

Utilizing Technology and GIS to Work More Efficiently, Made Simple!

Presented by:
Erin Emmons, GISP – Kimley-Horn and Associates

Kimley»Horn

FACERS Annual Meeting - November 20, 2019

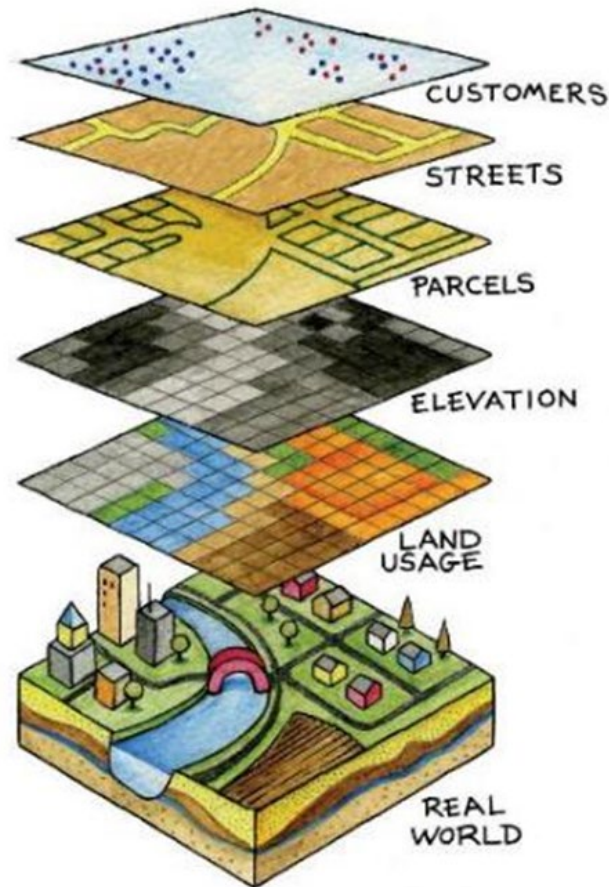
GIS for All

- ▶ **GIS basics**
- ▶ **Terms to make you sound cool**
- ▶ **How it's being used**
- ▶ **Resources**

GIS Basics

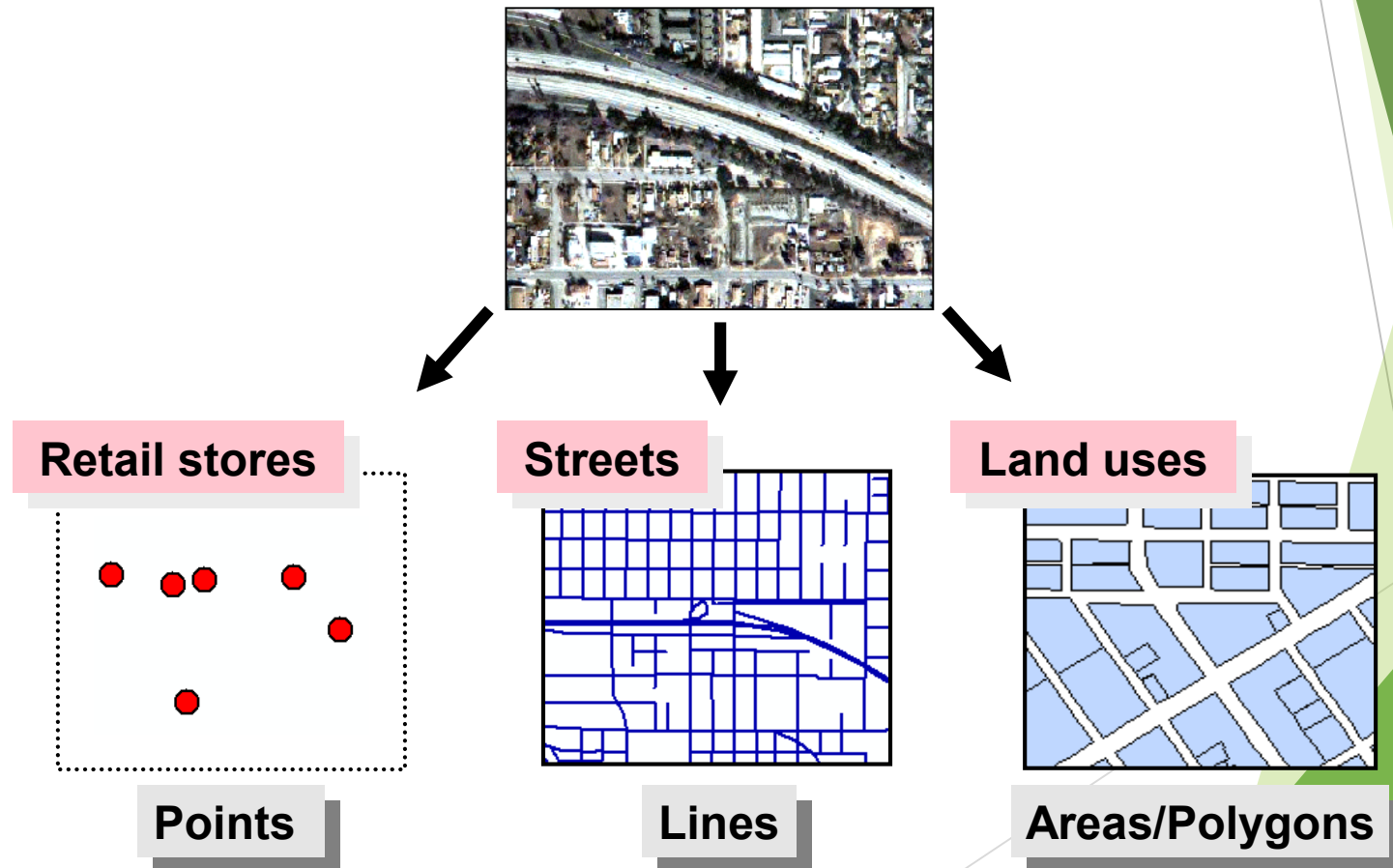
What is Geographic Information Systems (GIS)?

- *GIS is a computerized data management system used to capture, store, manage, retrieve, analyze, and display spatial information.*



