

SR-A1A Tidal Flooding Study

Presented by James Poole, FDOT
& David Boyer, Scalar Consulting Group

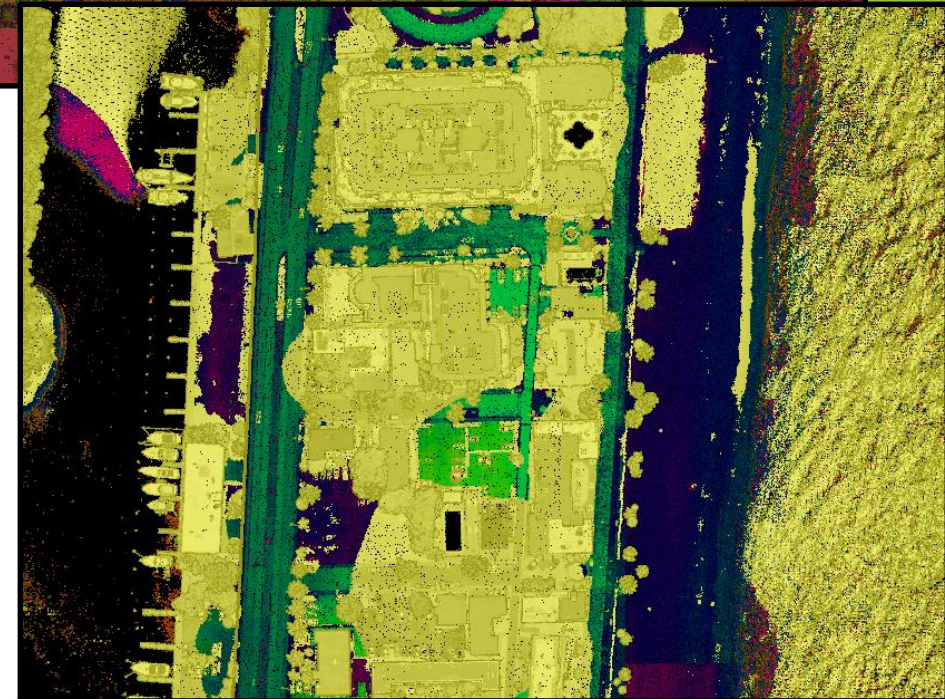
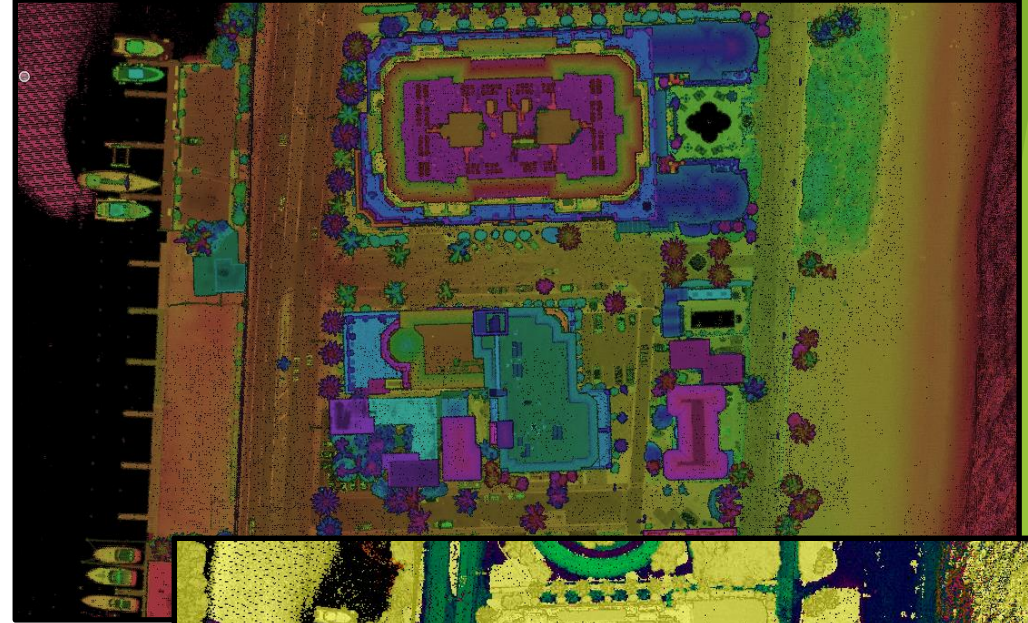
Hollywood CRA Board Meeting

