



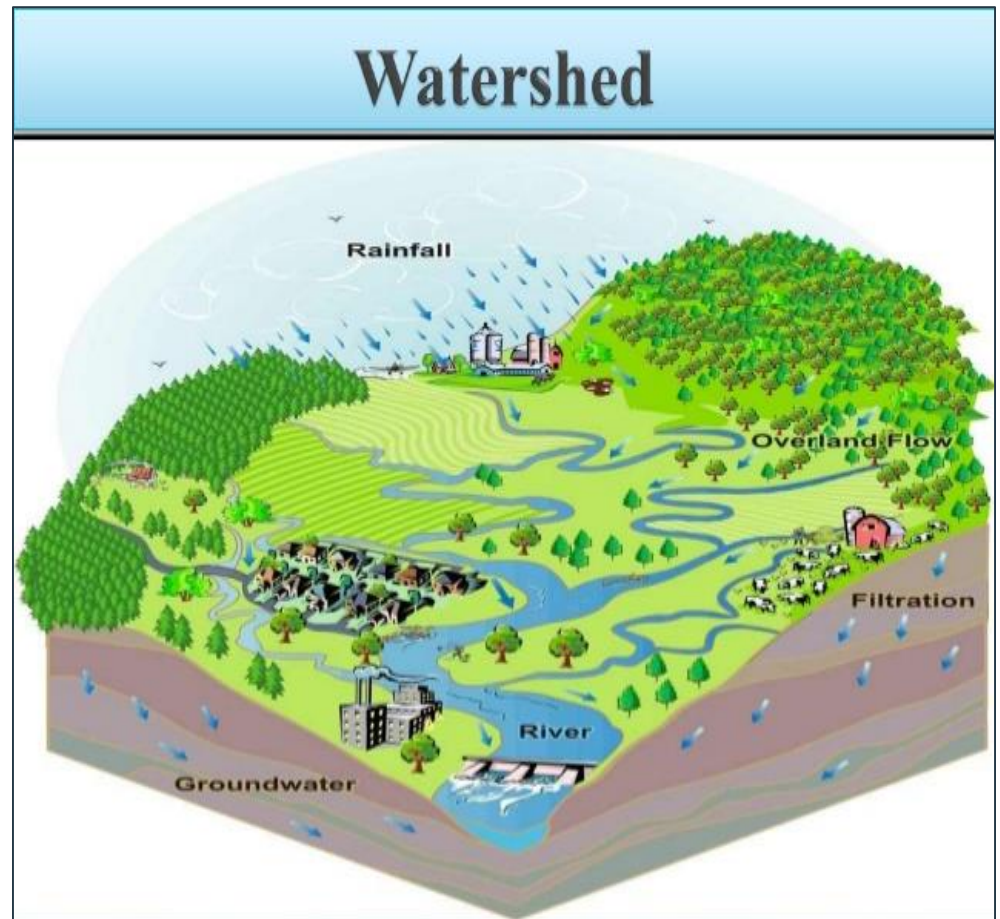
Progress Update for the Lake Forest Creek Watershed Management Plan