GIS Data

Real-world entities are abstracted into three shapes



GIS Functions

Capture

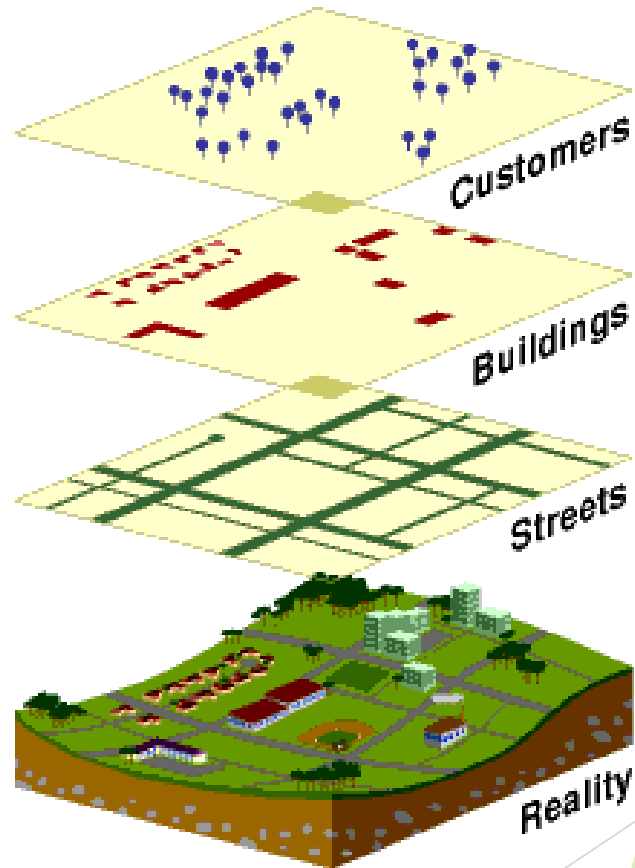
Store

Query

Analyze

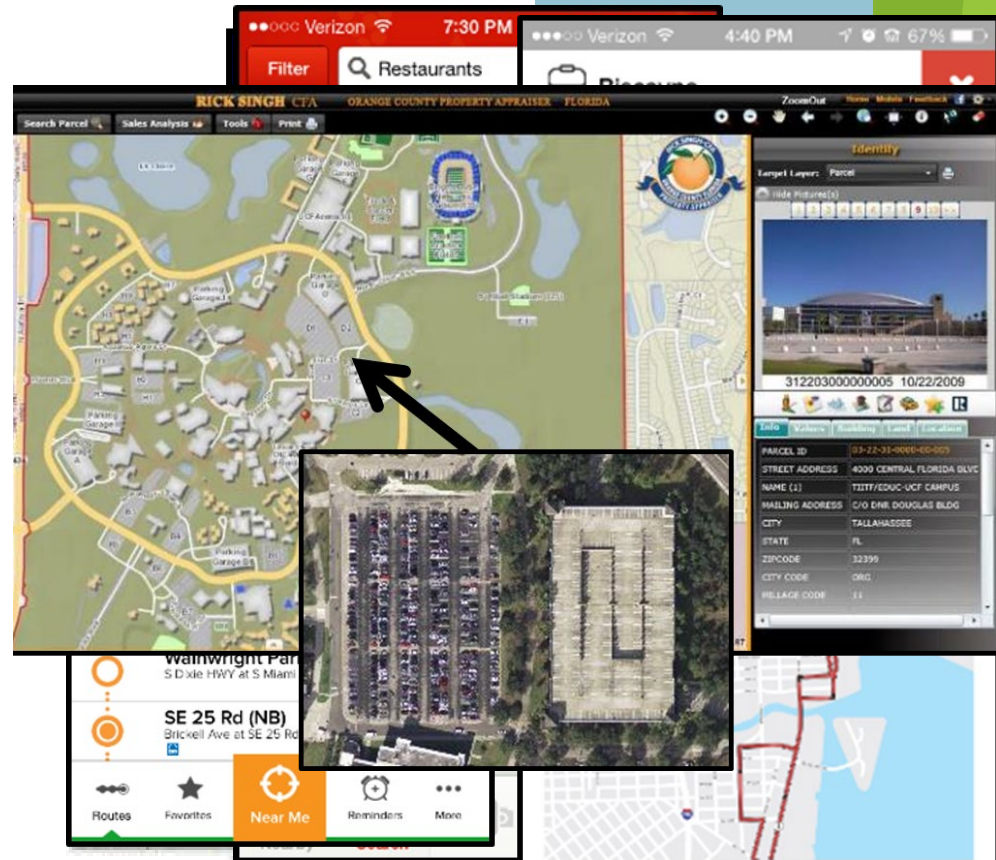
Display

Output



How you use it already

- ▶ **Traffic Monitoring -**
Google Maps/Waze
- ▶ **Service Locator -** *Yelp*
- ▶ **Real-time tracking -**
Transportation
- ▶ **Property Appraiser –**
property information
- ▶ **Workflow Management**



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*

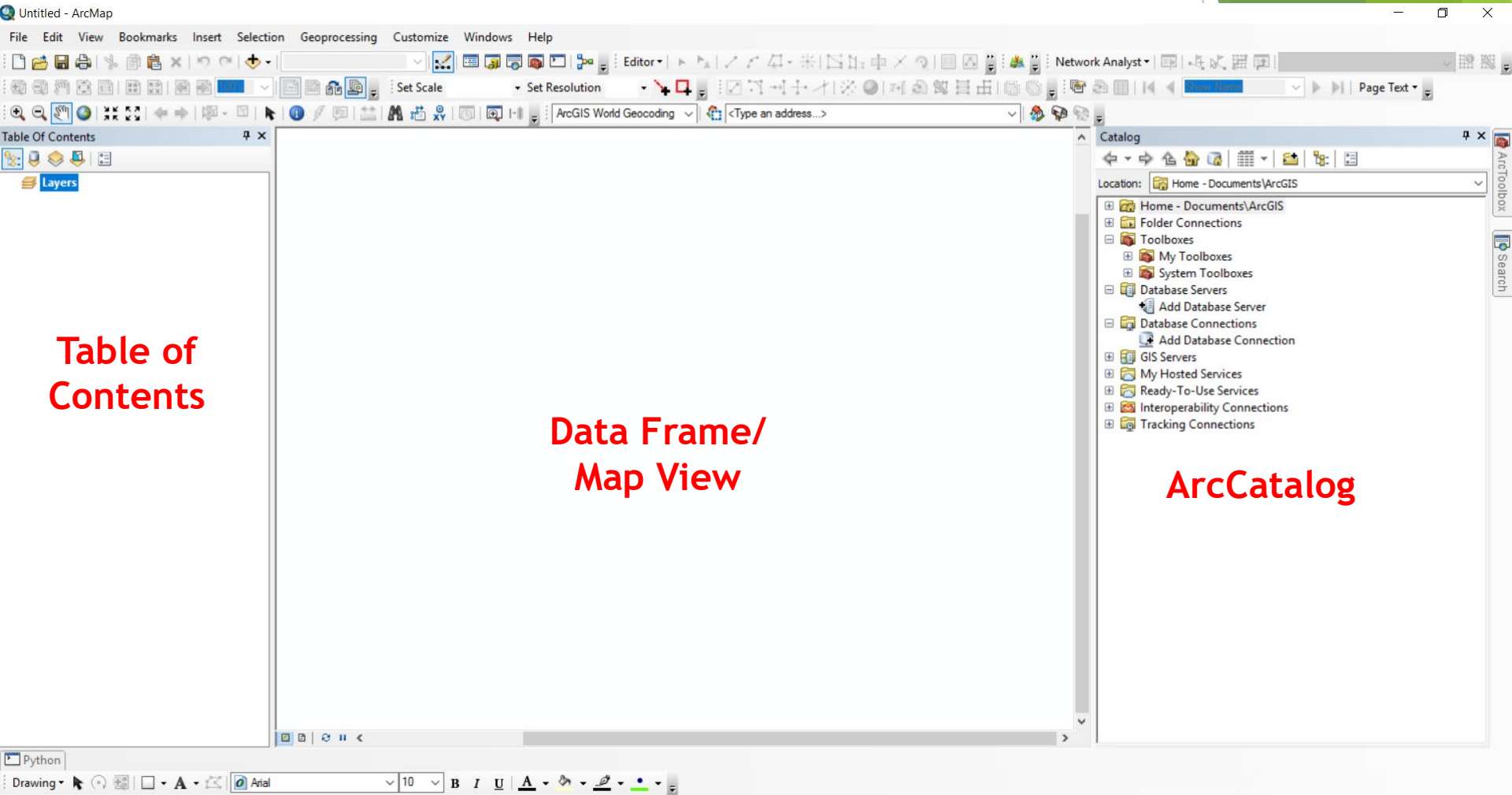
Streets.dbf
Streets.prj
Streets.sbn
Streets.sbx
Streets.shp
Streets.shp.xml
Streets.shx

