



**MARICOPA  
ASSOCIATION of  
GOVERNMENTS**

# MARC Scenario Planning Workshop

Jan 31, 2017

Part 1 – Imagining What the Future Will Bring  
Monique de los Rios-Urban – Performance Program Manager – [mdelos@azmag.gov](mailto:mdelos@azmag.gov)

Two weaknesses shared by all the tools include **limited linkages** to other, more in-depth, models (econometric, travel, etc.) and a limited ability to capture stakeholder discussion and comments during tool application.

NCHRP08-36(117)\_FR.pdf

We need to move beyond what we already know.....

Transcend

Connect

Integrate

Engage the new realities

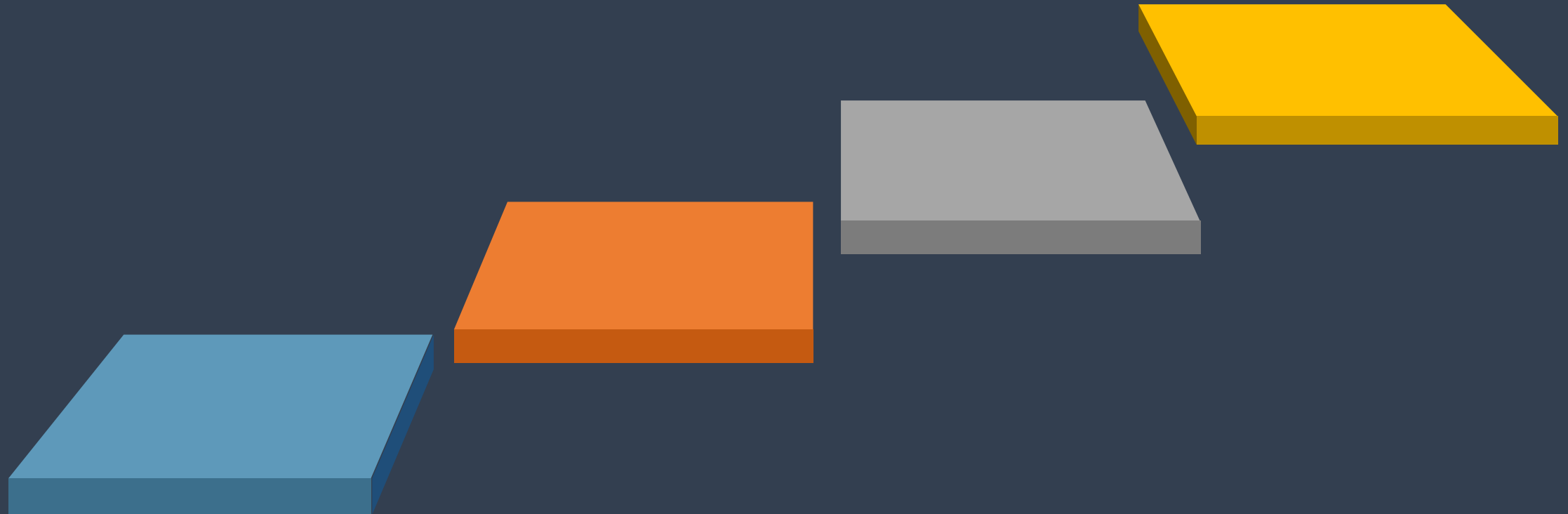
Build the ecosystem

Beyond :  
Speed  
Being Safe  
Saving time



**Next generation scenario planning** aims “to capture a broader range of issues and challenges than previously considered in transportation and land use scenario creation and analysis.”

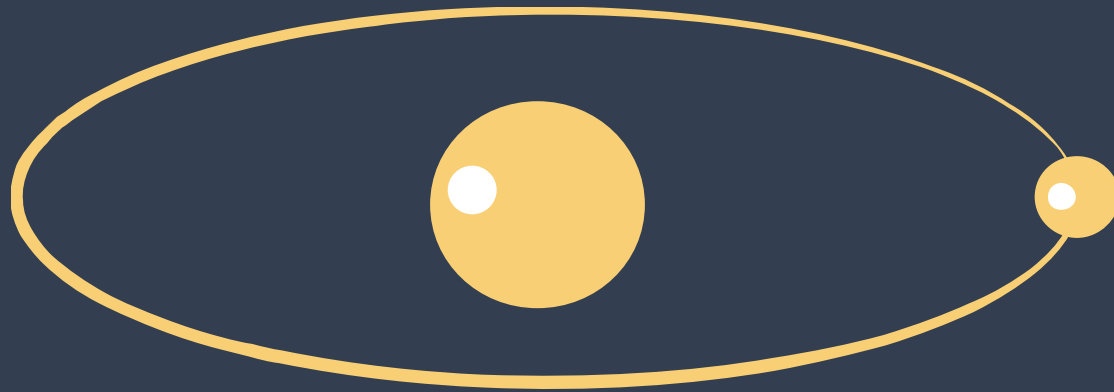
Federal Highway Administration, “New Trends in Transportation and Land Use Scenario Planning.” April 2010

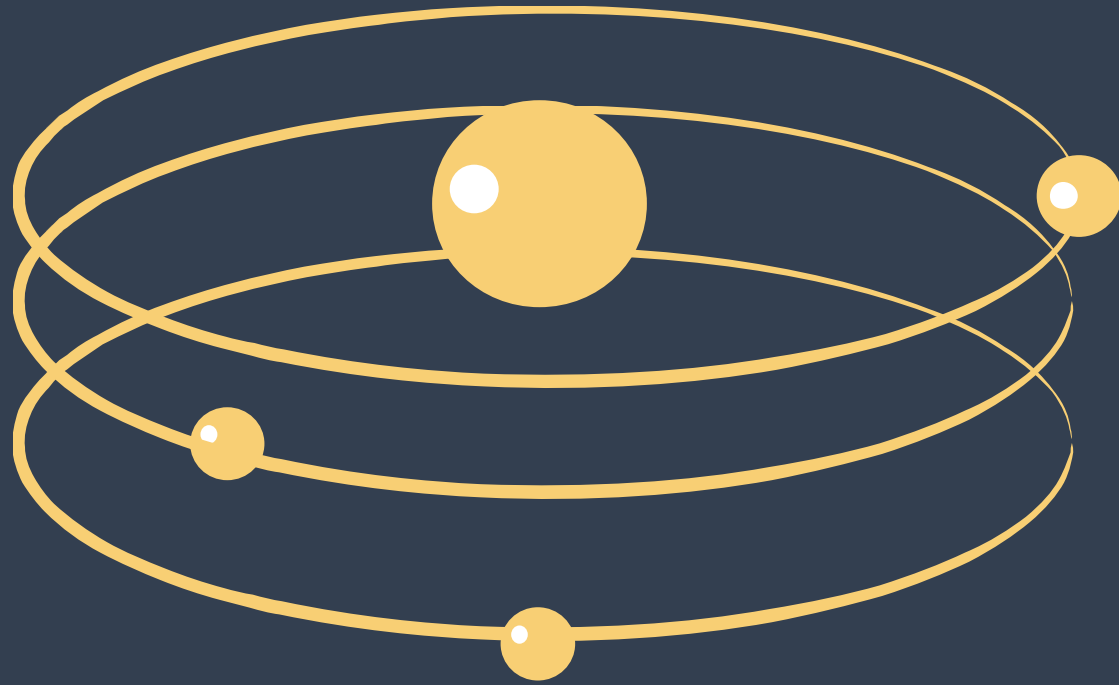




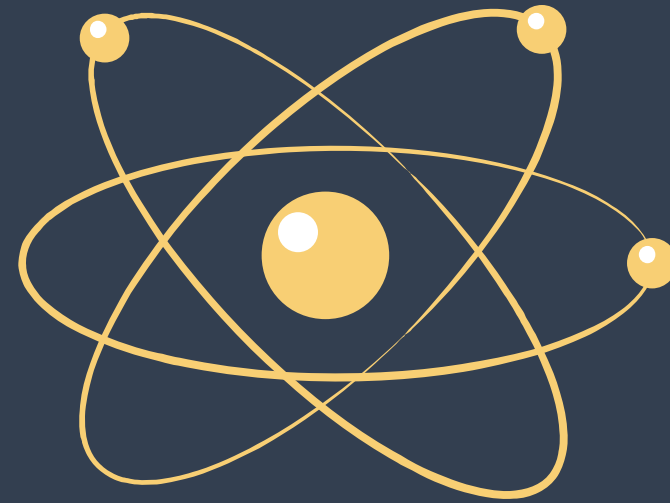
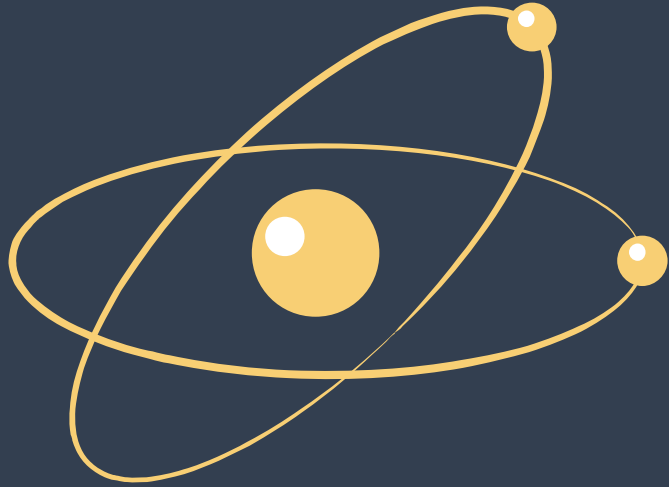
**big data set**



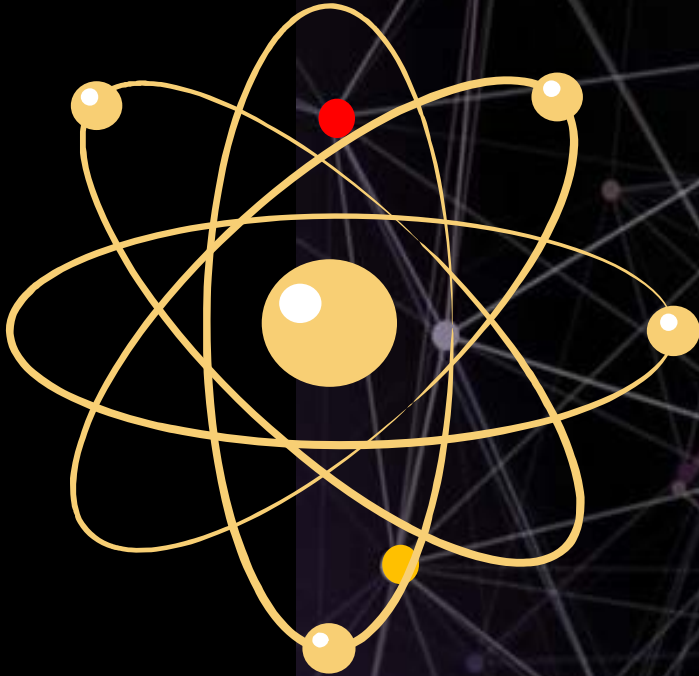




One set at a time, we are learning about the dynamic relationships and their effect on results



Single to multiple dimensions



integration and scalability



The objective is to 'move the needle' .....but who sees the needle movement?





