

SFWMD C-8 AND C-9 WATERSHEDS FLOOD PROTECTION LEVEL OF SERVICE ADAPTATION PLANNING AND MITIGATION PROJECTS STUDY

Date: June 20, 2022

Time: 2:30 PM – 3:30 PM

Subject: Bi-Weekly Meeting #26

Attendees Highlighted:

- Hongying Zhao, **SFWMD**
- Ana Carolina Maran, **SFWMD**
- Nicole Cortez, **SFWMD**
- Akin Owosina, **SFWMD**
- Ann Springston, **SFWMD**
- Lichun Zhang, **SFWMD**
- Matahel Ansar, **SFWMD**
- Larry Brion, **SFWMD**
- Carol Ballard, **SFWMD**
- Ruben Arteaga, **SFWMD**
- Sashi Nair, **SFWMD**
- Francisco Pena Guerra, **SFWMD**
- Shahana Mona, **SFWMD**
- Vijay Mishra, **SFWMD**
- Irela Bague, **Miami Dade**
- Marina Blanco-Pape, **Miami Dade**
- Alberto Pisani, **Miami Dade**
- Gregory Mount, **Broward**
- Kevin Hart, **SBDD**
- Susan Bodmann, **Broward**
- Jennifer Jurado, **Broward**
- Rajendra Sishodia, **Broward**
- Virginia Walsh, **WASD**
- Omar Abdelrahman, **RER**
- Pamala Sweeney, **RER**
- Katherine Hageman, **RER**
- Laura Eldridge, **(RER)**
- Valentina Caccia, **RER**
- Michael Zygnerski, **Broward Co**
- Karina Cordero, **RER**
- Michael DelCharco, **Taylor Engineering**
- Angela Schedel, **Taylor Engineering**
- Pat Lawson, **Taylor Engineering**
- Joseph Wilder, **Taylor Engineering**
- Stephanie Massey, **Taylor Engineering**
- Lynette Cardoch, **Moffatt & Nichol**
- Peter Sahwell, **Nova Consulting**
- John Loper, **Anclote Consulting**
- David Key, **ESP – Florida**
- Nathan Slaughter, **ESP – Florida**
- Carrie Sigrist -ESP -
- Sarah Hamm, **Moffatt & Nichol**
- Elton Smith, **Taylor Engineering**

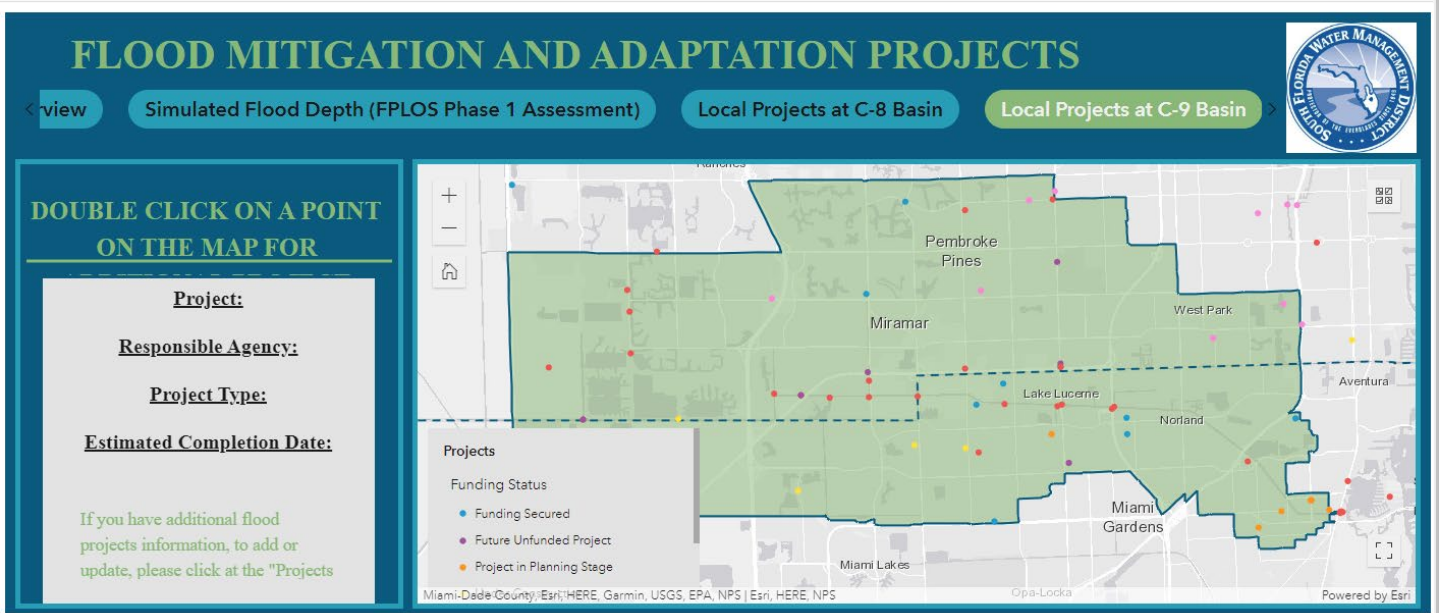
Notes:

