Address Advocacy

The building pressure on address data to benefit the community and economy.

Confidence Map

- Many items in this presentation are flagged to indicate a measure of confidence, accessibility or success.
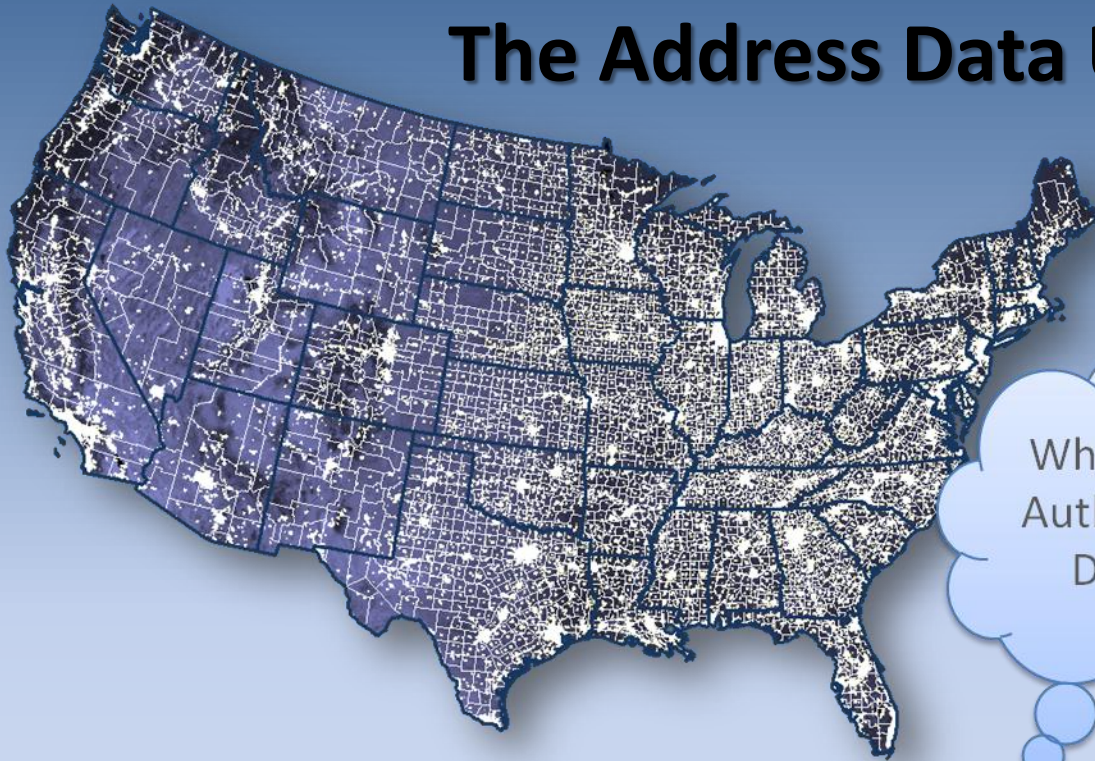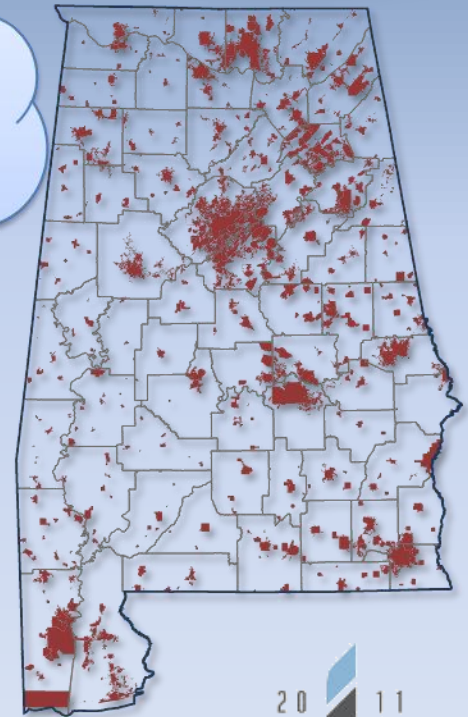
- High confidence

- Caution

- Low Confidence

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The Address Data Universe

Who has the Authoritative Data ?!?

