South Fort Myers Flood Mitigation Concept Projects

Flood mitigation benefits **within the** South Fort Myers **study area are achieved when excess storm water is conveyed and/or stored appropriately. The concept projects reduce flooding levels and duration that inundate structures and roadways. Adverse flooding conditions impact the health, safety, and welfare of residents and have significant economic impact to the community. A reduction in flooding duration is also beneficial, but to a lesser extent than a reduction in flood water levels. These two objectives are achieved when increased stormwater is carried through existing conveyances (culverts, rivers, canals, wetlands, etc.), diverted out of the upstream portion of the watershed, and/or stored appropriately within the watershed.**

This regional approach to meeting the flood mitigation goals is necessary since many flooding problems are not solvable on a local level. For instance, if a primary drainage canal does not have sufficient capacity to convey the required flows, then the adjacent communities relying on the canal will experience adverse tailwater conditions that inhibit and/or prevent outflow that was anticipated in the original design of the community. A prerequisite of some of the upstream projects is that downstream improvements must occur first so that flooding problems are not simply transferred from one area to another. The regional model was therefore run with all conceptual projects stitched together to demonstrate the regional effects of the proposed projects.

For the communities adjacent to the southern end of Ten Mile Canal, the existing and proposed peak water levels of the canals in the Island Park community were extracted from the model results for the 100-year, 3-day storm event (August 2017 stat). The peak water levels were reduced by six inches or more for approximately 6,000 acres in this area or approximately 1,470 parcels. It should be noted that this is a simplistic way to present graphical results for a region and does not include localevel complexities unique to each community.

The following are concept project summaries of the anticipated flood mitigation benefit for each project.

1.4.1 ***Ten Mile Canal-North*** - This flow diversion and storage concept project was developed to direct flood flow away from the southern end of Ten Mile Canal. The modeling results show a 100 cfs upstream diversion into Carrell Canal, 200 cfs upstream diversion into Canal L, and 50 cfs upstream diversion into the Six Mile Cypress Parkway roadside swale. These combine to a total flow diversion of approximately 21,000 acre-feet over a 30-day period. An increase in upstream storage was proposed through redesigning the existing weir adjacent to Page Field Airport, but the increased storage volume was not quantified in the regional model.

1.4.2 ***Ten Mile Canal-South*** - This flow diversion and conveyance improvement concept project was developed to provide flood mitigation for the Island Park Road area. The modeling results show a 400 cfs diversion into Canal J, 200 cfs diversion into Canal K, 100 cfs diversion into Canal T, and a 1,100-cfs increase in capacity for Ten Mile Canal. These combine to a total flow diversion and conveyance increase of approximately 47,000 acre-feet.

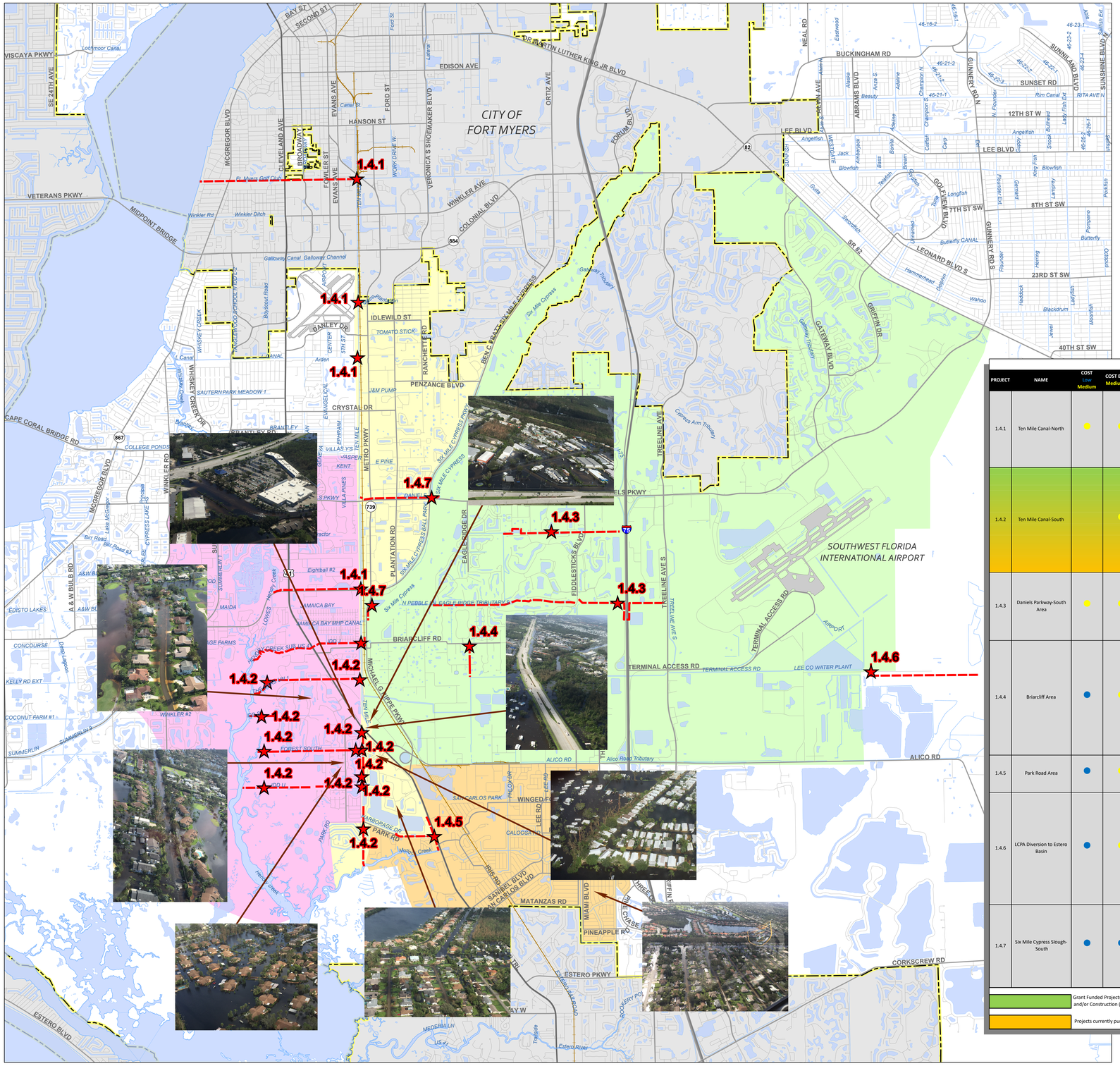
1.4.3 ***Daniels Parkway-South Area*** - This conveyance improvement concept project was developed for flood mitigation of the communities south of Daniels Parkway, between Six Mile Cypress Slough and Interstate 75. The modeling results show 540 acre-feet of increased capacity in the swale north of the Legends community and a capacity increase of 1,100 acre-feet in the swale south of the Eagle Ridge community.

