

**Topic(s):** GIS Management - Land Records/Management - Recreation - Communication

## **Developing a Computerized Maintenance Management System For Public Signage At Recreation Sites Within The Southwest Florida Water Management District**

This Geographic Information Systems (GIS) project addresses recreational signage posted on public lands located within the Southwest Florida Water Management District. The results provide valuable insight into the condition of the region's posted recreational signage. This project also creates a data management system, specifically a Computerized Maintenance Management System (CMMS), to track signage at known District recreation sites. It contains information that is helpful to multiple sections of the District and beyond, expectantly improving the quality of signage while reducing the time and resources required for improvements and upkeep. This new CMMS will help with the management and maintenance of all signs located on District-owned public lands.

The most important resources used to guide this effort were the District's website, recreational guide, and published maps of recreational sites within District boundaries. A total of 69 sites are listed, with 134 public access points. Most access points have at least one sign, often displaying important information and maps of trails in the area. In many cases, these signs can experience natural wear, get damaged in weather events, or become vandalized by visitors. It is unlikely that these signs will be called into the District as needing repaired or replaced, especially when located in remote areas. Circumstances had exposed an insufficiency of data and a need for it, driven by changes in public land acquisition, partnerships, and observed time-based wear. Public outreach in the form of signage is especially important for organizations like the District, which aim to protect important areas and natural resources for ongoing public use. This is especially true as Florida's recreational sites have become more popular and frequented than ever before.

To accomplish this GIS project, signage data was collected by physical travel to the listed sites' access points. Standardized equipment and software were used to collect and record accurate GPS coordinates of signage locations, starting with a 'primary' group of the District-managed sites. The 'secondary' group of sites are co-managed with the District, and contain signage maintained in collaboration with federal, state, county, and city entities. A Trimble R1 was used with a systematic approach to lower estimated uncertainty, with connection to the GNSS Status application installed on an Android device. A survey, created with ArcGIS Online's Survey123, helped to record detailed information about the signs' condition as well as collect the GPS coordinates. The coordinates were collected within approximately three meters (or approximately ten feet). With time, more collected measurements may narrow down absolute values through data redundancy. This collection effort strived to record coordinates that would place any user within a visual range, or line of sight, of an applicable sign.

With the delivery and initiated implementation of this CMMS system, a series of results from data analyses were performed for visualizing the current state of District recreational signage. The tables, charts and cartographic deliverables resulting from this GIS project provide a large-scale overview of signage condition, give insight into the reliability of site addresses, and highlight regions that need to be prioritized for updates or repairs. An online, internally-shared map has been created by the collected data's feature layer, which has been merged with existing recreation site information, and can now be used regularly by District employees for reference. Further, the data collection survey has been refined and improved to track future interactions with District signage by users.

**Bio:** In 2009, Emily moved to Florida from Ohio for new opportunities. She worked and volunteered with many organizations aiming to protect species and conserve natural resources. In 2019, she graduated from Eckerd College with a Bachelor's in Environmental Studies and Biology, and will soon graduate from University of West Florida with a Master's in GIS Administration. After four years of interning at the Southwest Florida Water Management District, she recently became a full-time GIS Analyst.

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