The concept of place

The obvious: why we map and name places

- general area to look for something
- place names make addresses spatially unique

  one-to-one or many-to-one with locations

- places are often government entities

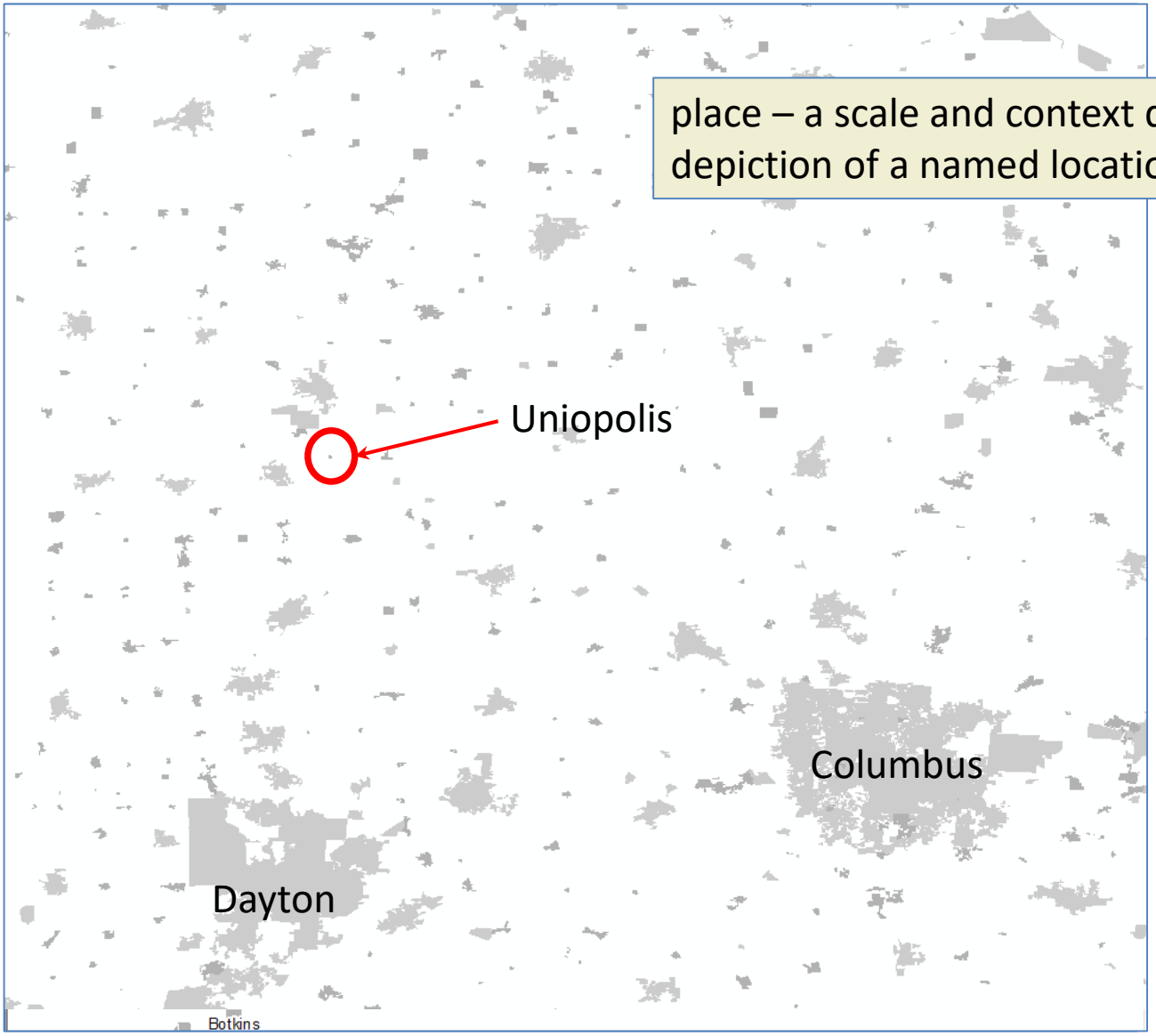
  including addressing authorities

Warm-up quiz

The best way to represent a place is:

- □ a point
- □ a polygon
- □ a cluster of points
- □ a label
- □ a node
- □ a stack of polygons
- □ all of the above