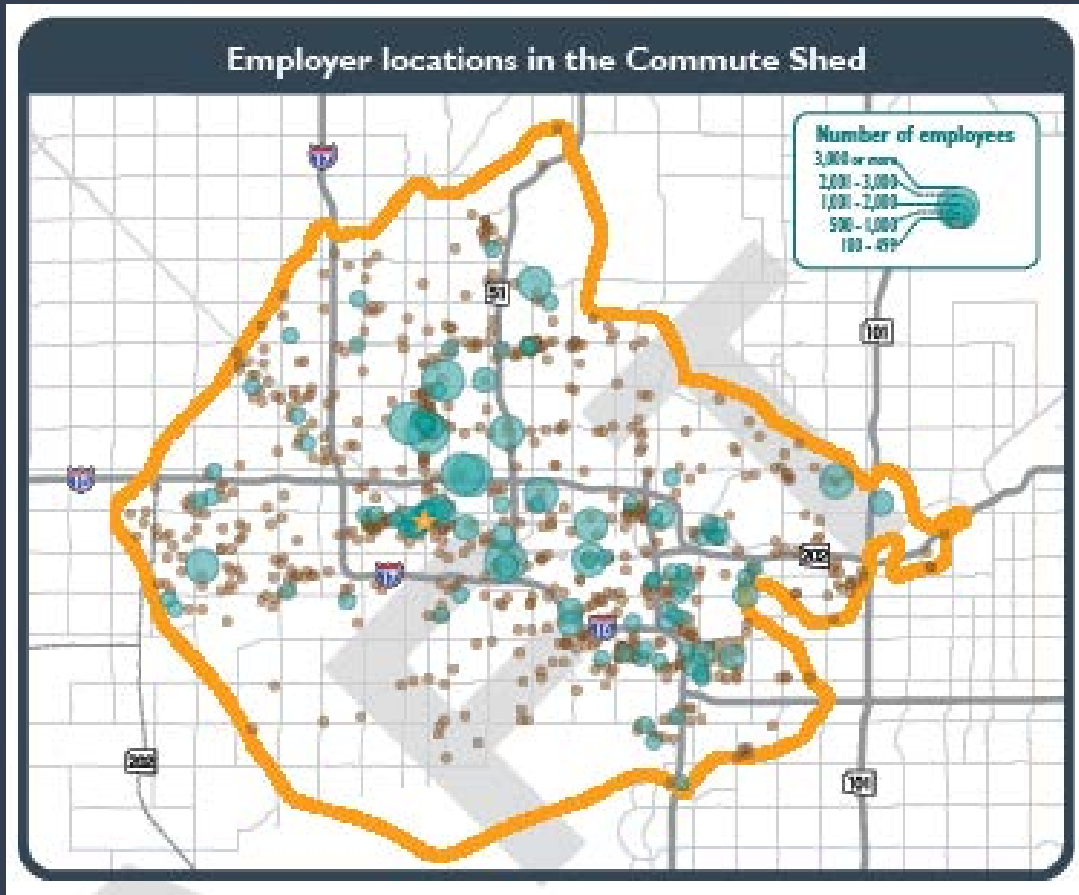


# Commute Shed Analytics

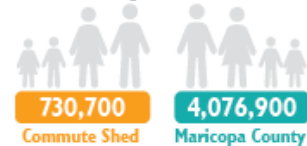
30 Minute Inbound Travel Time to  
Central Avenue and Van Buren Street, Phoenix



draft



## 2015 Population



Source: Arizona Department of Administration  
2015 Population Estimates

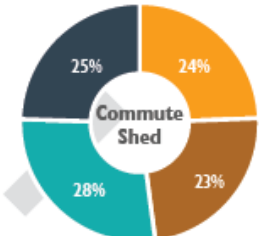
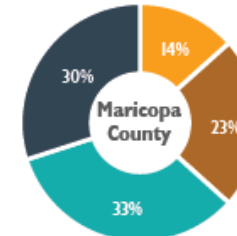
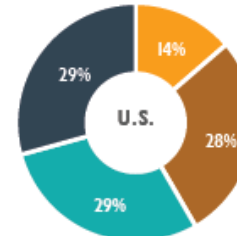
## Projected Population Growth

2015 to 2020	2020 to 2030	2030 to 2040	2040 to 2050
Commute Shed 2.3%	Commute Shed 1.7%	Commute Shed 0.8%	Commute Shed 0.3%
Maricopa County 1.9%	Maricopa County 1.7%	Maricopa County 1.3%	Maricopa County 1.1%

Denotes annual growth rates. Source: Maricopa Association of Governments (MAG), 2016 Population Projections

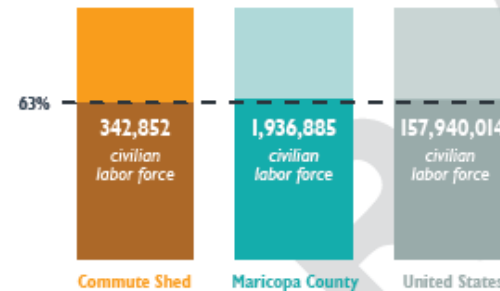
## Educational Attainment for the population age 25 years and older

- No High School Diploma
- High School Grad or Equivalent
- Some College or Associate Degree
- Bachelor Degree or Higher

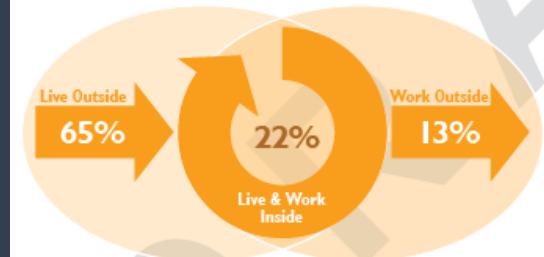


Source: U.S. Census Bureau, 2014 American Community Survey (ACS) 5-year Estimates

## Labor Force



## Worker Commute Flows



Source: 2015 Maricopa County Trip Reduction Program Survey  
Sample size 179,063. The data only include employers with 50 or more employees.

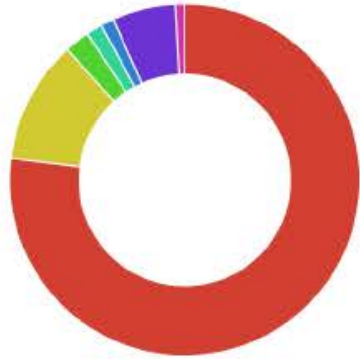
# MAG Urban Region - Commute Mean Travel Time with 1/4 mile bus transit network buffer

Source: U.S. Census Bureau, 2010-2014 (ACS) 5-Year Estimates



## Commute Type

For Area of Interest

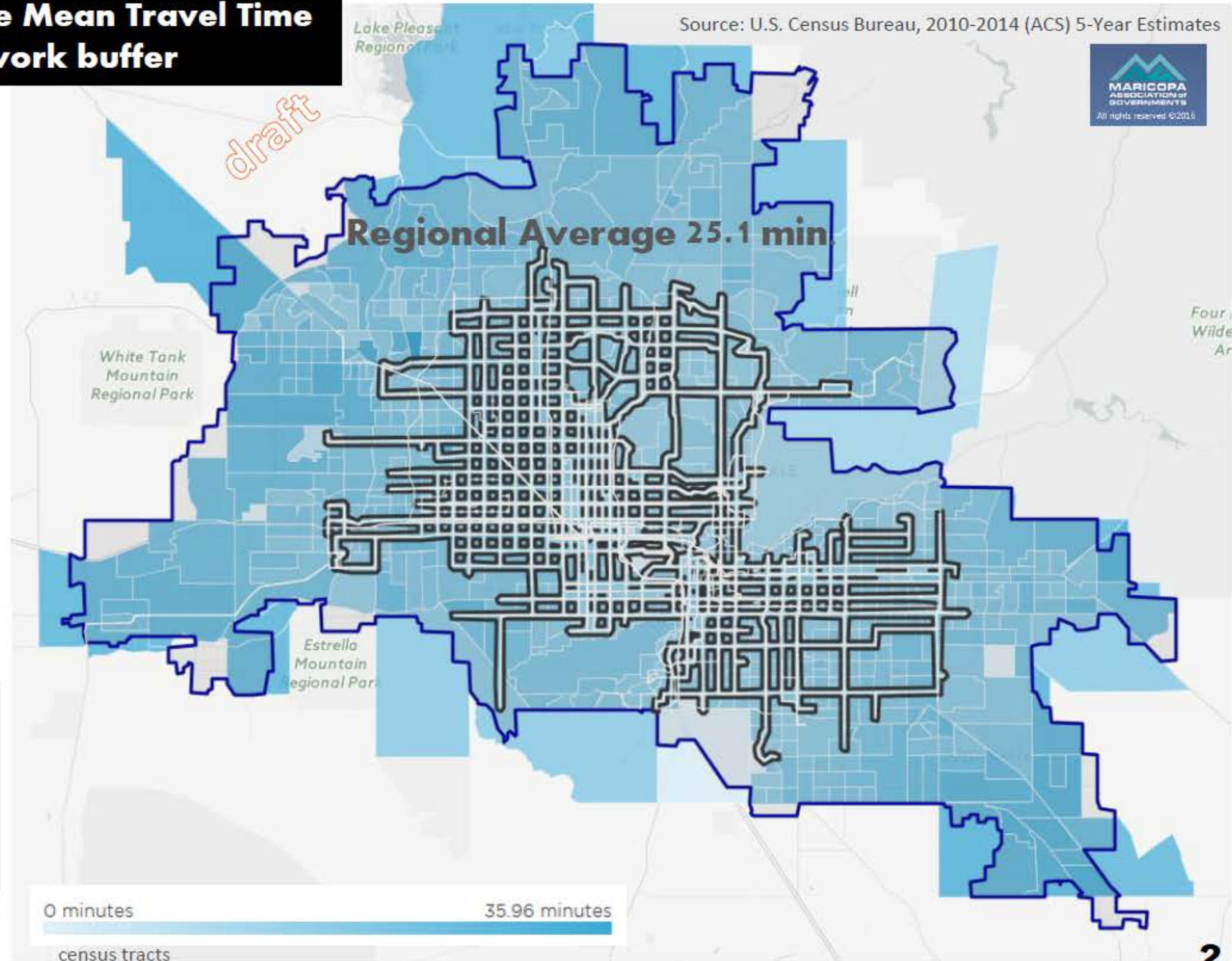
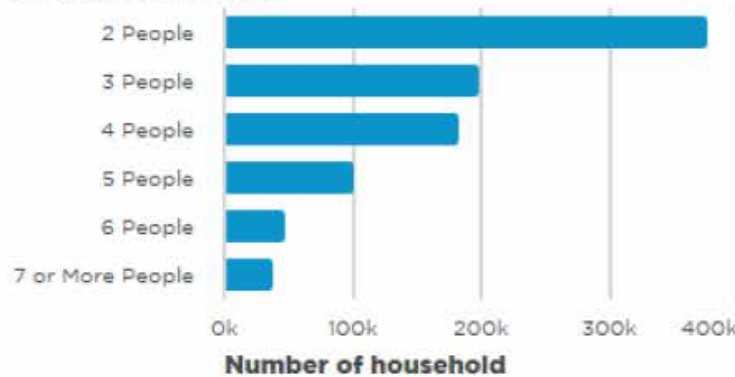


- Drive Alone (1,333,986)
- Drive Carpool (196,470)
- Public Transit (40,350)
- Walk (25,987)
- Other Transit (20,469)
- Work From Home (101,004)
- Bicycle (14,798)

US Census 2010-2014 ACS - myGisbook.com

## Family Household Size - 2010

For Area of Interest





# Total Working Population (16 and over) within .5 mile of High Efficiency Transit Routes

Source: U.S. Census Bureau, 2010-2014 American Community Survey (ACS) 5-Year Estimates