Geodatabase - .gdb

Zip before sending

 a0000000a.gdbindexes
 a0000000a.gdbtable
 a0000000a.gdbtblx
 a0000000a.spx
 a0000000c.gdbindexes
 a0000000c.gdbtable
 a0000000c.gdbtblx
 a0000000c.spx
 a0000000d.gdbindexes

ArcMap Interface



How is it being used?

Data Collection

Update values and then press [save]

Intersection: **Intersection of State Hwy 66 and N Rockwell**
GPS ID: **419** Signalized: **Yes** Ramp: **3A**

Flush Transition (< 1/4") *

☐ Yes ☐ No

Ramp Running Slope (%) *

10.1

Ramp Cross Slope (%) *

1.1

Ramp Width (inches) *

46.0

Number of Existing Ramps on Corner *

☐ No Ramps ☐ 1 Ramp ☒ 2 Ramps

Previous

map search layers editor Show GPS Clear

Suggested Improvement (assume all existing ramps non-compliant) *

Construction Limitation *

☒ Yes ☐ No

Limitation Type (select all that apply) *

☐ Utility Conflict ☐ Drainage Inlet ☐ Retaining Wall

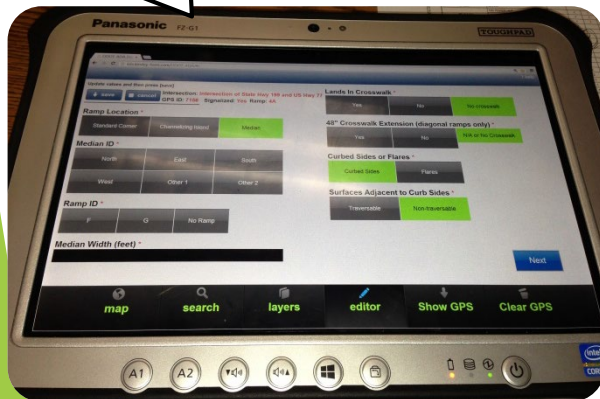
☒ Other Other: **parking lot**

Customized predefined fields to streamline data collection

Built-in QA/QC process to control data collection accuracy

Data can be updated on the fly in a GIS, with GPS and aerial base map integration

Information can be viewed and updated with mobile devices



Update values and then press [save]

GPS ID *

41

Corridor Name *

State Hwy 66

Sidewalk Cross Slope (%) *

2.4

Width (inches) *

128.0

Sidewalk Location *

☐ Back of curb ☒ Offset from curb

Sidewalk Running Slope (%) *

2.4

An aerial map view showing a street intersection. A green line indicates the sidewalk location, and a blue line indicates the curb location. The map is overlaid with a data collection interface, showing various input fields and buttons for data entry. The interface is similar to the desktop version shown in the top left, but adapted for a smaller screen. The bottom of the screen shows a row of icons for map, search, layers, editor, Show GPS, and Clear GPS.

GPS Data Collection

Update values and then press [save]

Intersection: **Intersection of US Hwy 270 /I-40 and S Sooner Rd (South)**
GPS ID: **4303** Signalized: **Yes** Ramp: **1A**

Ramp Photo *



Push Button Photo



Other Photo 1



[click to load]

Other Photo 2



[click to load]

map search layers editor Show GPS Clear GPS



Update values and then press [save]

GPS ID *
41

Corridor Name *
State Hwy 66

Sidewalk Cross Slope (%) *
2.4

Width (inches) *
128.0

Sidewalk Location *

Sidewalk Running Slope (%) *
2.4

Interactive Websites Applications

Capital Improvements Program and Transportation

TRACS Items

Print

Layers

Basemap

Filter Projects

District: All

Status: All

Type: All

Phase: All

Ctrl+ select multiple

All

No Data

1-Study

Advanced Options

Date Type: Select-

Earliest:

Latest:

Funding: All

Run Query Reset

Search

Editor

Print custom maps

Turn on/off data layers

Options to change background layer

Filter projects by commission district, project status, project type, construction date and funding status

Search for projects by project number and location. Generate custom tables of property owners

Edit/update project limits and status information

Project Number: B-50669

Status: Completed

Funded: YES

Phase: 6-Close-Out

Project Type: Drainage

District: 1

Project Description: B-50669 - Citywide Local Drainage Project E-78

Scope: New exfiltration drains and cross drains, related structures and pollution control devices (typical at 20 locations)

Client: 99-Capital Improvement Program

Project Manager: TBD (CIP),

Project Team: TBD

Prime Consultant: Wingerter Labs Inc

Construction Manager: TBD (CIP),

[Zoom to](#) [Create Report](#)

