

A RESOLUTION AMENDING THE CITY'S 2011 CDM-SMITH STORMWATER (MANAGEMENT) MASTER PLAN (2011 SWMP) TO INCORPORATE THE CITY'S CONSULTANT, AECOM'S, RECOMMENDATIONS RELATING TO DEFINING "FUTURE GRADE," AND "FUTURE CROWN OF THE ROAD;" FURTHER MODIFYING SECTIONS 2.5.3, ENTITLED "PROPOSED LEVEL OF SERVICE (LOS), AND 9.2.5 ENTITLED "SEAWALL HEIGHTS," OF THE 2011 SWMP, TO INCLUDE MODIFICATIONS TO THE LEVEL OF SERVICE FOR CONSTRUCTION OF ROADS, STORMWATER SYSTEMS, AND DEVELOPMENT TO REDUCE THE RISK OF FLOODING; A COPY OF WHICH IS ATTACHED HERETO AS EXHIBIT 1.

WHEREAS, the City's Stormwater (Management) Master Plan (2011 SWMP) is intended to be a guide for improving the City's stormwater management system performance for the next 20 years, with considerations of potential sea level rise over 20-years of stormwater infrastructure and a 50-year planning horizon for seawall heights; and

WHEREAS, the City adopted Resolution 2012-28068 on November 14, 2012, adopting the 2011 SWMP; and

WHEREAS, the City adopted Resolution 2014-28499 on February 12, 2014, which approved the recommendation of The Flooding Mitigation Committee to amend the 2011 SWMP by modifying the design criteria for the tailwater elevation from 0.5 Ft-NAVD to 2.7 Ft-NAVD for all tidal boundary conditions; and

WHEREAS, the City adopted Resolution 2014-28684 on July 23, 2014 which accepted the recommendation of the Flooding Mitigation Committee to amend the 2011 SWMP for minimum seawall elevation from 3.2 feet NAVD to 5.7 feet NAVD, however the 5.7 NAVD elevation for seawalls shall not apply to minor seawall repairs less than \$300 per linear foot at "2014 Consumer Price Index (CPI)"; and

WHEREAS, on December 17, 2014, the City Commission approved the revised standard seawall height at 3.2 NAVD with a caveat of an additional cap of 2 feet; and

WHEREAS, on July 21, 2015, the Mayor's Blue Ribbon Panel on Flooding and Sea Level Rise recommend that the seawall cap on all new private construction and all public seawall construction be changed from 3.2 feet NAVD to 5.7 feet NAVD throughout the City; however, on existing private seawalls that are being replaced/repared not associated with new building construction, a minimum 4.0 NAVD elevation shall apply with the structural design to accommodate a seawall height extension to a minimum 5.7 NAVD; and

WHEREAS, on May 11, 2016, the City Commission adopted Ordinance 2016-

4009 which amended Chapter 54 – “Floods”, by establishing a minimum and maximum freeboard (minimum one foot / maximum five feet) above base flood elevation (FIRM BFE = not less than 6.44 NAVD) for all properties and amend the Land Development regulations pertaining to the calculation of building height, and establish minimum elevations of required yards in single family districts; and

WHEREAS, on May 11, 2016, the City Commission adopted Ordinance 2016-4010, amended Chapter 118, of the Land Development Regulations relating to defining “future grade” and “future crown of the road;” and

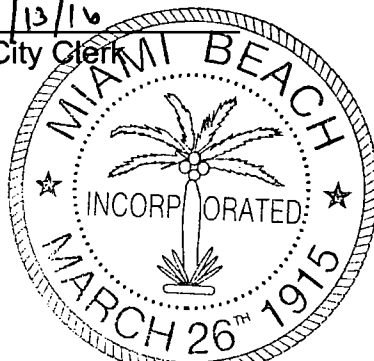
WHEREAS, the modifications to Chapter 54 and Chapter 118 were provided an effective date of June 8, 2016, so that these terms would be provided a definition and criteria in the 2011 SWMP, and the attached Addendum 1 to the 2011 SWMP, incorporates the definitions and changes to the 2011 SWMP to effectuate the new definitions for “future crown of the road” and “future grade.”

