

Technical Memorandum

Date: June 25, 2024

To: Sean Lahav, MPA - Resilience Market Leader - Halff

From: Mark Ellard, PE, CFM, BC.WRE, ENV SP and Cathy Foerster, AICP –
Geosyntec Consultants

Subject: **Data Standards**
Vulnerability Assessment
Marion County, Florida

Geosyntec Consultants (Geosyntec) prepared this technical memorandum for Halff as part of the work to prepare a Vulnerability Assessment for Marion County to meet the requirements of the Florida Department of Environmental Protection (FDEP).

The following anticipated data sources and assumptions will be relied upon for the project:

- Future Planning Horizons - The future planning horizons to be evaluated in the exposure analysis modeling will be the years 2050 and 2080.
- Sea Level Rise – Sea level rise impacts for this inland county are to be confirmed relative to the portion of the County’s stormwater that drains directly to the St. Johns River. If relevant, sea level rise impacts for future conditions modeling scenarios will be referenced from NOAA 2022 intermediate-low and intermediate projection scenario datasets using the Mayport gauge (St. Johns River) as a reference.
- Watershed Management Plan Data from Marion County, each which included a geodatabase (GDB) of watershed features (including model network and results data, landuse, floodplains, etc.), a digital terrain model (DTM) of topography based on the available LiDAR data at that time, and an ICPR version 3 model. This was provided for the following watersheds covering both Southwest Florida Water Management District (SWFWMD) and St. Johns River Water Management District (SJRWMD) areas:
 - Blichton, 2011, AECOM
 - Cotton Plant 1, 2011, AECOM

- Cotton Plant 2, 2011, AECOM
- Cotton Plant 3, 2011, AECOM
- Dunnellon, WMP, 2005, JEA
- Flemington, 2011, AECOM
- Florida Ridge, 2014, JEA
- Gum Swamp / Big Jones Creek, 2011, JEA
- Hog Prairie, 2011, AECOM
- Lake Griffin, 2012, INWOOD
- Lake Kerr, 2012, INWOOD
- Lake Panasoffkee, 2012, JEA
- Lake Stafford East / Priest Prairie Drain, 2015, JEA
- Marshall Swamp, 2012, JEA
- Martel, 2011, AECOM
- NW Ocala, 2011, AECOM
- Orange Creek, 2015, AECOM-TILLMAN
- Rainbow River, 2014, JEA
- Rodman Reservoir, 2014, AECOM-KHA
- SR200, 2011, AECOM
- West Marion, 2015, JEA
- West Ocala, 2014, JEA
- Withlacoochee Region, 2010, JEA
- Withlacoochee Update, 2015, JEA
- Watershed model data was not available from the County for the easternmost Alexander Springs, Lake George, and Wekiva River watersheds.

- Design Storms – for modeling purposes the following design storms will be used as the basis for identifying flood inundation areas for the exposure analysis:
 - 100 year / 24 hour
 - 500 year / 24 hour
 - 25 year / 24 hour (stormwater facility regulatory storm)
 - 25 year / 96 hour (SJRWMD closed basin stormwater facility regulatory storm)
- Rainfall – Rainfall depths for design storms used for modeling purposes will be referenced from the following sources:
 - NOAA Atlas 14 rainfall depth will be used for existing conditions modeling, with watershed specific values used to account for variation across the County.
 - Change factors for future conditions modeling will be referenced and/or extrapolated/interpolated from available relevant USGS/NOAA/South Florida Water Management District/FIU data based on future climate projections.
- Digital elevation model (DEM) – the 2020 LiDAR topographical dataset prepared for the SWFWMD (4 band, RGB and Near Infrared, 8 bit per channel for 32 bit format, 6 inch resolution). Meets ASPRS Positional Accuracy Standards. Meets 73.5 cm at the 95% CI (30cm RMSE_x and 30cm RMSE_y; 42.4cm RMSE_r) with an Orthoimagery Mosaic Seamline Mismatch less than 42.4 cm. The coordinate system used to adjust the imagery was NAD83(2011) Florida State Plane West 0902 with a vertical component of NAVD88 Geoid12b with all units in US Survey feet.
- Land use / Land Cover – Most recent Countywide data sets from SWFWMD (2020) and SJRWMD (2014) will be used to confirm current conditions for model representation. Future land use data from the County’s comprehensive Plan will be reviewed to inform future model scenarios.
- Storm Surge – storm surge impacts for this inland county are not considered to be relevant based on review of available FEMA and NOAA datasets indicating lack of influence and lack of apparent direct hydrologic connection to areas of predicted surge impact.

It is noted that the timing of the availability of Florida Flood Hub data may inform or require updates to the aforementioned data standards. As of the date of this memo, the system has not been released.