

**LEE COUNTY GS10 Reservoir
PROJECT DESCRIPTION (LeeCountyPD_GIP_5)**

1. PROJECT PURPOSE AND PROPOSED ACTIVITY

Lee County proposes to build a filter marsh, add weirs and create water storage within an existing lake in east Lee County for the purpose of mitigating the risk of flooding in Lehigh Acres and other areas of unincorporated Lee County. This project will also improve water quality, provide passive recreation and restore more natural flows to the Greenbriar Swamp and the headwaters of Hickey Creek. This project will also to Hickey and Bedman Creeks. The modeling results show over a 300 cfs reduction in the peak flood flow to Dog Canal that drains to Bedman Creek and over a 300 cfs reduction in the peak flood flow to Hickey Canal that drains to Hickey Creek. The funding request for this project is \$10.3 million.

The GS10 Storm water and Water Quality Reservoir will help ensure that Lee County is more resilient to future natural disasters. Lee County is a Most Impacted and Distressed (MID) County as a result of Hurricane Irma. The County is executing strategic and high-impact activities to minimize or eliminate risk and reduce losses from future disasters, and is looking to CDBG-MIT funding to implement its current unfunded projects.

The site of the reservoir (26.6667°N, 81.6060°W) in unincorporated Lee County -- east of I-75 and south of SR80 -- was formerly utilized for lime rock mining for the construction of roads in Lehigh Acres. Old spoil piles still remain. The surrounding areas have been developed for home sites, altering the natural flow conditions and patterns for discharge to the Greenbriar Swamp and the headwaters of Hickey Creek.

The project would reconfigure an existing mine lake into a filter marsh for storm water treatment and a storage reservoir for flood control. Stored water may be diverted into the Greenbriar Swamp for extending wetland hydro-periods. This conceptual project controls flow in a 6.5 square-mile area with weirs to control discharges and utilizes the mine lake as a storm water detention basin.

The reservoir and restoration project was proposed by Lee County's Assessment of Riverine Flood risk and Mitigation Project Recommendations. In response to rainy season and Hurricane Irma flooding in 2017, Lee County Commissioners have invested nearly \$6 million in short-term and long-term flood resiliency efforts including \$1.9 million for a Southern Lee County Flood Protection Study. That study models specific project to control flooding in Lehigh Acres. This project is strongly supported by the modeling to mitigate recurrent flood problems in Lehigh Acres and Bonita springs.

Lehigh Acres is a 92-square-mile Census Designated Place, which was originally platted as a private residential area in the 1960's. Old spoil piles remain on site. Approximately 48,000 Lehigh Acres households – more than 54% of the community's population – are LMI households. Lehigh is an important source of affordable housing in Lee County.

2. RISK MITIGATION

This project mitigates risk for a broad portion of east Lee County including Lehigh by providing the following:

- Flood control and the attenuation of peak flows through Greenbrier Swamp and in Hickey Creek from large storm events will be accomplished by reconfiguring the mine lake into a filter marsh and storage reservoir. The anticipated reduced peak flows will primarily benefit a 6.5 square-mile contributing drainage basin with secondary benefit to the entire Hickey Creek and Bedman Creek Drainage Basin, which currently outfall to natural conveyances.
- Water quality improvements will result from the filter marsh treatment of storm water.
- Restoration and preservation of wetlands as stored water is diverted into the Greenbrier Swamp, extending wetland hydro-periods thereby re-hydrating the offsite wetlands.
- Passive recreational amenities may be created as a result of these surface water management controls.
- A safe place for refuge during expected coastal surge since Lehigh Acres is a geographical high point in Lee County. Good surface water management preserves Lehigh as a refuge in and reduces demand for shelters in hurricane season.

3. NATURAL INFRASTRUCTURE

The GS-10 site, which is approximately 550 acres, is a County-owned property with an existing borrow lake which is located between two major north/south conveyances (Hickey Canal and Dog Canal) for east Lee County. This optimal location allows the diversion of stormwater from both man-made conveyances to pass through the proposed filter marsh, then into the proposed stormwater reservoir to be detained, before being released into the natural system of the Greenbrier Swamp, treating approximately 1,081 acre-feet. Through the use of proposed and existing natural systems, this project improves water quality, provides needed storage in the event of a large storm event, and replenishes the hydrology of the Greenbrier Swamp.

4. WORK PLAN

A general plan has been conceptualized via the South Lee County Flood Mitigation Project. The consultant engineering firm for the detailed design will be selected through the Competitive Negotiation process. This consultant will analyze data and the site parameters with the assistance of subconsultants as necessary, create the detailed design, submit and obtain permits as required by the governing agencies, and assist with bidding process.

The construction contractor will be selected through the bidding process. At that time, the CEI and construction manager, and team will be determined. The contractor will establish the work approach based upon the resulting detailed design.

The Division of Natural Resources project manager will manage and monitor the progress of any grants, the design, construction, and close-out phases of the project. After completion, the maintenance of the project will be turned over to the DNR project manager who manages operations of on-line Natural Resources Capital Improvement Projects.

Lee County Procurement will select a Design Professional and General Contractor through established Lee County Competitive Negotiation protocols and in compliance with all federal guidelines outlined in the Federal Register Notice 84 FR 45838 and Florida DEO requirements.

5. DETERMINATION OF PROJECT FUNDING REQUIREMENTS

The amount of funds required for this proposal is estimated at \$10.3 million, based on a combination of the master concept plan costs estimates and previous similar projects. Actual numbers were adjusted to current value representing GS-10 project area and extended benefited area.

5. ANTICIPATED OUTCOMES

This proposal to build a filter marsh, weirs and water storage reservoir in east Lee County will:

- Improve resiliency -- specifically economic resiliency -- for the Lehigh Acres LMI population.
- Increases safety and security by mitigating the risk of riverine flooding.
- Provide flood control and the attenuation of peak flows through Greenbrier Swamp and in Hickey Creek from large storm events will be accomplished by reconfiguring the mine lake into a filter marsh and storage reservoir. The anticipated reduced peak flows will primarily benefit a 6.5 square-mile contributing drainage basin with secondary benefit to the entire Hickey Creek and Bedman Creek Drainage Basin, which currently outfall to natural conveyances.
- Improve water quality as a result of stormwater treatment from the filter marsh.
- Restore and preserve wetlands as water is diverted into the Greenbrier Swamp and stored, for extending wetland hydro-periods thereby re-hydrating the offsite wetlands.
- Provide passive recreational amenities that may be created as a result of these surface water management controls.
- Delivers value to the taxpayers because this is primarily a natural system and is more cost-effective and better for the environment than a more mechanized system.
- Preserves Lehigh as a refuge during hurricane season, while reducing demand for shelters. As a geographical high point in Lee County, Lehigh Acres is has been a safe place for refuge during expected coastal surge. With this project, it will continue to be one as a result of improved surface water management.
- Protect the value of housing for the LMI population in Lehigh Acres.
- Help assure that workers in Lehigh Acres – where the Census estimates that 46,000 employed persons reside, have resilient access to home and work after a declared disaster.

6. MAINTENANCE

LA-MSID will budget yearly to maintain the proposed GS-10 project system of a filter marsh, weirs, and stormwater detention basin. Based on similar projects within the County, we estimate this amount to be approximately \$250,000.