Geography	USA	Alabama	Shelby County	Calera (City)
Nation	1			
State	52	1		
County	3,141	67	1	
Place	25,370	494	37	1
5 Digit Zip	41,033	790	21	1
Housing Units	115,896,202	1,963,711	59,302	1,400
Based on US Census and Esri data				

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Local Address Coordination

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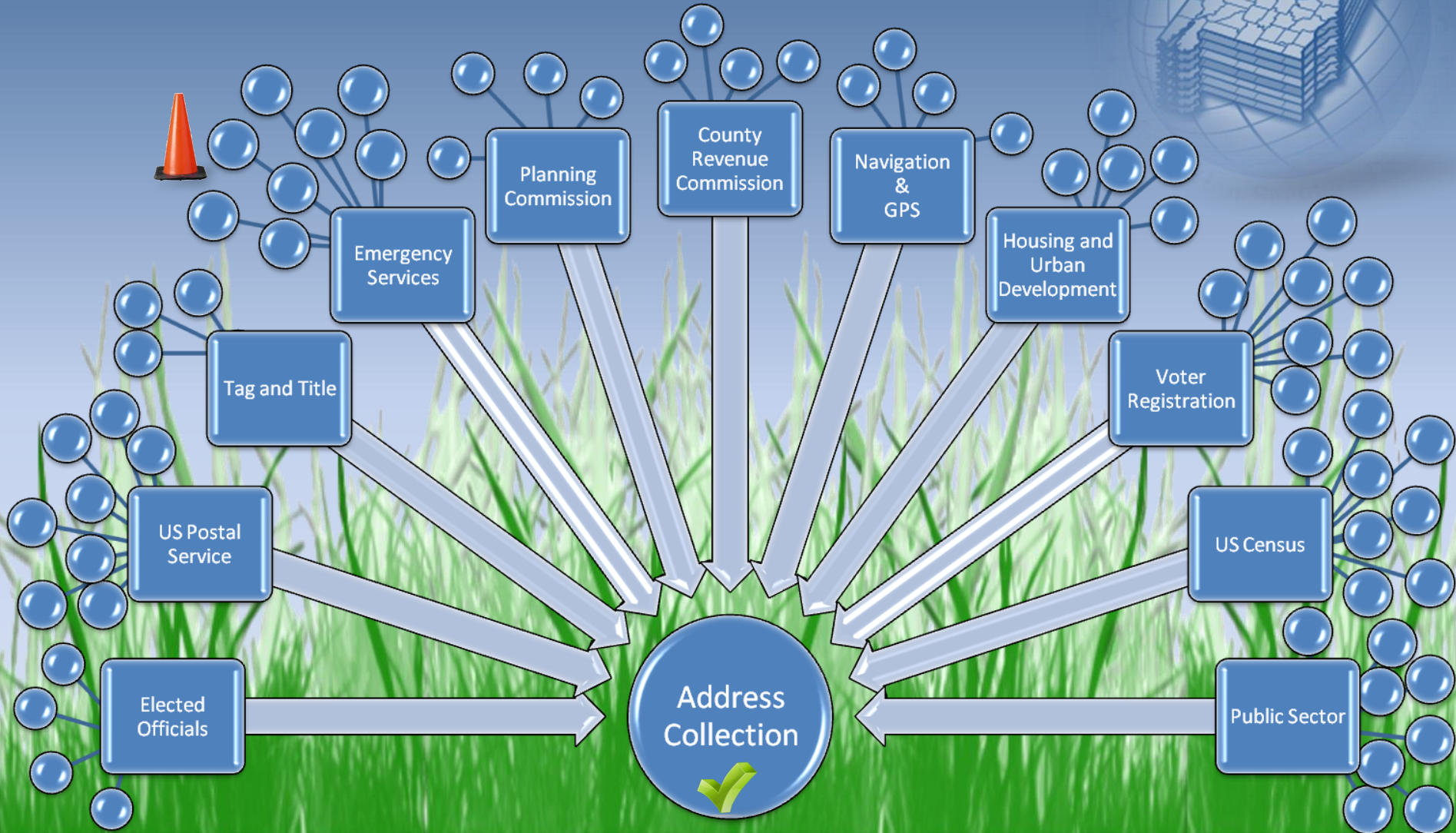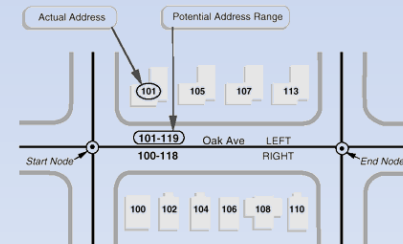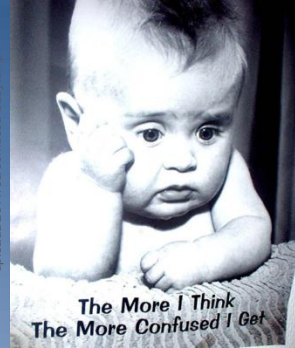
Rerouting...

