Lee County Enterprise GIS Support

GIS Data Management:

GIS Staffing Positions:

- GIS Operations: 5 full time GIS staff
- Utilities: 3 full time GIS staff
- Human Services: 1 full time GIS staff
- Planning: 1 Planning staff doing GIS 75% of their time

Manage Spatial GIS Data:

- 530 spatial layers edited and maintained by 9 Lee County Departments
- 30 spatial layers (property based) provided by Lee County Property Appraiser
- 130 spatial layers provided by Other Agencies/Cities

Aerial Photography (~4 TB):

- Geo-rectified (overlays with county GIS data): 1953, 1986, 1998, 2002, 2005, 2007, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016
- Scanned Images (FDOT): 1968, 1972, 1975, 1979, 1986, 1990, 1996
- Scanned Section Maps (Property Appraiser): 1966 – 2008 (~ every 2 yrs)

GIS System Administration:

- GIS Desktop Licenses: 65, ArcGIS Online Named User Licenses: 419 (261 in use)
- Manage Lee County ArcGIS Online Organization – provides cloud based GIS access to staff and public, viewing and editing functions.
- Manage the replicas/replications of data from EDIT databases to Read-Only databases hourly/ nightly.
- Manage data retrieval from Property Appraiser's GIS nightly
- Process property data to combine GIS and CAMA data nightly
- Manage ArcGIS Desktop, ArcGIS Enterprise Data Servers, ArcGIS Enterprise Web Servers, and Internet Web Servers, schematic attached
- Manage user accounts
- Manage a separate development server environment including web server and enterprise database

GIS Training/Outreach:

- Teach 2 day Intro to ArcGIS Desktop
- LeeGROWS presentations
- Organize the SWFL GIS User Group and yearly GIS Symposium

Interactive Websites (public access and county staff): http://leegis.leegov.com/mapsandapps
(windows) = works on windows operating system
(cloud) = works on any device and operating system

- **Lee SpInS** (Lee Spatial Information System) (windows): flagship interactive GIS website. Data categories include: parcels/land records, property sales, infrastructure, zoning/development orders, district boundaries, planning districts, political boundaries, public safety, environmental, utilities. Over 100 GIS layers, 11 years of aerial photography. Access to Property Appraiser Property Report, Districts Query (reports 65 layers of information about your property), Flood Zone Report, Zoning Review Notes, Tidemark's E-Connect (permit information).
- **Find My Property** (cloud): properties, cities, planned developments, development orders, zoning, connections to Property Reports, eConnect, Districts Report, Flood Report
- **Find My Commissioner** (cloud): county commissioner districts
- **Find My Flood Zone** (cloud): FEMA flood zones, LOMA (properties with flood exemptions)
- **Find My Preliminary Flood Zone Revisions** (cloud): affected Ten Mile Canal FEMA panels
- **Find My Evacuation Zone** (cloud): EOC evacuation zones
- **Find My Bus** (cloud): bus routes/schedules, bus stops and amenities, ADA corridor
- **Find My Waste Pick-up Days** (cloud): garbage, recycling, yard waste collection days
- **Find My Elevation Certificate** (cloud): public access of elevation certificates for Unincorporated Lee County
- **CIP Spotlight** (cloud) (coming soon): all CIP projects by Department are mapped and clickable for more detailed information. CIP and Bike/Ped project list presented.
- **Flood Zone Comparison** (cloud): compare current to pre-2008 flood zones
- **Road Maintenance System** (cloud): who maintains the roads, location, functional classification, speed limit, ROW width, commissioner district
- **Control Points and Control Stations** (cloud): locate horizontal and vertical survey control points and recovery sheets
- **Lee County Community Profiles** (cloud): highlights 6 incorporated areas, and 6 unincorporated communities, points of interest, major businesses, traffic counts, schools, subdivisions. Provides reports for Community Narrative, Market Profile, Demographics, Business Climate Profile, Household Profile, link to available Property Search, Photo Gallery and Links to points of interest.
- **Lee County Facilities** (cloud): access to all county owned/maintained facilities including buildings, lands, parks and preserves
- **Lee County Golf Courses** (cloud): all golf clubs, course, tees, greens, hole and EMS access locations are identified
- **Estero Disc Golf Course** (cloud): tee, path, basket, distances and par information, includes pictures
- **Complete Streets Candidate Evaluator** (windows): candidate project areas and existing surrounding transportation assets (bus stops, sidewalks, bikeways, park and ride), schools, points of interest, green spaces, and crash data. Connects to DOT Project Data Sheets.
- **Charlotte Harbor National Estuary Program Special Places** (cloud): publicly accessible environmental places within the Charlotte harbor National Estuary area. Done in support of the CHNEP Program.