Point/polygon is just scale

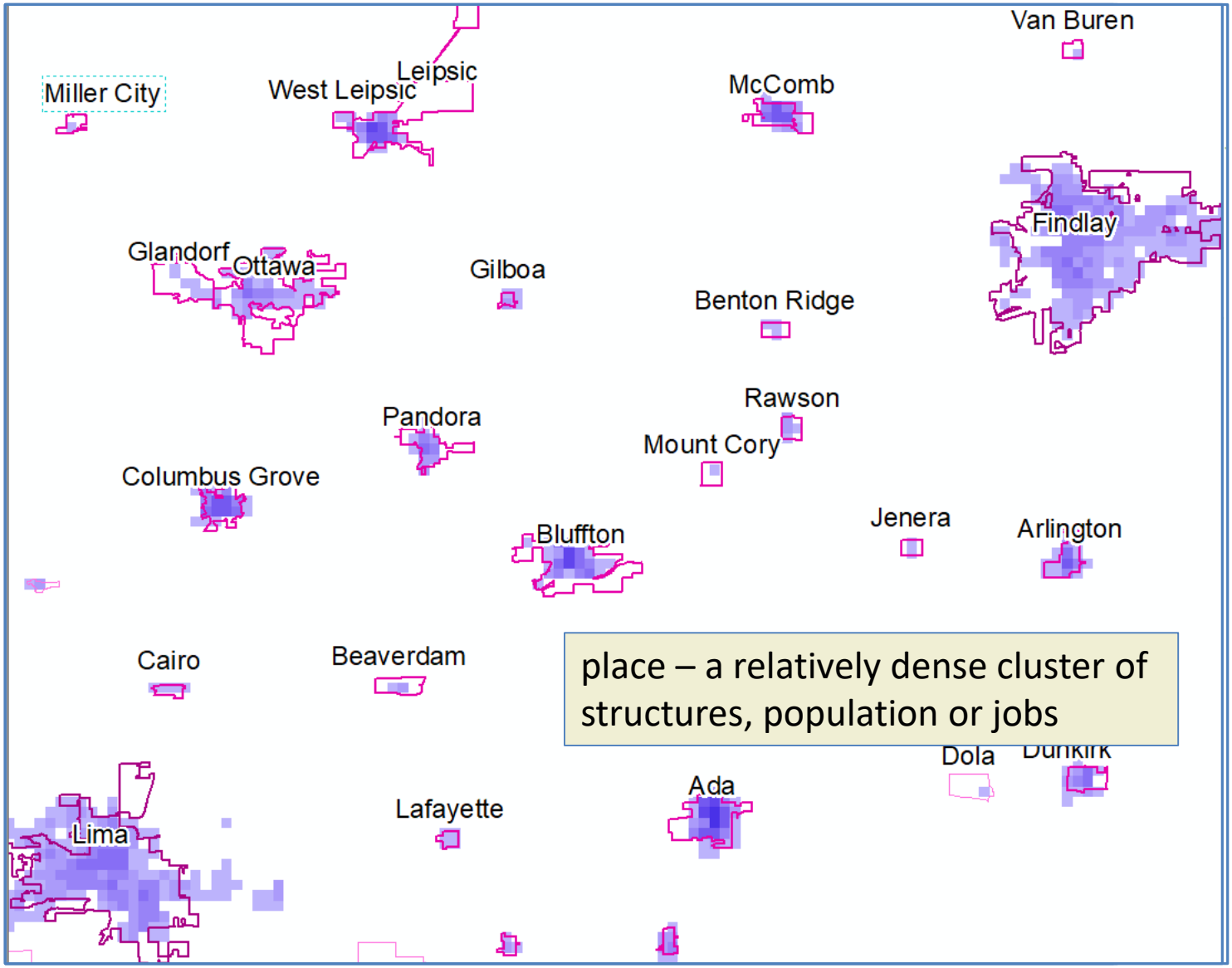


A place that really matters

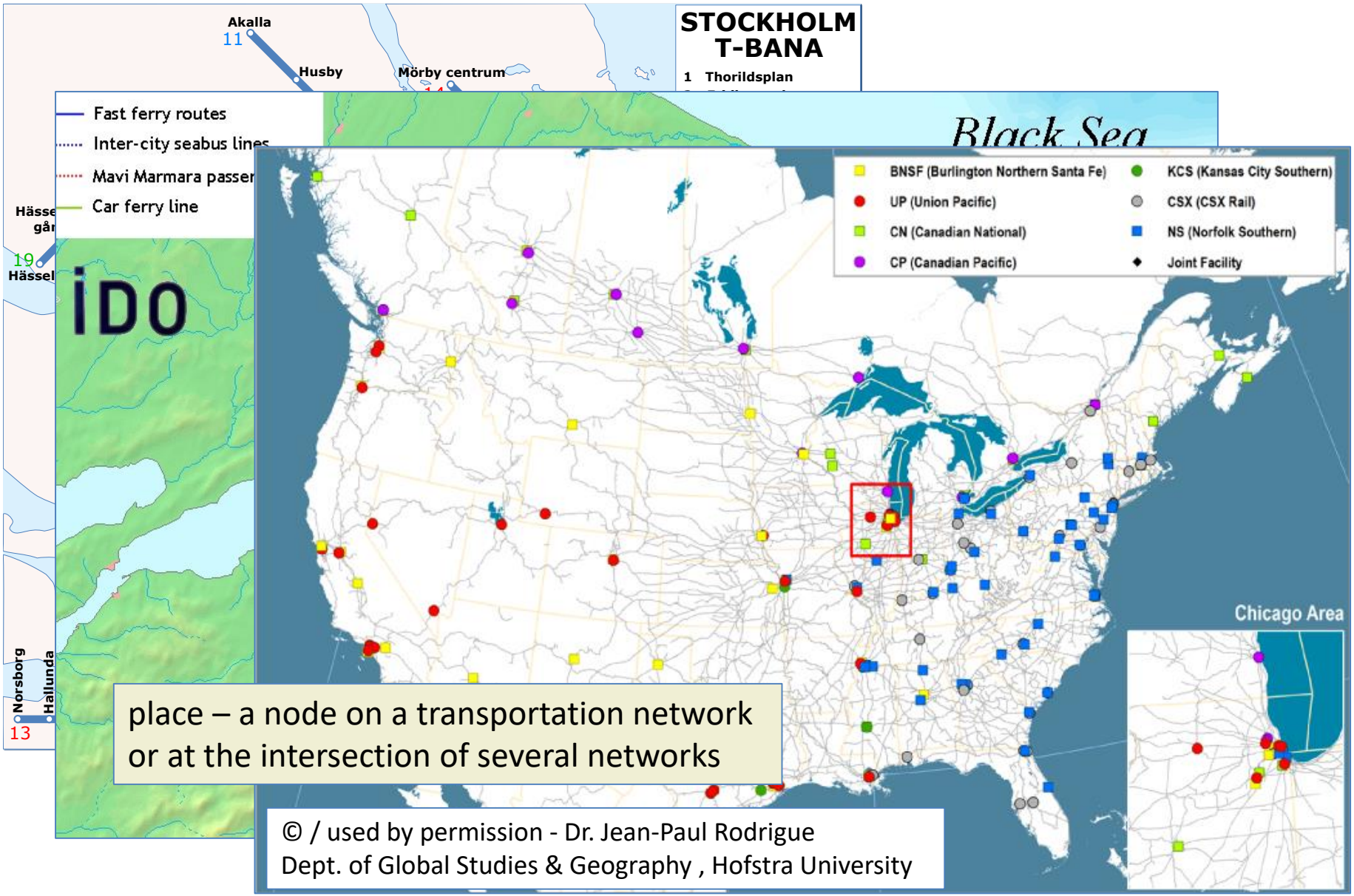
place – a location, no matter how big or small, that provides essential services

Panamint Springs, Death Valley, CA

Places as relative clusters – quantitative model



Places as nodes



place – a node on a transportation network or at the intersection of several networks

Places as polygons - kinds of places (from FGDC)

Incorporated local government
municipality
city
borough
town
village
township
municipal place name
minor civil division
corporation
consolidated government
metropolitan government
populated place (GNIS)
locale (GNIS)

USPS Post Office Name
post office
mailing city in "City, State, ZIP"

Region
Metropolitan area
metropolitan statistical area (Census MSA)
consolidated MSA
primary MSA

County
county
parish
county-equivalents

Unincorporated community / neighborhood
community
neighborhood
subdivision
district
ward
borough
Census Designated Place
populated place (GNIS)
locale (GNIS)

Two important questions about place references, from a GIS perspective

Is the place mapped?