Where Am I ?

- The consumer has many tools and ways to identify their location.
  - By reference of known locations
  - Online maps, apps and widgets
  - Device and hand held GPS
  - Navigation devices

- Both high confidence and high accessibility
- Addresses serve as the common search string
- Most map to an address range or assumed location

Open Street Map

BETA mapquest mq open

bing™

GROUPON®

Actual Address   Potential Address Range
101   105   107   113
101-119   Oak Ave   LEFT
Start Node   100-118   RIGHT   End Node
100 102 104 106 108 110

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Where are they?

The More I Think The More Confused I Get

US Census ⬌ USPS

US Code Title 13   US Code Title 39

AMS

State

Local

Local Building, Planning, & Tax Offices

29 11/16 AVE
7 15/16 ST

http://auburnlandsurveying.com/

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Standards

United States Thoroughfare, Landmark, and Postal Address Data Standard

FGDC: http://www.fgdc.gov/standards/projects/FGDC-standards-projects/street-address/index_html

URISA: http://www.urisa.org/about/initiatives/addressstandard

Final Address Standard Endorsed by the Federal Geographic Data Committee (FGDC) – July 2011
Approved by the Federal Geographic Data Committee (FGDC) – April 2011

NENA Standards & Recommendations
http://www.nena.org/?page=Standards

Publication 28 - Postal Addressing Standards
http://pe.usps.gov/cpim/ftp/pubs/Pub28/pub28.pdf

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Document number
FGDC-STD-016-2011
Maintenance authority
U.S. Census Bureau

FGDC Standard

Objectives

The United States Thoroughfare, Landmark, and Postal Address Data Standard has been created to:

✓ **Provide one standard that meets the diverse address data management requirements** for local address administration, postal and package delivery, emergency response (and navigation generally), administrative recordkeeping, and address data aggregation

✓ **Support the use of best practices in address data management**

✓ **Provide a systematic, consistent basis for recording all addresses in the United States**

✓ Define the elements needed to compose addresses and store them within **relational databases and geographic information systems**

✓ **Introduce the idea of the address reference system**…

✓ **Support seamless exchange of address information**, and foster consistent implementation of this standard, by defining XML models for every address element, attribute, and class, integrated **into a single XML Schema Document**

✓ Recognize, as a practical matter, that **different business purposes and different data sources will require different levels of complexity** in address data records, files and repositories

✓ **Build on USPS Publication 28, the Census Bureau TIGER files**…

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Definition of an "Address"

This standard proposes a new definition of "address:"

An address specifies a location by reference to a thoroughfare or a landmark; or it specifies a point of postal delivery.

✓ This definition differentiates addressing from the two other types of spatial referencing systems, coordinate reference systems and linear reference systems.

✓ The difference rests, not on what the systems locate, but on what they refer to in order to specify a location.

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FGDC: types of addresses
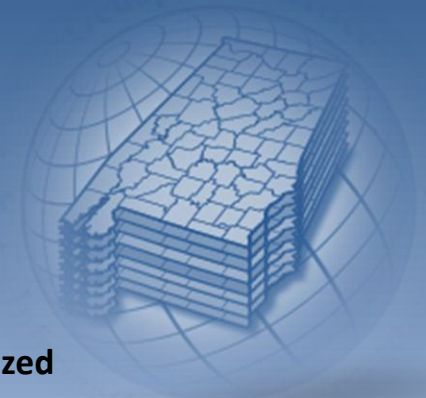
The Address Data Classification part of the standard classifies all US addresses into a simple, complete taxonomy of ten US address classes. The ten address classes are organized into three groups, plus a catch-all general class.

