



Town of Surfside

SUSTAINABILITY SUB COMMITTEE OF THE PLANNING AND ZONING BOARD

AGENDA

January 25, 2018 – 5:00 p.m.

Chief Terrill Williamson Police Training Room
9293 Harding Ave, 2nd Floor, Surfside, FL 33154

1. Call to Order/Roll Call
2. Approval of Minutes: December 7, 2017
3. Sea Level Rise Modeling
4. Dune Management Proposal
5. Public Comments
6. Adjournment

THIS MEETING IS OPEN TO THE PUBLIC. IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT OF 1990, ALL PERSONS THAT ARE DISABLED; WHO NEED SPECIAL ACCOMMODATIONS TO PARTICIPATE IN THIS MEETING BECAUSE OF THAT DISABILITY SHOULD CONTACT THE OFFICE OF THE TOWN CLERK AT 305-861-4863 EXT. 226 NO LATER THAN FOUR DAYS PRIOR TO SUCH PROCEEDING.

IN ACCORDANCE WITH THE PROVISIONS OF SECTION 286.0105, FLORIDA STATUTES, ANYONE WISHING TO APPEAL ANY DECISION MADE BY THE TOWN OF SURFSIDE COMMISSION, WITH RESPECT TO ANY MATTER CONSIDERED AT THIS MEETING OR HEARING, WILL NEED A RECORD OF THE PROCEEDINGS AND FOR SUCH PURPOSE, MAY NEED TO ENSURE THAT A VERBATIM RECORD OF THE PROCEEDINGS IS MADE WHICH RECORD SHALL INCLUDE THE TESTIMONY AND EVIDENCE UPON WHICH THE APPEAL IS TO BE BASED.

AGENDA ITEMS MAY BE VIEWED AT THE OFFICE OF THE TOWN CLERK, TOWN OF SURFSIDE TOWN HALL, 9293 HARDING AVENUE. ANYONE WISHING TO OBTAIN A COPY OF ANY AGENDA ITEM SHOULD CONTACT THE TOWN CLERK AT 305-861-4863. A COMPLETE AGENDA PACKET IS ALSO AVAILABLE ON THE TOWN WEBSITE AT www.townofsurfsidefl.gov.

TWO OR MORE MEMBERS OF TOWN COMMISSION OR OTHER TOWN BOARDS MAY ATTEND AND PARTICIPATE AT THIS MEETING.

THESE MEETINGS MAY BE CONDUCTED BY MEANS OF OR IN CONJUNCTION WITH COMMUNICATIONS MEDIA TECHNOLOGY, SPECIFICALLY, A TELEPHONE CONFERENCE CALL. THE LOCATION 9293 HARDING AVENUE, SURFSIDE, FL 33154, WHICH IS OPEN TO THE PUBLIC, SHALL SERVE AS AN ACCESS POINT FOR SUCH COMMUNICATION.



Town of Surfside

SUSTAINABILITY SUB COMMITTEE OF THE PLANNING & ZONING BOARD MEETING MINUTES

December 7, 2017 – 5:00 p.m.

Chief Terrill Williamson Police Training Room
9293 Harding Ave, 2nd Floor, Surfside, FL 33154

1. Call to Order/Roll Call

The meeting was called to order by Chair Kousoulas at 5:07 p.m.

The following were present: Chair Kousoulas
 Committee Member Lou Cohen
 Committee Member Moshe Behar

Absent: Vice Chair Bertha Goldenberg
 Committee Member Deborah Cimadevilla

Also present: Daniel Dietch, Town Mayor
 Guillermo Olmedillo, Town Manager
 Duncan Tavares, Asst. Town Manager
 Sarah Sinatra Gould, Town Planner
 Kathy Mehaffey, Town Attorney
 Brian Roller, Planning and Zoning Board Liaison
 Elora Riera, Deputy Town Clerk

2. Approval of Minutes – October 26, 2017

Committee member Cohen moved to approve the minutes as written. Passing the gavel, Chair Kousoulas seconded the motion which passed 3-0 by unanimous vote.

3. Shore Management Plan

Chair Kousoulas commented that when this was first brought to the Committee, they were provided with a USB of information. There were two plans provided to the Committee; one from January and the other from August.

Committee member Cohen commented that he preferred the August plan because it was in more detail and had more depth.

Discussion ensued regarding the August shore management plan and how to move it forward.

Committee member Cohen made a motion to accept and recommend the August shore management plan to the Planning and Zoning Board for review and to recommend to the Town Commission. Committee member Behar seconded the motion which passed 3-0 by unanimous vote.

Mayor Daniel Dietch arrived at 5:20 p.m.

4. Sea Level Rise

Assistant Town Manager Tavares advised the Committee that Board member Goldenberg emailed the maps but they have not been reviewed by staff yet. Once they have been reviewed, it can be placed back on the agenda for the next meeting.

Some discussion ensued regarding how high the Town is in terms of elevation. After some discussion, the item was deferred for the next meeting.

Chair Kousoulas commented that at the last meeting he asked Town Planner Sinatra about capillary actions. Town Planner Sinatra commented that her engineer said they do not do that.

Mayor Dietch advised the Committee of a helpful website to determine sea level rise called climate central.

5. Sea Walls and Dune Heights

Chair Kousoulas commented that this item also correlates to the sea level rise item. Without the information from that item it is difficult to discuss this item.

Discussion ensued regarding the building of sea walls and the seawall coalition item that is on the upcoming Town Commission meeting agenda.

Chair Kousoulas asked if someone is required to raise the sea wall with substantial improvements or operations. Town Planner Sinatra replied that she will speak with Building Official Ross Prieto.

Discussion ensued regarding a long term desirable dune height.

After some discussion, the item was deferred for the next meeting.

Committee member Cohen felt that it would be a good idea to have an 8th grade Social Studies teacher and student of their choice from the local school attend a meeting to show them the initiatives of the Town. Town Manager Olmedillo stated that it is a great idea and staff will discuss it with the school to see if it is possible.

