

AIRBUS DS COMMUNICATIONS

home of **VESTA**[®]

Beyond the map: Getting more out of GIS for 9-1-1

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August 20, 2014



OUR PROMISE /

WE KEEP PEOPLE
CONNECTED WHEN
IT MATTERS MOST /



OUR PROMISE /

WE DESIGN
WITH AN
OPEN MIND /



CRITICAL MATTERS™

AIRBUS DS COMMUNICATIONS



OUR PROMISE /

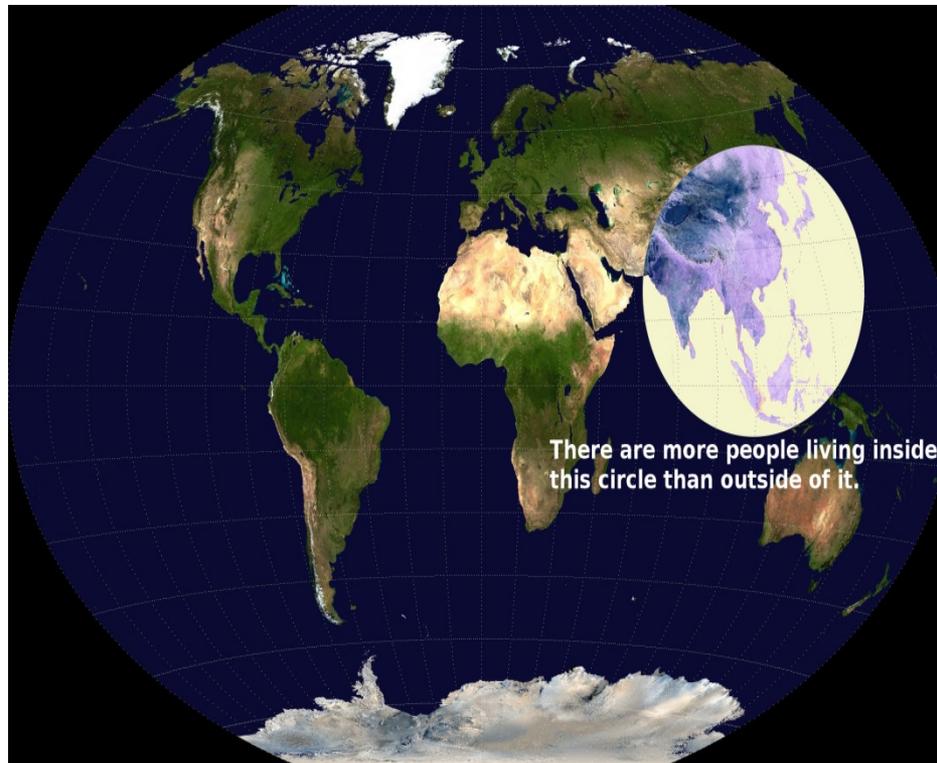
WE CREATE
SMARTER WAYS
TO KEEP ALL OUR
COMMUNITIES SAFE /

TODAY WE'LL TALK ABOUT:

- What makes a good map
- How maps are used in the PSAP
- How maps and GIS can help telecommunicators process calls quickly and effectively