McDowell Mountain Regional Park

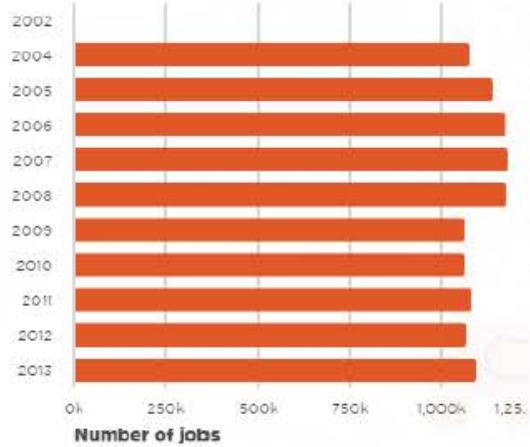
McDowell Sonoran Preserve

South Mountain Preserve

Estrella Mountain Regional Park

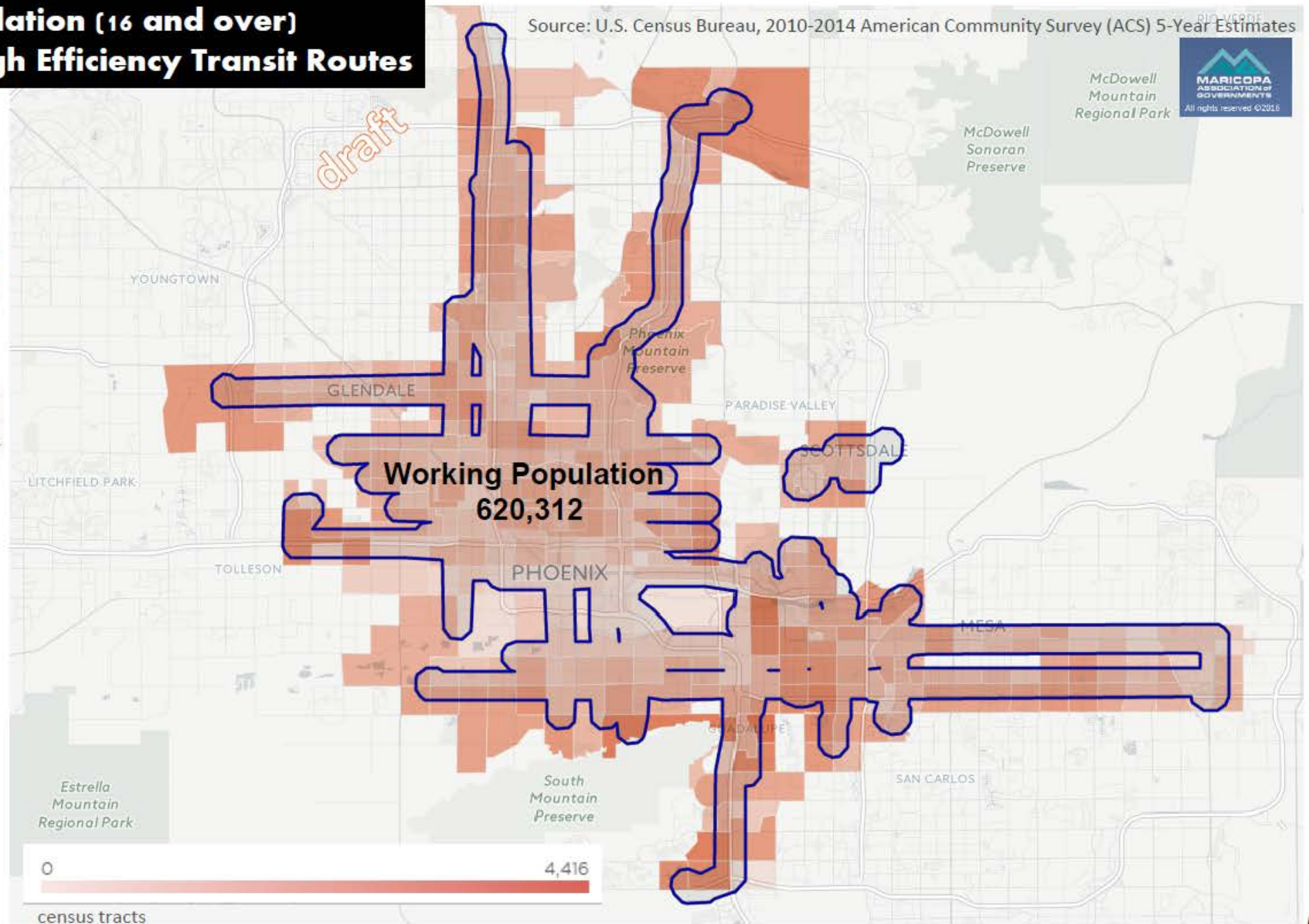
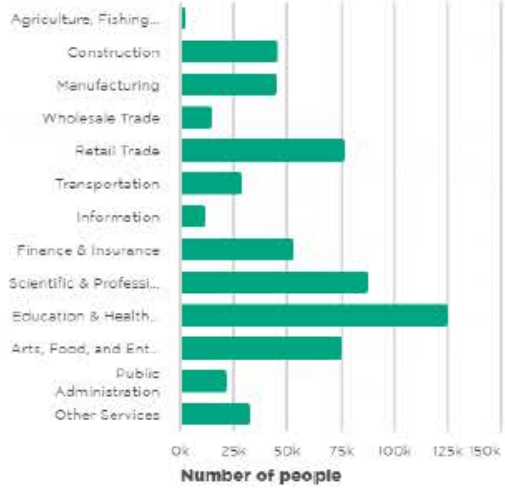
## Number of Jobs

For Area of Interest



## Employment Industry by Home Location

For Area of Interest



draft

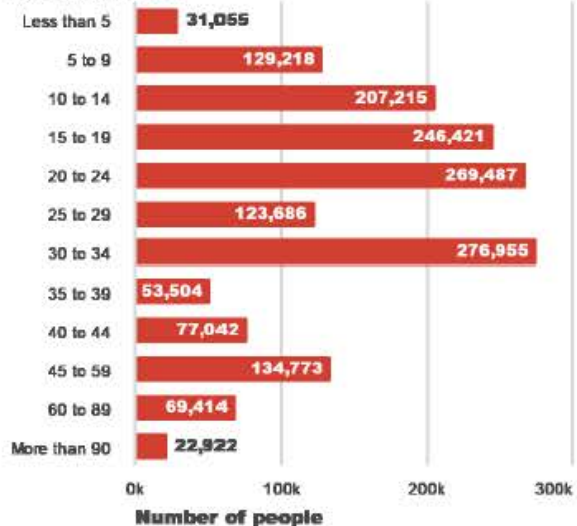
# MAG Urban Region – Location Affordability Index\* for a Median Income Household

Source: USDOT HUD US Census Bureau ACA



## Travel Time to Work

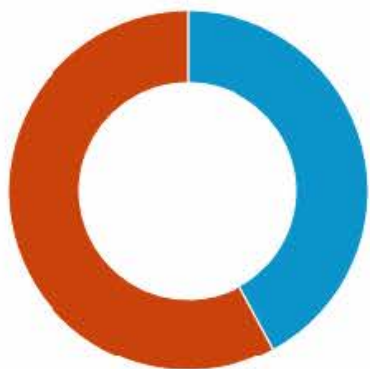
For Area of Interest



US Census 2010-2014 ACS sny5kshat.com

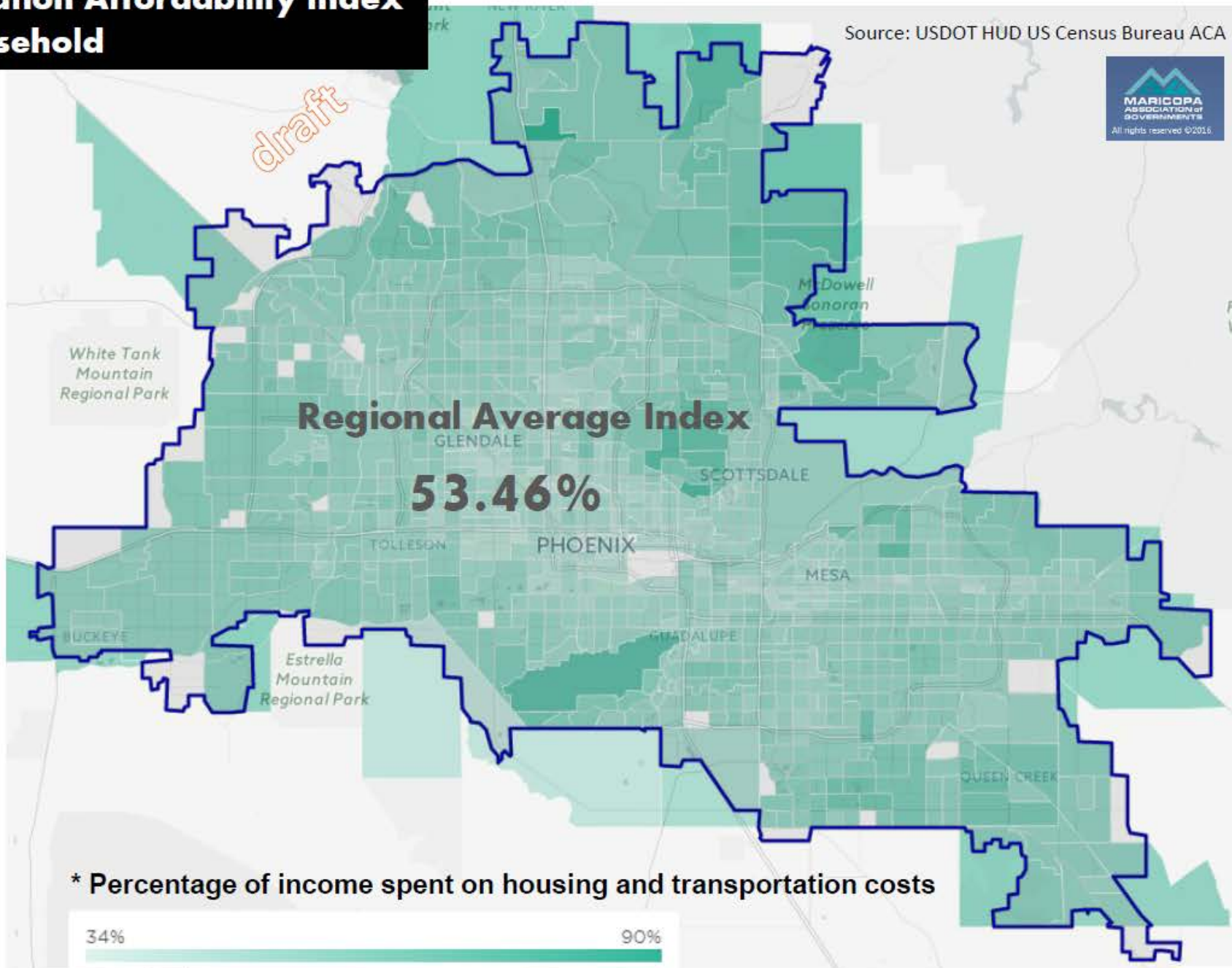
## Renter Occupied Housing: Historical Census Comparison

