AZTech
Capability Maturity Model

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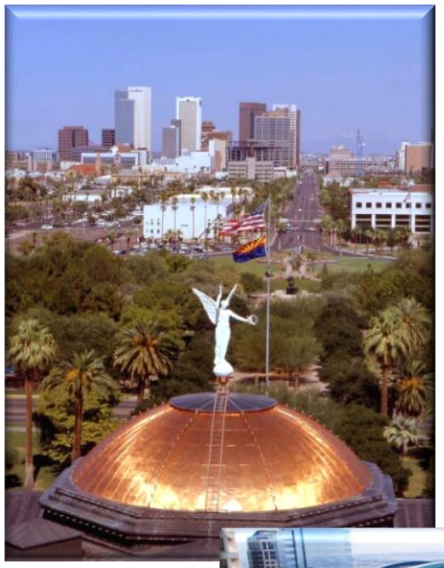
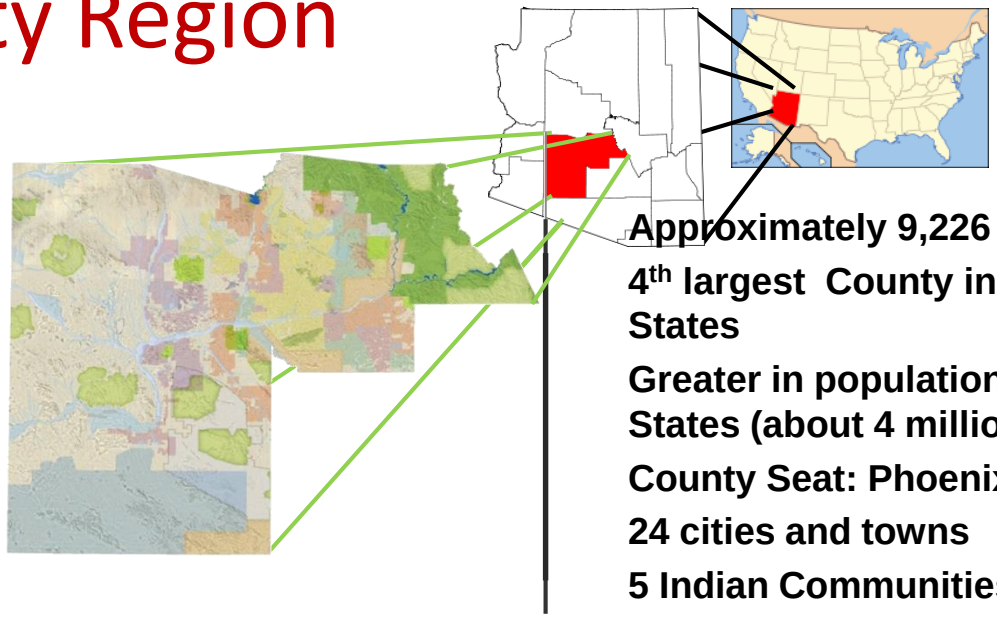
Organization

- AZTech Overview
- AZTech CMM approach
- AZTech CMM Outcomes
- ICM & Lessons learned

Maricopa County Region





Approximately 9,226 sq. miles

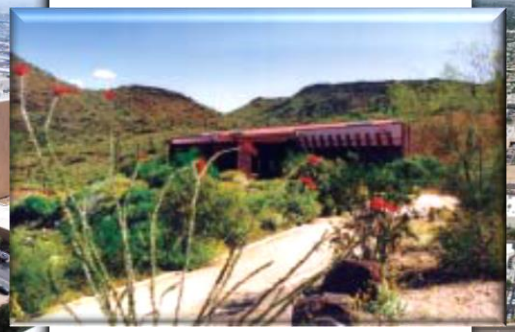
4th largest County in United States

Greater in population than 24 States (about 4 million)