Sean King, PhD, PE

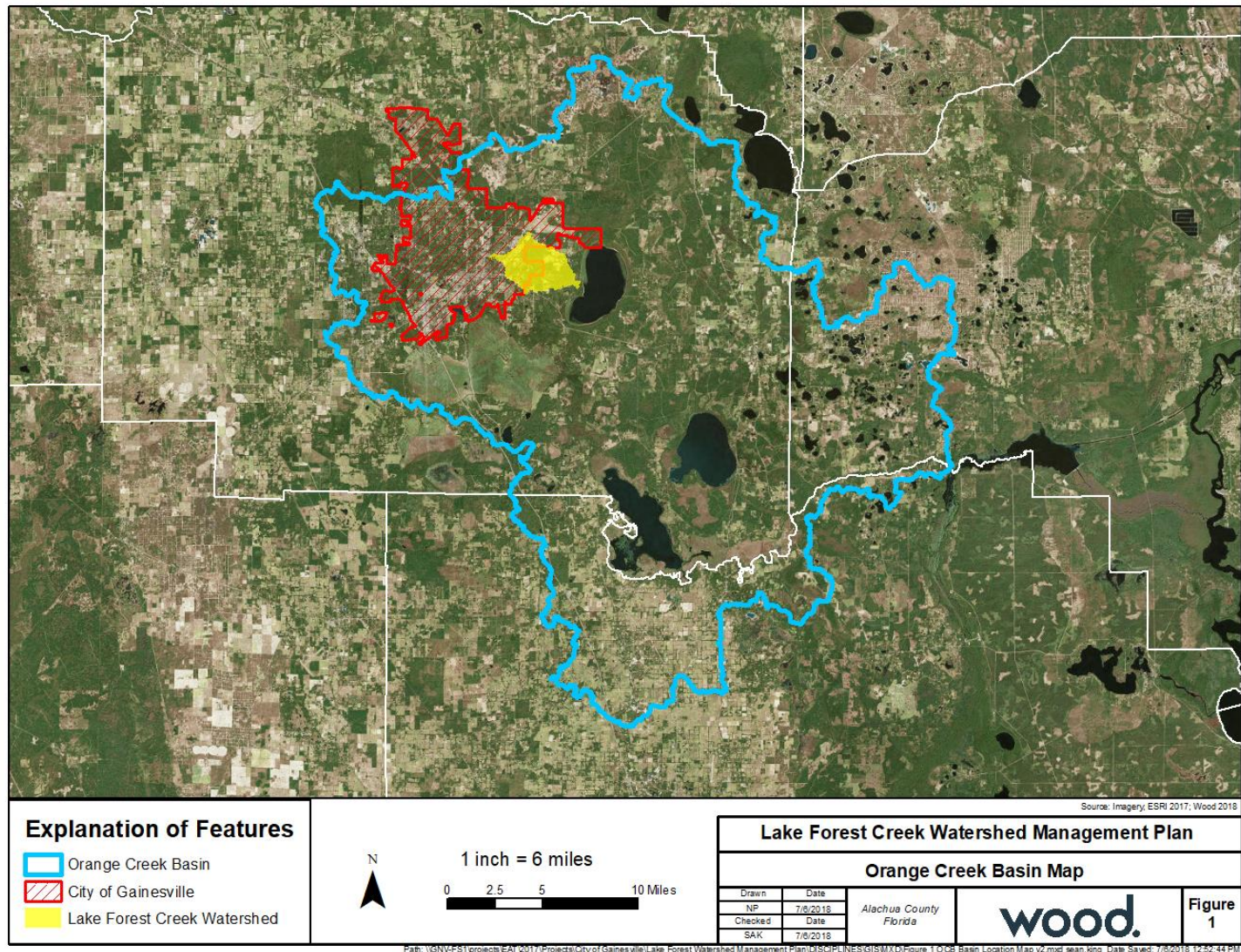
Taylor Kroll, PE

Watershed Management Plan

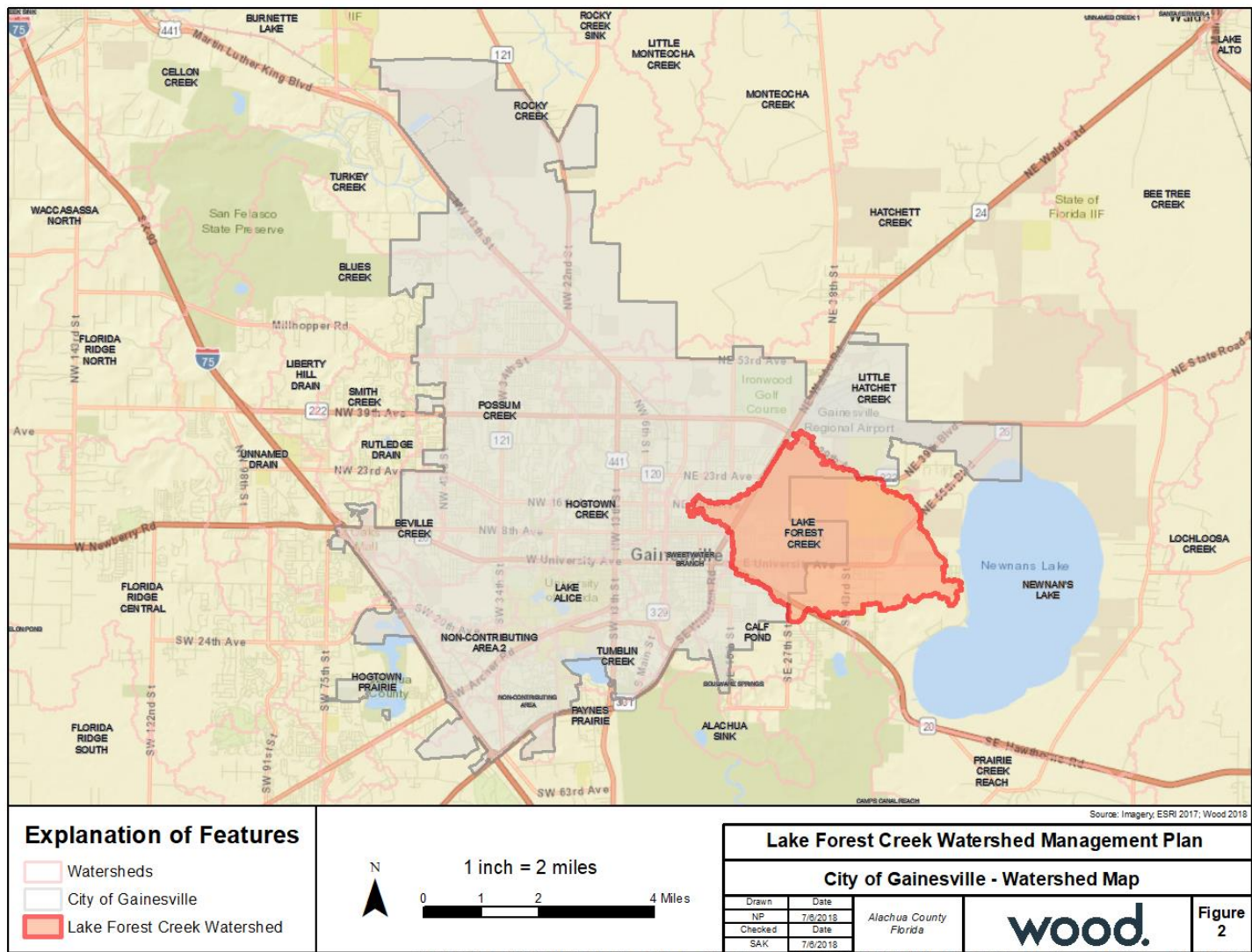
- Watershed Characterization
- Water Quality Analysis
- Water Quantity and Floodplain Analysis
- Project Identification and Evaluation
- Public Input
- Plan Development