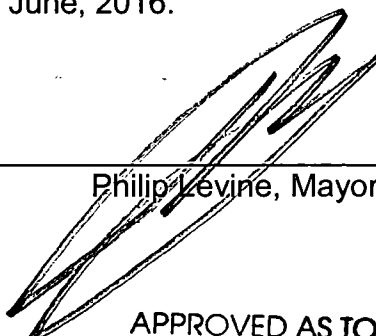
NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA, that the Mayor and City Commission amend the City’s 2011 CDM-Smith Stormwater (Management) Master Plan (2011 SWMP) to incorporate the City’s consultant, AECOM’s, recommendations relating to defining “future grade,” and “future crown of the road;” further modifying sections 2.5.3, entitled “Proposed Level Of Service (LOS), and 9.2.5 entitled “Seawall Heights,” of the 2011 SWMP, to include modifications to the level of service for construction of roads, stormwater systems, and development to reduce the risk of flooding; a copy of which is attached hereto as Exhibit 1.

PASSED and ADOPTED this 8 **day of June, 2016.**

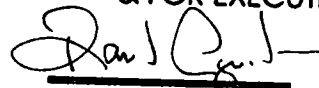
ATTEST:


6/13/16
Rafael E. Granado, City Clerk




Philip Levine, Mayor

APPROVED AS TO
FORM & LANGUAGE
& FOR EXECUTION


City Attorney

4/1/16
Date

Condensed Title:

A Resolution Amending The City's 2011 Stormwater Management Master Plan To Incorporate Modifications To The Standards For The Construction Of New Roads, Stormwater Systems, And Developments; Which Standards Would Incorporate Higher Elevations In Order To Reduce The Risk Of Flooding; And Defining "Future Grade" And Minimum Required Seawall Heights; And Which Documents Are Attached Hereto As Composite Exhibit A.

Key Intended Outcome Supported:

Ensure reliable stormwater management and resiliency against flooding by implementing select short and long-term solutions including addressing sea-level rise.

Item Summary/Recommendation:

The City adopted the 2011 Stormwater Management Master Plan (SWMMP) by Resolution 2012-28068. This plan is intended to be a guide for improving the City's stormwater management system performance for a 20 year planning horizon, with considerations of potential sea level rise over 20 years for stormwater infrastructure and 50 years for seawall heights.

Periodically, due to updated climate projections, it is important to update the SWMMP to stay current and viable. The modifications proposed include provisions for new development to include roadway elevation, levels of service for roads, precipitation design rates and distribution, seawall elevations, and minimum future grade elevations.

These items have been presented to the Mayor's Blue Ribbon Panel on Flooding and Sea Level Rise on several occasions.

The SWMMP needs to be amended to incorporate modifications to the standards for the construction of new roads, stormwater systems, and developments; which standards would incorporate higher elevations in order to reduce the risk of flooding; redefine the level of service and design storm; and define minimum "future grade" and seawall heights; and which documents are attached hereto as Exhibit A. The Public Works Manual will also be amended to provide construction details referencing the SWMMP.

THE ADMINISTRATION RECOMMENDS ADOPTING THE RESOLUTION.

Advisory Board Recommendation:**Financial Information:**

Source of Funds:		Amount	Account	Approved
	1			
	2			
	3			
OBPI	Total			

Financial Impact Summary:**City Clerk's Office Legislative Tracking:**

Eric Carpenter, Public Works X6012

Sign-Offs:

Asst. Department Director	Assistant City Manager/DPW	City Manager
JJF	ETC <i>EC</i>	JLM <i>JLM</i>

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MIAMI BEACH

City of Miami Beach, 1700 Convention Center Drive, Miami Beach, Florida 33139, www.miamibeachfl.gov

COMMISSION MEMORANDUM

TO: Mayor Philip Levine and Members of the City Commission

FROM: Jimmy L. Morales, City Manager

DATE: June 8, 2016

SUBJECT: **A RESOLUTION AMENDING THE CITY'S 2011 STORMWATER MANAGEMENT MASTER PLAN TO INCORPORATE MODIFICATIONS TO THE STANDARDS FOR THE CONSTRUCTION OF NEW ROADS, STORMWATER SYSTEMS, AND DEVELOPMENTS; WHICH STANDARDS WOULD INCORPORATE HIGHER ELEVATIONS IN ORDER TO REDUCE THE RISK OF FLOODING; AND DEFINING "FUTURE GRADE" AND MINIMUM REQUIRED SEAWALL HEIGHTS; AND WHICH DOCUMENTS ARE ATTACHED HERETO AS COMPOSITE EXHIBIT A.**