County Seat: Phoenix

24 cities and towns

5 Indian Communities



Organization

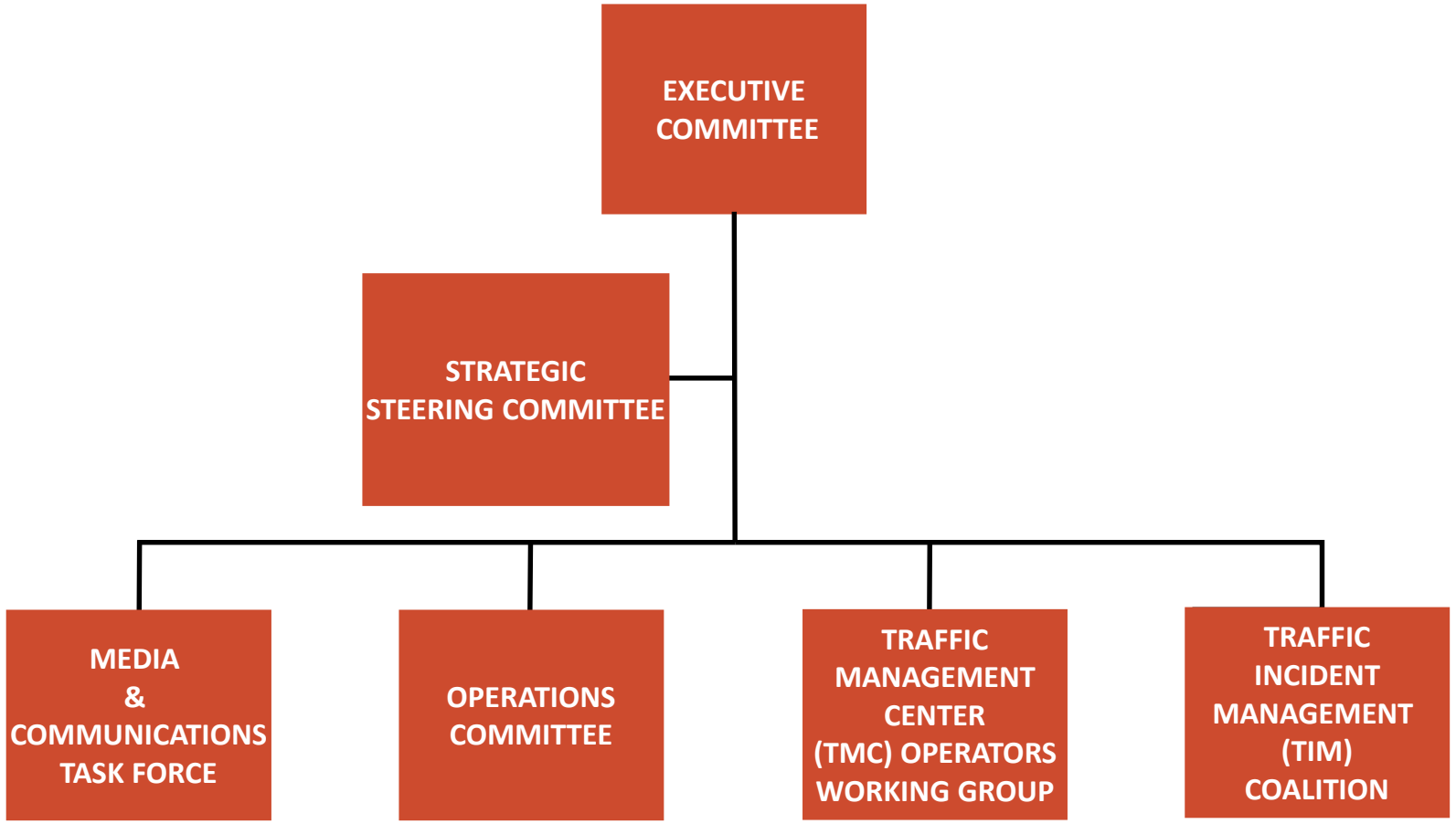
Established 1996 as one of four MDI's

- Mission: Integrate the region's Intelligent Transportation Systems infrastructure through public and private partnerships as a national model for multimodal transportation systems development; thereby minimizing environmental impacts and effectively managing transportation demands.
- Goal: to provide Phoenix Metropolitan Area with seamless transportation system