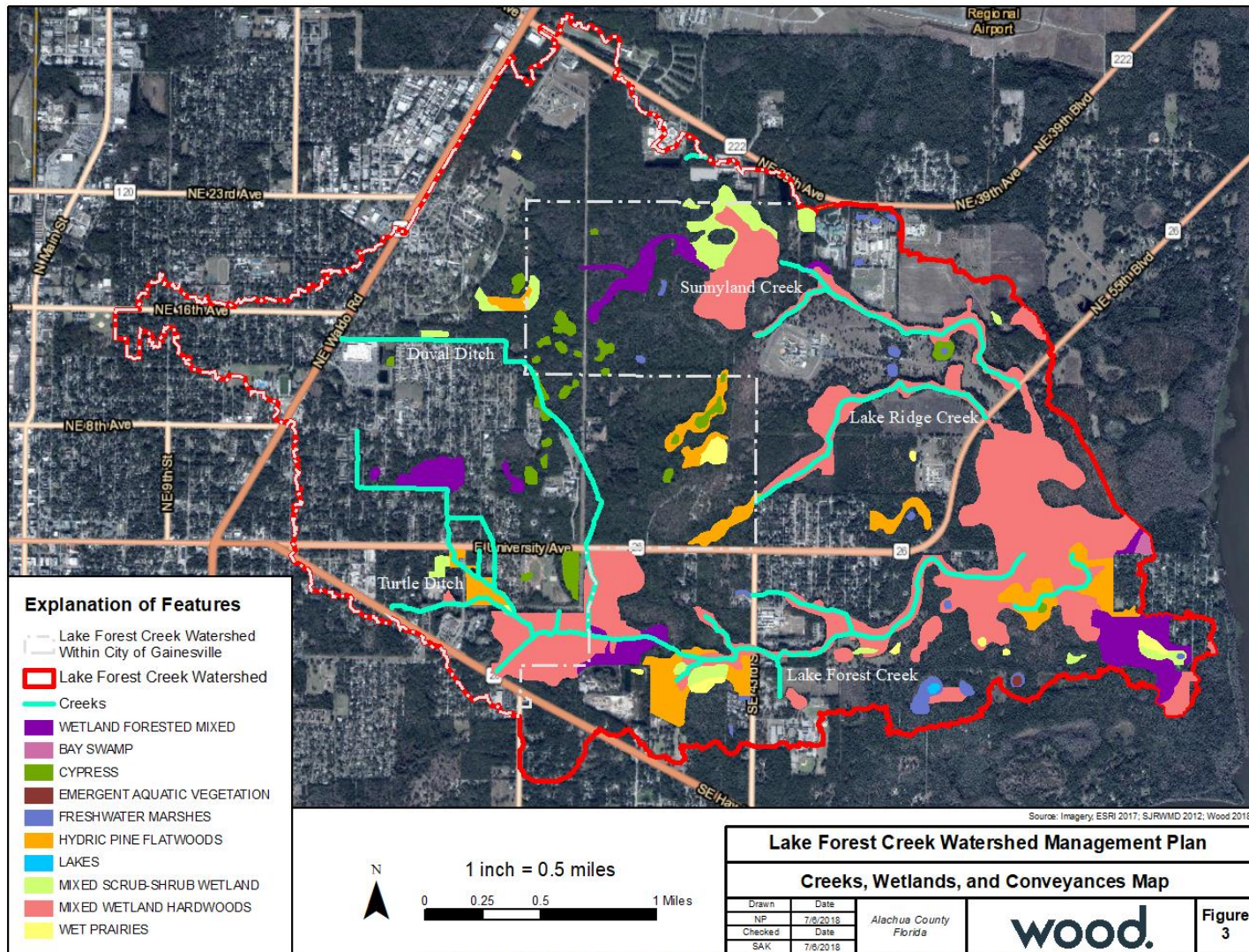
Orange Creek Basin



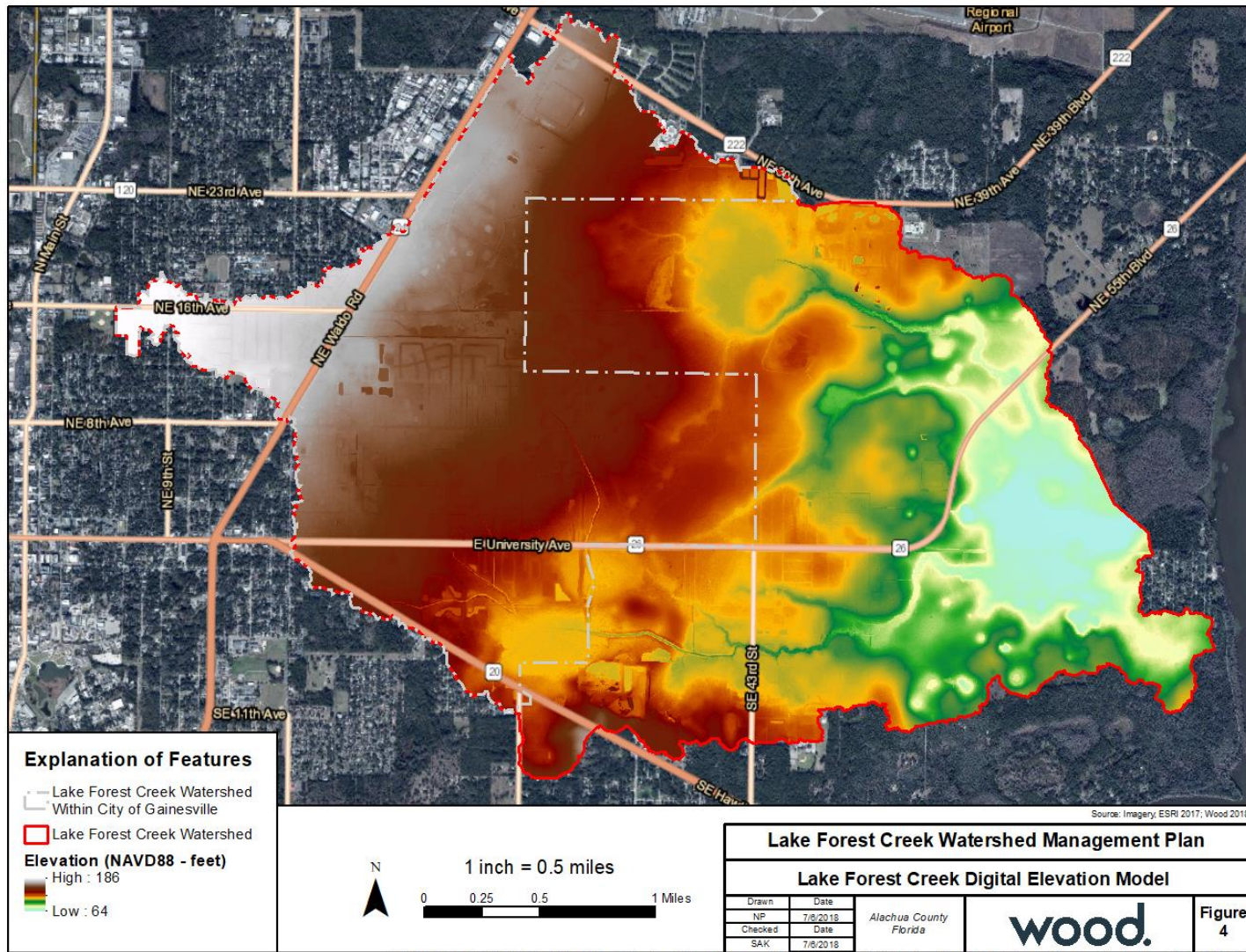
Lake Forest Creek Watershed



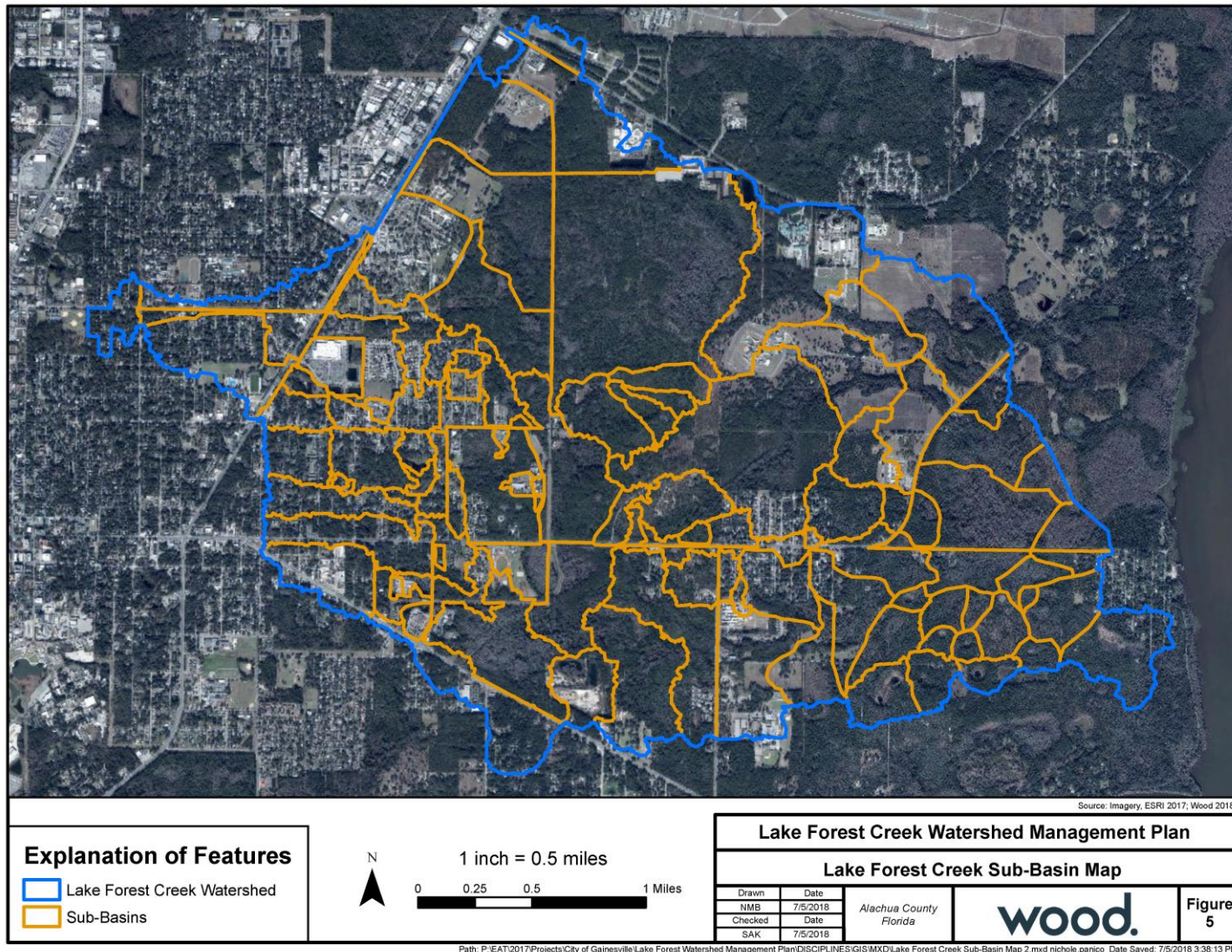
Creeks, Wetlands, and Conveyances



