

Charlotte County Vulnerability Assessment

What is a Vulnerability Assessment?

Mandated by Florida Statute 380.093, this study will help the County understand how stronger storms and changing environmental conditions could impact our community. Understanding these risks will guide County decisions related to public policies as well as future planning and investment in infrastructure and capital improvement projects.

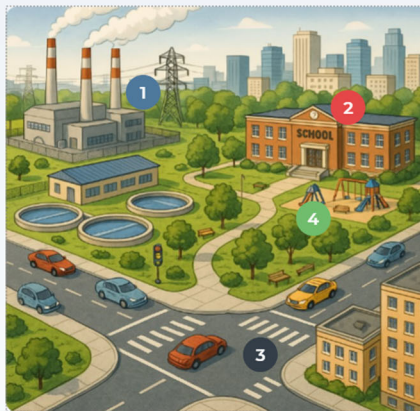


Charlotte County faces significant and growing exposure to multiple flood hazards, including storm surge from tropical systems, extreme rainfall, king tide flooding, and long-term sea level change. These combined hazards create vulnerability across coastal and riverine communities like ours.

The Vulnerability Assessment (VA) evaluated how critical community assets may be affected by future tidal impacts. The VA incorporates the best available modeling of tidal flooding, storm surge, and changes in sea levels to determine which assets and geographic areas face the greatest risk. These assets included facilities that are not County owned, but still critical to the community.

Critical Assets in Charlotte County

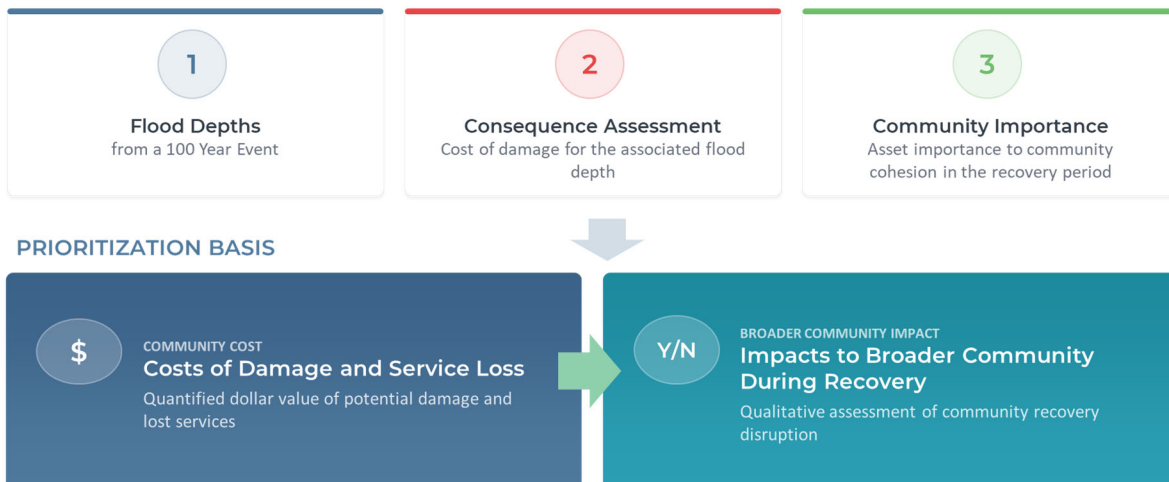
Asset categorization is a foundational step in the Vulnerability Assessment, organizing findings by function and meeting FDEP grant requirements.



- 1 Critical Infrastructure**
Water, wastewater, stormwater, and power systems essential to county operations
- 2 Critical Community & Emergency Facilities**
Schools, hospitals, shelters, fire stations, and emergency response centers
- 3 Transportation & Evacuation Routes**
Roads, bridges, and key corridors for emergency evacuation and daily mobility
- 4 Natural, Cultural & Historic Resources**
Parks, preserves, waterways, and heritage sites that define the county

How Did We Assess the County?

