LEE COUNTY UTILITIES VALVES AND PUMP STATIONS
PROJECT DESCRIPTION (LeeCountyPD_GIF_4)

1. (A.) PROJECT PURPOSE AND PROPOSED ACTIVITY

Lee County proposes to install remote-operated valves at eight key locations and to improve 15 separate sanitary sewer pump stations throughout the Lee County Utilities distribution system, which includes unincorporated Lee County, the Town of Fort Myers Beach, and portions of the Village of Estero and Cities of Fort Myers and Cape Coral.

This water system is the supplier of water for critical facilities including Southwest Florida International Airport; several Lee County general population shelters, including Hertz Arena and Alico Arena, which is on the campus of Florida Gulf Coast University; and three major hospitals, including Golisano Children's Hospital and Health Park Hospital.

The funding request for the Community Development Block Grant-Mitigation-General Infrastructure Program is $3.98 million.

Water System Valves--Lee County proposes to install remote-operated valves at eight key locations throughout the distribution system. Lee County Utilities has a water network composed of five water treatment plants and an interconnected water distribution system. The average finished water production is more than 26 million gallons per day. These facilities provide drinking water and fire protection to more than 90,000 individual accounts and directly provide water to much of unincorporated Lee County, the Town of Fort Myers Beach, and portions of the Village of Estero and City of Cape Coral. In addition to the many neighborhoods and businesses served, water is also directly provided to Southwest Florida International Airport, Florida Gulf Coast University, Golisano Children's Hospital, Health Park Hospital, Gulf Coast Hospital, Hertz Arena as well as several other hurricane shelters, making this a critical, high-impact project.

Customers are fed from a network of different sized pipes that carry water from the treatment plant to individual house and business connections. In general, large diameter pipes, up to 36" in size, leave the water treatment plants and provide the backbone of the water distribution system. These larger pipes are typically interconnected to each other several miles from the treatment plant to form loops that provide multiple ways to move large quantities of water at a consistent pressure to our customers. The large pipes are then interconnected by many smaller pipes down to 6" in size that can carry a much smaller quantity of water along individual streets to customer meters.

Due to the size and complexity of the large valves needed to control flows due to a catastrophic event or natural disaster, valves are operated by a truck-mounted mechanism to open and close them. This mechanical device can take almost an hour to operate the largest of the valves. Operating the valves manually requires a large crew and additional equipment and could take more than an hour for the largest valves. During storm events that include flooding and standing water, locating these buried valves can be especially difficult and time consuming. Also a concern are the inherent dangers associated with working in and around standing water.

The remote-operated valves to be installed at these eight strategic locations provide the ability to control the flow of water to large sections of the distribution system. In the event of a natural disaster,

multiple smaller water mains could be impacted in the following ways: severe erosion of the soil around pipes that cause pipe failure, uprooted trees that can damage water piping, significant damage to buildings, and changing ground conditions due to standing water that impacts the soil support around existing water mains and service connections. While Lee County Utilities effectively addresses routine system breaks, a large-scale storm event could include multiple breaks in the system that could overwhelm the ability to quickly restore service and result in free-flowing water from each of the breaks. This water flow would reduce system pressures and flows and deplete water storage within the system. The automated valves would be located at the surface and would have multiple fail-safes for remote operation and power, which would allow them to operate in all but the most catastrophic conditions. These safeguards will allow for rapid response to changing conditions and for restoration of service to any affected areas in the shortest time possible.

Sewer Pump Stations—Lee County proposes to improve 15 separate sanitary sewer pump stations within LMI areas. These pump stations serve approximately 2,500 customers or up to 600,000 gallons per day of sanitary sewage, including one elementary school. The project involves site improvements to improve access to the site, electrical and instrumentation modifications to raise panels and junction boxes to prevent flooding damage, and manhole improvements to raise wet wells to prevent surface water intrusion.

These pump stations are typically within neighborhoods that were built prior to 1984 when Lee County began state-sanctioned comprehensive planning, the adoption of related land development codes and joined the National Flood Insurance Program. Because they have limited engineered storm water management, large storm events such as Hurricane Irma can generate significant flooding and standing water in entire neighborhoods. While access to the site along existing paved roadways can be maintained, the existing roadside ditches and surrounding areas are inundated with standing water. Often these pump stations are located adjacent to houses in a limited easement footprint and were constructed under older requirements in effect at that time. The limited access to the site prevents the effective use of portable generators to manage wastewater flows and the proposed improvements would in some cases replace less effective temporary measures to prevent inflow of groundwater to the wet well.

These improvements 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.

Lee County has 84 census tracts that HUD designates as having at least 51% of the population earning 80% or less of the area median income.

1. (B.) LOCATION

The valves are located throughout the Lee County Utilities system and, based on our conceptual planning, are more specifically located at the following:

Valve Size	Easting	Northing
36”	721778.90	784936.25
36”	709224.57	784822.77

30”	723067.99	791261.68
30”	736231.69	794942.90
30”	730885.07	799805.52
24”	698738.72	782958.10
24”	677496.99	782608.04

The reliable conveyance of wastewater throughout a storm event and as recovery progresses is an important asset in any community. As these pump stations provide service to both residential and commercial areas that include gas stations, convenience stores and multifamily housing, they play a significant role in maintaining the health and safety of residents by preventing raw sewage overflows that can have effects well beyond the immediate area.