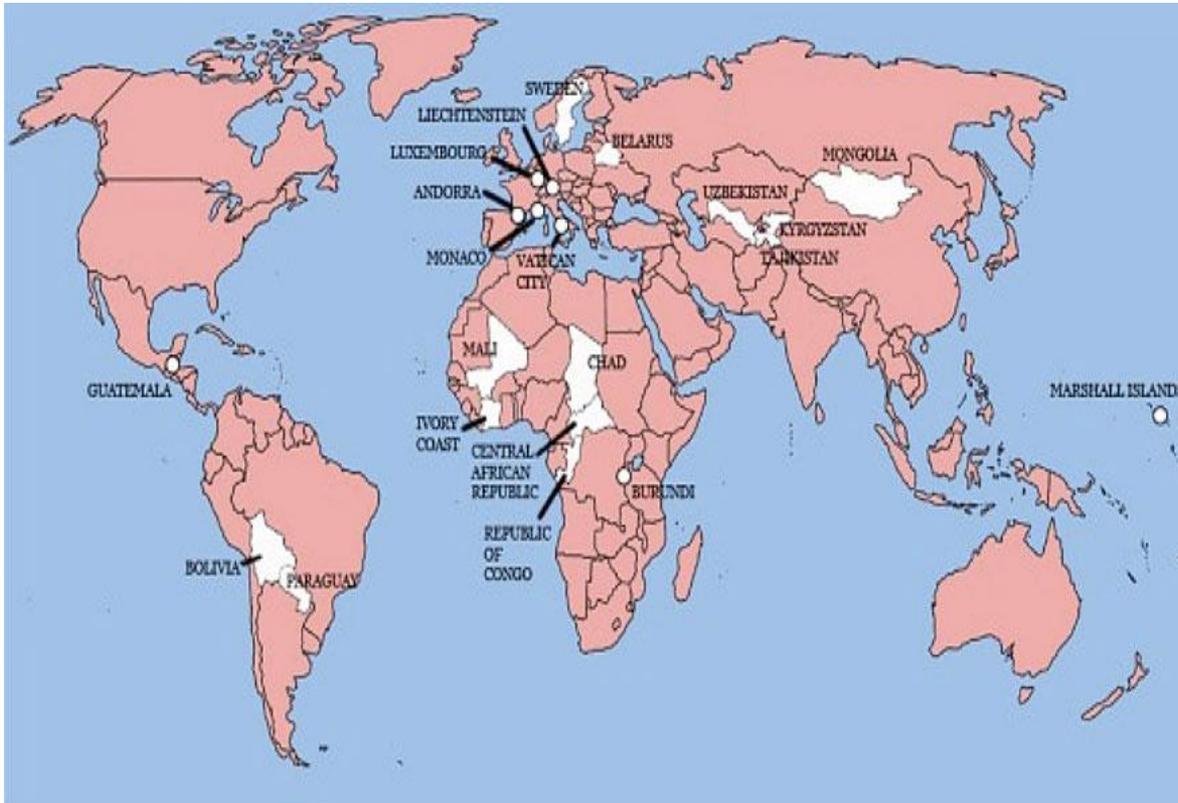
MAPS TELL A STORY

- Maps can reveal data and help reach conclusions



MAPS TELL A STORY

- Every Country England Has Ever Invaded (all but 22 countries in the world)



 BORED PANDA.COM - the only magazine for pandas.

MAPS TELL A STORY

The United States Is...

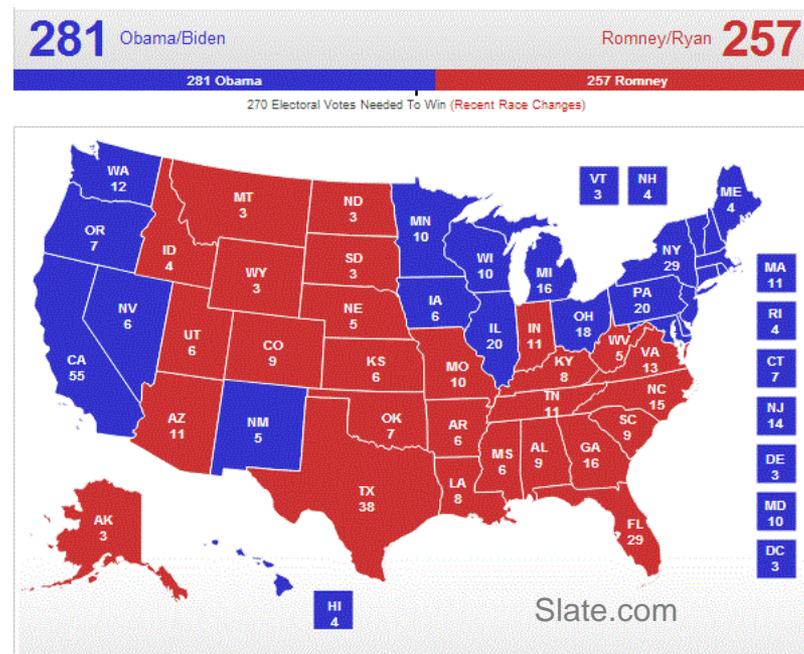
How autocomplete describes the 50 states.



What makes a map good?

Good maps communicate specific messages to the viewer with a minimum of effort.

Convey
information

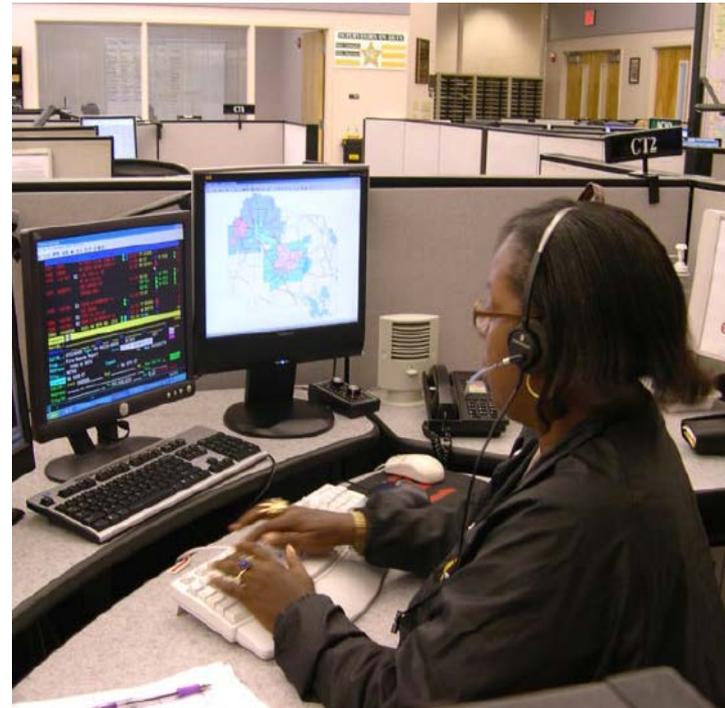


Provide
insight

WHAT MAKES A GOOD MAP?