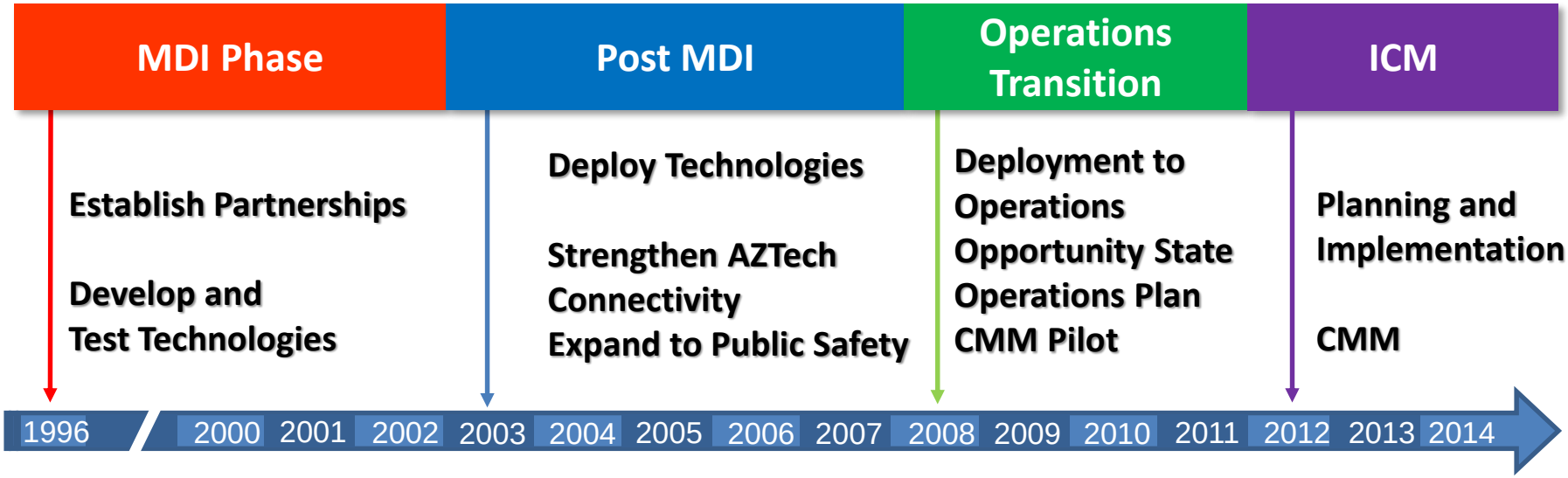
AZTech Partners

- **26 Members**
  - 15 Cities and Towns
  - Arizona Division of FHWA
  - Maricopa Association of Governments (Local MPO)
  - State DOT and PD
  - Maricopa County DOT
  - Phoenix International Airport
  - Public Transit
  - Metro Rail
  - Regional Public Transportation Authority
  - Arizona State University
  - University of Arizona
  - Private Partners
- **Key Function: Traffic Management and Operations**

