

CHAPTER 22

GEOGRAPHIC INFORMATION SYSTEMS

PURPOSE:

This chapter establishes the administration and use of Geographic Information Systems to improve the quality and accessibility of Department's spatial information and support graphical analysis of georeferenced data.

AUTHORITY:

Sections 20.23(4)(a) and 334.048(3), Florida Statutes (F.S.)

SCOPE:

This chapter applies to District, Turnpike, and Central Office units with the Florida Department of Transportation that use Geographic Information Systems.

22.1 DEFINING GEOGRAPHIC INFORMATION SYSTEMS

A Geographic Information Systems (GIS) is a technology that is designed to capture, store, manipulate, analyze, manage and present geographical data. It is the policy of the Department to deploy enterprise-wide GIS applications for its engineering, operations, planning and administrative function.

Enterprise GIS is an organization-wide framework for the Department's communication and collaboration of shared GIS resources. Through structured integration of GIS components, enterprise GIS combines centralized management with decentralized operations and enables FDOT to best leverage its GIS resources. A carefully planned enterprise GIS complements existing business processes and provides an efficient way to plan, analyze, and manage transportation infrastructure and related elements.

22.2 GOVERNANCE

GIS is managed at a statewide level to leverage resources more effectively, increase productivity for operations, provide cost savings, and optimize benefits of the services the Department provides. The following management structure is in place to facilitate effective communication and coordination of GIS resources, activities, and people.

22.2.1 GIS Management Steering Committee (GIS MSC)

The GIS MSC provides leadership for the Department's enterprise GIS strategy and promotes a consistent vision for FDOT's GIS resources and activities. The GIS MSC also resolves any operational issues related to GIS that are escalated by the GIS Functional Steering Committee (GIS FSC). Members are appointed by the FDOT Secretary, and the Assistant Secretary for Engineering and Operations serves not only as the GIS MSC Chairman but also as the GIS Executive Sponsor. FDOT Executive Board decisions can supplement the need for Management Steering Committee directions.

22.2.2 GIS Functional Steering Committee (GIS FSC)

The GIS FSC is chaired by the FDOT GIS Coordinator and provides a GIS forum for the appointed GIS Coordinators from each of the Districts and many offices within Central Office (Maintenance, Work Program Administration, Safety, Transportation Statistics, Environmental Management, Survey and Mapping, Traffic Engineering, Systems Planning, Information Systems). The goal of the GIS FSC is to serve as a forum for the participants to identify and address issues that are encountered during the various phases of an enterprise GIS, whether strategic, administrative or technical. Each of the appointed members are voting contributors and are critical to the functionality of the committee.

22.2.3 FDOT GIS Coordinator

The FDOT GIS Coordinator is appointed by and reports to the GIS Executive Sponsor. The GIS Coordinator serves as the Chair of the GIS FSC and is the designated GIS liaison to other GIS organizations including state, local, and federal agencies. The GIS Coordinator provides technical leadership for GIS strategy and initiatives by communicating best practices and guidelines to assist CO and the Districts with effective uses of GIS technologies. The GIS Coordinator also assists with identifying existing and emerging opportunities that improve the effectiveness of Department programs through the use of GIS technology, procurement of GIS software, hardware and training, coordination of statewide GIS data and licensing, review and oversight for GIS projects submitted by offices and Districts, development of technical standards, policies, procedures.

22.2.4 District GIS Coordinators

The role of the District GIS Coordinators is to represent an enterprise GIS view while acting as a liaison between the various committees and the District. This role includes sharing innovative ideas and solutions that support the Department's GIS Strategic Plan, collaborate on the development of GIS standards and best practices as well as assisting in the creation and oversight of subcommittees and technical teams as needed. Additionally, GIS Coordinators act as District advocates in obtaining GIS

resources needed to leverage GIS data and technology effectively within the Department's strategic and technical framework. Other duties include but are not limited to: serving as a State GIS Steering Committee Representative; ensuring the adherence to the enterprise/District GIS goals, standards and application development; facilitating joint development of data with other Districts, local agencies and organizations; and coordinating GIS educational and training opportunities for the District. The District Coordinator facilitates communication within the GIS community for District via web pages, discussion groups and maintenance agreements, stays current with GIS technology changes, coordinates data requests from outside the agency and helps develop a District view of spatial data access and dissemination

22.2.5 GIS Strategic Advisor/OIS Manager

The GIS Strategic Advisor coordinates and collaborates with the FDOT GIS Coordinator, steering committees and business offices to recommend an effective and consistent vision for FDOT's GIS resources and activities, supports the development and implementation of the Department's enterprise GIS Strategic Plan and provides coordination for GIS technical support for Information Technology resources and projects. The GIS Strategic Advisor also provides technical review and oversight for GIS application projects submitted by offices and Districts to insure project management controls are in place, assists with identifying existing and emerging opportunities and coordinates with OIS on GIS technical framework activities required to support effective enterprise GIS development.

