



# Redefining Mobility: Integrating Technology into Transportation System Design

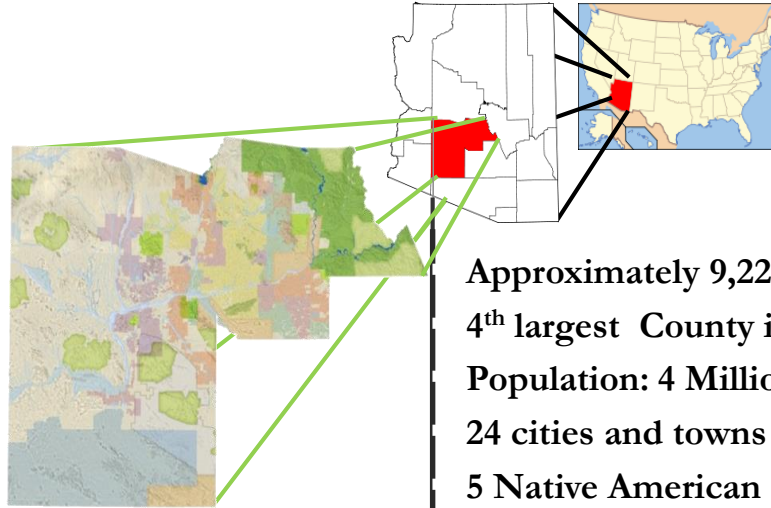
**Jennifer Toth**

Director and County Engineer

Maricopa County Department of Transportation



# Maricopa County, Arizona



Approximately 9,226 sq. miles

4<sup>th</sup> largest County in United States

Population: 4 Million

24 cities and towns