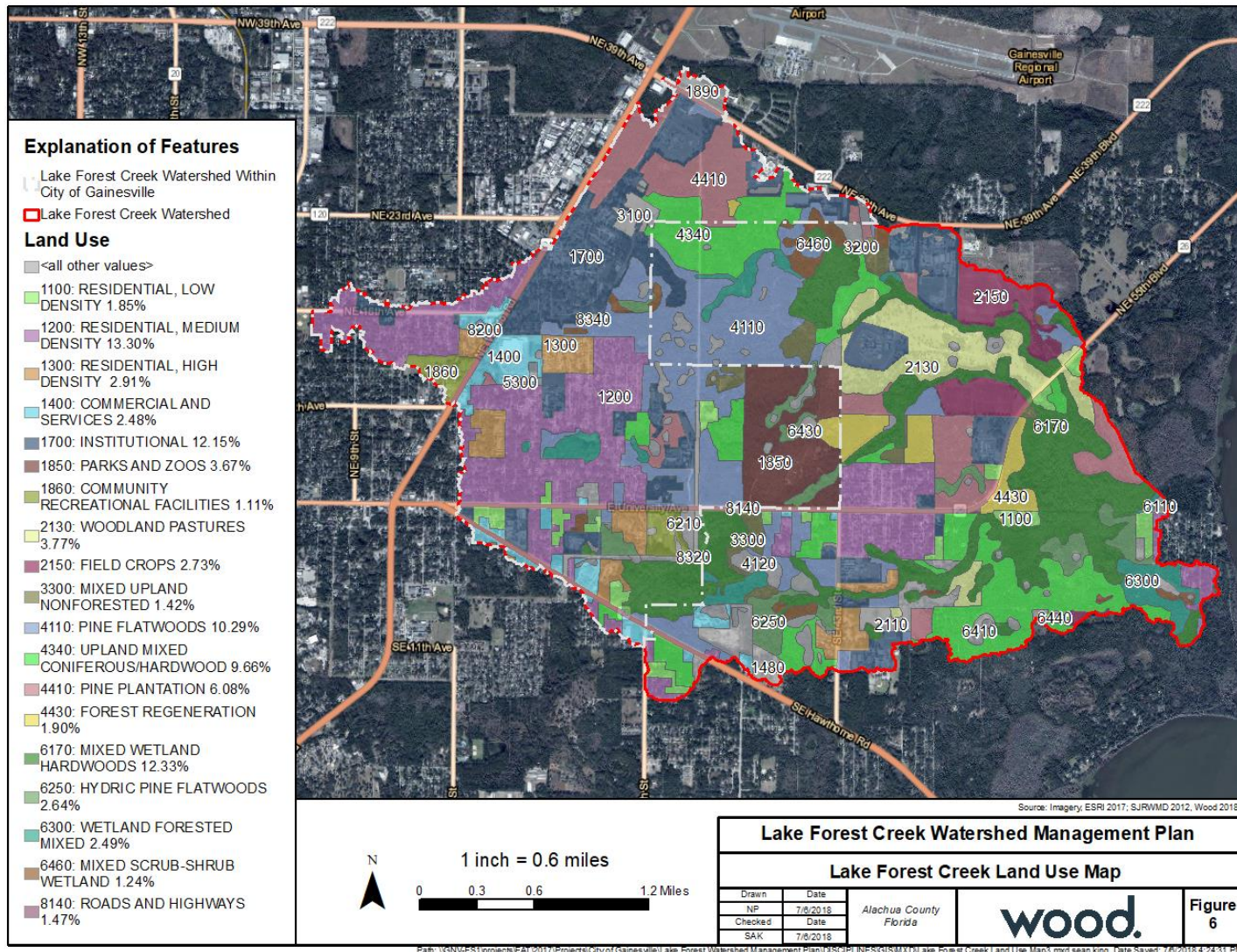
Topography



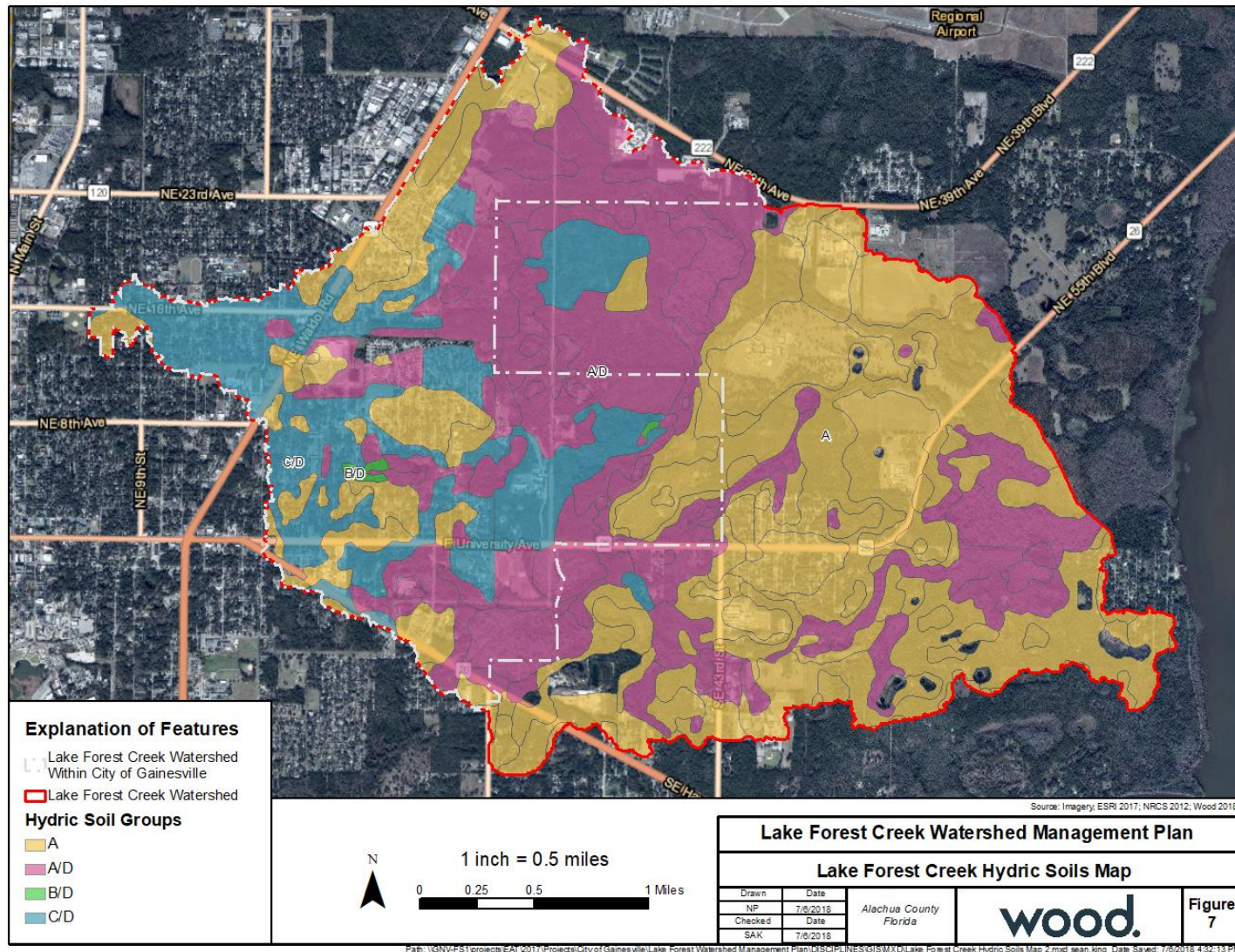
Sub-basins



Land Use

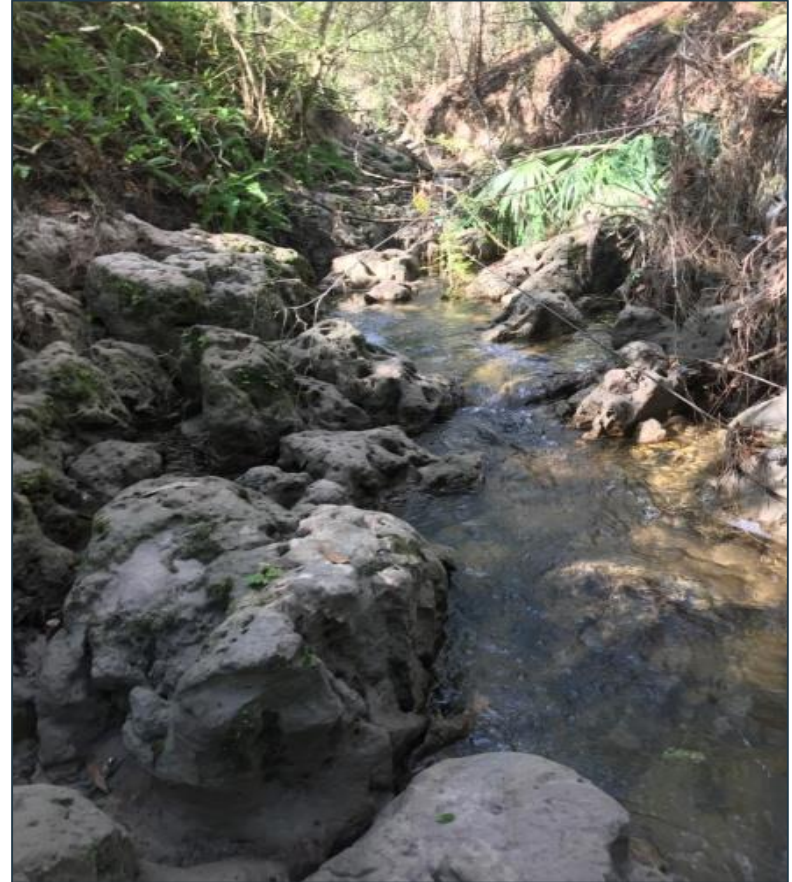


Soils



Water Quality Issues

- Stormwater Runoff
 - Fertilizer
 - Atmospheric deposition
 - Animal waste
 - Sediments and debris
- Septic Tanks
- Stream Channel Erosion



Example of stream bed incision into the Hawthorn formation

Water Quality Analysis

Table 4. EMC Values for Key Pollutants (mg/L)