The lift stations are located at the following:

Station Number	Easting	Northing
0075	697058.32	808228.06
2242	673838.70	788626.08
4455	717866.79	855096.20
4460	719888.13	842941.38
4471	721410.05	857528.45
6614	693515.60	846715.27
1197	678381.62	797371.40
0082	691736.51	784174.21
2254	664034.33	786297.30
2255	667157.49	788827.66
6605	686294.58	841497.41
7735	715387.72	782194.19
7736	716891.74	782299.80
7737	716107.48	783778.03
7754	715372.01	760403.92

2. RISK MITIGATION

The water system valving is a strategic element of Lee County’s continuing implementation of resiliency measures to mitigate future risk of storm and other hazard damage. Addressing this urgent need for unmet mitigation measures for quick and effective flow control within large sections of the water system will minimize potential additional damage to the system and provide a quicker restoration of service after the damage to the system is identified and corrected.

This water system is the supplier of water for critical facilities including Southwest Florida International Airport; several Lee County general population shelters, including Hertz Arena, Alico Arena and South Fort Myers High School; and three major hospitals, Gulf Coast Hospital, Health Park Hospital and Golisano Children’s Hospital, as well as other medical facilities and food and water providers.

Lee County’s Arena shelters, located within easy access of I-75, US41, and SR80, are important shelter sites for not only Lee County but also for Hendry and Glades counties. The arenas sheltered at least 7,000 during hurricane Irma. Both Hertz and Alico were used as host shelters for non-county residents

for hurricane Matthew in 2016; Hertz was a host shelter for Hurricane Jeanne in 2004. Limiting disruption to the water supply can maintain a safe and healthy environment for the sheltered residents.

For Lee County's low- and moderate-income residents, an affordable water supply is crucial. LMI populations are more likely to be economically impacted by the need to purchase water if tap service is not available. In Lee County – a HUD-designated MID community – 276,873 people, nearly 42% of the population, qualify for HUD's LMI category.

Sanitary sewer pump station improvements will provide enhanced benefits to both the customers that are directly connected to that sewer system as well as an increased health and safety to those living in the immediate vicinity of the pump stations by eliminating or reducing the likelihood of an overflow event involving sanitary sewage.

In summary, the risk mitigation for this project includes:

- Protection of the water supply for critical facilities including Alico and Hertz arenas and other key shelters, major hospitals, the Southwest Florida International Airport, Florida Gulf Coast University, fire districts;
- Remote operation of valves significantly improves response time to changing conditions and allows for restoration of service to any affected areas in the shortest time possible;
- Improves sanitary services to LMI areas that are key areas of affordable housing stock; and
- Reduce dangerous risk to Utilities staff and other first responders who must now locate and repair damaged equipment in disaster conditions.

3. WORK PLAN

Grant-supported work to complete the valve and pump station hardening will be overseen by the Lee County Utilities Department which will appoint a Project Manager to work with an internal Project Delivery Team. 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.

When final design has been completed, the Design Professional will provide an Opinion of Probable Cost which will be the basis of review for the establishment of the construction bid from the selected General Contractor. The General Contractor will be selected by a competitive bid process. Continuous monitoring of the construction progress will be accomplished using both the Consultant Engineer of Record as well as County Inspection staff as needed to confirm progress of the work.

4. DETERMINATION OF PROJECT FUNDING REQUIREMENTS

The estimate of funds required for this proposal were drawn from similar recent projects and supplier information.

5. ANTICIPATED OUTCOMES

Specific anticipated outcomes are:

- Protect the safe and continuous processing of more than 26 million gallons of drinking water daily for residential and commercial uses in Lee County;
- Protect and improve the transmission up to 600,000 gallons per day of wastewater;
- Provide additional back-up in the event of disaster damage to other regional wellfields or water plants;
- Protect the water supply and wastewater processing for critical facilities, including Southwest Florida International Airport; Hertz Arena, Florida Gulf Coast University's Alico Arena and South Fort Myers High School, which are high-value general population shelters; and other key providers of emergency services during disasters;
- Address post-Irma issues;
- Give residents, especially low-to-moderate income wage earners, confidence to shelter in place, thereby reducing the demand on evacuation shelters;
- Improve resiliency in general and economic resiliency – water and wastewater services help commerce return to normal;
- Increase safety and security in general; and
- Protect the value of affordable housing for the LMI population.

6. MAINTENANCE

Lee County estimates the annual maintenance of these valves and pump stations at less than $100,000 and has the fiscal capacity to cover this annual expense.

Because the Lee County Utilities provides critical water and wastewater service on a daily service to Lee communities, the County will continue maintaining the improvements as part of its normal maintenance program. The electrical and instrumentation systems will be maintained through the existing Lee County Utilities Electrical and Instrumentation Groups and all piping components will be maintained by the Distribution and Collections Maintenance Groups.