22.3 DISTRIBUTED ENTERPRISE GIS

GIS shall be centrally managed as an enterprise technology supporting a decentralized architecture. This architecture is characterized by both centralized and distributed applications, databases and web services. Many datasets remain in the stewardship and storage of the data owner, but enterprise standards for data quality, metadata, format and access are defined to allow efficient data sharing.

22.3.1 Information Resource Management Council

The Information Resource Management Council (IRMC) provides executive oversight for enterprise initiatives, including GIS, to ensure consistency with Department goals, objectives and priorities.

22.3.2 Business System Support Office

The Business System Support Office (BSSO), within the Office of Information Systems (OIS), provides support and direction for development of GIS applications to ensure cost effective solutions and availability to other Departmental assets. The BSSO shall

be kept apprised of current and planned GIS initiatives throughout the Department and this information shall be directed to the BSSO Manager.

22.4 ARCGIS DESKTOP LICENSES

ArcGIS for Desktop is the platform that GIS professionals throughout the Department use to manage their GIS workflows and projects, and to build data, maps, models, and applications. It is also the foundation for deploying GIS across the department and onto the web. ArcGIS for Desktop is also used to publish and share geographic information with others.

In order to leverage the Department's licensing of the ArcGIS Desktop software from Esri and to take advantage of available cost savings, all FDOT ArcGIS Desktop licenses are managed under the FDOT Primary Esri customer number and a strategic set of license managers distributed throughout FDOT. Access to the ArcGIS Desktop software is provided through a link on the FDOT GIS SharePoint page.

22.4.1 License Maintenance

Beginning fiscal year 2015/2016 all ArcGIS for Desktop maintenance are funded through the FDOT PRIMARY customer number and cost center

22.4.2 New License Purchases and New Users

Members of the Department's workforce offices are responsible for justifying and purchasing new ArcGIS for Desktop licenses when needed. However, all new ArcGIS for Desktop licenses and extensions are purchased under the FDOT PRIMARY customer number. Subsequent annual maintenance is funded through the FDOT PRIMARY customer number.

New ArcGIS for Desktop users must contact their group's GIS Coordinator and request access to the software. If the group's GIS Coordinator is administering a secondary license manager, he/she is responsible for determining who has access to the software within his/her user group. Otherwise, the group's GIS Coordinator is responsible for requesting new user software access from the FDOT GIS Coordinator.

22.4.3 License Manager Configurations

The Department has implemented a primary, secondary, and backup license manager strategy. The Primary License Manager hosts all ArcGIS for Desktop concurrent licenses and related extensions assigned from Esri. These licenses are the source for transferring District/Office licenses to the Secondary License Managers. All single use

licenses and associated extensions permanently reside on the Primary License Manager.

Secondary License Manager installations are available for existing sites that have more than five concurrent ArcGIS for Desktop licenses. Existing sites with five or less concurrent licenses utilize the Primary License Manager as their license host. Those sites implementing a Secondary License Manager obtain their licenses through the license transfer procedure. Administrators of Secondary License Managers are only authorized to transfer the same number of concurrent licenses that were included in their final annual maintenance agreement for fiscal year 2014/2015. In addition, administrators are required to submit license utilization logs to the FDOT GIS Coordinator.

22.4.4 Backup License Manager

The Department has implemented a Backup License Manager of the Primary License Manager. The Backup License Manager resides on a server hosted by the Turnpike Enterprise.

22.4.5 Esri Technical Support

Representatives from each user group are included in a list of authorized personnel that may call Esri for Technical Support. This list is maintained by FDOT PRIMARY and Esri.

22.5 ENTERPRISE GIS FRAMEWORK

The GIS Framework (the Framework) was developed by the Department in support of enterprise GIS decisions from the GIS FSC as directed by the Executive Board. The Framework provides a common set of GIS commands and capabilities that are to be used in the development of FDOT GIS websites. By using the Framework, GIS workgroups in the Districts and CO develop and share customized tools and features. This ability to leverage the GIS expertise throughout the Department is a critical component of the goals and objectives outlined in the GIS Strategic Plan.

The Enterprise Framework handles user interface generation, security, and user interaction. GIS Tools/Components implement application logic only, relying on the Enterprise Framework to handle other details listed above. Capabilities created on the Framework shall use Web services and/or the ArcGIS Server Javascript API. This approach allows the Department to leverage all Central Office and District development efforts and reduce duplication.

The Framework shall be updated, maintained and distributed by the BSSO, in collaboration with the FDOT GIS Coordinator, the GIS FSC and all Department GIS developers.

22.6 ARCGIS ONLINE

GIS@FDOT is the portal for FDOT's organizational account for ArcGIS Online. ArcGIS Online is a subscription based service, therefore a limited number of members and usage credits are available. Accounts shall be disseminated across offices and Districts based on current desktop license usage and business needs. There are four levels of user privileges established for members of GIS@FDOT: Account Administrator, Local Administrator, Internal Publisher, and Internal User. Each District and functional area shall have at least one local administrator to assist with user and content management.

Refer to the GIS@FDOT_Best Practices document available on the FDOT GIS SharePoint site.