Integrating GIS into the Plangineering Process, Made Simple!

Erin Emmons, GISP – Kimley-Horn and Associates

James Barton, P.E. – Florida Technical Consultants

FSITE Annual Meeting - October 30, 2018
GIS for Transportation Planning

- GIS basics
- Terms to make you sound cool
- How it’s being used
- Resources
GIS Basics

An integration of five basic components
GIS Data Types

Real-world entities are abstracted into three shapes:

- **Points**
  - Retail stores

- **Lines**
  - Streets

- **Areas/Polygons**
  - Land uses
GIS Functions

Capture
Store
Query
Analyze
Display
Output

Spatially Coincident!!
The Lingo

- ESRI - ArcGIS > ArcMap, ArcGlobe, ArcScene
- ArcGIS Online, Portal, Data Hub
- Apps
- Metadata - data about data

**Shapefile**

Zip all files, not just .shp when sending

- Streets.dbf
- Streets.prj
- Streets.sbn
- Streets.sbx
- Streets.shp
- Streets.shp.xml
- Streets.shx

**Geodatabase - .gdb**

Zip before sending

- a0000000a.gdbindexes
- a0000000a.gdbtable
- a0000000a.gdbtablxx
- a0000000a.spx
- a0000000c.gdbindexes
- a0000000c.gdbtable
- a0000000c.gdbtablxx
- a0000000c.spx
- a0000000d.gdbindexes
ArcMap Interface

Table of Contents

Data Frame/
Map View

ArcCatalog
The **Transportation Data Portal** is a platform for locating data related to the core mission of the Florida Department of Transportation (FDOT). The department’s primary statutory responsibility is to coordinate the planning and development of a safe, viable, and balanced state transportation system serving all regions of the state, and to assure the compatibility of all components, including multimodal facilities. This online resource can be used to explore and download open geospatial data; analyze and combine open datasets using maps; develop new web/mobile applications and more.
Annual Average Daily Traffic TDA

Download Data:
Enter Guest as Username to download the source shapefile from here:

Attributes

- AADT Number
- AADTFLG Text
- BEGIN_POST Number
- COSITE Text
- COUNTY Text
- COUNTYDOT Text
- DESC_FRM Text
- DESC_TO Text
- DFCTR Number
- DFLG Text
- DISTRICT Text
- END_POST Number
- K100FCTR Number
- K100FLG Text
- KFCTR Number
- KFLG Text
- MNG_DIST Text
- ROADWAY Text
- Shape_Length Number
- Shape_Leng Number
- TFCTR Number
- TFLG Text
- YEAR Number
- SHOW MORE
  - 1 Attribute
Explore Web Apps

https://gis-fdot.opendata.arcgis.com/
Story Maps

- Are you ready Tampa
  - https://tampa.maps.arcgis.com/apps/MapSeries/index.html?appid=df0f2aec513648cdb6a58afb8da6f6a7

- 5 New Ways to View Transit

- Reconnecting Milwaukee
  - https://railstotrails.maps.arcgis.com/apps/Cascade/index.html?appid=617ccd30696a44e19937437c222557a2
The City of Tampa's Local Mitigation Strategy (LMS) identifies 20 hazards that pose a risk to the city. The LMS is intended for anyone who would like to know more about what vulnerabilities our community faces and how the city plans on mitigating these risks. Please view the full LMS for a more detailed analysis of the City of Tampa's hazards.

This citizens guide is designed to provide you with key content from the LMS in an interactive format. The tabs at the top of this screen will give you insight into some of the hazards we face and preparedness information on how to protect you and your family.
Are You Ready Tampa Bay?

A citizens guide to natural hazards preparedness

2018 Hurricane Season - Latest Shelter Information

The Evacuation Zone and Shelter Map on the right delineates areas that will potentially be inundated with storm surge so our residents can have the opportunity to evacuate to safety ahead of a hurricane. The storm surge data is derived from the Sea Lake Overland Surges from Hurricanes map provided by the State of Florida Division of Emergency Management. Evacuation Levels are defined by how at risk the area is from storm surge. The map is searchable by street name, address or place.

For more information visit:
Hillsborough County Shelters

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<th>Action</th>
<th>Potential Storm Tide Heights (Fe)</th>
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<td>Level B</td>
<td>Evacuate red and orange areas</td>
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<td>Level C</td>
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5 New Ways to View Transit

#1 Use Service Areas Instead of Buffers

The map on the right shows a 0.25-mile buffer around transit lines. This is not the optimal way of analyzing service areas. Instead, use the method shown in the map on the left that demonstrates a 0.25-mile service area created around each stop using the city's road networks.

---Click on the grey line separating the maps and swipe left or right---

Click on the image below to maximize:
5 New Ways to View Transit

#1 Use Service Areas Instead of Buffers

The map on the right shows a 0.25-mile buffer around transit lines. This is not the optimal way of analyzing service areas. Instead, use the method shown in the map on the left that demonstrates a 0.25-mile service area created around each stop using the city's road networks.

---Click on the grey line separating the maps and swipe left or right---

Click on the image below to maximize:
How it’s being used
Data Capture

Hardcopy maps

Federal "Wild Lands"

Digital data

GPS

GIS Data

Coordinates

480585.5, 3769234.6
483194.1, 3768432.3
485285.8, 3768391.2
484327.4, 3768565.9
483874.7, 3769823.0
Field Applications

- Field Verification
Link to 3rd Party Applications

- Asset Management
  - Work Orders
  - Risk / Criticality
  - Specific Modules
- Modeling Software
  - Pressure Zones
  - Water Age (CI)
  - Valve Insertion
Available Data
Available Data
Available Data

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[Database Table Image]

[Map Image]
Available Data
Available Data
Available Data
Available Data
Correcting Data
Correcting Data

- Topology
  - Snapping
  - Overlaps
- Duplicates
- Symbolizing
- Labeling
Display

• Atlas
Permit Maps

Topo

Display

Flood Zones
Analysis

Which parcels are within 50 feet of the road?

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Proximity

Overlay

Network

hospital

accident
Analysis

- Sum Features
- Select Area
- Select Sizes
03/30/06

Attention: Zlinkoff, Esther
4521 SW Bimini Cir N
Ft. Pierce, FL 34990

To Whom It May Concern,

SUBJECT: WATER LINE MAINTENANCE

This letter is to inform you that on Monday, March 27, 2006 you will temporarily lose your water service for two hours between 10:00 am and 12:00 pm. To continue serving your needs ESRI W&W is doing maintenance on water mains in your area (please refer to the map provided below). If you have any questions, please call our customer service department Monday through Friday between the hours of 8:00 am and 6:00 pm at 1-800-555-ESRI.

Thank you,

Melanie Baker
Operations Manager
Fort Pierce Utility Authority

[Map Image]
Analysis
Analysis
Analysis
Analysis
Analysis

Legend
- Need Immediate Action
- System Valves
- Water Hydrants
- Water Control Valves

Water Mains
- 0 - 8IN
- 10 IN - 18IN

ADDRESS: 8763 SW 50th Place
ASSET: Valve
STATUS: Need
COMMENT: Blow off valve needs to be raised
USER: jbarton_CooperCity
DATE: 6/24/2016 8:41:26 PM
Analysis
20 years later and all of these things fit in your pocket.
Integrating GIS into the Plangineering Process, Made Simple!

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Questions?

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