For Area of Interest



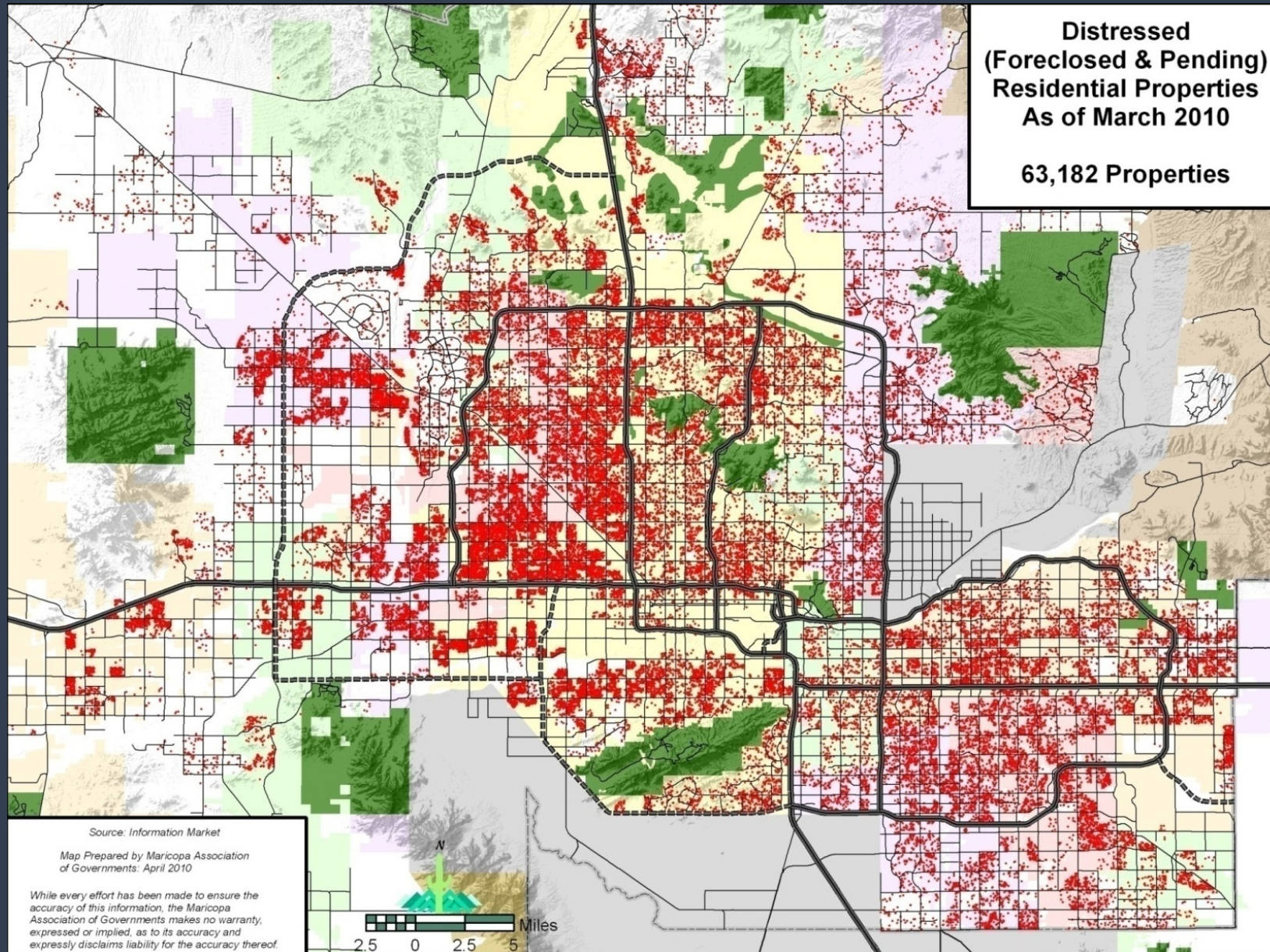
2000

2010



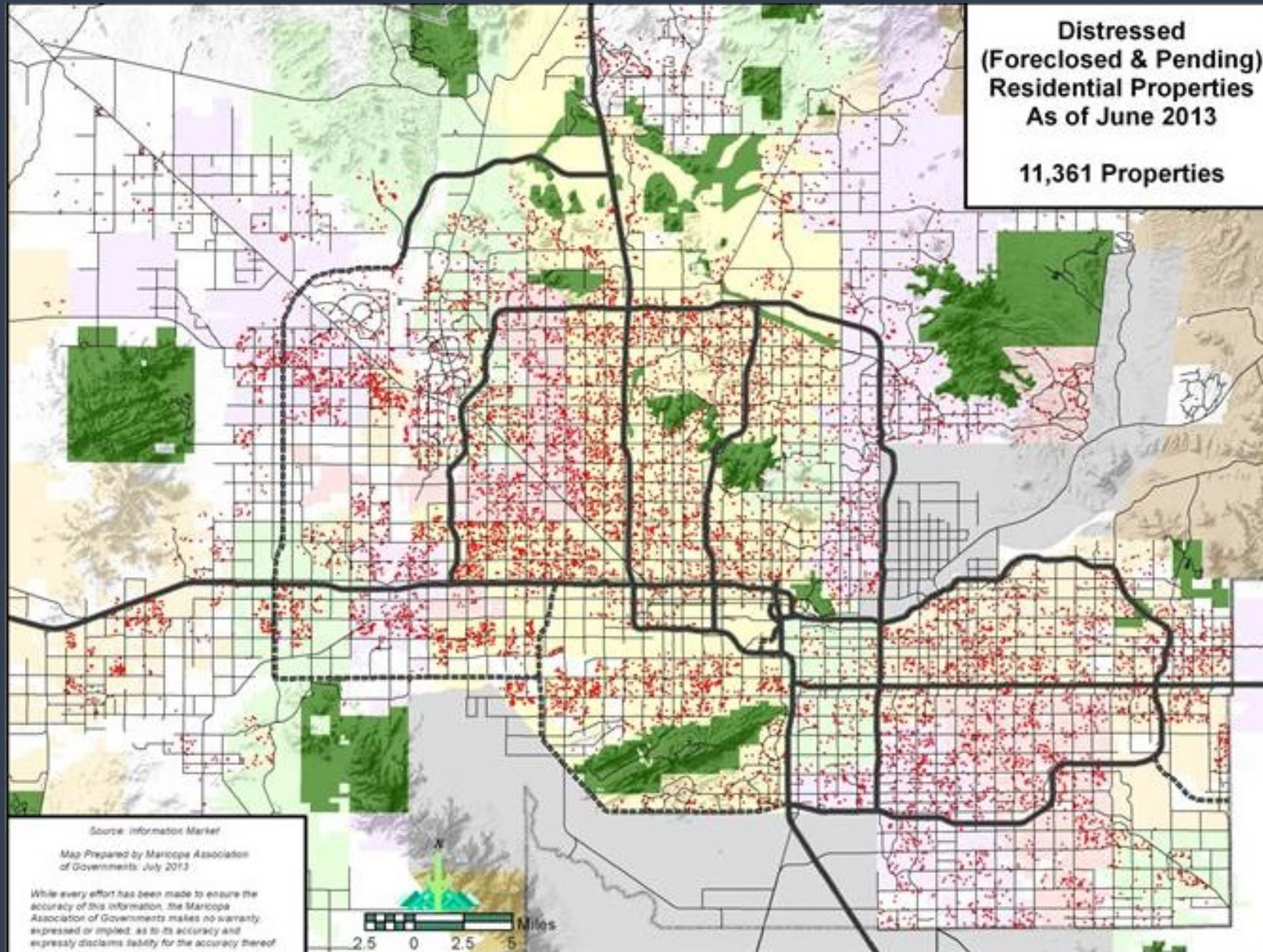


# Distressed Residential Properties - March 2010

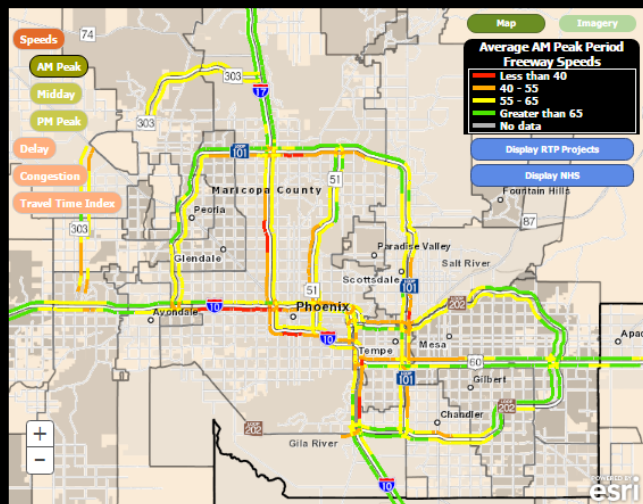




# Distressed Residential Properties - June 2016



- Go to RTP Project Cards
- Go to Analytical Tools
- Go to Data Archive

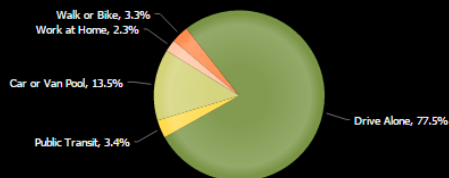


### Average Trip Length per Mode of Travel (2013-2014)

	Average Trip Length (Miles)		Average Trip Length (Minutes)		Percent of Travel	
	2013	2014	2013	2014	2013	2014
Drive Alone	14.28	14.43	23.83	23.82	76.8%	77.5%
Bicycle	5.83	5.93	19.26	18.39	1.2%	1.2%
Bus	13.24	13.75	38.29	39.02	3.0%	2.9%
Carpool	13.15	13.44	22.75	22.7	13.7%	13.0%
Light Rail	14.04	13.76	34.49	33.65	0.5%	0.5%
Telecommute	NA	NA	NA	NA	2.1%	2.3%
Vanpool	33.39	34.58	43.41	44.66	0.5%	0.5%
Walk/run	3.41	3.28	15.97	15.09	2.2%	2.1%

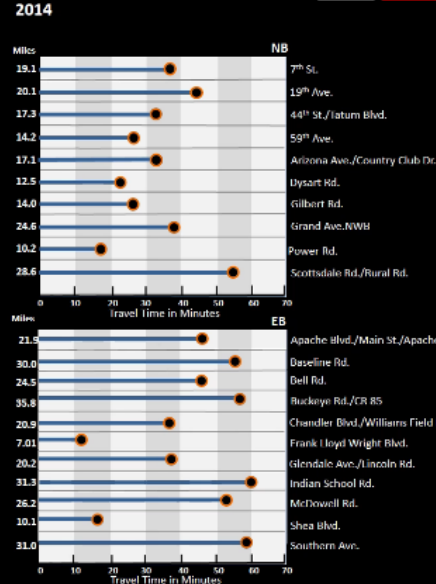
Source: Maricopa County Air Quality Department's Annual Trip Reduction Report  
 The data used to generate this table is based on the Maricopa County Air Quality Department's Annual Trip Reduction Survey. The most recent survey was administered to over 500,000 people. Student surveys were included in this analysis.  
 Due to rounding errors associated with the calculation of the percent of travel, the sum of the individual categories may not equal 100%.

### Regional Commute Mode Shares (2014)

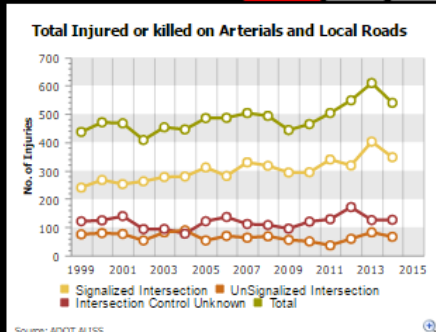


Source: Maricopa County Air Quality Department's Annual Trip Reduction Report  
 Due to rounding errors associated with the calculation of the percent of travel, the sum of the individual categories does not equal to 100%.

### PM Peak Travel Time on key corridors 2014



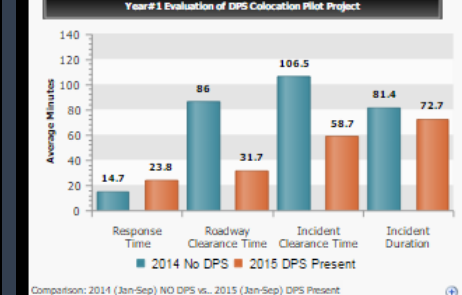
### Safety



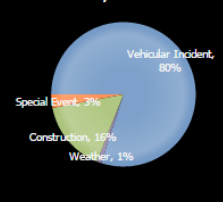
### Annual Average Freeway VMT vs Cost of Gas/Gallon



### All Freeway Crashes & Roadway Clearance



### Non-Recurring Congestion on Freeway Study Sections\*

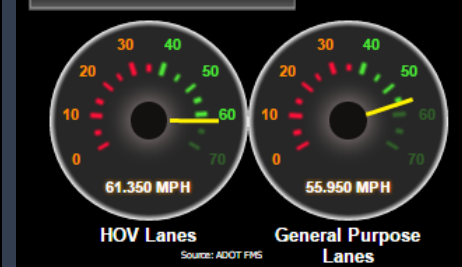


### Annual Total Freeway Congestion (vehicle-hours)

Study Sections	Vehicle Miles Travelled (VMT)	Weekday s Recurring	Weekday s Weekend Non-Recurring	Total
I-10 WB: SR 51 to I-17	469,314	89,167	99,588	188,755
I-17 SB: I-10 Stack to I-20 Split	347,033	2,874	16,389	19,263
Loop 202 WB: 46th St to 21st St	232,868	48,511	45,148	111,662
I-10 WB: Ray Rd to Southern Ave	429,515	140,080	39,398	279,473
US 60 EB: I-10 to Loop 101	265,434	23,299	100,184	123,483
Total	1,774,604	321,014	298,707	622,441
Systemwide	29,450,000	5,506,858	5,078,017	10,584,875

Note: Systemwide VMT based on 2007 IPMG data  
 Source: 2009 MAG Non-Recurring Congestion Study

### Freeway PM Peak Speeds





## Freeways

**I-10 Papago** Project Card 09601

**SR-202 Red Mountain** Project Card 09601

**I-10 Papago** Project Card 09601

**Sarival Ave to SR-101 Agua Fria - Addition of new eastbound and westbound lanes** TRAC # H709601

RTP Phase 1

**Project Description**

The work consisted of adding one general purpose and one HOV lane in each direction in the median area of the freeway. Also, two 2 bridges were reconstructed and an additional 8 bridges were widened.

