

The Royal Trails Subdivision is located in northeast Lake County and lies along the northwest of State Road 44. The project is located within the St. Johns River Water Management District and is mostly within the delineated Wekiva River Protection Area boundaries. The approximately 3000+ acre subdivision (~5 square mile project area) has rural style drainage systems comprised of roadside swales, cross-drains, and outfall ditches. The study area has varied topography and numerous lakes, wetlands, and depression areas which make floodplain assessment a challenge. The subdivision boundary extends across several drainage basins and has multiple outfalls.



The purpose of the project was to conduct a detailed flood study of the area to prepare for the FEMA map modernization process as well as addressing water quality issues pertaining to the Wekiva Parkway and Protection Act Master Stormwater Management Plan. This included evaluating opportunities for water quality improvements and addressing level of service (LOS) deficiencies with drainage infrastructure. Public meetings were held at various stages of the project to allow residents to review exhibits and provide oral and written statements about the drainage related issues at the Royal Trails Subdivision.

The work for this engineering study was completed in 4 general tasks. First was a Project Evaluation which evaluated current conditions in the project area. Pertinent drainage data was collected from various sources. A detailed field assessment was performed with recommendations made to address specific maintenance needs in the subdivision. Additionally, development regulations were reviewed and recommendations for enhancement made where applicable. Issues were reviewed that may potentially impact water quality as well, including an assessment of the feasibility of stormwater reuse, the potential impact of septic tanks on water quality, and a review of the recommendations of the Wekiva Parkway Protection Act pertaining to stormwater management in the subdivision.

The second task was a Flood Assessment. During this task, a hydrological & hydraulic stormwater model was developed for the subdivision in order to delineate the 100-year frequency floodplains for the project area. In addition, the model was used to evaluate the level of service of the primary and secondary drainage systems in the subdivision to identify deficiencies.



The third task was a Water Quality Assessment. During this task, a water quality model for the project area was developed to estimate pollutant loads generated from stormwater runoff in the project area.

The last task was the preparation of a Deficiency Correction Plan. During this task, corrective actions for both minor and major drainage facility deficiencies were conceptualized. Also, Best Management Practices to address water quality concerns were conceptualized for potential implementation.

As the prime consultant to Lake County for this project, Inwood was responsible for all engineering assessment and evaluation.