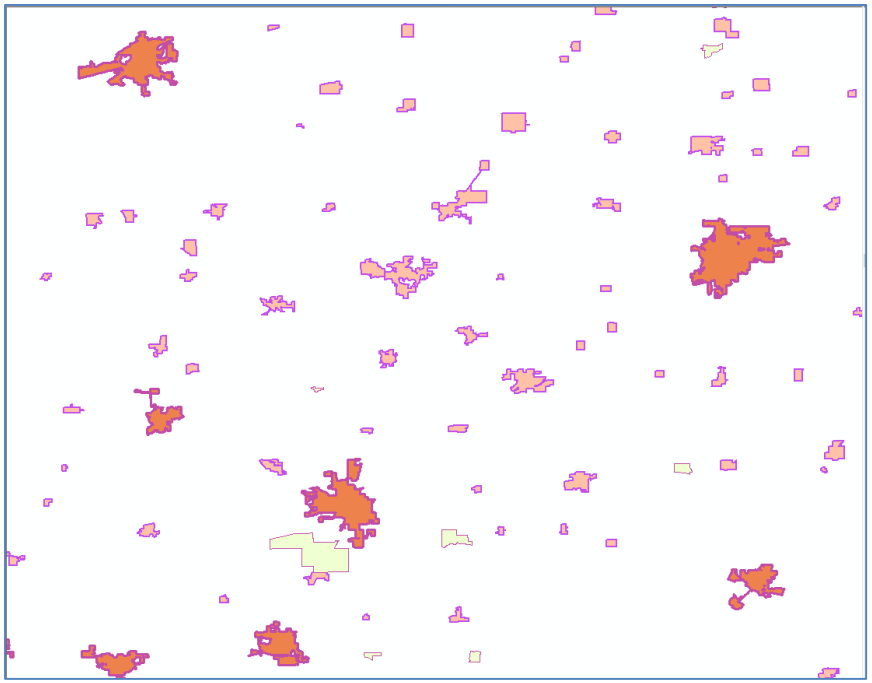
Is the geometry of places

COLLECTIVELY EXHAUSTIVE

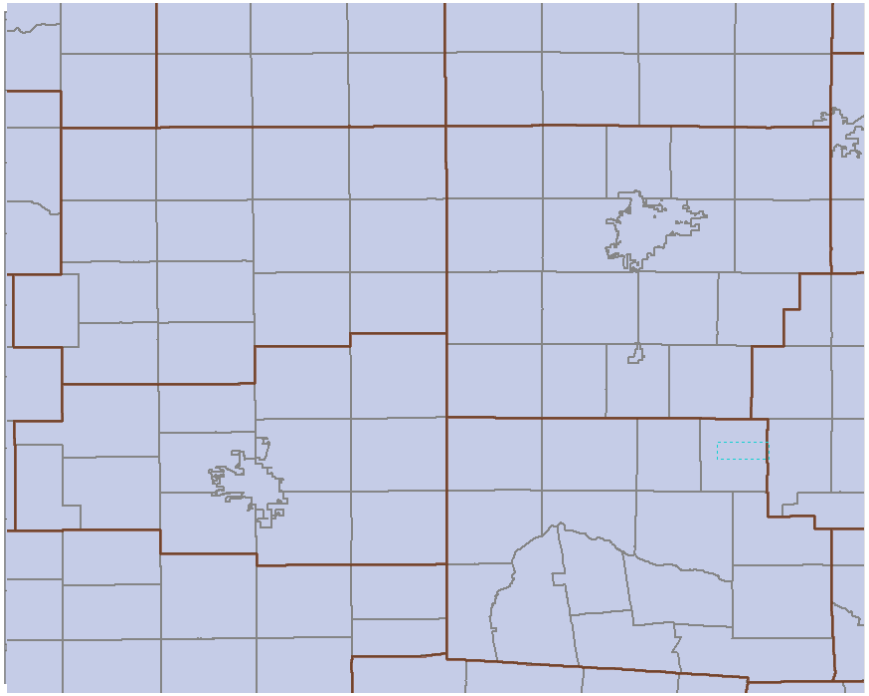
AND

MUTUALLY EXCLUSIVE?

Two kinds of Census places



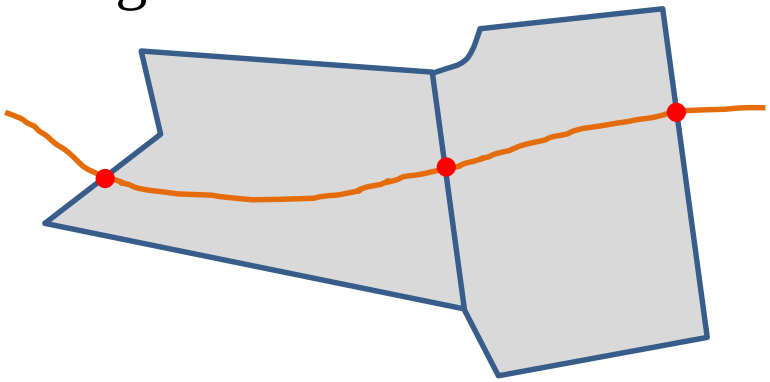
city, village, CDP geography in Census places layer - mutually exclusive but NOT collectively exhaustive



county and township geography in Census subdivision layer – mutually exclusive AND collectively exhaustive
(some places embedded – why?)

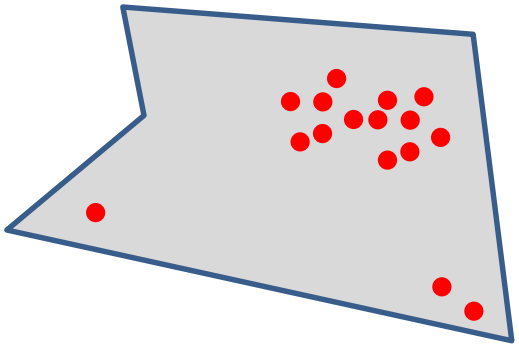
Advantages of mapped, exhaustive place geography

- everyplace is someplace
- in a political sense, everyone is served e.g. PSAPs
- typical of administrative geography
- consistent attribution via feature splits using GIS overlay



Disadvantages

- shared boundaries harder to maintain
- boundaries may not be familiar
- boundaries are arbitrary, rather than based on density



How do address standards handle place names?