Committee member Cohen made a motion to invite a teacher and student from the local school to the next meeting. Committee member Behar seconded the motion which passed 3-0 by unanimous vote.

6. Public Comments

Jennifer Rotker of 9016 Collins Avenue asked about signage for the dunes and sea turtle awareness on the beach.

Mayor Dietch spoke regarding a discussion item that will be discussed at the upcoming Town Commission meeting regarding additional sustainability initiatives.

7. Adjournment

Committee member Cohen moved to adjourn the meeting at 5:49 p.m. Committee member Behar seconded the motion which carried unanimously.

Respectfully submitted:

Accepted this ____ day of _____, 2018

George Kousoulas, Chair

Attest:

Elora Riera, CMC
Deputy Town Clerk

Technical Memorandum

DATE: November 7, 2017

FROM: Miami Dade Water and Sewer Department

SUBJECT: City of Surfside Groundwater Modeling Results

Summary

This technical memorandum provides a summary of the groundwater modeling level analysis for the water service area of Surfside City. The groundwater levels were extracted from the Urban Miami-Dade County Hydrologic model (Hughes and White, v.1.2, 2016). This model was developed by the U.S. Geological Survey (USGS) in cooperation with the Miami-Dade Water and Sewer Department (WASD) for water supply planning purposes. The results were compared with results using an analytical solution for an island in the form of an infinite strip.

Model Description

A Miami-Dade Hydrologic model (UMD) projection was developed to evaluate the effect of increased groundwater pumpage and (or) increased sea level on canal leakage, regional groundwater flow, and the position of the freshwater-seawater interface over a 30-year period. The groundwater model is discretized into three layers within the Biscayne aquifer which is composed of upper and lower permeable units (each a composite of multiple flow zones). These units are separated by a layer of approximately two orders of magnitude less permeable than the overlying and underlying composite units. The groundwater part of the model was horizontally discretized into 101 columns and 189 rows of uniformly sized model cells (1,640.405 ft). The location of Surfside within the UMD model grid is shown in **Figure 1**. The model uses daily stress periods to simulate groundwater and surface water movement.

The coastal boundary condition for the scenarios was developed using average daily predicted tides for the Virginia Key. The tide values were predicted from hourly data calculated using the Network Time Protocol Version 4 program developed by the National Oceanic Service and harmonic constituents for the Virginia Key tidal gage. The sea-level scenario is representative of the prediction of the National Research Council. Precipitation was based on NEXRAD daily rainfall and reference evapotranspiration data from 1996-2010. These conditions were repeated twice to cover the full-time period being studied (2011-2040).

Methodology

To identify how groundwater levels may respond to historical precipitation and future sea-level rise in the water service area of Surfside City this study relied on the following data sources and assumptions (Table 1).

Table 1: Description of data sources

Data Source	Description
Land surface elevation (topography)	5-foot Digital Elevation Model derived from 2015 LiDAR (source: Miami-Dade County, Figure 3A). The ocean bathymetry was excluded from the statistics analysis. The mean value and standard deviation within Surfside are 4.7 and 2.7 feet, respectively.
Water Use	Groundwater pumpage was conducted with the allocation projected to year 2033 (Miami-Dade Consolidated PWS Water Use Permit; currently active and issued on 2015).
Groundwater levels	Estimated groundwater levels were extracted from the model top layer for Surfside area. The daily groundwater levels during a 30-year interval for the extracted 9 model cells follow practically the same values. The highest observed difference on a particular day was of about 0.18 feet. The variation in topography is significant higher than the in variation in groundwater levels. The average groundwater level for Surfside is used in this analysis for each day.
Sea level rise	Consistent with the “Unified Sea Level Rise Projection for South Florida” ¹ this study assumed mean sea level increase of 15.26 inches from –9.43 in 2011 to 5.82 inches (NAVD 88) in 2040 (Figure 2). A sea-level change was applied to average daily predictive tides, which were calculated as a function of predicted and observed average daily tides, for the 15-year period from 1996-2010. A repeating pattern was used to define the entire 30-year scenario simulation period. This assumes that historic interannual variability will repeat over the next several decades.
Precipitation and Evapotranspiration	Precipitation and Evapotranspiration were based on observed climate conditions from 1996-2010. These conditions were repeated twice to cover the full-time period being studied (2011-2040). The observed conditions included a significant flood event which was replicated in the simulation in 2015 and 2030.

¹ Southeast Florida Regional Climate Change Compact Sea Level Rise Work Group (Compact) October 2015. Unified Sea Level Rise Projection For Southeast Florida. A document prepared for the Southeast Florida Regional Climate Change Compact Steering Committee

