

Post Mapping

Cities and the people that live them

Nathaniel Vaughn KELSO

The Washington Post

[@kelsosCorner](#)





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WhereCampPDX

» September 24–26, 2010



v3.0 /// 45°31'32.25"N, 122°40'35.07"W /// PORTLAND, OREGON

Learn About Open Source GIS at Kool Apps 2010

September 17, 2010 – 3:54 pm

[Oregon/SW Washington URISA](#) presents:

Kool Apps 2010 featuring Open Data and Open Source

This all day event is happening September 24th, and is free to the public. It

45° 31' 32.25" N

122° 40' 35.07" W



popular with
the Mayans
and dudes like
Mercator

± 69 miles • 1 mi • 101 ft • 10ft • 12 in

122° 40' 35.07" W

45° 31' 32.25" N

± 50 miles • 1 mi • 72 ft • 7ft • 9 in

Lat: Degree at 45° north is 70.71% * 69.17 mi / degree = 48.9 miles

Minute at 45° north is 70.71% * 69.17 mi / degree / 60 min = 0.8 miles or 4304 feet

Second at 45° north is 70.71% * 69.17 mi / degree / 60 min / 60 sec = 72 feet

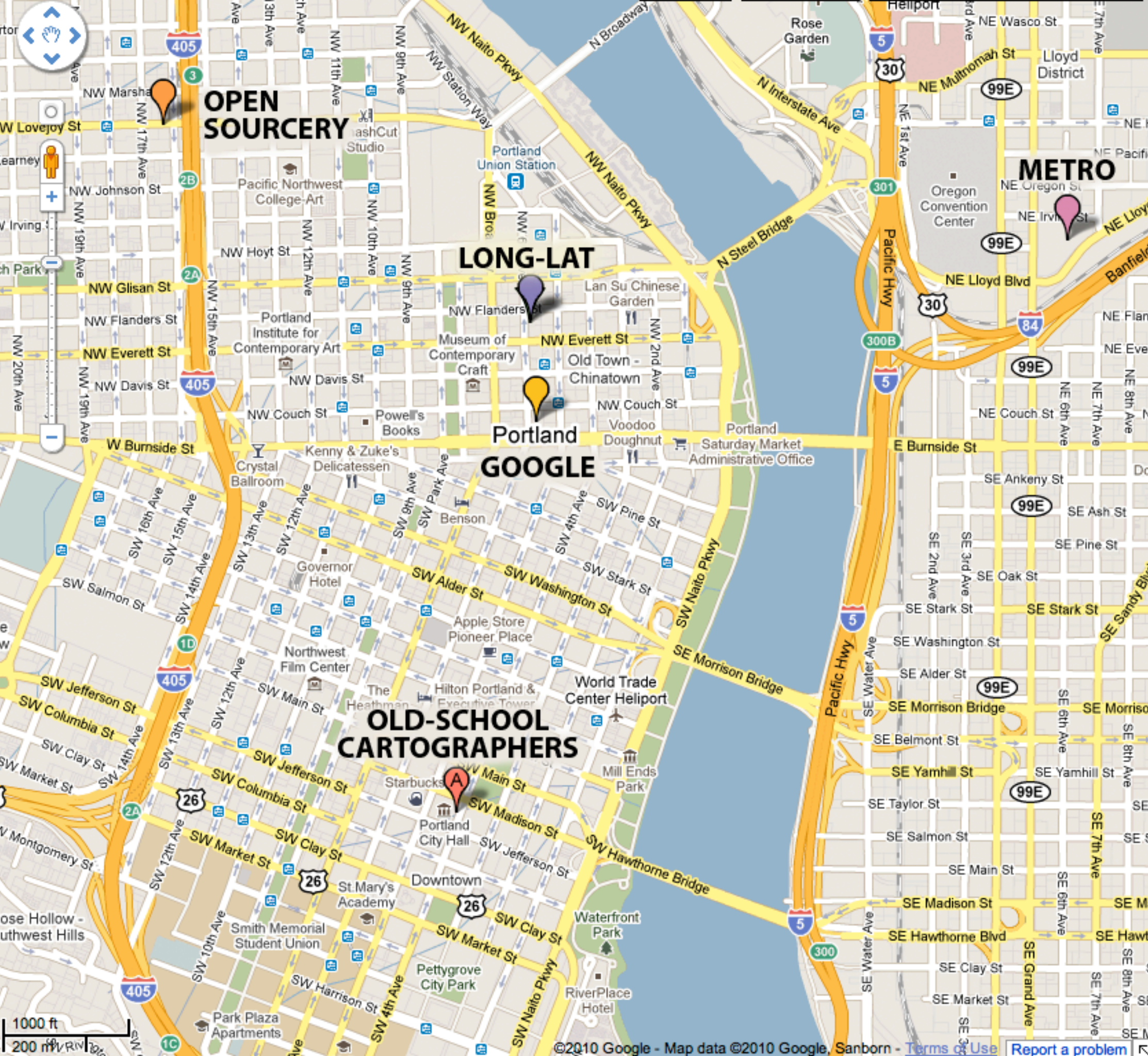
Sec.dec at 45° north is 70.71% * 69.17 mi / degree / 60 min / 600 sec = 7 feet

Sec.dd at 45° north is 70.71% * 69.17 mi / degree / 60 min / 6000 sec = 9 inches

PRECISION

within 2 feet!

really!?



OPEN SOURCERY

LONG-LAT

**Portland
GOOGLE**

**OLD-SCHOOL
CARTOGRAPHERS**

METRO

<http://kelso.it/x/ys>
<http://kelso.it/x/9c>
<http://kelso.it/x/4o>

ACCURACY

around 3,500 feet

that's still better than a mile!

= 1 km

Precision ≠ Accuracy

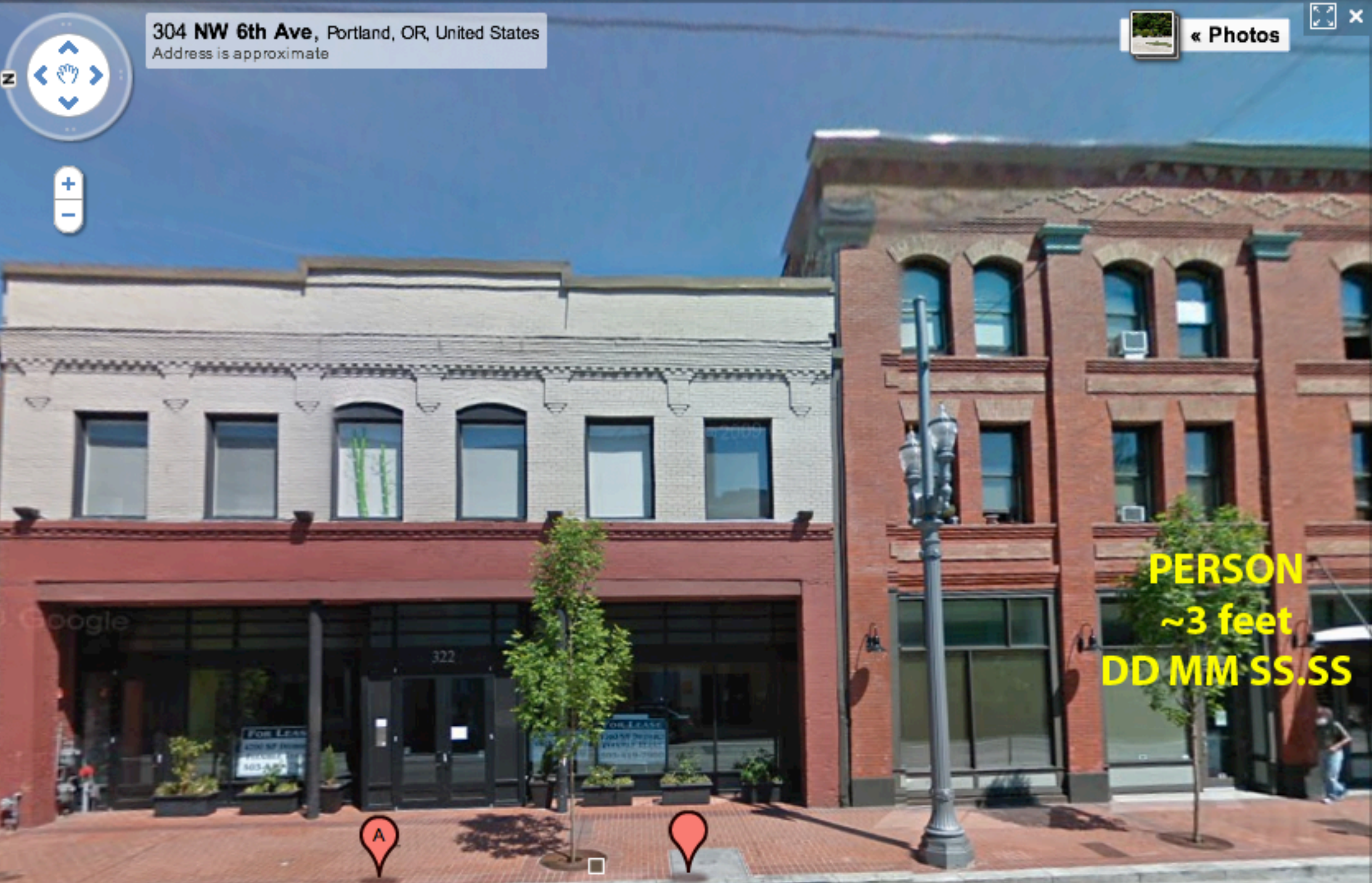
<http://kelso.it/x/6e>
<http://kelso.it/x/yq>

Scott Ableman



304 NW 6th Ave, Portland, OR, United States
Address is approximate

Photos

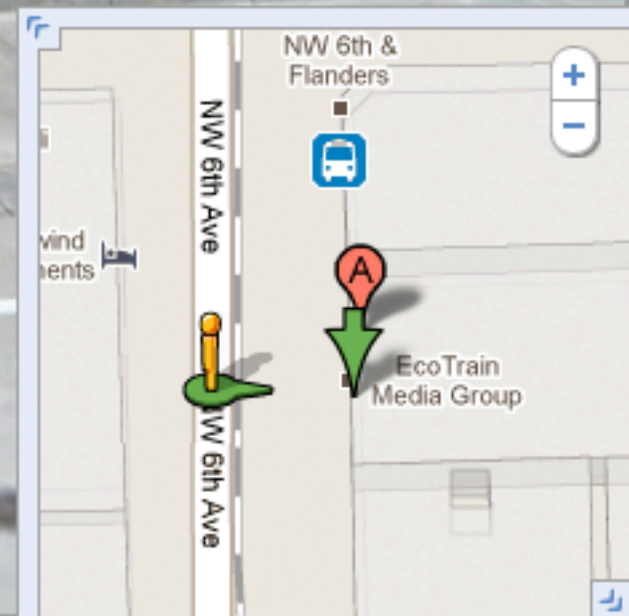


PERSON
~3 feet
DD MM SS.SS

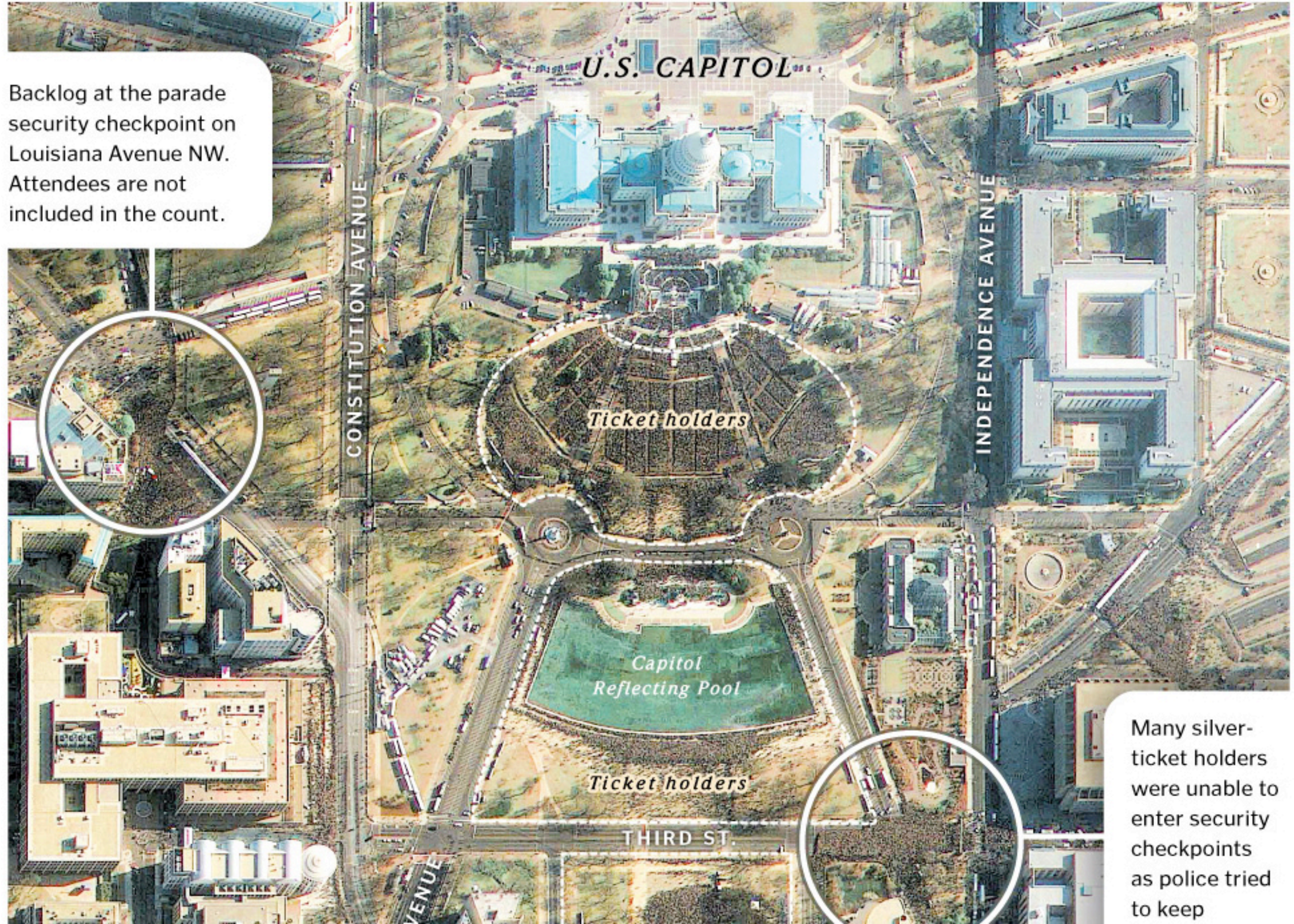


GOOGLE ADDRESS POI LONG-LAT

NIGHTMARE
~20 feet
DD MM SS.S



1 Million People // The Washington Post



Backlog at the parade security checkpoint on Louisiana Avenue NW. Attendees are not included in the count.

Many silver-ticket holders were unable to enter security checkpoints as police tried to keep



Here's how we got the total:

1. We started with what we know: There were supposed to be about 240,000 people in the ticketed area. We do not include those who lined the parade route and surrounding streets.

2. Next, Washington Post database editor Dan Keating divided areas on the Mall into zones. For example:

ZONE 15

ZONE 16



3. Researchers have found that each person in a jam-packed crowd (think mosh pit) takes up 2.5 square feet, up to 4.5 square feet in a reasonably packed crowd and 10 square feet in a looser crowd. We looked at each zone and assigned a density number based on how tightly packed the people appear.

ZONE 15

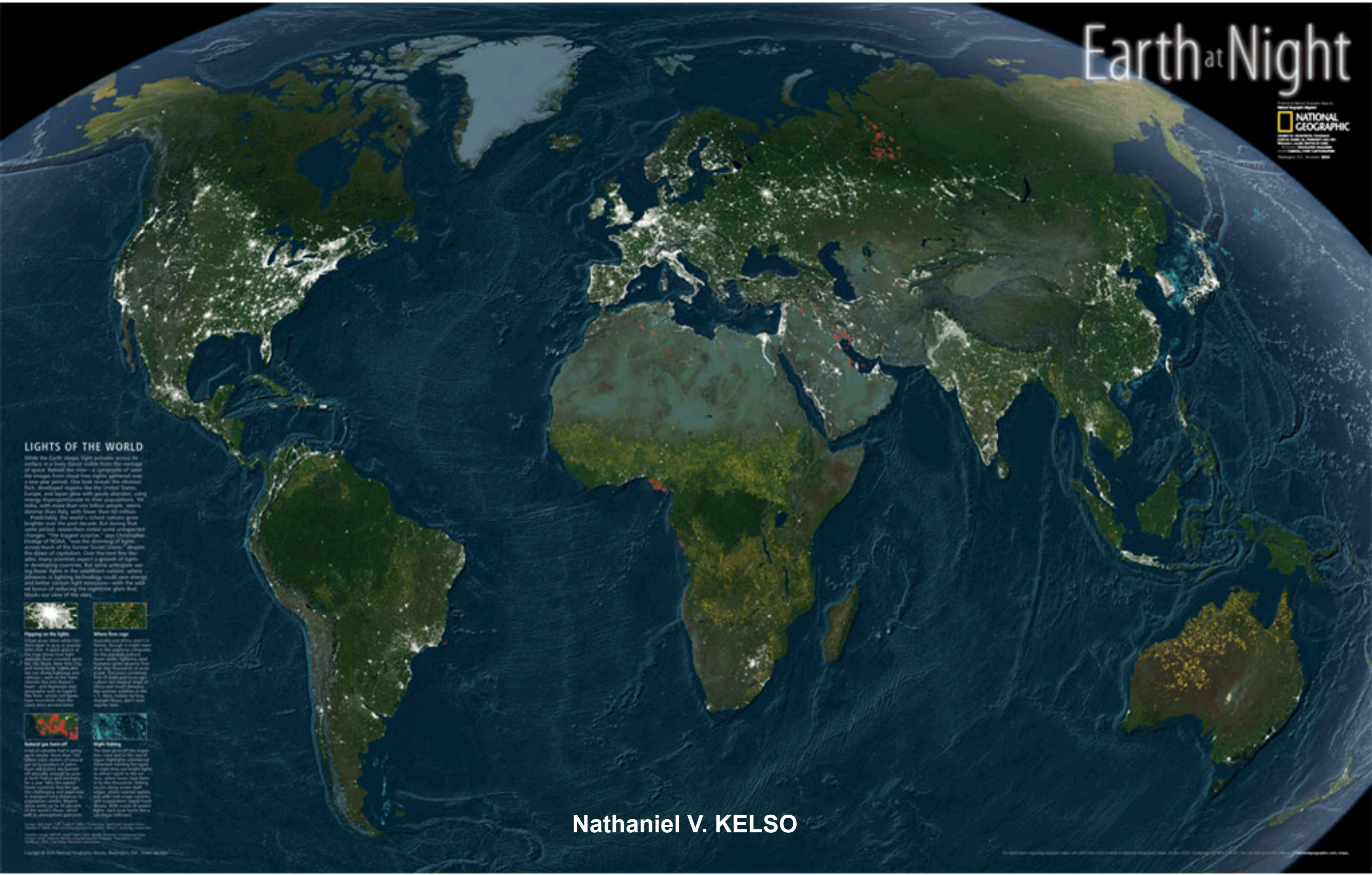


4. We divided the area in each zone by its density number to calculate the number of people. For Zone 15, we estimated a density of 2.5 in 70 percent of the area (about 29,500 people).