- USPS Publication 28
  - single “preferred” place name for every zip code
  - other place names may be “acceptable”

- FGDC United States Standard for Thoroughfare, Landmark and Postal Addresses
  - suggests categories, but allows any place name types
  - designed to handle an array of place names for a single address

XML ninja warrior

- NENA Civic Location Data eXchange Standard (CLDXF)
  - more structured than FGDC – place types are fixed

mapping makes everything better

county
incorporated municipality
unincorporated community
neighborhood community

USPS places – not

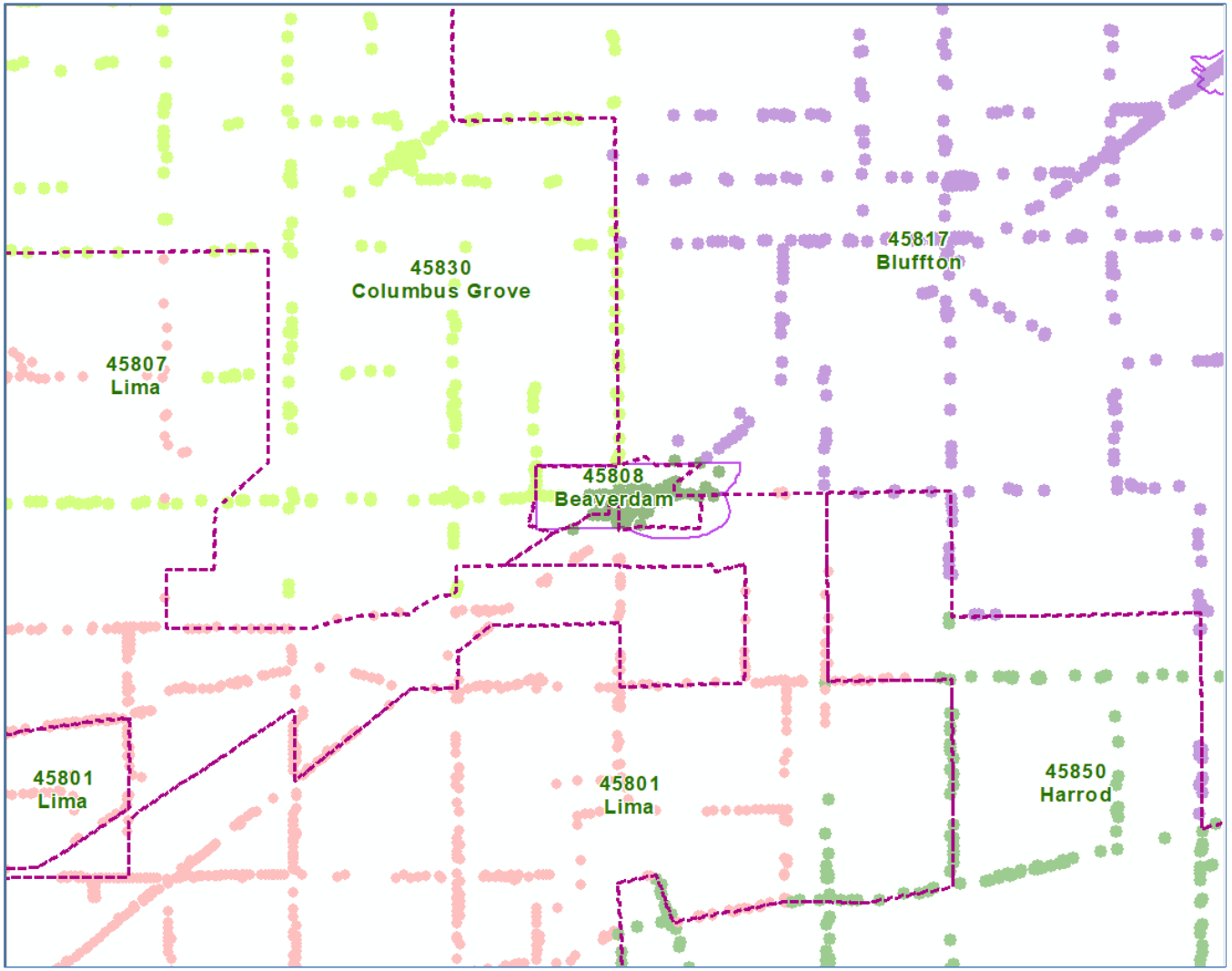
Familiar –

- "City, State, Zip" widely understood.
- Zip codes make addresses unique.
- Can we use zip codes to create an exhaustive geography of places?

Frustrating –

- Association between "preferred" USPS place names and incorporated places is confusing and unpredictable.
- Zip codes are assigned to mail delivery routes, not intended to label areas. They are in the "node" category of places.
- Zip codes are not stable.
- USPS works with other entities like local governments, but ultimately they are not accountable.

