on how artificial reefs protect shorelines from beach erosion, wave action, and storm surge.

Flavia Tonioli, Sustainability Manager, introduced the ULINK team. Dr. Brian Haus, professor and chair of the University of Miami's Department of Ocean Sciences, presented this item. He explained the ULINK program is an initiative established by the University of Miami to bring multidisciplinary teams together to address issues of importance to society. The goal of the ULINK program is to evaluate the impact of healthy coral reefs on wave action and storm surge, identify suitable sites for nature-based coastal defenses, assess shoreline risk and vulnerability, design efficient artificial coral reefs, and develop appropriate engagement and communications strategy. For the last several months, the team has been heavily engaged with city staff to discuss Miami Beach's needs and what can be done for them. He stated the use of artificial reefs for storm surge resilience comes from the reduction of wave impact on the shoreline from daily and extreme storm events.

Commissioner Arriola reiterated that artificial reefs are meant to protect the shoreline from beach erosion due to wave energy in a similar manner as natural sandbars. Dr. Haus stated the sandbars were created by nature to minimize wave energy offshore and artificial reefs are created for the same intended purpose.

Commissioner Arriola asked for an estimate of how much the city's beach renourishment project cost. Elizabeth Wheaton reported that the current beach renourishment project is estimated to cost between 15.3 to 15.9 million dollars. Currently, the U.S. Army Corps of Engineers is working on conducting a feasibility study to understand what is going to be necessary for the next 50 years of the federal cycle relating to the sand's needs, including cost options on importing the sand from different sources, and offshore structures or breakwaters. The study is anticipated to be completed within the next year to year and half. Commissioner Arriola asked to explain the difficulty the city is having on obtaining sand. Ms. Wheaton reported offshore sand sources that was used in the past is now restricted and the current beach renourishment project will be trucking in sand from Central Florida. She stated this method is much more expensive than other forms of renourishment, therefore, other opportunities to reduce the erosional rates will help to reduce the cost of future renourishment. Commissioner Joy Malakoff asked if foreign sand can be used. Ms. Wheaton stated foreign sand cannot be used for federal projects. Dr. Haus stated deploying additional protective structures offshore can enhance the lifespan of beach renourishment projects.

Commissioner Malakoff asked if the ULINK team is recommending a combination of natural and artificial reef structures and could these reefs be used as future recreational diving locations. Dr.