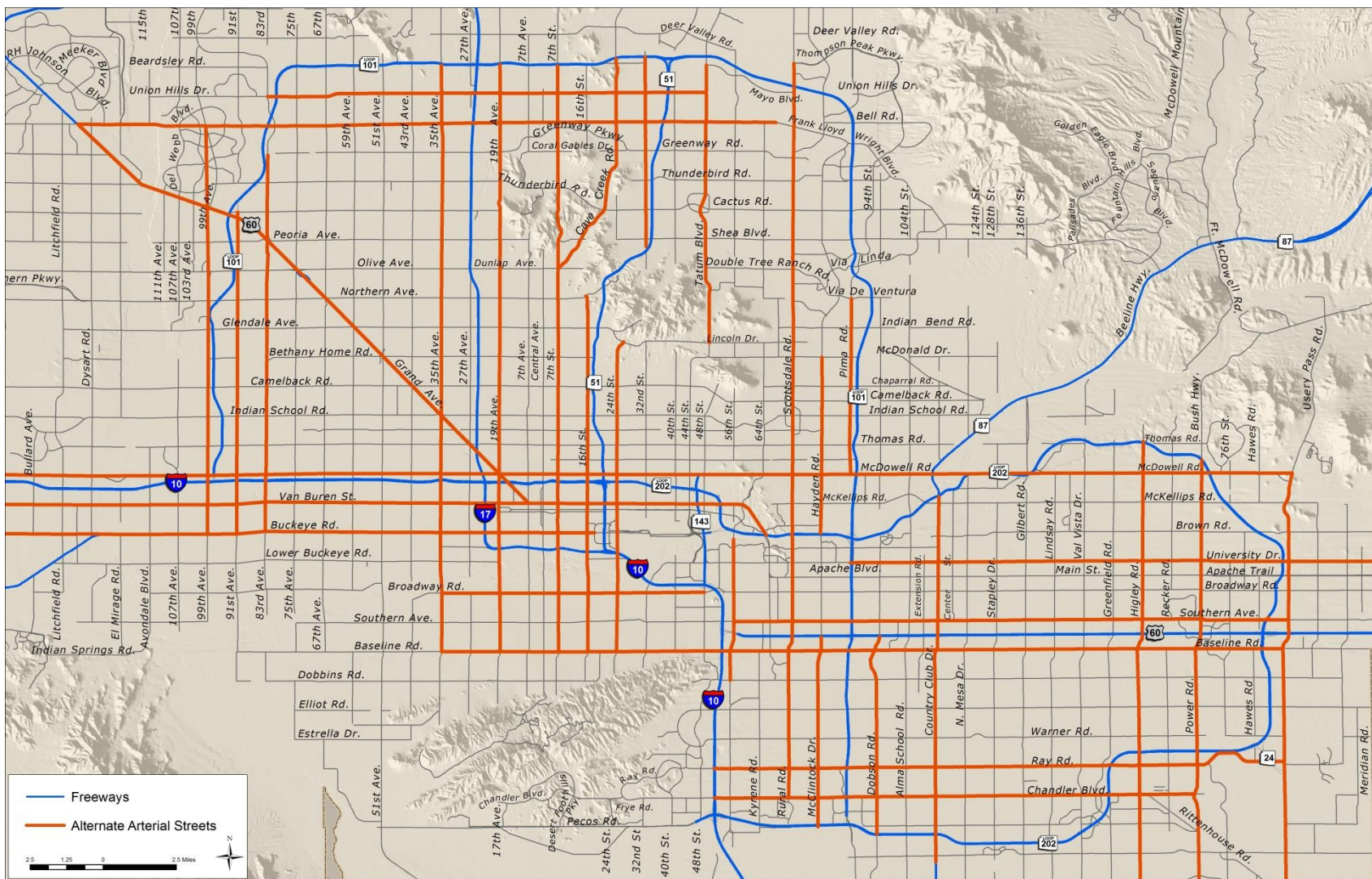
5 Native American Communities

Palo Verde Nuclear Generating Station





# Maricopa County Roadway System





# MARICOPA COUNTY

Department of Transportation



**ARIZONA  
CARDINALS**





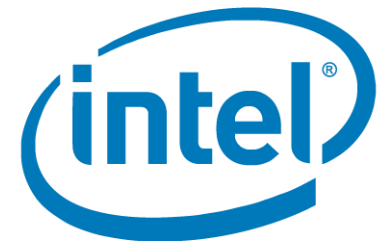
**Honeywell**



Available at  
**amazon**



**Raytheon**





# AZTech Partners



Public Works

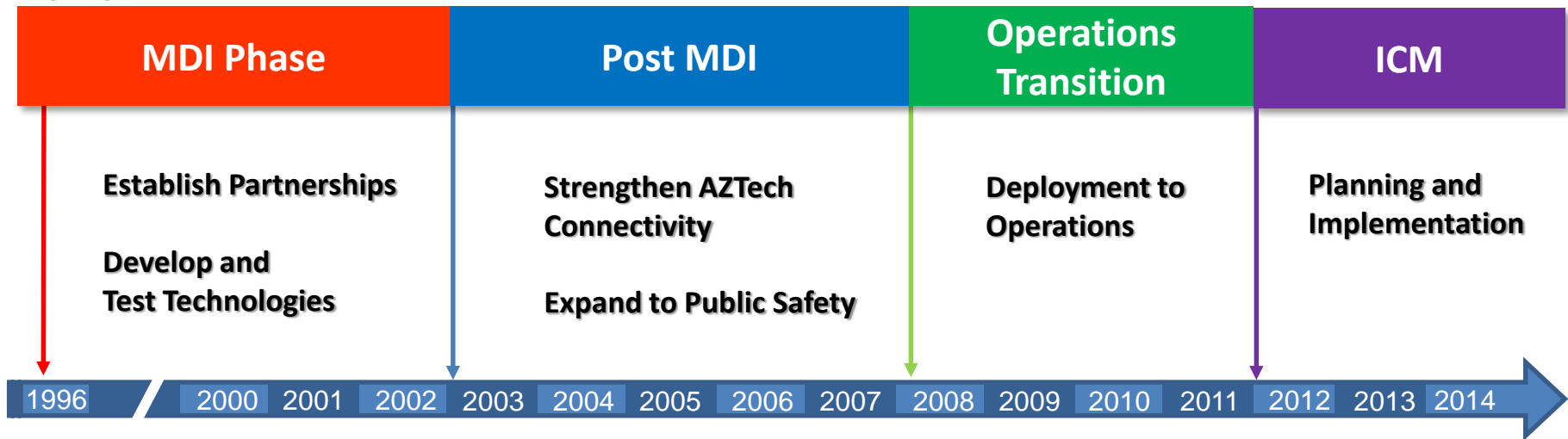