1. Meeting Kickoff
 - Roll Call
2. Task 2 – Modeling Update
 - Discussion of M1 analytic calculations (non-modeling)
 - i. See List/C8 C9 projects at <https://buildcommunityresilience.com/sfwmd/fplos/c8c9/>

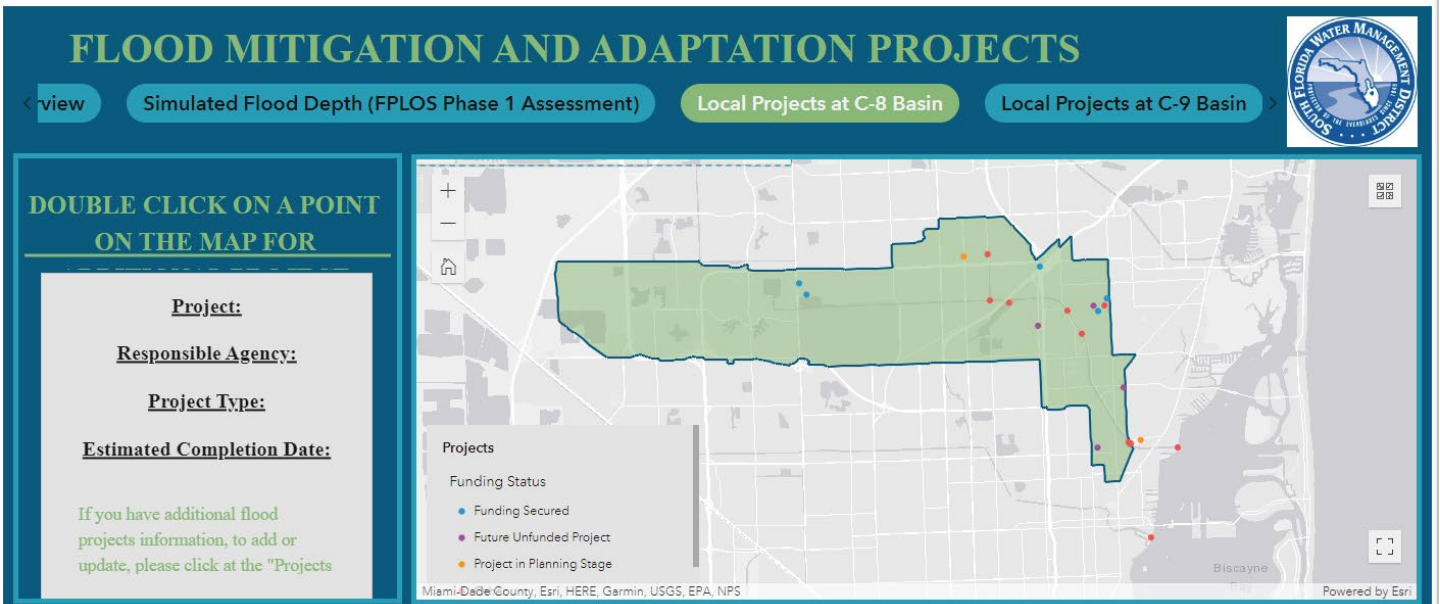


SFWMD C-8 AND C-9 WATERSHEDS FLOOD PROTECTION LEVEL OF SERVICE ADAPTATION PLANNING AND MITIGATION PROJECTS STUDY

Project map for the C-9 Basin is below.



Project map for the C-8 Basin is below.



- Everyone can go and look at the projects we have identified in Task 1.
- If you remember, for Task 1 we culled through all the available data we could find. We used CIP, LMS, grant applications, anything we could find that had mitigation projects.
- Prior to the Partner Workshop we asked everyone to enter the data for any project they had. Everyone could enter data manually into the website. We also solicited information from everyone directly through emails and they could submit them to us by email or FTP.
- During the Stakeholder Workshop, we discussed these projects and had input from the group.