- **Surface Water Quality** (windows): Lee County Surface Water Quality Viewer allows users to choose sampling location(s) from a list or map, choose analyte(s), aggregate by month or year, set start and end dates, and then graph the sampled quantity of the analyte(s). Users can also download raw data in Access format for all sample locations, individual sample locations, all locations within a watershed or drainage system, or a combination of the two, and all analytes or selected analyte(s). The entire database currently holds over 1 million records, reflecting 155 locations, 100 analytes, from 1989 - present.
- **Find these interactive maps here:** http://leegis.leegov.com/mapsandapps

Interactive GIS Downloadable Website – Open Data Portal (coming soon): Lee County GIS provides citizens and businesses access to Lee County's published GIS data allowing them to preview, filter, sort, and download live spatial data as a shapefile or kml for GIS applications, or as a csv for spreadsheets and tables. Data categories include: Boundaries, Elevation, Flood Hazard, Land Records, Natural Resources, Planning, Points of Interest, Public Safety, Recreation, Transportation, and Utilities.

Departmental GIS Support:

==Application== / ==Data Development== / ==System Automation== / ==System Integration== / ==Future==

Administration

- GIS Operations provide primary mapping support – 36 maps since Oct 2013
- ==Application:== **CIP Spotlight** (cloud): all CIP projects by Department are mapped and clickable for more detailed information. CIP and Bike/Ped project list presented. http://leegis.leegov.com/cip
- ==Future==: Spatial Operations Dashboard to monitor activities and events, and assess the status and performance of daily County operations.

Animal Services

- GIS Operations provide primary mapping support
- ==Future:== Spatial Operations Dashboard to monitor activities and events, and assess the status and performance of daily operations. Interface with Chameleon Software.
- ==Future:== Conversion of Release of Stray Dog and Cat Custody forms into Survey123 GIS digital collection method.

Community Development

- GIS Operations provide general mapping support – 74 maps since Oct 2013
- GIS layers updated by Community Development staff
- ==Application==: Business Analyst Online (cloud): Access to ESRI National Business and Census data. Demographic, lifestyle, behavioral, and spending data, maps and reports with location-driven analytics. http://www.esri.com/software/businessanalyst/get-started/saas
- ==Accela== (new Tidemark) is GIS centric, critical support from GIS.
- ==Future==: After Accela upgrade, Spatial Operations Dashboard to monitor activities and events, and assess the status and performance of daily operations for all Community Development divisions.

Building Inspections

- ==Application:== ARM360 Damage Assessment Mobile App (windows): during a hurricane this provides structural damage assessment field collection entry forms, for everyday use this provides property information with GPS devices.
- ==Automation==: Inspection Request Assignments. Automated report of inspections grouped by type and inspector. At 4AM, GIS function is performed that assigns called in inspection requests to inspectors based on geographic zones.
- ==Future:== provide routing directions/maps for officers built into Accela.

Code Enforcement

- **Application:** ARM360 Damage Assessment Mobile App (windows): during a hurricane this provides structural damage assessment field collection entry forms, for everyday use this provides property and zoning information with GPS devices.
- **Application:** Turtle Nest/Lighting Violations Field Collection App (cloud): facilitate collection of turtle nests, relocated nests, disorientation, false crawls, lighting violations and obstacles. Ability to assign an address to a violation while collecting data on the beaches of Lee County after 9pm during turtle season. App is also by Turtle Time, Fort Myers Beach, Sanibel, and Lover's Key staff.
- Future: provide routing directions/maps for officers built into Accela.

