



**PROJECT START**

November 2017

**PROJECT FINISH**

Ongoing

**KEY PERSONNEL INVOLVED**

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**PROJECT OWNER**

St. Bernard Parish  
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**OWNER REFERENCE**

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**DE FEE**

\$125,000

## Buccaneer Villa North LDOTD Statewide Flood Program Application

*St. Bernard Parish, LA*

The proposed project concept will divert peak rainfall runoff from the existing drainage system in Buccaneer Villa North Subdivision to a proposed retention pond area to the west of the subdivision. The pond will hold this water and release it slowly over time into the existing drainage system to eliminate repetitive loss flooding in Buccaneer Villa North. A walking path with recreational amenities will be constructed around the proposed pond so the space can be utilized as a recreational area as well as serve as a green infrastructure element.

DE developed a hydraulic and hydrology model that illustrated the existing flooding problem, demonstrated the proposed solution, and provided a recommendation for the proposed remedy that provides the greatest benefit/cost ratio. Once the model was completed and reviewed, a formal application which follows the Statewide Flood Control Program’s procedures was prepared and submitted. A preliminary design will also be completed for the selected project as part of the application process.

The modeling of the Buccaneer Villa North included both a hydrologic and hydraulic investigation for the area. The hydraulic investigation included researching historic flood events, determining the cause of the flood events, obtaining rainfall data, and then determining the parameters required to replicate one of these flood events in a hydrologic model of the neighborhood. The hydraulic investigation included reviewing available existing drainage system information, obtaining survey data of the current conditions of the existing drainage system, and incorporating this information into ArcGIS to define the project area and develop a skeletal model of the system. This model was imported into XPSTORM 18.1, which is a dynamic, integrated hydrologic and hydraulic stormwater and floodplain modeling software with the ability to model conditions in both 1D (open channel and closed conduit flow) and 2D (overland flow). LIDAR data was used to build a digital terrain model (DTM) in XPSTORM to represent the existing ground surface in the project area and catchment areas were defined.

DE calibrated the existing model using hourly rainfall data, which was obtained from the National Center for Environmental Information of the National Oceanic and Atmospheric Administration (NOAA), and historic flooding data for the residential properties in the project area. Once calibrated, the existing system was analyzed for the 10-year and 25-year design storms, as obtained from the LDOTD Hydraulic Manual. Residential properties flooded in both design storms. Several alternatives for eliminating this flooding were considered and modeled for the 10-year and 25-year design storms, with the selected project being the addition of a drainage pump station that diverts flow from the commercial area located south of the residential area to a retention pond. In addition, pipes in the residential area will be upsized.