City of Phoenix



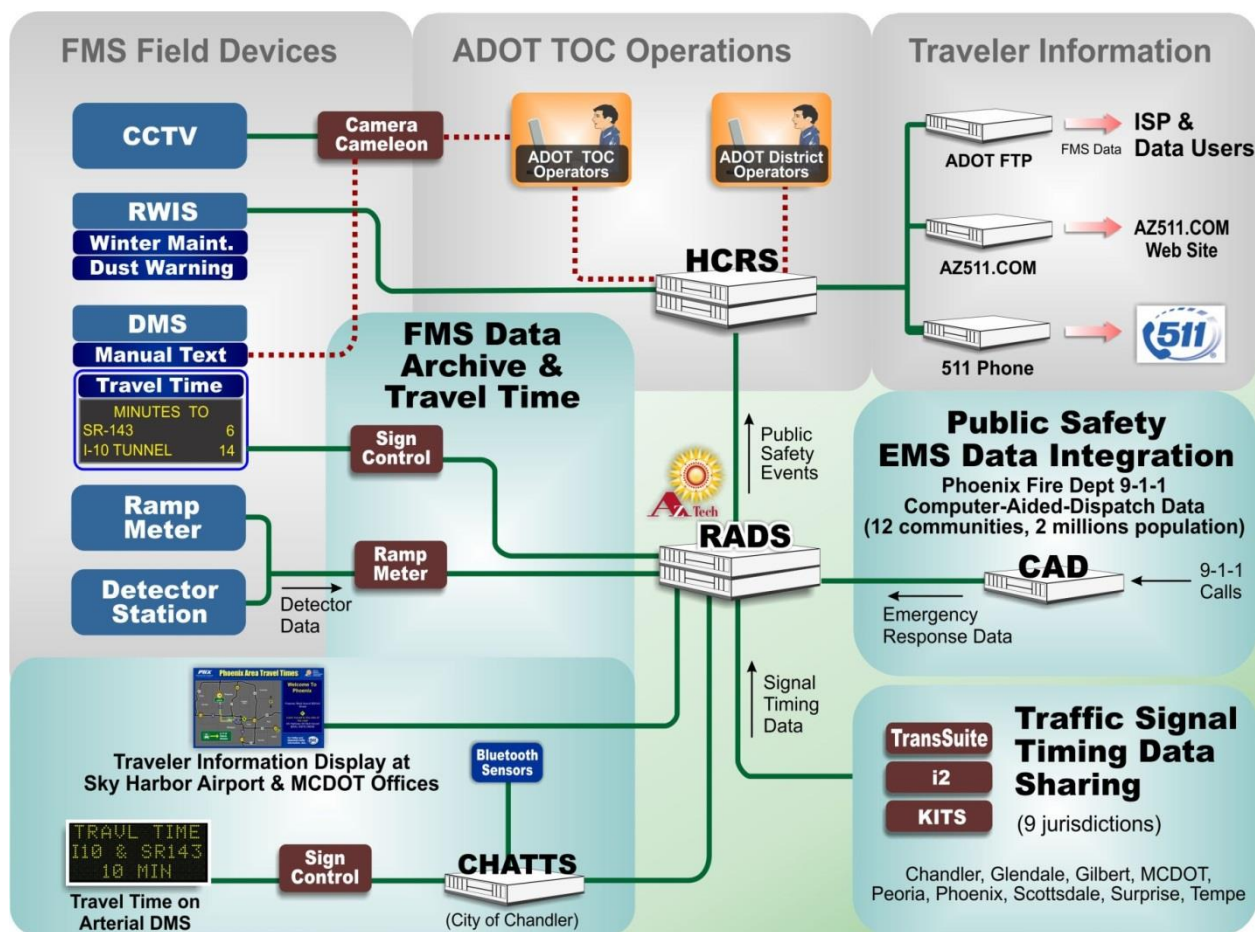


# AZTech History At-a-glance





# Data Backbone: Regional Archived Data System





# System Management and Operations

A large, light blue arrow pointing to the right serves as a background for a sequence of four blue rounded rectangular boxes. Each box contains white text representing a step in a process flow.