5. We added up the zones and got our total.



Earth at Night



LIGHTS OF THE WORLD

While the Earth images light pulses across its surface in a hazy dance within hours, the composite of space behind the view—a composite of what the images from about three nights gathered over a one-year period. One look reveals the obvious: North America, Europe, and Japan glow with lights abundant, using energy disproportionately to their populations, yet India, with more than one billion people, seems dimmer than Italy, with fewer than 60 million.

Predictably, the world's richest nations glow brighter over the past decade. But during that same period, researchers noted some unexpected changes. "The biggest surprise," says Christopher Elwood of NASA, "was the dimming of lights across much of the former Soviet Union," despite the state of capitalism. One theory for the shift, many scientists suspect is growth of lights in devastating countries. But some anticipate seeing fewer lights in the wealthiest nations, where advances in lighting technology could save energy and further reduce light emissions—such as the shift to compact fluorescent light bulbs that blocks out some of the glare.



Flipping on the lights
 While some cities indicate their lights to stay on through the day, the lights of some cities are dimmed during the day. In many cases, this is done to save energy and money. In some cases, it is done to reduce light pollution. In some cases, it is done to reduce the amount of light that is emitted into the sky.



Natural gas flows off
 A lot of natural gas is used in the United States. It is used for heating, cooking, and electricity. It is also used for industrial purposes. The amount of natural gas used in the United States has increased over the past few years.

Light fishing
 The blue glow of the aurora is a natural light phenomenon. It is caused by the interaction of solar wind and the Earth's magnetic field. The aurora is most visible in the northern and southern hemispheres.

Nathaniel V. KELSO

7 billion people

How many cities is that?

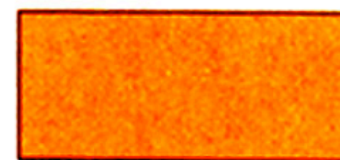
How about 10,000 people per city?

700,000 cities should do, except ...

- We like living next to other people in some really big cities
- 1/2 the world still lives in tiny rural settlements
- Humans are zany!



Städte, Siedlungen



Siedlungsgebiet
grosser Agglomerationen

■ Rom	mehr als 1 000 000 Einwohner
■ Dublin	500 000 – 1 000 000
■ Zürich	200 000 – 500 000
■ Bern	100 000 – 200 000 (<u>Hauptstadt</u>)
● Biel	50 000 – 100 000
⊙ Freiburg	20 000 – 50 000 (<u>Hauptort</u>)
⊙ Locarno	10 000 – 20 000
○ Brugg	5 000 – 10 000
○ Sempach	2 000 – 5 000
○ Zernez	weniger als 2 000
⋯ DELPHI	Antike Stätte
∪ Djanet	Oase



Natural Earth

Free vector and raster map data at 1:10m, 1:50m, and 1:110m scales

Home

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Cross Blended Hypso with Shaded Relief and Water

Natural Earth is a public domain map dataset available at 1:10m, 1:50m, and 1:110m scales. Featuring tightly integrated vector and raster data, with Natural Earth you can make a variety of visually pleasing, well-crafted maps with cartography or GIS software.

Natural Earth was built through a collaboration of many **volunteers** and is supported by **NACIS** (North American Cartographic Information Society), and is free for use in any type of project (see our **Terms of Use** page for more information).

[Get the Data](#)



Convenience

Natural Earth solves a problem:



Neatness Counts

The carefully generalized linework

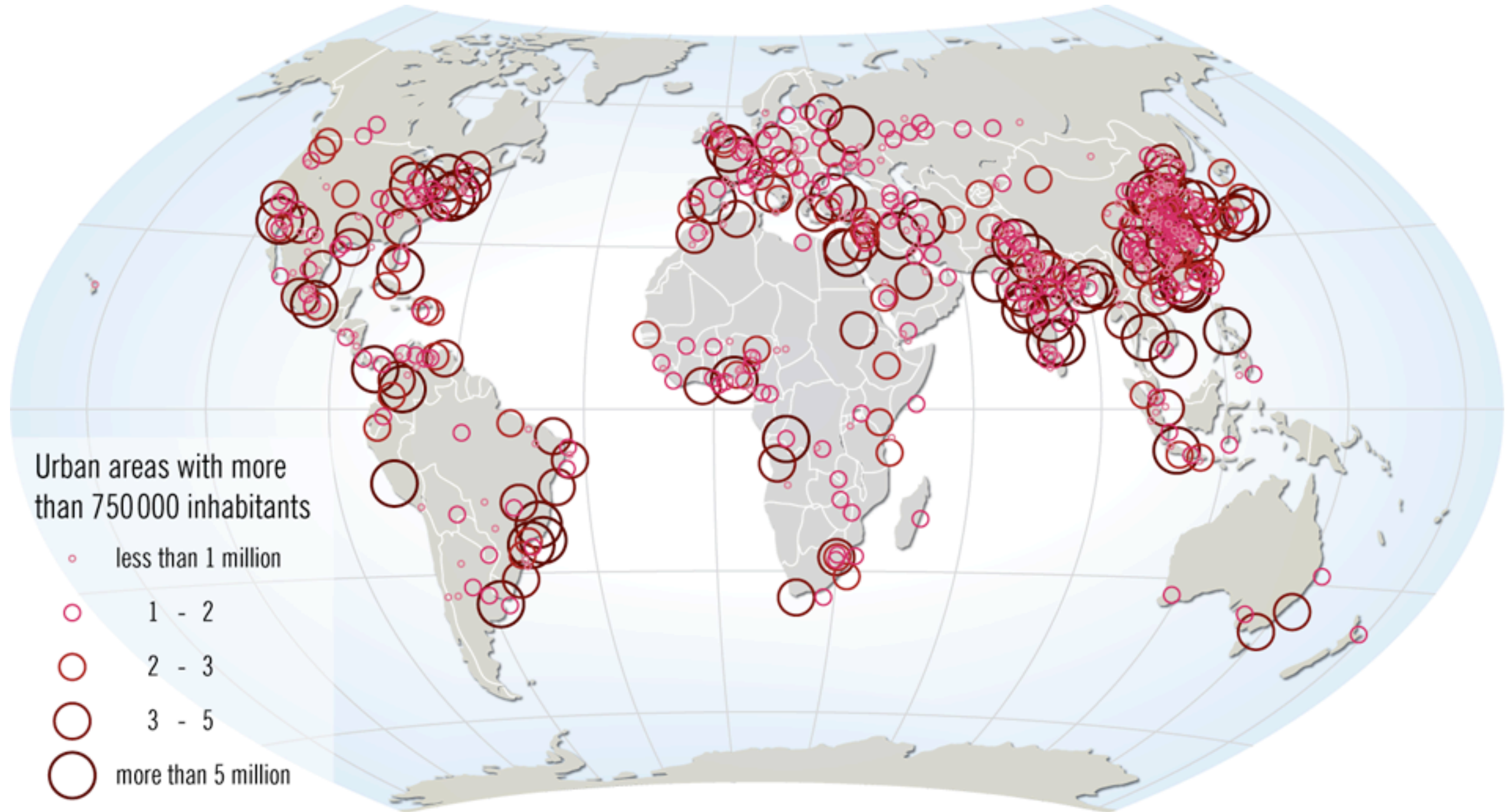
50m-admin-0-countries_area (242 areas selected)			
COUNTRYNAM	SCALERANKV	FEATURECLA	SOVE
Afghanistan	1.000000000000	Countries	Afghanis
Aland	3.000000000000	Countries	Finland
Albania	1.000000000000	Countries	Albania
Algeria	1.000000000000	Countries	Algeria

GIS Attributes

Natural Earth, however, is more

World map of large urban areas in 2005 // Nordpil // Natural Earth

1.4 billion in just 590 mega-cities = 20%



Scale Ranks - 50m



Scale Ranks - 50m



0 500
MILES

Scale Ranks - 50m



1:10 Million scale // California // Natural Earth

3.5 billion in just 7,500 cities = 50%



1:10 Million scale // California // Natural Earth

3.5 billion in just 7,500 cities = 50%



¿ 6.5 billion in 700,000 cities = 92% ?

7.0 billion in 2,300,000 cities = 99%

200 mega regions

100,000 neighborhoods?

12,000 metro-micros?

375,000 suburbs, edge cities?

35,000 rural centers?

178,000 rural outposts?

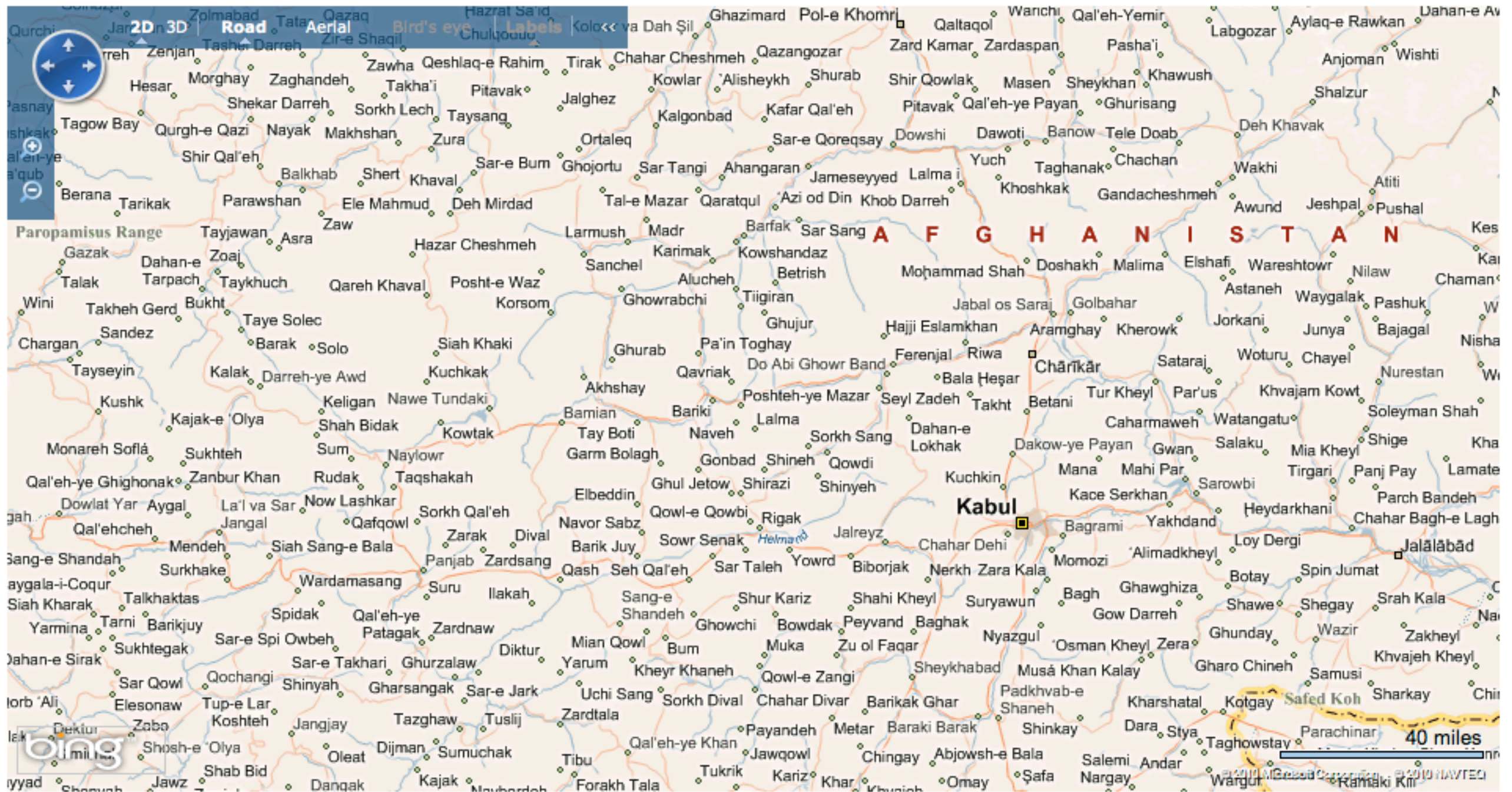
US has 300 million people with ~50,000 places = 6,000 people on average

World has 7 billion with ~2.3 million places = 3,000 people on average

148.94 million sq km land area but we only use 15% of that = 1 name per 10 sq km

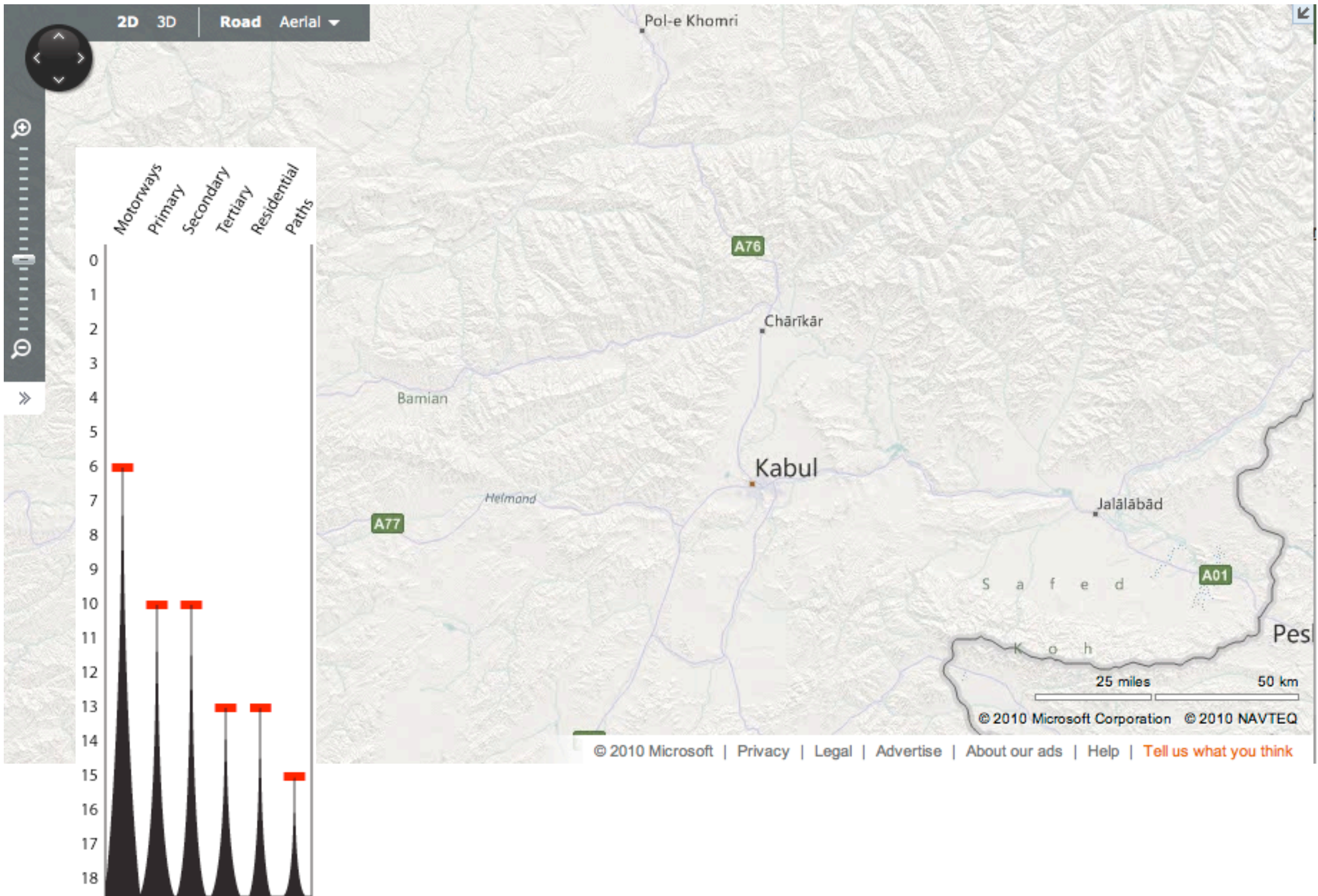
148.94 million sq km land area but we only use 1% for cities = 1 name per 1 sq km

Data Overload // Bing (old)



Underwhelming // Bing (new)

41 Latitude // Jason O'Beirne



TOP SECRET AMERICA

A Washington Post Investigation

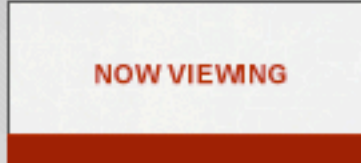
WATCH THE INTRO



READ THE STORIES



SEE THE MAP



EXPLORE CONNECTIONS



FIND COMPANIES



SEARCH THE DATA



Where is Top Secret America?

Explore the map to find locations of government organizations and companies within Top Secret America.