USPS places - not



FGDC places – stack ‘em up

- FGDC standard is XML, allows for repeating elements

```
<CompletePlaceName>
<PlaceName
PlaceNameType="Community">Queens</PlaceName>
<PlaceName PlaceNameType="Municipal">New
York</PlaceName>
</CompletePlaceName>
```

- type/value approach is flexible
- can solve any addressing problem, but at the cost of consistency and easy integration into tabular datasets

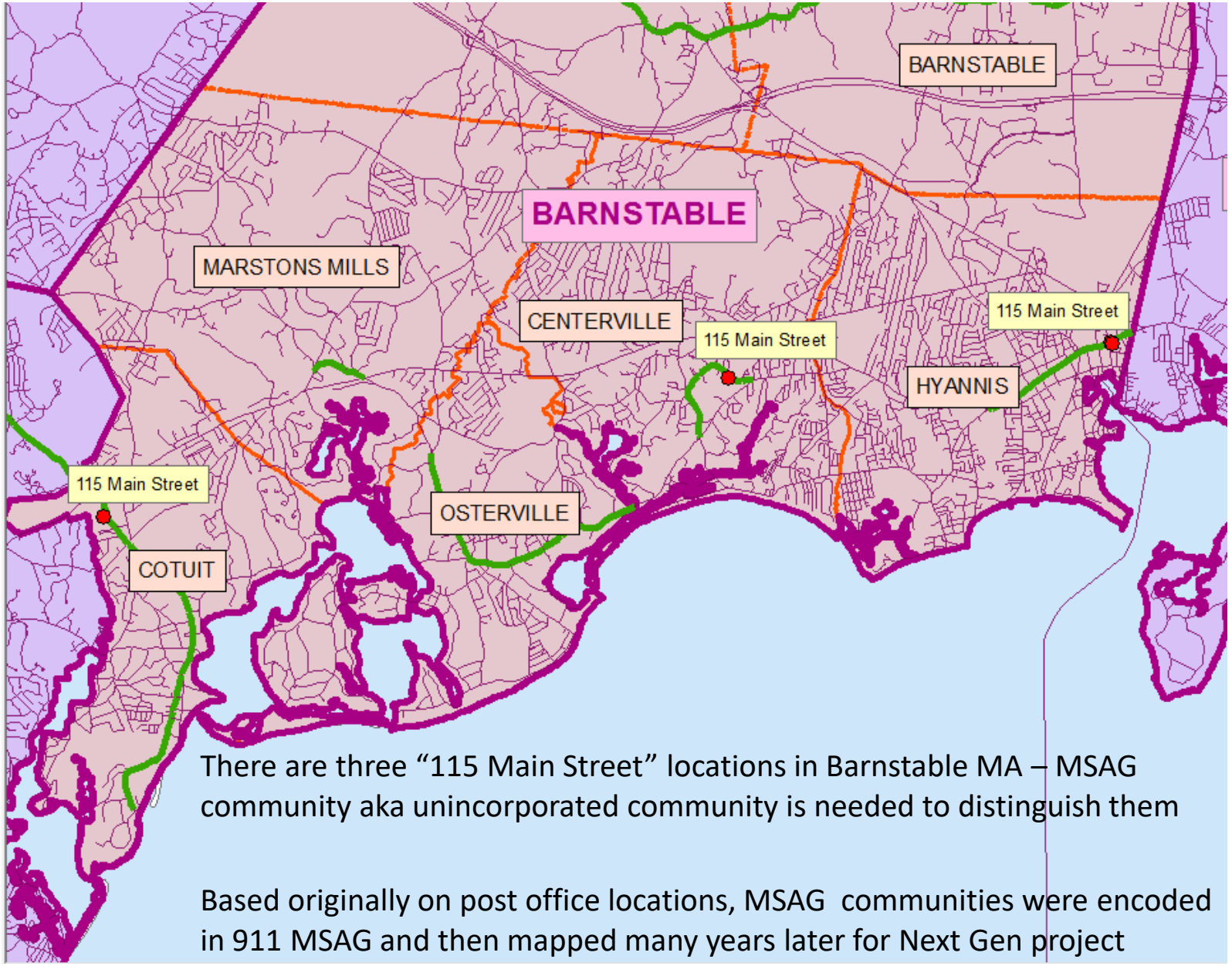
NENA CLDXF/ NAD Pilot – like FGDC, practical yet still issues

- CLDXF standard implements the categories of FGDC as fixed fields in NAD Pilot –

  county
  incorporated municipality
  unincorporated community
  neighborhood community