CORRIDOR  
MANAGMENT

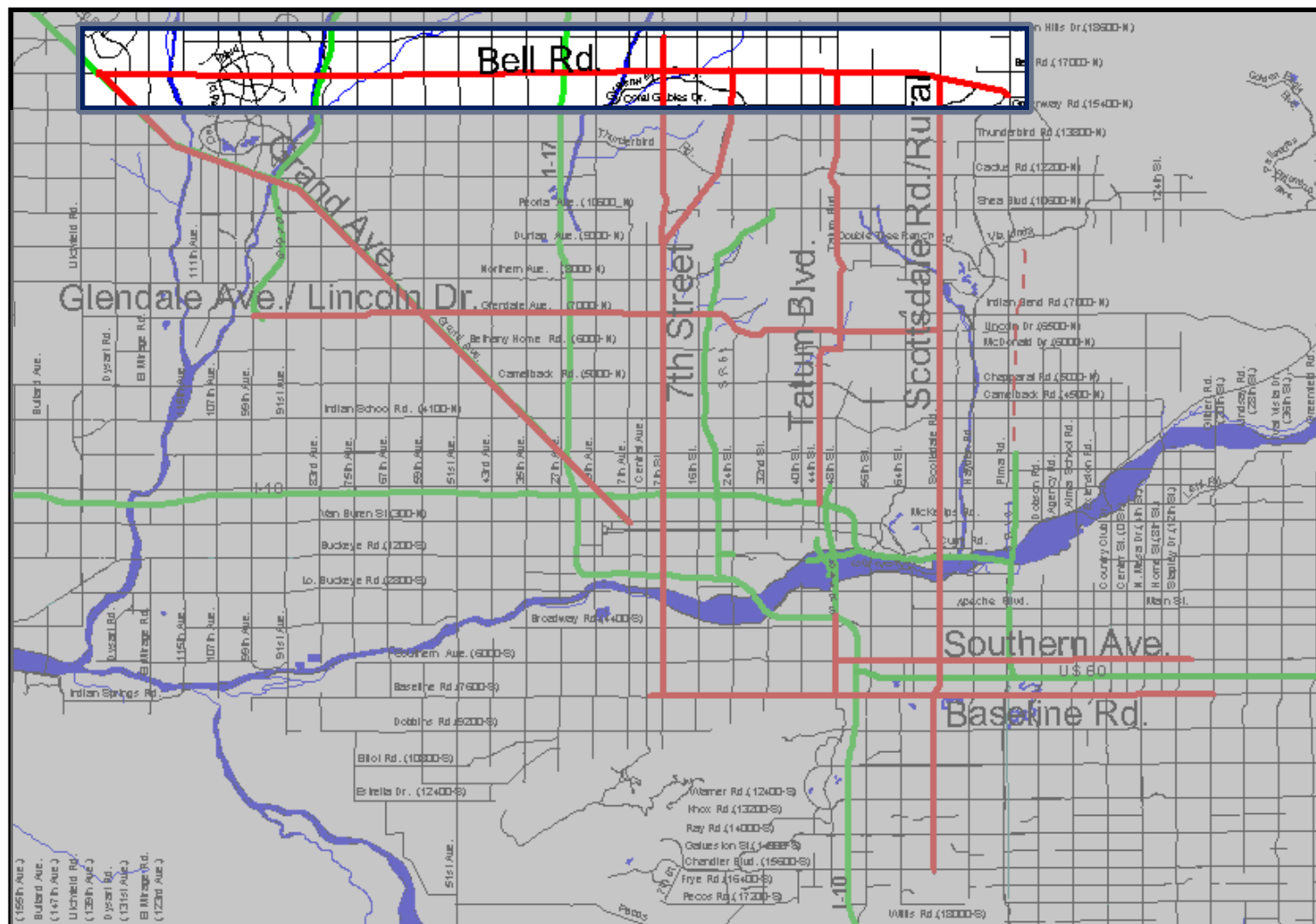
INTEGRATED  
CORRIDOR  
MANAGEMENT

CONNECTED  
VEHICLES

ACTIVE  
TRAFFIC  
MANAGEMENT



# Corridor Management - Bell Road





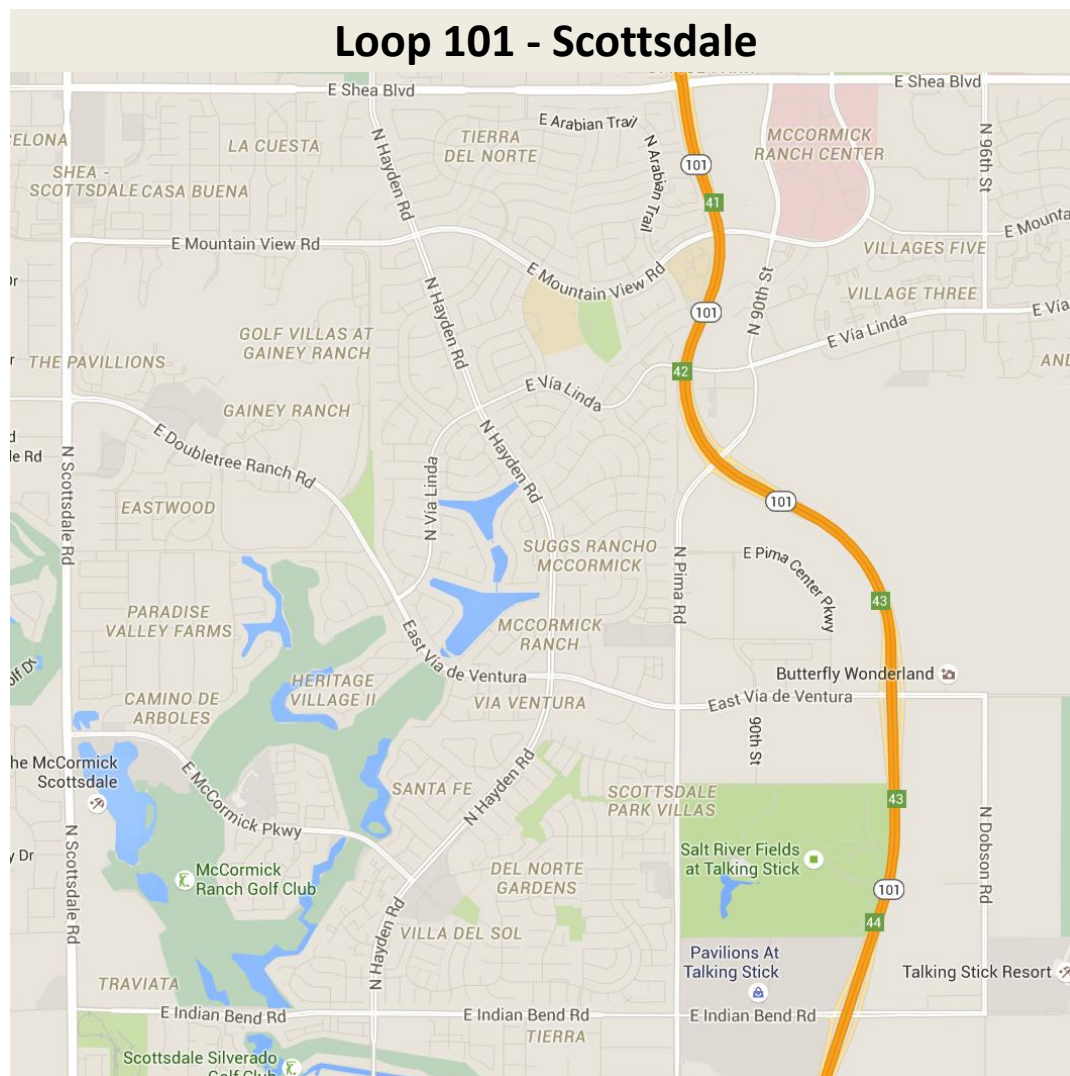
# Corridor Management – Bell Road

## Travel Time Performance Results

% TRAVEL TIME CHANGE							
PEAK HR – DIRECTION	2007	2008	2009	2010	2011	2012	2013
AM - East Bound		-7.3	0.0	-6.2	0.0	0.0	0.0
PM - West Bound		-3.5	0.0	-24.8	0.0	0.0	-9.7
Combined EB & WB		-5.0	0.0	-17.4	0.0	0.0	-5.3
Cumulative Change	0	-5.0	-5.0	-22.5	-22.5	-22.5	-27.8












# Integrated Corridor Management





# Integrated Corridor Management

MCDOT TMC	
Identification	Notify Scottsdale TMC if a freeway closure will occur
	Confirm with Scottsdale TMC that REACT assistance is needed
Dispatch	Dispatch REACT to scene if support is needed for freeway closure
Coordination	Confirm with Scottsdale TMC detour route picked
	Notify REACT of detour route picked
Implementation	
Notification	Send email to distribution list alerting of closure and follow up emails for status
Contact Information	Scottsdale TMC: 480-312-7777
	REACT: 602-201-1452
	ADOT TOC: 602-257-1563