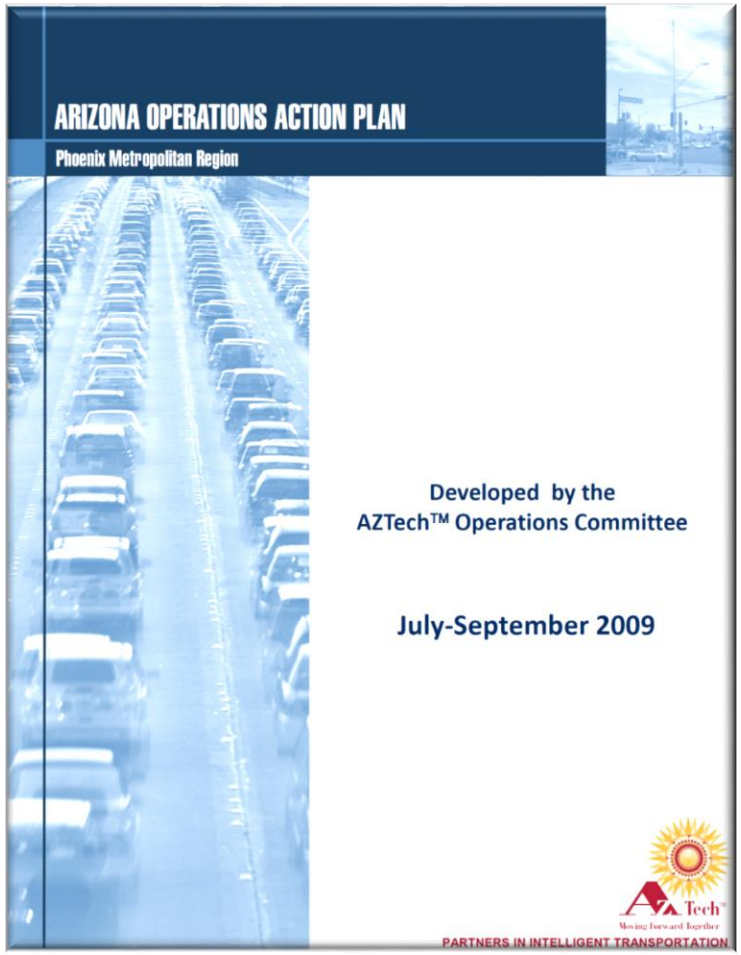
Organization Structure



AZTech Phases



Tipping to Operations(2009)



Tipping to Operations(2009): Key Focus Areas

1. We have a well informed traveling public
2. Performance measures tell our story
3. Upper management, the public and elected/appointed officials understand and appreciate our value
4. Incident management is responsive and effective
5. Leverage regional Infrastructure for operational efficiency and redundancy
6. Create seamless operational partnerships
7. We have well qualified, well trained staff and a pipeline of new talent

CMM Pilot (2010)

AZTech™ members Scored:

- Planning/Programming/Resources – Level 2.5
- Systems and Technology – Level 2
- Performance measures – Level 1
- Culture /Outreach – Level depends on Agency 1 to 2
- Organization/Staffing – Level depends on Agency 1 to 2
- Resource allocation to SO&M – Levels 1 to 2
- Collaboration – Levels 2 to 3

CMM/Plan (2010) – Top Priorities

1.0 We have a well-informed traveling public

- Media & Transportation Summits
- Improving Arizona 511 System

2.0 Performance measures tell our story

- AZTech™ Traffic Management Performance Measures Book

5.0 Leverage our Regional Infrastructure

- Implement Pilot Integrated Corridor Management

6.0 Incident management is responsive & effective on freeways & arterials

- Traffic Incident Management (TIM) Coalition Established

7.0 We have qualified, well-trained staff and a pipeline of new talent

- Workforce and Organization Development in Progress
- Training Activities
  - Review of the FHWA Traffic Signal Timing Manual Workshops
  - Adaptive Signal Control Technologies (ASCT) Training

CMM/Plan – Outcomes Examples

1.0 We have a well-informed traveling public

- MAJOR ENHANCEMENTS TO 511 WEBSITE, ARTERIALS ADDED
- CURRENT TO AVERAGE TRAVEL TIME ADDED TO 511 WEBSITE
- FREEWAY TRAVEL TIME EXPANDED TO 76 DMS
- ARTERIAL TRAVEL TIME PILOT COMPLETED BY CHANDLER. MCDOT, PEORIA and GLENDALE ALSO POSTING ARTERIAL TRAVEL TIME
- SOCIAL MEDIA INCORPORATED BY SEVERAL AGENCIES
- MCDOT EXPANDED THE EMAIL ALERTS TO MEDIA

CMM/PLAN (2013-14)