March 4th, 2020



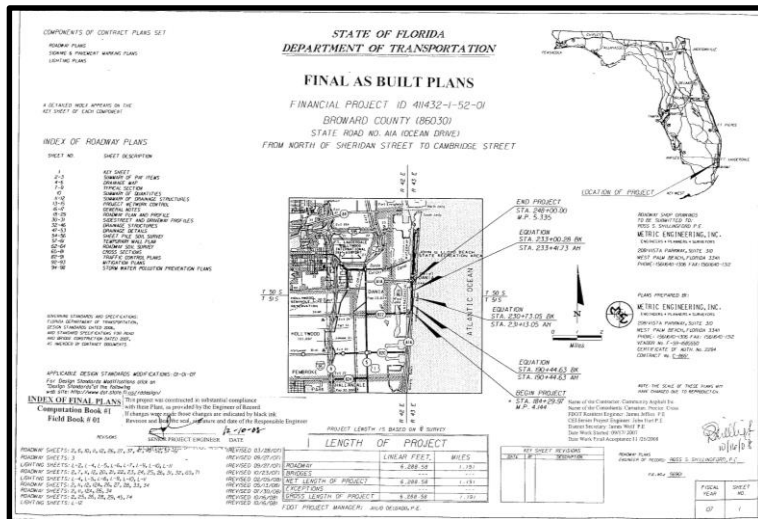
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- ▶ Study area extends from SB ramp tie down just south of Hallandale Beach Boulevard to south end of A1A bridge just north of Dania Beach Boulevard
- ▶ Teaming Partners: FDOT District 4, Broward MPO, Broward County, City of Hollywood CRA, and City of Hollywood
- ▶ Study Status:
 - ▶ Received High Resolution LiDAR data from FDOT
 - ▶ Data processed/refined and imported into ICPR4 (modeling software)



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- ▶ Received as-built data and CADD files from ongoing FDOT projects along corridor
 - ▶ Supports input of pipe and invert data, designation of pipe types and pipes that have been lined, and identified pipes with installed back flow prevention
- ▶ Digital Elevation Model and CADD data are inputs to GIS for data manipulation and ICPR4 model development



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NEXT STEPS:

- ▶ Field reviews to ground truth existing data and obtain data not provided such as pipe diameters, inverts, types, and connections to existing systems
 - ▶ CADD data provided covers areas between Hollywood Boulevard and Sheridan Street, so pipes, inverts, and connections have been read into GIS.
 - ▶ Study Team will obtain field data for areas between Hallandale Beach Boulevard and Hollywood Boulevard and between Sheridan Street and Dania Beach Boulevard.
 - ▶ Existing seawalls will be reviewed for consistency, gaps, elevation variations; also will look for indicators of upwelling or other seawall breach to high tide.



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NEXT STEPS:

- ▶ Incorporate field data into GIS.
- ▶ Develop ICPR4 model and start calibration runs to debug and verify model.
- ▶ Apply King Tides to model to determine vulnerable flooding and determine areas where potential solutions can reduce flooding.
- ▶ Apply current and revised rainfall amounts with low and high tides to determine flooding potential.

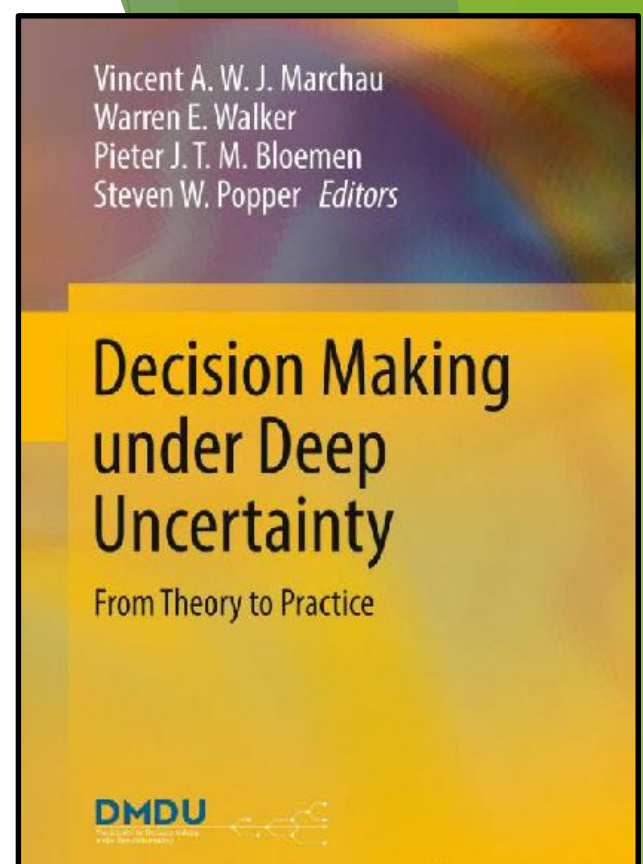
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► Phase 1 Study Objectives