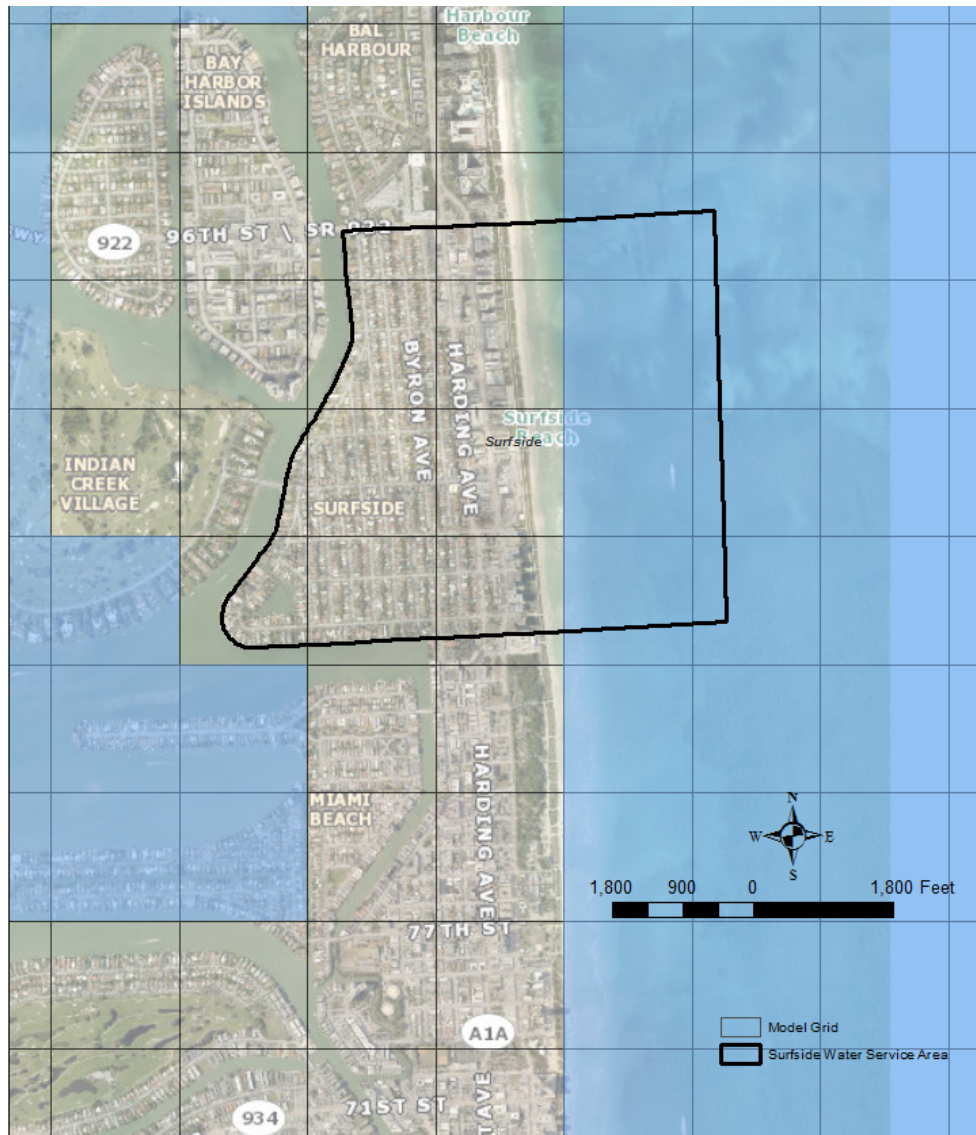


Figure 1. Location of Surfside within Model Grid

Findings

Figure 2 plots the daily average groundwater level values, over the entire area, in a thin blue line which show repetitive variance due to tidal conditions (shown in thin grey line). The annual average is represented by an empty circle and its trend line (dotted line), which is more indicative of sea level progression. The observed conditions included significant flood events which were replicated in the simulation in 2015 and 2030.

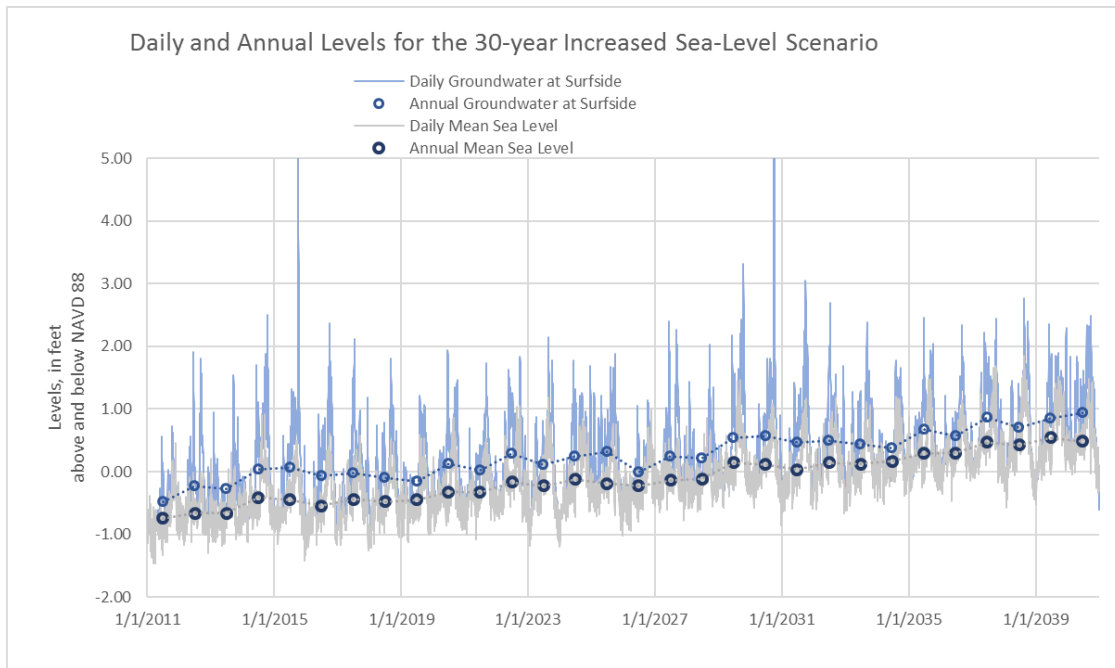


Figure 2. Daily and Annual Groundwater and Sea Level for the 30-year Increased Sea-Level Scenario

An analytical solution (Fetter, 1994) was used to validate the UMD model output results. On a daily average, there is not a significant difference between the tidal and groundwater level. However, there is within the day a clearly dynamic process that the model is not able to represent.

Figure 3a shows the Surfside area topographic values. **Figure 3b** shows a west to east cross section A-B. Topography profile and daily average maximum groundwater levels calculated on year 2040, using both UMD and the analytical solution, are shown on the cross sections. The coastline shown in **figure 3b** corresponds to elevations equal to the maximum daily tidal stage observed on year 2040 at Virginia Key. The daily high tide could rise groundwater levels up to an additional 1.1 foot. The maximum high tide during the day is also shown on the cross section. In some low-lying areas of the Surfside area, the groundwater level is above the surface (**Figure 3b**). During high tide, flooding is likely to occur on the low-lying areas as depicted in **Figure 3b**. It should be noted that this analysis does not include the surge due to storms.