**Project Benefits**

In need of widening and modernization, this was the first Interstate 10 widening project aimed at improving regional traffic flow in the West Valley.

**Improvements Include:**

- New general purpose and HOV lanes

**Schedule**

2004 2005 2006 2007 2008 2009 2010 2011

DCR Design Construction

● Voter Approval ● Open to traffic

**Cost**

**Expenditure (\$M)**

Total	93
Construction	88.65
Design	4.35

**Volumes**

**Annual Average Weekday Traffic (Thousands of Vehicles)**

2007	131
2008	125
2009	105
2010	106
2011	105

MARICOPA ASSOCIATION of GOVERNMENTS | Our Valley Freeway System is part of the 2004 voter-approved Regional Transportation Plan | Published Date: 10/15/2012 | Copyright © 2014 | ADOT

## Arterials

**I-10 Papago** Project Card 09601

**SR-202 Red Mountain** Project Card 09601

**Black Mountain Blvd** Project Card 09601

**SR-51 to Pinnacle Peak Road: Construction of New Roadway/Improvement to Existing Roadway** RTP ID ACI-BMT-10-03

**Project Description**

Construction of bridges and ramps at the SR51/SR101 Interchange connecting to and widening existing Black Mountain Boulevard near Pinnacle High School to six lanes and continuing north as an improved arterial roadway. Additional improvements include bike lanes, sidewalks, median, and a required culvert with minor grading.

**Project Benefits**

This project provides increased access for area neighborhoods to the metropolitan area's freeway system, increasing access for area residents to destinations throughout the region while increasing demand for future local development in the north central metropolitan region.

**Improvements Include:**

- New Roadway Construction

**Schedule**

2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

Design Construction

● Voter Approval ● Open to traffic

**Cost**

**Expenditure (\$M)**

Total	36.14
Construction	28.70
ROW	1.95
Design	5.49

**Funding**

**Source (\$M)**

Local	10.73
NonALCP	2.89
ALCP	22.53

MARICOPA ASSOCIATION of GOVERNMENTS | Our Valley Freeway System is part of the 2004 voter-approved Regional Transportation Plan | Copyright © 2014 | Published Date: 5/26/2016 | ADOT

Location

Imagery

Description

Benefits

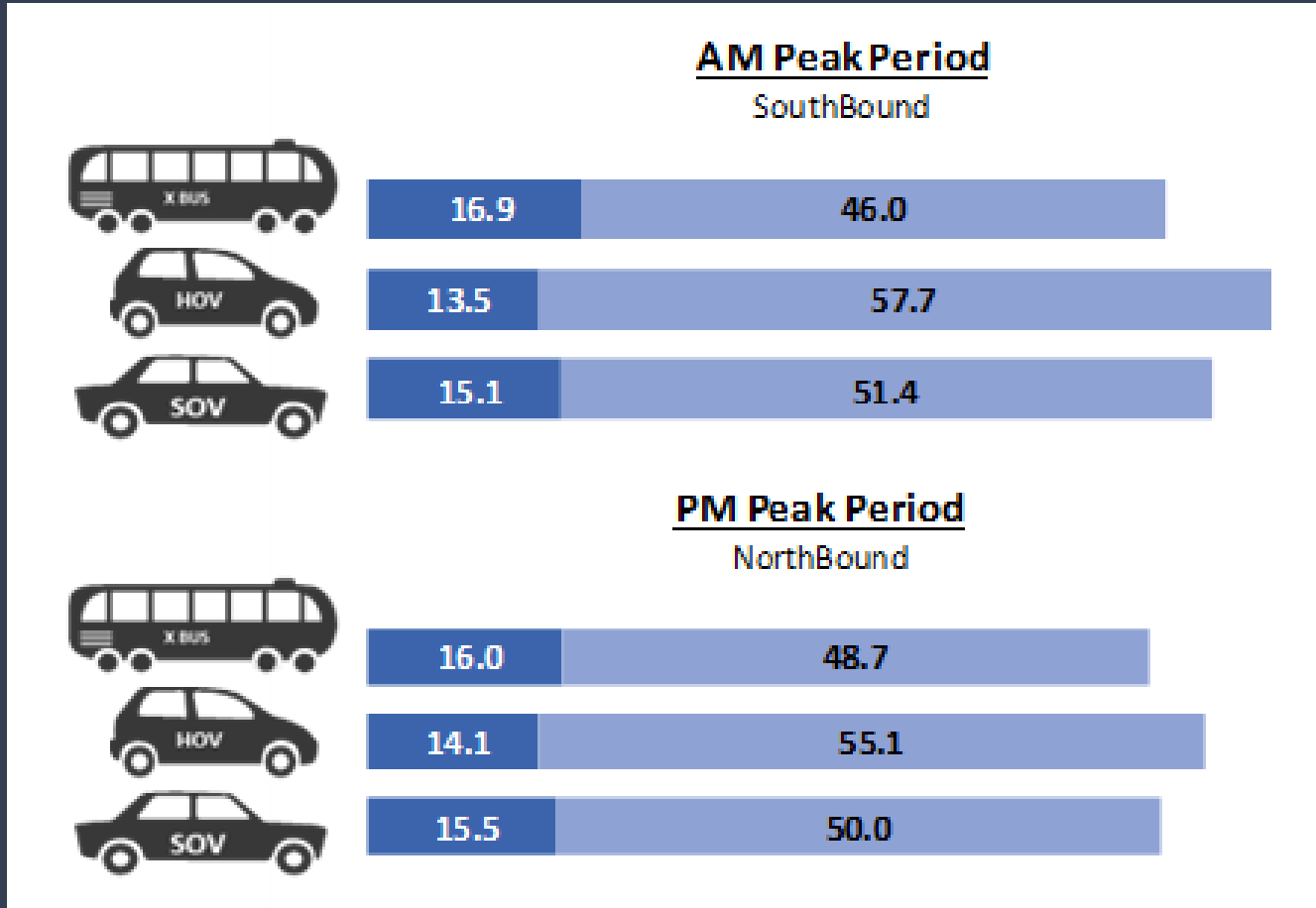
Schedule

Expenditures

Demand data

Before /After

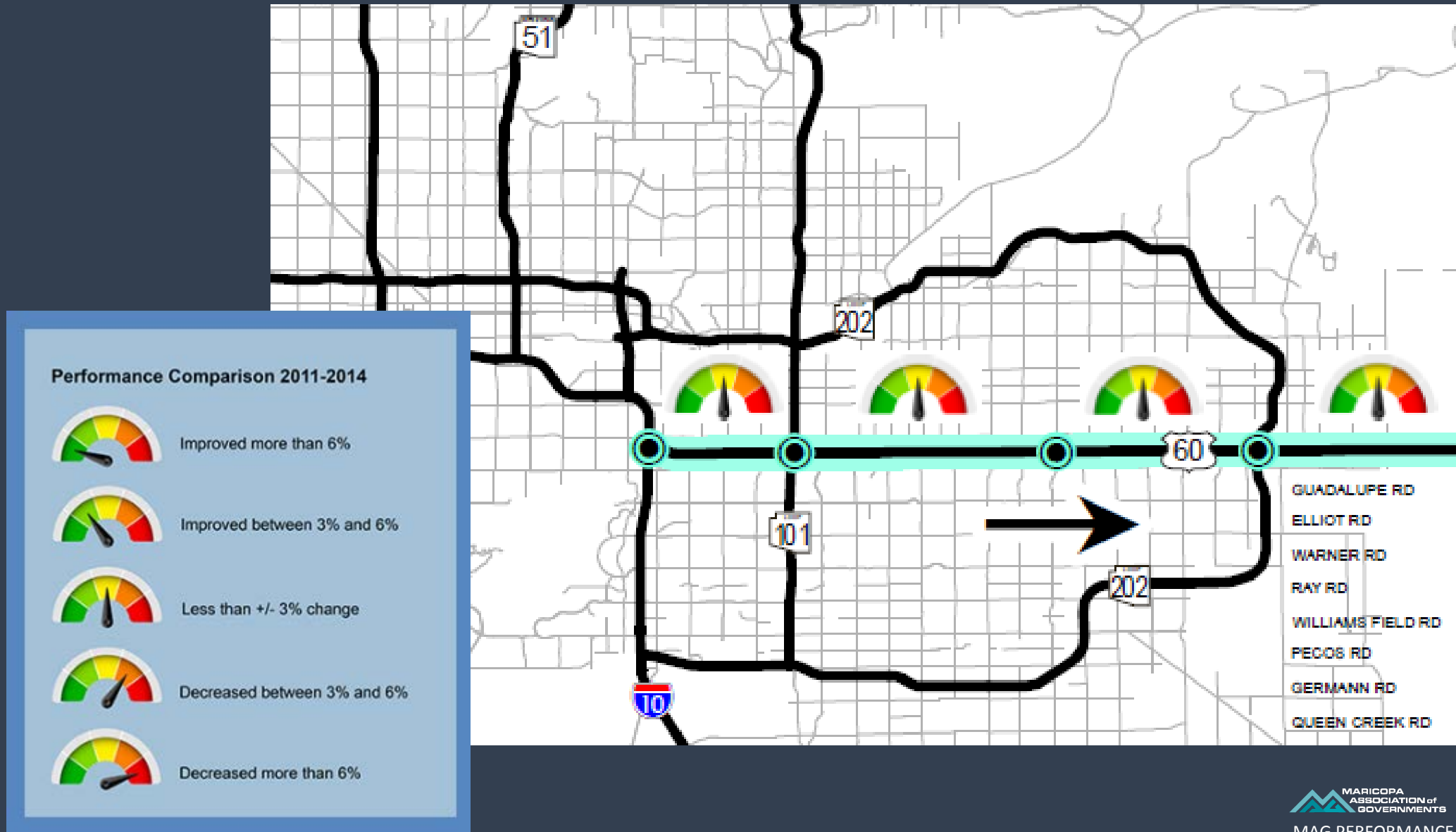
# Commute Travel Time Comparison 2015



■ Travel Time (min)  
■ Speed (MPH)



# Before and After Corridor Performance (2011-2014)



# Modal Connectivity







## MAG Region Demographic Map Viewer

The Demographic Map Viewer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing selected population and housing data for the two counties in the MAG Region. Explore data from Census 2010 and American Community Survey (ACS) 2010-2014 5-year.

[View Map »](#)



## State Demographic Map Viewer

The State Demographic Map Viewer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing selected population and housing data for the entire State of Arizona. Explore data from Census 2010 and American Community Survey (ACS) 2010-2014 5-year.

[View Map »](#)



## Employment Map Viewer

The Employment Map Viewer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing selected employer data. Explore the 2015 Employer Database.