-  • Loop 101 closure zone—traffic interchange area including ramps OR freeway mainline between traffic interchanges
-  • Forced detour route in Scottsdale—Preferred
-  • Forced detour route in Scottsdale—Alternate
-  • Upstream detour route in Scottsdale—Preferred
-  • Upstream detour route in Scottsdale—Alternate
-  • Identification of detour route—Person, Truck, DMS
-  • Prioritized traffic signal timing plan movement
-  • Arterial road closure recommendation
-  • Freeway DMS location to support detour routing

Loop 101 ICM Plan





# MARICOPA COUNTY

Department of Transportation



ARIZONA  
**CONNECTED VEHICLES**  
Maricopa County Deployment



**Maricopa County**  
Department of Transportation



**THE UNIVERSITY  
OF ARIZONA®**





# Safety Applications



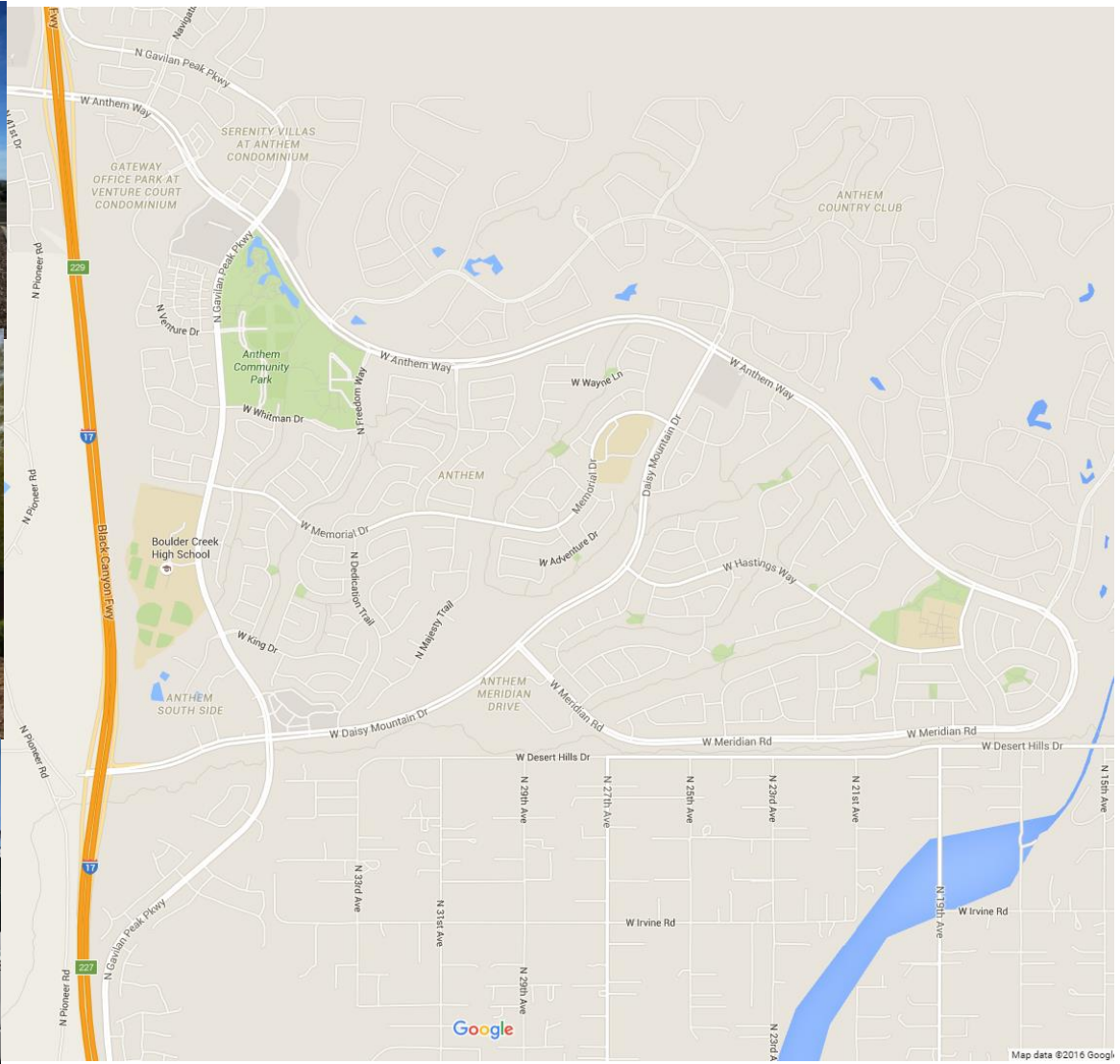


# Connected Vehicle Pooled Fund





# Anthem, Arizona Test Bed





## This is a satellite view from Google Earth of the Anthem, Arizona area. The map features several green circles highlighting specific points of interest, each labeled with "center point". These points are located near major roads and commercial areas. A yellow circle highlights a point near Daisy Mountain Dr and I-17. The map includes numerous street names, such as W Anthem Way, N Anthem Way, and I-17. Coordinates are displayed at the top and bottom of the map, including N33.8724, N33.858, N33.8508, N33.8436, N33.8364, W112.165, W112.155, W112.145, W112.135, W112.125, W112.115, and W112.105. A scale bar at the bottom left indicates a distance of 4368 feet. The Google Earth logo is visible in the bottom right corner.