- **First understanding:**

- Purpose of the map
- Who will be using the map
- How the map will be used



WHAT MAKES A GOOD MAP?

- **Making sure it has:**
 - Good, credible data
 - The 'right' data
 - Intuitive graphics
 - Visual hierarchy – visual scale of importance
 - Aesthetic and elegant design

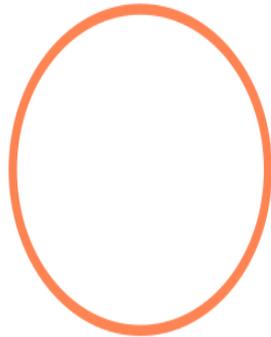
GOOD MAPS LEAD TO:

- Improved decision making
- Increased ability to understand complex data and spatial relationships

A PICTURE IS WORTH A 1000 WORDS

THE PICTURE SUPERIORITY EFFECT

CIRCLE



10%

RECALL 72 HOURS LATER

65%

RECALL 72 HOURS LATER

According to the **picture superiority effect**, concepts are much more likely to be remembered experientially if they are presented as [pictures](#) rather than as [words](#).

WORKING MEMORY



- Working memory is a system for temporarily storing and managing the information required to carry out complex cognitive tasks such as learning, reasoning, and comprehension. Working memory is involved in the selection, initiation, and termination of information-processing functions such as encoding, storing, and retrieving data.

-Medterms.com

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So the Sheriff Hired a Dispatcher

So the Sheriff Hired a Dispatcher...

And on that first day the Sheriff looked down on his plan for the Sheriff's office and said "I need someone to watch over these deputies." So the Sheriff hired a dispatcher.

Sheriff said "I need someone that will get up before dawn, be away from home for half the day, miss out on family life, work a 40 hour week in 3 days." So the Sheriff hired a dispatcher.

The Sheriff said "I need someone who will answer 911 lines, give pre-arrival instructions, deal with rude people, ask all the right questions, call all the right people, document it all at 100 words per minute." So the Sheriff hired a Dispatcher.

The Sheriff said "I need someone that is willing to sit at a computer all day, call out a wrecker, cancel that wrecker, give directions, listen to their problems, give the same directions again, answer their supervisors questions, put callers on hold, run a registration, run a driver's license, run a criminal history, give a case number, squeeze in a bathroom break, find that information, add that information into the call, find a translator, talk to the media, calm the crying parents on the phone, deal with irate parents, give CPR instructions, stay on the phone and listen to the gut wrenching screams, and then calmly answer the phone and help the next caller." So the Sheriff hired a dispatcher.

The Sheriff said "I need someone to watch over 100 deputies on the radio, check on the unit, repeat everything they say, type everything they say, run all those drivers licenses, run their registrations, check on that stolen car, run 4 criminal histories, check on that wanted man, check on that unit again, print everything, call the district attorney, call the judge, call the body car, call the other agencies, check on that unit, dispatch the call holding, inform the Sargent, call the Battalion, eat a cold dinner, call for mutual aid, call for Life Flight, Get more back up, check on that pursuit, work that shooting, stay calm and cool as steel when you hear your deputy call for help..... and they need to send them all home.. safely, at the end of the night." So the Sheriff hired a Dispatcher.

The Sheriff said "I need someone who will do all of that for an entire shift, with a smile, no complaints, and then do it all again tomorrow. So the Sheriff hired a Dispatcher



THE PSAP ENVIRONMENT

- 9-1-1 Centers are high stress environments!!!!
 - Information overload
 - Multitasking
-
- Decreased productivity
 - Impaired decision making