Currently on the map:

GOVERNMENT WORK LOCATIONS

2,162

Show all government

COMPANY WORK LOCATIONS

6,941

Show all companies

Enter city or address...

Zoom

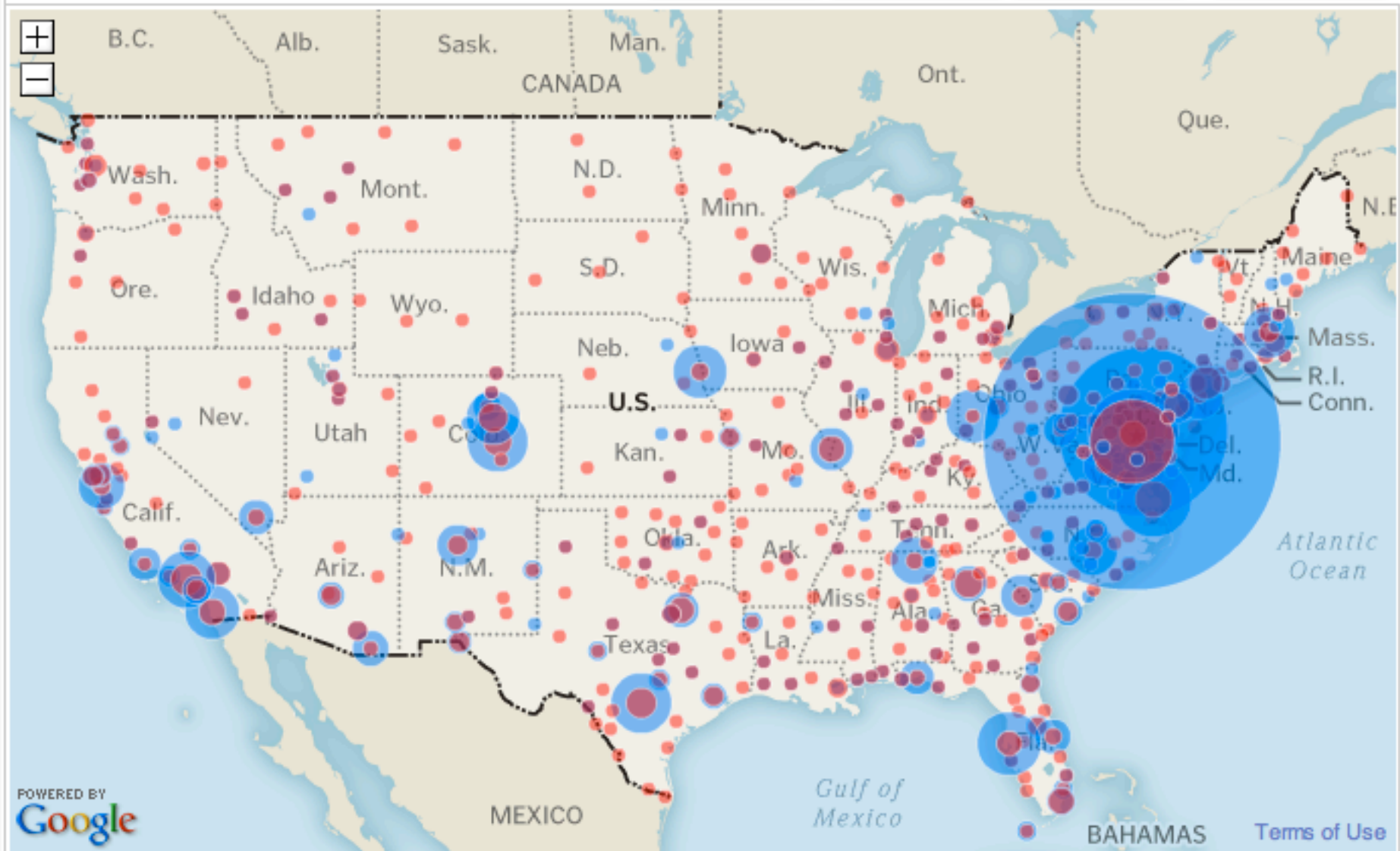
View Options:

ZOOM TO DC

ZOOM TO US

ZOOM TO ALL

RESET MAP



Top-secret government organizations by location

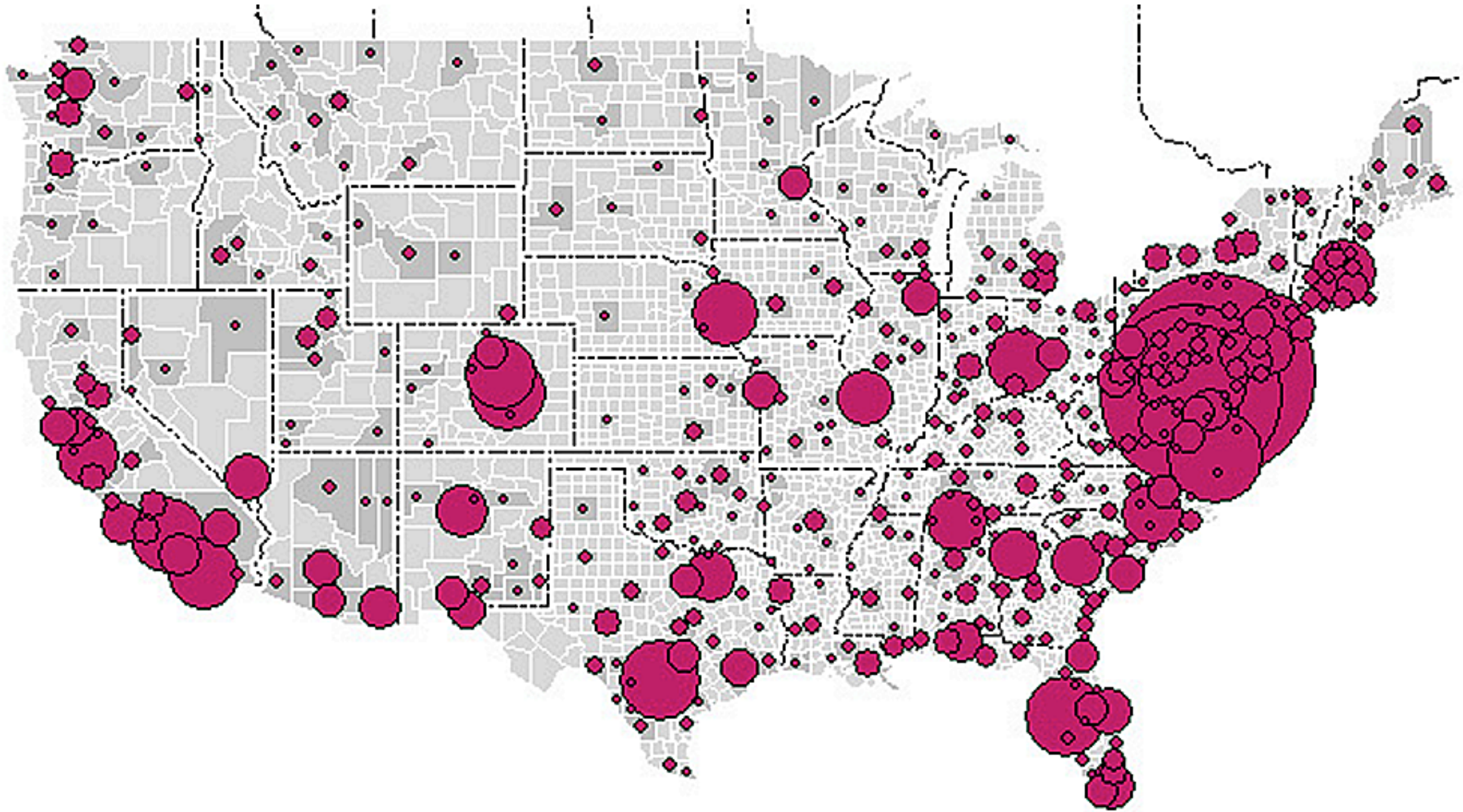
Number of total work locations by government organization.



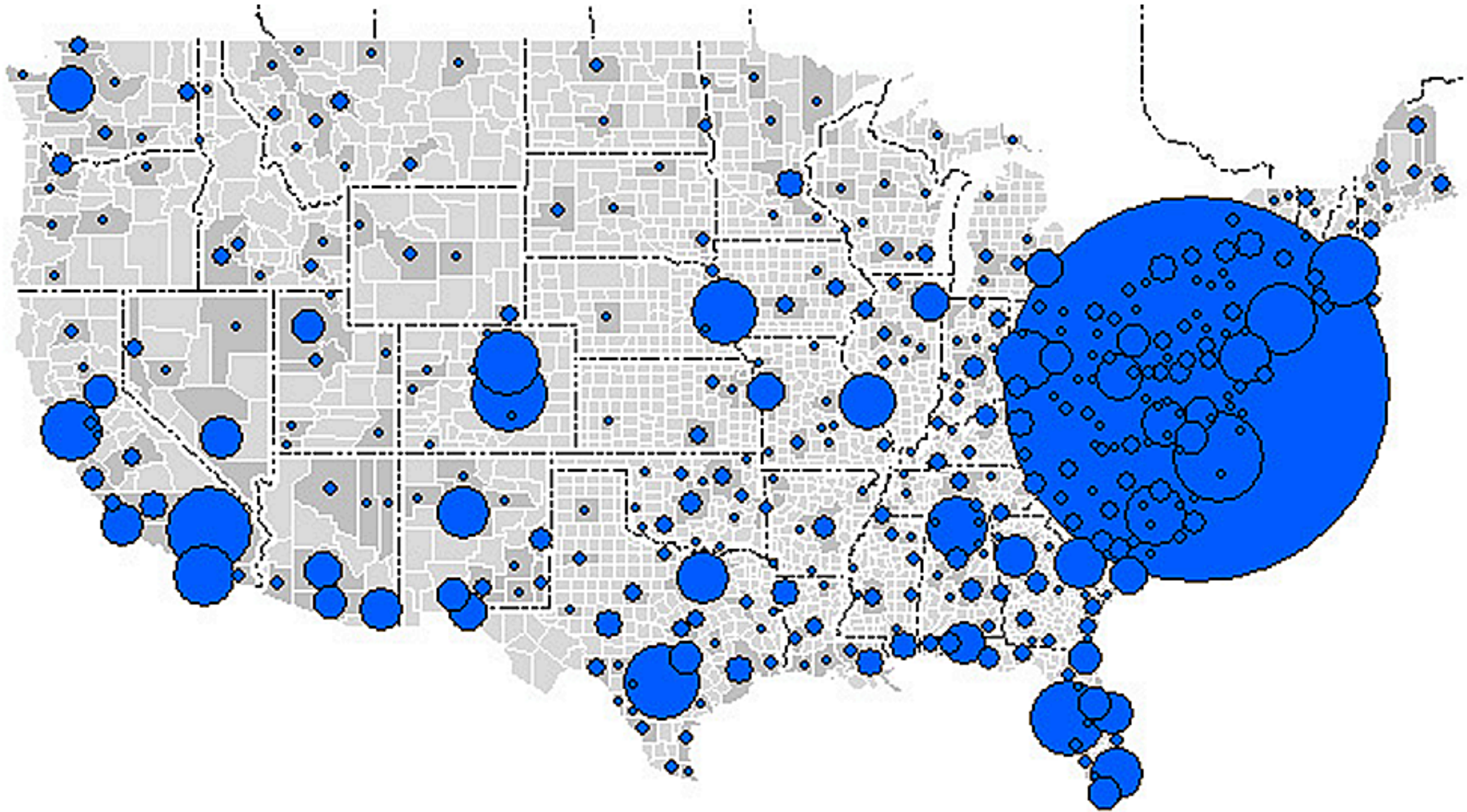
TSA locations by **address** or **city,state** point locations



TSA locations **GROUPED** by metros, micros, and rural counties

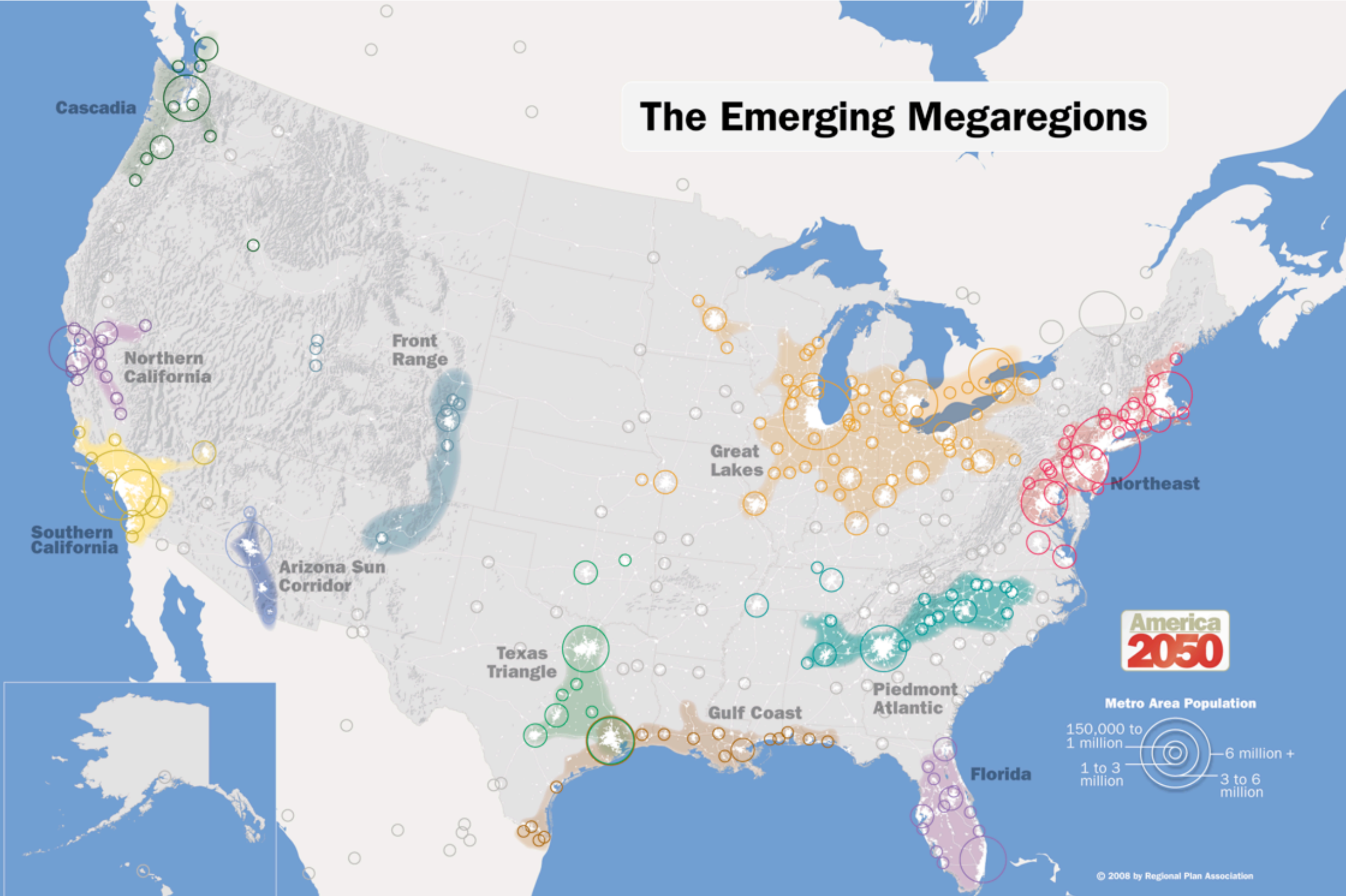


TSA locations grouped by **MEGA-CITIES**, metros, micros, and rural counties



Metropolitans >> Mega-Regions // Richard Florida
Regional Innovation Clusters // Brookings

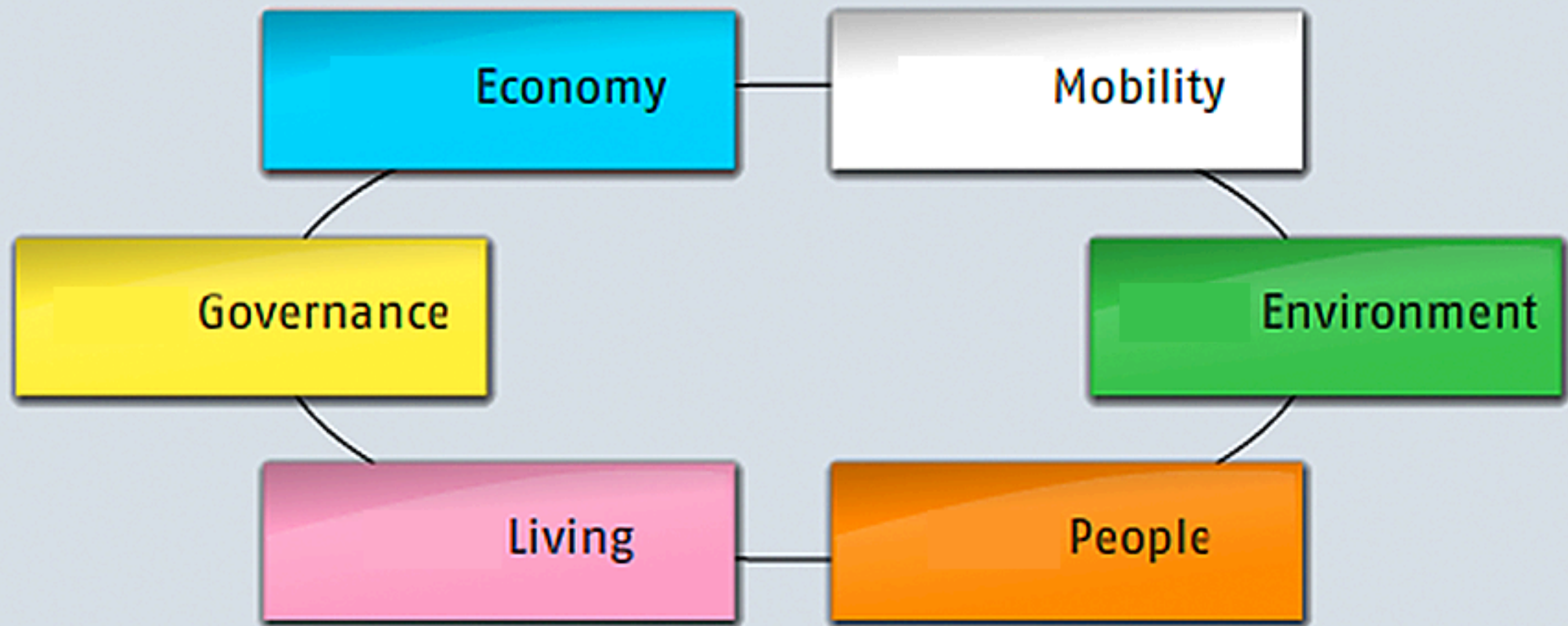
The Emerging Megaregions



What makes a city “work”?