Illustration source: Google Earth

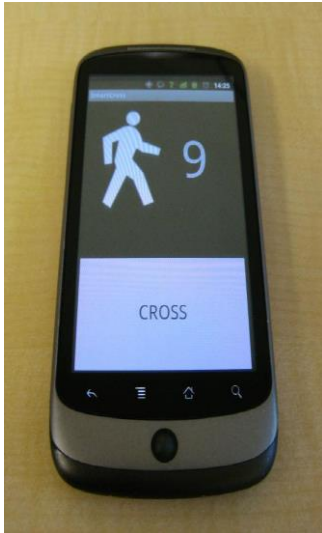


# Public Transit Priority



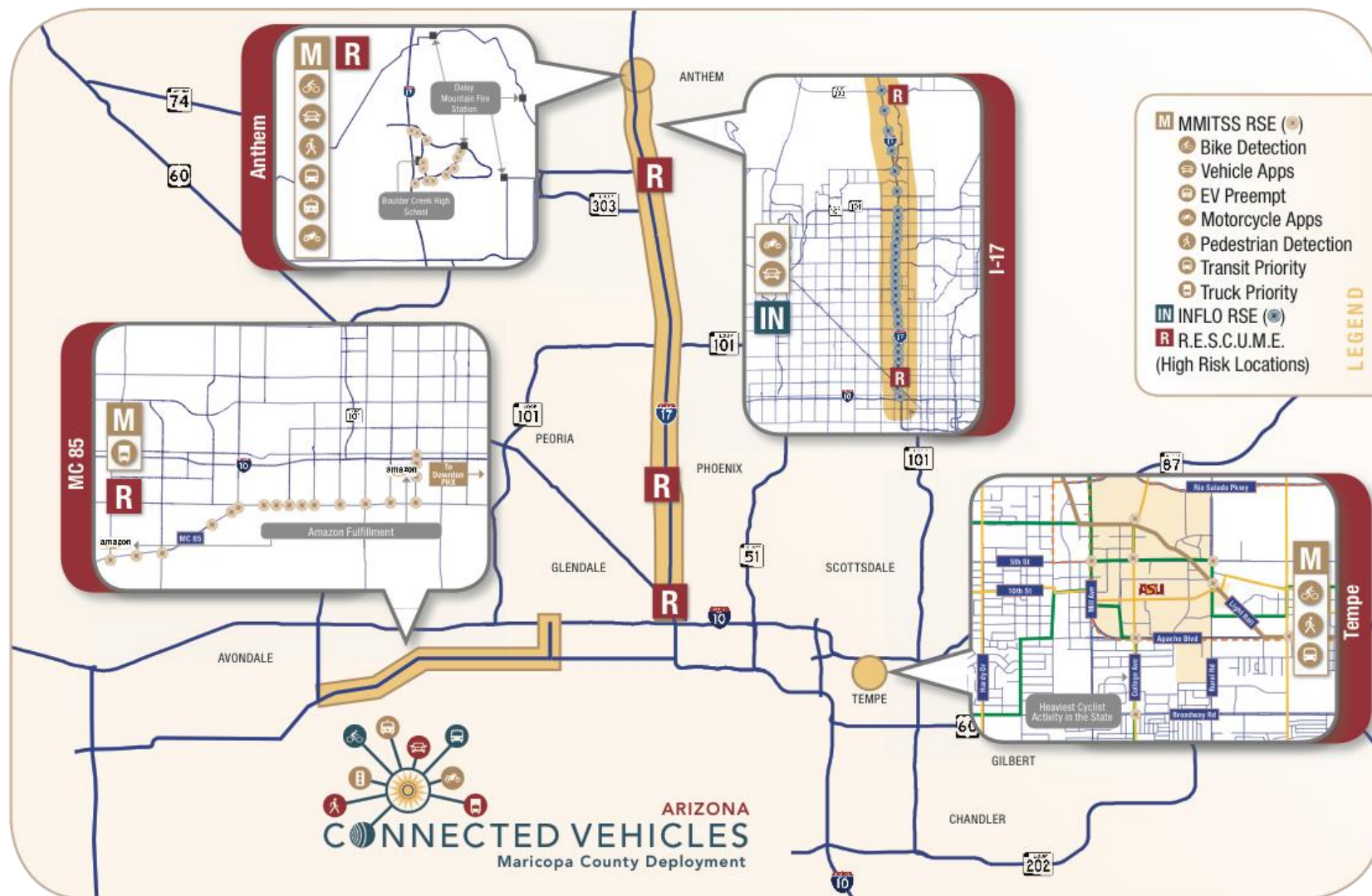


# Crosswalk Application





# Possible Future Connected Vehicle