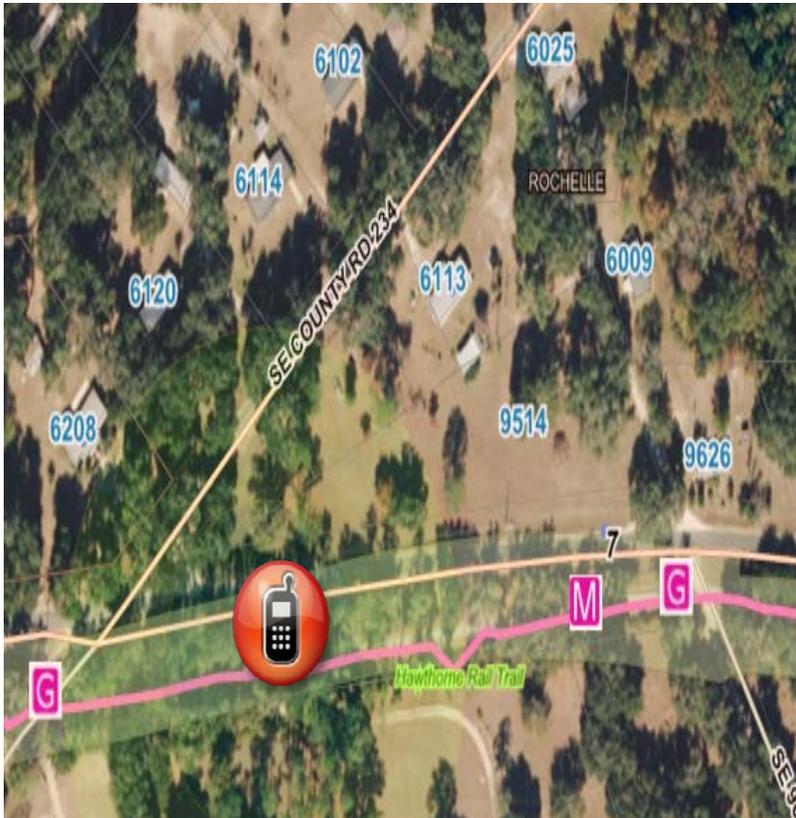
Hyperbole and a half memes

MAPS IN THE PSAP

- **Can help alleviate information overload**
 - Maps create a visual connection between events and location; aggregating and compressing information.
 - Colors and symbols can be used to aggregate information and make it more easily understood.



MAPS IN THE PSAP



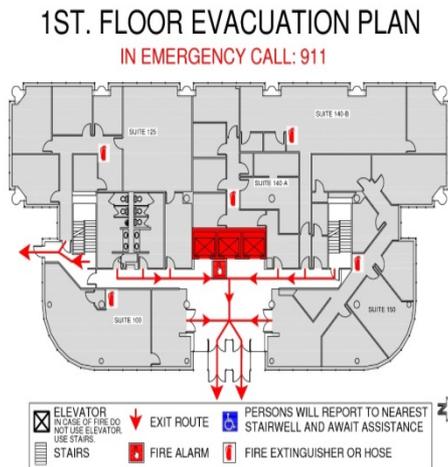
- **Provide location awareness**

- Provide information and context to an emergency callers location
- Help drive the conversation with a caller to confirm and/or determine the location of the emergency

MAPS IN THE PSAP

- **Provide situational awareness**

- Integrate multiple data streams in one interface
- Present relevant information based on location



Legend:

- sat_satellite.jpg
- zoom_overlay.jpg
- Address Points
- Label Number Numbers
- Landmarks 0
- Landmarks 4
- Shield
- highways
- HWY Level 0
- HWY Level 4
- City Streets
- Surrounding Streets
- hall
- Group Land Use
- Water Bodies

Incident Map

Wireless Call (Spoken) - 4
33.330363
-118.172462
7% confident call is within 83 meters
ClassOfService: WP12

Overview

Calendar	Area Co.	Phone#	House#	Prefix	Name	Type	Suffix	Community	Latitude	Longitude	Other
7/6/2010 4:28:31 PM	323	3271789	291	N	BROADWAY			LOS ANGELES	33.330363	-118.172462	
7/6/2010 4:27:31 PM	424	3453454									
7/6/2010 4:25:58 PM	626	4952483							34.128516	-118.117281	

Zoom In

X: -95.8675 Y: 26.6069 Lat: 36.6092750 Long: -95.8675270 (N 26° 36' 21.239", W 95° 52' 42.820")

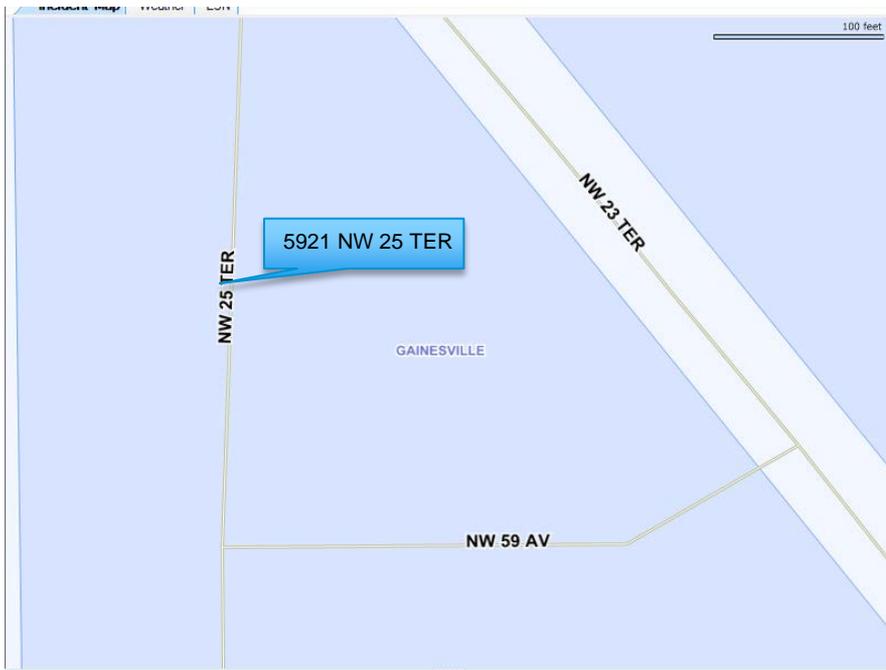
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9-1-1, WHAT IS THE LOCATION OF YOUR EMERGENCY?

Help! I've fallen and I don't know where I am!!!