BACKGROUND

The City adopted the 2011 Stormwater Management Master Plan (SWMMP) by Resolution 2012-28068. This plan is intended to be a guide for improving the City's stormwater management system performance for a 20 year planning horizon, with considerations of potential sea level rise over 20 years for stormwater infrastructure and 50 years for seawall heights.

Periodically, due to updated climate projections, it is important to update the SWMMP to stay current and viable. The modifications proposed include provisions for new development to include roadway elevation, levels of service for roads, precipitation design rates and distribution, seawall elevations, and minimum future grade elevations.

These items have been presented to the Mayor's Blue Ribbon Panel on Flooding and Sea Level Rise on several occasions.

On February 12, 2014, the City adopted Resolution 2014-28499, which approved the recommendation of The Flooding Mitigation Committee to amend the SWMMP so as to modify the design criteria for a "tailwater elevation" be increased from 0.5 Ft-NAVD to 2.7 Ft-NAVD for all tidal boundary conditions;

On July 21, 2015, the Mayor's Blue Ribbon Panel on Flooding and Sea Level Rise recommend that the seawall cap on all new private construction and all public seawall construction be changed from 3.2 feet NAVD to 5.7 feet NAVD throughout the City; provided, however, that for properties with existing private seawalls that are being replaced/repared not associated with new building construction, the Panel recommended applying a minimum 4.0 NAVD elevation, as

long as the structural design to accommodate a seawall height extension to a minimum 5.7 NAVD

On May 11, 2016, the Mayor and City Commission adopted Ordinances 2016-4009, relating to amending Chapter 54 of the City Code entitled "Floods" to define City of Miami Beach Freeboard, and modify how grade elevation and height are defined due to flooding and climate change.

Also on May 11, 2016, the Mayor and City Commission adopted Ordinance 2016-4010, relating to amending Chapter 118, of the Land Development Code, to incorporate the same Freeboard definitions, and procedures for how to determine grade elevation and height as a result of flooding and climate change.

The SWMMP needs to be amended to incorporate modifications to the standards for the construction of new roads, stormwater systems, and developments; which standards would incorporate higher elevations in order to reduce the risk of flooding; redefine the level of service and design storm; and define minimum "future grade" and seawall heights; and which documents are attached hereto as Exhibit A. The Public Works Manual will also be amended to provide construction details referencing the SWMMP.

CONCLUSION

The Administration recommends that the Mayor and City Commission of the City of Miami Beach, Florida accept the recommendation of the City Manager to amend the 2011 Stormwater Management Master Plan.

Attachment – Exhibit A

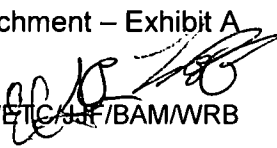

JLM/ETC/HF/BAM/WRB

EXHIBIT A

AECOM recommended changes to the 2011 CDM-Smith Stormwater Master Plan (2011 SWMP)

- Modify Section 2.5.3 Proposed Level of Service to include, *“Future crown of road and back of sidewalk elevations shall be 3.7 feet, NAVD, unless exempt due to hardship as determined by the Director of Public Works.”*
- Modify Section 2.5.3 Proposed Level of Service to include, *“For land development purposes, the future grade shall be 3.7 feet NAVD minimum.”*
- Modify Section 2.5.3 Proposed Level of Service to state, *“The stormwater level of service for roadways such that the crown of road is not overtopped during the 5 year / 24 hour design storm event with the following parameters:*
 - *South Florida Water Management District nomograph with 1.25 safety factor.*
 - *The rainfall distribution shall be the SCS Type III.*
 - *The Unit Hydrograph peaking factor shall be 150.”*
- Modify Section 2.5.3 Proposed Level of Service to state, *“New construction or substantial reconstruction on private property shall retain stormwater runoff from the 5 year / 24 hour design storm of 7.5 inches of rainfall.”*
- Modify Section 9.2.5 Seawall Heights to state, *“All new seawalls on private construction and all seawalls constructed on public projects shall have a minimum elevation of 5.7 feet, NAVD, however, on existing private seawalls that are being replaced/repared not associated with new building construction, a minimum 4.0 NAVD elevation shall apply with the structural design to accommodate a seawall height extension to a minimum 5.7 NAVD.”*