- The standard may require some interpretation, for example:
  - MA has mostly abolished counties – we have "county-equivalents"
  - our "towns" are incorporated municipalities, Census calls them MCD's
  - is a sub-division a "neighborhood community", is a campus?
  - elsewhere, what about a city in a township, or any overlapping, legally defined "incorporated" boundaries?
- The standard does well in supporting NG-9-1-1 by supporting uniqueness of addresses

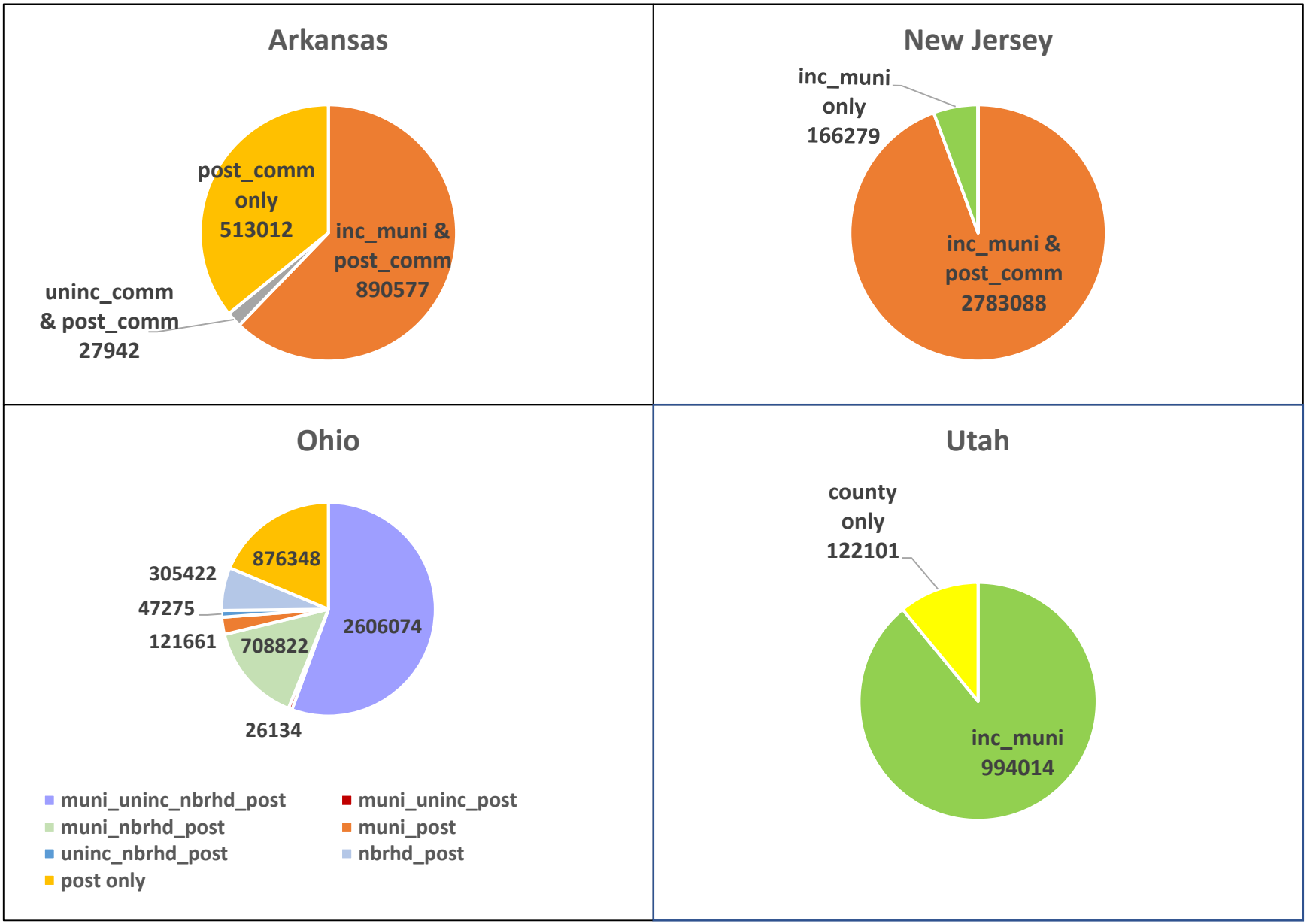
Place names make addresses unique



There are three “115 Main Street” locations in Barnstable MA – MSAG community aka unincorporated community is needed to distinguish them

Based originally on post office locations, MSAG communities were encoded in 911 MSAG and then mapped many years later for Next Gen project

How are place names populated in pilot NAD?