LANDLINE



Centerlines



+ Address Points

LANDLINE



+ Parcels & Building Footprints



+ Neighborhood labels

LANDLINE



+ Aerials



Pictometry

WIRELESS



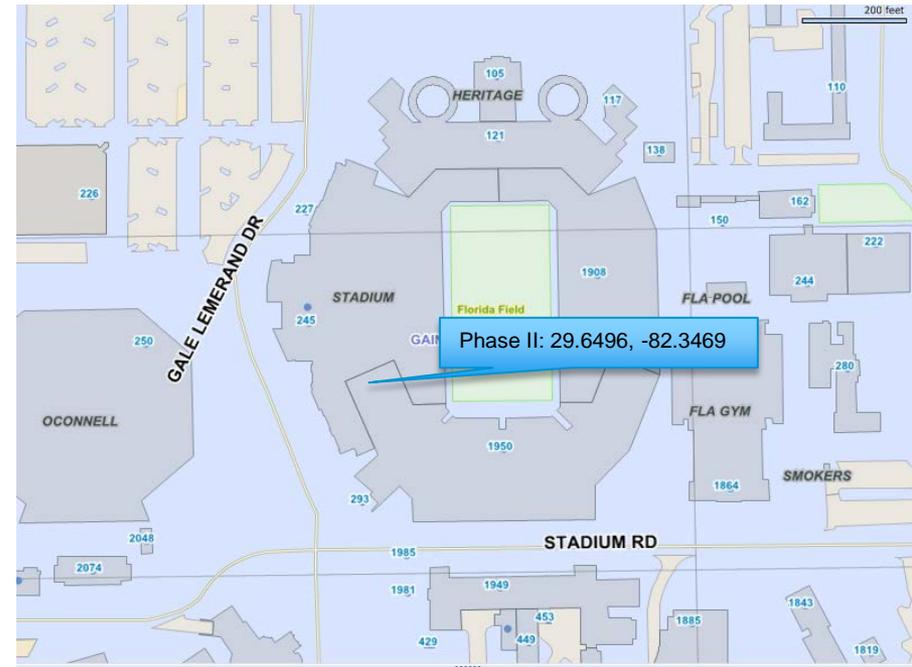