- **Thoroughfare Classes.** Thoroughfare addresses specify a location by reference to a thoroughfare.
  1. Numbered Thoroughfare Address ("123 Main Street")
  2. Intersection Address ("Fifth Avenue and Main Street")
  3. Two Number Address Range ("405-411 West Green Street")
  4. Four Number Address Range ("900-962, 901-963 Milton Street")
  5. Unnumbered Thoroughfare Address ("Forest Service Road 698")

- **Landmark Classes.** Landmark addresses specify a location by reference to a named landmark.
  1. Landmark Address ("Statue of Liberty")
  2. Community Address ("123 University of Alabama")

- **Postal Delivery Classes.** Postal delivery addresses specify points of postal delivery that have no definite relation to the location of the recipient, such as a post office box, rural route box, overseas military address, or general delivery office. The USPS specifies each class in detail in USPS Publication 28.
  1. 8. USPSPostal Delivery Box ("PO Box 16953")
  2. 9. USPSPostal Delivery Route ("RR 1, Box 100")
  3. 10. USPSGeneral Delivery Office ("General Delivery")

- **General Class.** The General Address Class is for files that hold addresses from various classes, and for addresses (such as foreign addresses) that might not fit in any of the thoroughfare, landmark, or postal delivery classes.

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After MAF/TIGER Modernization

If TIGER had included accurate coordinate locations for every household, and correspondingly accurate streets and administrative boundaries, geocoding census data would be simple and less error-prone. Many local governments digitize locations of individual housing units when they build GIS land bases for property tax assessment, E-911 dispatch and other purposes. The MAF/TIGER modernization project begun in 2002 aimed to accomplish this for the entire nationwide TIGER database in time for the 2010 census. The illustration below shows the intended result of the modernization project, including properly aligned streets, shorelines, and individual household locations, shown here in relation to an orthorectified aerial image.

Intended accuracy and completeness of modernized TIGER data in relation to the real world. TIGER streets (yellow), shorelines (blue), and housing unit locations (red) are superimposed over an orthorectified aerial image. (U.S. Census Bureau n.d.). National coverage of housing unit locations and geometrically-accurate streets and other features were not available in 2000 or before.

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Addressing Coordination Issues

The Vision

- *There will be a continuously updated, nationwide, publicly available address dataset, complete with geographic coordinates, that meets the needs of all stakeholders.*

The Need

- Addresses are used for essential government services, as well as by businesses and individuals in order to connect with others.

The Ideal System

- A national system of addresses should be created with government and the private sector each playing their part. This system should provide data seamlessly to those who need it for issues that cross political boundaries. This would result in many life- and cost-saving benefits.

USERS	PURPOSE
Emergency Response, E9-1-1	Police, Fire, Ambulance, Rescue
School Districts	School assignment, bus routing
Assessors and Taxation Of-fices	Building location
Recorders and Auditors	Property records
Voter Registration	Precinct assignment
Planning & Zoning Office	Building permit, planning studies
State Departments of Revenue	Sales tax collection and distribution
State Departments of Trans-portation	Locate traffic accidents allowing access to FHWA funding to improve dangerous non-state roads.
State Departments of Health and Human Services	Track medical benefits, disease, births/deaths, and vulnerable populations.
U.S. Post Office, UPS, FedEx, etc.	Mail and package delivery
U.S. Census Bureau	Mail out census and survey forms, geocode responses
Federal Emergency Management Agency (FEMA)	Pinpoint disaster areas, provide relief
Department of Homeland Security	Locate & protect critical infrastructure
Utilities (public & private)	Hookup, service calls, billing
Map and address companies (e.g. TeleAtlas, NAVTEQ, Pitney Bowes Group 1)	Sell to insurance companies, location based service companies, utilities, state and local government, etc.
Retail/Services (e.g., Sears, local plumber)	Delivery of goods and services
Internet maps (e.g. Google Maps & MapQuest)	Navigation maps for public use

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Addressing Coordination Issues

http://www.nsgic.org/hottopics/Addresses_FTN_032210.pdf

Current System is Fractured

Addresses are created by local *Address Authorities, usually a city or* town, but sometimes the county. The new address information is provided to the owner and distributed to other organizations who need it, including various city and county offices, the US Postal Service, the phone company, other utilities, the school district, and the 9-1-1 authority. **From that point, each of these offices is responsible for maintaining its own address file.** Weaknesses of such a system include:

- No recognized standard for address data

- No central, authoritative database

- Agency databases diverge over time

- No feedback loop to address authority or other stakeholders

- Inconsistent delivery of new addresses to stakeholders

- Spotty capture of geographic coordinates

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Addressing Coordination Issues