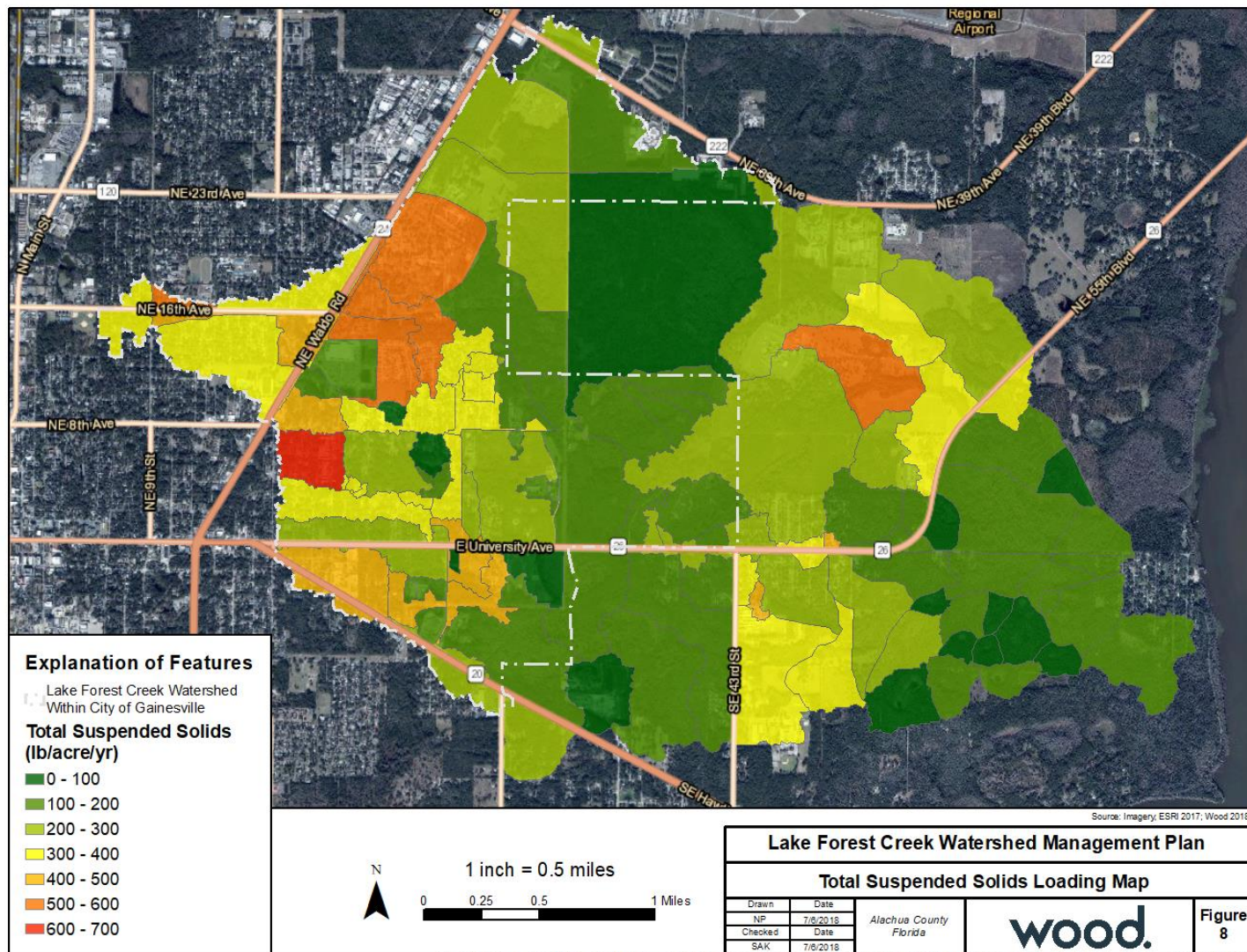
Land Use Type	TSS	TN	TP
Low-Density Residential/Recreational	23.0	1.61	0.191
Single Family	37.5	2.07	0.327
Multi-Family	77.8	2.32	0.520
Low-Intensity Commercial	57.5	1.18	0.179
Commercial/Industrial	69.7	2.40	0.345
Institutional	60.0	1.20	0.260
Transportation/Communication	37.3	1.64	0.220
Undeveloped/Rangeland/Forest/Open Land	8.4	1.15	0.055
Wetland	10.2	1.60	0.190
Water	3.1	1.25	0.110

Table 5. BMP Removal Rates

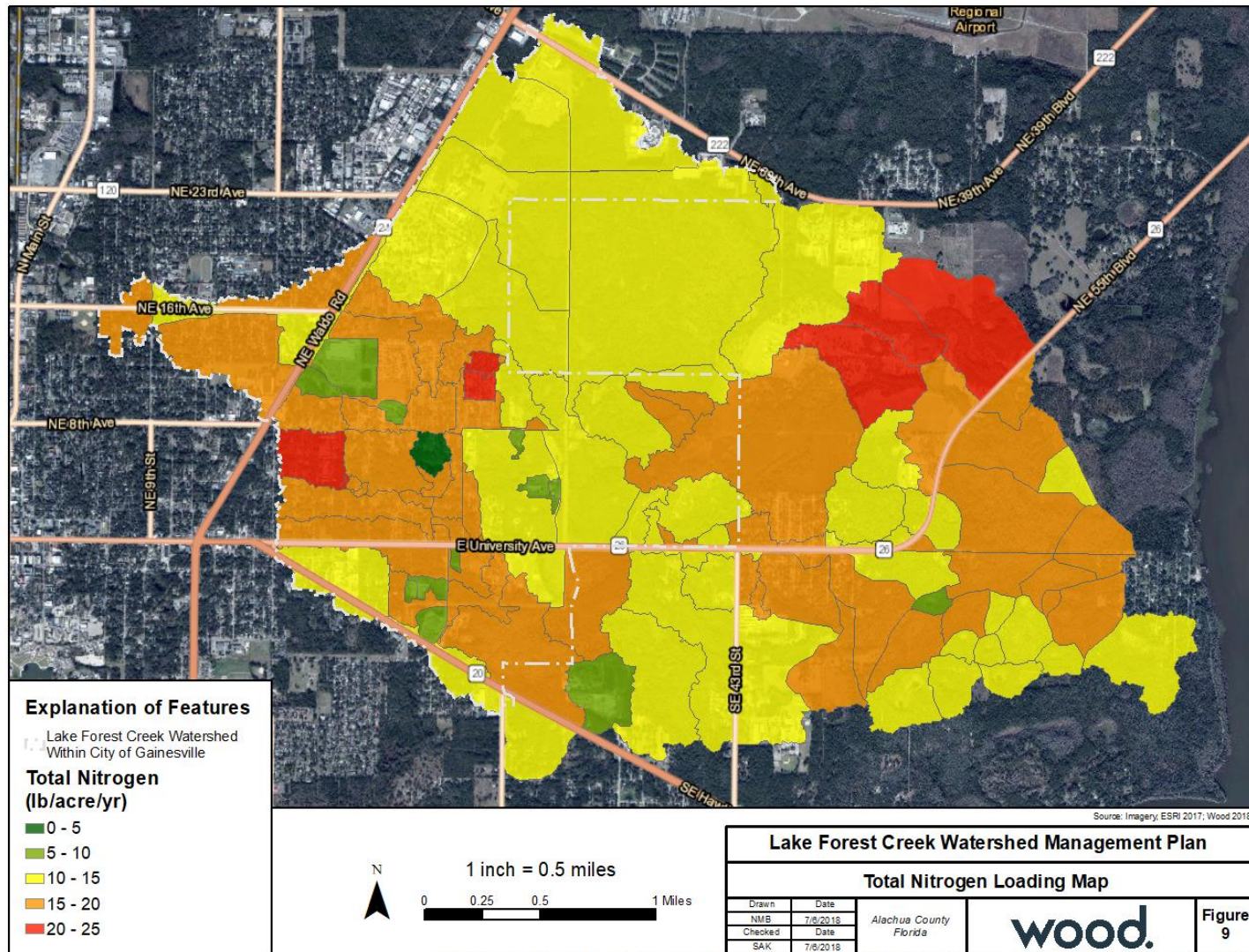
BMP Type	TSS	TN	TP
Dry Detention	90%	30%	40%
Wet Detention	77%	37%	69%
Retention Ponds/Swales	80%	80%	80%