Esri, HERE, DeLorme, METVNASA, USGS, EPA esri Kimley»Horn

Link to 3rd Party Applications

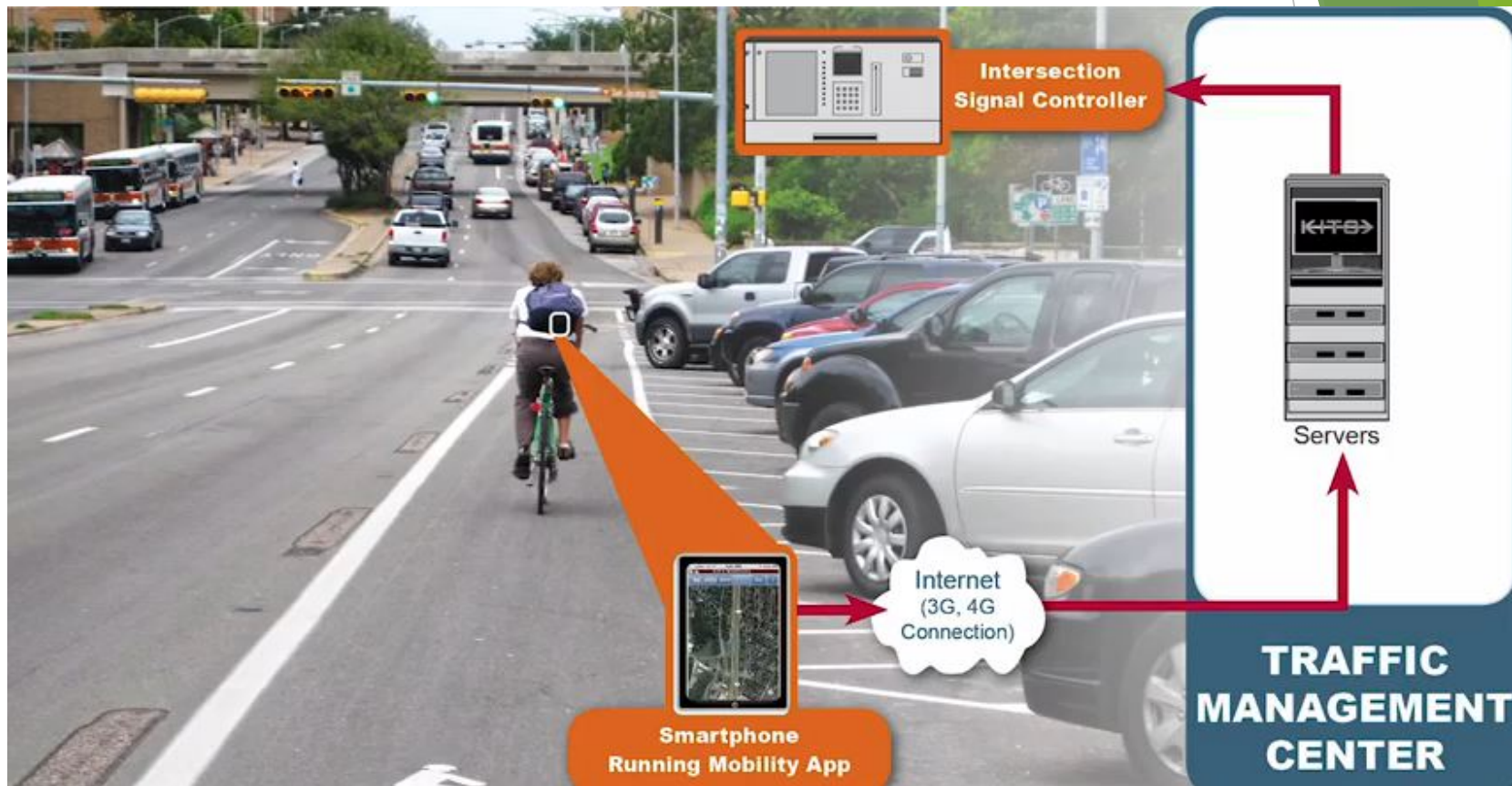
- **Asset Management**
 - Work Orders
 - Risk / Criticality
 - Specific Modules
- **Modeling Software**
 - Pressure Zones
 - Water Age (CI)
 - Valve Insertion



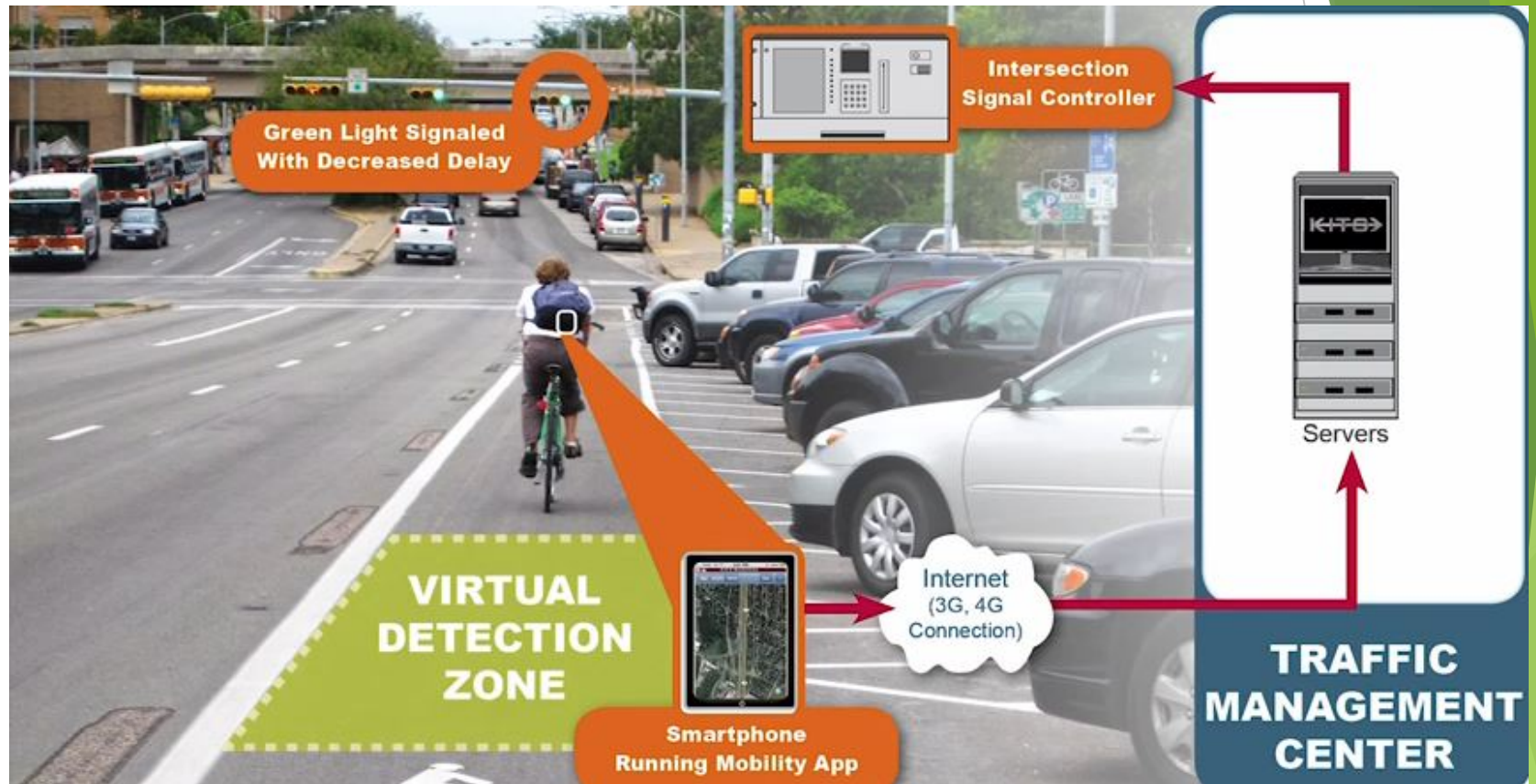
Bicycle Detection Application

Kimley»Horn









The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

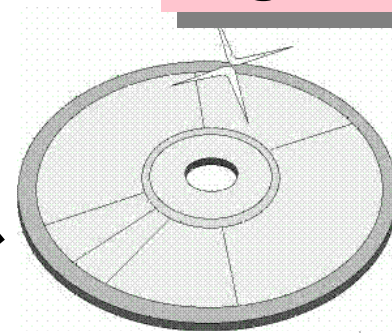
How do I get started?