Studies





# Challenges – Skilled Labor





# Challenges – Big Data



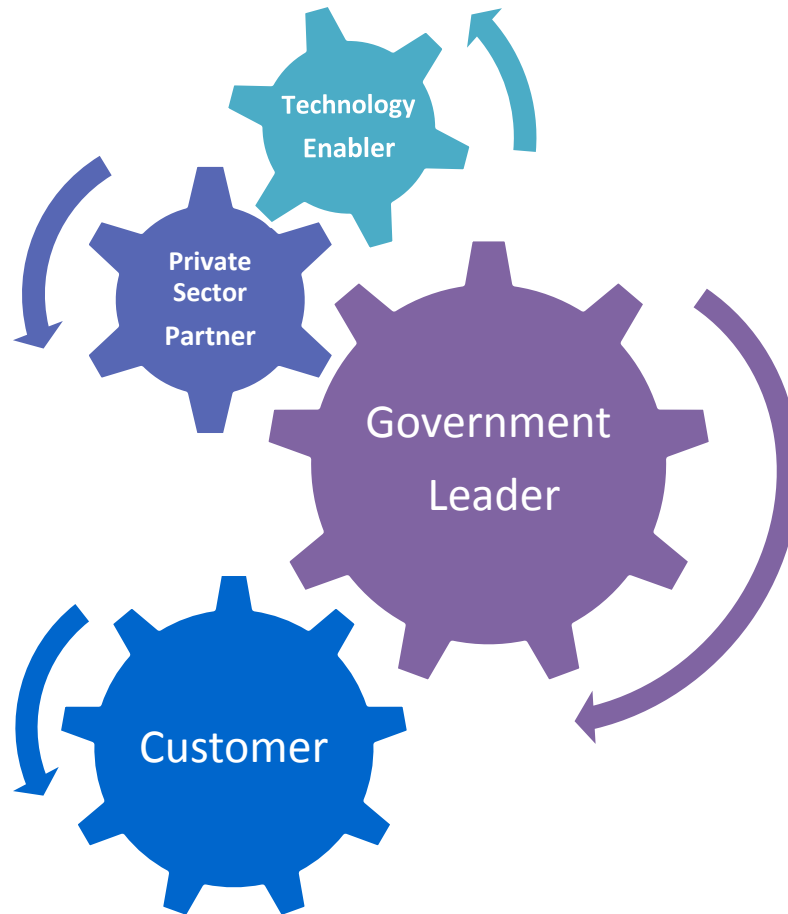


# Challenges – 5.9 GHz Spectrum





# It will take all of us





## Unexpected Guests





**Thank you!**