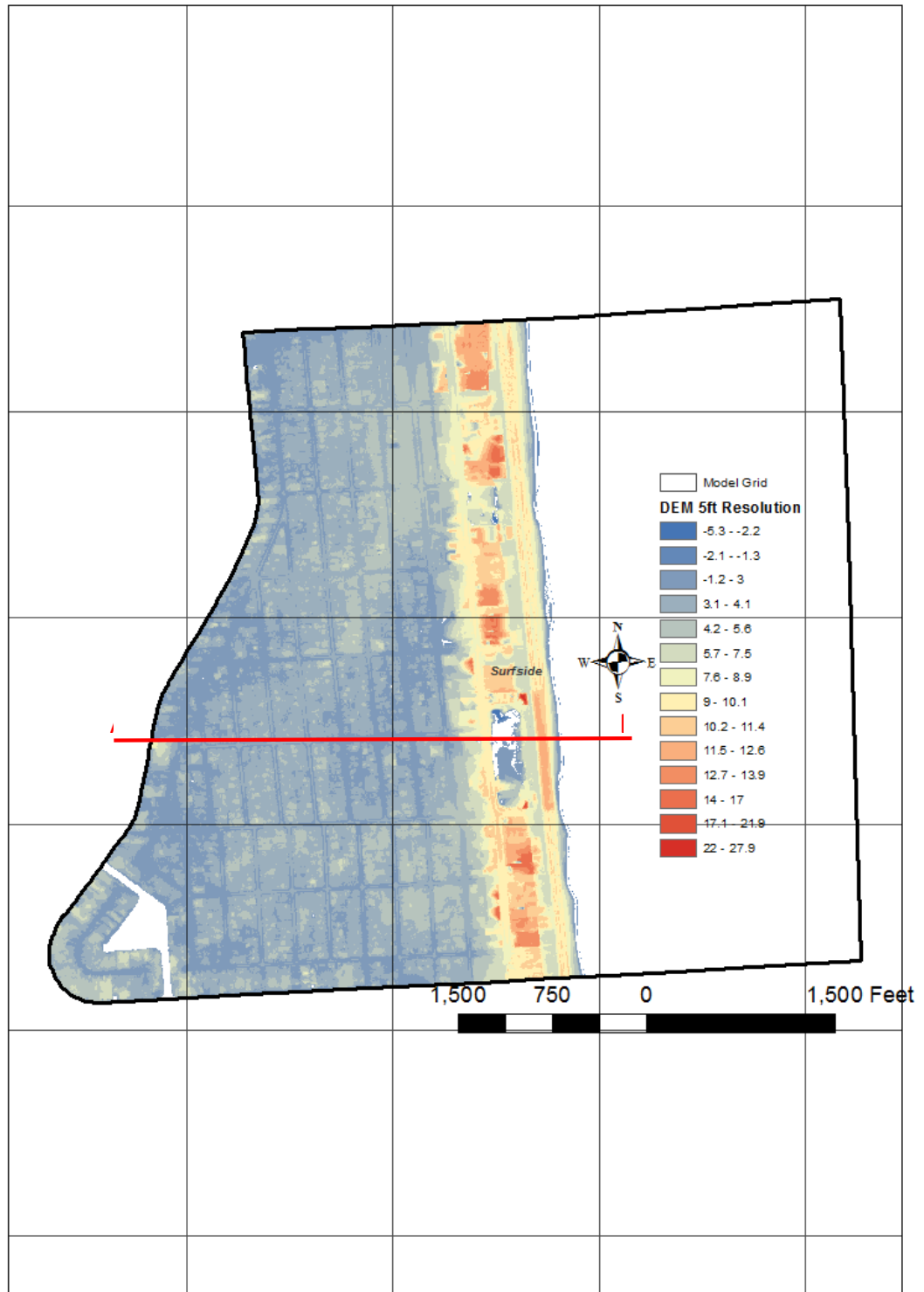


Figure 3a. Lidar Land Surface Elevation (feet, NAVD88) in Surfside area

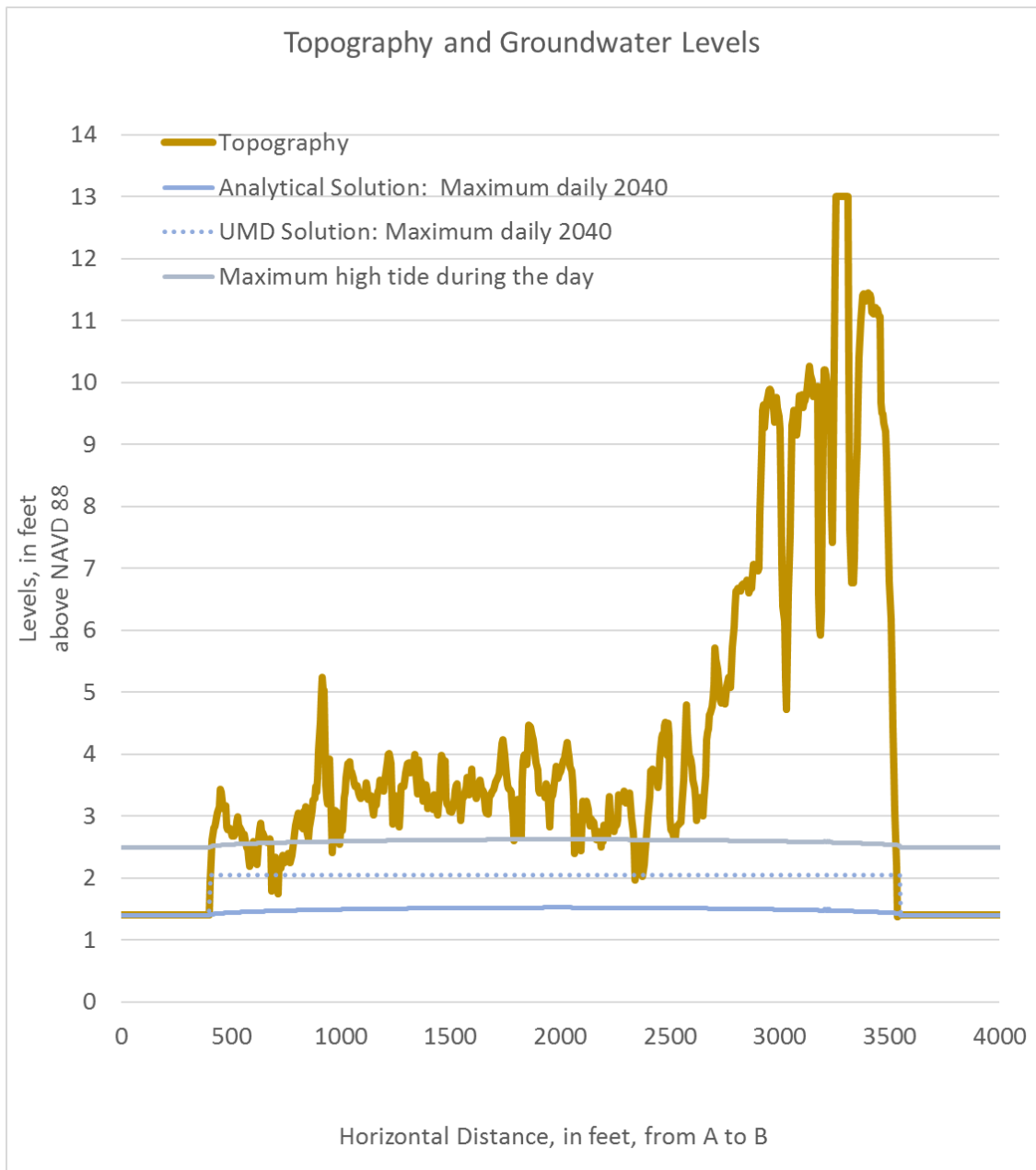


Figure 3b. Cross Section from A to B in the Surfside area. Location of section line shown in figure 3a.

References

Hughes, J.D., and White, J.T., 2016, Hydrologic conditions in urban Miami-Dade County, Florida, and the effect of groundwater pumpage and increased sea level on canal leakage and regional groundwater flow (ver. 1.2, July 2016): U.S. Geological Survey Scientific Investigations Report 2014–5162, 175 p., <http://dx.doi.org/10.3133/sir20145162>.

Fetter, C.W., 1994, Applied Hydrogeology, 3rd ed.: Macmillan College Publishing, Inc., New York, 616 p.