Centerlines



+ Address Points



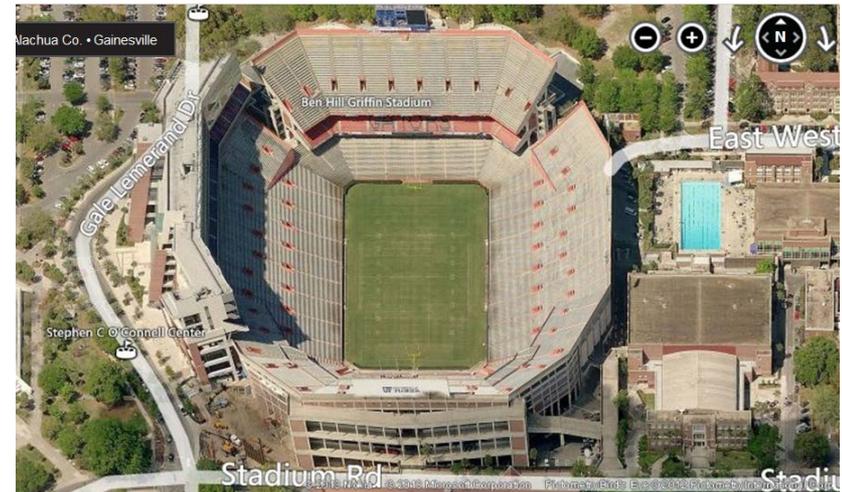
+ Parcels



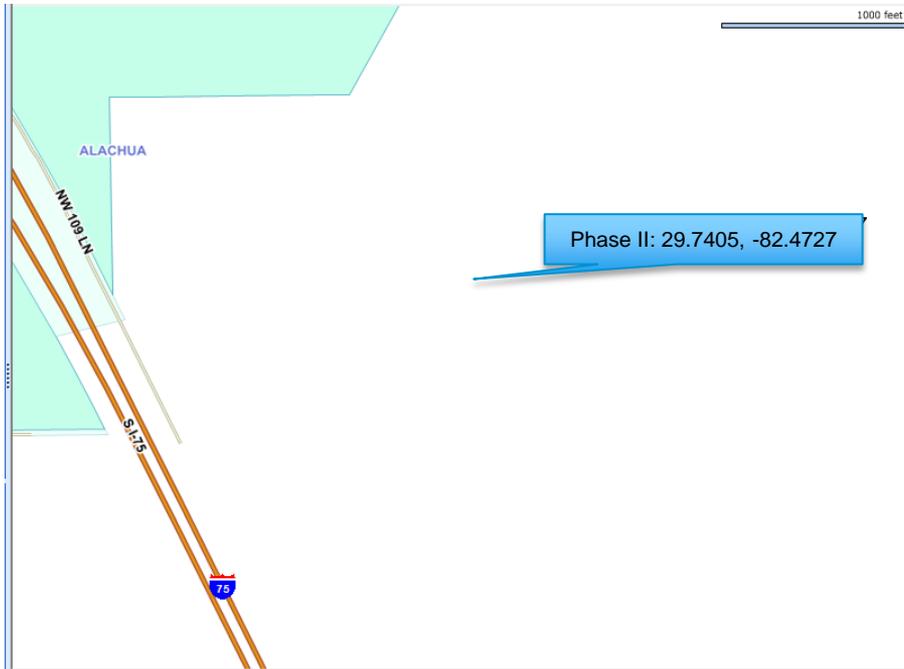
+ Building Footprints



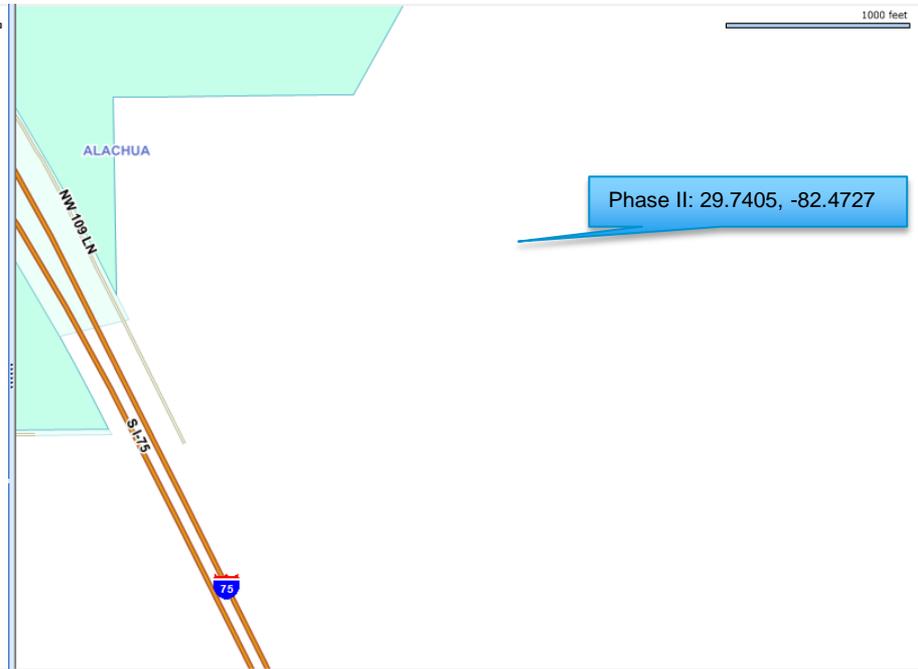
+ Aerials