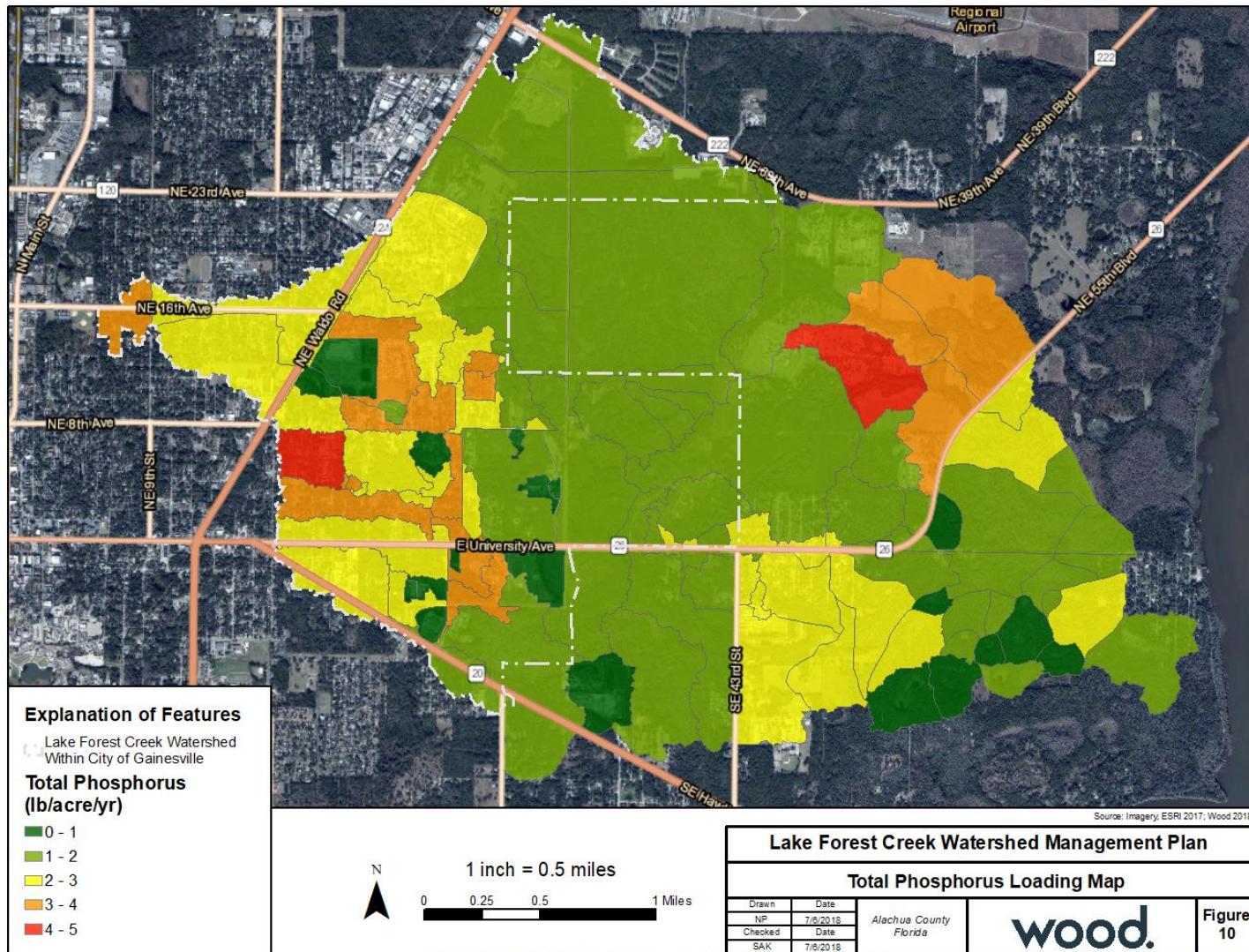
Water Quality Analysis



Water Quality Analysis



Water Quality Analysis

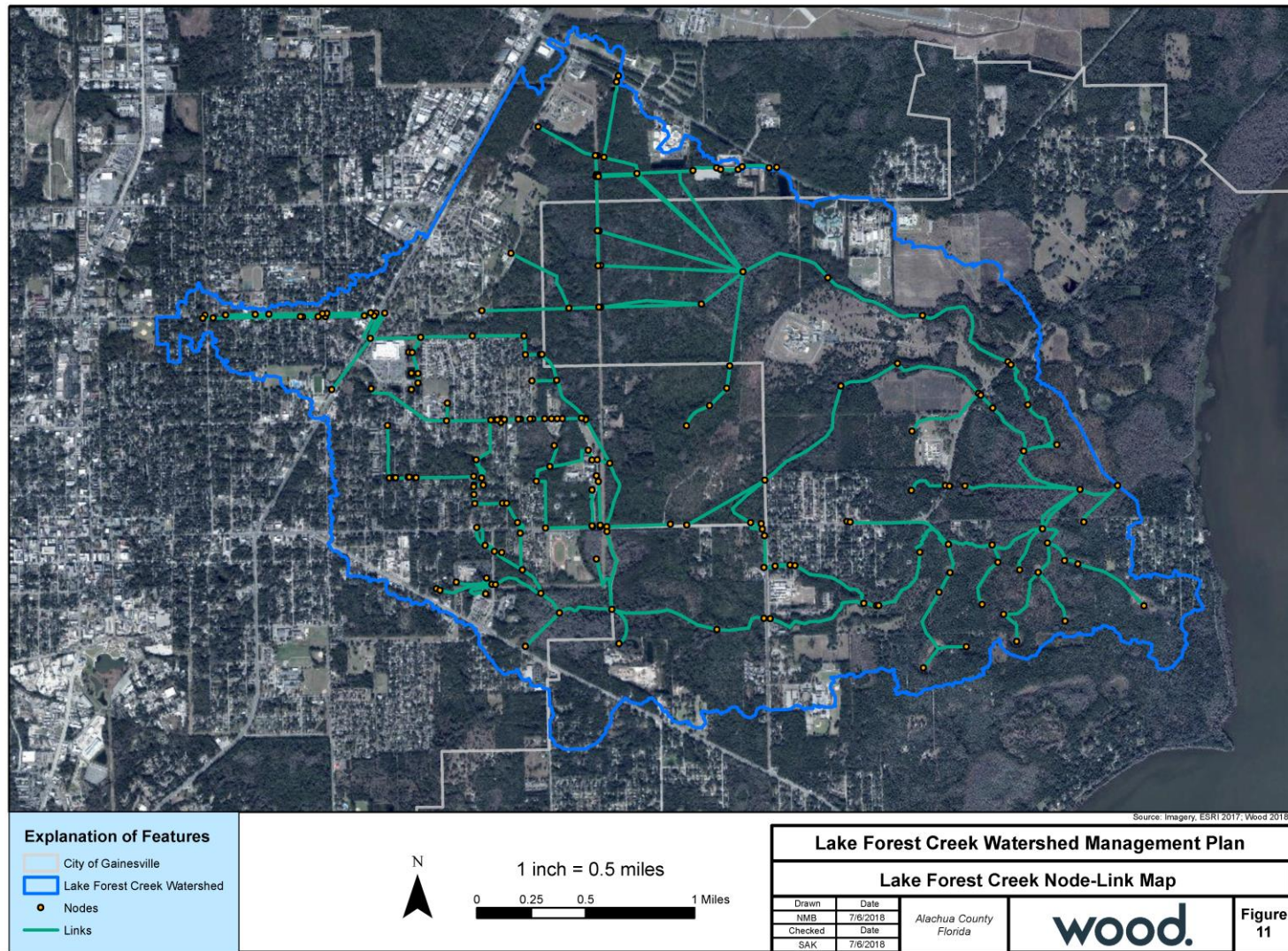


Water Quantity and Floodplain Analysis

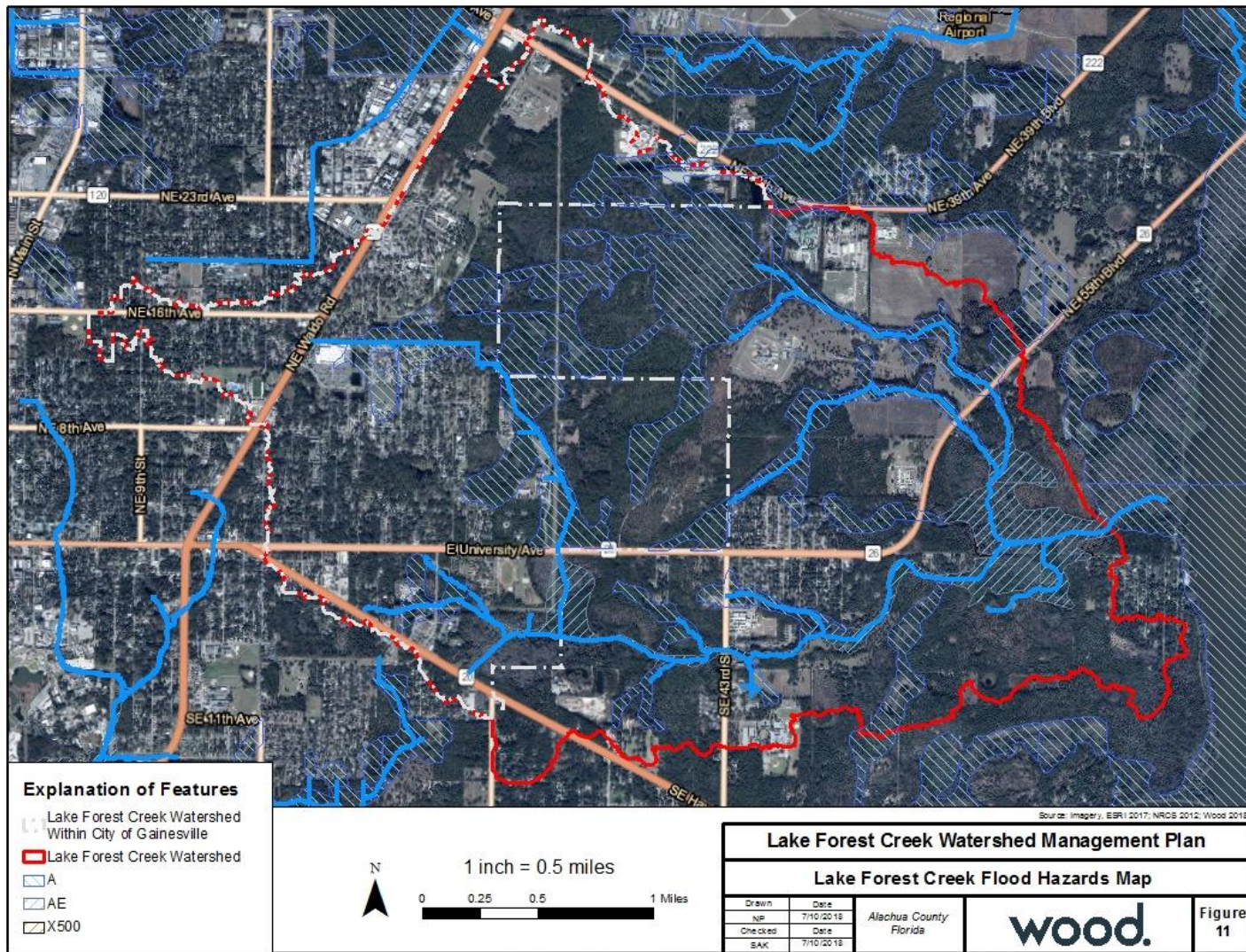
- Interconnected Pond Routing Model (ICPR version 4)
- Simulates stream flow and water levels (including floodplain extent)
- Calibrated with Hurricane Irma storm event



Water Quantity and Floodplain Analysis



Flood Hazard Analysis



Next Steps

- Finalize Water Quality Analysis
- Finalize Water Quantity and Floodplain Analysis
- Continue Project Identification and Evaluation
- Continue to gather Public Input
- Finalize Watershed Management Plan



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