1.4.4 ***Briarcliff Area*** - This conveyance improvement concept project was developed for flood mitigation in the Briarcliff area. While this project was not included in the regional modeling, it is anticipated the project could provide up to 150 acre-feet of increased capacity for an existing area that has limited existing outfall options.

1.4.5 ***Park Road Area*** - This conveyance improvement concept project was developed for flood mitigation in the Park Road area. While this project was not included in the regional modeling, it is anticipated the project could provide up to 180 acre-feet of increased capacity for an existing area that has limited existing outfall options.

1.4.6 ***LCPA Diversion to Estero Basin*** - This flow diversion and storage concept project was developed for flood mitigation of the downstream portions of Ten Mile Canal and Estero River. The regional modeling results show the project could provide up to 800 acre-feet of increase storage in the wetland areas east of the airport. This project has a secondary benefit of increased wetland hydration.

1.4.7 ***Six Mile Cypress Slough-South*** - This flow diversion concept project was developed to provide increase stormwater management in the Six Mile Cypress Slough watershed. While the gate operations were not included in the regional modeling, the model results from the interim project screening report showed this project could provide up to 5,300 acre-feet of increased water management flexibility in the watershed. This project has a secondary benefit of increased wetland hydration.



1.4 South Fort Myers

PROJECT	NAME	COST (Low / Medium)	COST BENEFIT (Medium / High)	DRAINAGE LEVEL OF SERVICE (Average / Good)	MULTIPLE BENEFITS (Yes)	LAND COST (None / Low / Medium)	PERMITTABILITY (None / Low / Medium)	COMMENTS
1.4.1	Ten Mile Canal-North	●	●	●	●	●	●	• Requires coordination with the City of Fort Myers • May require downstream improvements in conjunction with this project • Requires government approval & land acquisition and/or drainage easements for public & private parcels • Requires construction of Concept Plan Project 1.4.2 first, or in conjunction with it, along with downstream conveyance improvements
1.4.2	Ten Mile Canal-South		●	●	●			• The conveyance capacity of the downstream IDD canals will need to be increased to accept the diverted flow • Requires government approval & land acquisition and/or drainage easements for public & private parcels • Any environmental impacts would require mitigation • Additional local modeling will be needed to refine flows, stages & designs of the downstream conveyance modifications, gate sizes & elevations, and pump setpoints
1.4.3	Daniels Parkway-South Area	●	●		●			•Requires close coordination with surrounding communities & LCPA staff for permit modifications • Relies on the completion of other improvement projects to achieve maximum results in reduced peak flows to Ten Mile Canal • Any environmental impacts would require mitigation
1.4.4	Briarcliff Area	●	●	●		●	●	• This project is in a residential area with limited existing improvements for storage & Water Quality (WQ) treatment • Any additional peak flows from this sub-watershed may raise concerns for downstream communities • Community involvement, participation & education will be an important part of project success •May requires drainage easements for existing drainage infrastructure within private parcels • Additional local modeling is recommended - regional model doesn't accurately reflect the potential for improvements due to the small scale of the project in relation to the size of the regional model
1.4.5	Park Road Area	●	●	●		●	●	• Requires the acquisition of drainage easements to connect the drainage to Park Road Canal • Requires coordination with FDOT to work within US 41 ROW
1.4.6	LCPA Diversion to Estero Basin	●	●		●	●		• Existing & proposed mining operations immediately to the south may potentially impact conveyance capacity & storage volume •Requires additional local modeling - delivery of more water to this region will need to be balanced since developments along the North Branch of the Estero R already experience flooding • Requires coordination with LCPA due to concerns of the potential to attract wildlife, which is an air traffic hazard • Any environmental impacts would require mitigation • Requires collaboration amongst different departments within the County
1.4.7	Six Mile Cypress Slough-South	●	●		●	●	●	• Success relies, in part, on the completion of other downstream improvement projects along Ten Mile Canal • Requires the analysis of levels of service (LOS) to ensure safety of traveling public • Any environmental impacts would require mitigation - most of the proposed work is within or adjacent to preserve & conservation lands • Limitations of work within existing conservation areas unless modified

Grant Funded Projects under Contract for Design and/or Construction (Whole or Portions thereof)

Projects currently pursuing Grant Opportunities

Lee County Southwest Florida