Pictometry



Centerlines



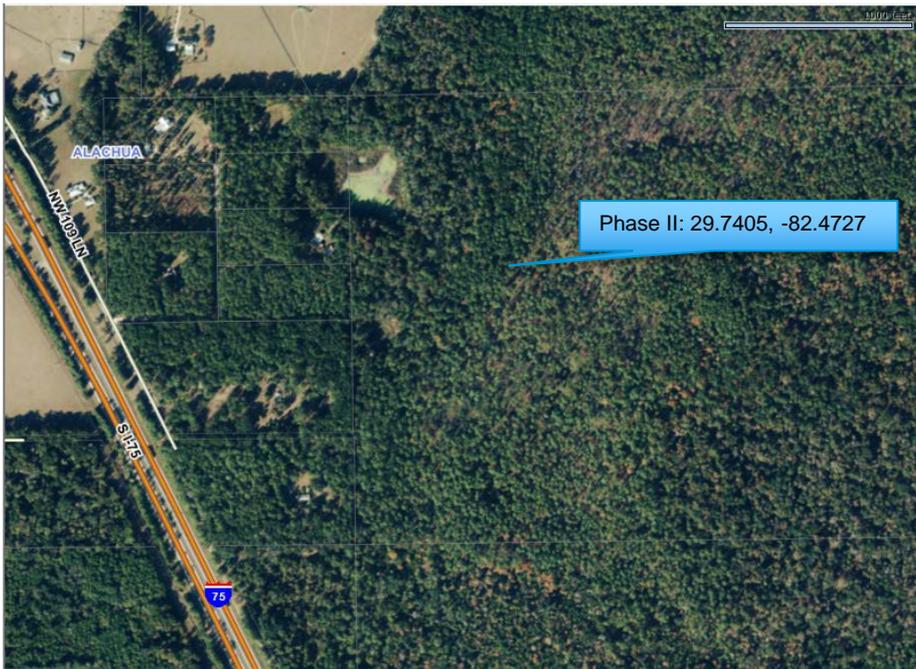
+ Address Points



+ Parcels



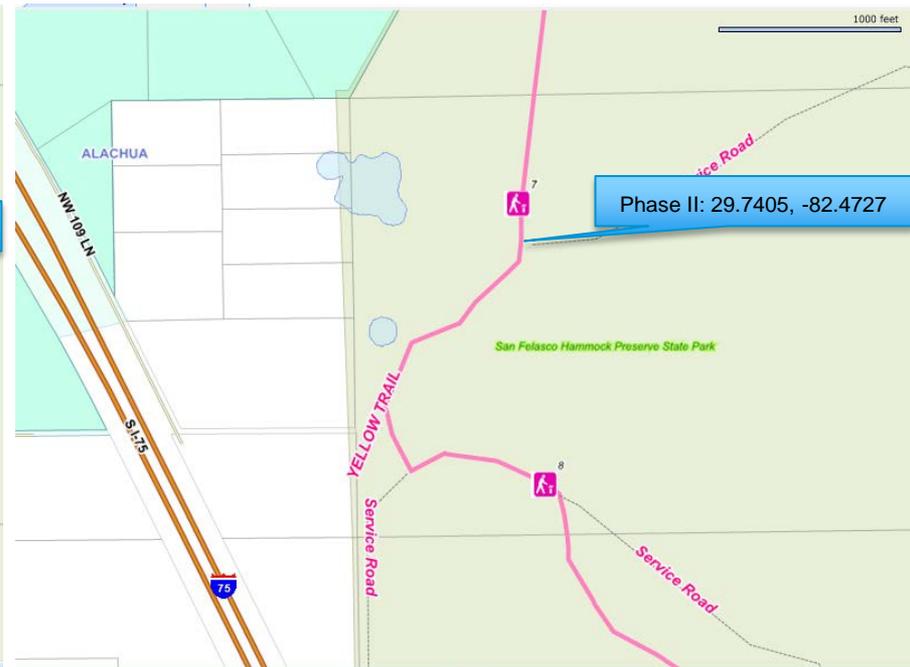
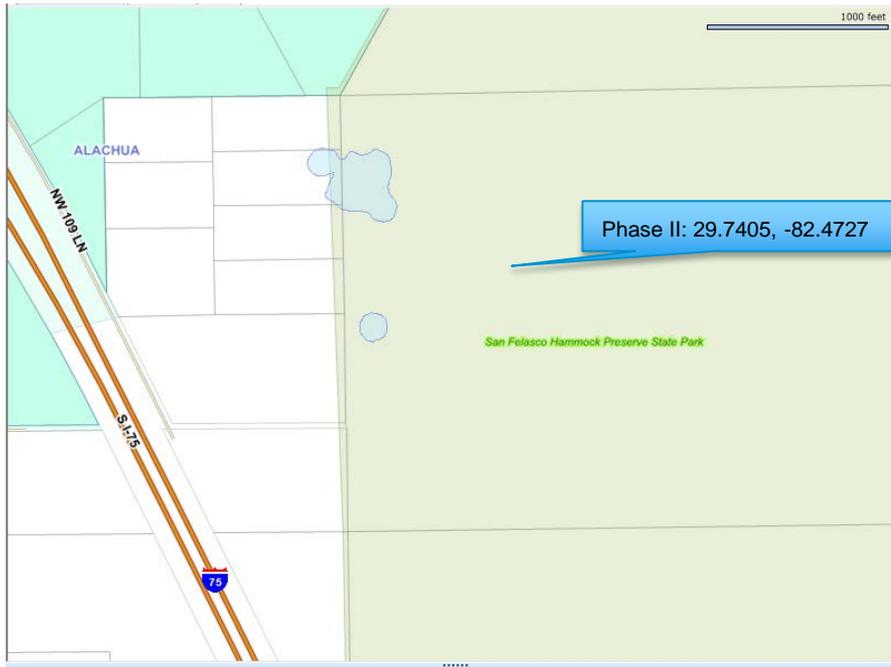
+ Building Footprints