The Ideal System

The ideal role played by each is outlined below:

1. Local Government Address Authorities – Cities and Counties

- Use best practices, including standards, for assigning and disseminating data about new addresses
- Each maintains an authoritative database of their own addresses
- All departments draw from that database and provide feedback on changes
- Submit updated address information to the regional custodian

Benefit: Saves resources; Local entities gain value from standard database that minimizes redundancy and error

2. Counties or 9-1-1 authorities serve as the regional custodians of the data.

- Maintain an address database that includes information from all address authorities within their region
- Receive updates from address authorities and verify the quality of that information
- Distribute address and coordinate data free of charge to the public and all participants

Benefit: Gains access to current, reliable data for internal use and trust from local governments by providing data service

Addressing Coordination Issues

The Ideal System

The ideal role played by each is outlined below:

3. States provide statewide coordination and support to counties and 9-1-1 authorities

- Provide a central website for accessing address data from regional custodians: counties and 9-1-1 authorities
- Provide training, technical guidance and standards to counties and 9-1-1 authorities
- Serve as a backup system for the regional systems
- Fill gaps by helping small and less affluent places fulfill their role
- Provide matching grants to local government to develop their systems

Benefit: States gain ability to access data for internal purposes; e.g., sales tax management and medical benefits

4. Federal government

- U.S. Postal Service, U.S. Census Bureau, Department of Homeland Security, and others are able to access and use data nationwide in a standard format (e.g. Lat/Long and U.S. National Grid coordinates)
- U.S. Census Bureau and U.S. Postal Service send notice of address data inconsistency to state and local governments whenever they are found. Note: U.S. Census Bureau is currently unable to participate because of Title 13
- U.S. Census Bureau is able to release geographic coordinate data, saving local government the expense of collecting that information. Access to coordinate data is also restricted by Title 13

Benefit: Federal government saves money and has access to current and accurate local data

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Addressing Coordination Issues

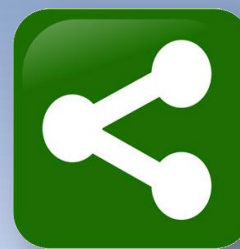http://www.nsgic.org/hottopics/Addresses_FTN_032210.pdf

The Ideal System

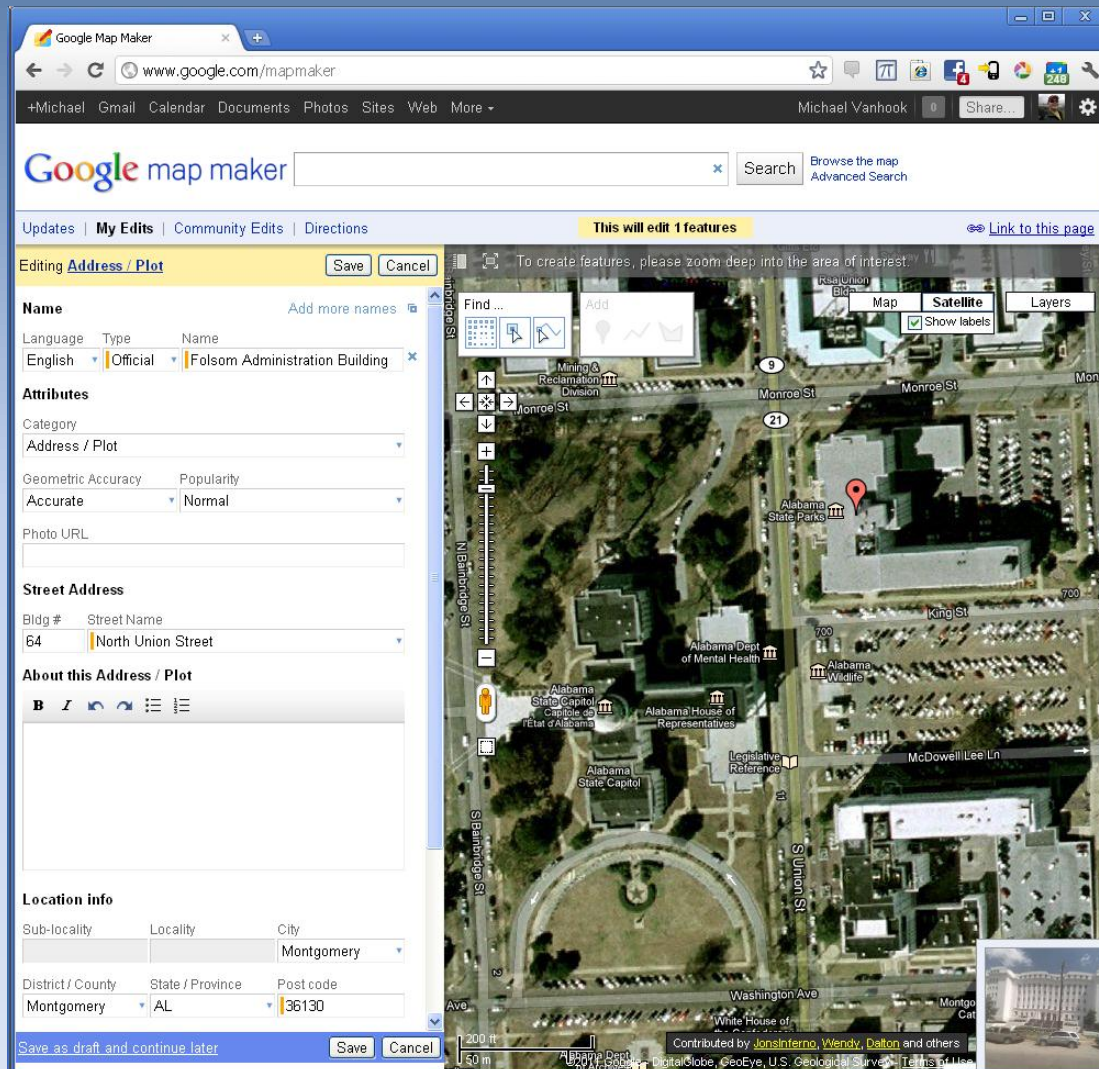The ideal role played by each is outlined below:

5. Private sector

- Assists with local implementation and maintenance on a fee for service basis
- Provides technical resources for each level of government to fulfill its role
- Provides business services for the aggregation, maintenance, and use of address data in government and the private sector
- Uses nation-wide address data to develop new products and services to meet the needs of citizens, government, and the private sector

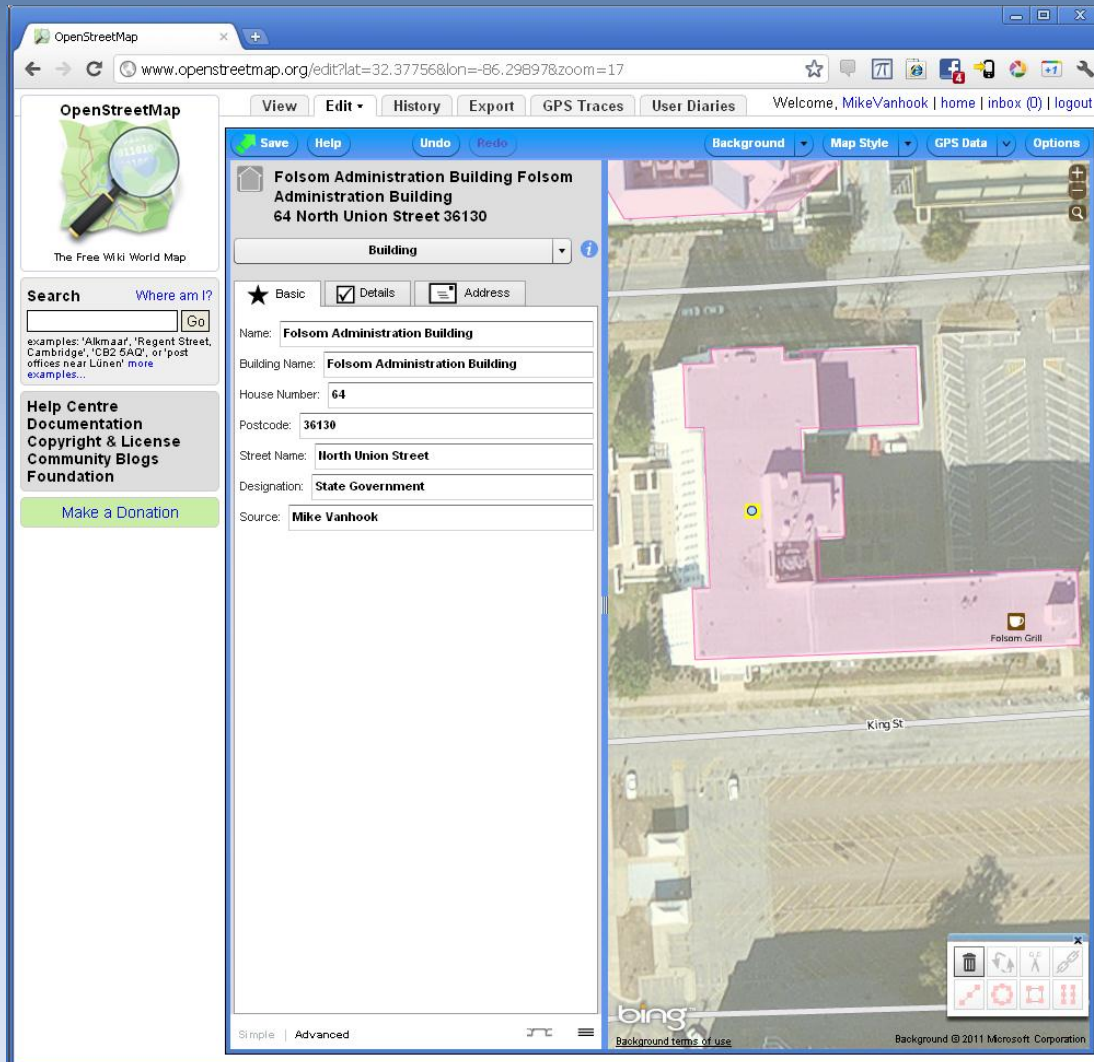**Benefit:** Cheaper, better, and quicker for local government