AZTECH SHRP2 (L01/L06) ORGANIZING FOR TRANSPORTATION SYSTEMS RELIABILITY IMPLEMENTATION PLAN (GOALS, OBJECTIVES, STRATEGIES)

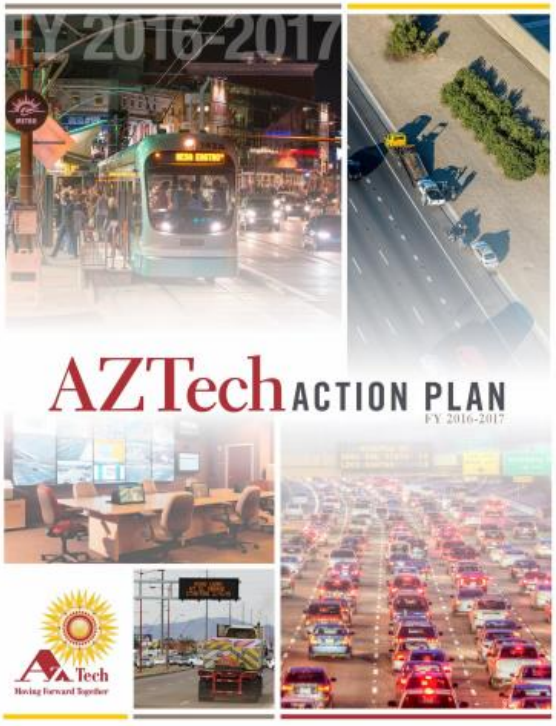
2014 Assessment Outcomes			
AZTech Region		AZTech LPA Partners	
Dimension	**Level**	**Dimension**	**Level**
Business Processes	**(1.5)**	**Culture**	**(1)**
Organization & Staffing	**(1.5)**	**Performance Measurement**	**(1)**
Systems & Technology	(2)	**Collaboration**	**(1.5)**
Performance Measurement	(2)	Business Processes	(1.5)
Culture	(2)	Organization & Staffing	(1.5)
Collaboration	(2)	Systems & Technology	(2)

2014 / 2010 Comparison AZTech Region				
Dimension	**2010 Level**	**2014 Level**	**Change in Capability**	**Amount Change**
Business Processes	**NA**	**(1.5)**	NA	NA
Organization & Staffing	**(1 to 2)**	**(1.5)**	Unchanged	0
Systems & Technology	(2)	(2)	Unchanged	0
Performance Measurement	**(1)**	(2)	Increase	+1
Culture	**(1 to 2)**	(2)	Increase	$+^{1}/_{2}$
Collaboration	(2 to 3)	(2)	Decrease	$-^{1}/_{2}$

AZTech Implementation and Action Plans (2016)

AZTech Implementation and Action Plans (2016)