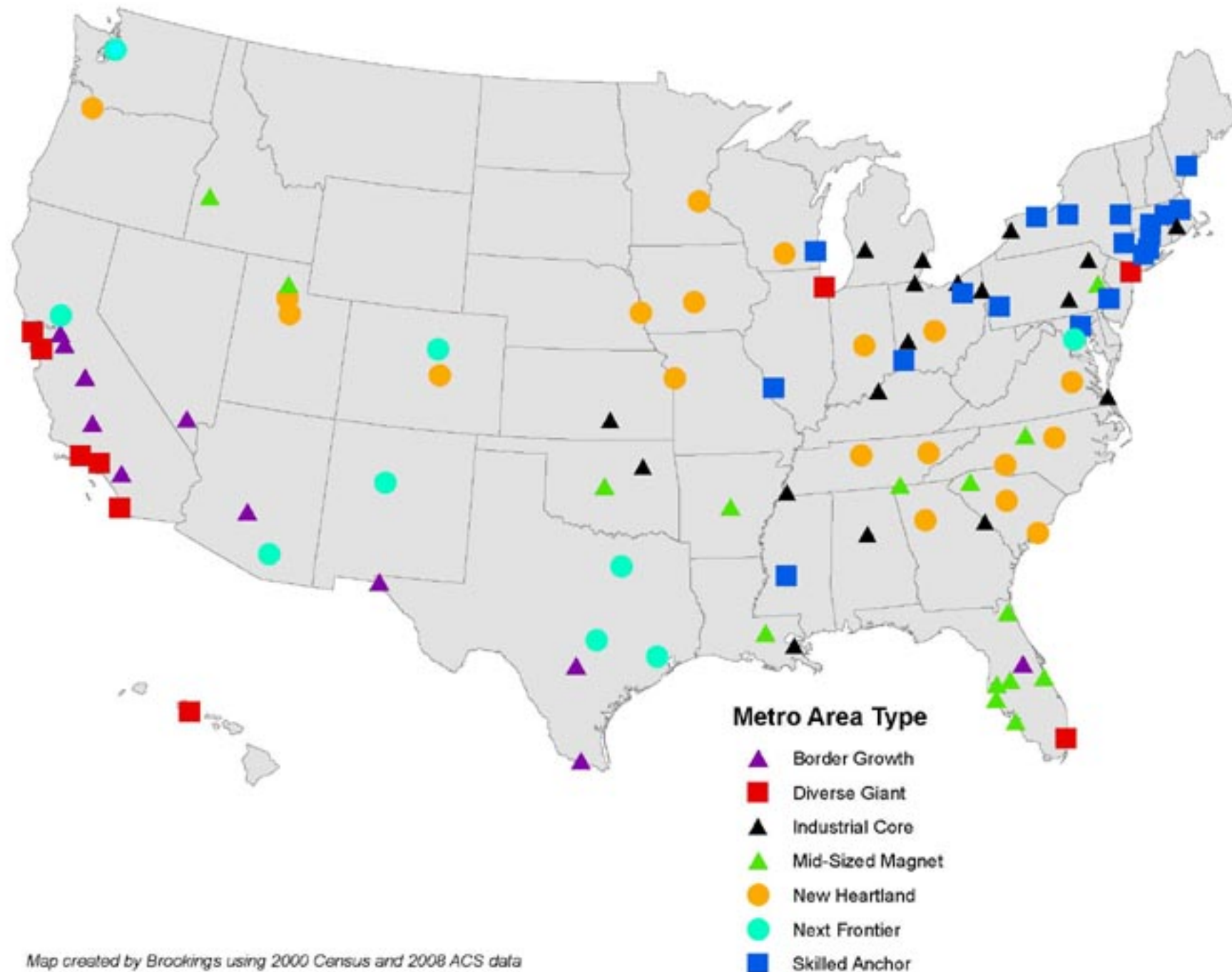
The smart city model

A Smart City is a city well performing in 6 characteristics, built on the ‘smart’ combination of endowments and activities of self-decisive, independent and aware citizens.

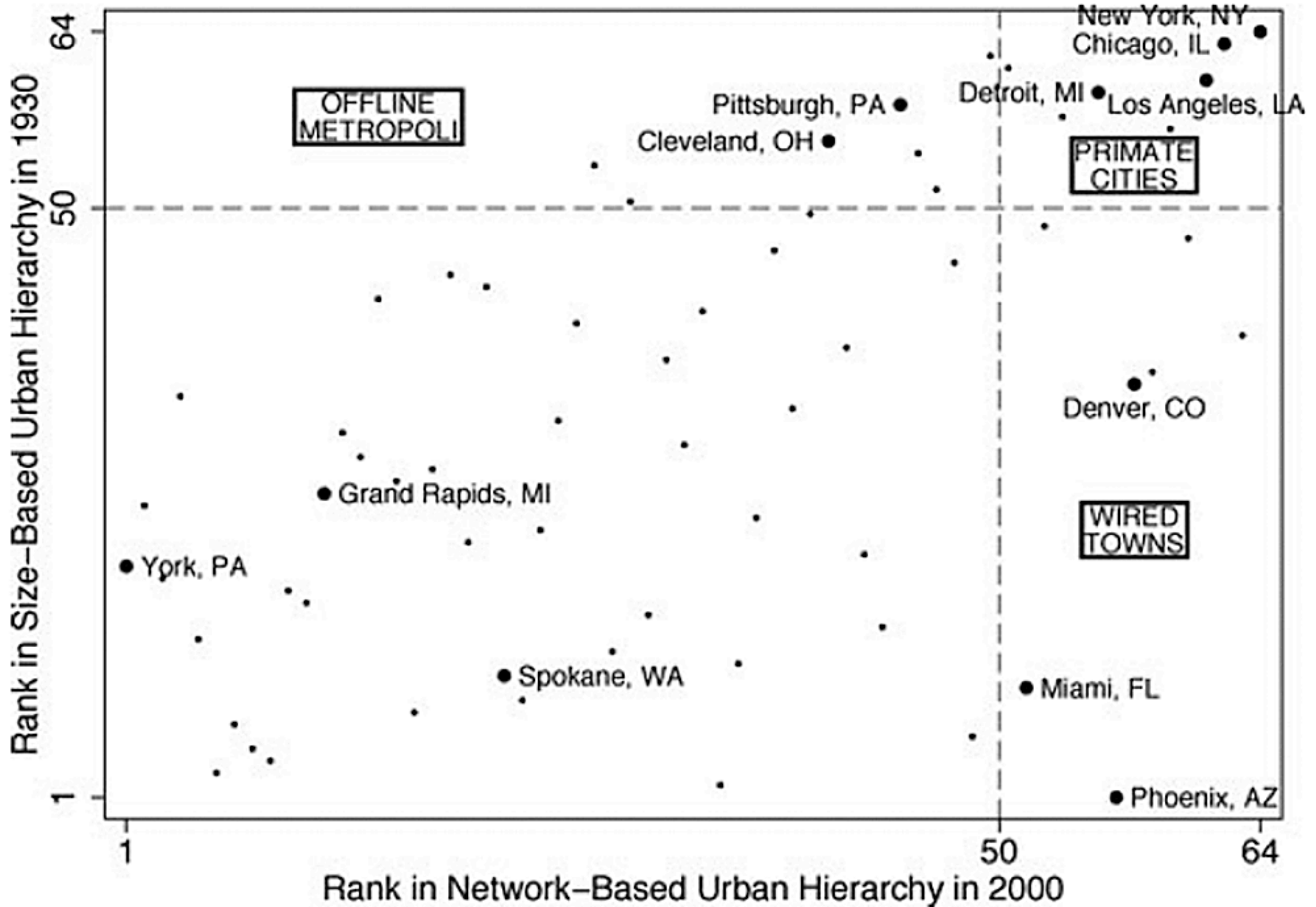


The State of Metropolitan America // Brookings

“Do you live in the “Rust Belt” or the “Sun Belt?” Are you a West Coaster, an East Coaster, or a resident of “flyover country?” Perhaps you’re a proud New Englander, Midwesterner, or Texan. More to the point, does any of that matter?”



“From Central Places to Network Bases: A Transition in the U.S. Urban Hierarchy, 1900–2000”



Places have always been palimpsests

The contemporary is constantly being constructed upon the foundations of the old. Yet only recently has place begun to take on an entirely new dimension. Millions of places are being represented in cyberspace by a labour force of hundreds of thousands of writers, cartographers and artists.

– *MARK GRAHAM*

Marshall McLuhan

<http://kelso.it/x/yu>
<http://kelso.it/x/yt>
<http://kelso.it/x/yv>

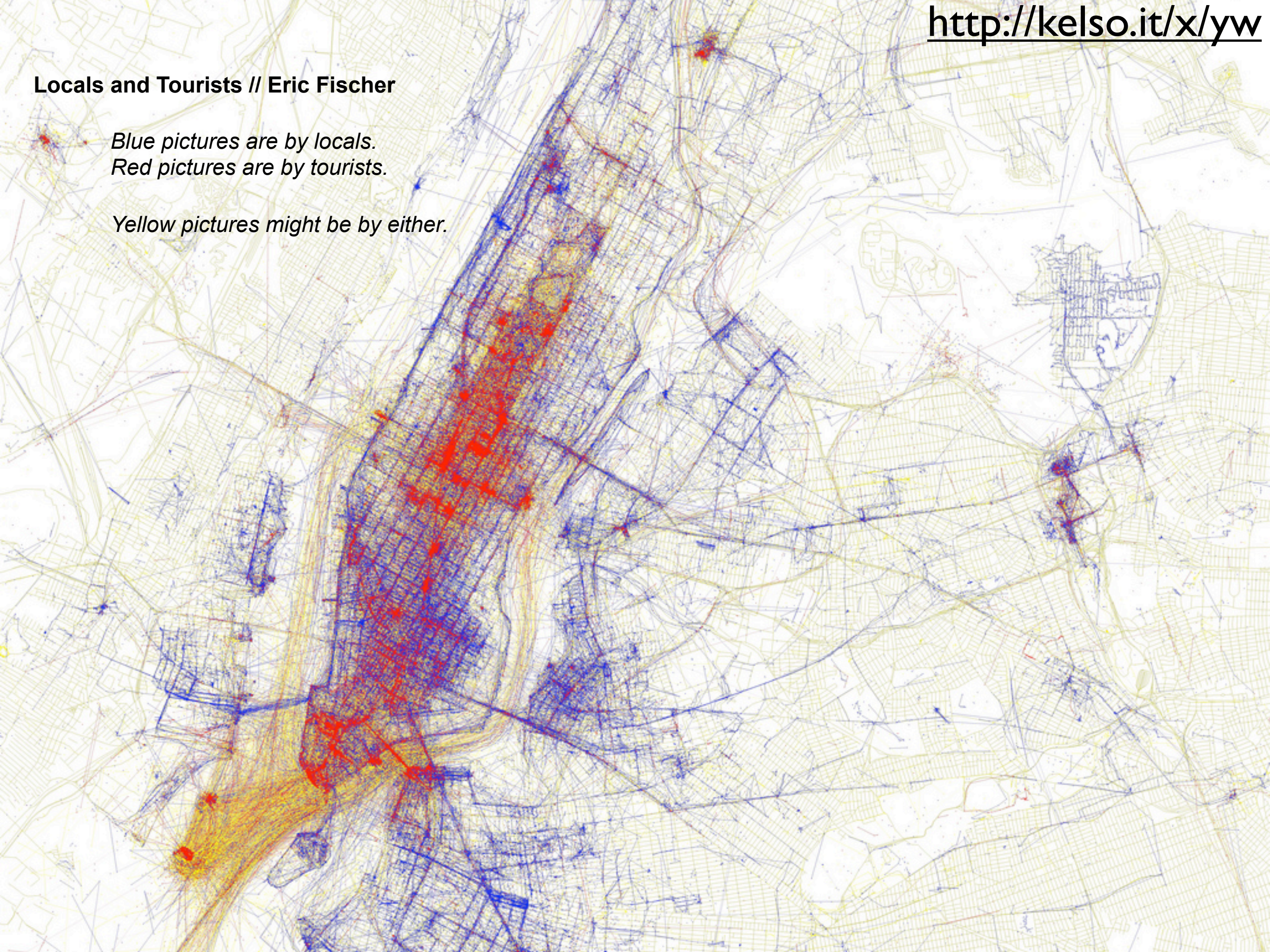
“the city no
longer exists
except as a
cultural ghost
for tourists”

McLuhan is also known for the expressions "[the medium is the message](#)" and "[global village](#)"

Locals and Tourists // Eric Fischer

*Blue pictures are by locals.
Red pictures are by tourists.*

Yellow pictures might be by either.