A l a b a m a   D e p t .   F i n a n c e
I n f o r m a t i o n   S e r v i c e s   D i v i s i o n
G e o s p a t i a l   O f f i c e

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Sharing Addresses Online

- Open to anyone
- Simple interface
- One feature at a time
- Edit attributes
- Peer reviewed

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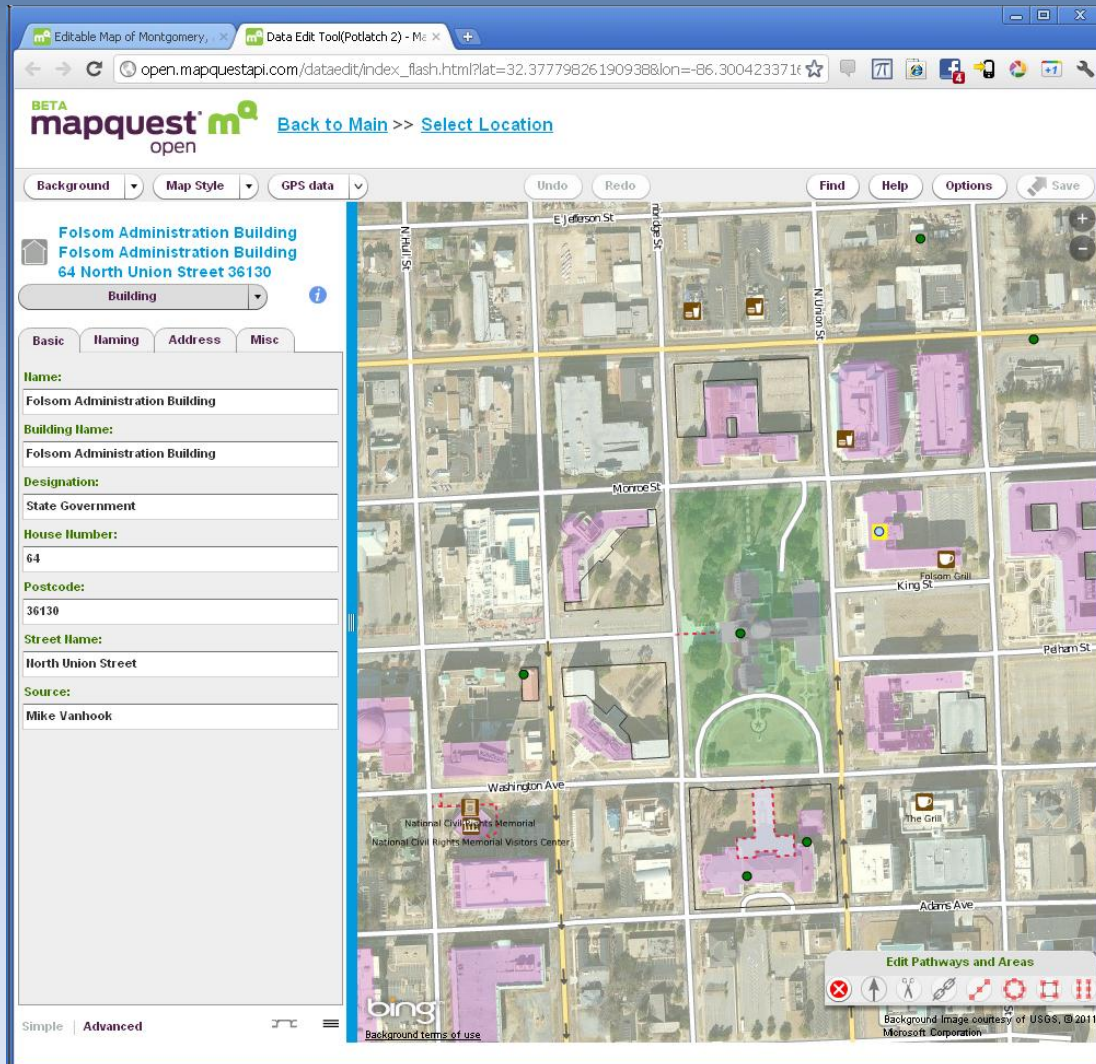20 11