[View Map »](#)



## Read On Arizona MapLIT Viewer

Maricopa Association of Governments is part of Read On Arizona's collaborative partnership that created MapLIT, and interactive mapping tool as a "one stop" resource to identify key data sets (census, school, health, family engagement) that impact early literacy outcomes in communities.

[View Map »](#)



## Land Use Map Viewer

The Land Use Map Viewer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing land use data. Explore the MAG 2014 Existing and Future Land Use datasets.

[View Map »](#)



## Bikeways Map Viewer

The Bikeways Map Viewer is one of the Maricopa Association of Governments interactive mapping sites, showing locally-designated bicycle facilities data. Explore the MAG 2014 Bikeways datasets.

[View Map »](#)



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[View Map »](#)



## MAG Neighborhood Explorer

The MAG Neighborhood Explorer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing landmark data. Explore the MAG 2016 Building Landmark Inventory datasets.

[View Map »](#)



## Projections Map Viewer

The Projections Map Viewer is one of the Maricopa Association of Governments interactive mapping and analysis sites, showing socioeconomic projections data. Explore the MAG 2016 Socioeconomic Projections series dataset.

[View Map »](#)

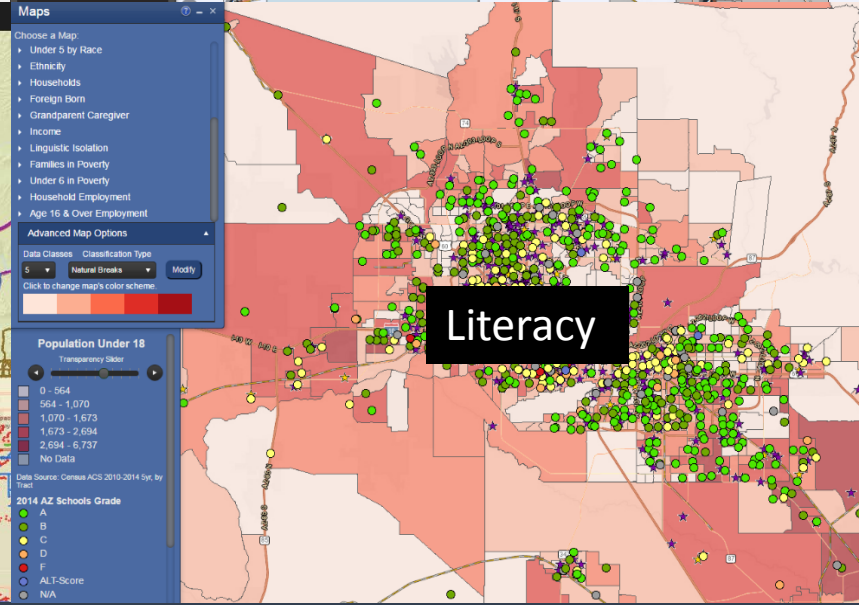
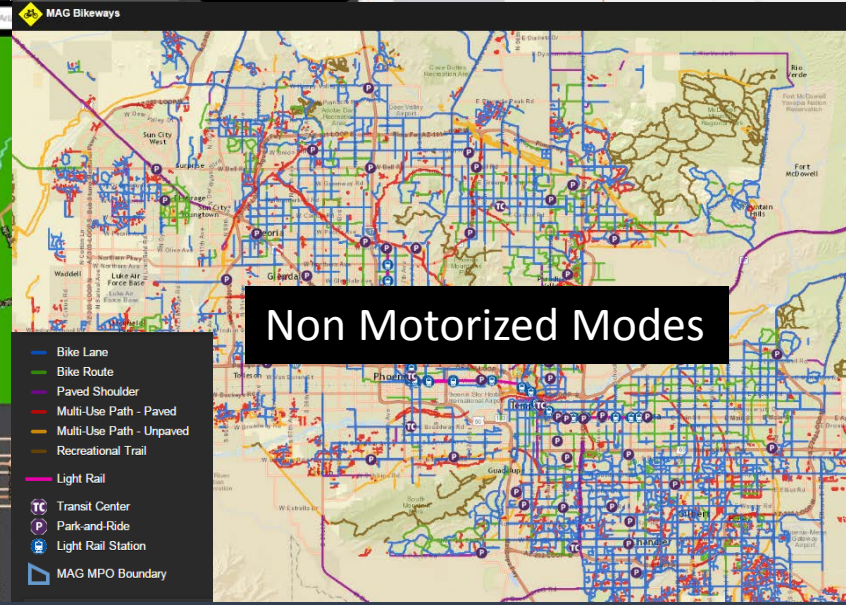
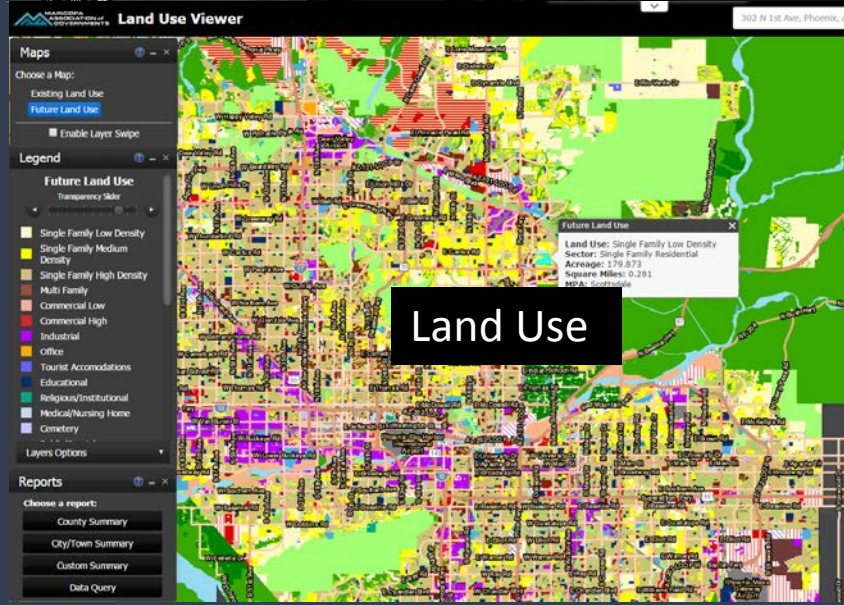
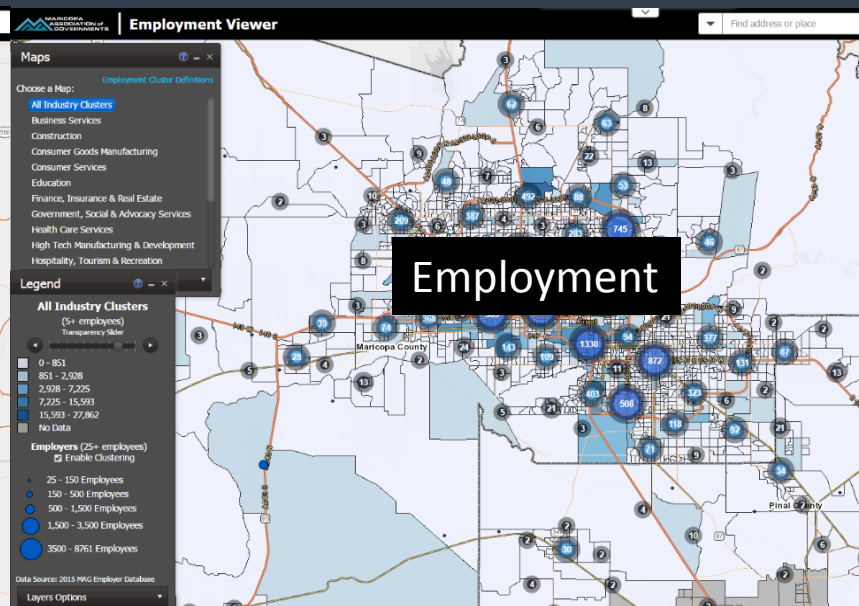
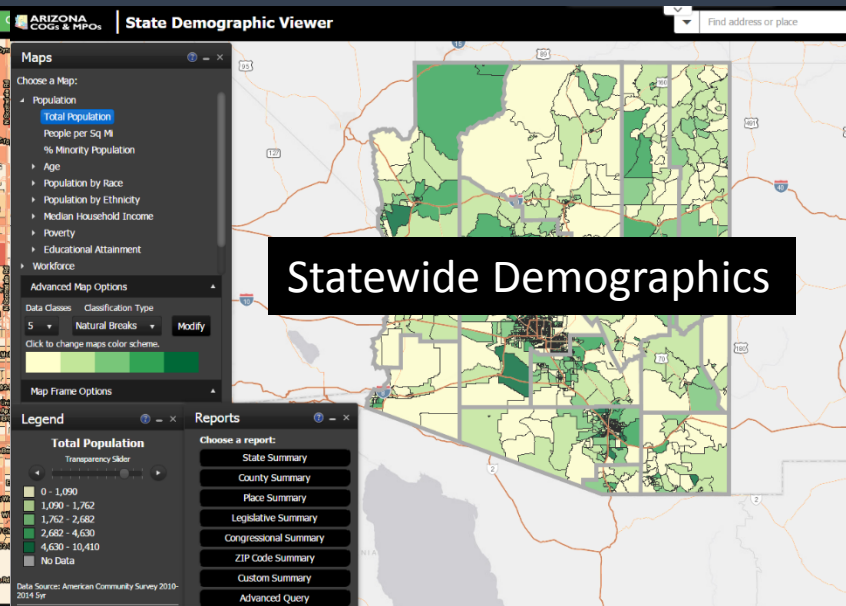
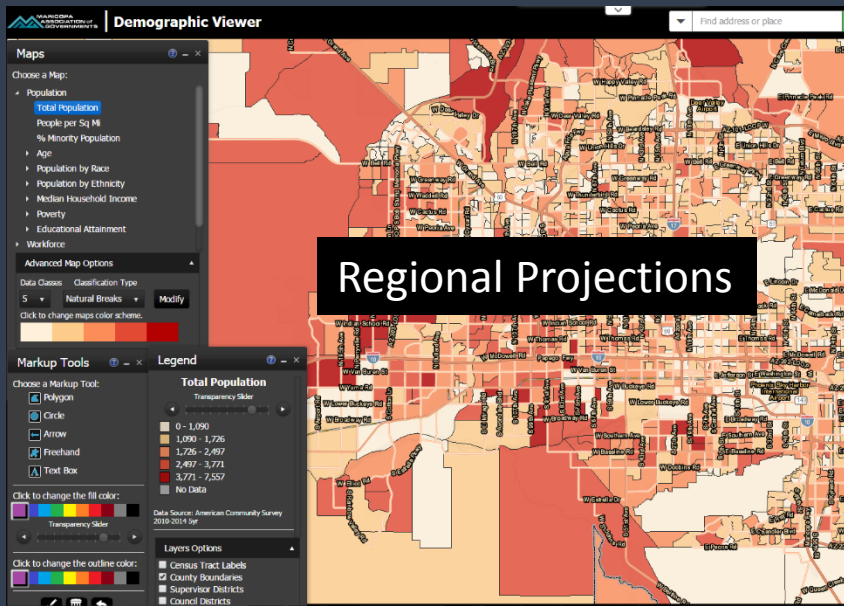


## Victim Services Map Viewer

The Victim Services Map Viewer is one of the Maricopa Association of Governments interactive mapping sites, showing victim advocate services data. Explore the MAG 2012 victim advocates services datasets.

[View Map »](#)









### Maps

Choose a Map:

- Total Population
- Household Population
- Households
- Dwelling Units
- Total Employment

Year:

2015 2020 2030 2040 2050

Map as:

Counts Densities

Advanced Map Options

Data Classes Classification Type

5 Natural Breaks Modify

Click to change maps color scheme.