SEA LEVEL RISE VIEWER

Surfside, FL, USA

WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

ft



SEA LEVEL RISE



LOCAL SCENARIOS



MAPPING CONFIDENCE



MARSH MIGRATION



VULNERABILITY



FLOOD



SEA LEVEL RISE VIEWER

Surfside, FL, USA

WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

Current MHHW

UNITS ft



SEA LEVEL RISE



LOCAL SCENARIOS



MAPPING CONFIDENCE



MARSH MIGRATION



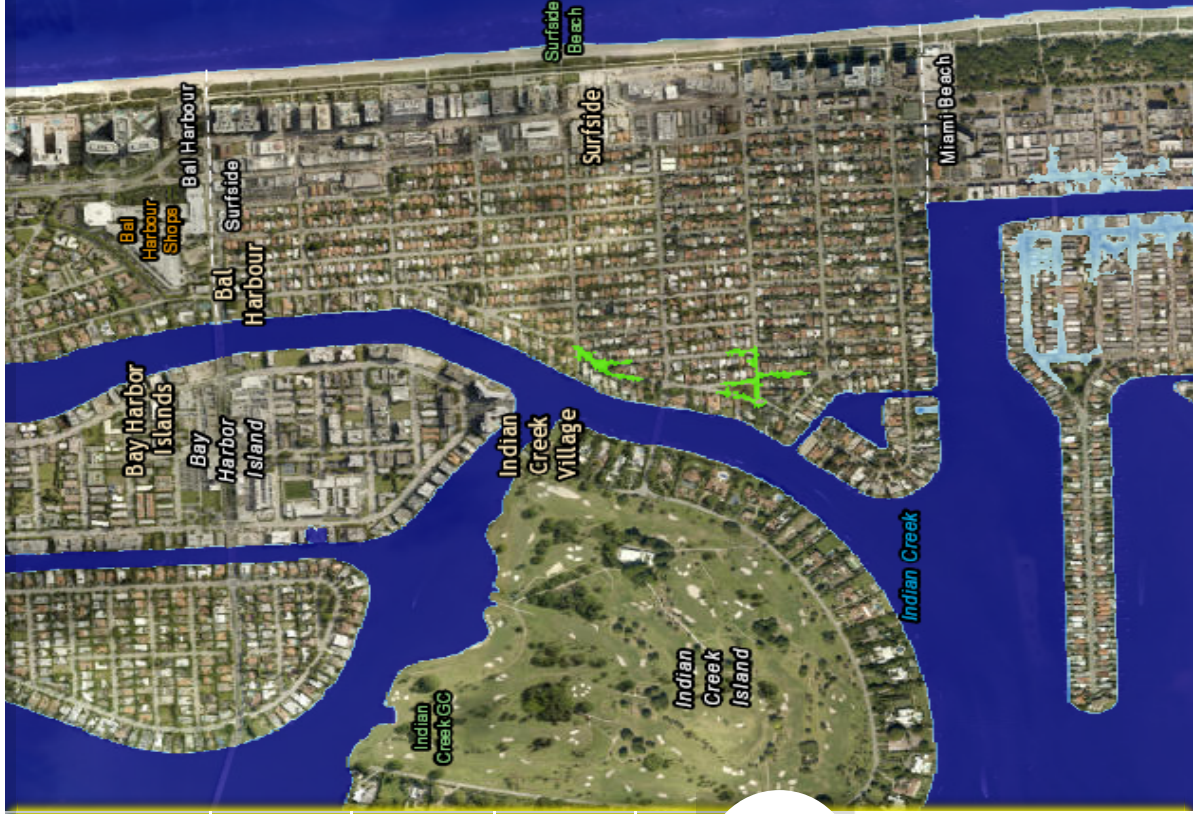
VULNERABILITY



FLOOD



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SEA LEVEL RISE VIEWER

Surfside, FL, USA



WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

Current MHHW

UNITS ft



SEA LEVEL RISE



LOCAL SCENARIOS