Greenpoint, New York



search for a location

nneeeeeeeear

faaaaaaaar

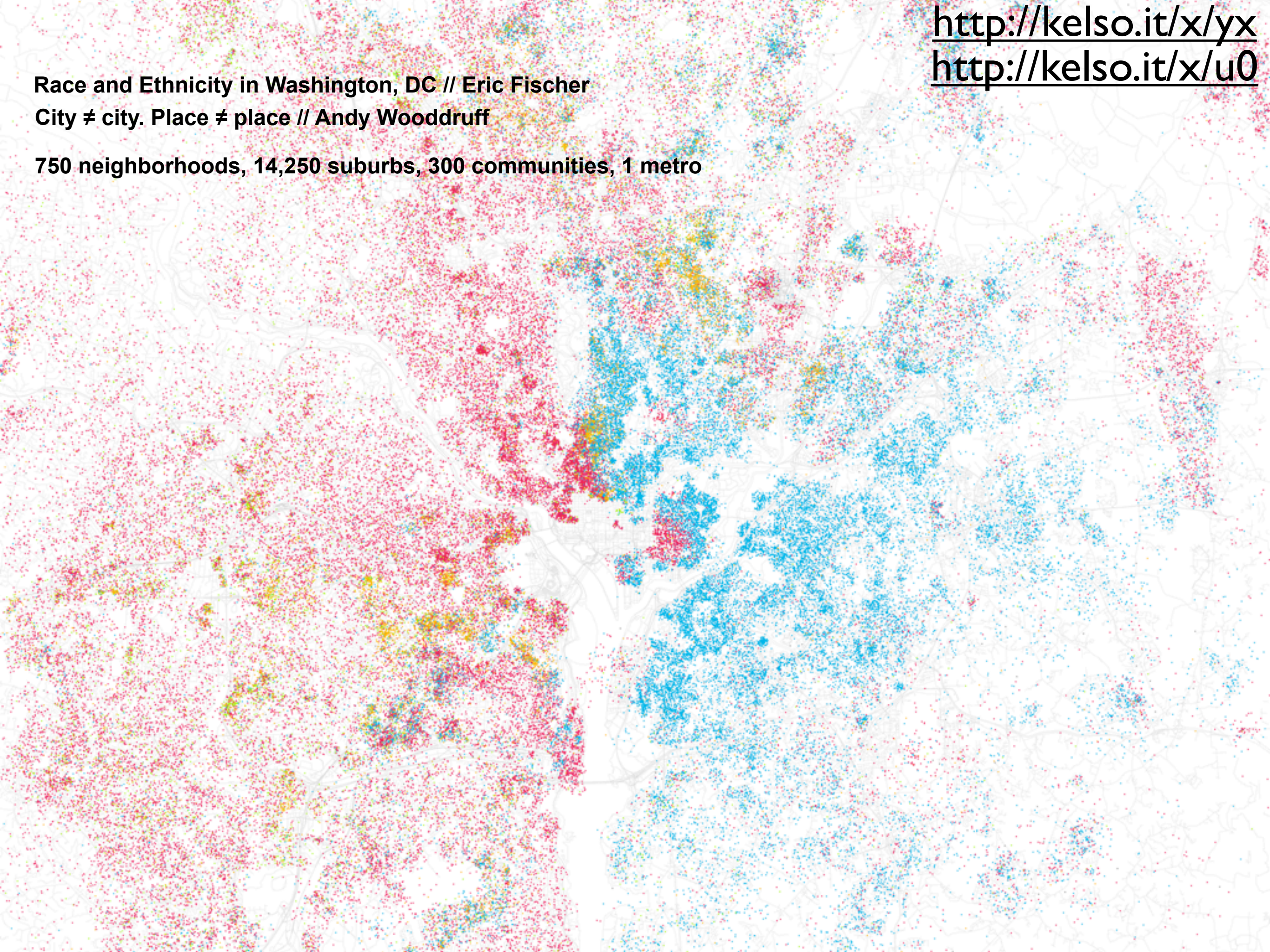


<http://kelso.it/x/yx>
<http://kelso.it/x/u0>

Race and Ethnicity in Washington, DC // Eric Fischer

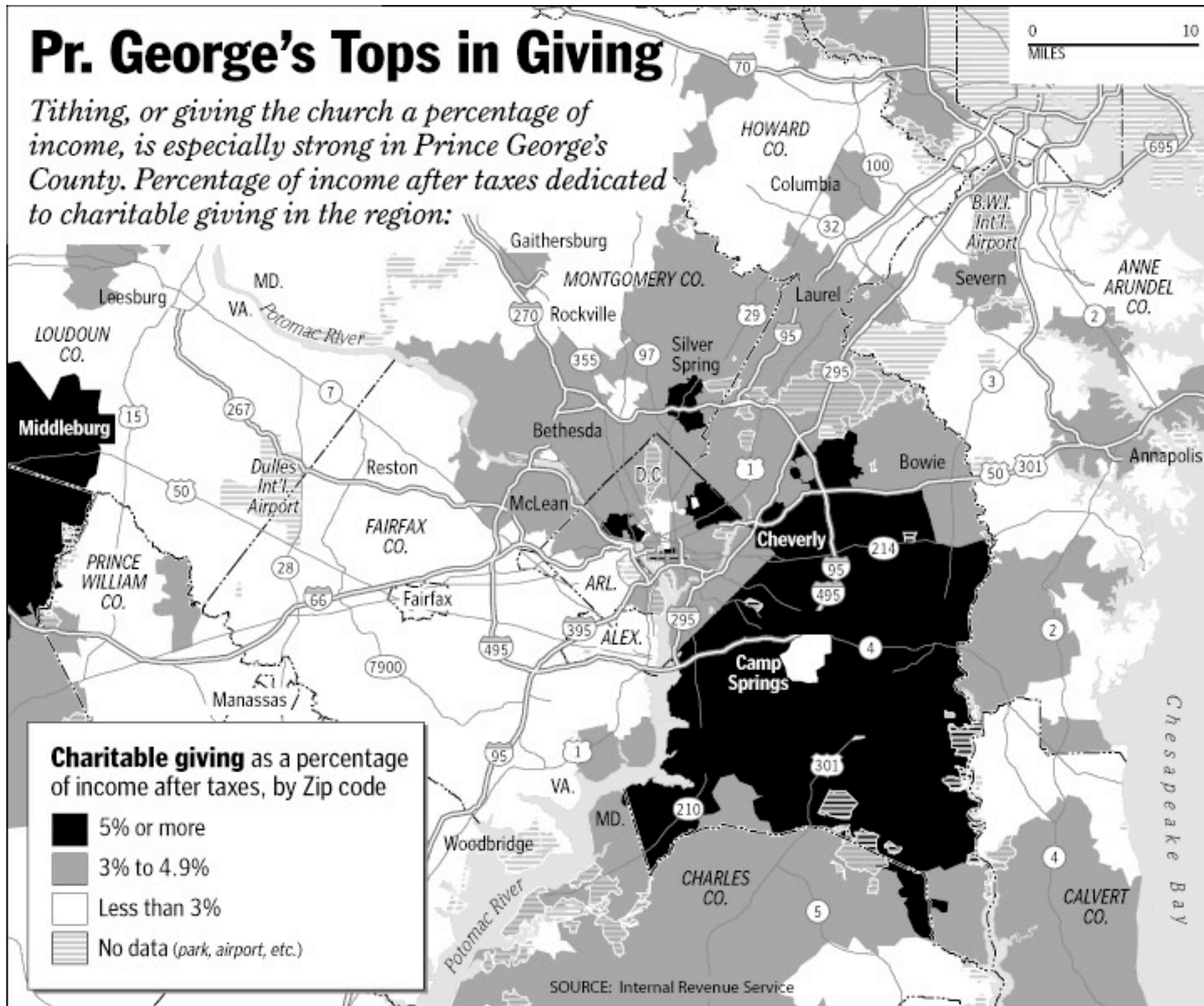
City ≠ city. Place ≠ place // Andy Wooddruff

750 neighborhoods, 14,250 suburbs, 300 communities, 1 metro



Pr. George's Tops in Giving

Tithing, or giving the church a percentage of income, is especially strong in Prince George's County. Percentage of income after taxes dedicated to charitable giving in the region:



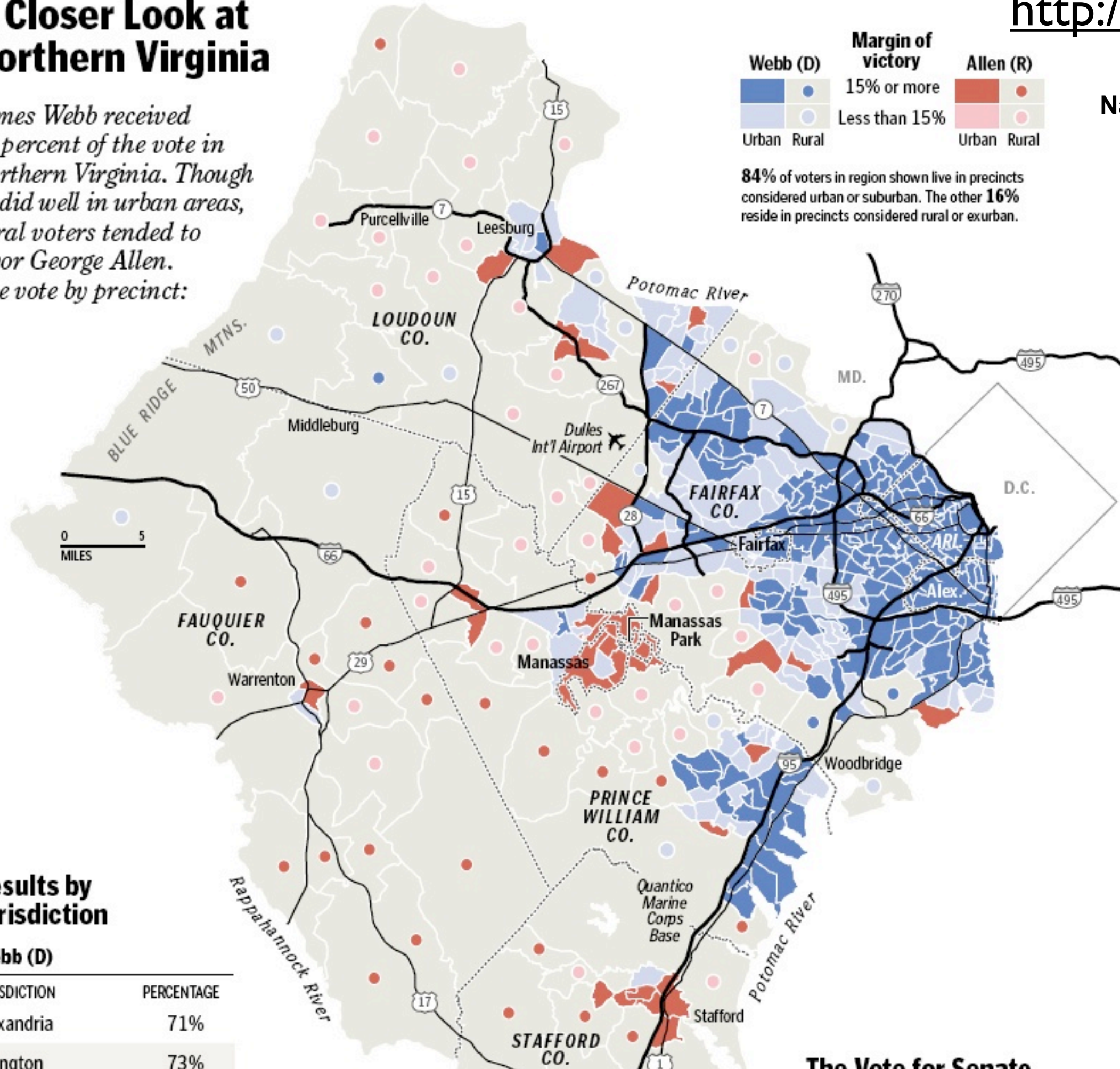
Nathaniel V. KELSO

A Closer Look at Northern Virginia

James Webb received 58 percent of the vote in Northern Virginia. Though he did well in urban areas, rural voters tended to favor George Allen. The vote by precinct:



84% of voters in region shown live in precincts considered urban or suburban. The other **16%** reside in precincts considered rural or exurban.



Results by Jurisdiction

JURISDICTION	PERCENTAGE
Alexandria	71%
Arlington	73%

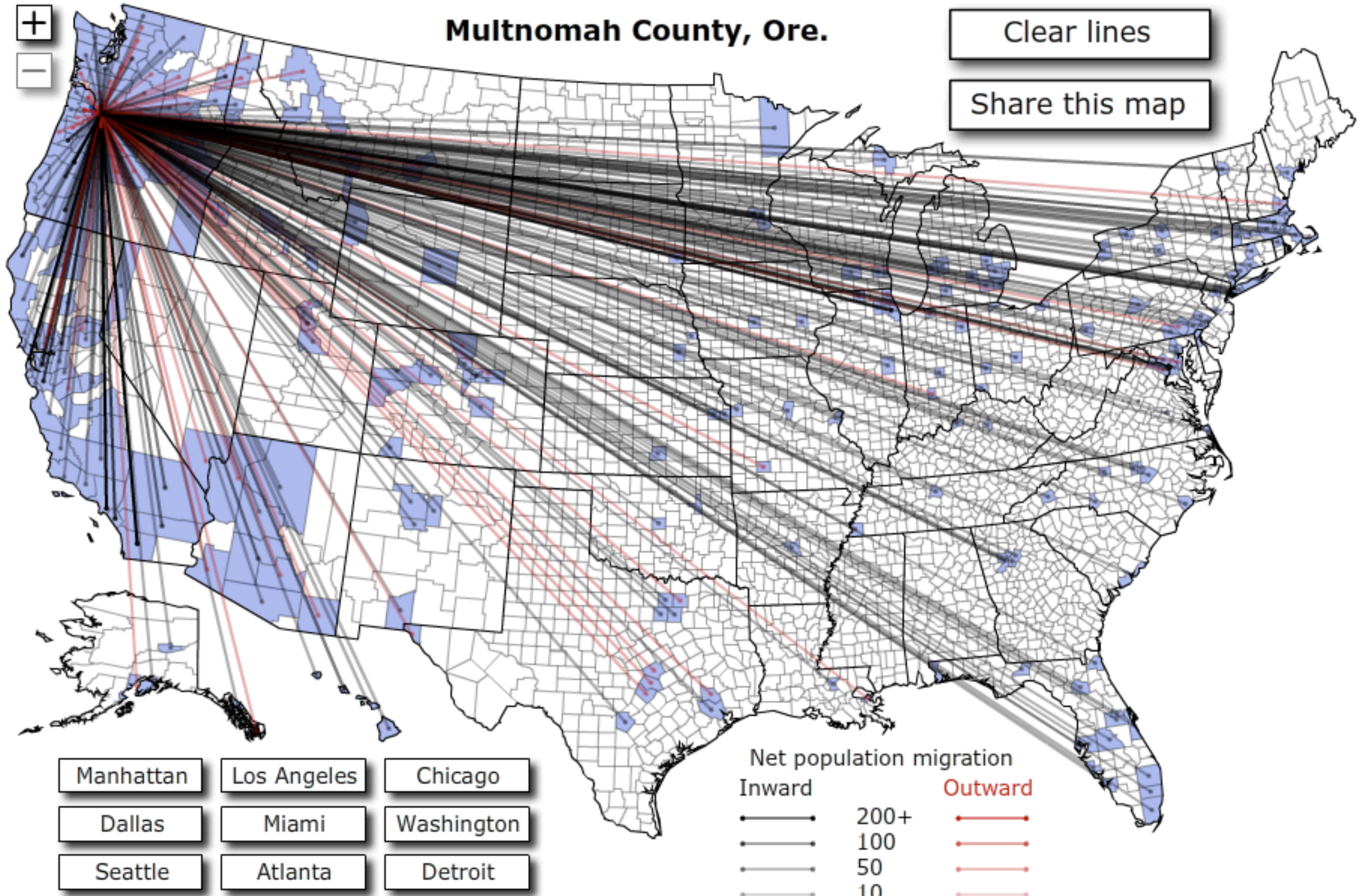
The Vote for Senate

Interactive Feature

Map: Where Americans Are Moving

Jon Bruner

More than 10 million Americans moved from one county to another during 2008. The map below visualizes those moves. Click on any county to see comings and goings: black lines indicate net inward movement, red lines net outward movement.



Transport // Walk Score



America's Most Walkable Neighborhoods

Find the most walkable neighborhoods in the top 40 U.S. cities.

City	Score	Most Walkable Neighborhoods
1 San Francisco	86	Chinatown, Financial District, Downtown
2 New York	83	Tribeca, Little Italy, Soho
3 Boston	79	Back Bay-Beacon Hill, South End, Fenway-Ken
4 Chicago	76	Loop, Near North Side, Lincoln Park
5 Philadelphia	74	City Center East, City Center West, Riverfront
6 Seattle	72	Pioneer Square, Downtown, First Hill
7 Washington D.C.	70	Dupont Circle, Logan Circle, Downtown
8 Long Beach	69	Downtown, Belmont Shore, Belmont Heights
9 Los Angeles	67	Mid City West, Downtown, Hollywood
10 Portland	66	Pearl District, Old Town-Chinatown, Downtown
11 Denver	66	Lodo, Golden Triangle, Capitol Hill
12 Baltimore	65	Federal Hill, Fells Point, Inner Harbor
13 Milwaukee	62	Lower East Side, Northpoint, Murray Hill
14 Cleveland	60	Downtown, Ohio City-West Side, Detroit Shore
15 Louisville	58	Central Business District, Limerick, Phoenix Hil
16 San Diego	56	Core, Cortez Hill, Gaslamp Quarter
17 San Jose	55	Buena Vista, Burbank, Rose Garden
18 Las Vegas	55	Meadows Village, Downtown, Rancho Charlestc
19 Fresno	54	Central, Fresno-High, Hoover
20 Sacramento	54	Richmond Grove, Downtown, Midtown
21 Albuquerque	53	Downtown, Broadway Central, Raynolds
22 Atlanta	52	Five Points, Poncey-Highland, Sweet Auburn
23 Detroit	52	Downtown, New Center, Midtown
24 Dallas	51	West End Historic District, Oak Lawn, m Street
25 Tucson	51	Iron Horse, El Presidio, Ocotillo Oracle
26 Houston	51	Downtown, Montrose, River Oaks
27 Columbus	50	Weinland Park, Victorican Village, Downtown
28 Phoenix	50	Encanto, Central City, Camelback East
29 Austin	49	Downtown, University Of Texas, West Universi
30 Mesa	48	Southwest, West Central, Central
31 El Paso	45	Golden Hills, Houston Park, Manhattan Heights

Economy // The gentrification of abandonment in Detroit // Jo Guldi



World Cities: Nairobi, Kenya



<http://mapkibera.org/>
<http://kelso.it/x/xs>

Slums: 1M people in Kibera section of Nairobi, Kenya



How good is volunteered geo. information?
A comparative study of OpenStreetMap and
Ordnance Survey datasets