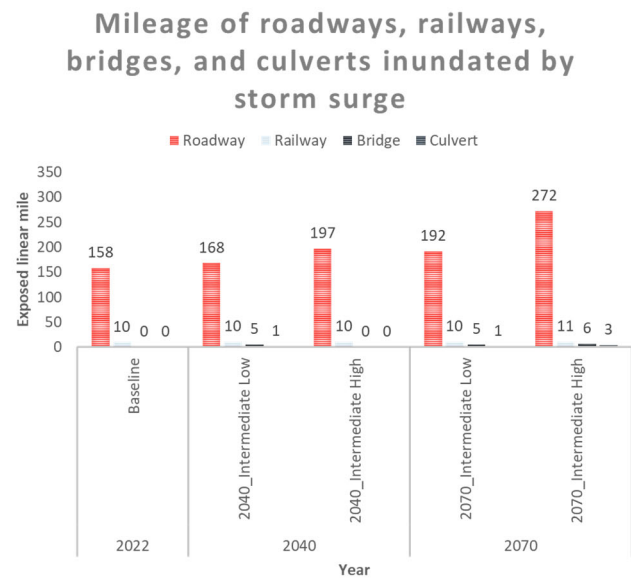
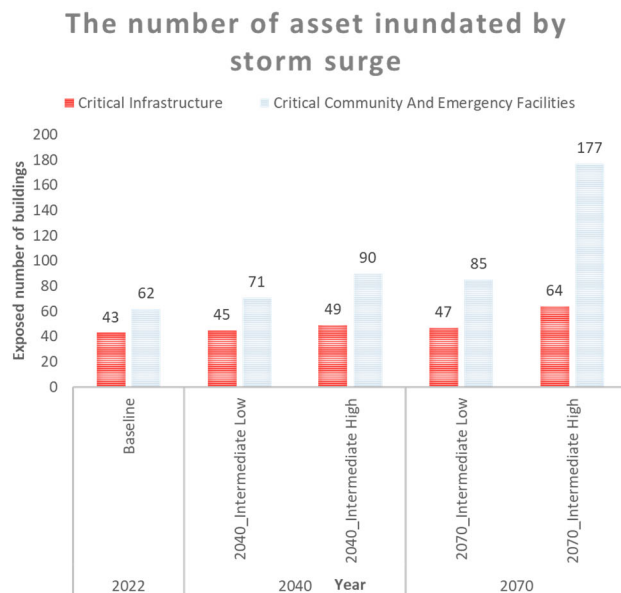
The VA examined potential impacts from a 100-year surge event, which is a hurricane-induced surge that has a 1% chance of occurring in any given year. Impacts were evaluated based on current sea level conditions as well as predicted 1 foot of sea level change (by 2040) and 3 feet of sea level change (by 2070). All areas predicted to receive any water at or above the ground is considered impacted. Areas closer to the coast will receive higher depths of flooding than inland.



What's At Risk?

Based on these scenarios, the VA created a ranking based on **severity** of the flooding, and the estimated **cost** of recovery:

- Flood damage severity: Direct physical damage to a facility from flood depth relative to the first floor elevation – in terms of loss percentage, to outline how complete the impacts may be to individual facilities, regardless of the value of the building itself. Flood depth was estimated based on modeled surge depth above ground vs. the elevation of a building's first floor.
- Flood-induced monetized losses: Costs from flood-related impacts for a facility, including direct damage, repair costs, loss of service, and downtime-related indirect losses. These losses may occur even when direct structural damage is limited or absent, particularly where surrounding flooding affects access, operations, inspection, cleanup, or restoration time. Losses were calculated based on the FEMA damage cost estimation program (HAZUS).



What's Next?

This is the first step to determining the risks to critical assets from existing and future climate conditions and developing potential solutions to mitigate for the risks. The forthcoming state-funded Adaptation Plan will review, refine, and build upon the results of the VA to propose mitigation strategies.