Data Capture

Hardcopy maps



Digital data

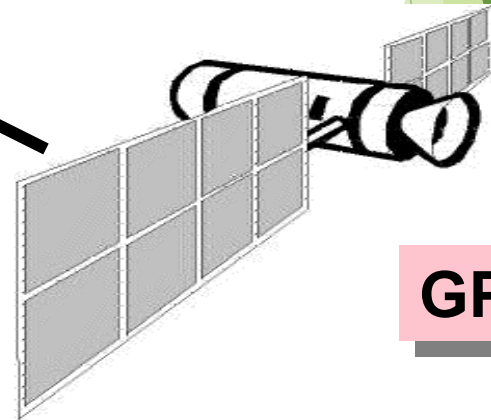


Coordinates

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

GIS
Data

GPS

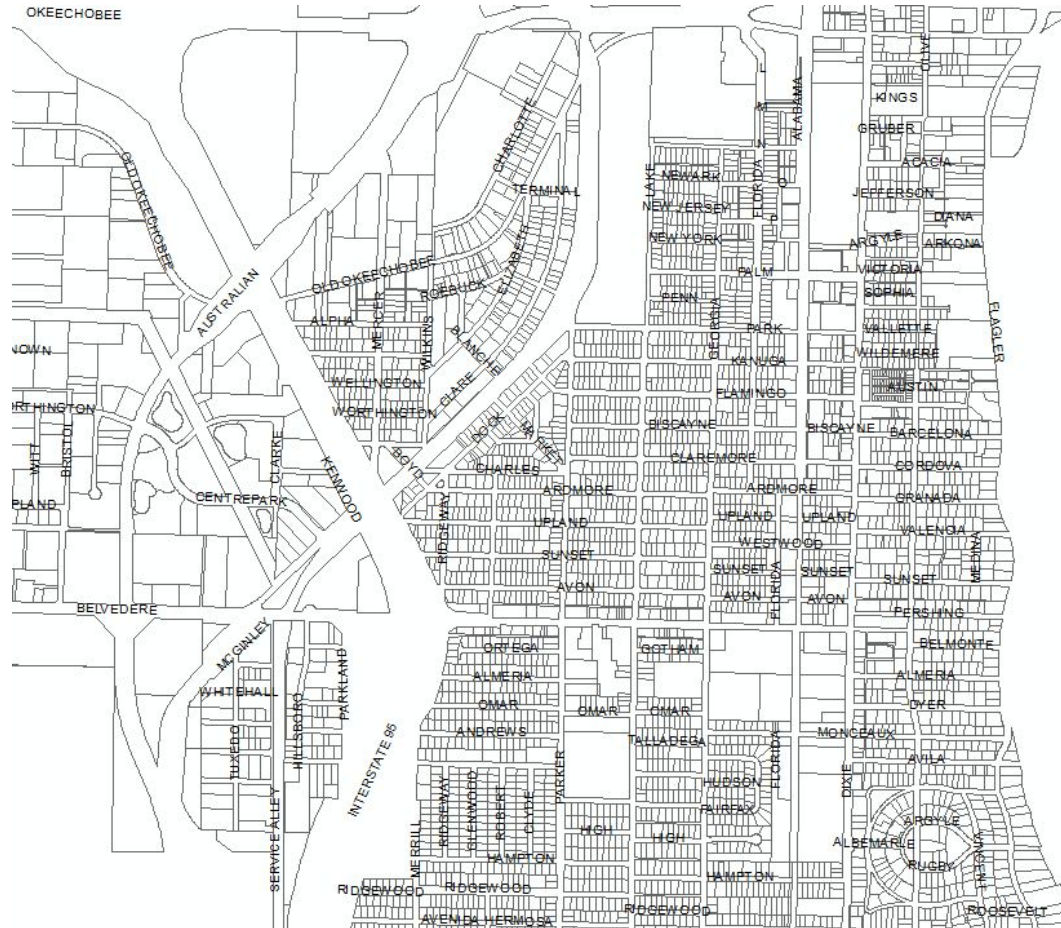


Digitization

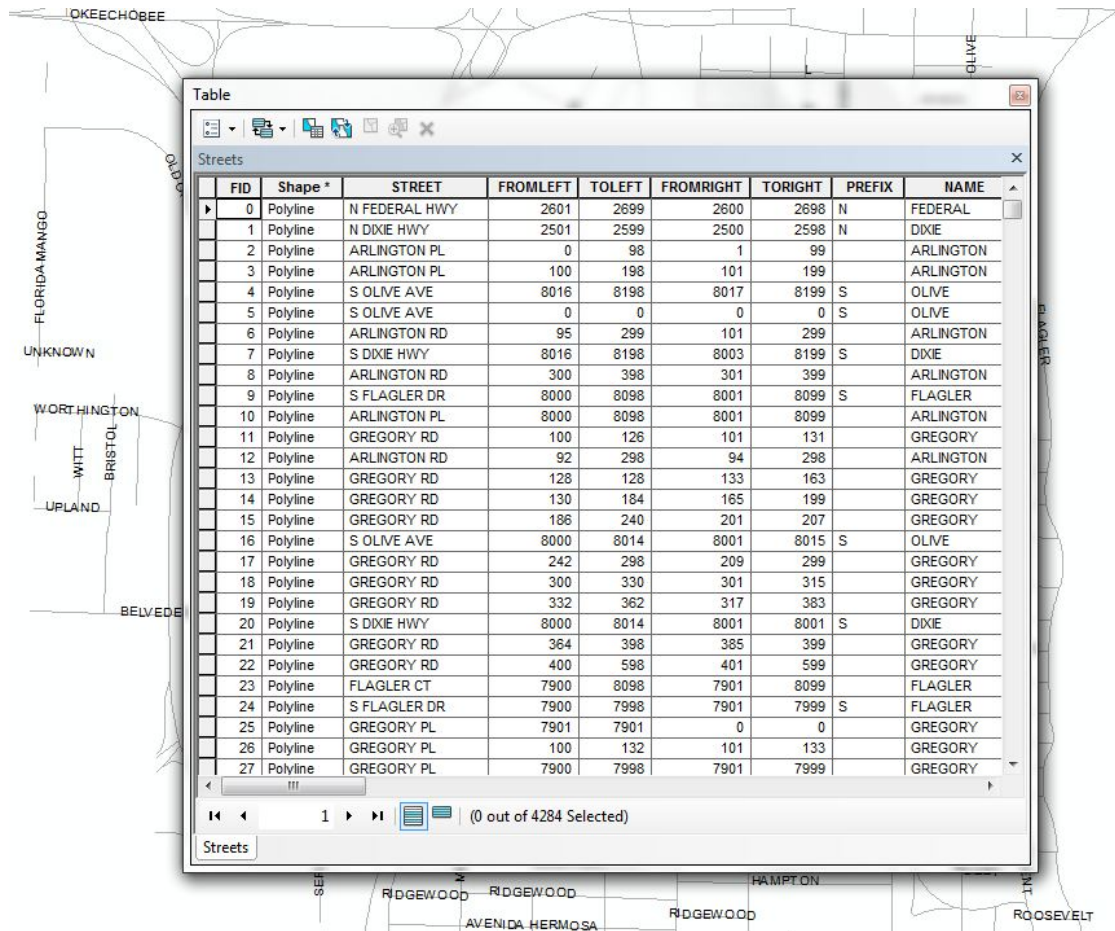


Available Data





Available Data



Table

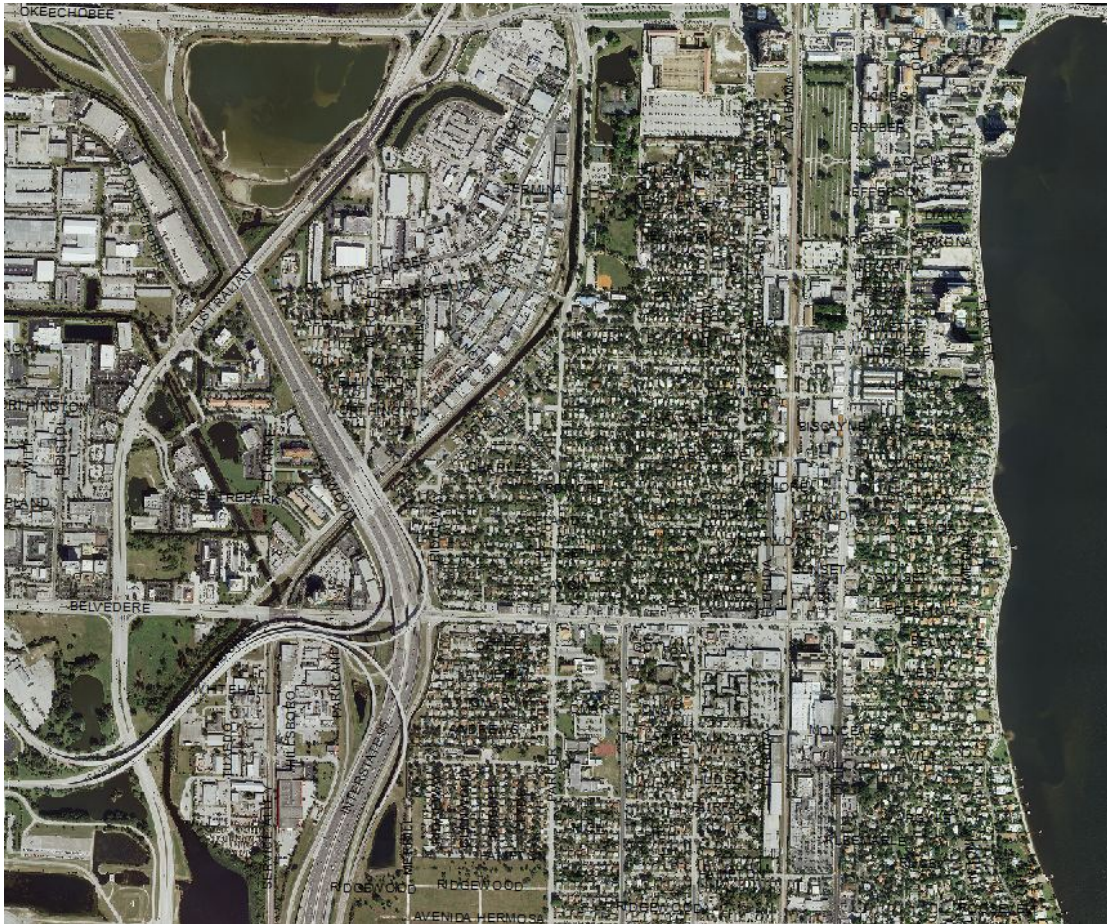
Streets

FID	Shape *	STREET	FROMLEFT	TOLEFT	FROMRIGHT	TORIGHT	PREFIX	NAME
0	Polyline	N FEDERAL HWY	2601	2699	2600	2698	N	FEDERAL
1	Polyline	N DIXIE HWY	2501	2599	2500	2598	N	DIXIE
2	Polyline	ARLINGTON PL	0	98	1	99		ARLINGTON
3	Polyline	ARLINGTON PL	100	198	101	199		ARLINGTON
4	Polyline	S OLIVE AVE	8016	8198	8017	8199	S	OLIVE
5	Polyline	S OLIVE AVE	0	0	0	0	S	OLIVE
6	Polyline	ARLINGTON RD	95	299	101	299		ARLINGTON
7	Polyline	S DIXIE HWY	8016	8198	8003	8199	S	DIXIE
8	Polyline	ARLINGTON RD	300	398	301	399		ARLINGTON
9	Polyline	S FLAGLER DR	8000	8098	8001	8099	S	FLAGLER