SFWMD C-8 AND C-9 WATERSHEDS FLOOD PROTECTION LEVEL OF SERVICE ADAPTATION PLANNING AND MITIGATION PROJECTS STUDY

- After the Workshop we called and followed up on projects. We had many follow up calls soliciting information and background data.
- This list and the data we received allow limited analysis and technical specificity.
- There were these general categories of project in the M1 list:
 - Stormwater
 - Sluice Gates
 - Pumps
 - Other – many projects were improvements or rehabilitations. Or, they do not have significant impacts on water surface elevations. Those were not included in the M1 list since it is assumed that they are in place and working. Same with pump rehabilitation and hardening projects. No H&H assessment will be conducted for these type of projects but these projects shall still be included in a separate list.
- Michael showed some of the Stormwater development plans that we have received. They have identified areas of improvement but do not have the water surface benefits seen by the projects.
- Michael outlined the approach for stormwater projects that the team will use to assign “benefits” of the projects:
 1. The Team will review storm water projects for which we have details and identify the area they impact.
 2. The Team will develop an assumed “area of impact” for general stormwater projects, based on the review in item 1. We will also use common sense and professional judgment to develop this “area of impact.” That “area of impact” will be used to assign an area to each stormwater project.
 3. The Team will review the water surface elevations for each of the event (four floods) models under current conditions. This will give us an idea of what the flooding depths are for each of the four floods in some of the stormwater project locations.
 4. The Team will develop a general water surface reduction coefficient for the four floods for stormwater projects. For example, perhaps the 10-yr project will show 10% reduction with a stormwater project. A 25-yr flood will realize a 15% reduction, and so on.
 5. The Team will then apply the area of impact and flood reduction (benefit) at each of the stormwater projects. This will mean a taking the “Current Conditions” flooding elevation and reducing it by the %age identified in item 4.
 6. This reduction in the water surface elevation at each stormwater project will be used to create a new “with M1 projects” conditions water surface elevation map for each of the event modeling results.
 7. The new flooding water surface elevation maps with projects can be used to calculate the Expected Annual Damages (EAD) for the M1 projects.
 8. This approach will allow us to understand, in a general way, what the basin wide benefits of stormwater projects can have on reduction EADs.
- Sluice Gates and Pumps present a larger challenge.
 1. Sluice gates help water managers have operational control and flexibility in their systems. However, the modeling approach used by this project – and just about every event-based modeling project – assumes uniform rainfall over the entire basin. That assumption negates the benefits of the sluice gates. Sluice gates are generally used to move water around when individual basins are experiencing flooding. So, there is no easy way to quantify the benefits of sluice gates.



SFWMD C-8 AND C-9 WATERSHEDS FLOOD PROTECTION LEVEL OF SERVICE ADAPTATION PLANNING AND MITIGATION PROJECTS STUDY

2. Susan Bodmann said there comes a point when you cannot simulate the operations in a model. The real world has people making operations decisions based on ongoing conditions. There simply is no way to model that.
 - The Team agrees! That is exactly why we will develop a very general “here is the benefit” for sluice gates and use that to quantify benefits.
3. The Team will talk with Kevin Hart at SBDD to see if he has any way to quantify Sluice gates and pump benefits.
4. Pumps are slightly easier to quantify in that we can estimate how much water they can move in a pre-storm draw down scenario.

3. Task 3 – Flood Damage Assessment

- ESP presented very preliminary findings of Audit. They are still in the process of doing the comparisons.
- NC has a tool they developed to replace HAZUS because of some of the deficiencies. ESP will use that tool and HAZUS to give some general comparisons.
- Currently seeing that FIAT tool is giving lower results than NC tool and HAZUS.
- The NC tool has a coastal tool and a riverine tool. If they used the coastal tool they had much higher damages.
- HAZUS had higher number and value of buildings damaged.
- ESP is using water surface elevation
- Carolina – are basements included in NC tool? Doesn’t think so.
- Carol – what building structure data did you use? Same as ours? Nathan will check.
- Nathan said they will deliver a tech memo with all the details.
- Carolina said the District compared their FIAT tool with USACE back bay study. Could we do that here? Michael – no, not going to be part of this effort.

- We have completed initial risk calculations for a sample of buildings and are running through review of the results.
- The data is organized so we can compare compiled results by calculation method and by building to identify what factors could cause variations.
- The results are currently being QC'd.
- The screenshot below provides an example of the comparison tool that the team is using. Basically comparing Fiat to a couple of other tools we've used (the tool that NC built uses (riverine and coastal) and Hazus). **Initial results are showing that Fiat generates lower estimates on building damages than any of those**
- We've got a few ideas as to “why:” and we're still digging in to it a bit more



4. Task 4 – Adaptive Pathways Analysis

- No update
- Team working on calculation