Sharing Addresses Online

OSM

OpenStreetMap

- Open to anyone
- Rich interface
- One feature at a time
- Edit attributes
- Peer reviewed
- Edits instantly available
- Export features

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Sharing Addresses Online

- Open to anyone
- Enhanced OSM interface
- One feature at a time
- Edit attributes
- Peer reviewed
- Edits instantly available

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Partnerships

Partnerships can be simple.
Always appreciate what is shared.
Never add requirements.

County Project

https://ribbs.usps.gov/index.cfm?page=countyproject

What's Returned
Processed files will contain the following:
- Matched, standardized addresses
- No Match list
- Congressional variances
- County variances
- Missing and Invalid Secondary files

UNITED STATES POSTAL SERVICE™

United States Census Bureau
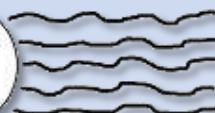
http://www.census.gov/geo/www/gss/address_summit/census_address_summit.html

CENSUS '70
IT PAYS TO BE COUNTED

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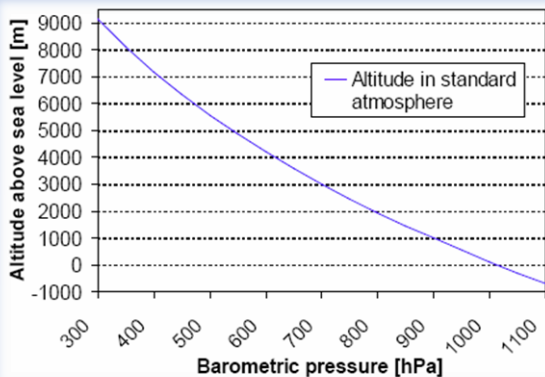& Alabama GIS Conference

Barometer
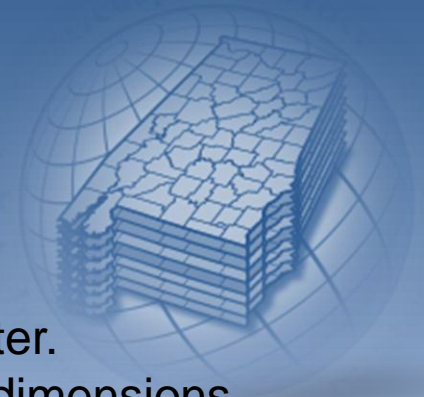
The next generation of consumer devices will include a barometer.
- Used with additional sensors to sense your location in 3 dimensions.
- This will usher in a new set of attributes and business needs.

GALAXY NEXUS
Simple. Beautiful. Beyond Smart.

High relative accuracy of +/-0.12 hPa (+/-1m)

BMP180 target applications
- Indoor navigation
- GPS-enhancement for dead-reckoning, slope detection, etc.
- Sport devices, e.g. altitude profile
- Weather forecast
- Vertical velocity indication (rise/sink speed)

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THANK YOU

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http://goo.gl/HCKct

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