+ Aerials

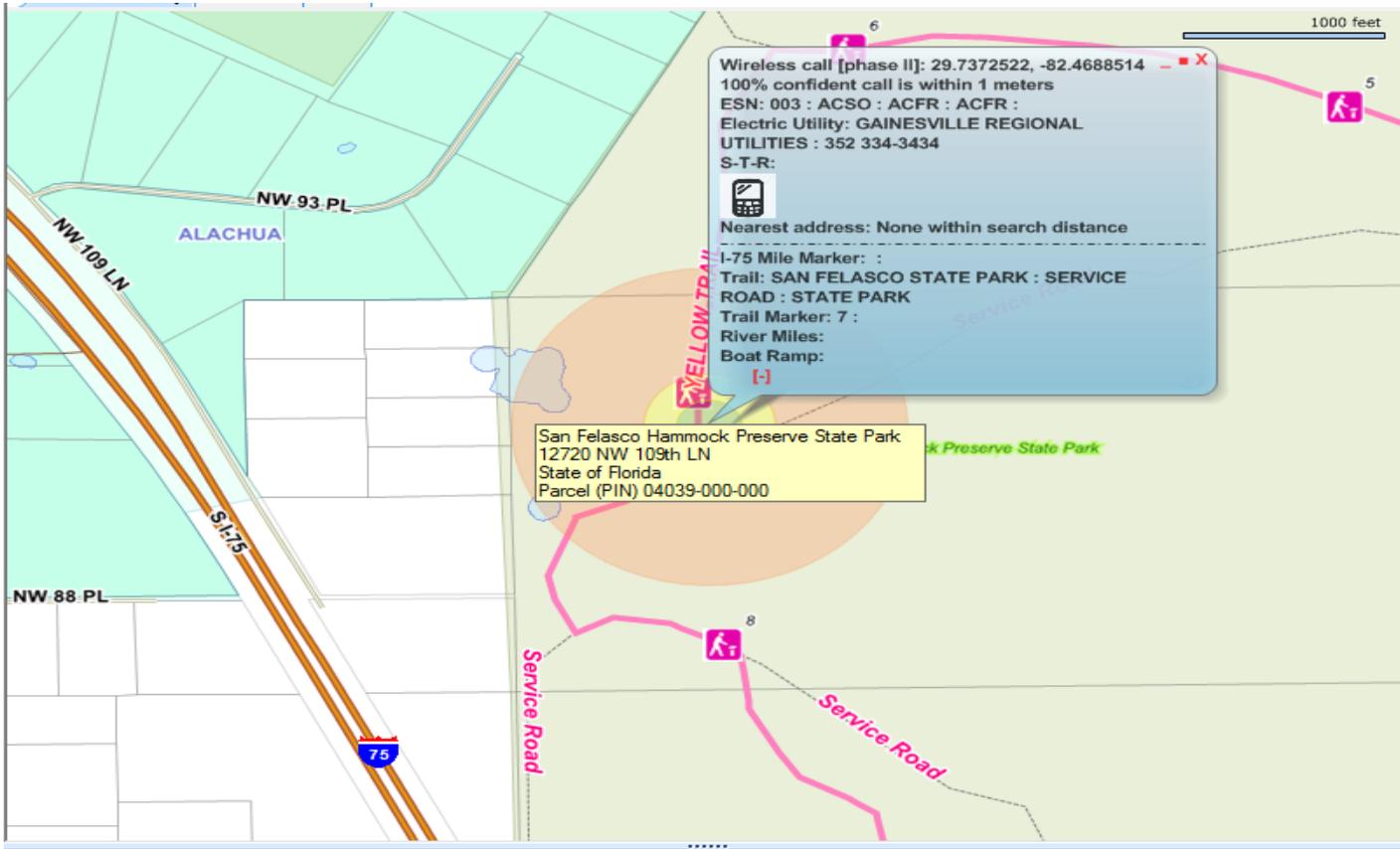


Pictometry



+ Conservation Areas/Parks + Hydro

+ Trails and Trails Markers



RR CROSSING – EMERGENCY CONTACT



PREPLANS

The screenshot displays a software interface for emergency response planning. At the top, there are tabs for 'Incident Map', 'Weather', and 'ESN'. The main map shows a street grid with labels for 'Murray Hill Court', 'NW 7 AV', 'NW 6 AV', 'NW 5 AV', and 'NW 4 AV'. A popup window provides details for a wireless call: 'Wireless call [phase II]: 29.6562475, -82.3489680', '89% confident call is within 47 meters', 'ESN: 001 : GPD : GFR : ACFR :', 'Electric Utility: GAINESVILLE REGIONAL UTILITIES : 352 334-3434', 'S-T-R: 06 : 10 : 20 :', and 'Nearest address: 1912 NW 5TH AV, GAINESVILLE'. A floor plan inset in the bottom left shows a detailed layout of a building with various rooms and corridors. A table at the bottom right lists call details.

Type	Community	Latitude	Longitude	ClassOfService	UNIT	Neig...	Other
ST	GAINESVILLE	29.6562475	-82.348968	WPH2			

GIS DATA SHOULD BE:

- Complete
- Accurate
- Current
- Relevant

GIS DATA FOR 9-1-1

- Trails (Hike, Bike, Ski, Horse, etc...)
- Hydrology (Lakes, Steams)
- Mile Markers/Trail Markers
- Parks/Conservation Areas
- Floor Plans
- Parcels
- Building Footprints
- Railroads
- Railroad Crossings
- Utilities
- Aerial Imagery
- Pictometry

GIS DATA FOR 9-1-1

- Common Places
- Place Names
- Hydrants
- Ski Lifts/Ski Runs
- Golf Courses including fairway, tee, & hole
- Land Use – Agriculture/Rangeland
- Hunting Leases
- Gates

TELECOMMUNICATORS DESERVE NICE THINGS!

- Don't be afraid to ask...
- Build relationships
- Spend time in the PSAP
- Listen to the needs of call takers and dispatchers!

TAKEAWAYS

- Good maps communicate specific messages to the viewer with a minimum of effort.
 - Convey information
 - Provide insight
- Effective information formatting can alleviate information overload
 - Increase productivity
 - Improve decision making
- Good maps and GIS layers can help telecommunicators more quickly and effectively process a call
 - Consider additional layers that you may have access to that might be outside of Public Safety
 - Adding contact information to GIS features can make it more available to telecommunicators

Questions

Thank you

OUR PROMISE

**We keep people connected
WHEN IT MATTERS MOST**

We design with AN OPEN MIND

**We create smarter ways to
KEEP OUR COMMUNITIES SAFE**