10	Polyline	ARLINGTON PL	8000	8098	8001	8099		ARLINGTON
11	Polyline	GREGORY RD	100	126	101	131		GREGORY
12	Polyline	ARLINGTON RD	92	298	94	298		ARLINGTON
13	Polyline	GREGORY RD	128	128	133	163		GREGORY
14	Polyline	GREGORY RD	130	184	165	199		GREGORY
15	Polyline	GREGORY RD	186	240	201	207		GREGORY
16	Polyline	S OLIVE AVE	8000	8014	8001	8015	S	OLIVE
17	Polyline	GREGORY RD	242	298	209	299		GREGORY
18	Polyline	GREGORY RD	300	330	301	315		GREGORY
19	Polyline	GREGORY RD	332	362	317	383		GREGORY
20	Polyline	S DIXIE HWY	8000	8014	8001	8001	S	DIXIE
21	Polyline	GREGORY RD	364	398	385	399		GREGORY
22	Polyline	GREGORY RD	400	598	401	599		GREGORY
23	Polyline	FLAGLER CT	7900	8098	7901	8099		FLAGLER
24	Polyline	S FLAGLER DR	7900	7998	7901	7999	S	FLAGLER
25	Polyline	GREGORY PL	7901	7901	0	0		GREGORY
26	Polyline	GREGORY PL	100	132	101	133		GREGORY
27	Polyline	GREGORY PL	7900	7998	7901	7999		GREGORY