by *Mordechai Haklay*

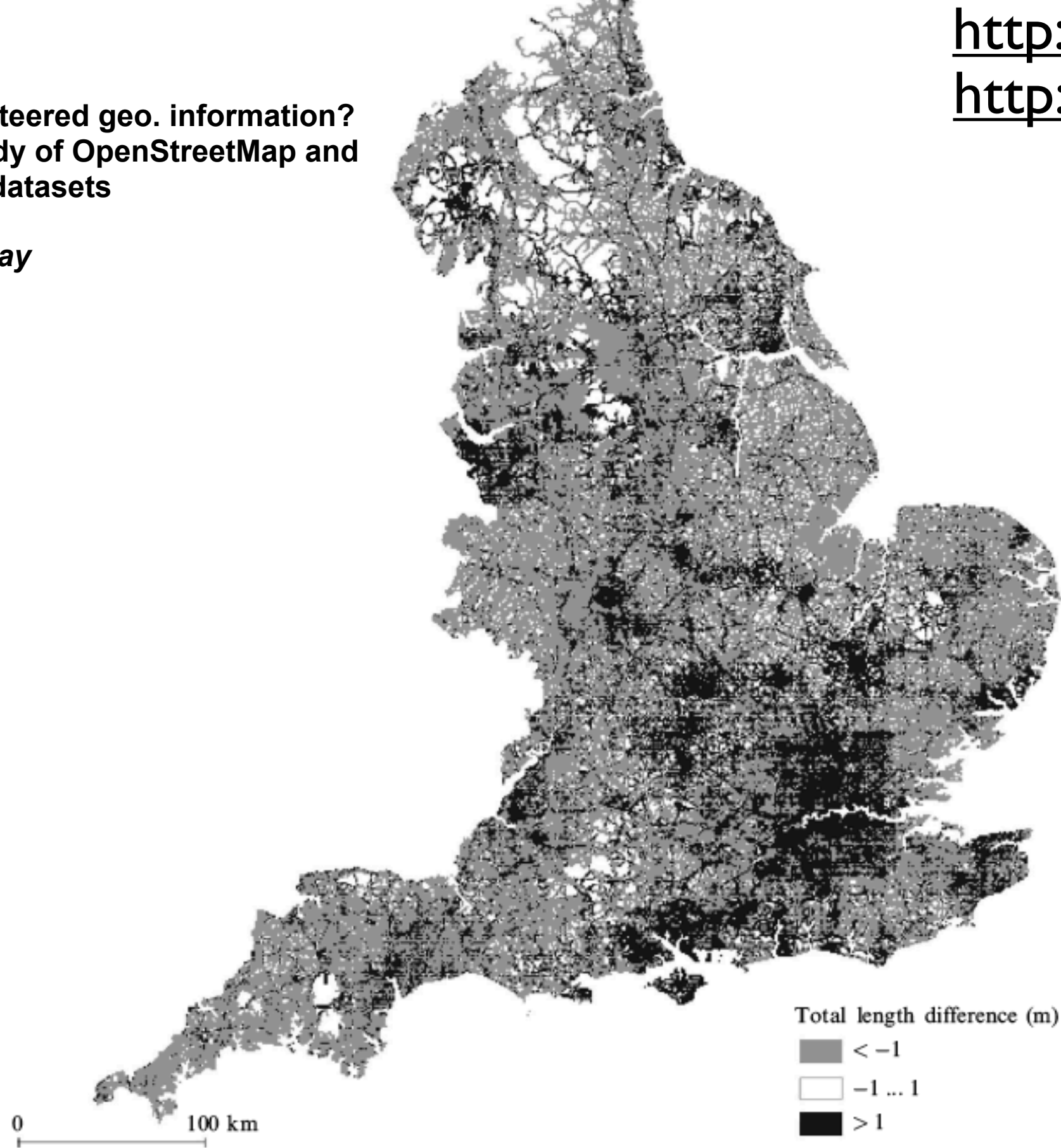
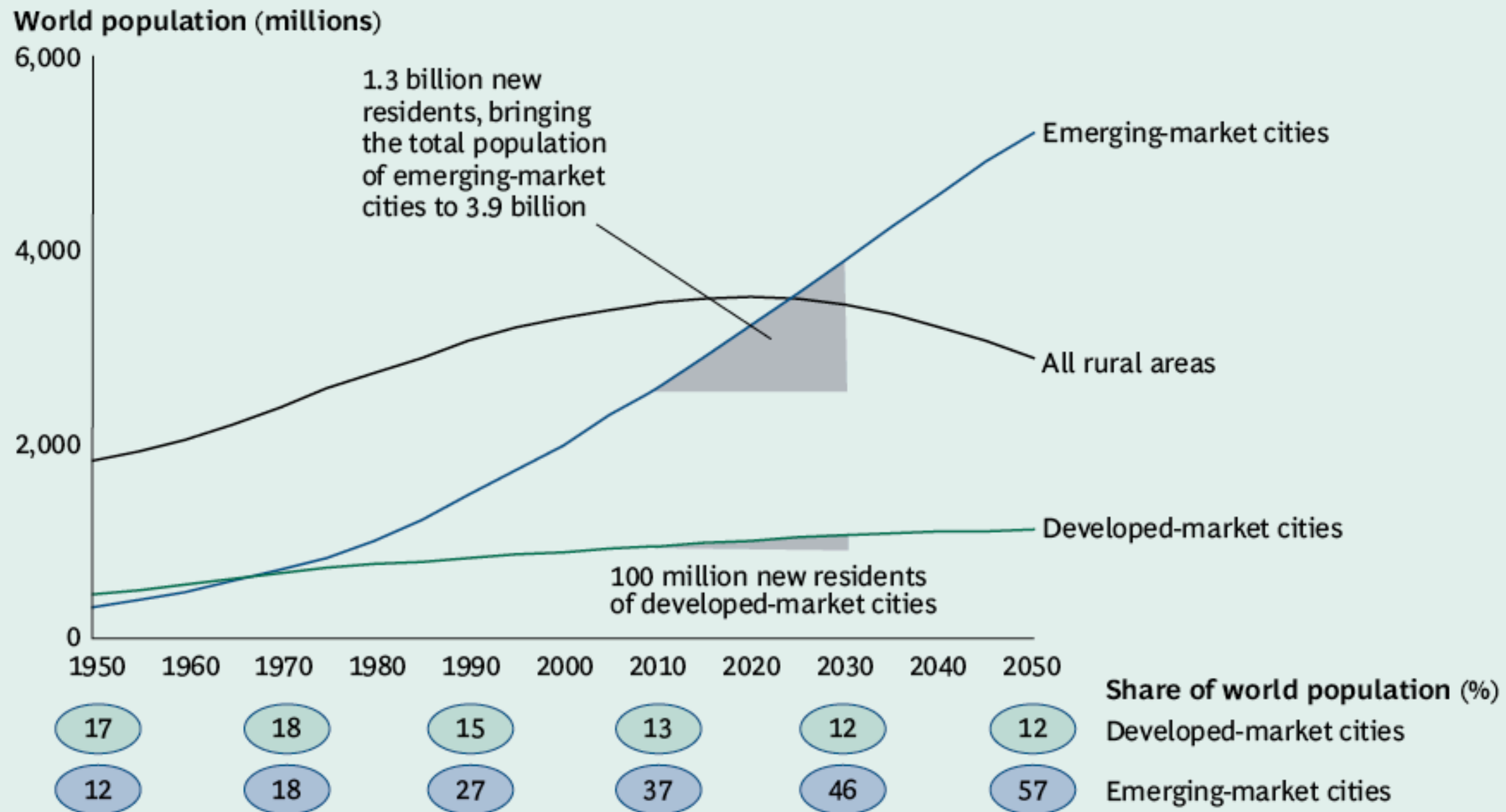


Figure 4. Length difference between OpenStreetMap (OSM) and Ordnance Survey Meridian 2 datasets. Black = areas of good OSM coverage; grey = areas of poor OSM coverage.

Exhibit 1. Rapid Growth Will Further Boost the Population of Emerging-Market Cities

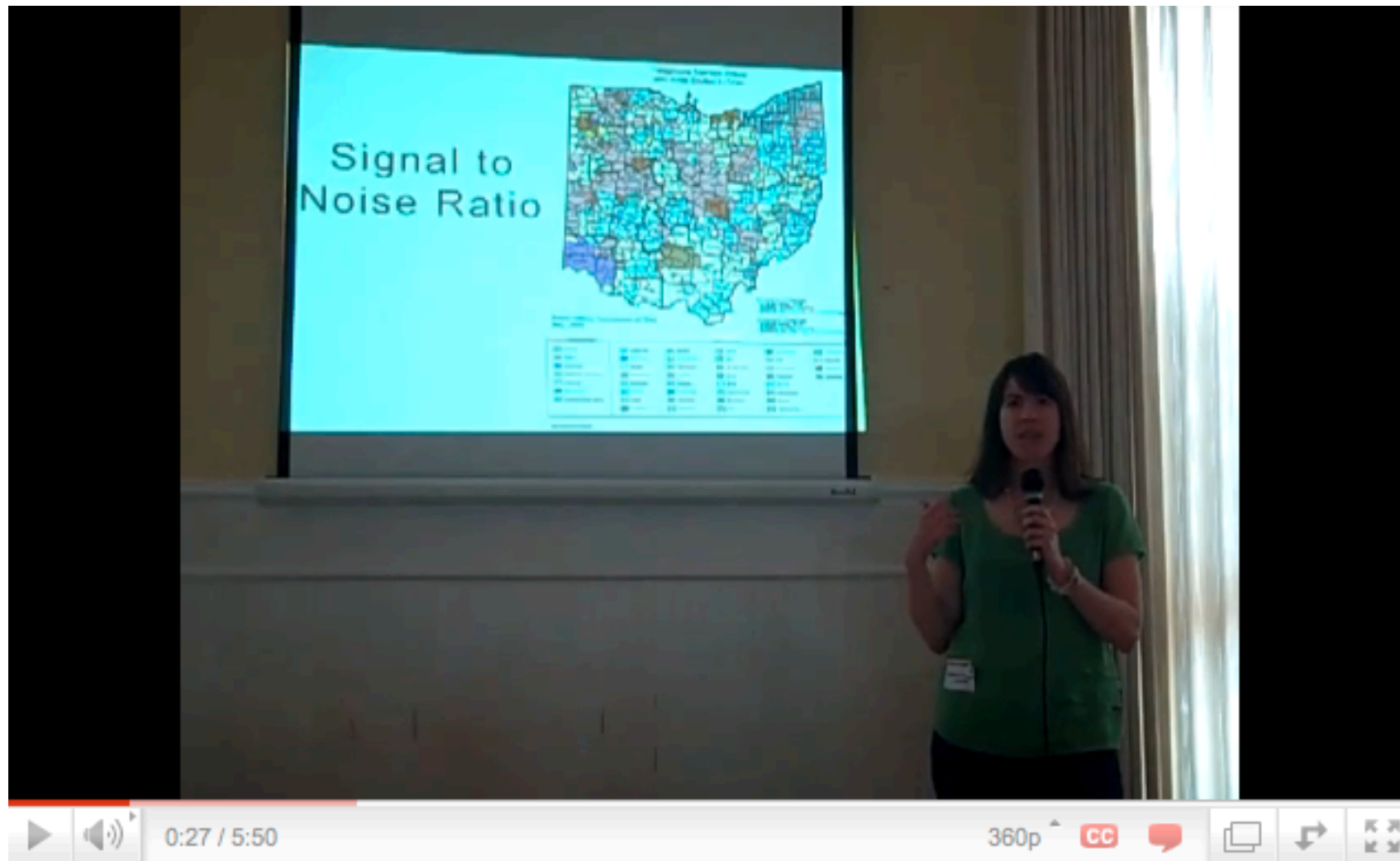
By 2030, another 1.3 billion people will live in emerging-market cities, more than the total population of today's developed-market cities



Sources: United Nations, *World Urbanization Prospects: The 2009 Revision*; Economist Intelligence Unit; Chan, K.W., "Fundamentals of China's Urbanization and Policy," *China Review* 10:1, 2010; Mitra, Arup and Mayumi Murayama, "Rural to Urban Migration: A District Level Analysis for India," IDE Discussion Paper No. 137, 2008; BCG analysis.

Making better maps // Gretchen Peterson

YouTube: "Mapping : please don't do this"



Questions?

Presentation

kelso.it/x/pdx

Twitter

[@kelsosCorner](https://twitter.com/kelsosCorner)

Blog

kelso.it/blog

If you don't get it, you don't get it*

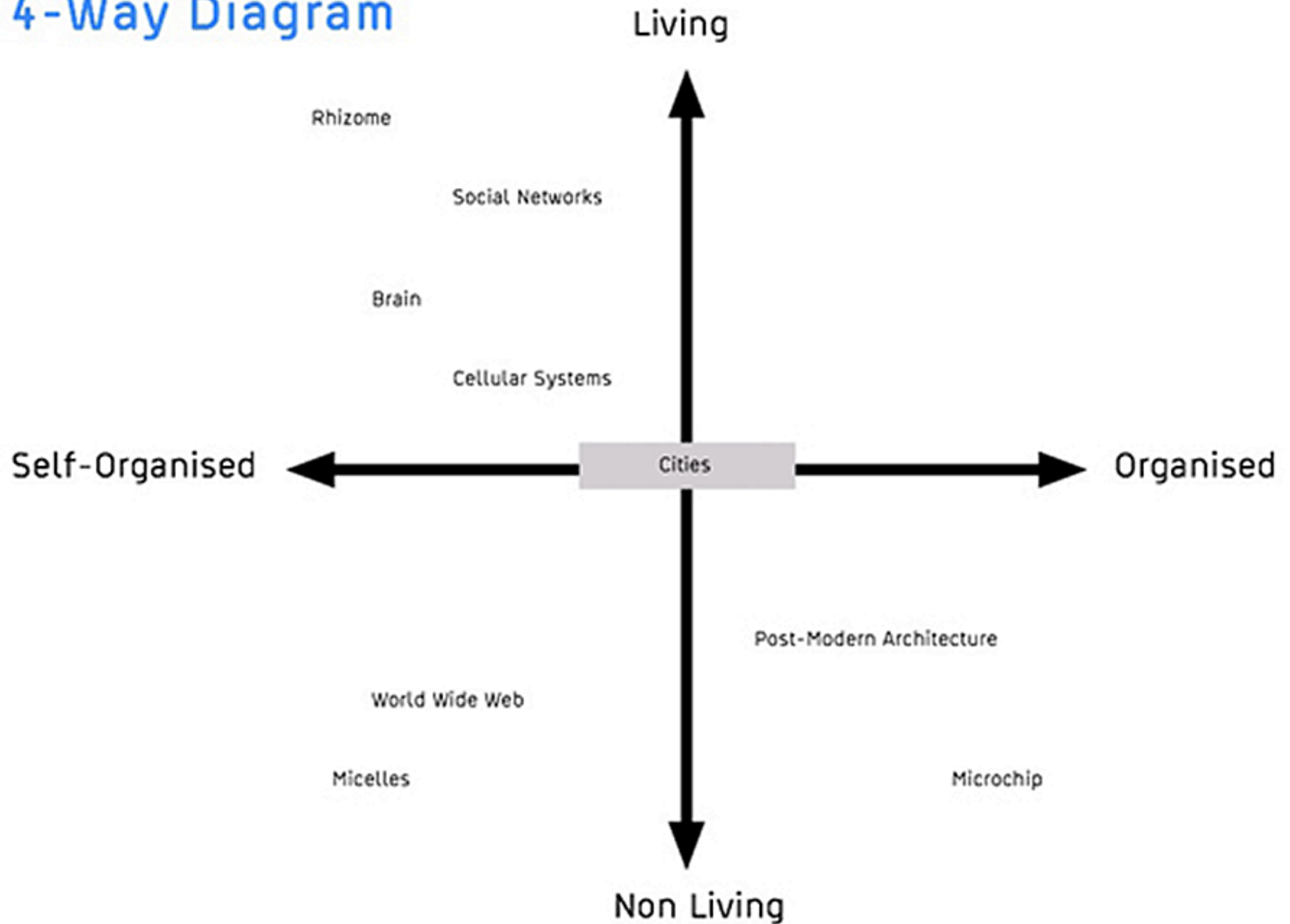
washingtonpost.com

**pilthy advertizing quote*

Extra slides

Complex Systems 4-Way Diagram

Microplexes >> Metropolitans // urbagram





The Six Rivers Region

Northwestern California and Southern Oregon

Rivers connect the arid interior with the rainforest coast

The Six Rivers region is a land of dramatic contrasts. Far from urban centers in both Oregon and California, natural resources are an important base for the economy. Salmon run up coastal rivers through forests of redwood and Douglas-fir. Snow melts and engorges small creeks running out of mountainous wilderness areas. Placid rivers run through pastoral landscapes dotted with farms.

What is a watershed?

A watershed is defined as the boundary between two streams. Rain or snow falling on opposite sides of this boundary would run downhill into two different streams. These boundaries run along ridgetops and divide our landscape into the many river basins we enjoy. The areas of land that drain into a river are properly called basins or catchments.

The Six Rivers region is made up of four major river basins that reach from the mountains down to the sea. These rivers are the Smith, Klamath, Mad and Eel. Two additional rivers are big enough to historically be added to the list of major rivers. The Trinity River actually drains into the Klamath (at Weitchpec, CA), and the Van Duzen River drains into the Eel River (near Fortuna, CA).

Watershed Basins

Land Ownership

Streamflow Monthly Average

Temperature January Minimum

Precipitation Annual Average

Seismic Activity 1970-2000

Seismic Activity 1970-2000

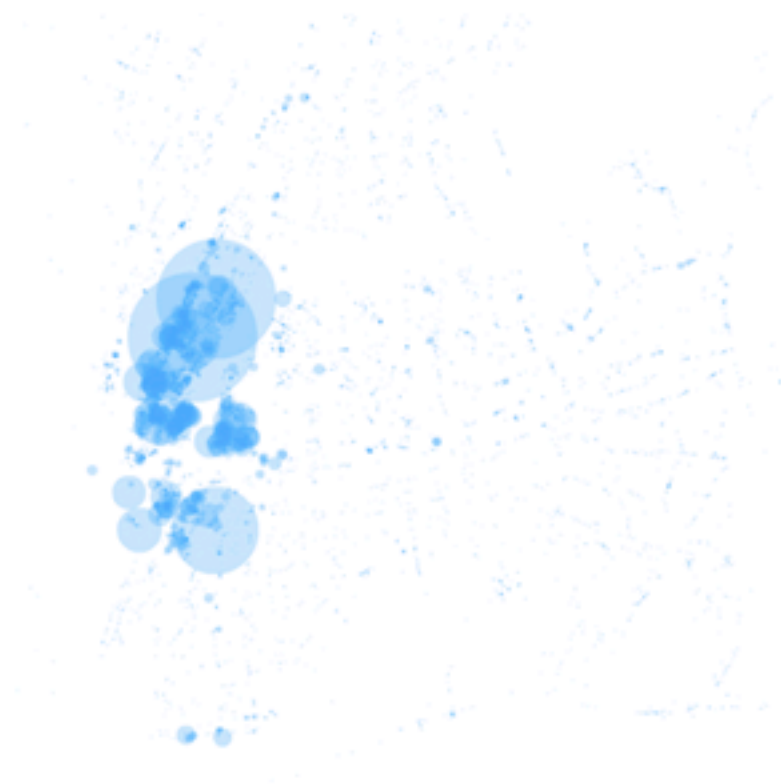
Seismicity Profile: 1700 Range to 2000 Range

Geography: Araya & Kelso, 2002. HSI Cartographic Institute.