Map Frame Options

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### Legend

#### Total Population, 2050

Transparency Slider

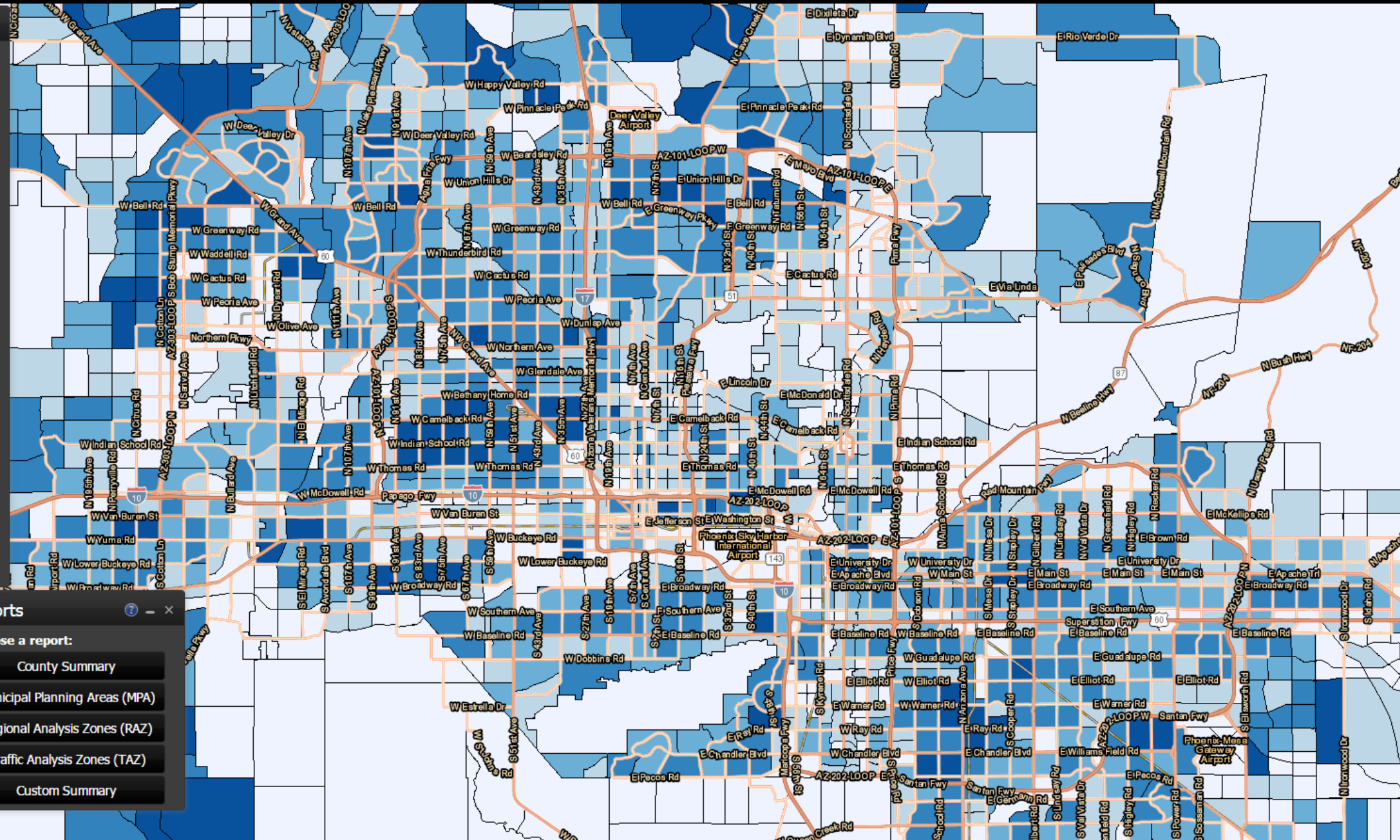
- 0 - 1,128
- 1,128 - 2,880
- 2,880 - 5,049
- 5,049 - 8,589
- 8,589 - 25,007
- No Data

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### Reports

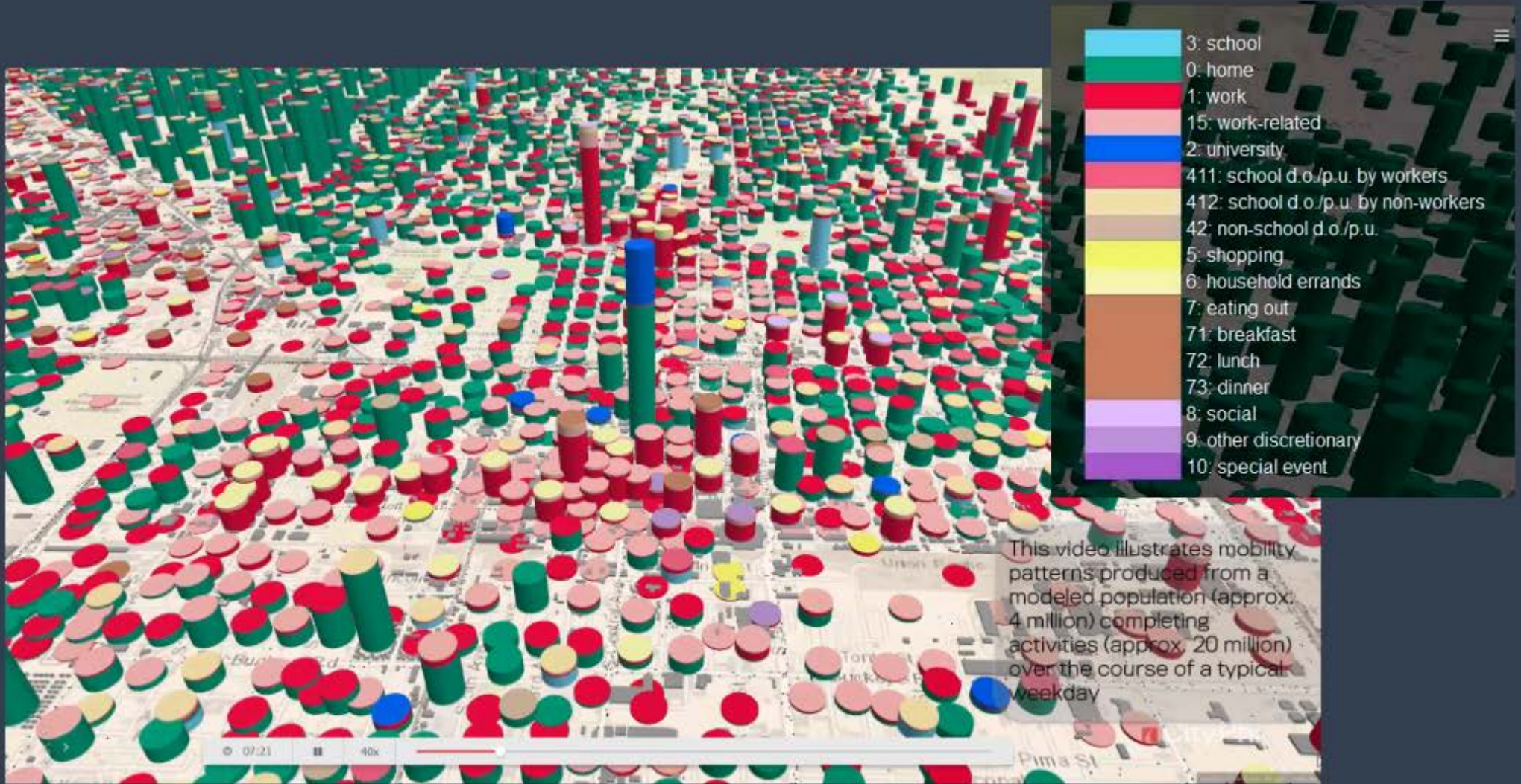
Choose a report:

- County Summary
- Municipal Planning Areas (MPA)
- Regional Analysis Zones (RAZ)
- Traffic Analysis Zones (TAZ)
- Custom Summary