OH Census geography and the NAD pilot

Random sample from Ohio points overlaid with Census geography

county	inc_muni	uninc_comm	nbrhd_comm	post_comm	full_placename	sub_full_name
DELAWARE		ORANGE TWP	ORANGE STATION	LEWIS CENTER		Orange township
FRANKLIN	COLUMBUS		EPERNAY	GALLOWAY	Columbus city	Columbus city
BUTLER				HAMILTON		West Chester township
GREENE	FAIRBORN	FAIRBORN		FAIRBORN	Fairborn city	Beavercreek township
ATHENS				ATHENS		Lee township
CUYAHOGA				UNIVERSITY HEIGHTS	University Heights city	University Heights city
GREENE		BEAVERCREEK TWP		DAYTON		Beavercreek township
FRANKLIN	GAHANNA		AMBASSADOR COMMONS SEC 3	GAHANNA	Gahanna city	Mifflin township
FRANKLIN	OBETZ			COLUMBUS	Obetz village	Hamilton township
FRANKLIN	GRANDVIEW HEIGHTS		WYANDOTTE PLACE	COLUMBUS	Grandview Heights city	Grandview Heights city
FRANKLIN	GAHANNA		CHERRY RUN	GAHANNA	Gahanna city	Mifflin township
PORTAGE				MANTUA		Mantua township
FRANKLIN	HILLIARD		THE SQUARE AT LATHAM PARK	HILLIARD	Hilliard city	Norwich township
FRANKLIN	COLUMBUS		CHRISTOPHER WOODS	COLUMBUS	Columbus city	Columbus city
BUTLER				SOMERVILLE		Milford township
FRANKLIN	COLUMBUS		VILLAGE AT WORTHINGTON SEC 2	COLUMBUS	Columbus city	Columbus city
FRANKLIN	GROVE CITY			GROVE CITY	Grove City city	Jackson township
MORROW		FRANKLIN TWP	HIDDEN LAKES CAMPGROUND	MOUNT GILEAD		Franklin township
RICHLAND	SHELBY	SHELBY		SHELBY	Shelby city	Sharon township

- neighborhood comm often used for “sites” – subdivisions and the like
- incorporated muni and place mostly agree
- unincorporated comm and sub “township” often agree
- postal seems to agree pretty often

NJ Census geography and the NAD pilot

random sample of New Jersey address points overlaid with Census geography

county	inc_muni	uninc_comm	nbrhd_comm	post_comm	full_placename	sub_full_name
MORRIS	MORRISTOWN TOWN			MORRISTOWN	Morristown town	Morristown town
SUSSEX	SANDYSTON TOWNSHIP			SANDYSTON		Sandyston township
HUDSON	JERSEY CITY			JERSEY CITY	Jersey City city	Jersey City city
MORRIS	WASHINGTON TOWNSHIP			LONG VALLEY		Washington township
GLOUCESTER	WOODBURY CITY			WOODBURY	Woodbury city	Woodbury city
SUSSEX	BYRAM TOWNSHIP					Byram township
CAPE MAY	MIDDLE TOWNSHIP			CAPE MAY COURT HOUSE		Middle township
MIDDLESEX	SOUTH BRUNSWICK TOWNSHIP			EAST BRUNSWICK		South Brunswick township
MONMOUTH	MIDDLETOWN TOWNSHIP			MIDDLETOWN		Middletown township
MORRIS	ROXBURY TOWNSHIP			FLANDERS		Roxbury township
CAMDEN	LAUREL SPRINGS BOROUGH			LAUREL SPRINGS	Laurel Springs borough	Laurel Springs borough
HUDSON	NORTH BERGEN TOWNSHIP			NORTH BERGEN		North Bergen township
SUSSEX	MONTAGUE TOWNSHIP					Montague township
ESSEX	NEWARK CITY			NEWARK	Newark city	Newark city
MIDDLESEX	NORTH BRUNSWICK TOWNSHIP			NORTH BRUNSWICK		North Brunswick township
GLOUCESTER	WESTVILLE BOROUGH			WESTVILLE	Westville borough	Westville borough
MONMOUTH	EATONTOWN BOROUGH			EATONTOWN	Eatontown borough	Eatontown borough
MORRIS	CHESTER TOWNSHIP			FAR HILLS		Chester township
UNION	WESTFIELD TOWN			WESTFIELD	Westfield town	Westfield town
SOMERSET	HILLSBOROUGH TOWNSHIP					Hillsborough township

- cities and boroughs -> Census place, subdivision match inc muni
- townships -> no Census place, Census subdivision matches inc muni
- postal comm often differs

A few thoughts & a challenge

- **What really matters is how people understand their own locations relative to identifiable places – what the person says when they call 911 and tells the telecommunicator "this is where I live."**
- The FGDC "stacked polygon" model works well.
- Subdivision geography can "fill in" gaps in mapping of places – but the boundaries may not be familiar.
- In MA, we created our own geography of places to make 911 work –it was based on "post office" locations so it was familiar, but then it was fixed.
- **Wouldn't it be wonderful if Census, USPS, the states and local jurisdictions were working from a common geography, which was based on proximity to places that everyone was familiar with?**