Nathaniel V. KELSO

Social archipelago // Comparing metros // urbagram



NYC



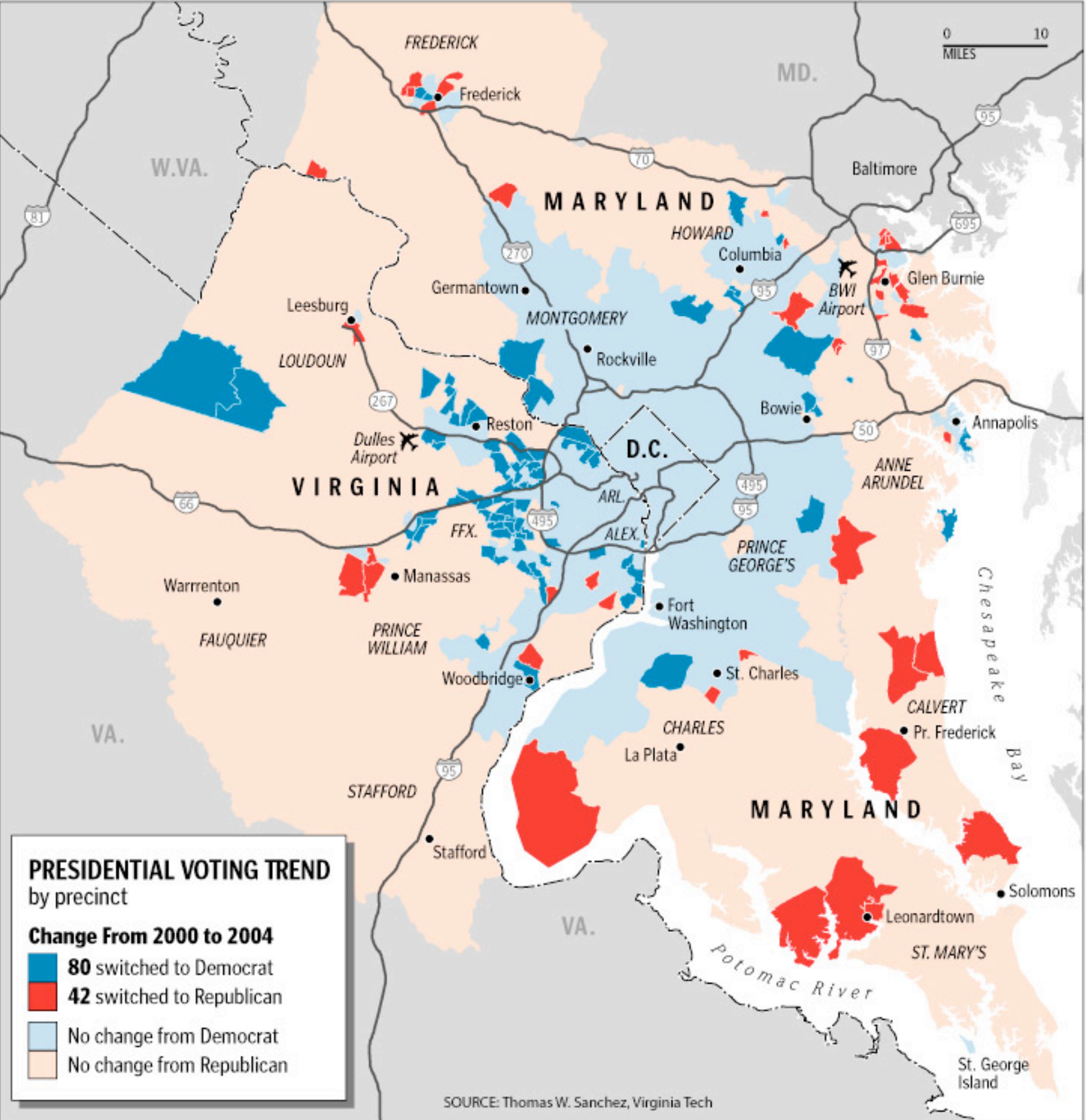
LDN



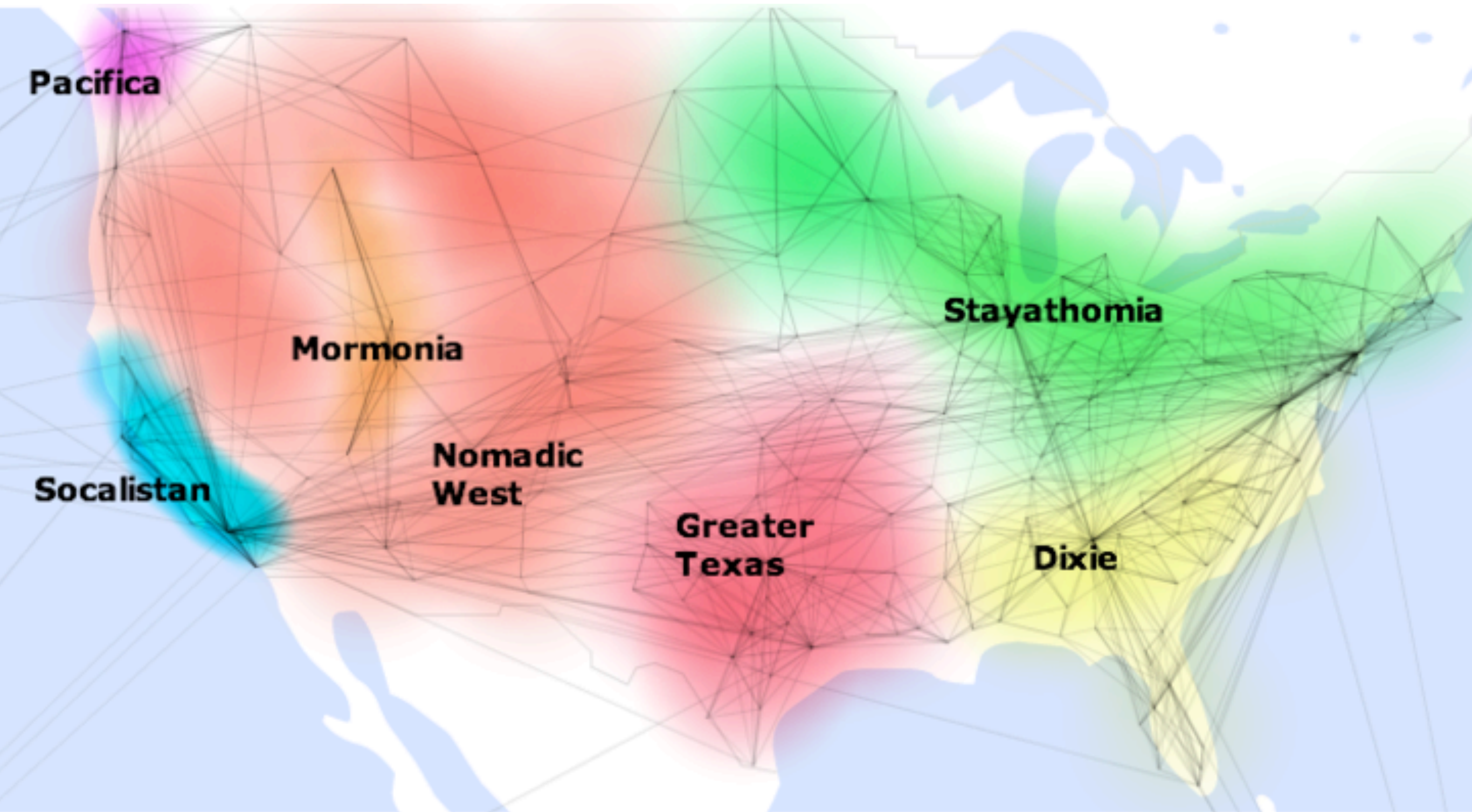
PAR

Party Affiliation Shifts in Exurbs, circa 2006

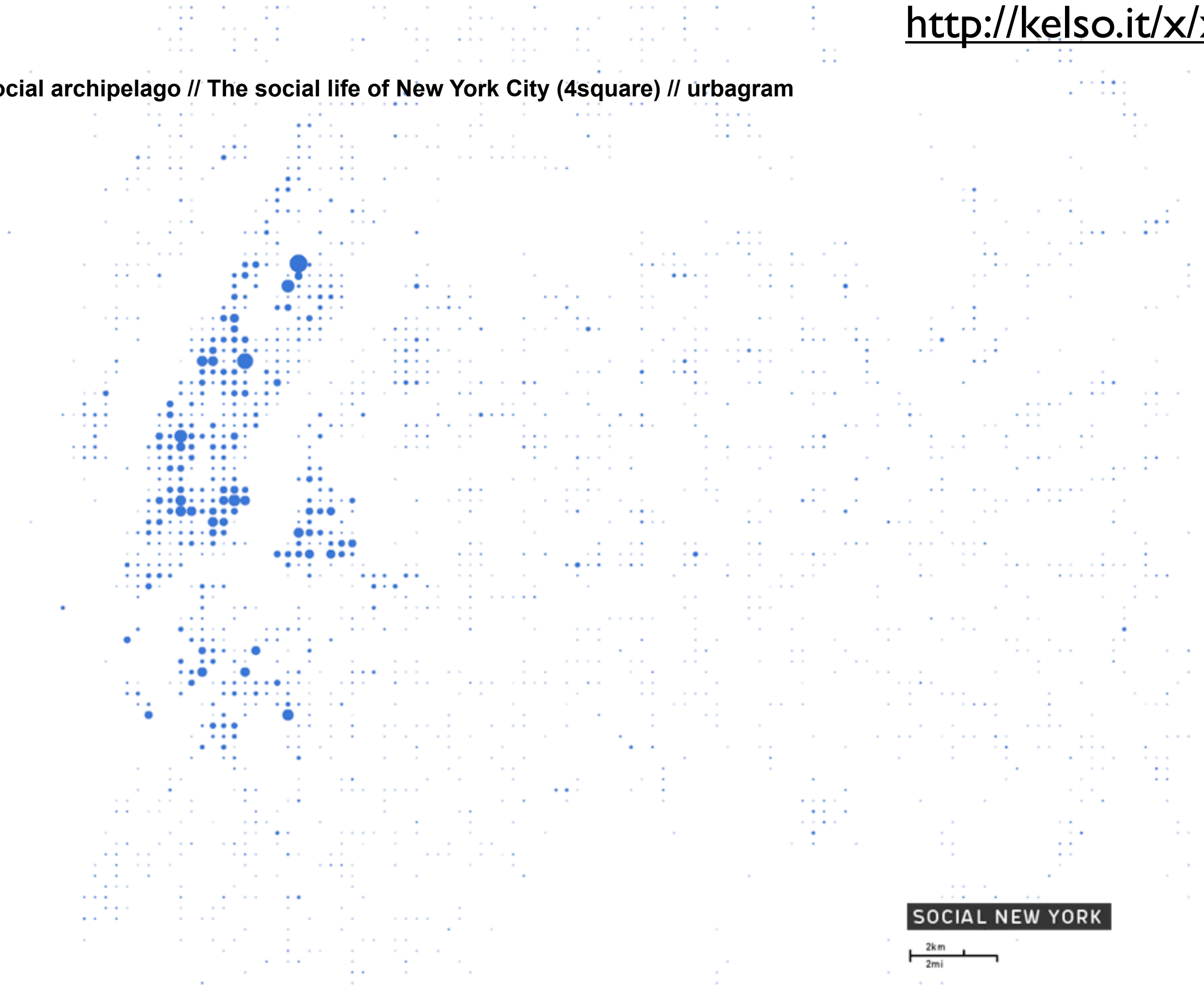
Nathaniel V. KELSO



How to split up the US // Pete Search



Social archipelago // The social life of New York City (4square) // urbagram



SOCIAL NEW YORK

2km
2mi

Social archipelago // The social life of New York City // urbagram

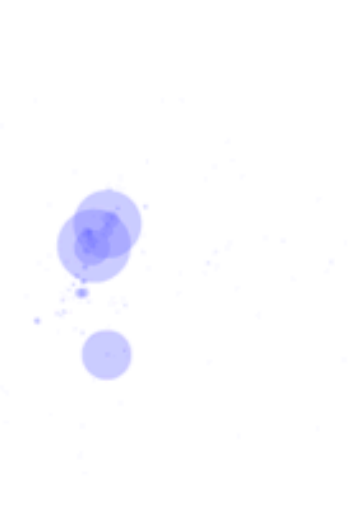
NIGHTLIFE

ARTS

SHOPS

PARKS

FOOD



Most Popular

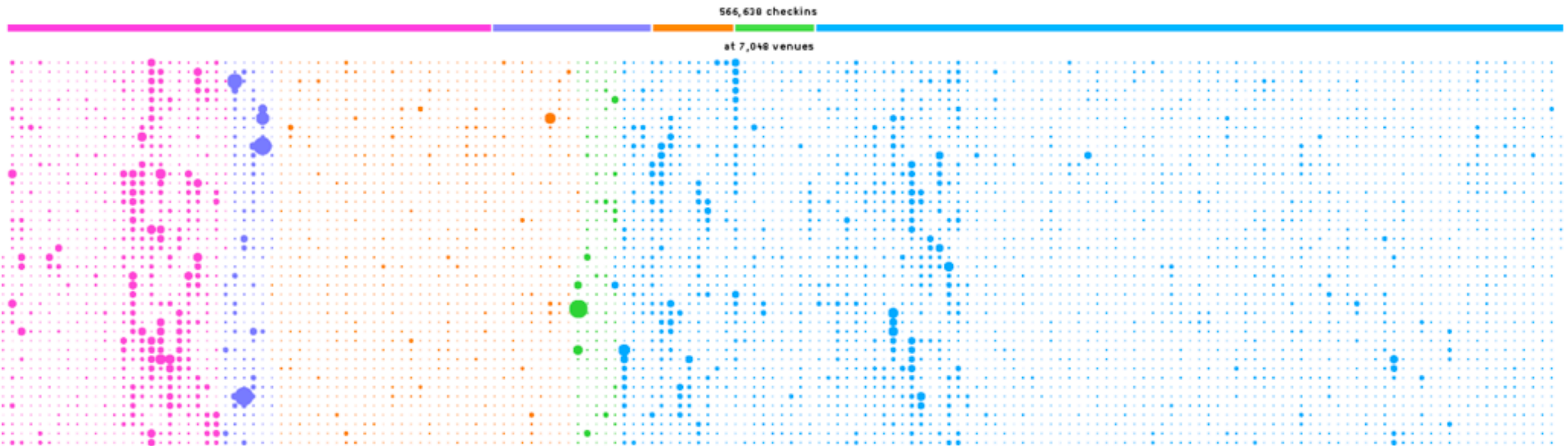
- Brass Monkey
- Bar Matchless
- The Woods

- MoMA
- Met Museum
- Brooklyn Museum

- IKEA
- Target
- Apple Store

- Central Park
- Governor's Island
- Brighton Beach

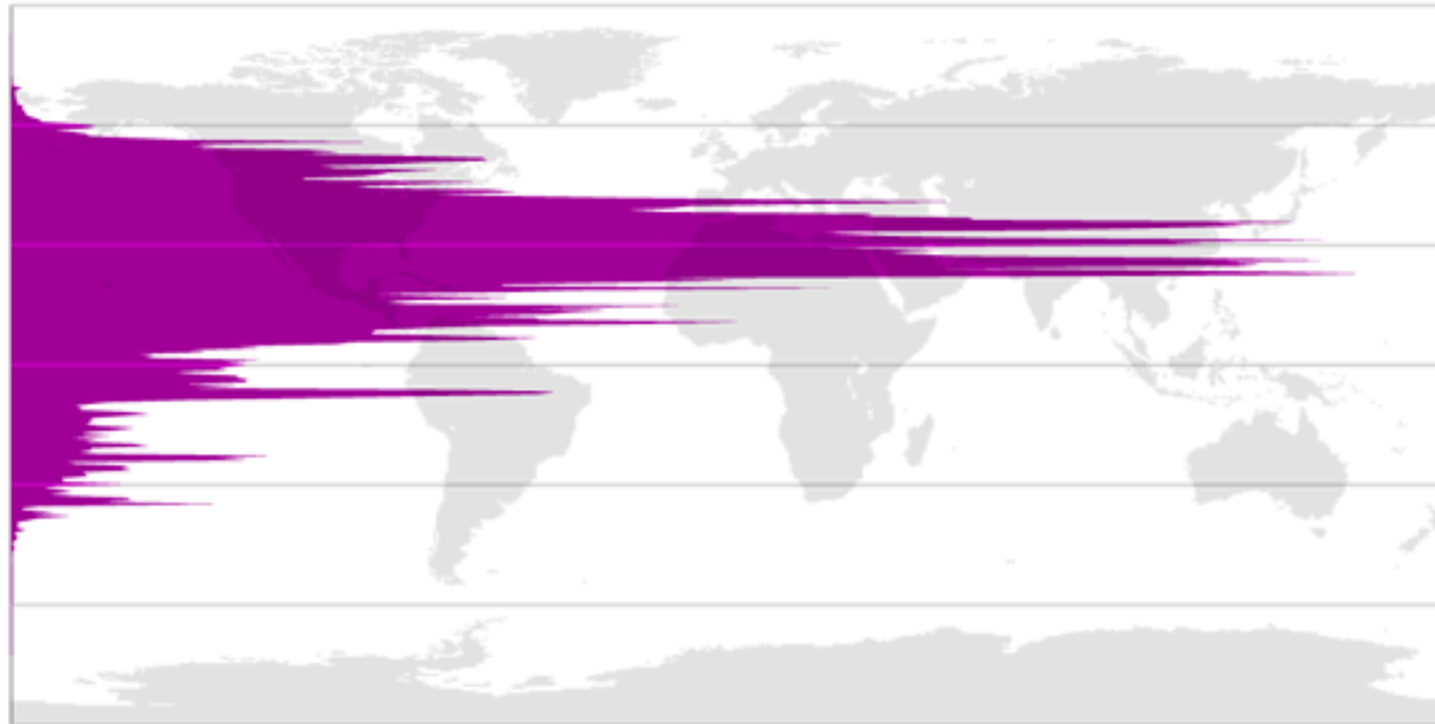
- Balthazar Restaurant
- Cafe Grumpy
- Five Leaves



on the Foursquare network.

