

WATERSHED MANAGEMENT PLAN MODELING.

Where Watershed Management Plans (WMP) have been performed throughout Manatee County, for any development project area greater than ten (10) total acres: The associated drainage modeling shall utilize best-available drainage modeling format and software application to demonstrate no adverse drainage impacts are created to surrounding properties through demonstration of a no-rise condition to 0.01 feet relative the nodal network and with respect to the flow rates of runoff. The following storm frequency events, cumulative rainfall, and rainfall distribution shall be provided as a comparison of the existing pre-development condition versus the post-development development condition. Site-specific cumulative rainfall as derived from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Estimates or watershed Design Storm Parameters shall be utilized as noted below:

Critical Design Storm Modeling Parameters:

Storm Frequency: Distribution:	Annual Probability of Occurrence:	Cumulative Rainfall:	Rainfall
3.22-year/24-hour	N/A	4.5	SCSII - FLMOD
10-year/24-hour	10%	NOAA Atlas 14	SCSII - FLMOD
25-year/24-hour	4%	NOAA Atlas 14	SCSII - FLMOD
50-year/24-hour	2%	NOAA Atlas 14	SCSII - FLMOD
100-year/24-hour	1%	NOAA Atlas 14	SCSII - FLMOD
100-year/72-hour	N/A	18 inches	FDOT-72

In certain flood prone watersheds, drainage modeling of the 500-year/24-hour Storm Frequency Event (0.2% Annual Probability of Occurrence) may be necessary to demonstrate no adverse drainage impacts are created surrounding properties.

Site-specific cumulative rainfall as derived from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Point Precipitation Estimates can be found at the weblink below:

https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=fl

Design Storm Parameters shall reference Watershed Management Plan sources (i.e. Bowlees Creek at 63 Avenue East – Bowlees Creek Watershed (N809) - Floodplain Justification Report).

LEVEL OF SERVICE (LOS) CLASSIFICATION.

Flood inundation depth over the crown of a roadway shall be determined from available drainage modeling provided from a Watershed Management Plan (WMP). Where drainage modeling from a WMP does not exist, site specific drainage modeling shall be provided incorporating available tailwater stages and/or Base Flood Elevation (B.F.E.).

Based upon the above drainage modeling sources, flood inundation depth 6 inches or less over the crown or inside median curb shall be designed pursuant to road classification criteria and associated storm frequency event/Annual Probability of Occurrence referenced below:

Road Classification:	Storm Frequency Event:	Annual Probability of Occurrence:
Evacuation Route	No flood inundation preferred	N/A
Arterial	100-year/24-hour	1%
Collector	50-year/24-hour	2%
Local Street	25-year/24-hour	4%

Furthermore, flood inundation depth shall not exceed 12 inches for any road classification associated with the 10-year/24-hour storm frequency event (10% Annual Probability of Occurrence).

The following chart can be utilized to visualize a road classification and corresponding storm frequency design with no flood inundation classified as "A", up to 6 inches of flood inundation classified as "B", or greater than 6 inches of flood inundation classified as "C" over the crown or inside median curb.

Road Classification:	6-inches Depth of Inundation:				
	No Inundation	100-yr/24-hr	50-yr/24-hr	25-yr/24-hr	10-yr/25-hr
Evacuation Route	A	B	C	C	C
Arterial	A	B	C	C	C
Collector	A	A	B	C	C
Local Street	A	A	A	B	C

FLOODPLAIN COMPENSATION AREAS.

Demonstration of floodplain impact/compensation storage balancing shall be provided through cup-for-cup analysis or volumetric approach through drainage modeling pursuant to Watershed Management Plan Modeling (Section 2.3.2).

As prescribed in the Land Development Code, floodplain compensation areas shall be hydraulically connected to conveyance systems where possible. Hydraulic connection shall be designed to convey inflow and outfall of floodwaters and/or combined onsite/offsite runoff pursuant to Watershed Management Plan Modeling (Section 2.3.2). Hydraulic connections may utilize existing conveyance systems or direct connection (i.e. no berm), albeit stabilized to prevent erosion and dissipate excessive runoff velocity.

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CUMULATIVE DEVELOPMENT DRAINAGE MODELING.

Upon administrative approval of a Final Site Plan and/or Construction Plan, equivalent or greater than 20 total acres, or 100% Design for Capital Improvement Projects, the Pre-Development/Existing Condition Modeling and the Post-Development modeling shall be furnished to Stormwater Engineering Division, Public Works Department, unless otherwise noted. The furnished drainage modeling shall be in a format and software comparable to existing drainage modeling derived from an SWFWMD adopted Watershed Management Plans (WMP) or other available drainage modeling where an adopted WMP does not exist. Deviations in formatting and compatible software shall be converted unless otherwise deemed acceptable.

Applicants (or otherwise Engineer of Record) should contact Stormwater Engineering Division, Public Works Department, unless otherwise noted, for the latest version of watershed drainage modeling. In addition, applicant should retain updates of drainage modeling with respect to master stormwater management facilities or phased projects for reference to subsequent or phased Final Site Plan and/or Construction Plans. Where updates or revisions to drainage models do not exist, applicants shall incorporate surrounding development not reflected in available drainage modeling.

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