

New Business and Commission Requests - R9 X

MIAMI BEACH

COMMISSION MEMORANDUM

TO: Honorable Mayor and Members of the City Commission
FROM: Jimmy L. Morales, City Manager
DATE: September 13, 2017

SUBJECT: DISCUSSION REGARDING THE INSTALLATION OF PERMANENT GENERATORS AT STORMWATER PUMP STATIONS THROUGHOUT THE CITY.

RECOMMENDATION

The Public Works Department is recommending that all future storm water pumping stations are to include a permanently mounted generator capable of powering the entire station unless an extreme condition exists preventing the inclusion. All existing storm water pumping stations should be individually reviewed for space requirements, and other logistics to determine whether a retrofit is appropriate.

ANALYSIS

The expected cost to redesign, and construct the city's stormwater system is expected to be approximately \$500 million and every effort has been taken to limit the expenses. A significant component of limiting expenses was the decision to rely on portable generators verses permanently mounted generators at the pumping station. The cost of built in permanently mounted generators begins at over \$400,000 each, and increases based on the size of the pumping station. The system is likely to have 80 to 85 pumping station at completion. The total cost to have permanently mounted generators was estimated to be over \$32 million.

Other factors contributed to the decision making process to rely on portable generators to supply power during outages. Financial factors were important, however, non-financial factors were important to consider also. The most noteworthy were aesthetics, and the likelihood of power failure.

Aesthetic considerations were important to various stakeholders from the very beginning stages of designing the modern stormwater pumping stations. Most of the pumping components are located underground, and out of sight. The control centers must be located 2 feet above base flood elevation, and close in proximity to the pumping equipment. The control centers include electrical service panels, elevated platforms, and stairs. The aesthetics were such a priority that in many locations the platforms and stairs have been eliminated from the control centers requiring operations and maintenance to be performed from portable ladders.

Diesel powered generators capable of powering the city's stormwater pumping station are aesthetically challenging. They are about the size of an automobile at the smaller pumping stations, and the size of a truck at the larger stations. Permanently mounted generators must also be located 2 feet above the base flood elevation which is often 5, or more, feet aboveground. In some locations landscaping could be used to reduce the view of the equipment, and in other locations space limitations would only allow for some type of screening.

Florida Power and Light classified the city's stormwater pumping stations as critical infrastructure, and placed them on its most robust power supplies. Unplanned outages were considered to be unlikely, or very infrequent. Planned outages, such as power grid shutdowns caused by tropical weather, came with enough advance warning to deploy portable generators timely. The risk of not having permanently mounted generators was considered acceptable.

In October 2016 the impacts of Hurricane Matthew prompted a review of the city's tolerance for risk concerning generators. Ultimately that review resulted in Public Work being directed by the Mayor and Commission in February 2017 to begin procurement of permanently mounted generators for the Sunset Harbour neighborhood's pumping stations number 2 and 3. August 1, 2017 produced an extreme weather event that prompted the issuance of an emergency authorization to accelerate the procurement of the Sunset Harbour generators, and to develop recommendations for other stormwater pumping stations.

CONCLUSION

The Public Works Department is recommending that all future storm water pumping stations are to include a permanently mounted generator capable of powering the entire station unless an extreme condition exists preventing the inclusion. All existing storm water pumping stations should be individually reviewed for space requirements, and other logistics to determine whether a retrofit is appropriate. Some consideration was given, but ultimately rejected, to the possibility of supplying only 50% of the individual station's pumps to reduce generator sizing and cost. Various stakeholders have been consulted to measure their risk tolerance for not having permanently mounted generators, verses their tolerance for the less attractiveness of having them. There seems to have been a substantial change in the community's willingness to have more unattractive equipment in view to reduce the risk of flooding.

KEY INTENDED OUTCOMES SUPPORTED

Ensure Reliable Stormwater Management And Resiliency Against Flooding By Implementing Select Short And Long-Term Solutions Including Addressing Sea-Level Rise

Legislative Tracking
Public Works