Development Services

- **Application:** Environmental Sciences Field Collection App (cloud): facilitate collection of field data while performing inspections to enforce Lee County environmental land use regulations. These data include: bald eagle nest, exotic vegetation, missing shrub from permitted plan, bear track, silt fence, illegal clearing.
- **Automation:** Impact Fee Generator. When new development orders are entered into Tidemark, the system runs an overlay of various GIS based impact fee regions (for categories such as transportation, parks and fire service) and special study areas to calculate the impact fees on-the-fly.

Flood Plain Management

- Data Development: As LOMRs and LOMAs (Letters of Map Revision/Amendment) are approved through FEMA, GIS staff updates the flood zones and floodways GIS layers that are used in the Flood Report and the Find My Floodzone app.
- Data Development: Community Rating System (CRS): The County receives credit towards reducing flood insurance premiums for residents in unincorporated areas by performing certain activities. A series of maps and data are generated to depict low density zoning areas, preserved open space, Conservation 20/20 acquisitions, conservation easements, wetlands, water control/Community Development districts, current land use, future land use, critical facilities and drainage system maintenance within the regulatory floodplain for unincorporated Lee. Spatial analysis between layers is performed to derive acres and miles, and produce spreadsheets of these categories and facilities within the 100-year floodplain.
- **Application:** Find My Elevation Certificate (cloud): access to elevation certificates generated from FEMA Flood Insurance processes and elevation certificates generated through building permitting processes. http://leegis.leegov.com/mapsandapps

Planning

- Comp Plan and other Planning maps, analysis and GIS layer updates performed by Planning GIS staff.

Zoning

- ==Application:== Advanced Zoning Editing Tool (desktop) – allows zoning area changes and notes tracking. Historical zoning notes are stored in GIS, new notes are referenced from Tidemark/Accela.

County Lands

- GIS Operations provide primary mapping support: 600 maps since Oct 2013
- ==Application:== County Owned lands (cloud): County owned lands including Conservation 20/20 acquisitions.   http://leegis.leegov.com/countyownedlands
- ==Data Development:== Maintenance of 6 GIS data layers

Economic Development

- GIS Operations provide primary mapping support – 13 maps since Oct 2013
- ==Application:== Lee County Community Profiles (cloud): highlights 6 incorporated areas, and 6 unincorporated communities, points of interest, major businesses, traffic counts, schools, subdivisions. http://leegis.leegov.com/mapsandapps
- ==Application:== Business Analyst Online (cloud): Access to ESRI National Business and Census data. Demographic, lifestyle, behavioral, and spending data, maps and reports with location-driven analytics. http://www.esri.com/software/businessanalyst/get-started/saas

Facilities

- GIS Operations provide primary mapping support – 41 maps since Oct 2013
- ==Data Development:== Maintenance of 1 GIS data layer
- ==Application:== Lee County Facilities (cloud): access to all county owned/maintained facilities including buildings, lands, parks and preserves. http://leegis.leegov.com/countyfacilitiesviewer
- ==Future:== Spatial facilities app to track interior spaces, cubicles, county staff locations and assigned computer and phone equipment.

Fleet Management

- No current GIS support
- ==Future:== Operations Dashboard to display levels of gas in tanks.
- ==Future:== GeoEvent vehicle tracking and analysis.

Human Services/Veterans Services

- Human Services maps, analysis and GIS layer updates performed by Human Services GIS Coordinator. Role is to substantiate the need for new department programs, provide maps/data for current department areas, help enhance department grant applications and assist external customers and other county departments with human service analysis. Primary data used is population, transportation, economic, neighborhood assets, crime, and health data.
- **Application:** ARM360 Damage Assessment for Human Services and Public Health Mobile App (windows): during a hurricane this provides human needs and public health assessment tools.
- **Application:** Business Analyst Online (cloud): Access to ESRI National Business and Census data. Demographic, lifestyle, behavioral, and spending data, maps and reports with location-driven analytics. http://www.esri.com/software/businessanalyst/get-started/saas

ITG

- GIS Operations provide primary mapping support: 22 maps since Oct 2013
- **Data Development:** GIS support for fiber location asset layers.
- **Application:** Fiber Viewer (cloud): viewable access to county fiber structures, conduit (pipe size, number of pipes), and cable (owner, fiber count, strand usage). http://leegis.leegov.com/fiberviewer
- **Future:** Spatial facilities app to track interior spaces, cubicles, county staff locations and assigned computer and phone equipment.