EXHIBIT A

ADDENDUM 1 TO THE CITY OF MIAMI BEACH STORMWATER (MANAGEMENT) MASTER PLAN FINAL REPORT

The City of Miami Beach's consultant, AECOM, has recommended modifications to the 2011 CDM Smith Stormwater (Management) Master Plan Final Report (2011 SWMP) in order to ensure the resiliency of the City, which recommendations are incorporated into the 2011 SWMP, as Addendum 1.

The following amendments to the following sections of the 2011 SWMP are hereby amended and incorporated by reference into the 2011 SWMP, as follows:

* * *

2.5.3 Proposed Level of Service (LOS)

As shown, CDM evaluated design storm events and joint tidal event periods to evaluate stormwater system performance and the project needs and costs to achieve various levels of service. The various evaluations for LOS indicated a point of diminishing returns at the 2 to 3 year storm event level.

Therefore, the City and CDM formulated options to best protect public safety and property with available funding. The 5-year, 24-hour ~~(5.9 inches of rainfall)~~ design storm of 7.5 inches of rainfall was also investigated due to current LOS standards. As an example, a 5 year LOS in the Flamingo Park Lummus Avenue project area would cost approximately \$80 million, and the City available budget for this project area is approximately \$35 million.

Based on the supplied information herein, the City should determine whether an adjustment in the design storm is prudent as it relates to the future evaluation of LOS.

"Future crown of road" and "future back of sidewalk elevations" shall be 3.7 feet, NAVD, unless exempt due to hardship as determined by the Director of Public Works.

For land development purposes, "future grade" shall be a minimum of 3.7 feet NAVD.

The stormwater level of service for roadways such that the "future crown of road" is not overtopped (flooded) during the 5 year / 24 hour design storm event shall be constructed utilizing the the following parameters:

- South Florida Water Management District nomograph with 1.25 safety factor.
- The rainfall distribution shall be the SCS Type III.
- The Unit Hydrograph peaking factor shall be 150.

EXHIBIT A

New construction or substantial reconstruction on private property shall retain stormwater runoff from the 5 year / 24 hour design storm of 7.5 inches of rainfall.

* * *

9.2.5 Seawall Heights

This section provides recommendations regarding the influence of sea-level on seawall elevations. Condition assessment and solutions for rehabilitating the City's extensive network of seawalls was not included as part of the scope of the SWMP. In 2003, a preliminary inspection report on seawalls was produced by another consultant. This investigation identified the structural integrity of approximately 99 seawall sites throughout the City. That study did not include any recommendation of modifications to the seawalls to address sea-level rise considerations. The following are additional considerations related to seawall heights.

Seawall Height Consideration No. 1

As part of the City's consideration of long-term sea-level rise, a comprehensive inventory of City and private seawalls within the City of Miami Beach should be performed. The inventory should include survey of top (i.e., cap) of the seawall and condition assessment of its structural integrity.

Seawall Height Consideration No. 2

Seawall height design standards should be consulted with coastal engineers and planners in accordance with procedures normally utilized in this specialty discipline (i.e., coastal storm surge estimation). ~~A preliminary consideration is the establishment of a minimum seawall elevation. Based on FEMA and USACE guidance and discussions with USGS and CSI during the development of the SWMP, the establishment of a minimum seawall height of 1 foot above the 1-year tidal stillwater (1.0 + 2.2 ft NAVO = 3.2 ft NAVO) elevation is recommended. This level should be evaluated in coordination sea-level rise projections.~~ All new seawalls for private construction and all seawalls constructed on public projects (after June 8, 2016) shall have a minimum elevation of 5.7 feet, NAVD, provided, however, for existing private seawalls that are being replaced/repared not associated with new building construction, a minimum 4.0 NAVD elevation shall apply with the structural design to accommodate a seawall height extension to a minimum of 5.7 NAVD.

* * *