

22N - SURVEYS AND MAPPING

(Except for Real Estate Purposes)

The Surveys and Mapping effort will use Geographic Information Systems (GIS) as an integral tool permitting the spatial analysis of hydrologic models, environmental evaluation, siting analysis, estuary models, watershed assessment, circulation models, and cultural data. GIS allows the management of large datasets, more detailed analysis, and the exploration and evaluation of more alternatives than would be possible by the traditional methods in the same amount of time. The USACE, SJRWMD and other CERP sponsors have agreed upon the following datums to be utilized for all CERP projects: NAVD 88 as the vertical datum reference and NAD 83/90 as the horizontal datum reference.

Spatial data will be incorporated from other projects, obtained from other agencies, or purchased as necessary.

GIS Data Collection - This activity consists of researching and acquiring data in the form of ASCII, analogue, cell-based data, raw digital, scanned data, other mapping systems, traditional survey data, GPS coordinates, high altitude aerial photography, satellite imagery, and existing digital data for GIS analysis of projects as required during the feasibility study. It can be assumed that depending on the type of data and the source organization, charges may be incurred for needed data following an inventory. Whenever possible, imagery should be converted to digital imagery and made available through an image library. Types of data to be researched include but are not limited to:

- Surveys for canal alignments/cross-sections and topography
- EOSAT scenes for the project area
- Corrected/field truthed landuse maps 2000
- Complete survey of monitoring wells, x,y coordinates, ground elevation and section ties, at each site, as well as stage data, rainfall, estuarine site, etc.
- Other surveys of project area, aerials, survey maps, etc.
- Maps of other agency plans for project area.
- Data and information on site specific endangered species
- Updated or additional census tract data
- Available data bases for GAP
- Permit data from USACE and SJRWMD Regulatory Branches
- Land use data - FLUCCS – The latest Level 1-4 coverage will likely be needed, depending on the analysis project.
- Updated topographic data for feasibility study (LIDAR or other remote-sensing method)
- Orthophotoquads of all of study area produced from CIR photography and available on CD-ROM or the Web.
- Map created from Spot 1999/2000 imagery of area covering east central Florida from Daytona south to West Palm Beach
- Additional and/or updated vegetation data for project area

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- Available data bases from the Nature Conservancy
- Climatological data from NOAA
- Land cover from Landsat imagery with vegetation as well as land cover types
- Obtain digital historical Imagery (i.e., 1940's 6.66 meter military photos)

Bathymetric Survey - Additional bathymetric transect surveys of the IRLN FS may be required. Existing survey data will be utilized, where possible. The data will be used to develop circulation and water quality models. Additionally, the data will be used in conjunction with on-going water quality and seagrass studies to document the relationship between depth, water quality, photosynthetically active radiation (PAR), and seagrass distribution.

Seagrass Mapping - The seagrass mapping data will be used to determine spatial extent of the beds and support the evaluation of environmental benefits of proposed alternative plans. Existing mapping data will be utilized, where possible, including maps by Harbor Branch and Brevard County that are not now available as a GIS product. Hyperspectral imagery will be investigated as a tool for routinely monitoring seagrass and distinguishing seagrass from algae. Assuming the procedure is successful, the protocol will be adopted as standard mapping procedure.

Quality Assurance - This activity involves all aspects of quality review of surveyed, collected, acquired data and information before any conversion including general review for data quality, and detailed review for proper attribution and classification. In addition, quality control of data bases after construction will include checking validity of surveyed, collected, acquired and existing data using the software capabilities, graphic display to check for data spikes and segment crossovers and software checking for label and node errors.

Data Base Conversion and Construction - This activity involves converting the acquired data in its existing form, performing the necessary steps to create a usable format compatible with the software, including any digitalization, reformatting, and scanning of data if necessary and constructing final data bases. Any final data base design that exceeds \$250K requires special permission for Federal involvement.

GIS Analysis and Map Production - This activity includes analysis of existing or acquired data and hydrologic and/or environmental models and creating maps, tables and charts as graphic displays using either ARC/Info, ArcView, Erdas, or additional software packages to be purchased as needed to complete the analysis. Develop Decision Support System that will allow geospatial referenced access of all data sets. Develop website interface for the database and maps, charts, tables, graphics, and illustrations for report preparation and public awareness and involvement. Develop a website data clearing house to allow data access for all team members and the public.

Data Management and Metadata Standards - This activity involves the organization of geospatial data bases into the Federal Geographic Data Committee's Content Standards for Digital Geospatial Metadata as instructed by Executive Order 12906, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure.