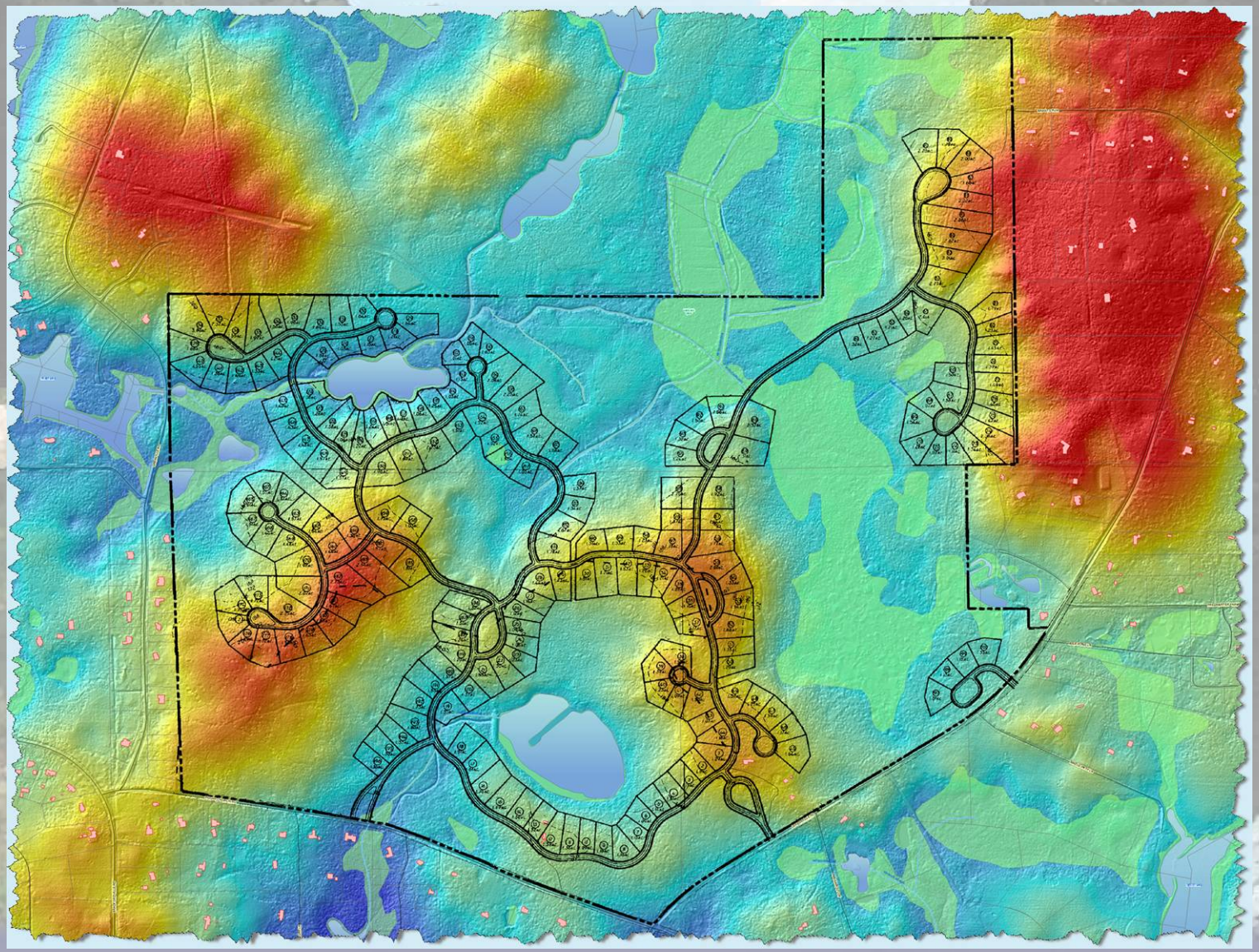
TOOLS DESIGNED WITH THE DEVELOPER IN MIND



Facilitators:

John Kraynak,
Environmental Compliance Director
Leon County Growth & Environmental Management

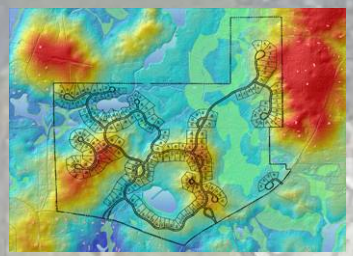
Ned Cake,
Tallahassee-Leon County Geographic Information Systems

Jill Weisman,
Environmental Review Biologist
Leon County Growth & Environmental Management

GEM Technology Overview

- Permits Plus

- Electronic Document Management System

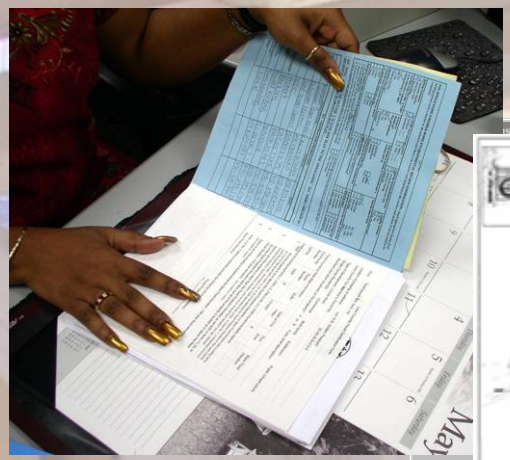


- Geographic Information System

Permits Plus

From application to final inspection the entire process is tracked in Permits Plus

Permit Intake



Subdivision and Site Plan Review

Environmental Inspection

Building Plans Review

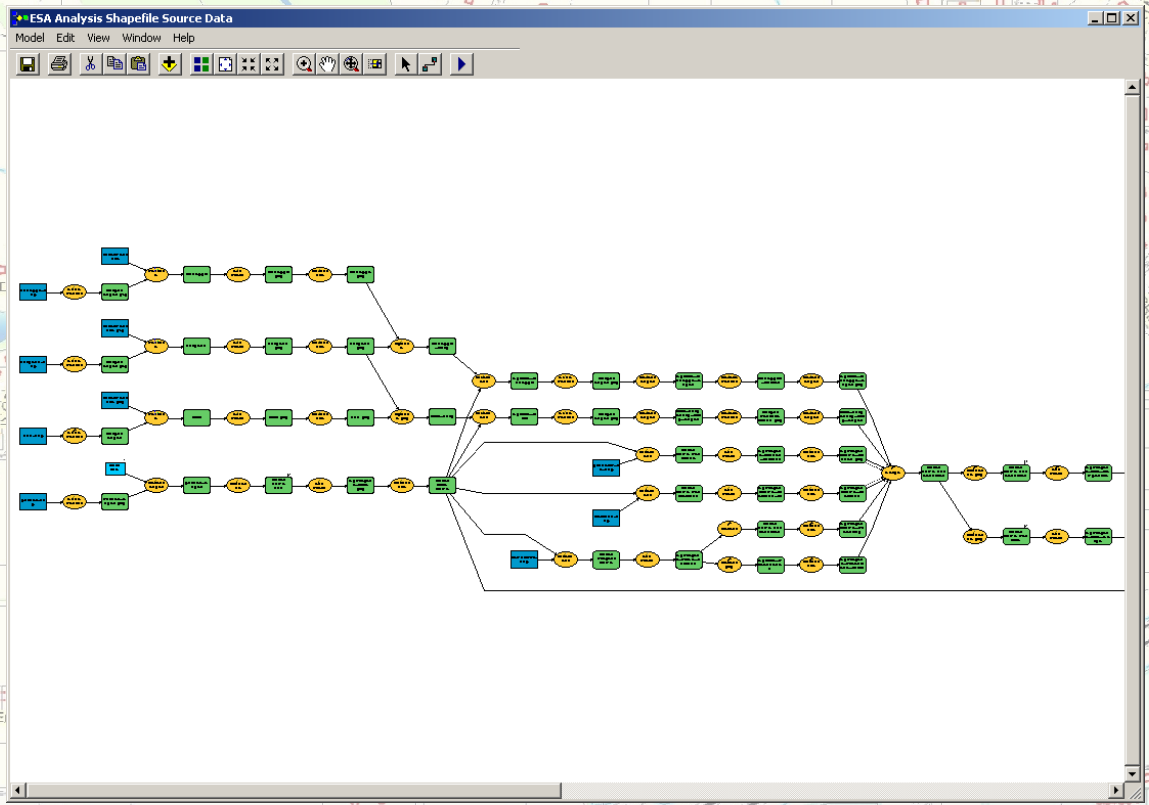
Building Inspection

Electronic Document Management System

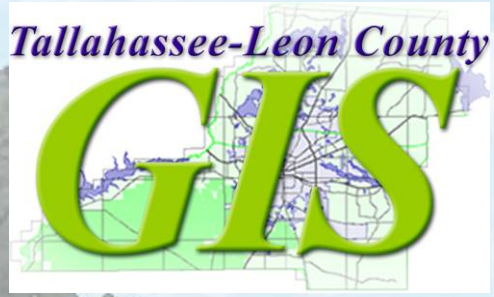
EDMS allows staff to quickly search permit records for electronic files

Geographic Information System (GIS)

"A geographic information system (GIS) is a computer-based tool for mapping and analyzing things that exist and events that happen on earth. GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps." ESRI



Interlocal GIS

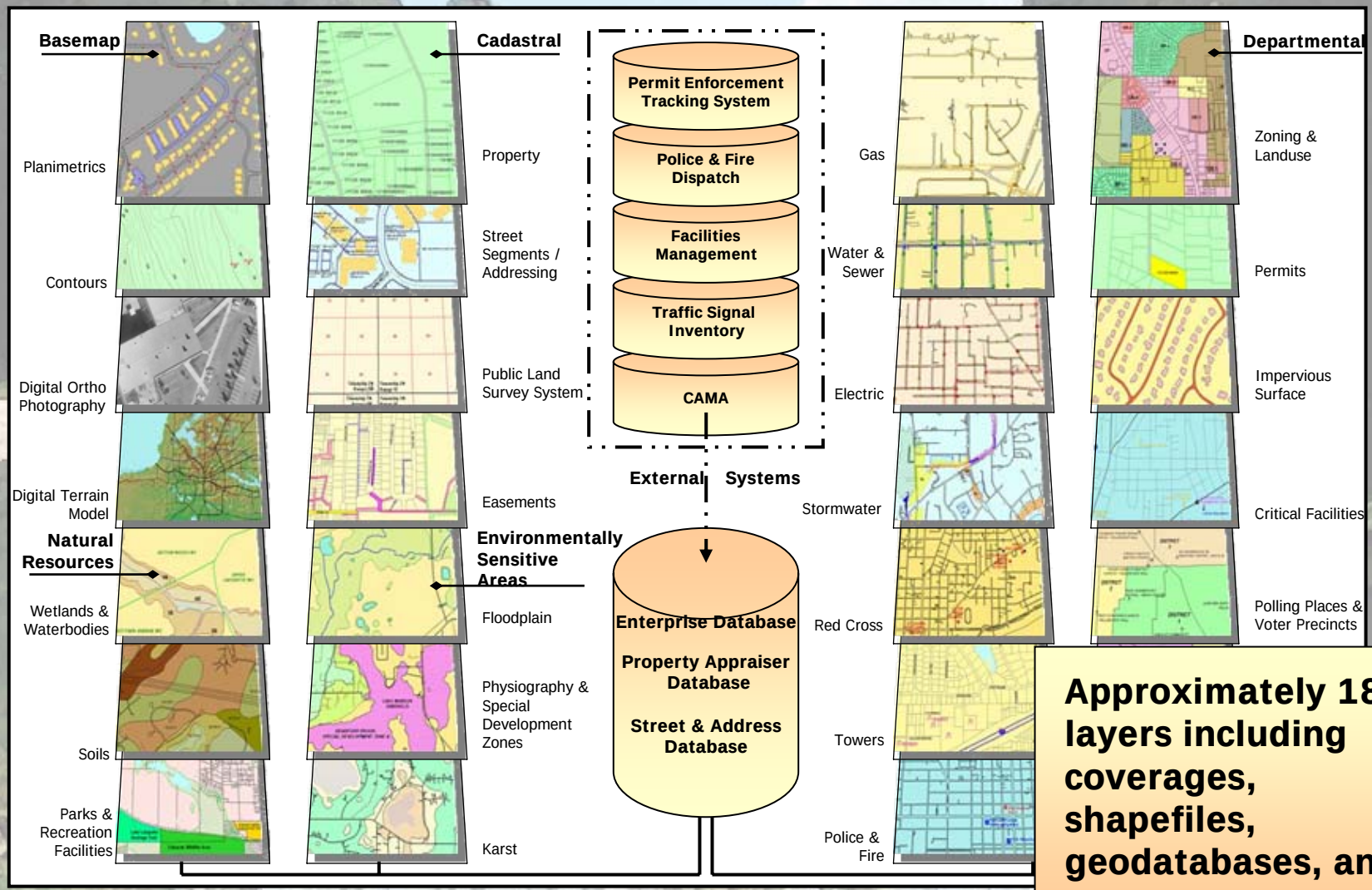


The City of Tallahassee, the Leon County Board of County Commissioners, and the Leon County Property Appraiser's Office entered into an Interlocal Agreement in May, 1990 to create a joint Geographic Information System. The mission of this GIS is to.

- Develop a common base map
- Promote sharing of resources
- Reduce redundancy of data collection and creation
- Provide a mechanism to maintain the base map and other data layers
- Encourage enterprise information management solutions
- Enhance decision making for public officials

Tallahassee-Leon County GIS Model

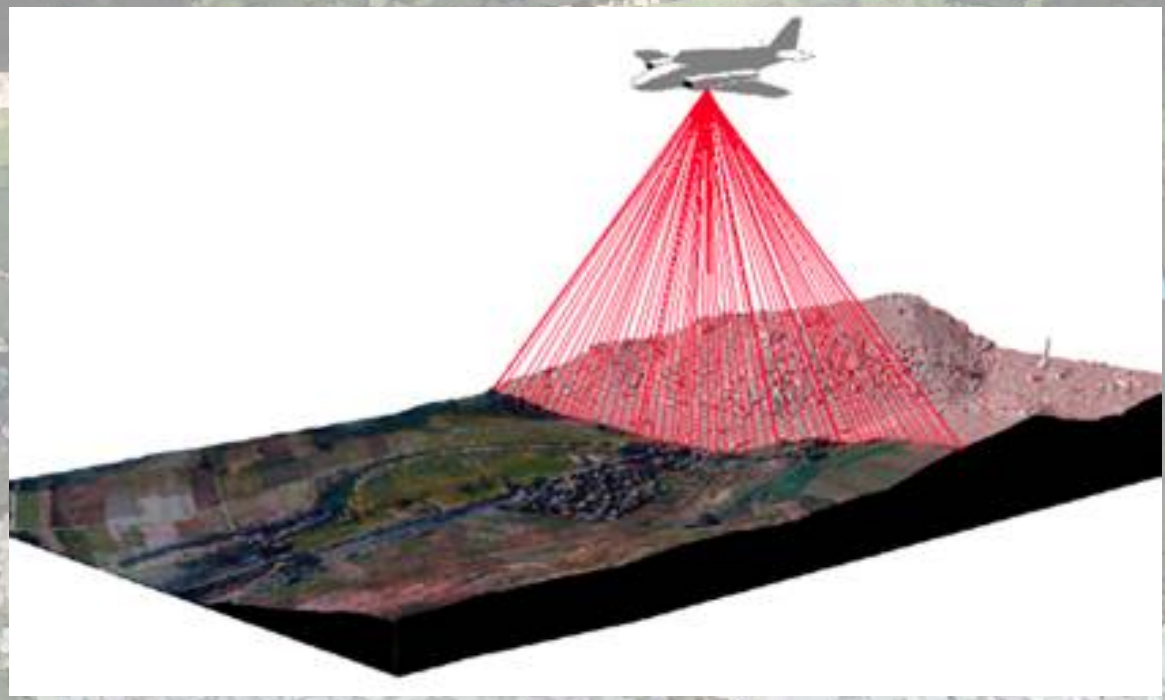
"The Data"



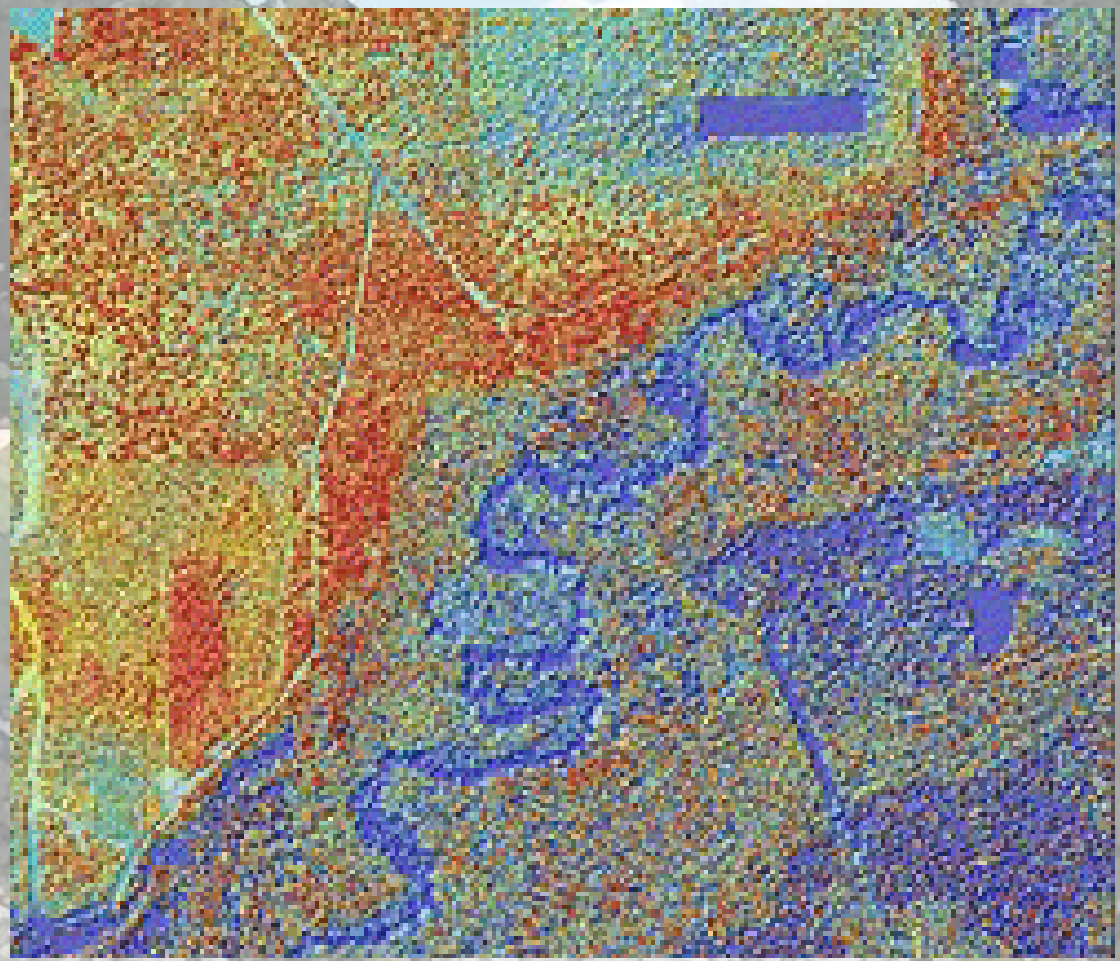
Approximately 180 layers including coverages, shapefiles, geodatabases, and images.

What is LIDAR?

- LIDAR (Light Detecting and Ranging) is the technology of using pulses of laser (light) striking the surfaces of the earth and measuring the time of pulse return.



Generating the LIDAR Surface



How Will the LIDAR Surface Data be Used?

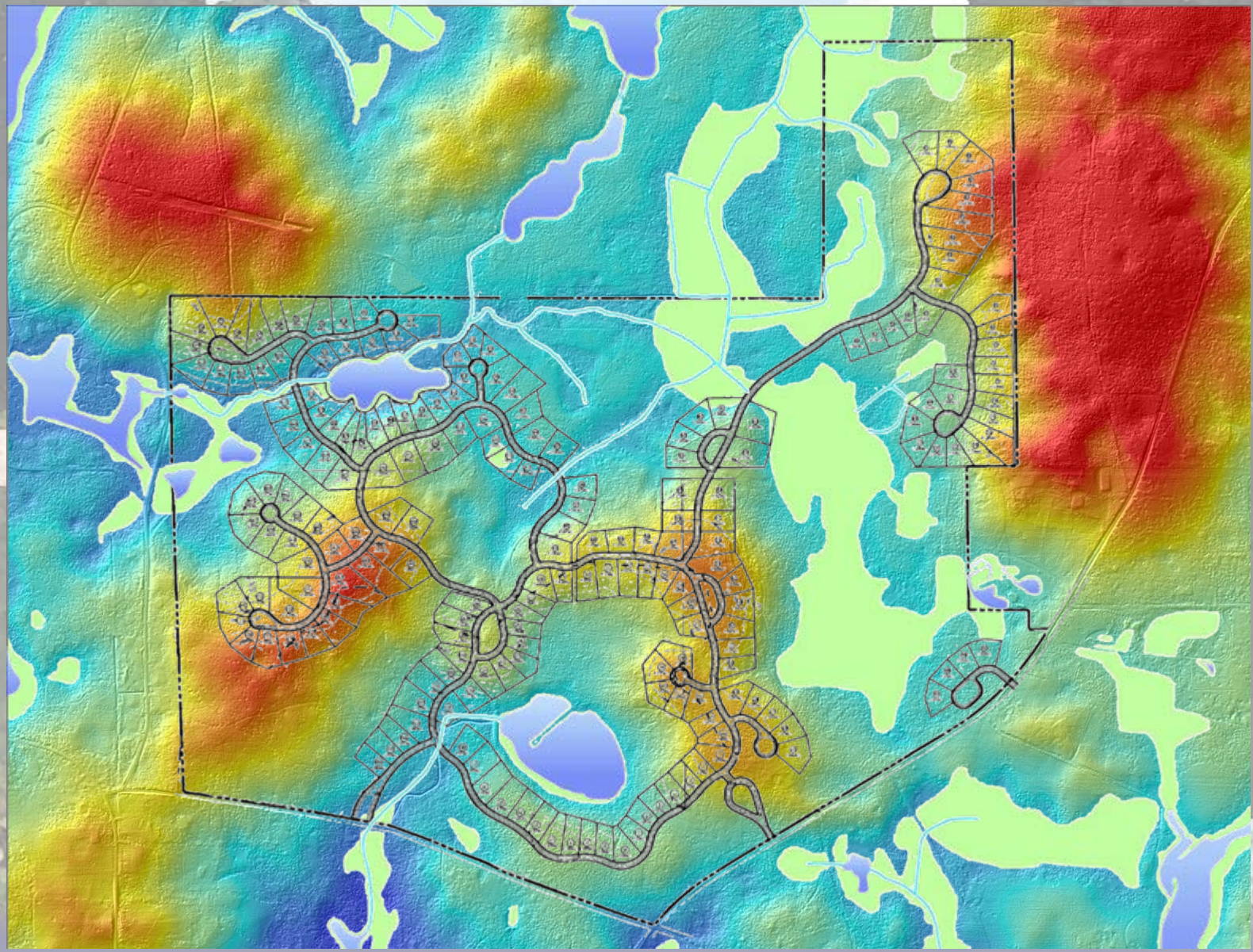
Layers Enhanced By LIDAR

1. Layers Completed:
    a. Severe and Significant Grades
    b. Topographic Contours

2. Layers Under Development:
    a. Drainage Basins
    b. Water Courses
    c. Special Development Zones

3. Layers Under Consideration:
    a. FEMA (FIRM) Flood Maps

GIS Data Layers In Use



Environmentally Sensitive Areas (ESA)

1. Wetlands
2. Watercourses
3. Waterbodies
4. Flood Zones
5. Closed Basins
6. High Quality Successional and Native Forests
7. Listed Species Habitats
8. Karst Features
9. Severe and Significant Slopes
10. Special Development Zones
11. Canopy Road Protection Zones
12. Significant Historical Resources

1988 Original ESA Features Traced Over USGS Quads at 1:24,000

610
609
530
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635
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521

Need for Parcel Specific Data

- Original data good for only general use
- Data could not be accurately scaled to the average parcel
- New data sources became available digitally, facilitating the practicality of more specific mapping
- Need for data collected at the new base map accuracy
- Project began in 1997
- Completed in 2001

Benefits of Creating ESA Data Layers

- Features mapped at larger scale (1:2400)
- Additional features identified
- Overlay features with other data sets (roads, parcels, etc.)
- Use by Government (Commissioners, Emergency Management, Planning, Environmental Review, etc.)
- Information provided to Public (applicants, homeowners associations, educators)

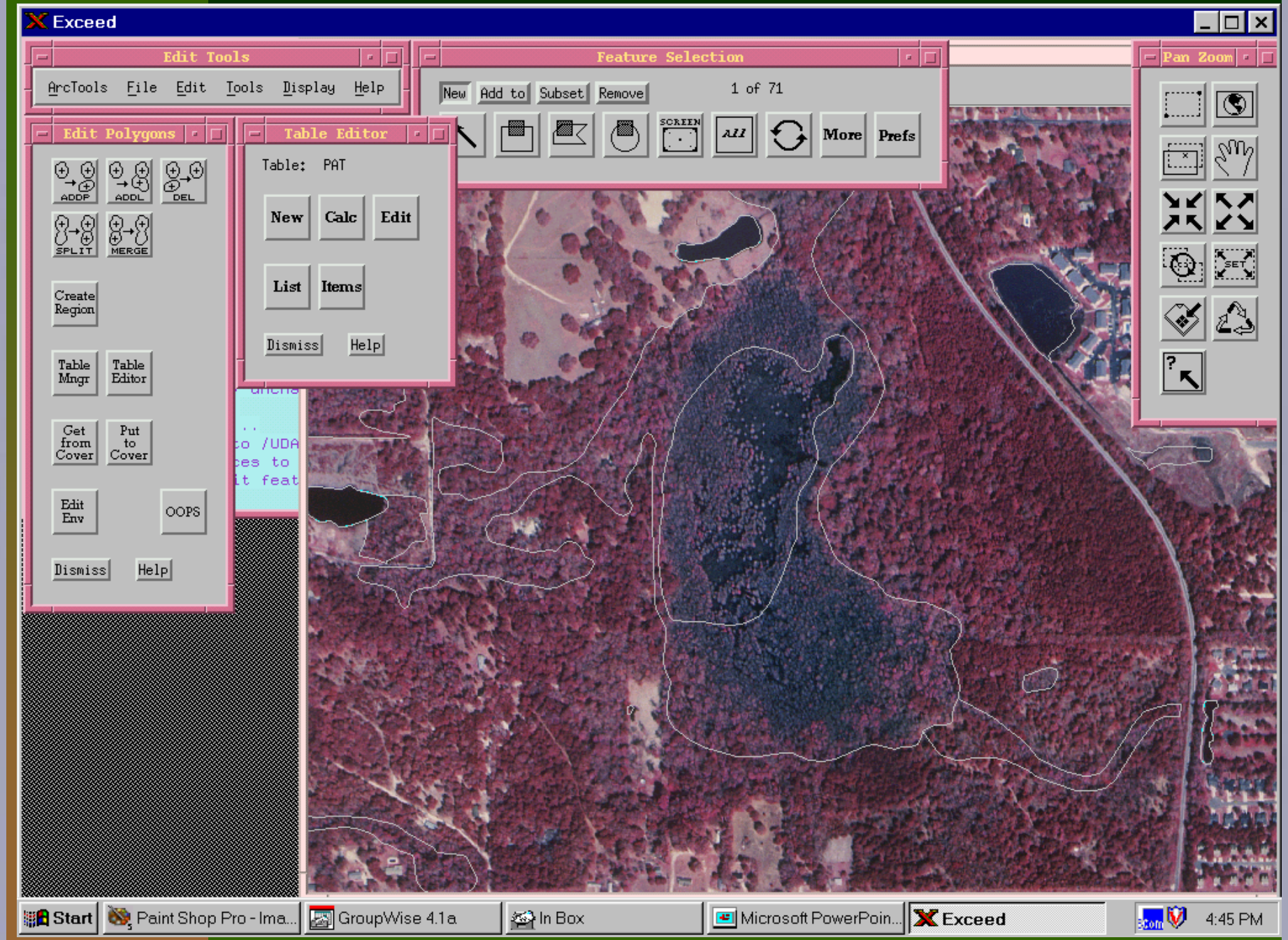
Data Sources

Digital

- NWI
- Soil Survey
- 88/91 Contour Set
- 96 Contour Set
- 1994 False Color Infrared
- 1996 Digital Orthophoto

Other Sources

- 1988 ESA
- 1994 False Color Infrared Prints
- 1987 Panchromatic Prints
- 1990 Panchromatic Prints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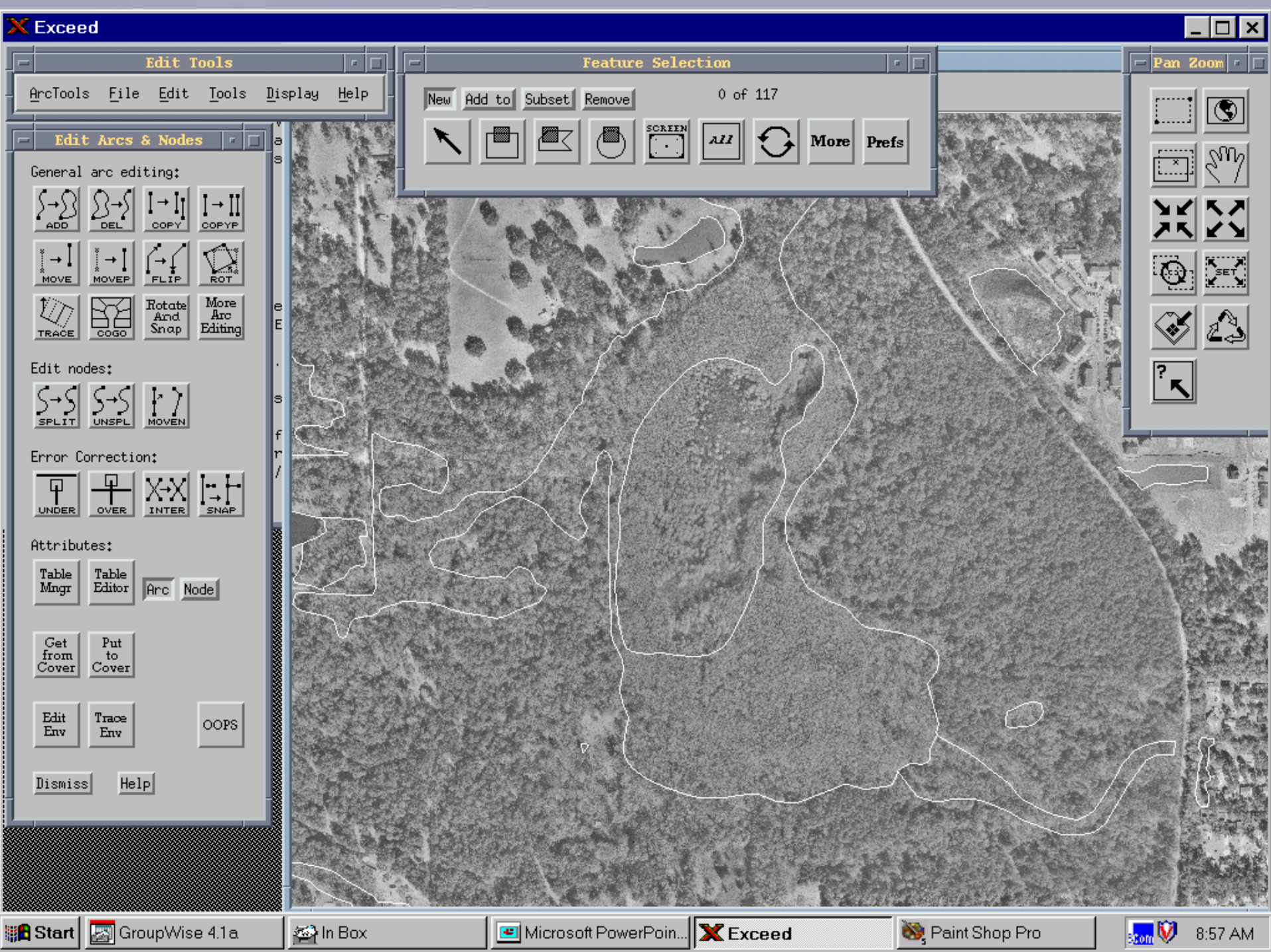
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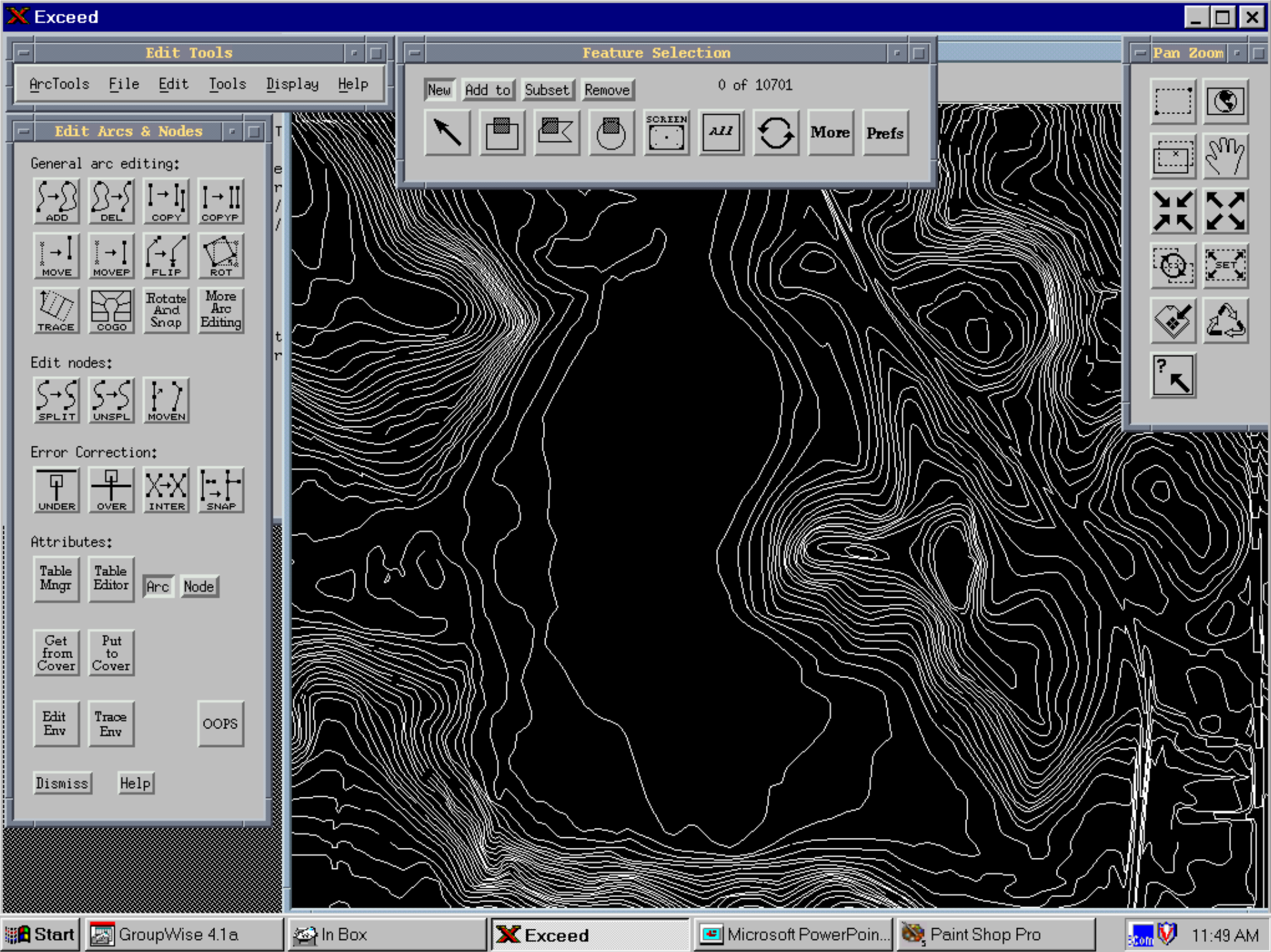
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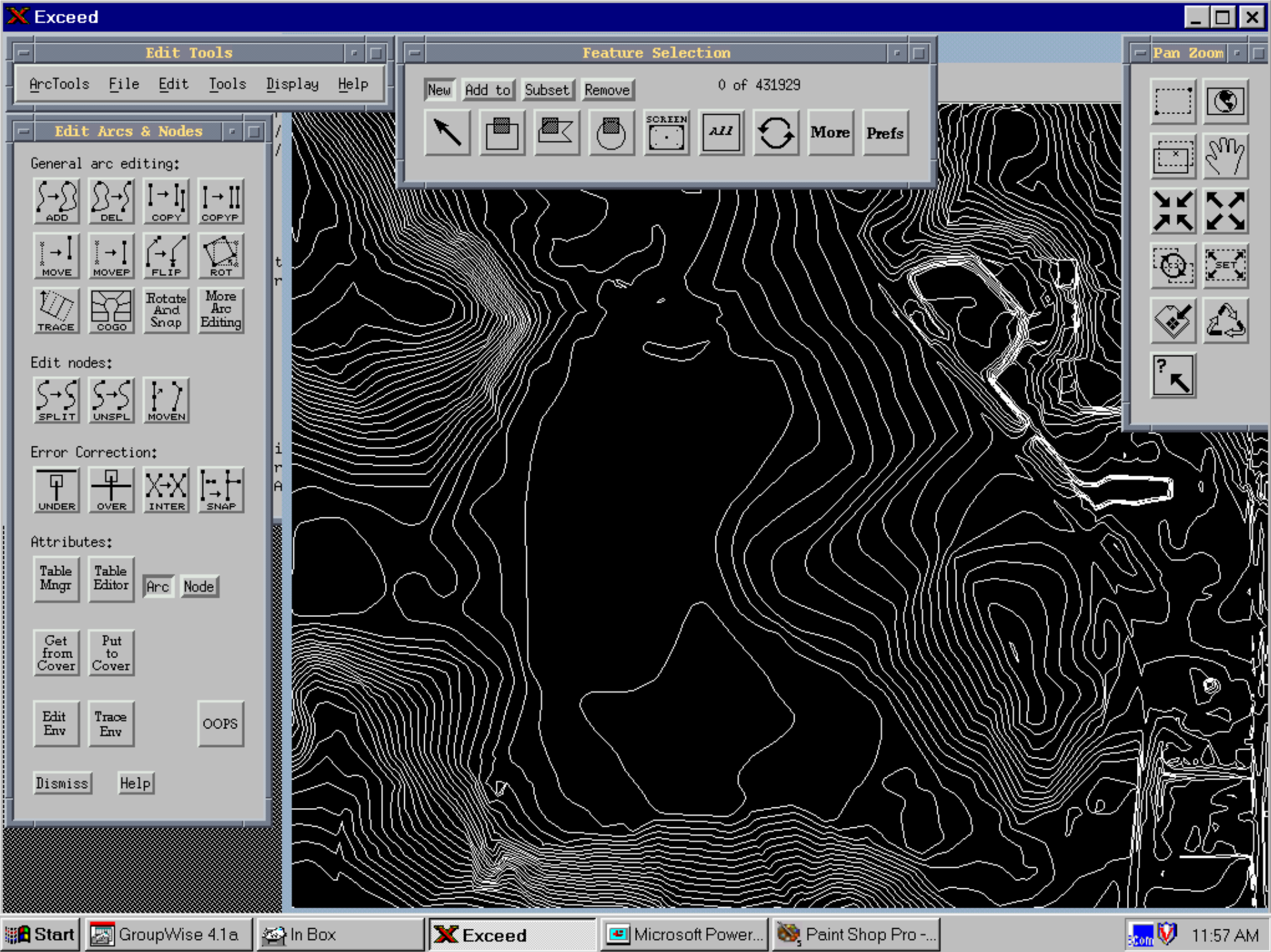
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Paint Shop Pro -...
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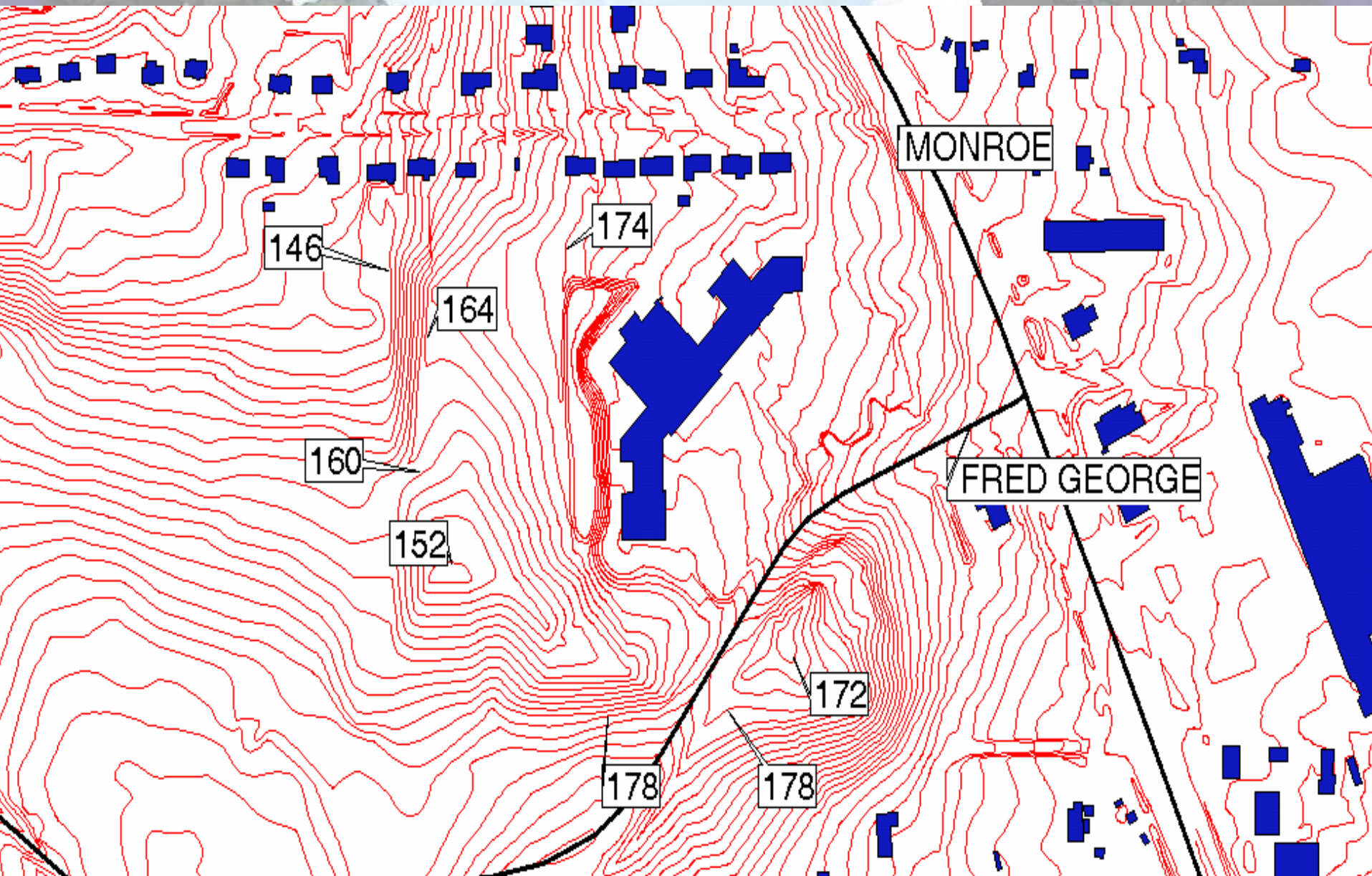
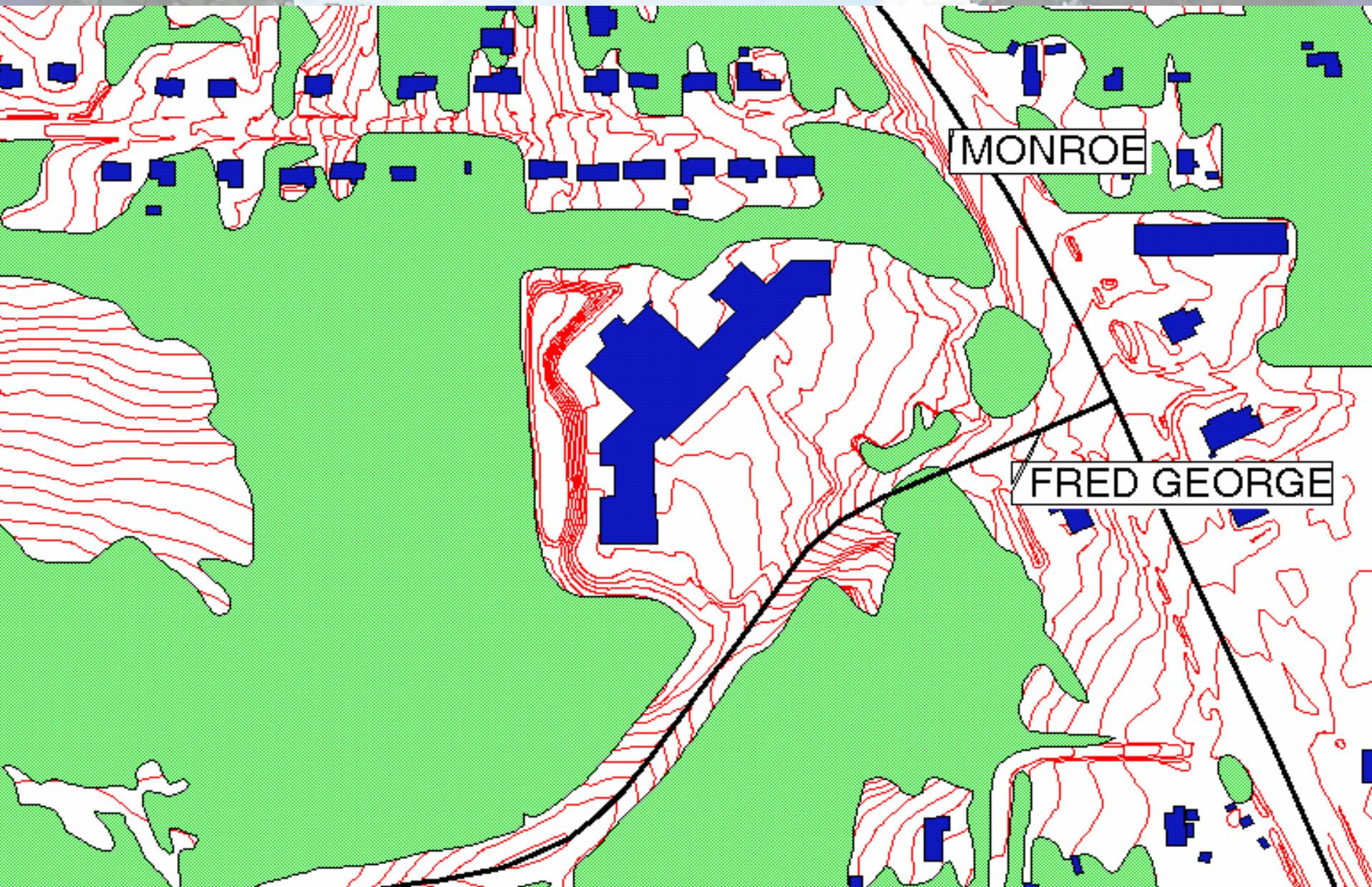
Contours Derived through a Digital Elevation Model

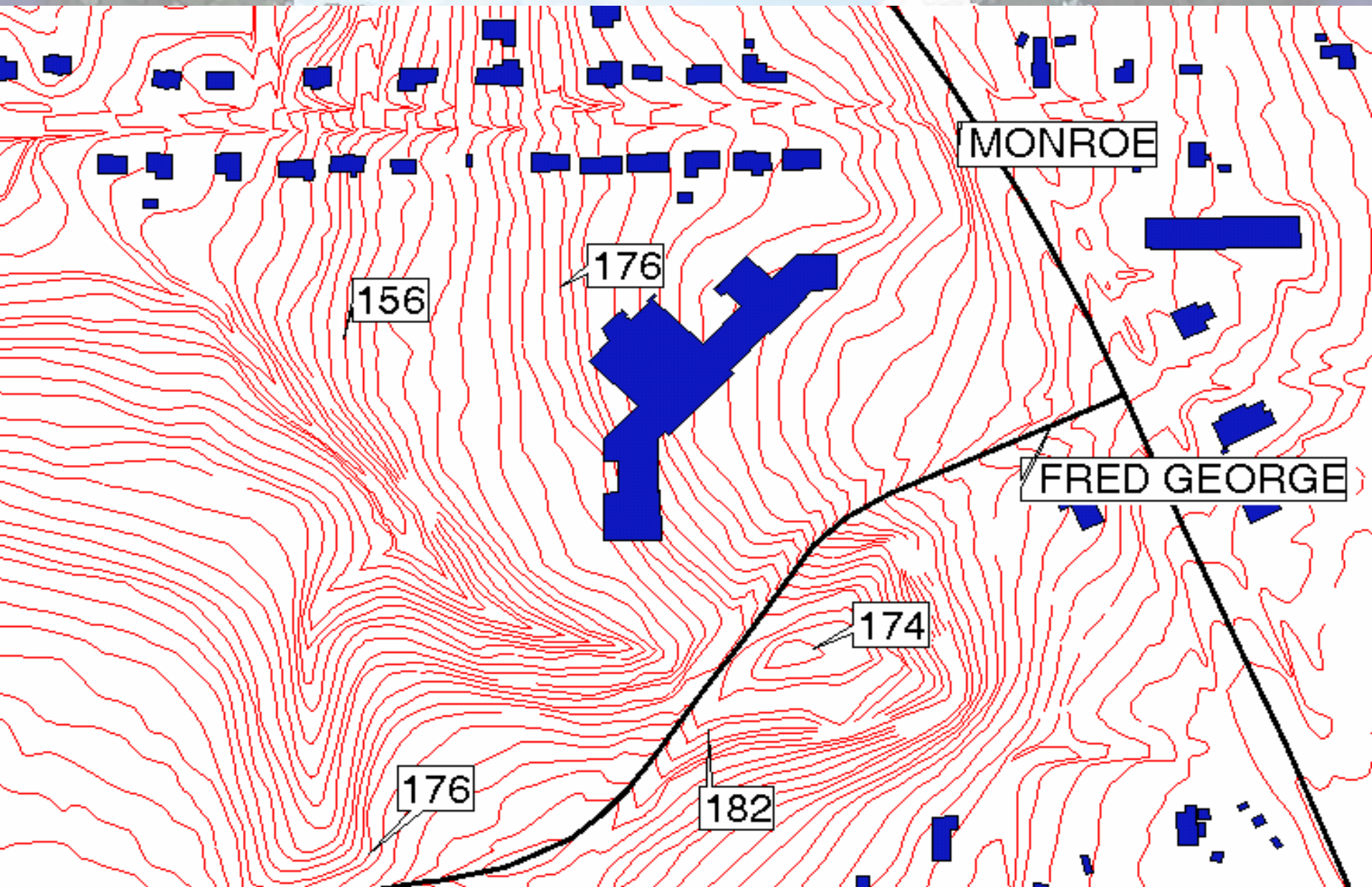


Obscured (Forested) Areas

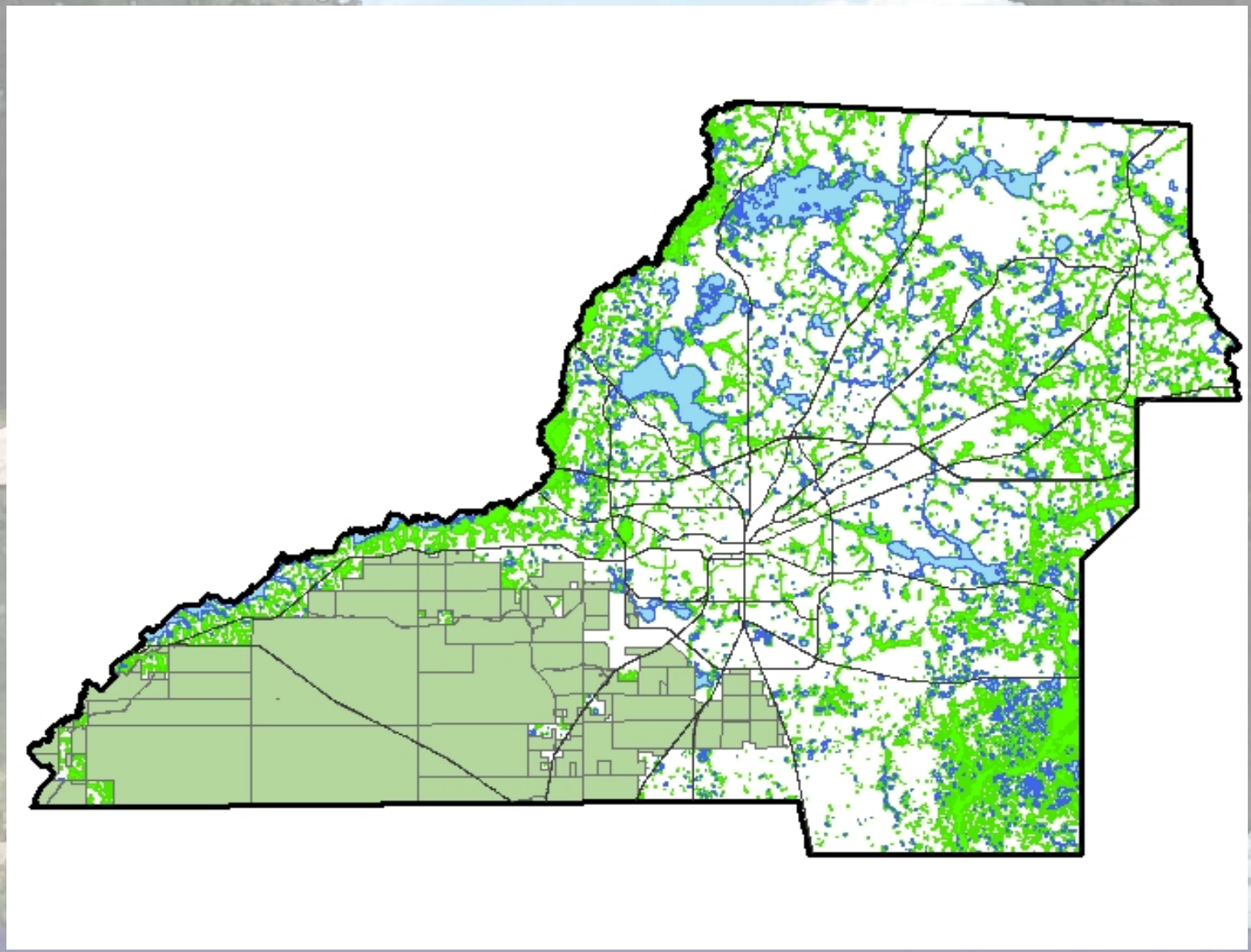


Forested (Obscured) Regions

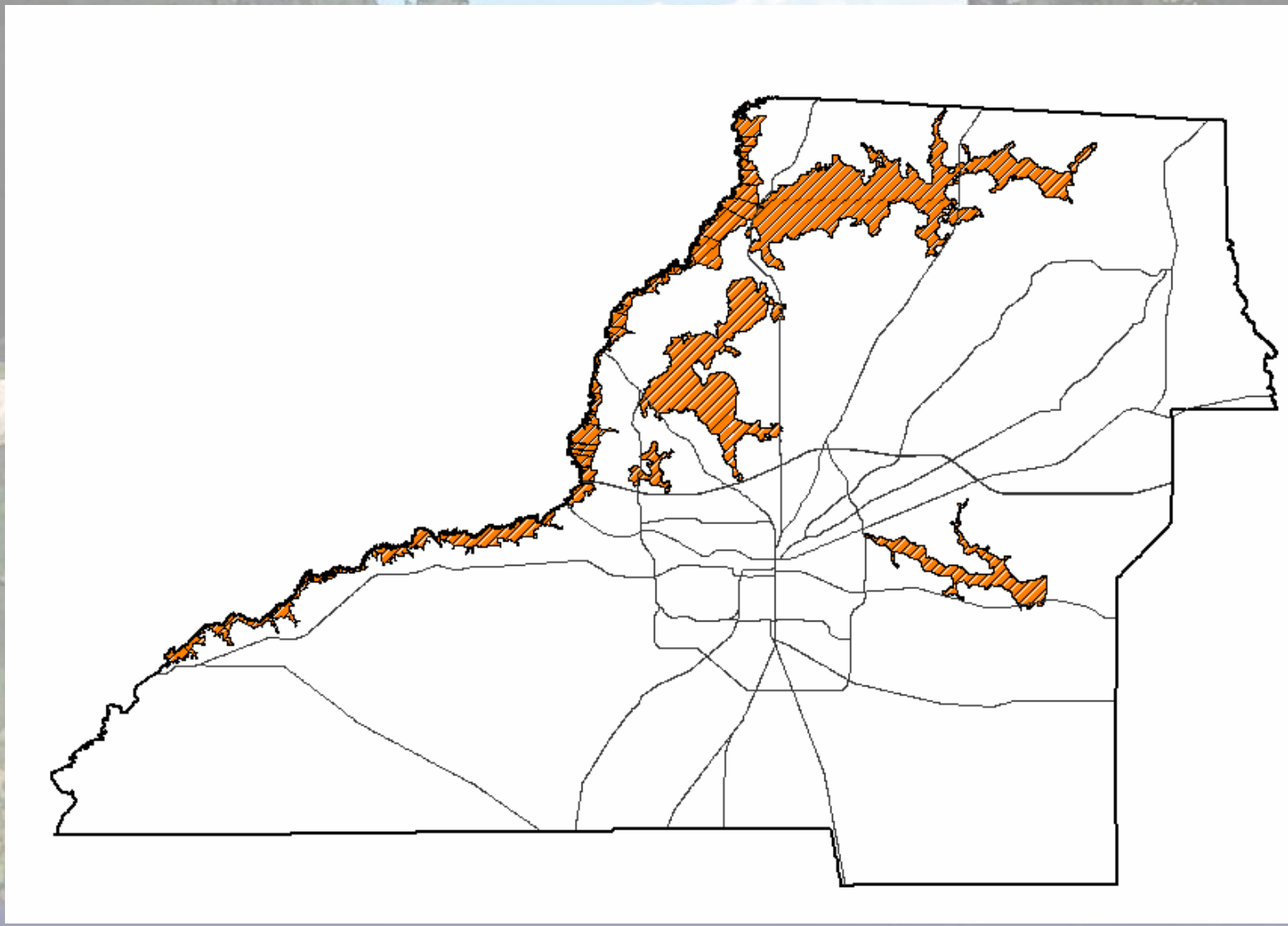
Stream Derived Contours



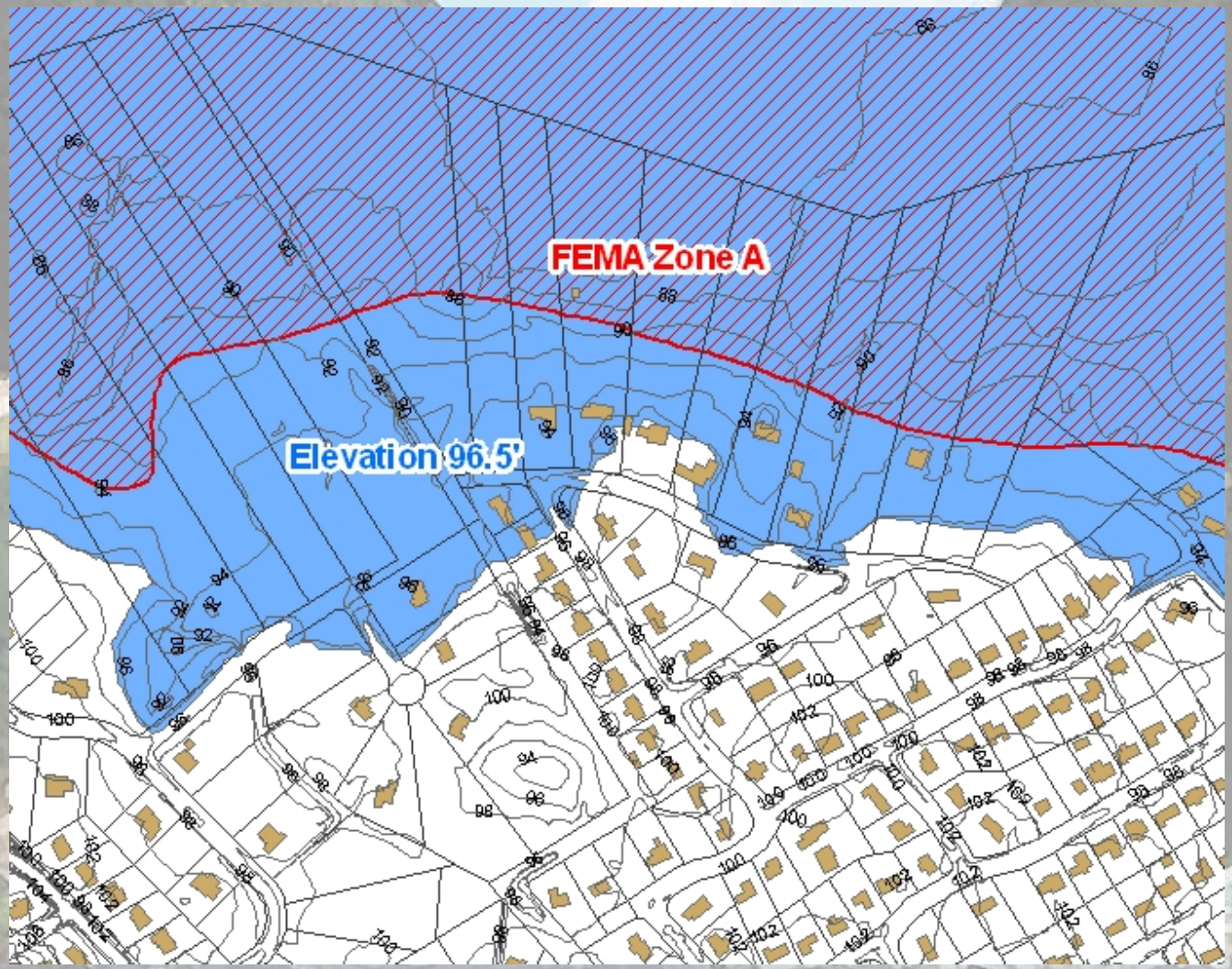
Wetlands and Waterbodies



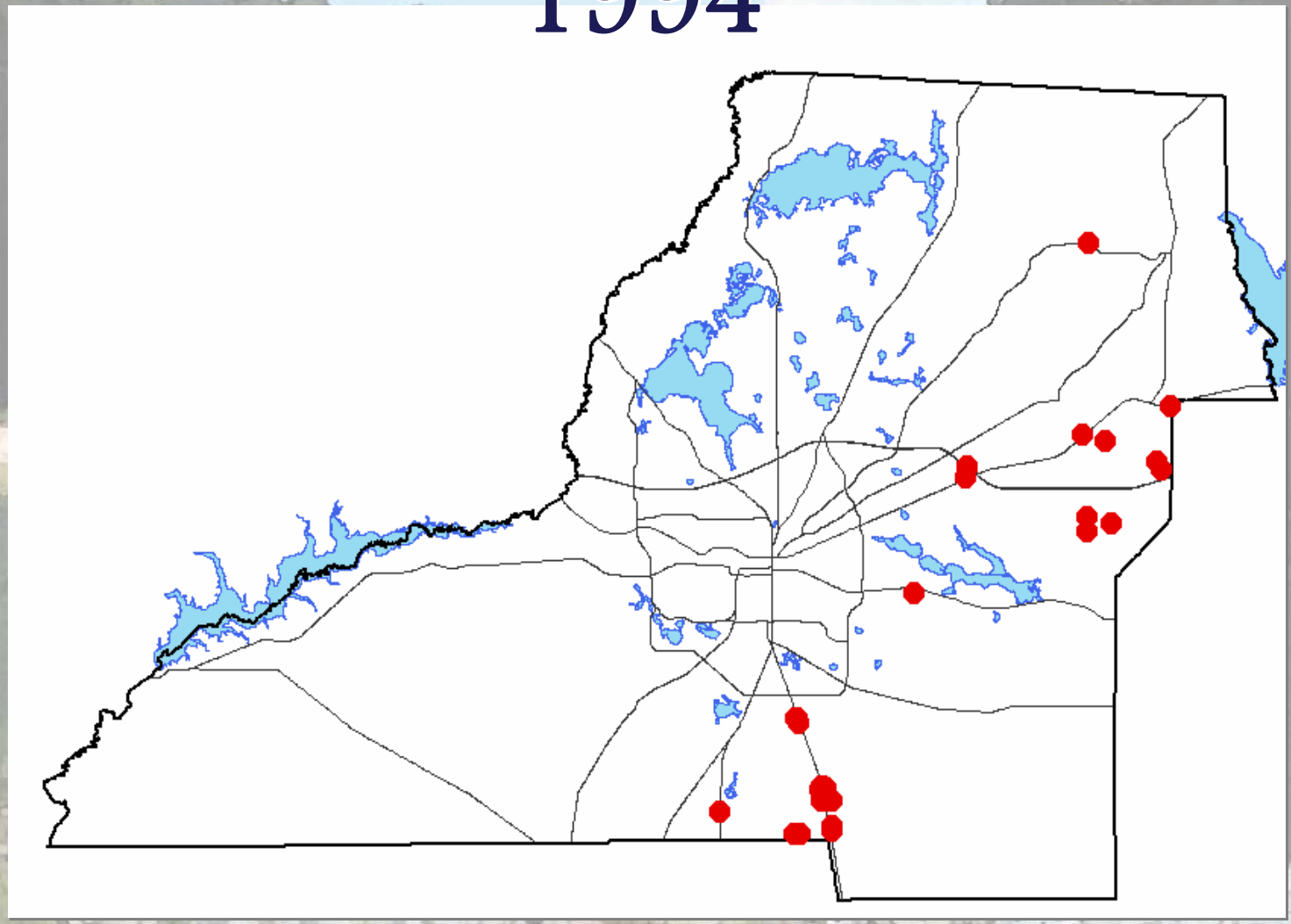
Flood Zones



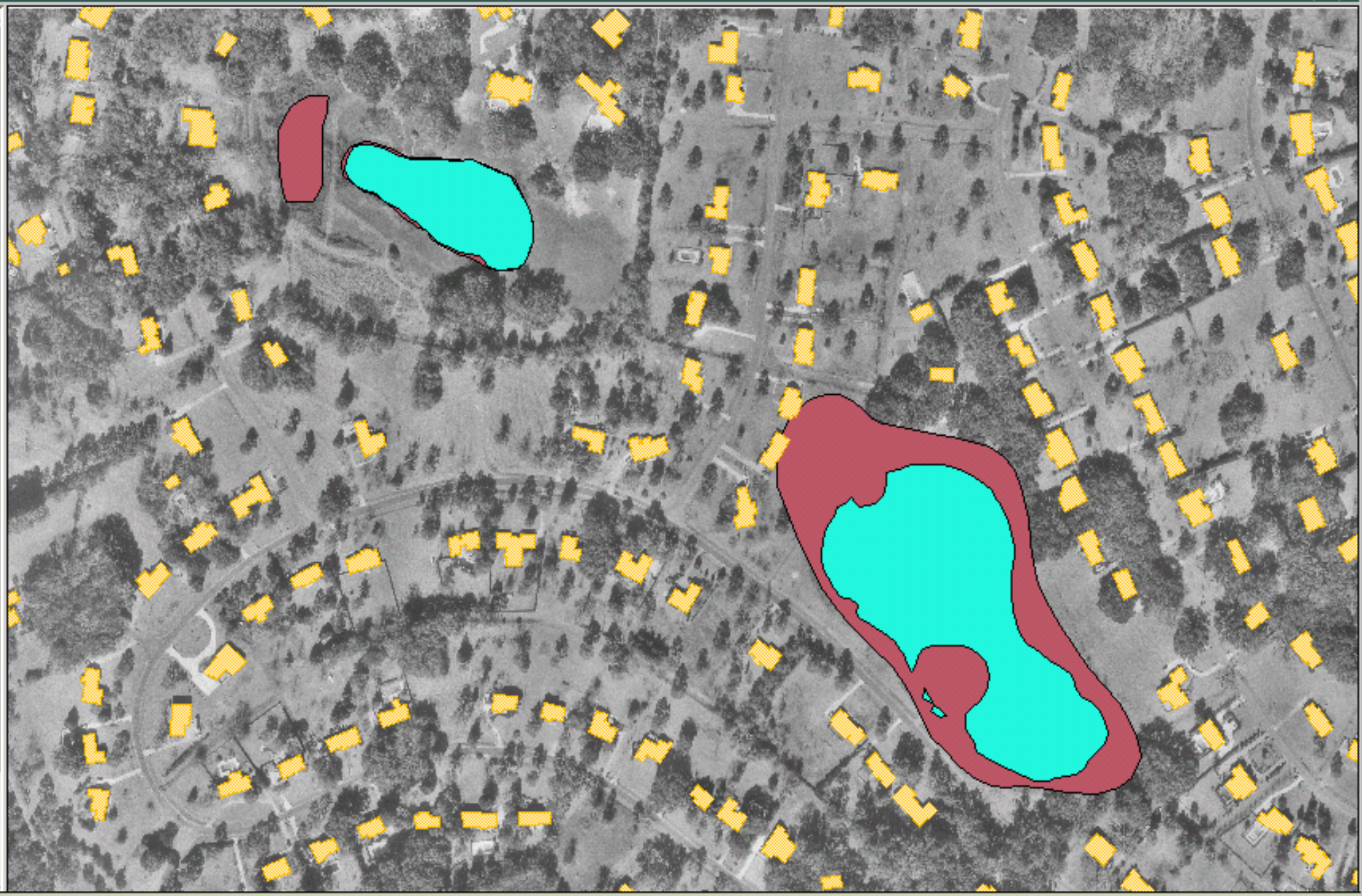
FEMA Zone A and Known Flood Elevation



Flood Zones Observed in 1994

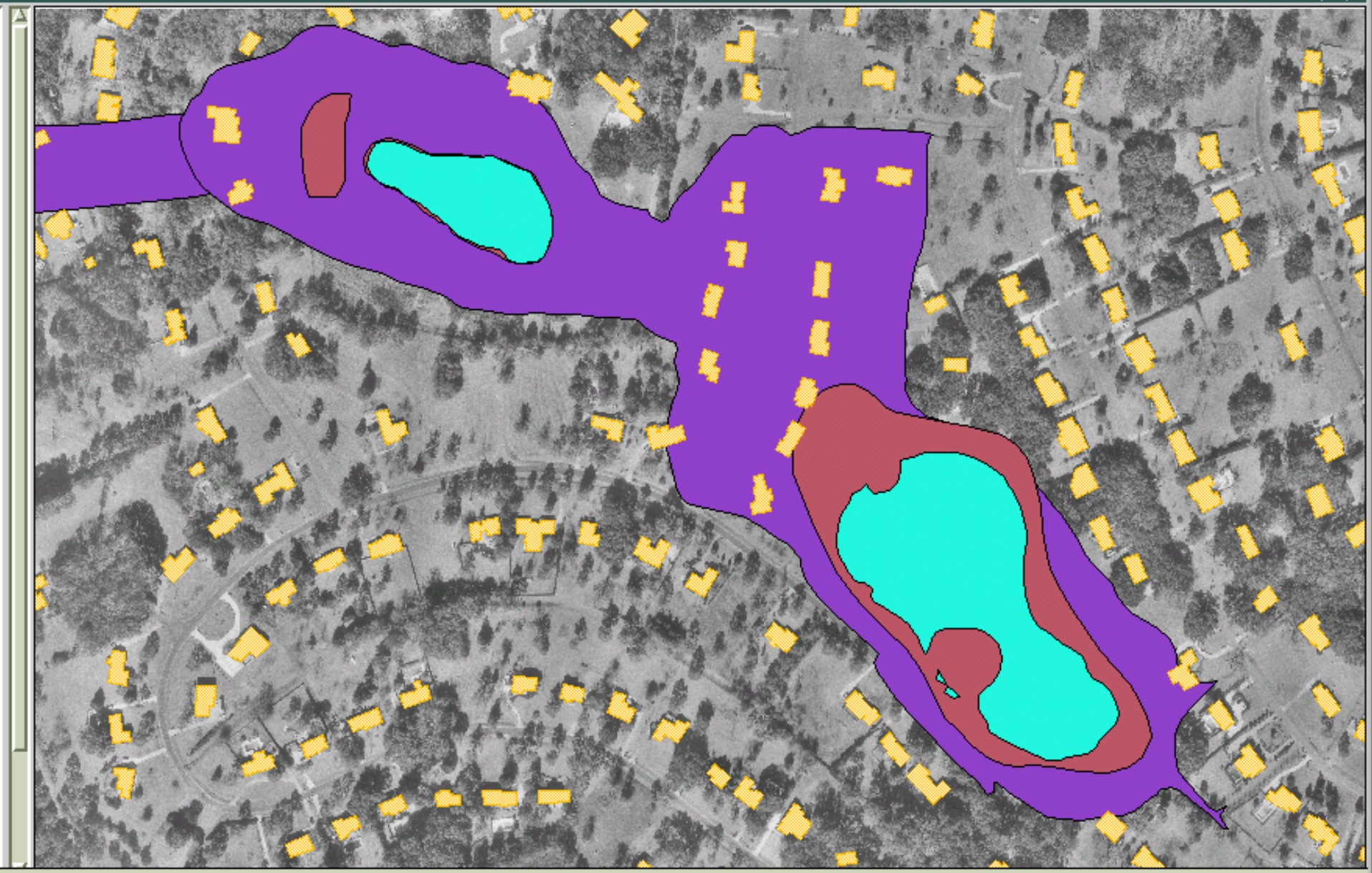


FEMA Flood Zones of Lafayette Oaks Subdivision



Special FDOT Aerial Photo Mission
October 3, 1994 Examination of Flooded Areas

New Flood Areas Mapped from 1994 Observations



Active Karst Features

NAME
LAKE IAMONIA SINK
HAMMOCK SINK
LAKE MICCOSUKEE SINK
FRED GEORGE SINK
PATTY SINK
BIRD SINK
COPELAND SINK
UPPER LAFAYETTE SINK
WOOD SINK
CASCADE LAKES SINK 1
CHURCH SINK
TOM'S SINK
YOUNG SINK
AMES SINK
BIG DISMAL SINK
GOPHER SINK
SULLIVAN SINK
FISHER CREEK SINK
NATURAL WELLS SINK
RHODES SINK
JOHN SINK
NATURAL BRIDGE SINK
NATURAL BRIDGE 2
NATURAL BRIDGE 3
NATURAL BRIDGE 4
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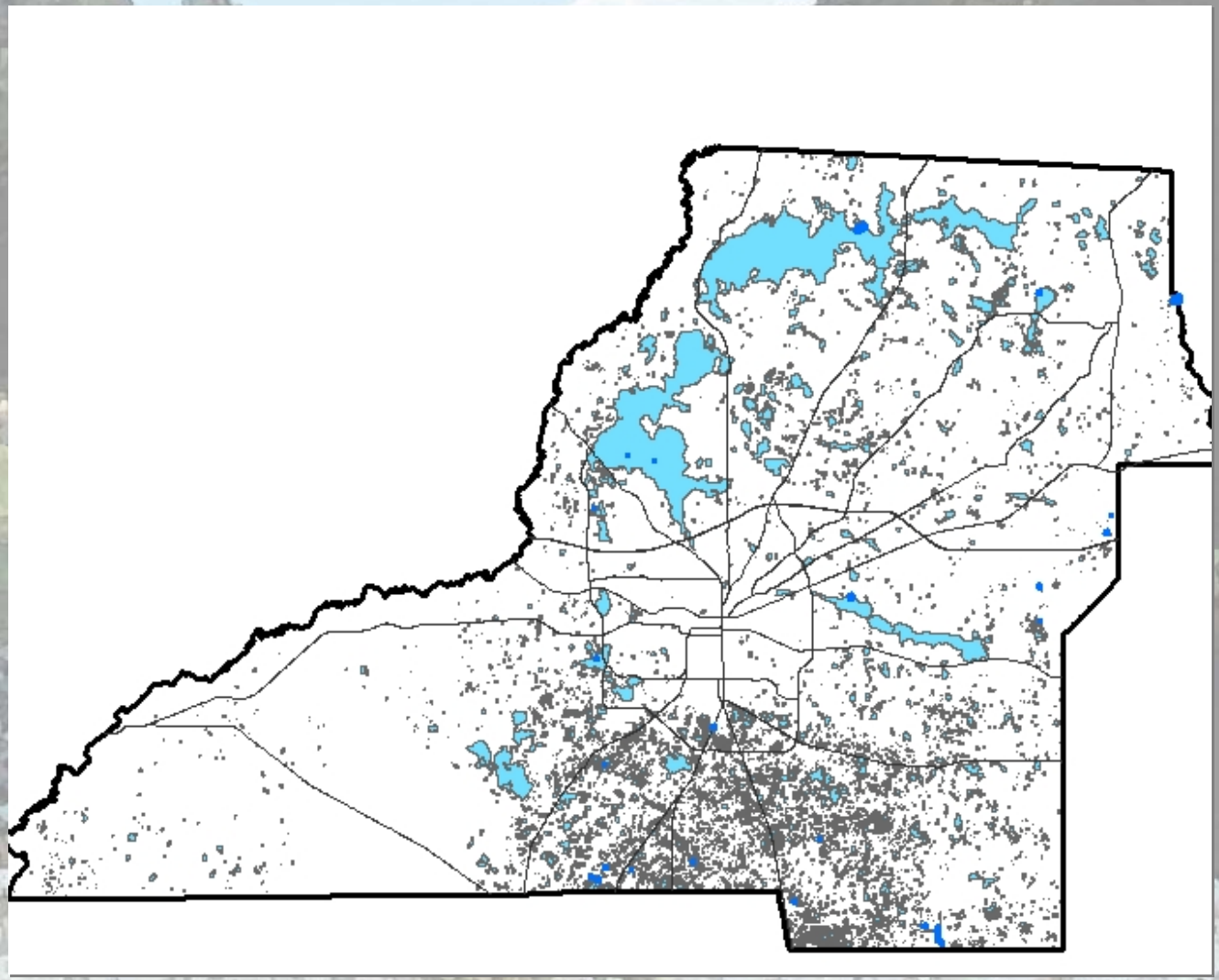
NATURAL BRIDGE 8
NATURAL BRIDGE 9
PORTER HOLE
LIME SINK



Review Process Benefits

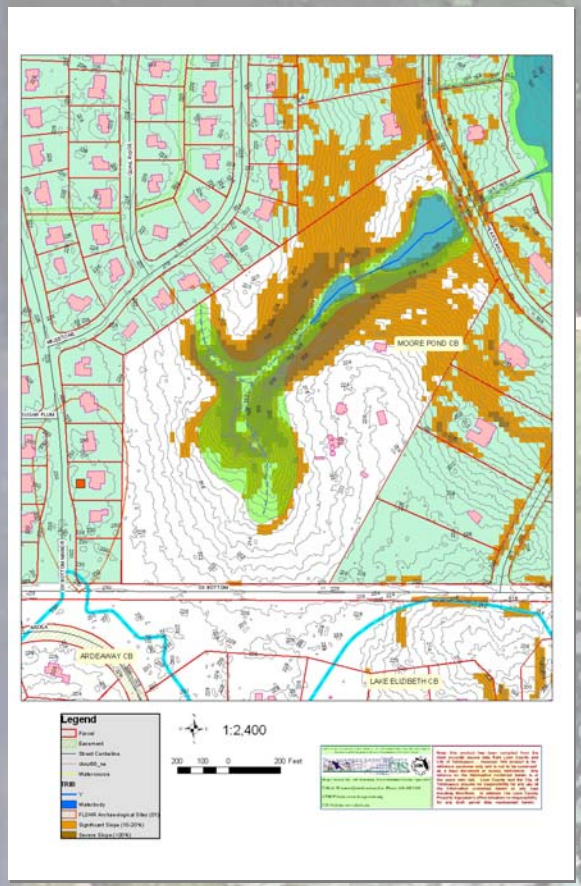
Land Use Planners

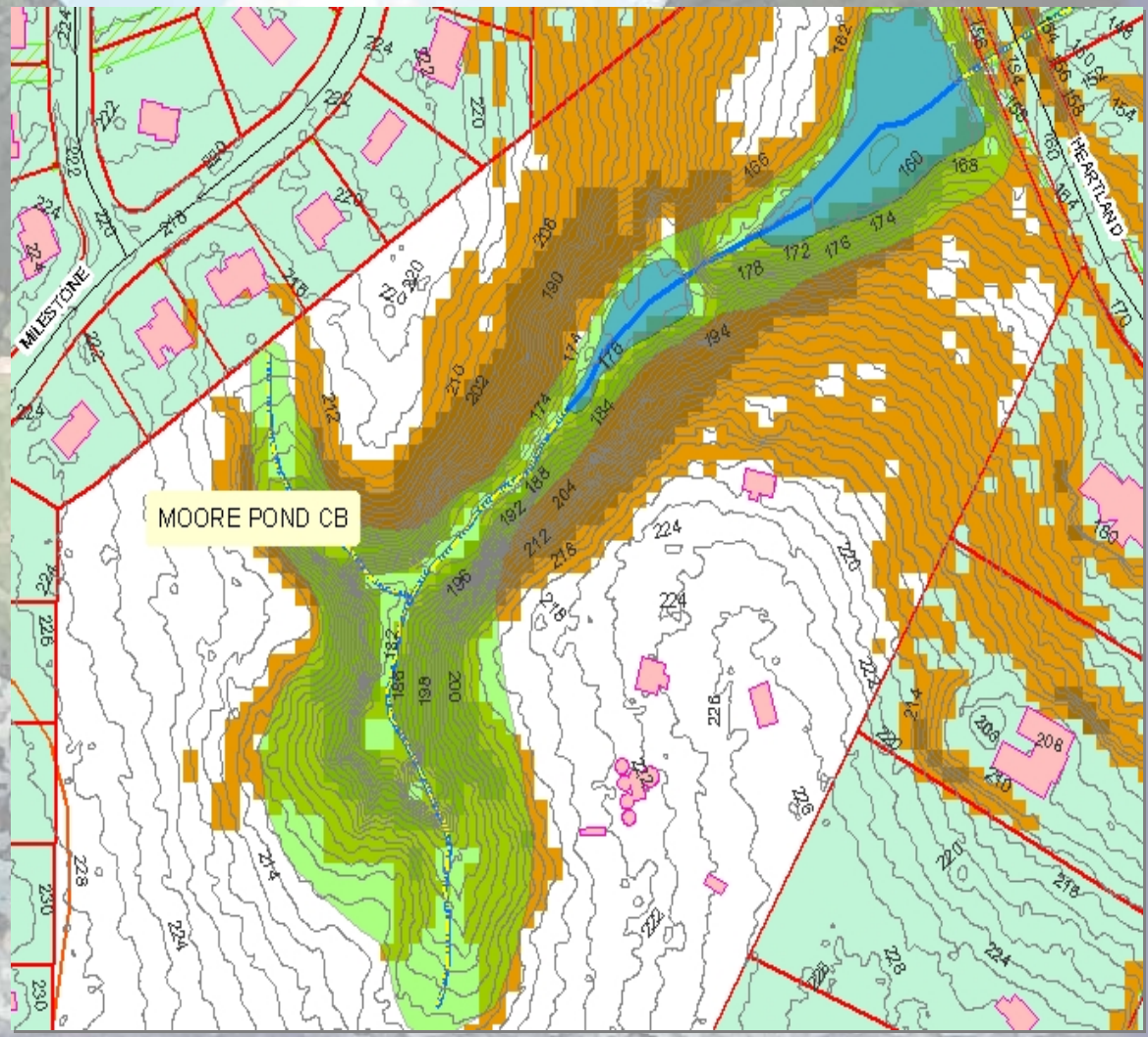
- PUVs
- Site Plan Reviews
- Boundary settlements
- Exempt Subdivisions

Environmental Review

- NFIs
- Site Plan Reviews
- Environmental Permitting
- Single family home
- Response to flooding problems

Estimating Site Suitability Prior to Site Plan Review





Natural Features Inventory (NFI) Application Development

- ESA data can be used as a starting point for identifying locations and boundaries of environmental features in the field
- LiDAR assistance in floodplain determinations
- Slope data created from LiDAR can be used in place of site specific topographic survey
- LiDAR use to delineate centerline of watercourses
- LiDAR use to delineate boundary of karst features

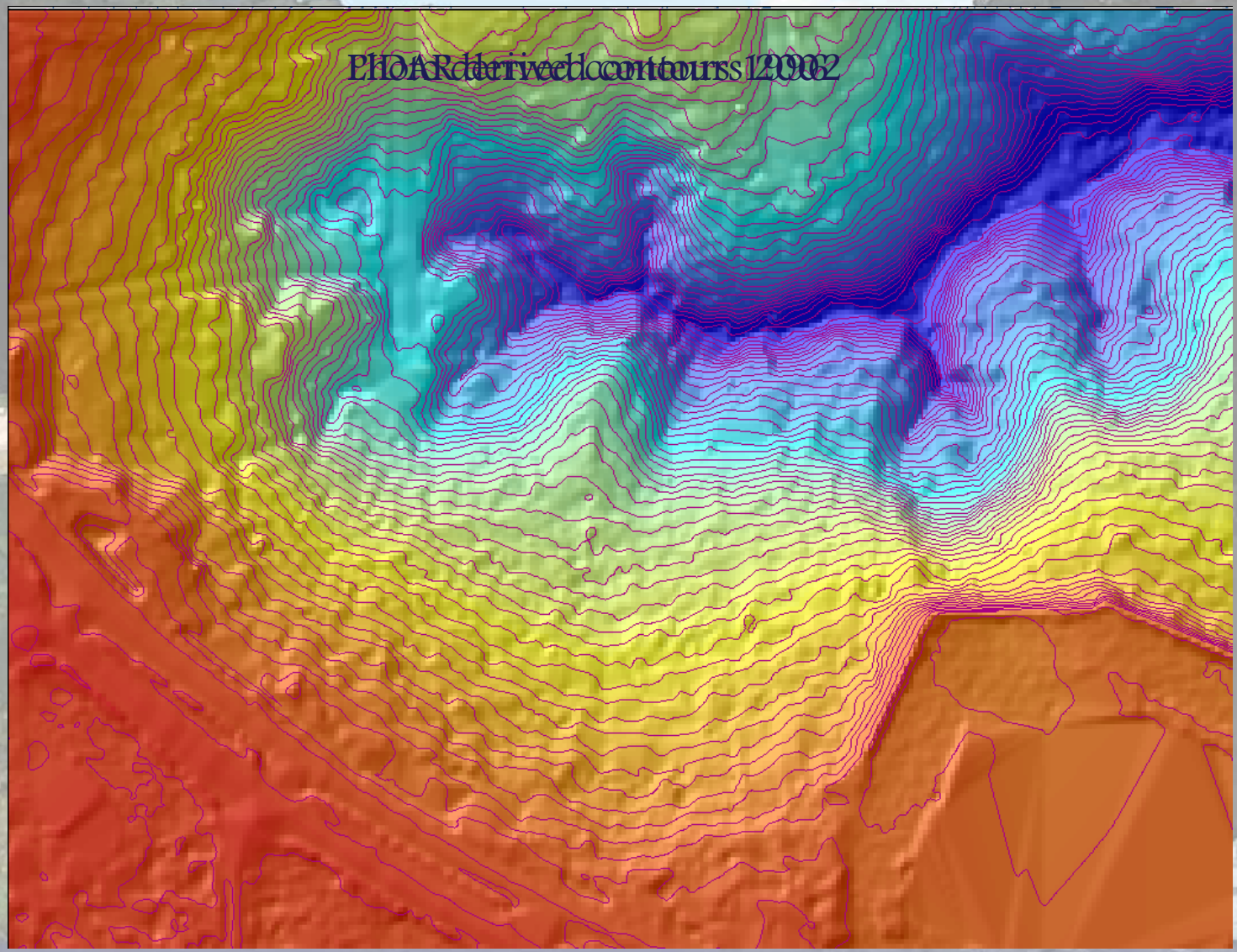
Stormwater Management

- Drainage basin
  - * Verify stormwater design requirements based on basin/watershed location
  - * Determination of drainage basin extent (pre/post)
  - * Determination of off-site runoff impacts

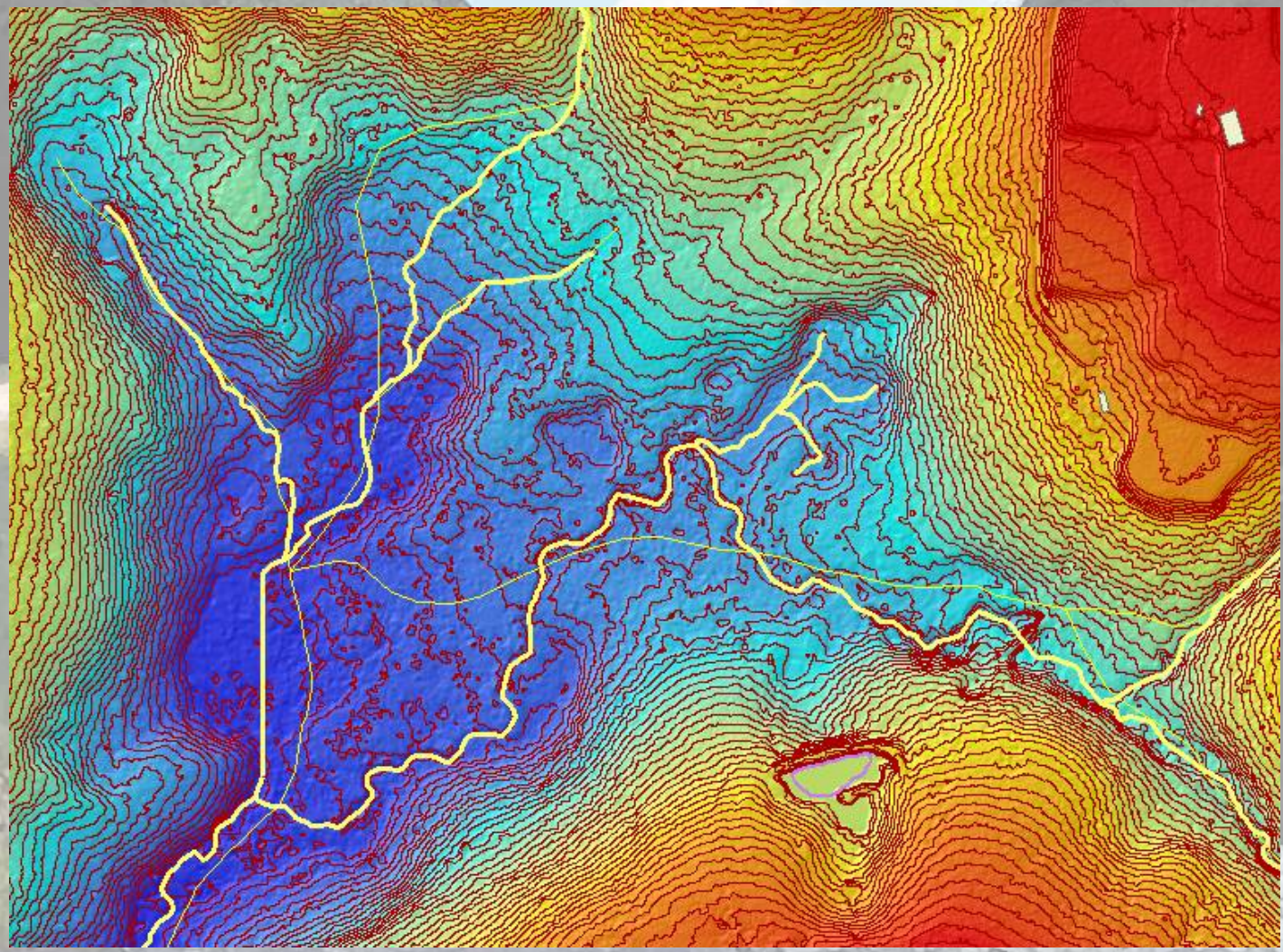
Limitations of Use

- Data should be used as a tool to identify locations of environmental constraints-refer to metadata
- Data is not of survey accuracy and should not be construed as such
- Not every mapped feature was field verified
- Features in obscured areas or features smaller than 200' across are not likely to be mapped
- Native, High Quality Successional Forests, and Listed Species Habitat are not easily identified with remote sensing

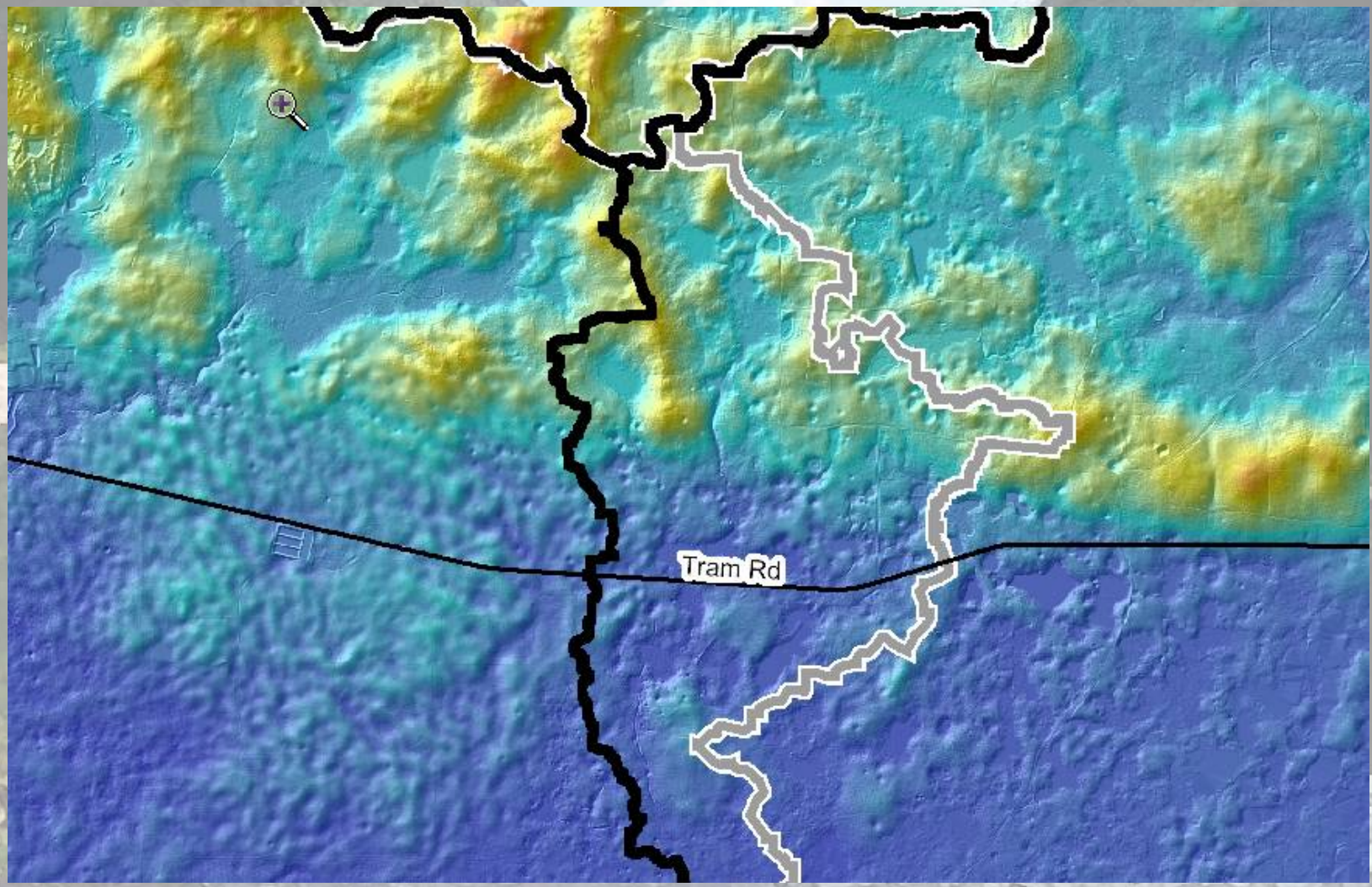
An Improved Surface Model Results in Improved Topographic Contours



Improved Watercourse Mapping



Improved Drainage Basin Mapping



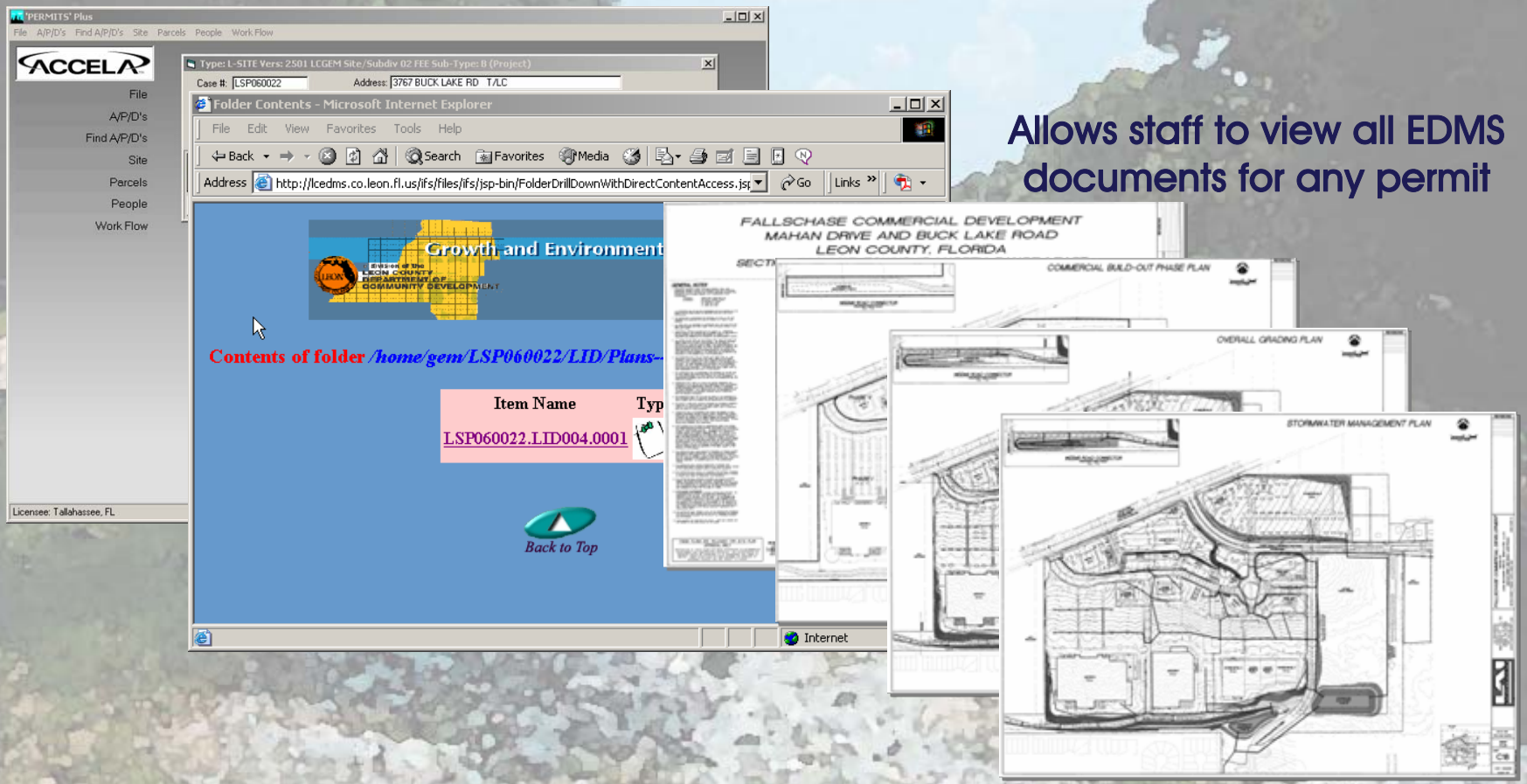
Technology Integration

Permits Plus + GIS +EDMS

- Increased Efficiency
- Timelier Customer Service
- Increased Accuracy
- Better Communication
- Better Informed Public

Integrating Permits Plus and EDMS

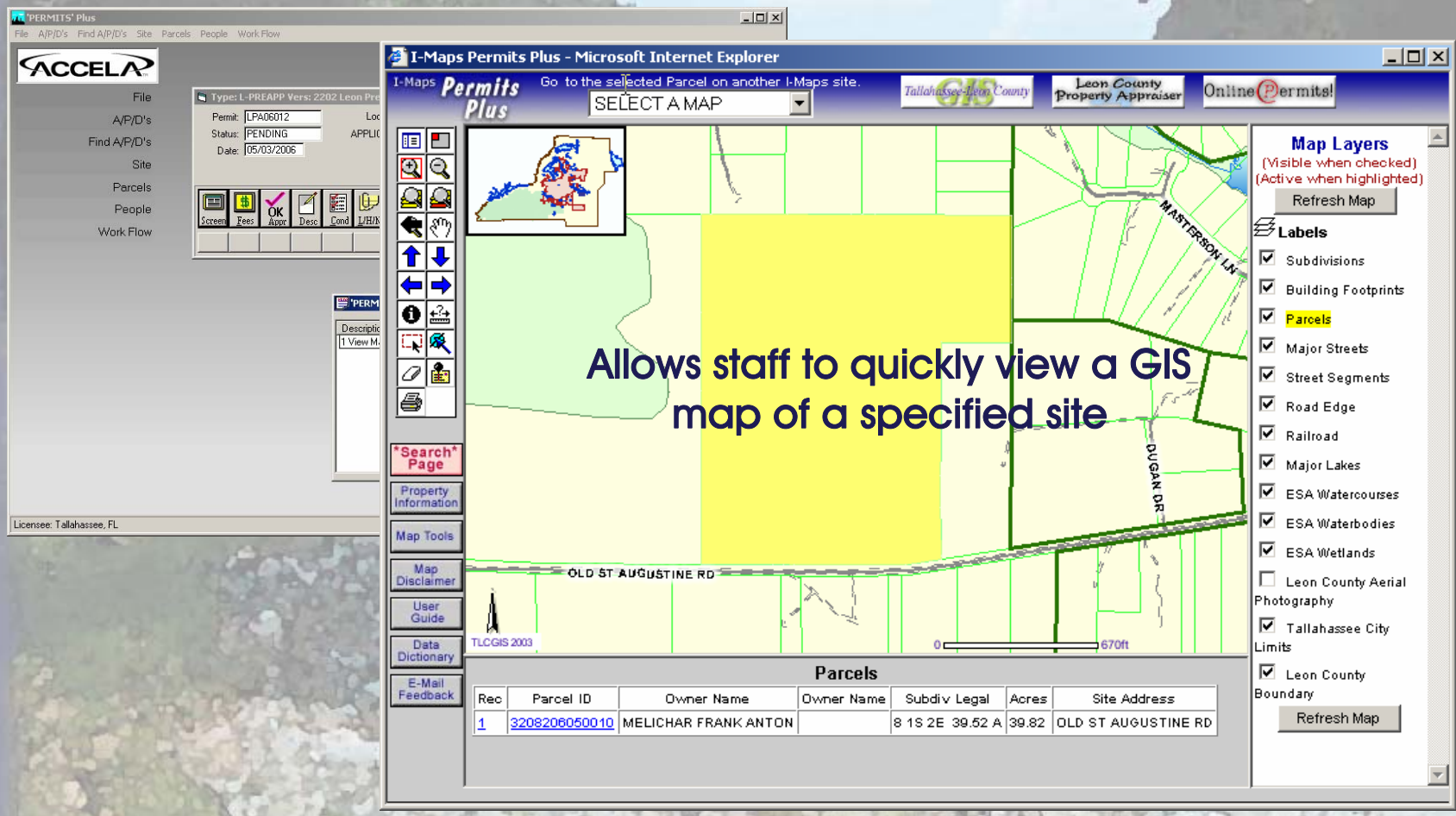
Launching an EDMS session from Permits Plus



Allows staff to view all EDMS documents for any permit

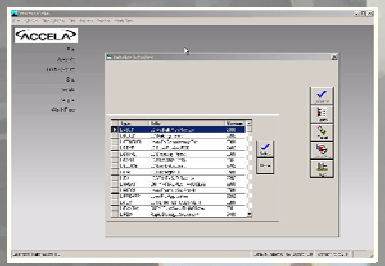
Integrating Permits Plus and GIS

Launching an I-Maps session from Permits Plus

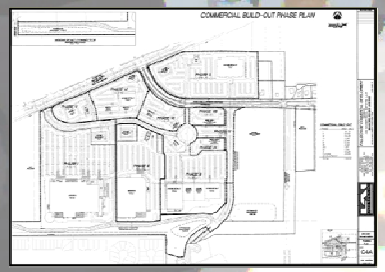


Technology Goes Mobile

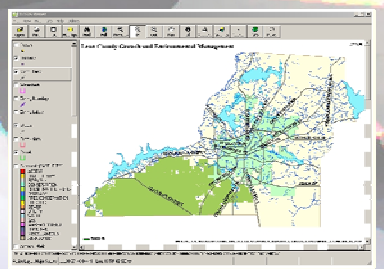
With a ruggedized laptop which can provide a complete computer desktop in the field, GEM's inspection staff has the ability to interact with all core applications via a wireless connection from their mobile office.



Permits Plus



Electronic Document Management System



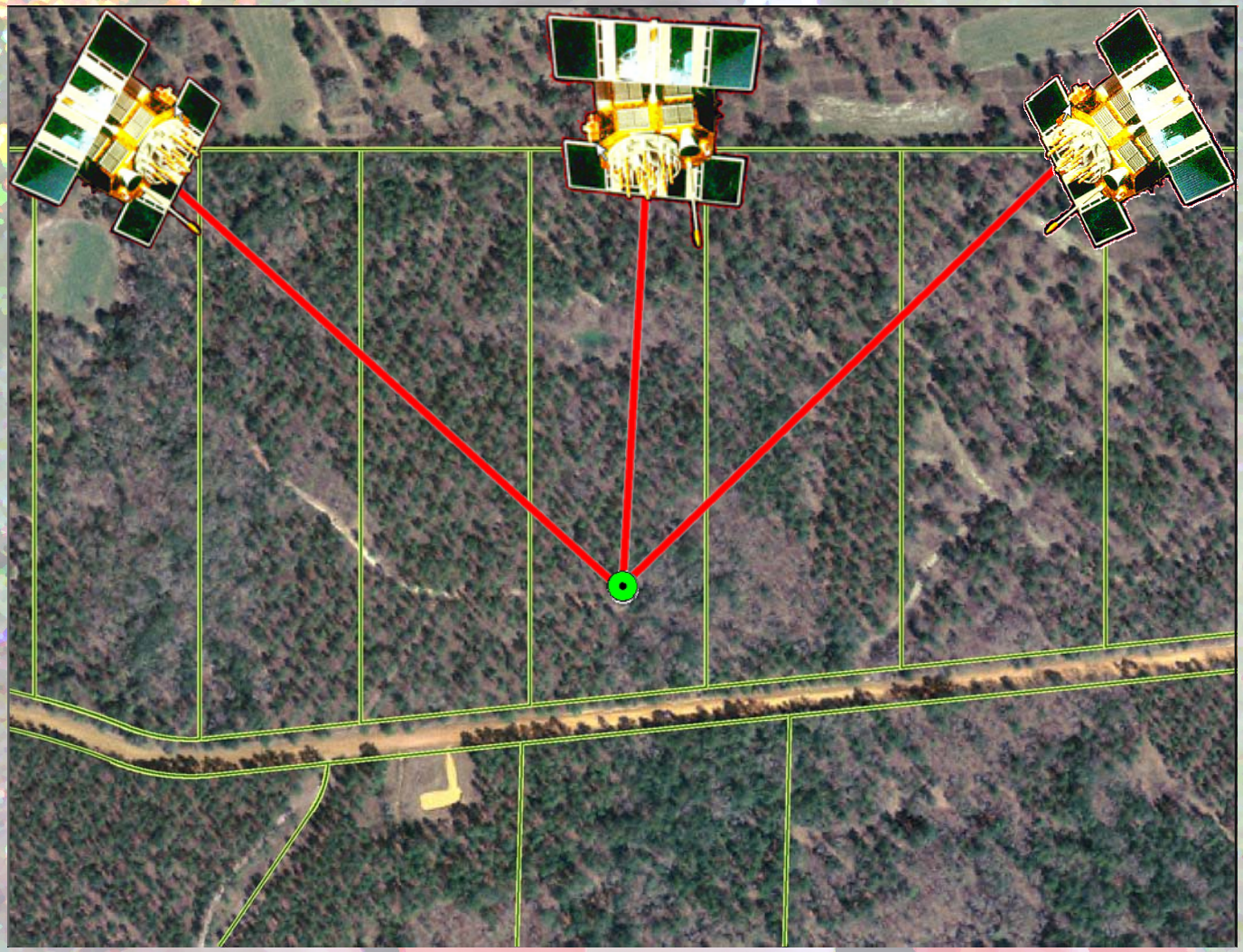
Mobile GIS Viewer

Mobile Technology Improves Staff Productivity

- Inspection approvals entered on site
- Review permit status in the field
- Review permit documents in the field via EDMS
- Use mobile GIS to locate inspections
- Use mobile GIS to locate and confirm ESA features
- In post disaster situations permits can be issued in the field

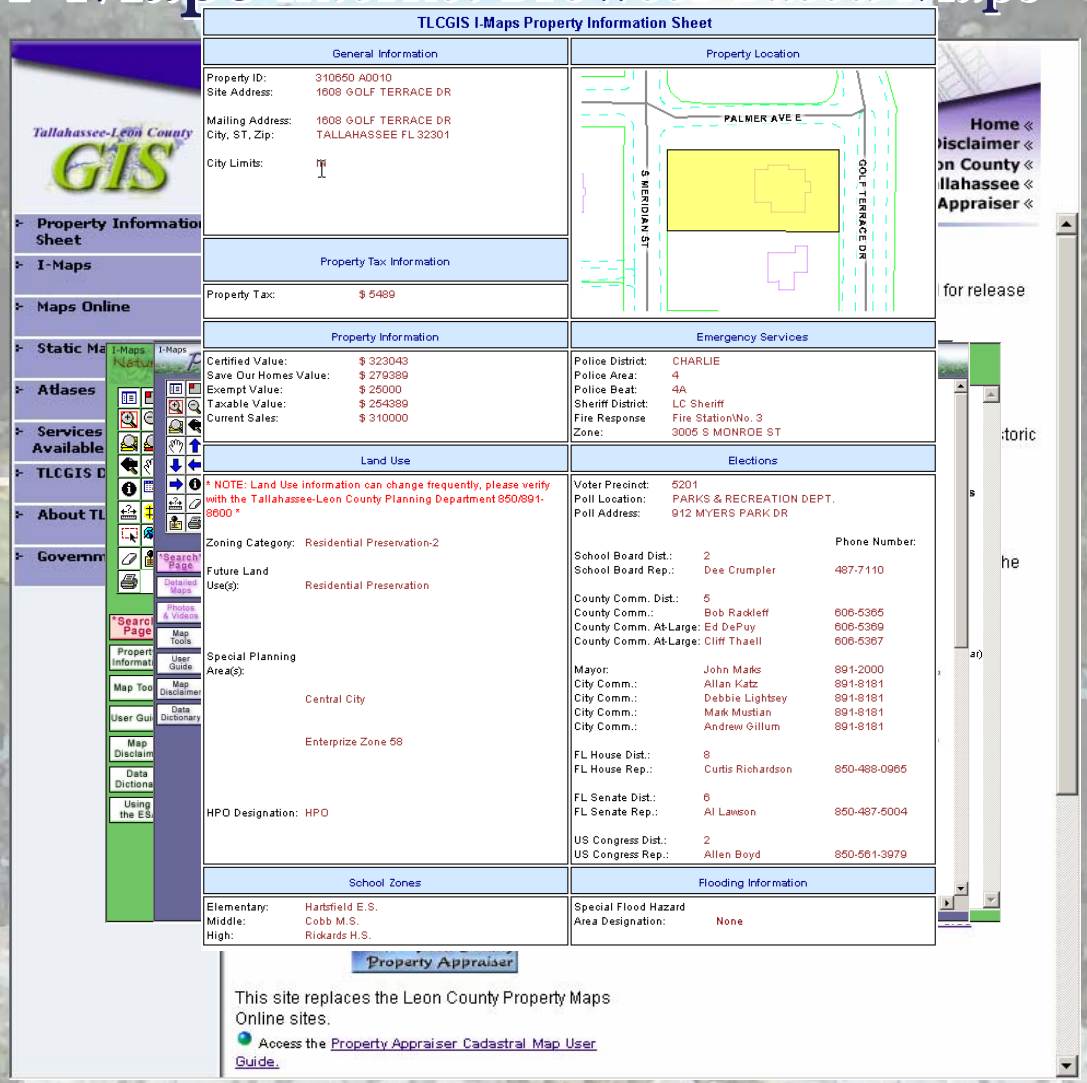
GPS

Enables staff to complete Natural Features Inventories more quickly



Public GIS Data

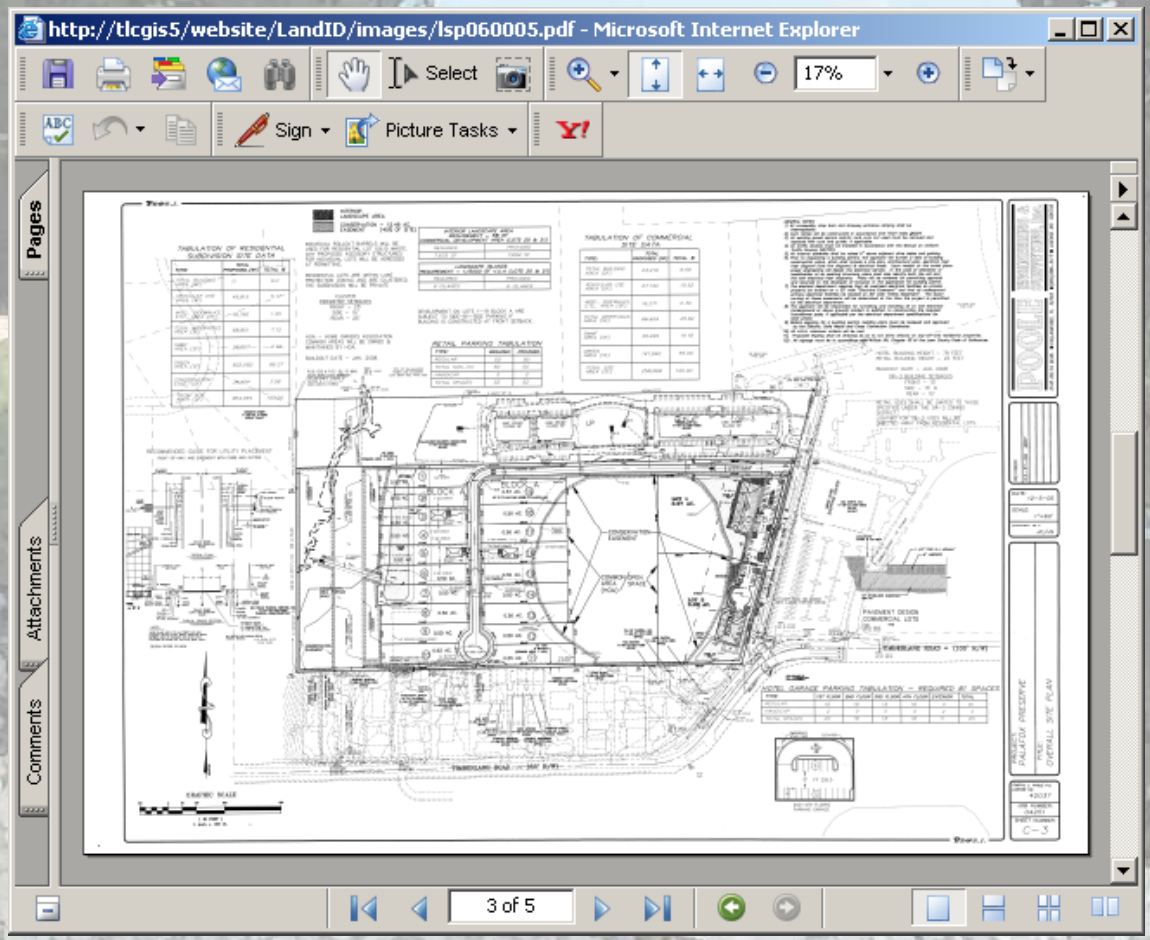
I-Maps Internet Browser Based Maps



I-Maps Site Showcase

LAND-ID

A browser based internet map site which provides access to images of current versions of site and development plans as they navigate the review process at GEM.



LAND~ID at Work

- GEM Public meetings
  (DRC, Tech Staff, and Pre-application)
- GEM's Duty Officer and Customer Service Staff
- Staff is able to digitize proposed streets for GIS
- Public Access via the internet
- Property Appraisers Office
- Planning Department and Planning Commission
- Developers and Engineering Firms via internet access
- Public Works Offices
- Utility Providers

GIS Maps and Data Available to the Public
TLCGIS.ORG

Information About and Prices for
Tallahassee-Leon County GIS
Standard Map Products and Custom Map, Data, & GIS Services

Effective Date: 2/16/2004 *(printed Jan. 2006)*

Free Online Maps

The **TLCGIS website (www.tlcgis.org)** has several free interactive mapping applications for anyone to use, as well as PDF files of static maps that anyone can download. Static maps may show out-of-date information because they are produced once a year or less (for example, the Property Appraiser's Annual Parcel Atlas (34" x 34" size) is produced every winter). The interactive mapping applications use datasets that are updated several times throughout the year (for example, parcels, zoning, city limits). The interactive programs work best with the Microsoft Internet Explorer web browser. Users must turn off pop-up windowblockers in their Internet browser in order to use the interactive mapping applications.

There are several **"I-Maps"** mapping applications that visitors can use to create and print their own maps. The most popular is the **"Base Map"** application that allows users to view and print maps that show a variety of information, including aerial photos, parcels, roads, contours, FEMA 100-year flood areas, wetlands, zoning, school zones, parks, and more! First-time users should read the **"Site User Guide"** before using the application. **1)** Go to **www.tlcgis.org**. **2)** Click on **"I-Maps"**. **3)** Click on **"Base Map"**, and **4) First-time users** should close the Search Page window and click on the "Site User Guide" button (on the left side of the screen) to view and print a PDF file of a guide to using this application. (To open a PDF file, you need the Adobe Acrobat Reader, which you can download for FREE from www.adobe.com.)

Maps Printed by TLCGIS: Standard Parcel/Aerial Maps

A Standard Map can show a zoomed-in view of a particular parcel or area of Leon County, Florida. This map can have any or all of the following information (datasets) displayed: Aerial photos, Parcel outlines, FEMA 100-year flood areas, Hydrography, Contour lines (topography), Road edges, Building footprints (based on aerial photography), and/or Section lines. A Standard Map can be printed at the following map scales: 1"=100', 1"=200', 1"=250', 1"=300', 1"=400', 1"=500', 1"=600', and 1"=800'. A map of an entire 1-mile by 1-mile wide Section will fit on a 34 x 34" printout at a scale of 1" = 200'. A Standard Map cannot display very large areas of the county.

Maps that display other information (datasets) or at other map scales may be created as a custom map request. See "Short-Term Custom Maps and/or Data Service (Analysis) Requests" for pricing information.

Standard Parcel/Aerial Maps	Price (include initial printout)	Duplicate Copies on Paper Printed at the Time of Request	Additional Charge for .pdf File on CD/DVD
8.5" x 11"	$15.00	$1.00 each	$5.00 per disk
11" x 17"	$15.00	$1.00 each	$5.00 per disk
22" x 34" (D Size)	$20.00	$1.00 each	$5.00 per disk
34" x 34" (E Size)	$30.00	$1.00 each	$5.00 per disk

Short-Term Custom Maps and/or Data Service (Analysis) Requests: *Includes one initial printout of map. Duplicate copies on paper printed at the time of request are $1.00 each. Additional charge for PDF file on CD/DVD is $5.00 per disk. Requests for custom maps or analyses may require several days to fulfill.*	$70.00 per hour (1/2 hour minimum charge of $35.00)

See other side for prices for Custom Map Data for Use in GIS and CAD Software and Long-Term Service Requests.

Custom Map Data in Digital Format for Use in GIS and CAD Software

TLCGIS has numerous datasets available for use in GIS and CAD software. The two formats for use in GIS software are **Shapefile** and **.e00** format. **DXF** files for use in CAD software do not pre-exist but can be created. However, 1) it takes quite a while to create DXF files; 2) DXF files usually are very large (over 25,000KB) and some datasets have to be clipped in order to be of usable file size; and 3) DXF files do not contain attribute data (i.e., all that appears is the linework and, for some datasets, labels).

The datasets most people request include: Planimetric Data (Road edges, Building footprints, and Hydrography, all derived from digital orthophotos); Contour Lines (topography, derived from LiDAR); City and County Boundaries; Parks (City, County, and State); FEMA 100-year Flood Areas; Major Lakes; Parcels; Severe and Significant Grades; Street Centerlines; Water Bodies; Water Courses; Wetlands; and Zoning. For a complete list of datasets, refer to the TLCGIS **"Data Dictionary"** (go to TLCGIS home page at www.tlcgis.org, look for link on left side of screen, and either search the Data Dictionary online or download the PDF file). Note: The Tallahassee City Limits dataset, in Shapefile and DXF formats, is available for free download on our home page (www.tlcgis.org; click on "Static Maps" link).

Digital orthophotos (**aerial photos**) taken in January 2001 in black and white are available in MrSID, TIF, and/or JPG formats. Digital orthophotos taken in January 2005 in color for the NE area of the urban area are available in MrSID and/or TIF formats. MrSID is a compressed format for use in GIS software. Due to large file size, the MrSID file is available only on DVD. For TIF or JPG files, each file covers only a 2,500-ft. x 2,500-ft. area, and it takes 2,795 individual files to cover the entire county. Each TIF file is typically over 25,000KB, and it takes 4 DVDs to hold all 2,795 B&W TIF files from 2001 and 4 DVDs to hold all 775 Color TIF files from 2005 of the NE urban area. It takes 1 hour to burn each DVD of photos. Each B&W JPG file is about 7,000KB. For aerial photos from years other than 2001 and 2005, contact the Florida Department of Transportation's Aerial Photo Office at (850) 245-1555.

Short-Term Custom Data on CD/DVD Requests: *Includes initial CD/DVD. Formats include Shapefile, .e00 or DXF for vector datasets and MrSID, TIF and/or JPG for orthophotos (aerial photos). Note: DXF files take quite a while to create and are large files.*	$70.00 per hour (1/2 hour minimum charge of $35.00)
Tallahassee City Limits (DXF format) available at www.tlcgis.org	Download at no charge
Tallahassee City Limits (Shapefile format) available at www.tlcgis.org	Download at no charge

Long-Term Service Requests

Projects requiring more than eight (8) hours of labor will be calculated on a total cost basis. The scope and depth of a request may require project management and database schema design and analysis. For such requests a quote will be prepared where pricing is cost-allocated based on the specific work role required to fulfill the request. Map analysis projects will be priced according to total cost of labor, materials and overhead.

PAYMENT INFO:

TLCGIS accepts cash (exact amount), checks, and American Express, MasterCard or Visa.
Make checks payable to: ***Leon County BCC*** ("BCC" stands for Board of County Commissioners).
Contact TLCGIS before sending payments for any map or data requests.

HOW TO CONTACT US:

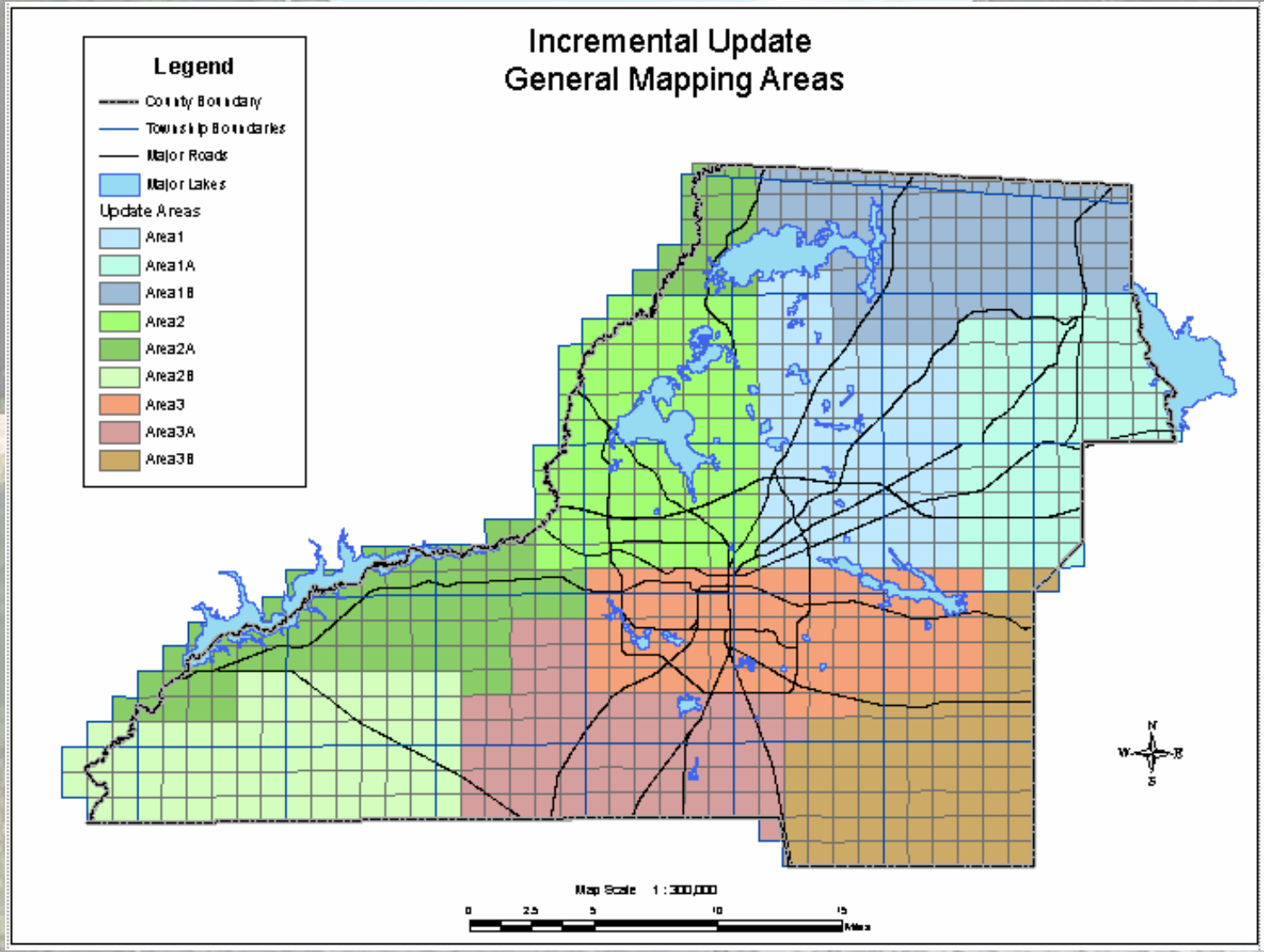
Tallahassee-Leon County GIS
Leon County Courthouse, P3 Level
301 South Monroe St., Tallahassee, FL 32301
Phone: (850) 606-5504 FAX: (850) 606-5501 www.tlcgis.org

See other side for info about free online maps and prices for Standard Maps and Custom Maps/Data Analysis.

Where Do We Go From Here?

- Incremental Updates for LiDAR and imagery
- Updating GIS layers with new LiDAR and imagery
- Electronic Permit Submittals
- FEMA Map Modernization

GIS Updates


Incremental Update
General Mapping Areas
Legend
County Boundary
Township Boundaries
Major Roads
Major Lakes
Update Areas
Area1
Area1A
Area1B
Area2
Area2A
Area2B
Area3
Area3A
Area3B
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W
E
S
Map Scale 1 : 300,000
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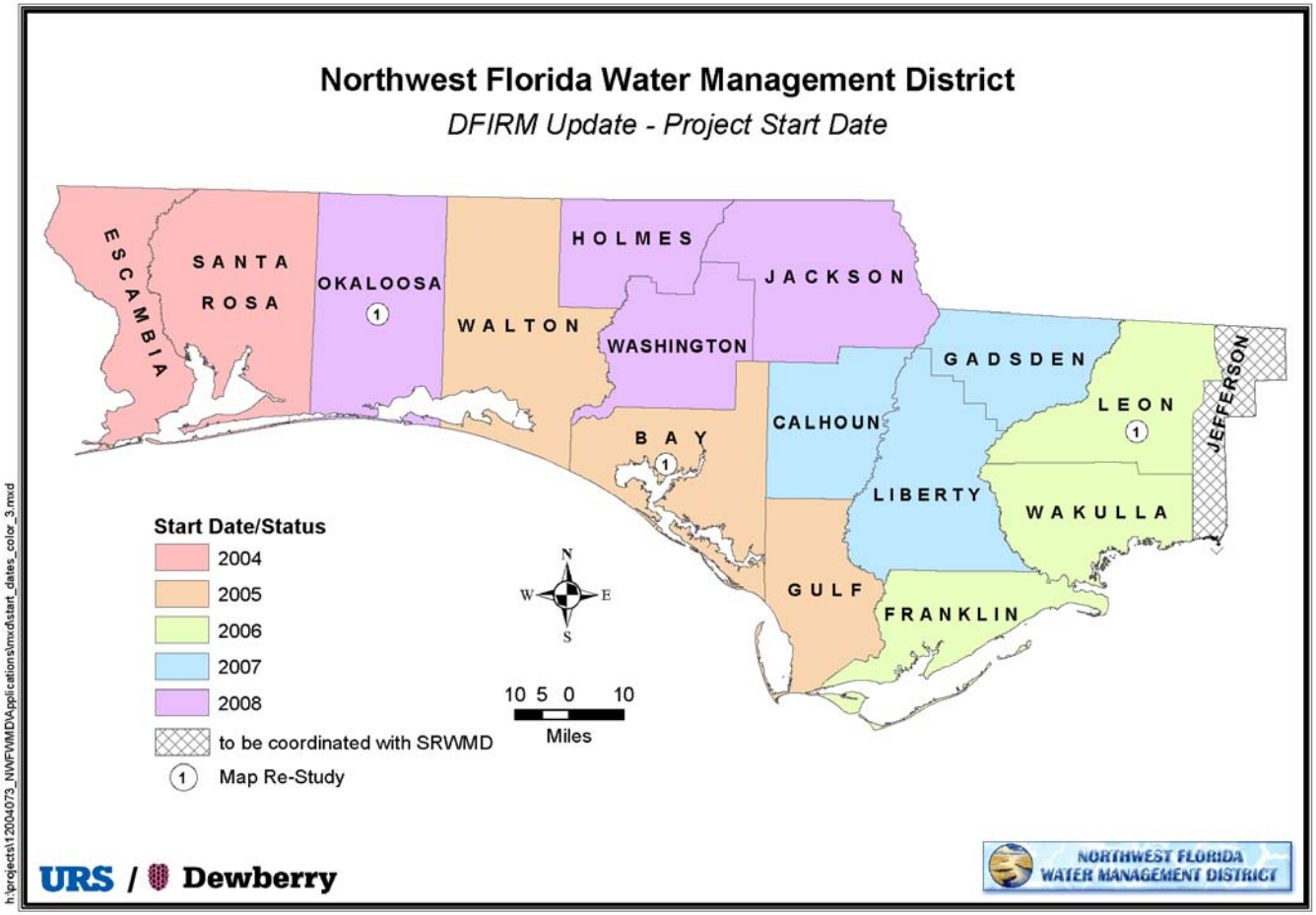
2.5
5
10
15
Miles

Inaccuracies of FEMA's FIRM Maps

The Future of Flood Zones