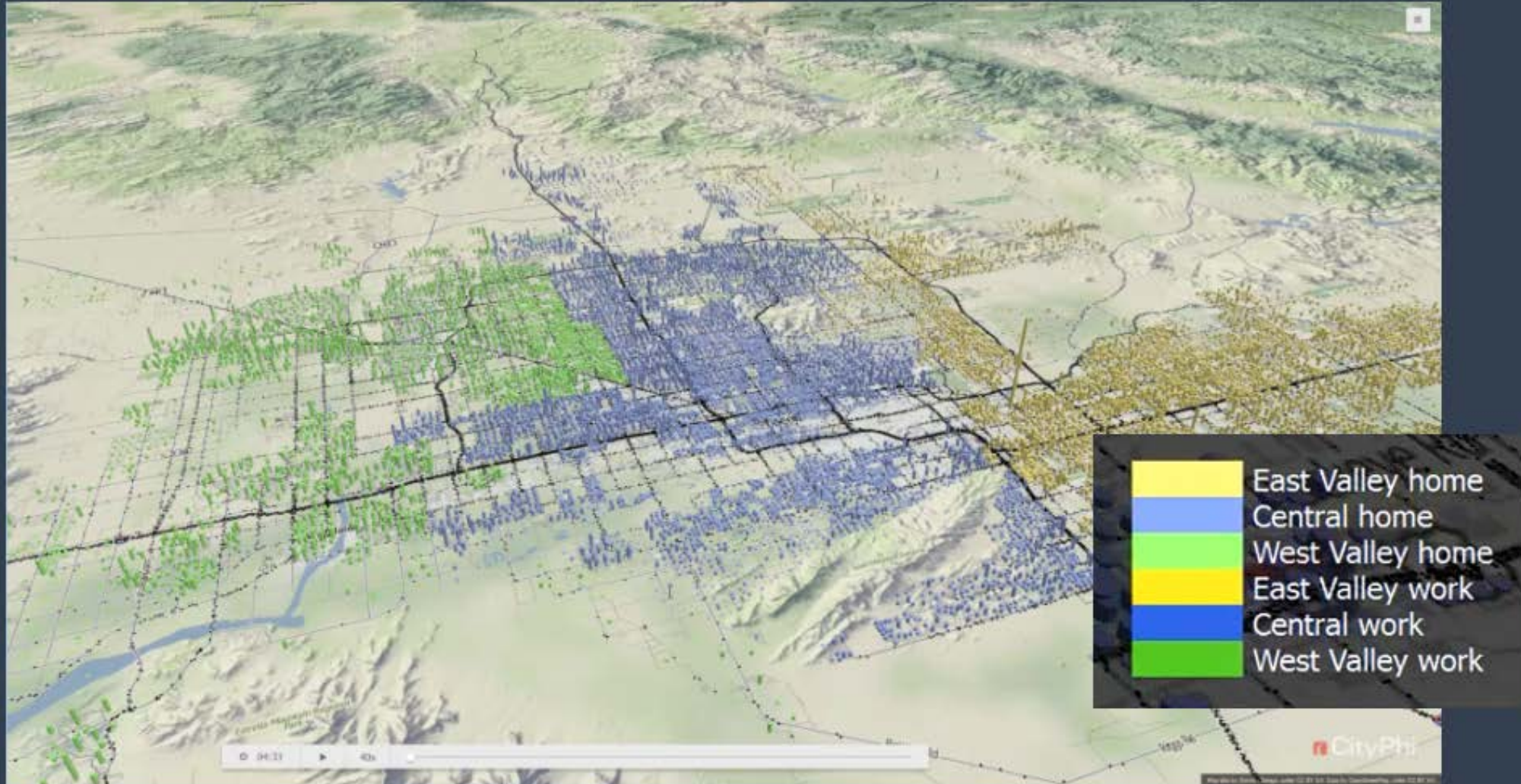


# Population Movements – 4 million Scenario



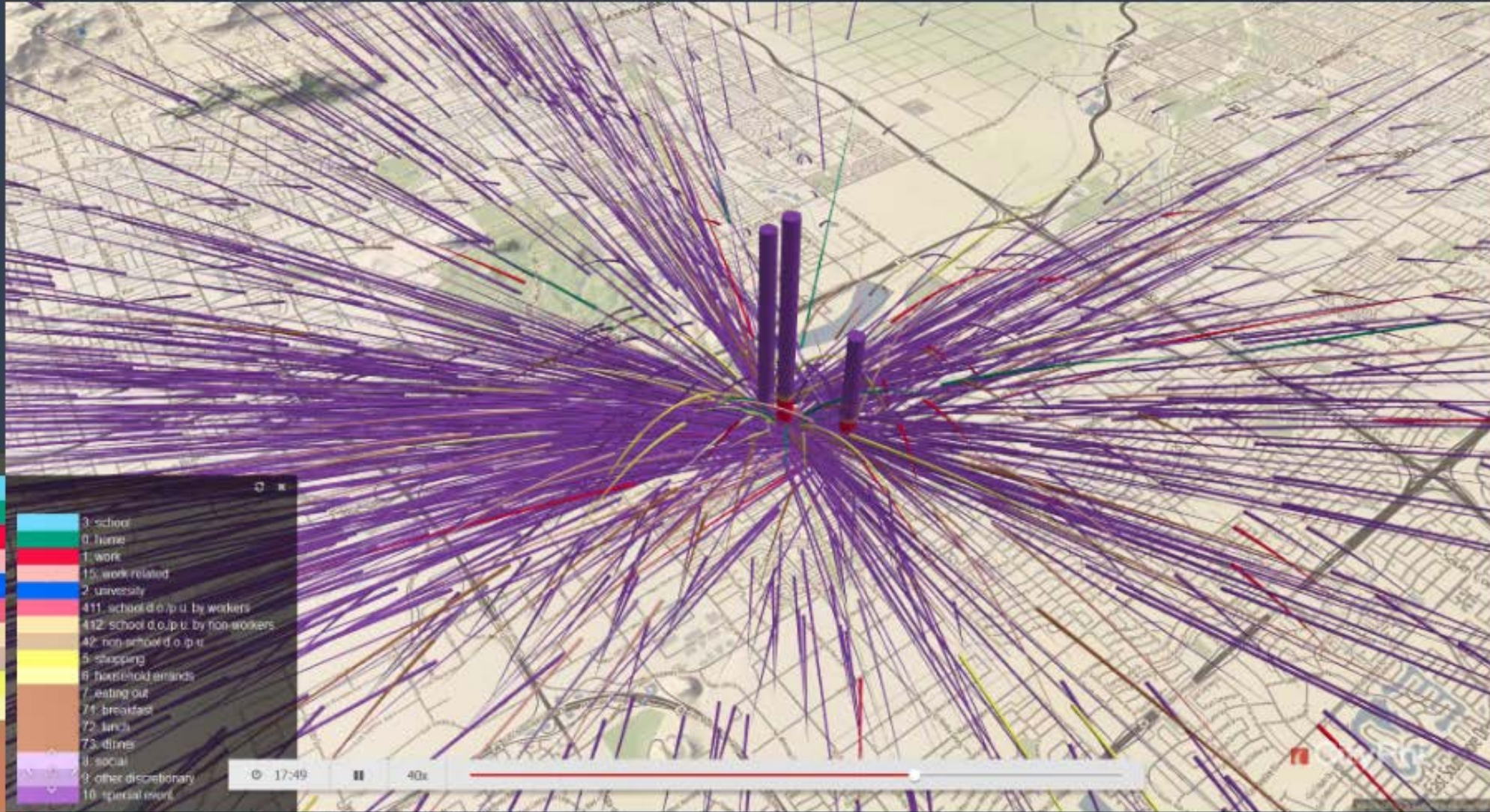


# Employment Patterns by District



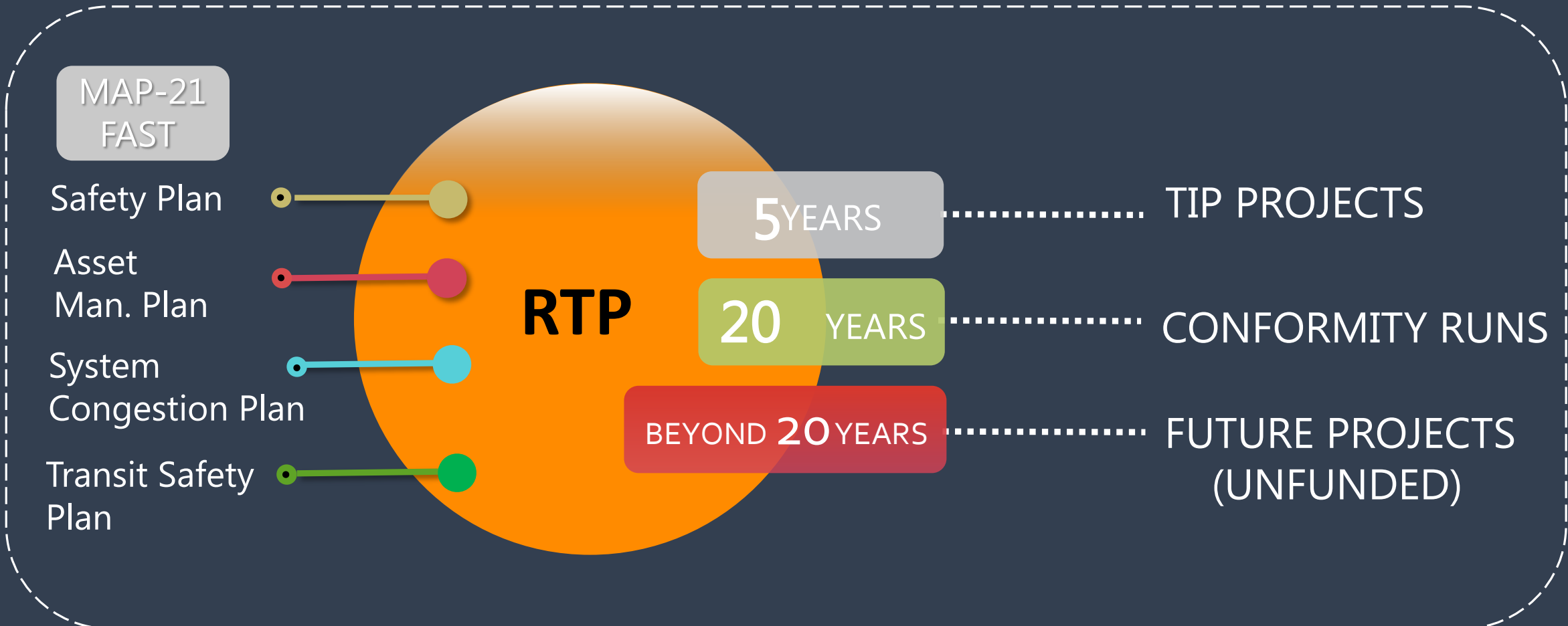


# New Years Eve Block Party Event



© 17:49 40x

# MPO INVESTMENT UNIVERSE



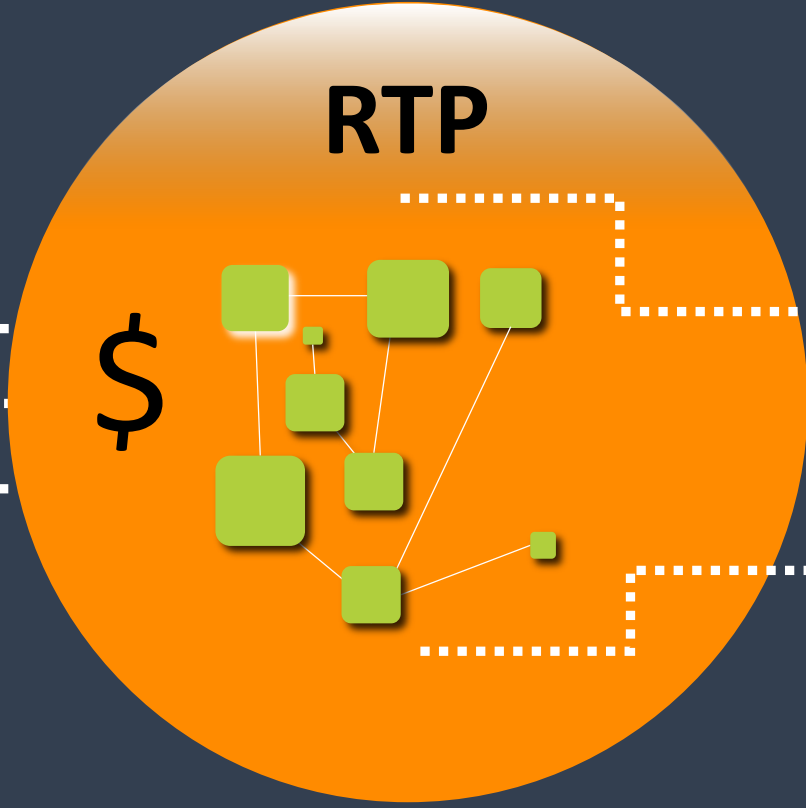


# SOURCES

Federal Programs

State from HURF

Regional from tax



# LIFE CYCLE PROGRAMS

Highway

Arterial

Transit



Advance and support  
Regional Goals and  
Targets

[Total 2014-2035 estimated \$17B  
RTP 20 yr. Plan horizon]

# TOOLS



Federal Programs

NHPP

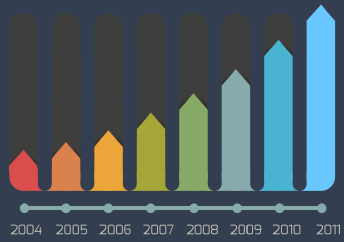
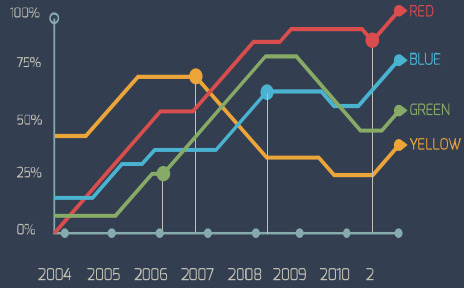
STP

TA

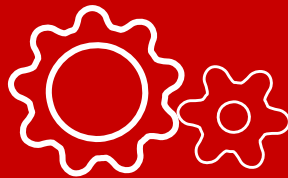
CMAQ

HSIP



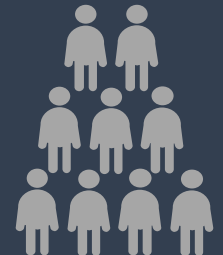


# TOOL



	A	B	C
1			
2			
3			
4			
5			
6			

ProjID	City	Project Name	Committee Rank	Final Average	Final Rank
			20%	100%	
PH-BikeP4	Phoenix	Regional BikeShare Along Metro Rail Corridor-Phx to Tempe	5	5.0	2.0
CH-BikeP1	Cave Creek	Cave Creek CarFree Bike Lanes	2	8.0	3.0
MA-BikeP1	Maricopa County	W Bike Lane on McDowell Rd. 7th St to Library Pass	4	6.9	4.0
ME-BikeP1	Mesa	Rio Salado Shared Use Pathway - Segment 3	6	7.6	5.0
PH-BikeP1	Phoenix	Roosevelt Row Bike Lane and Sidewalk Improvement	5	7.6	6.0
AV-BikeP1	Avondale	Agua Fria Asphalt 1-10 Underpass	7	8.0	7.0
TP-BikeP2	Tempe	Shared Use Path Priest Drive Underpass	1	2.7	1.0
GL-BikeP1	Glandale	New River North Shared Use Pathway	8	8.4	7.0
PH-BikeP1	Phoenix	Rio Salado 12' Shared Use Pathway 32nd Street to 40th Street	10	10.0	9.0
PH-BikeP1	Phoenix	32nd Street Bike Lanes SR11 to Reach 11	11	11.3	10.0
PH-BikeP1	Phoenix	12' Shared Use Pathway Rio Salado Pathway -40th Street to SR143	9	11.7	11.0





# MAGni↑ude

Transportation Performance Dashboard



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