

**Lee County PD GIP**  
**LEE COUNTY GS-10 Flood Mitigation and Storm Water Treatment Facility**  
**PROJECT DESCRIPTION – CDBG-MIT-GIP Cycle 2**

**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 to mitigate the risk of flooding primarily in Lehigh Acres and other areas of unincorporated east Lee County. This project will also improve water quality, restore more natural flows to the Greenbriar Swamp and the headwaters of Hickey Creek, and improve storm water management for Hickey and Bedman creeks. The funding request for this project is \$11,025,000.

The GS-10 Flood Mitigation and Storm Water Treatment Facility 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.

In response to rainy season and Hurricane Irma flooding in 2017, Lee County Commissioners 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 Assessment of Riverine Flood Risk modeled specific projects to control flooding in Lehigh Acres. Modeling strongly supports this GS-10 Flood Mitigation and Storm Water Treatment Facility project to mitigate recurrent flood problems in Lehigh Acres and Bonita Springs by providing storage that is designed to reduce peak flows that would contribute to flooding. Modeling demonstrates a more than 300 cfs reduction in the peak flow to Dog Canal that drains to Bedman Creek and more than a 300 cfs reduction in the peak flow to Hickey Canal that drains to Hickey Creek.

The site of the project (26.6667°N, 81.6060°W), which is in unincorporated Lee County east of I-75 and south of SR80, was formerly a lime rock mine for the construction of roads in Lehigh Acres. Old spoil piles still remain, and 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 by using weirs to control flows to the mine lake as a storm water detention basin.

This proposal addresses Community Development Block Grant objectives. Lehigh Acres is a 92-square-mile Census Designated Place, which was originally platted as a private residential area in the 1960's. Approximately 48,000 Lehigh Acres households – more than 54% of the community's population – are Low/Moderate Income (LMI) households. Lehigh is an important source of affordable housing stock in Lee County. Approximately 46,000 workers in Lehigh Acres would have more resilient access to home and work after a declared disaster as a result of these flood mitigation efforts.

## **2. RISK MITIGATION**

This project mitigates risk for a broad portion of east Lee County including Lehigh Acres:

- 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; and
- A safe place for refuge during expected coastal surge, Lehigh Acres is a geographical high point in Lee County. Improved surface water management preserves Lehigh as a storm/flood refuge and reduces demand for shelters in hurricane season.

## **3. NATURAL INFRASTRUCTURE**

This proposal delivers value to the taxpayers primarily as a natural surface water management system. It is more cost-effective and better for the environment than a fully mechanized system. The GS-10 site, which is approximately 550 acres, is a County-owned property with an existing borrow lake. It is located between two major north/south conveyances – Hickey Canal and Dog Canal – for east Lee County. This optimal location allows the diversion of storm water from both man-made conveyances to pass through the proposed filter marsh, then into the proposed storm water reservoir to be detained, before being released into the existing natural system of the Greenbrier Swamp. This project calls for treating approximately 1,081 acre-feet of storm water. 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 consulting 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 Construction Engineering Inspector (CEI) and construction manager, and team will be determined. The contractor will establish the work approach based upon the resulting detailed design.

The Department of Natural Resources project manager will manage and monitor the progress of any grants, the design, construction, and close-out phases of the project.

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 \$11,025,000, based on a combination of the master concept plan costs estimates and previous similar projects. Actual numbers were adjusted to current value representing the GS-10 project area and extended benefited area.

## **5. ANTICIPATED OUTCOMES**

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

- Improve resiliency – specifically economic resiliency – for the Lehigh Acres LMI population;
- 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 hurricane, heavy rains or other natural disaster;
- Increase safety and security by mitigating the risk of riverine flooding;
- Provide flood control and the reduction of peak flows through Greenbrier Swamp and in Hickey Creek during large storm events. 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 storm water treatment from the filter marsh;
- Restore and preserve wetlands as water is diverted into the Greenbriar Swamp and stored, extending wetland hydro-periods thereby re-hydrating the offsite wetlands;
- Delivers-value to the taxpayers because this is primarily a natural system, which 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 has been a safe place for refuge during expected coastal surge;
- 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; and
- Provide passive recreational amenities that may be created as a result of these surface water management controls. (This is a future Lee County expense and would not be included in this grant funding.)

## **6. MAINTENANCE**

LA-MSID (Lehigh Acres Municipal Services Improvement District) will budget yearly to maintain the proposed GS-10 project system of a filter marsh, weirs, and storm water detention basin. Based on similar projects within the County, we estimate this amount to be approximately \$250,000 annually.