LeeTran

- LeeTran staff provide primary mapping support
- **Application:** LeeTran Bus Stop Inventory Field Collection App (cloud): facilitates field collection and updating of bus stop locations and amenities including: shelters, benches, ADA accessible, bike rack, sidewalk, etc.
- **Application:** Find My Bus (cloud): displays bus routes/schedules, bus stops and their amenities, ADA corridor. http://leegis.leegov.com/mapsandapps
- Future: **Cartegraph** Operations Management System (OMS):   OMS is GIS centric, all users log in through ArcGIS Online. Basemap and all locational asset layers provided by GIS for LeeTran. LeeTran asset data: bus routes, bus stops with asset inventory.

Library

GIS Operations provide primary mapping support

Management and Budget

- Update FL Department of Revenue Communications Tax address database, allowing the correct collection of communication taxes for Unincorporated Lee County.

Natural Resources

- GIS Operations provide general mapping support – 19 maps since Oct 2013

  Marine Program

  - **Application:** Marine Sign Inventory App (windows): facilitates field collection/maintenance of marine signs, buoys, and navigational markers.
  - **Application:** Seagrass/Dune Field Collection App (cloud): facilitates field collection of marine features.
  - **Application:** Survey123 GIS collection method for Construction Observation Reports for beach re-nourishment monitoring.

  NPDES

  - **Application:** NPDES Field Collection App (cloud): facilitate collection of permitted outfall data while referencing existing drainage structures. These data include: pro-active inspections, violations, marked inlets, major outfalls, and requests for action.

  Surface Water

  - **Application:** Surface Water Field Collection App (cloud): facilitate collection of field data while referencing existing drainage structures. These data include: culverts, gates, drainage blockages, nuisance vegetation, complaints, and vandalism.

  Wells

  - Link to Tidemark to obtain updated permitted well locations and information.
  - **Data Development:** GIS support for permitted well location updates from Tidemark.
  - **Application:** Permitted Wells Viewer (cloud): allow view access to all permitted wells. http://leegis.maps.arcgis.com/apps/Viewer/index.html?appid=8a6bbd15ae7c492aa32d2fe1086495aa

Parks & Recreation

- GIS Operations provide primary mapping support: 28 maps since Oct 2013

  Conservation 2020

  - **Application:** Cons2020 Viewer App (cloud): provides all GIS layers for Conservation 2020 properties to the staff in the field. These include: boundary signs, fences, gates, management trails, public trails, plant communities, soils, management units.
    http://leegis.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=6908d83754994225bd61f7595046f112
  - **Application:** Cons2020 Field Collection App (cloud): facilitate collection of field data while working on 2020 properties. These data include: culverts, fence issues, gates, trash, species of concern, boundary issues, fire line maintenance issues, burned areas.

  Parks & Recreation

  - **Application:** Calusa Blueway Field Collection App (cloud): facilitates updating of blueway marker locations and conditions, blueway trail location, and blueway highlights such as kayak shops, boat ramps, and beaches.
  - Future: **Cartegraph** Operations Management System (OMS): OMS is GIS centric, all users log in through ArcGIS Online. Basemap and all locational asset layers provided by GIS for Parks & Rec. Parks & Rec asset data: park assets (bike rack, drinking fountain, grill, picnic table, slide, disc golf, playground equipment), baseball fields, soccer fields, volleyball courts, etc.

Public Safety

- GIS Operations provide primary mapping support – 105 maps since 2013
- **Future:** GeoEvent vehicle tracking and analysis. Use live streaming data locations such as EMS vehicles to create live service drive time analyses.

  Emergency Management

  - Primary mapping support: 66 maps since Oct 2013
  - **Data Development:** Maintenance of 12 GIS data layers
  - **Application:** First Impression Damage Assessment (FIDA) (cloud): form based reporting tool for high level view of damages. Report on damaged areas, bridges, intersections, potential hazards, power lines, streets, structures, and waterways.
  - **Application:** ARM360 Damage Assessment Mobile App (windows): during a hurricane this provides structural damage assessment field collection entry forms, providing real-time situational awareness.