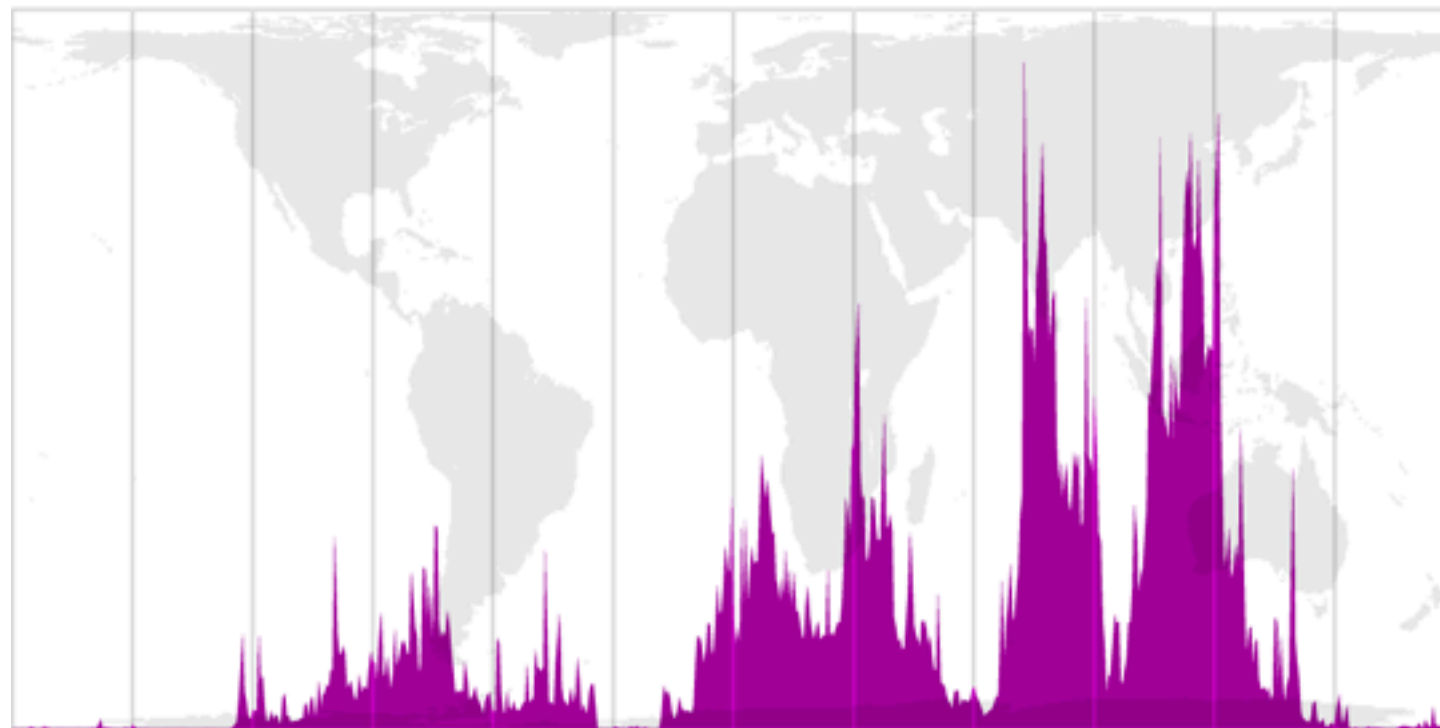
The World's Population in 2000, by Latitude

Bill Rankin



(horizontal axis shows the sum of all population at each degree of latitude)

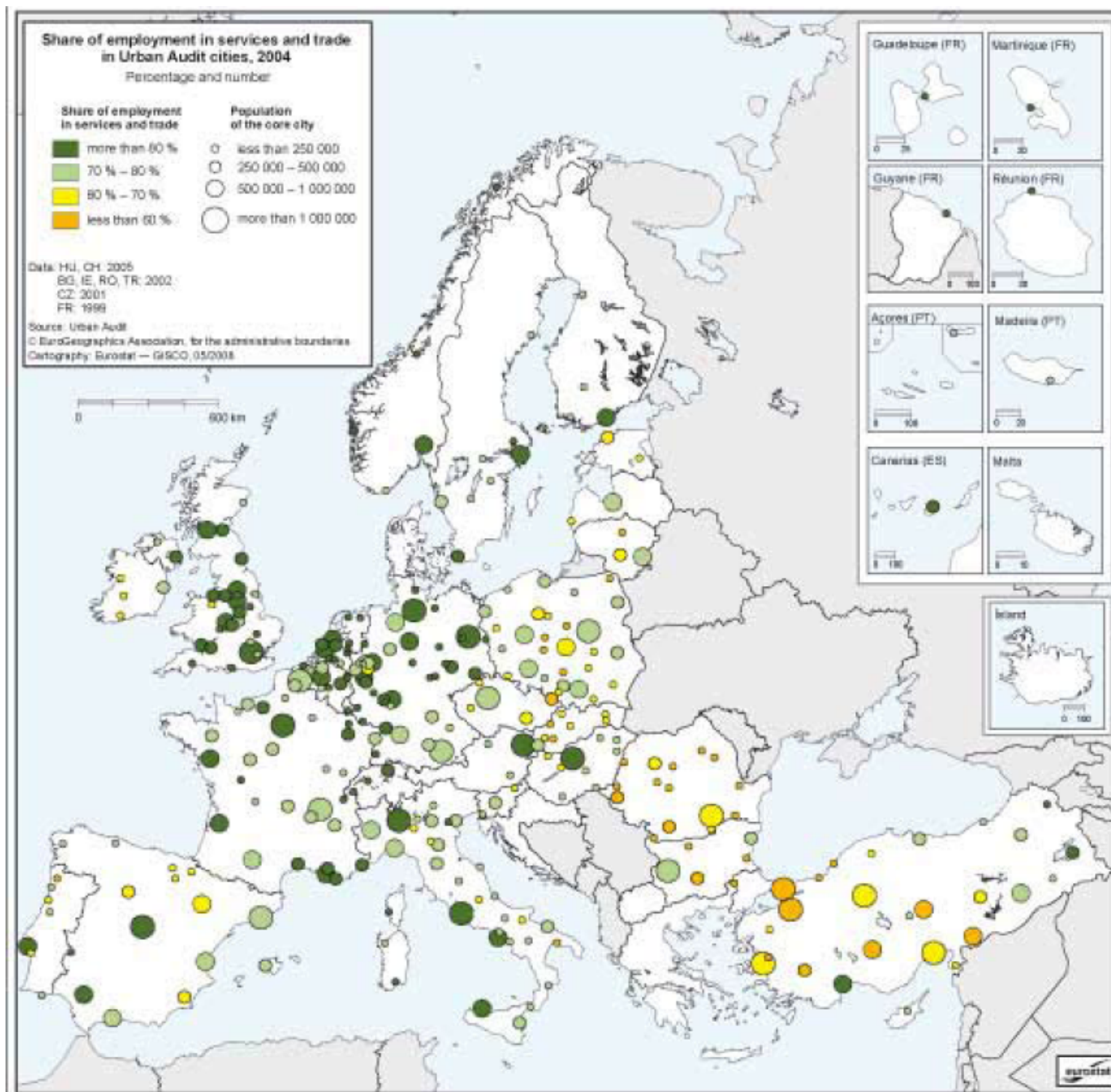
The World's Population in 2000, by Longitude



180° 120°W 60°W 0° 60°E 120°E 180°

(vertical axis shows the sum of all population at each degree of longitude)

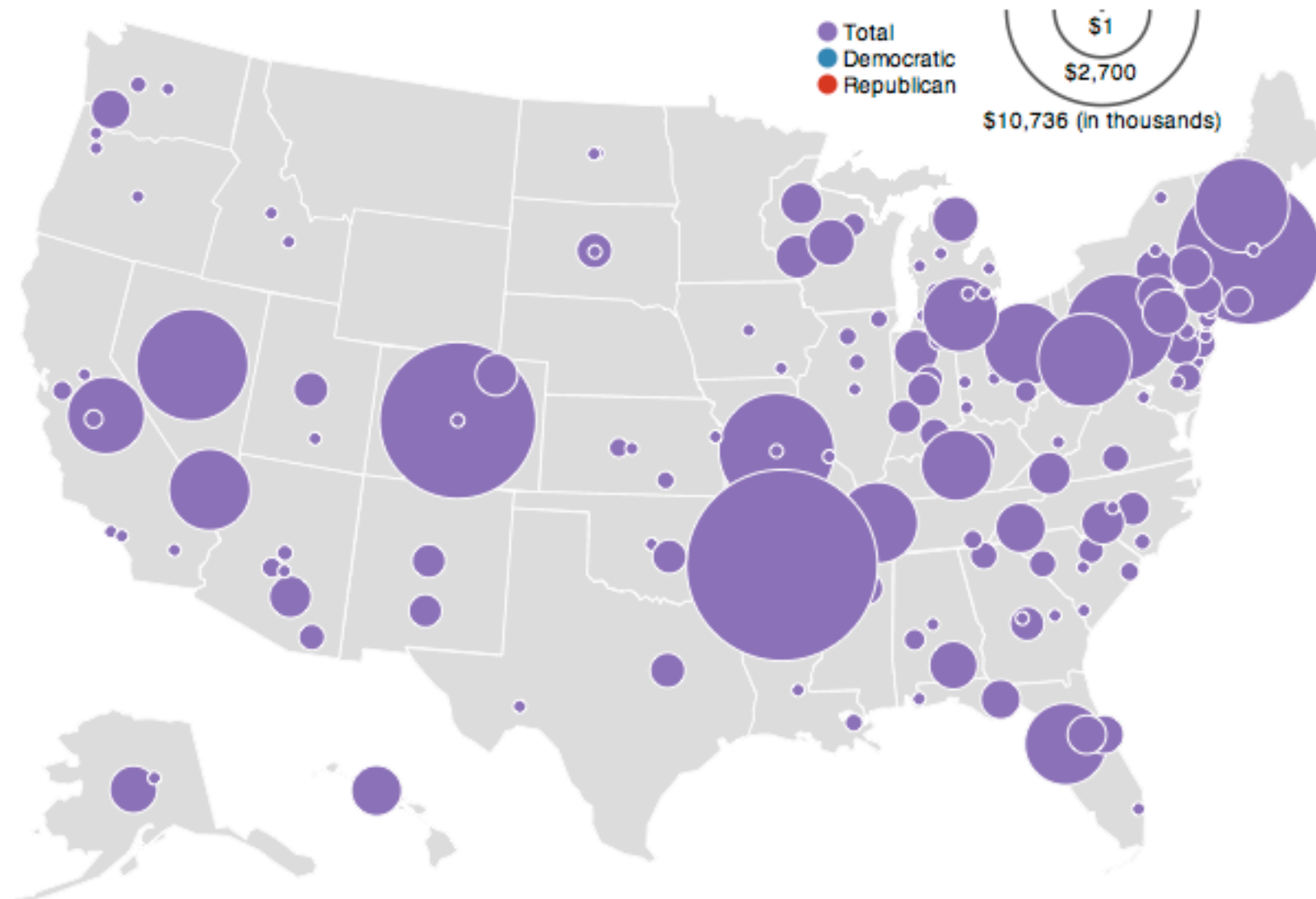
Share of employment in services and trade



Campaign cash: Who's spending where in 2010

Mouse over the map bubbles to learn more.

Spending by party: Total • [Democrats](#) • [Republicans](#)



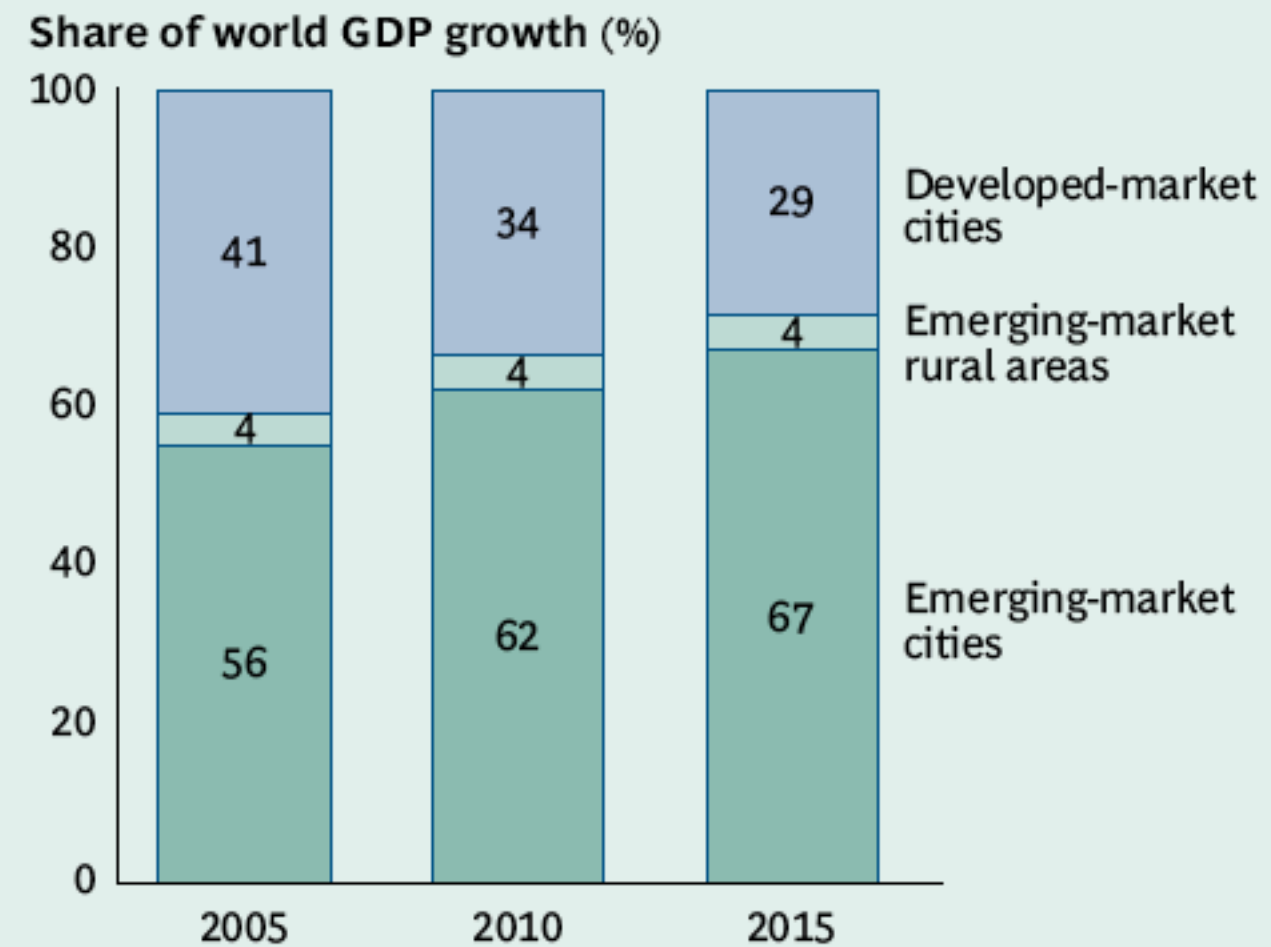
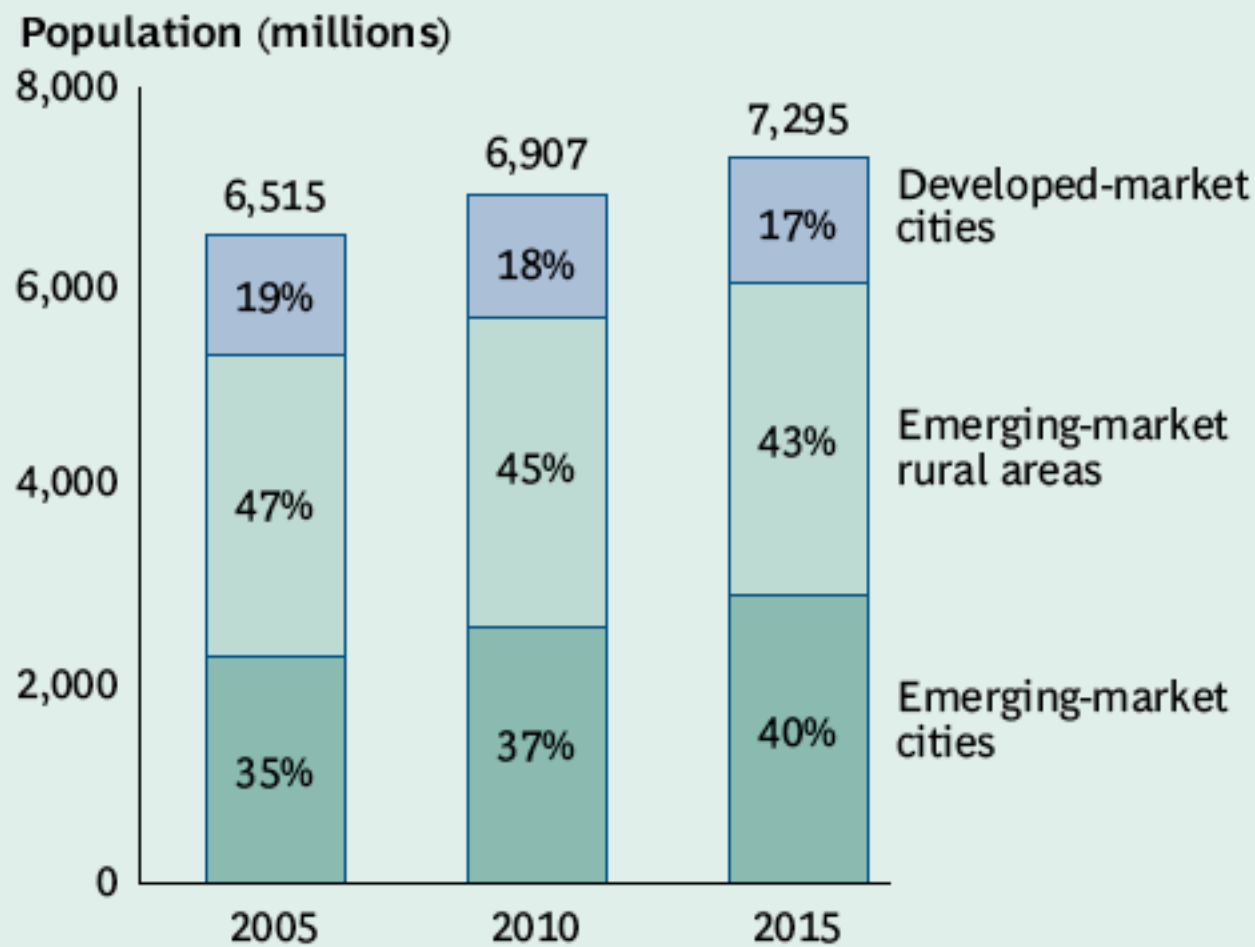
Races with spending reported by interest groups:

Race, incumbent	Last week	Two weeks ago	Three weeks ago	Total	Partisanship
Ark. Sen. Blanche Lincoln, D	\$0	\$171,385	\$173	\$10,736,674	97% Democratic
Colo. Sen. Michael F Bennet, D	\$1,609,066	\$527,527	\$1,042,664	\$7,207,366	72% Republican
Mass. Sen. Scott P. Brown, R	\$0	\$0	\$0	\$6,221,849	52% Republican
Mo. Sen. OPEN, Christopher Kit Bond, R	\$919,687	\$92,648	\$1,423,209	\$3,947,296	70% Democratic

Exhibit 2. Emerging-Market Cities Will Play an Increasingly Large Role in the Global Economy

More than one-third of today's world population resides in emerging-market cities...

...driving more than 60 percent of world GDP growth



Sources: United Nations, *World Urbanization Prospects: The 2009 Revision*; Economist Intelligence Unit; BCG analysis.

Note: Rural GDP is the agricultural portion of GDP; city GDP is nonagricultural GDP. Some figures do not add up to 100 because of rounding.