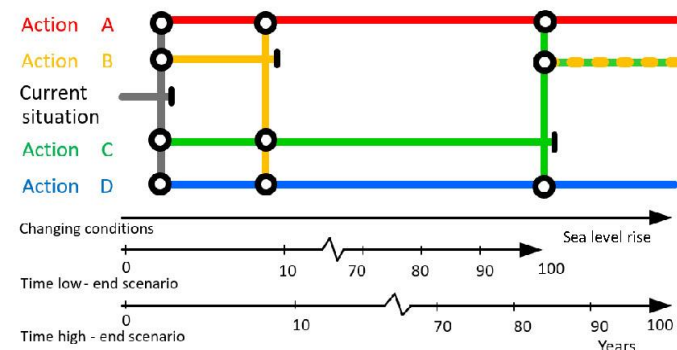
- Identify flooding locations associated with rainfall events.
- Identify flooding locations associated with King Tides.
- Establish existing conditions as a base line.

► Phase 2 Study Objectives

- Evaluate potential solutions to rainfall and King Tide events based on current data.
- Analyze potential solutions with sea level rise (SLR) projections from SE Florida Compact to determine effectiveness and to develop potential additional solutions for SLR.
- Apply Sea Level Scenario Sketch Planning Tool using Dynamic Adaptive Policy Pathway (DAPP) approach to determine which solutions should be implemented and when.
- Develop cost estimates for possible solutions.



Adaptation pathways maps



Time horizon 100 years			
Pathway	Costs	Benefits	Co-benefits
1	+++	+	0
2	++++	0	0
3	+++	0	0
4	+++	0	0
5	0	0	-
6	++++	0	-
7	+++	0	-
8	+	+	---
9	++	+	---

○ Transfer station to new policy action
 I Adaptation Tipping Point of a policy action [Terminal]
 — Policy action effective

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▶ Example of Potential Solutions

- ▶ From existing conditions, we will establish current levels of flooding due to tides, King Tides, design storm event (3 Year) and larger rainfall events (10 and 25 Year) with standard and updated rainfall.
- ▶ Proposed Level of Service is to maintain SR A1A in dry conditions for the design storm and tidal conditions.
 - ▶ We will evaluate several solutions such as uniform level of sea walls per Broward County criteria (4.0 NAVD by 2035 and 5.0 NAVD by 2050). Plugging leaking of undermined sea walls.
 - ▶ Evaluate missing back flow valves and evaluate where new ones are needed.
 - ▶ Add pumps in response to Sea Level Rise (SLR), adding additional pumps in response to actual SLR as time progresses following the Adaptive Pathway Map approach.
 - ▶ Look into innovative and out of the box solutions for applicability.
 - ▶ Evaluate raising SR A1A as a final solution.

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▶ Timelines:

▶ Phase 1

- ▶ Data Collection - Ongoing to end of February
- ▶ Model Development - Ongoing to end of March
- ▶ Existing Conditions reporting and summarization - April to June
 - ▶ Anticipate Existing Conditions Report June 19th (Tentative)

▶ Phase 2

- ▶ Evaluation of Alternatives- Mid April to end of May
 - ▶ Alternatives reporting and summarization - Most of June
 - ▶ Anticipate Alternatives Report July 24th (Tentative)
- ▶ We hope to beat these dates



James Poole

954-777-4204

james.poole@dot.state.fl.us

David Boyer

561 429-5065

dboyer@scalarinc.net