MAPPING CONFIDENCE



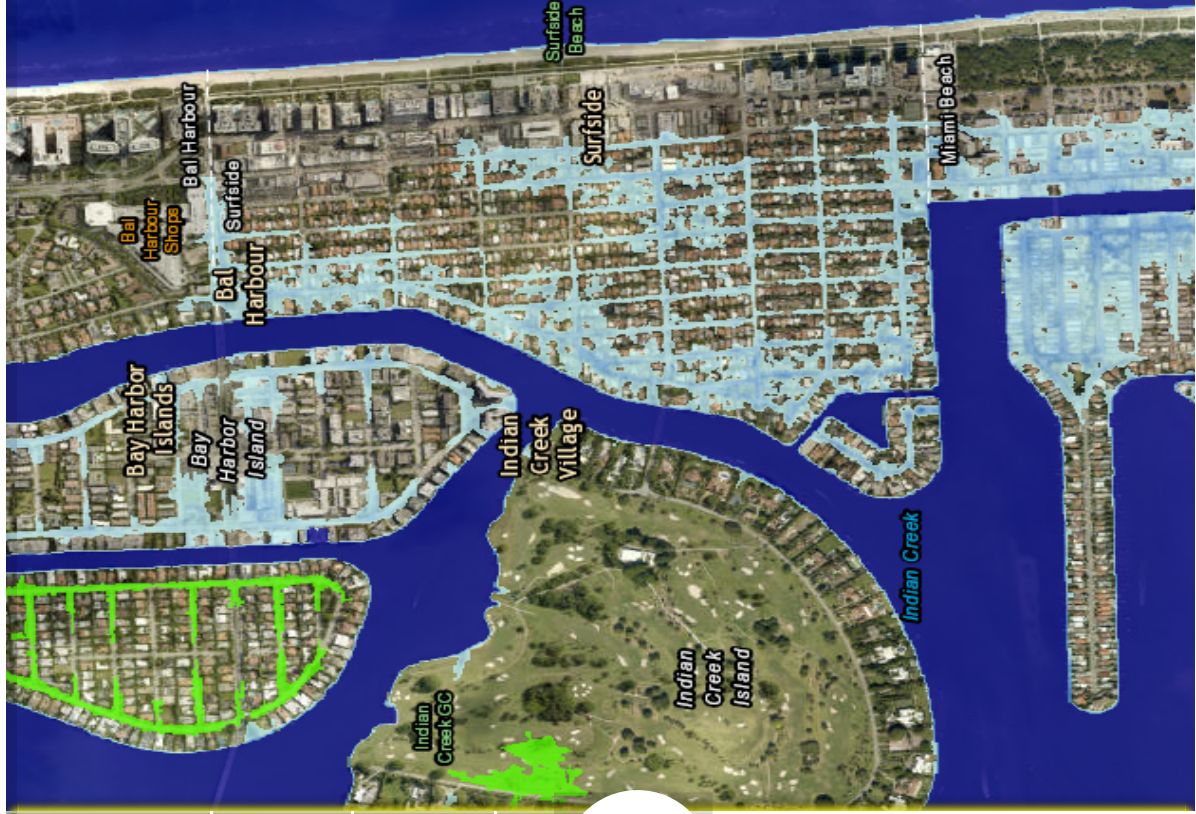
MARSH MIGRATION



VULNERABILITY



FLOOD



SEA LEVEL RISE VIEWER

Surfside, FL, USA

WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

Current MHHW

UNITS ft



SEA LEVEL RISE



LOCAL SCENARIOS



MAPPING CONFIDENCE



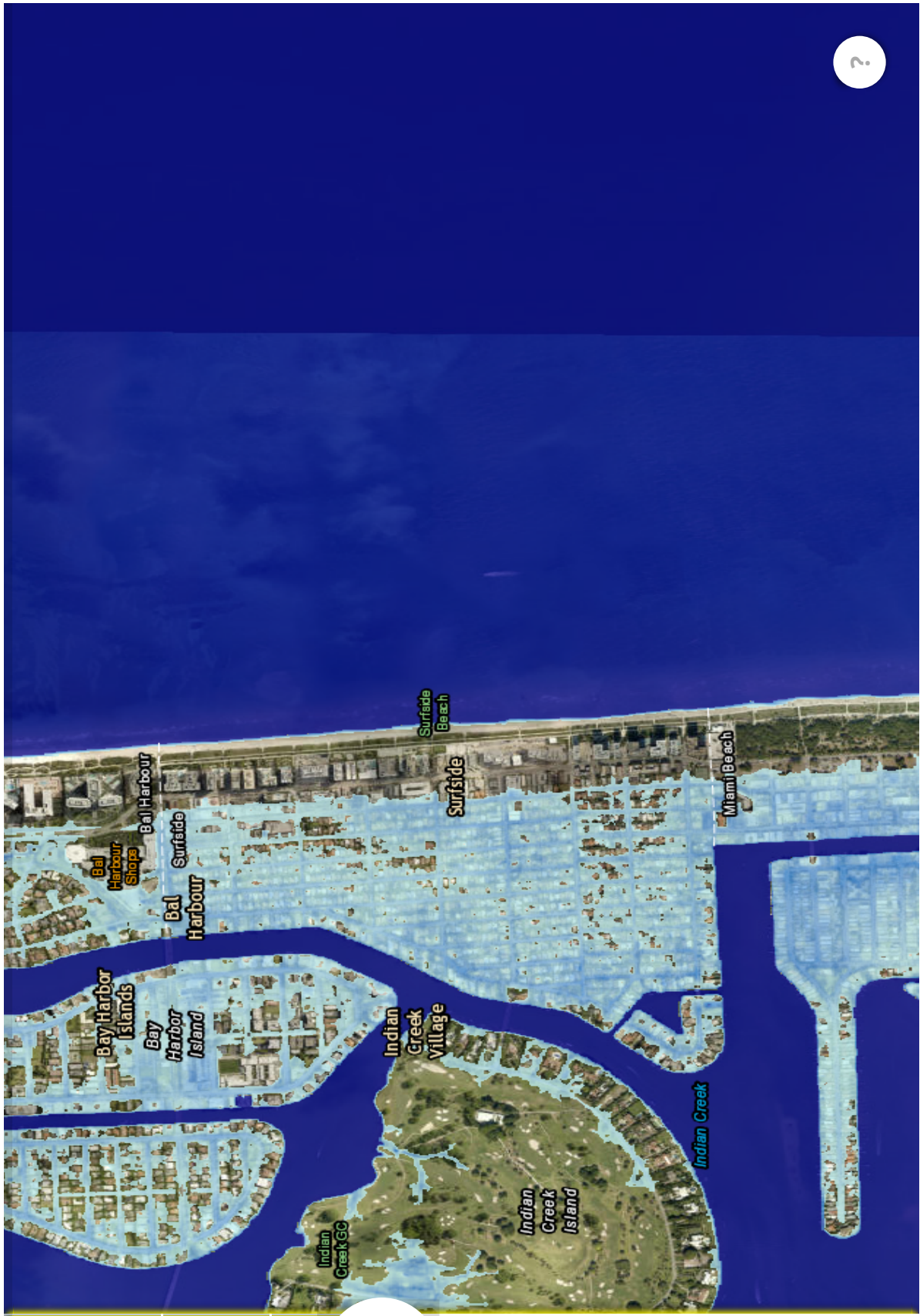
MARSH MIGRATION



VULNERABILITY



FLOOD



SEA LEVEL RISE VIEWER

Surfside, FL, USA

WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

Current MHHW

UNITS ft



SEA LEVEL RISE



LOCAL SCENARIOS



MAPPING CONFIDENCE



MARSH MIGRATION



VULNERABILITY



FLOOD

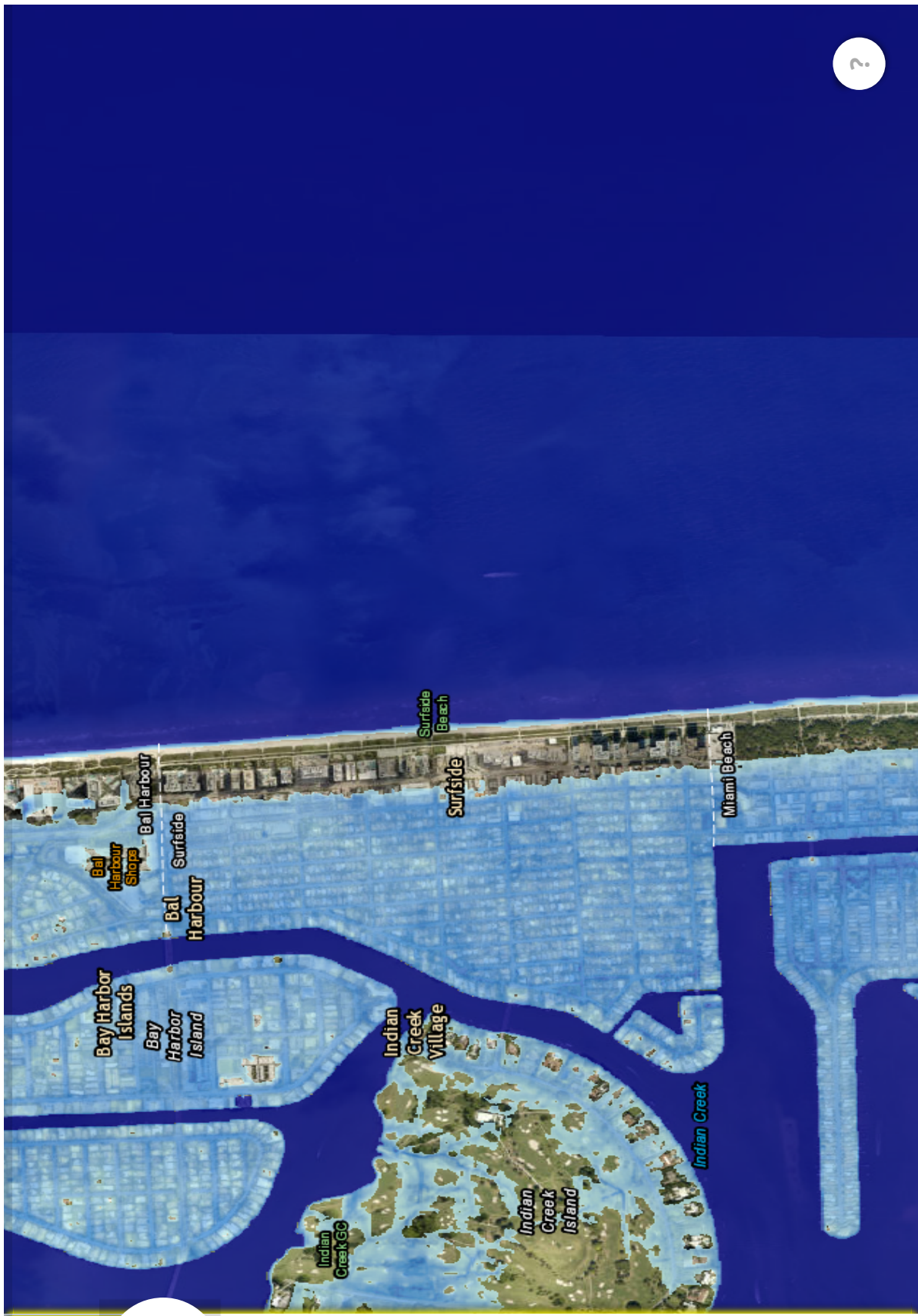


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SEA LEVEL RISE VIEWER

Surfside, FL, USA



WATER LEVEL

6ft

5ft

4ft

3ft

2ft

1ft

Current MHHW

UNITS ft

SEA LEVEL RISE

LOCAL SCENARIOS

MAPPING CONFIDENCE

MARSH MIGRATION

VULNERABILITY

FLOOD

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January 17, 2018

Mr. Guillermo Olmedillo
Town Manager
TOWN OF SURFSIDE
9293 Harding Avenue
Surfside, FL 33154

RE: Work Authorization No. 110
Dune Survey & Beach Management Plan
CGA Proposal No. 18-9942

Dear Mr. Olmedillo,

Enclosed for your review and approval is Work Authorization No. 110 for Dune Survey & Beach Management Plan. The scope of the project includes Planning, Survey & Environmental.