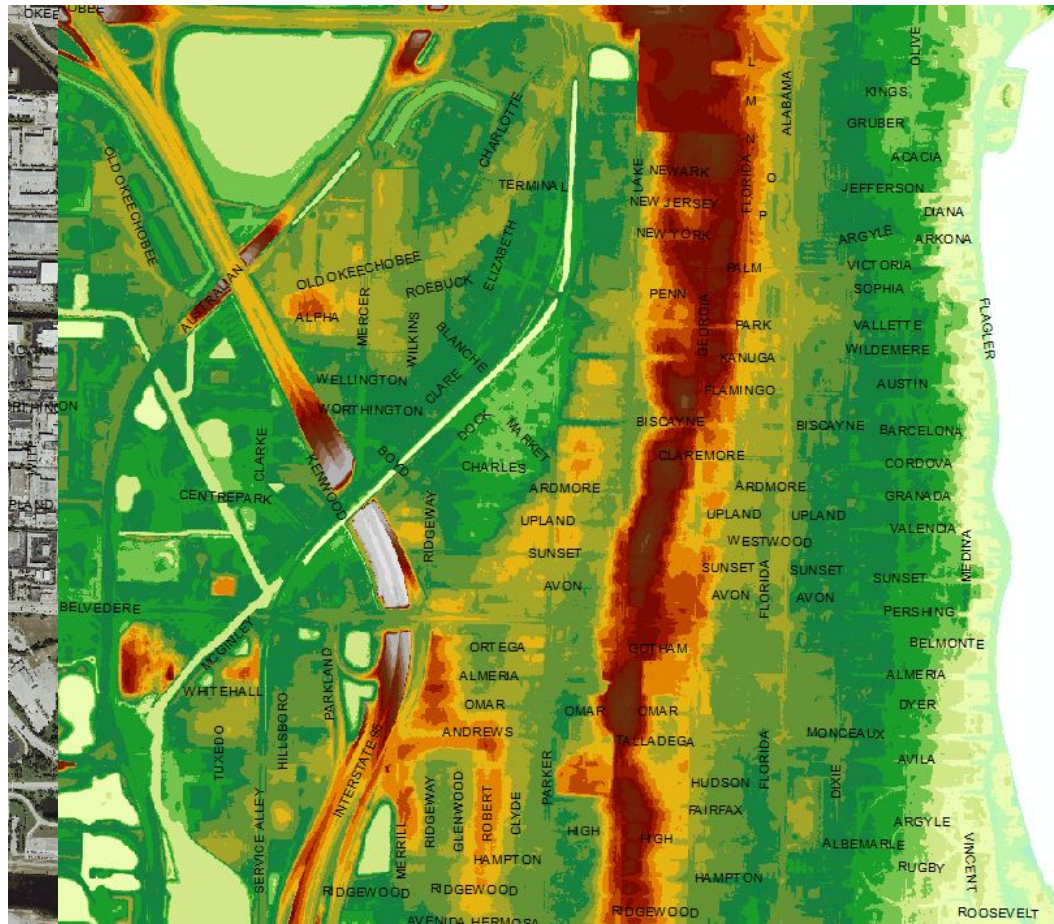
Streets

(0 out of 4284 Selected)

Available Data



Available Data



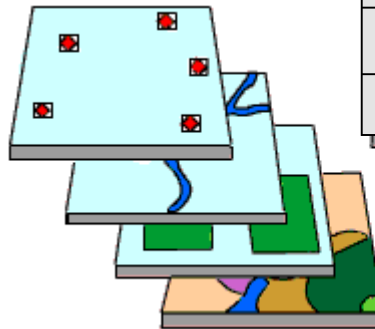
Analysis

Proximity



Which parcels are within 50 feet of the road?

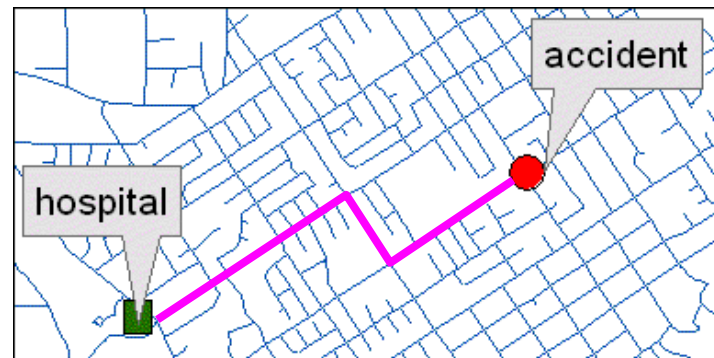
Overlay



Well type	Drilled
Building owner	Smith
Soil type	Sandy



Network



I want to make a map!



[Agency Resources / Transportation Data Portal](#)

Transportation Data Portal



Transportation Data

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.



**Aerial
Photography**



Apps



GIS@FDOT



**Open Data
Hub**



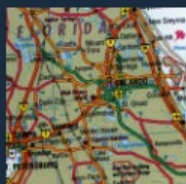
Traffic



More



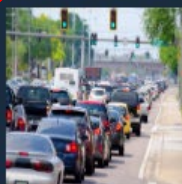
Explore Data Categories



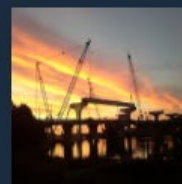
Roads



Safety



Traffic



Projects



RCI



Facilities

Truck Volume TDA

Shared by mark.welsh_fdot9

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

https://ftp.fdot.gov/file/d/FTP/FDOT/co/planning/transtat/gis/shapefiles/truck_volume.zip The FDOT Truck Traffic Volume feature class provides spatial information on annual average daily truck volumes along roadway traffic

🔒 Custom License 📅 10/21/2018 📁 Spatial Dataset 📊 19,625 Rows



Annual Average Daily Traffic TDA

Shared by mark.welsh_fdot9

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

<https://ftp.fdot.gov/file/d/FTP/FDOT/co/planning/transtat/gis/shapefiles/aadt.zip> The FDOT Annual Average Daily Traffic feature class provides spatial information on Annual Average Daily Traffic section breaks for the state of

🔒 Custom License 📅 10/21/2018 📁 Spatial Dataset 📊 19,625 Rows



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Annual Average Daily Traffic TDA

[★ Favorite ▾](#)[Download ▾](#)[APIs ▾](#)

Custom License 10/21/2018 Spatial Dataset 19,625 Rows

Download Data:

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

<https://ftp.fdot.gov/file/d/FTP/FDOT/co/planning/transtat/gis/shapefiles/aadt.zip>

[More ▾](#)

Attributes

Chart • Map Visualization

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			

About

Open Data Hub Group

Shared By: mark.welsh_fdot9

Data Source: [services1.arcgis.com](#)

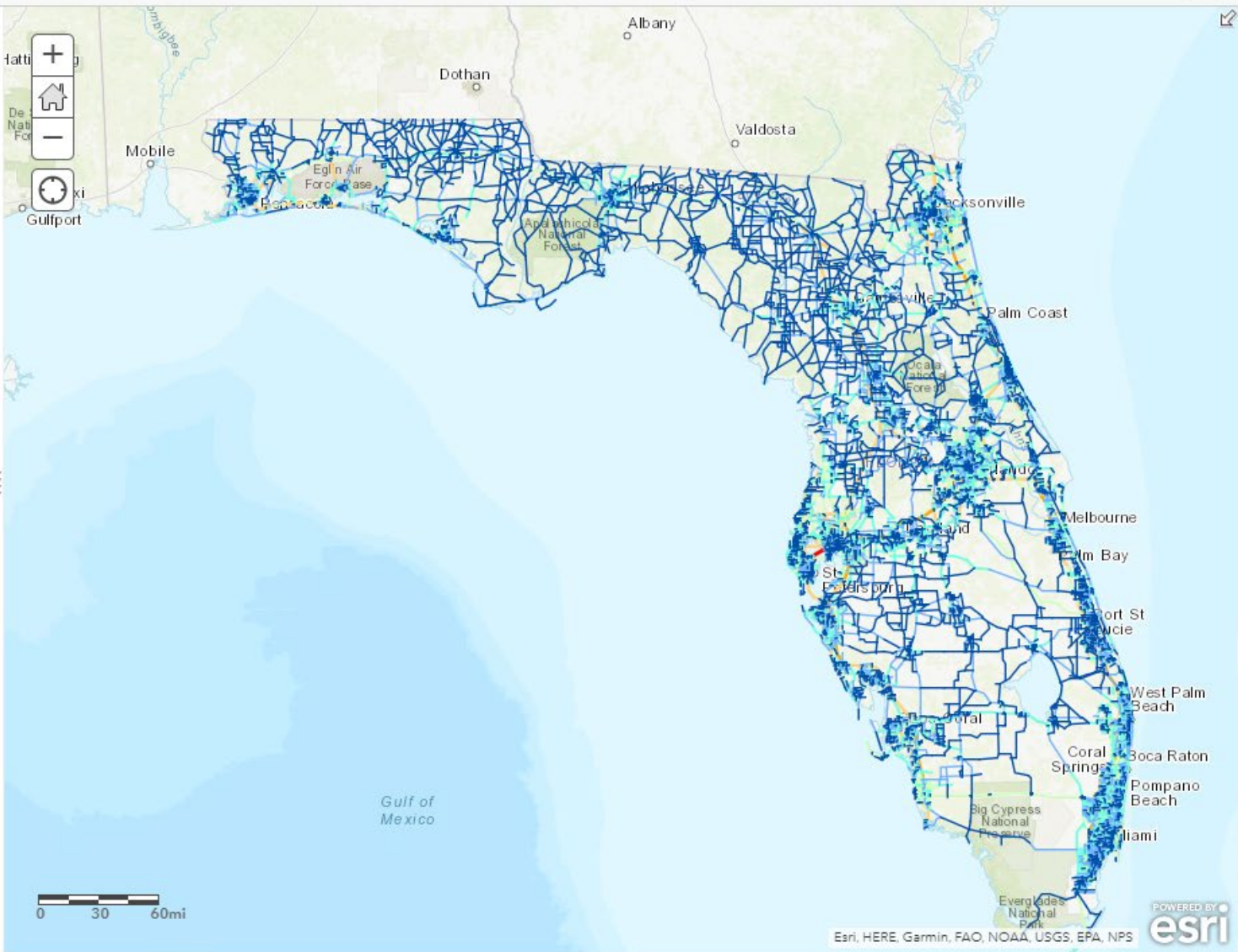
[View Metadata](#)[Create Webmap](#)[Create a Story Map](#)