- **Application:** ARM360 Damage Assessment Viewer (cloud): interactive website showing all collected damage assessments from ARM360 and FIDA apps. Assessment Summary ($$), Running Incoming Assessment List, and Reports available.
http://leegis.leegov.com/ARM360Viewer/
- **Application:** LeeAlert (free downloadable app): provides the public with their evacuation zone, live active evacuation areas, open shelters, and links to shelter webpage.
http://leegis.leegov.com/leealert
- **Application:** EOC Status (cloud): interactive website allowing EOC staff to change status of shelters open/closed, showing all Emergency Assets (Geo Division EOCs and secondary EOCs, PODs, staging areas, disaster recovery centers, comfort stations, emergency bus pick and staging locations, boat ramps, heliports)

Emergency Medical Services

- **Application:** AED Inspection App (cloud): facilitates collecting quarterly inspection data for 100+ AEDs in County facilities.
- **Application:** EMS Facilities and Staffing Project (cloud): interactive map showing all EMS stations linked to their facility reports and lease agreements. Display current building permit activities to locate new population expansion areas in support of EMS station future siting. Project On Hold   http://leegis.leegov.com/growthplan
- **Application:** Edison Parade, Fort Rock, New Year's Eve (cloud): interactive apps that display and allow for updates of critical facilities during special events. These include: road closures, MRU locations, egress points, medical tents, staging areas, command post, parking, etc.

Emergency Dispatch

- Primary mapping support: 82 maps since Oct 2013
- **Application:** Marine Emergency Response Team (MERT) (cloud): provides a search grid for marine response and allows for activity and responder assignment from each grid. Used by Lee and Collier County Fire Districts and Coast Guard.
- **Data Development:** Maintain all 911 addresses for all 108 golf courses and their assets. These include all clubhouses, tees, fairways, greens, and putting greens. Over 8,400 locations for emergency dispatch to golf courses.

E911

- **Application:** NG911 (Next Generation 911) Address Creation/Verification (cloud). Facilitates the addition of required individual addresses for all apartments, commercial suites, parcels, condos, duplexes, and triplexes.

Fire District Support

- GIS Operations provide primary mapping support.
- ==Application:== First Impression Damage Assessment (FIDA) (cloud) - survey app to easily collect damages reported for areas, bridges, intersections, potential hazards, power lines, streets, structures, and waterways.
- ==Application:== Hydrant Management System (HMS) (cloud) – allows admin fire staff to add, remove, move hydrants, allow field fire staff to find hydrants, record maintenance, enter flow test information (flow pressures are then calculated via a model that runs on our servers 3 times a day).
- ==Application:== Pre Incident Planning System (PIPS) (cloud) – allows fire staff to add pre-plan assets for commercial properties including suppression systems fire access points, utility shutoffs, hazards, and building contact info. Supports shared response between neighboring fire districts.
- ==Application:== Marine Emergency Response Team (MERT) (cloud): designed a search grid for marine response and supporting interactive app that allows for activity assignment from each grid. Used by Lee and Collier County Fire Districts and Coast Guard.
- ==Application:== Golf Course 911 Address Verification (cloud) - – for our 108 golf courses, we have located the closest access address for each of the 8,464 assets (tee boxes, fairways, greens, chipping greens, clubhouses). No longer a call automatically dispatched to the club house wasting vital minutes. The fire districts verify these addresses to make sure access from the address to the asset is still viable.

Risk Management

- No current GIS support

Solid Waste

- GIS Operations provide primary mapping support **– 30 maps since Oct 2013**
- ==Application:== Find My Waste Pick-up Days (cloud): garbage, recycling, yard waste collection days are easily found after searching for your address.   http://leegis.leegov.com/mapsandapps
- ==Data Development:== Maintain the Waste, Recycling, and Horticultural collection areas by hauler and collection days. Code sub-standard road areas.