The Scope of Services to be furnished under this Work Authorization includes Environmental, Planning and Surveying as shown on the attached Work Authorization.

The Basis of Compensation is hourly based upon the established rates pursuant to the Professional Services Agreement between the Town and CGA, plus reimbursables, for a total not to exceed \$24,896.80.

Sincerely,

CALVIN, GIORDANO & ASSOCIATES, INC.

Shelley Eichner, AICP
Senior Vice President

Building Code Services
Civil Engineering / Roadway
& Highway Design
Coastal Engineering
Code Enforcement
Construction Engineering &
Inspection (CEI)
Construction Services
Data Technologies &
Development
Electrical Engineering
Engineering
Environmental Services
Facilities Management
Geographic Information
Systems (GIS)
Governmental Services
Indoor Air Quality
Landscape Architecture
Planning
Project Management
Redevelopment
& Urban Design
Surveying & Mapping
Traffic Engineering
Transportation Planning
Water / Utilities Engineering
Website Development

1800 Eller Drive
Suite 600
Fort Lauderdale, FL
33316
954.921.7781 phone
954.921.8807 fax

www.cgasolutions.com

TOWN OF SURFSIDE

Dune Survey & Beach Management Plan

PROJECT DESCRIPTION

1. SCOPE OF SERVICES

Calvin, Giordano & Associates, Inc. will perform the following services based on our understanding of the project requirements:

I. Professional Environmental Services

- A. To assist the Town in better understanding and protecting their adjacent beach resource system, CGA will, create a Beach Plan to include the following topics: beach renourishment history and future proposals; current ownership and management structure; current applicable regulatory structure; dune functions and bests management practices; flora and fauna considerations; and beach use BPMs and regulations.
- B. Coordinate reviews of draft plan with the Town and Miami-Dade County.
- C. Coordinate in the creation of a graphic delineating the erosion control line, the bulkhead line and the CCCL line over a current aerial photograph.
- D. Attend one (1) Sustainability Committee meeting, one (1) Planning and Zoning meeting, and two (2) Commission meetings.

II. Professional Planning Services

- A. Project coordination for presentation at Sustainability Committee, Planning & Zoning Board and Town Commission.

III. Professional Surveying Services

- A. Dune Height Topographic Survey

1. A grid of cross section elevations will be obtained at approximately 250 ft. intervals traversing from the Bulkhead line to the edge-of-water along the Atlantic Ocean coastline within the Surfside town limits.
2. Dune elevation lines will be aligned along the beach access openings that provide access from the hard-pack walk to the beach with spot elevations being obtained at 10 ft. - 15 ft. intervals and at any changes in slope.

B. Town Elevation Grid

1. Elevations will be obtained at all of the street centerline intersections of public rights-of-way within the Town's municipal limits

C. Elevation data will be referenced vertically to North American Vertical Datum 1988 (NAVD88) and horizontally to Florida State Plane Coordinates, North American Datum 83/90 (NAD 83/90) via survey measurements to the three National Geodetic Survey (NGS) control monuments that exists within the Town of Surfside.

D. Map of Topographic Survey

1. A Map of Topographic Survey will be prepared at an applicable scale that will enable all survey measurements to be depicted on a 24" x 36" "D" size sheet.
2. The elevation data will be overlaid onto a current aerial photograph with additional information to include the location of the Bulkhead line, the Erosion Control Line (ECL) and the Coastal Construction Control Line (CCCL)

3. The Map of Topographic Survey will be prepared in accordance with the Standards of Practice requirements for Surveying and Mapping in the State of Florida as set forth by Chapter 5J-17 of the Florida Administrative Code, pursuant to Florida Statutes Chapter 472.027

2. BASIS OF COMPENSATION:

Hourly rates with an estimated fee of \$23,711.24 plus reimbursables at \$1,185.56 with a total not to exceed amount of \$24,896.80. Payments to be made monthly.

3. SUBMITTED

Submitted by: Shelley Eichner Date: 1/17/18
Shelley Eichner, AICP

4. APPROVAL

Approved by: _____ Date: _____
Guillermo Olmedillo, Town
Manager

**TOWN OF SURFSIDE
WORK AUTHORIZATION ESTIMATE DATE**

WORK AUTHORIZATION NO. 110
PROJECT NAME Dune Survey & Beach Management Plan
CGA Proposal No. 18-9942
DESCRIPTION Planning, Survey & Environmental

TITLE	RATE	HOURS/UNITS	COST
Associate Planning	\$159.14	8	\$1,273.12
Environmental Administrator	\$116.70	56	\$6,535.20
Environmental Specialist	\$95.48	10	\$954.80
Sr. Registered Surveyor	\$137.92	16	\$2,206.72
Survey CADD Technician	\$84.87	20	\$1,697.40
Survey Crew	\$132.61	52	\$6,895.72
Survey File Compilation	\$90.18	46	\$4,148.28
			\$23,711.24

SUB-CONSULTANTS	COST
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LABOR SUBTOTAL \$23,711.24
REIMBURSABLE SUBTOTAL \$1,185.56
TOTAL \$24,896.80

Reviewed by: _____
Guillermo Olmedillo, Town Manager