ArcGIS ▾ My Map

New Map ▾ Sign In

Details Add ▾ Basemap | Save ▾ Print ▾ Measure Bookmarks



Explore Web Apps



FDOT
5 YEAR WORK PROGRAM

FDOT FY19 Adopted Work Program

FDOT FY 19 5-Year Adopted Work Program...

This application contains information regarding the 5-year listing of transportation projects...

Explore

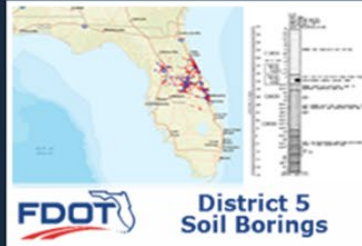


FDOT MyFlorida Transportation

MyFlorida Transportation Map

This official guide is a great resource to maximize your Florida experience.

Explore



FDOT District 5 Soil Borings

FDOT District 5 Soil Boring Application

This is an application so that contractors and members of the public have access to soil borin...

Explore



FDOT Bicycle Routes

Bicycle Friendly Roads

Bicycle Friendly Roads in Florida

Explore



FDOT
5 YEAR WORK PROGRAM

FDOT FY19 Adopted Work Program

FDOT FY 19 5-Year Adopted Work Program...

This application contains information regarding the 5-year listing of transportation projects...

Explore



FDOT District 4 Studies and Design Projects Funded for Construction

D4 Studies and Design Projects Funded for...

This Application Displays D4 Studies & Design Projects Funded for Construction.

Explore



FDOT Wildflowers

Florida's Turnpike Wildflower Locations 2016

Application displays the wildflower plantings along Turnpike right of way. Data from 2016 annual review.

Explore



FDOT Active Projects

Active Construction Projects

This map shows all active construction contracts in Florida.

Explore

Explore Web Apps

FY 2019 5-Year Adopted Work Program 2019 - 2023 Florida Department of Transportation

Legend

- RRU RAILROAD & UTILITIES
- ADM ADMINISTRATION
- CAP CAPITAL
- CST CONSTRUCTION
- DSB DESIGN BUILD
- ENV ENVIRONMENTAL
- INC CONTRACT INCENTIVES
- MNT BRDG/RDWAY/CONTRACT MAINT
- MSC MISCELLANEOUS
- OPS OPERATIONS
- PDE P D & E
- PE PRELIMINARY ENGINEERING
- PLN PLANNING
- ROW RIGHT OF WAY
- RPY REPAYMENTS
- RRU RAILROAD & UTILITIES

2019 Work Program: 2023 Adopted

Filter by Project Phase

- 2019 Work Program: 2019 Adopted
- 2019 Work Program: 2020 Adopted
- 2019 Work Program: 2021 Adopted
- 2019 Work Program: 2022 Adopted
- 2019 Work Program: 2023 Adopted

2019 Adopted SIGNING/PAVEMENT MARKINGS Project

District: 04
 County: BROWARD
 County Code: 86
 Description: SR-25/US-27 FROM NORTH OF I-75 TO BROWARD/PALM BEACH COUNTY LINE
 Project Type: SIGNING/PAVEMENT MARKINGS
 Amount: \$260,000.00
 Work Program Item: 439940
 Work Program Item Segment: 1
 Begin Mile Post: 15.31
 End Mile Post: 27.67

DISTRICT	WPITEM	WPITMSEG	COUNTY_CODE	COUNTY_NAME	DESCRIPTION	BEGIN_MILE	END_MILE	LENGTH	PROJECT_TYPE	PHASE_NAME	FISCAL_YEAR	AMOUNT	BOXNAME	CATEGORY
01	430185	5	16	POLK	FGT I-4 AT SR 33 INTERCHANGE MODIFICATION	12.03	12.68	0.65	INTERCHANGE - ADD LANES	RRU RAILROAD & UTILITIES	2019	5,000,000.00		HIGHWAY
05	239683	1	92	OSCEOLA	SR 500 (US 192) FROM EASTERN AVE TO CR 532	9.78	12.97	3.18	ADD LANES & REHABILITATE PVMNT	RRU RAILROAD & UTILITIES	2019	27,439.00		HIGHWAY
05	107112	5	35	ORANGE	SR 163 CANAL	0.60	0.80	0.20	ADD LANES & REHABILITATE PVMNT	RRU RAILROAD & UTILITIES	2019	11,121.00		HIGHWAY

Story Maps

► Are you ready Tampa

- <https://tampa.maps.arcgis.com/apps/MapSeries/index.html?appid=df0f2aec513648cdb6a58afb8da6f6a7>

► City of Poway 2015/2016 CIP

- <http://poway.maps.arcgis.com/apps/MapSeries/index.html?appid=83e385ee1d874990891bbb8b60d12583>

► SEE ART Walking Tour – City of Orlando

- <https://orl.maps.arcgis.com/apps/MapJournal/index.html?appid=fbaa6ab2b5f645ae99595ee13fbe490d>

► Moving Water South of Lake Okeechobee 2015-2016 - SFWMD

- <https://sfwmd.maps.arcgis.com/apps/MapTour/index.html?appid=a9072c94b5c144d8a8af14996ce23bca&webmap=d8e767997b0d494494243ffbc7f6f861>

Utilizing Technology and GIS to Work More Efficiently, Made Simple!

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FACERS Annual Meeting - November 20, 2019