Sports Development

- No current GIS support

Transportation

- GIS Operations provide primary mapping support: 200 maps since Oct 2013
- **Data Development:** Maintain complex networked road centerline dataset used for routing.

Engineering/ROW

- **Application:** Complete Streets Candidate Evaluator – candidate project areas and existing surrounding transportation assets (bus stops, sidewalks, bikeways, park and ride), schools, points of interest, green spaces, and crash data. Connects to DOT Project Data Sheets. http://leegis.leegov.com/mapsandapps
- **Application:** Road Maintenance System (cloud): provides who maintains the roads, location, functional classification, speed limit, ROW width, commissioner district. http://leegis.leegov.com/mapsandapps

Traffic

- **Application:** Traffic Operations Center (cloud): provides access to: signalized intersections, maintained roads, cameras.   http://leegis.leeegov.com/trafficassetmanagement
- **Application:** Fiber Field Collection (cloud): facilitates collection of county fiber structures, conduit, and cable.
- **Application:** Fiber Viewer (cloud): viewable access to county fiber structures, conduit (pipe size, number of pipes), and cable (owner, fiber count, strand usage). http://leegis.leegov.com/fiberviewer
- **Cartegraph** Operations Management System (OMS):   OMS is GIS centric, all users log in through ArcGIS Online. Basemap and all locational asset layers provided by GIS for DOT Traffic. Traffic asset data: Flashers, Intersections, ITS Devices, Light Fixtures, Paving (Roads and Sidewalks), Signal Aux Equipment, Signal Cabinets, Signal Controllers, Signal Heads, Signal Monitors, Signs, Supports, Traffic Detector.

Operations

- **Application:** DOT Operations Field Collection (cloud): facilitates field collection and updating of all Operations GIS layers. These include: gates, drainage outfalls, structures, pipes and weirs, landscaped trees, irrigations pipes and heads, curbs, guardrails, sidewalks, fences, and ponds.
- **Cartegraph** Operations Management System (OMS):   OMS is GIS centric, all users log in through ArcGIS Online. Basemap and all locational asset layers provided by GIS for DOT Operations. Operations asset data: Bridges, Crash Attenuators, Curbs, Drainage Pipes, Drainage Structures, Fences, Flow Ways, Gates, Guardrails, Handrails, Irrigation Lines, Irrigation Points, Ponds, Sidewalks, Trees, Walls, and Weirs.

Utilities

- Utility GIS staff provide primary mapping support
- **Data Development:** Maintain complex geometric networks for Water Facilities, Wastewater Facilities, Reclaim Facilities, and Raw Water Facilities distribution systems as well as Fiber Infrastructure.
- **Lucity Asset Management:** Each of the above set of layers are integrated with the Asset / Work Order Management System (Lucity). Lucity runs as an extension inside GIS for the editors. All subsets of each dataset are available as assets to attach via webmap to work orders. The resulting data is used to create high level reporting that illustrates the health of the infrastructure and areas of deficiencies that need to be addressed.
- **WaterGEMS Hydrologic Modeling:** The water facilities dataset is also used to populated the hydraulic modeling software (WaterGEMS). WaterGEMS runs also runs as an extension in GIS. This software allows for the modeling of current supply, demand, and pressure. It also allows for the ability to anticipate growth and for the analysis of what effect a future development may have on the existing system.
- **Future:** Access to live Utility data for field staff via ArcGIS Online. Currently they access locally installed data on laptops. Need to move toward mobile solutions.
- **Future:** Integrate the billing system with the GIS.

VCB

- GIS Operations provide primary mapping support
- **Application:** Accommodations (cloud): interactive website to track number of rooms available 1,2,3 days out after a hurricane.

City/Town/Village GIS Support:

- ARM360 Mobile Damage Assessment
- First Impression Damage Assessment (FIDA) (cloud)
- Legacy Data (cloud) – Fort Myers Beach, Bonita Springs, Estero

School Board Support:

- School Board Citrix GIS Access
- School Choice Distance Ranking Support - Provide service to run models to calculate closest schools (elementary, middle, high) from every address in Lee County using our Network Analyst GIS capability. Output files provided to school district. Provide access to edit school choice boundaries and criteria that effect the closest school models.

3/15/2017