AZTech OPERATIONS IMPLEMENTATION PLAN



Project Title	Responsible Party / Project Champion	Anticipated Outputs
AZTech Executive Committee		
1. AZTech Business Case	AEC, ASSC / Committee Chairs	Developing a succinct business case for AZTech and its value to the region, as well as identify key audiences for outreach focus.
AZTech Strategic Steering Committee		
2. AZTech 20th Anniversary Celebration	ASSC / Nicolaas Swart, Faisal Saleem, Cynthia Lopez	Planning and execution of a 20th Anniversary Celebration that highlights the accomplishments and value of AZTech to the region.
3. 2015 AZTech Performance Indicators Book	ASSC / Committee Chairs	Completion of 2015 Traffic Management and Operations Performance Indicators Book that is approved by the AEC and provides an overview of the performance of the regional transportation system.
4. FY 2016 – FY 2017 AZTech Action Plan	ASSC / Core Planning Team	FY 2016-2017 (this document) AZTech Action Plan that is submitted and approved by the AEC.
5. Media and Communications Task Force	ASSC, ATIS WG / Faisal Saleem, Tim Tait, Traci Ruth and Monica Hernandez, Gil Estrada	Convene a task force of agency Public Information Officers (PIOs) to conduct focus groups with different local media (TV, radio, print) to identify specific media engagement opportunities.
6. Central Resource Database	ASSC / Bruce Littleton, April Wire, Cynthia Lopez, David Lucas	Identifying and beginning to put into place a maintenance structure for a database of resources, system inventory and guidance materials that AZTech members can access through a secure website and hard copy binder. This resource also would include the various training resources being developed by the different AZTech committees. Align with AZTech web site updates.
7. West Valley Loop 101 ICM Plan	ASSC / April Wire, Faisal Saleem	Developing Integrated Corridor Management strategies for the Loop 101 in the West Valley.
8. AZTech Job Description Templates	ASSC / Nicolaas Swart, Reza Karimvand	Developing a set of job description templates for ITS and traffic operations/management positions that can be used by agencies to support new or updated job descriptions.
AZTech Traffic Incident Management Coalition		
9. TIM Coalition Outreach and Engagement Plan	TIM Coalition / Barbara Hauser, Raul Amavisca, Dan Jarrett, Scott Crawford, John Ford	Developing a list of priority agencies in the region who are not currently active in the TIM Coalition and have been contacted by MCDOT regarding participation. A plan for outreach to these agencies, including identification of a peer agency who can support the outreach.

AZTech Action Plan - Tracking

FY 2016-2017 AZTech ACTION PLAN (AAP) TRACKING

19) PROJECT: Signal Performance Measures (SPMs) Workshop	RESPONSIBLE PARTY: Committee/ Group Lead: AOC INDIVIDUAL CHAMPION(S): April Wire (MCDOT), Simon Ramos (ADOT),	TIMEFRAME: Begin in FY16/17	OVERALL STATUS: In Progress

ANTICIPATED OUTPUTS: Planning and hosting a Traffic Signal Performance Measures Workshop locally to raise awareness and identify regionally significant SPMs to use in the future.

PROJECT DESCRIPTION: Signal Performance Measures (SPMs) are an important tool to improve signal operations and efficiency. Generating SPMs helps to identify intersections that are not operating correctly or efficiently.

In 2015, two AOC members participated in a workshop held at the Utah DOT (UDOT) to get introduced to SPMs and their value to agencies. The findings were presented at an AOC meeting and there was interest surrounding the topic. Based on interest and on the anticipated value that local agencies could gain by using SPM, the goal of this project is to coordinate with UDOT and Purdue University to have them conduct an SPM workshop in the region for AZTech partners. This could be coordinated through the FHWA as a peer-to-peer exchange or through the National Operations Center of Excellence (NOCoE), to bring both the workshop instructors as well as UDOT signal technicians that can provide a demonstration of how UDOT actually uses SPMs in real-time to improve their intersection functions.
One agenda item of the workshop should be a discussion about a way forward with respect to SPMs in the region, including development of a list of recommended and standardized SPMs that agencies who eventually gather SPMs should collect. Future years will build on this initial effort concerning SPMs and how to integrate them into the region.

REQUIRED INPUTS/PREREQUISITES:

- ☐ Work with FHWA to explore options for funding the workshop through ITS peer-to-peer exchange.
- ☐ Work with the NOCoE to explore peer exchange opportunities.
- ☐ Garner/identify interest among AZTech members and identify a time and location for the workshop.

ANTICIPATED OUTCOMES:

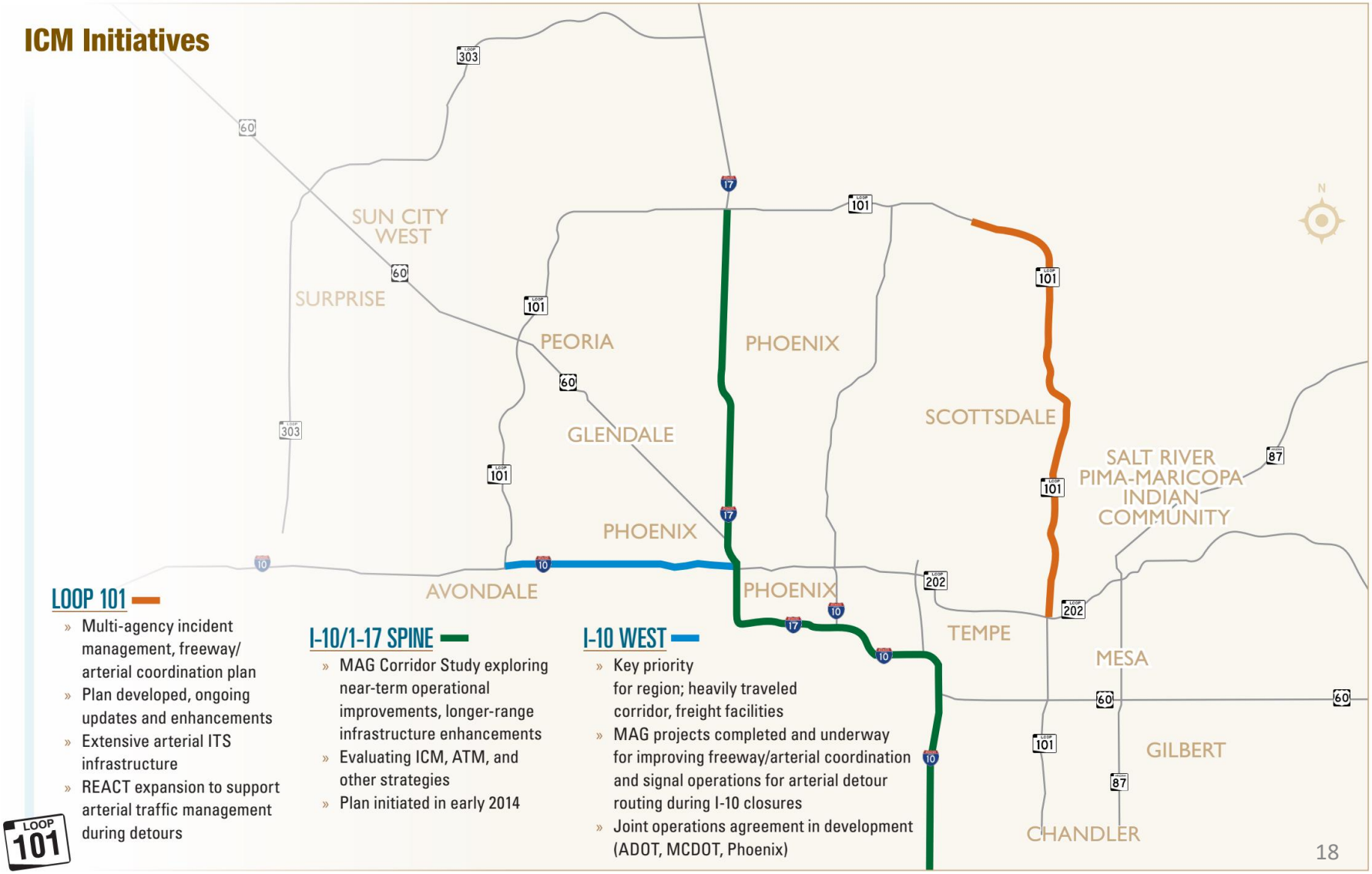
- A full-day workshop on SPMs held locally.
- A list of recommended and standardized SPMs for the region.

✔	ACTION ITEMS	LEAD/ASSIGNED TO	DUE DATE	STATUS	COMMENTS
✓	A. Discuss with the AOC deferring the full-day workshop to next year.	Champions	Next AOC Meeting	Completed	Decision made to postpone until RADS upgrade completed
	B. Summarize comment performance metrics from the Bell Rd ASCT Project from the 4 areas.	April Wire	09/02/16		
	C. Summarize common/available SPMs.	Marshall Riegel	09/02/16		
	D. Discuss & define what info is needed for effective retiming of signals (coordination plans and base timing).	Champions	09/02/16		

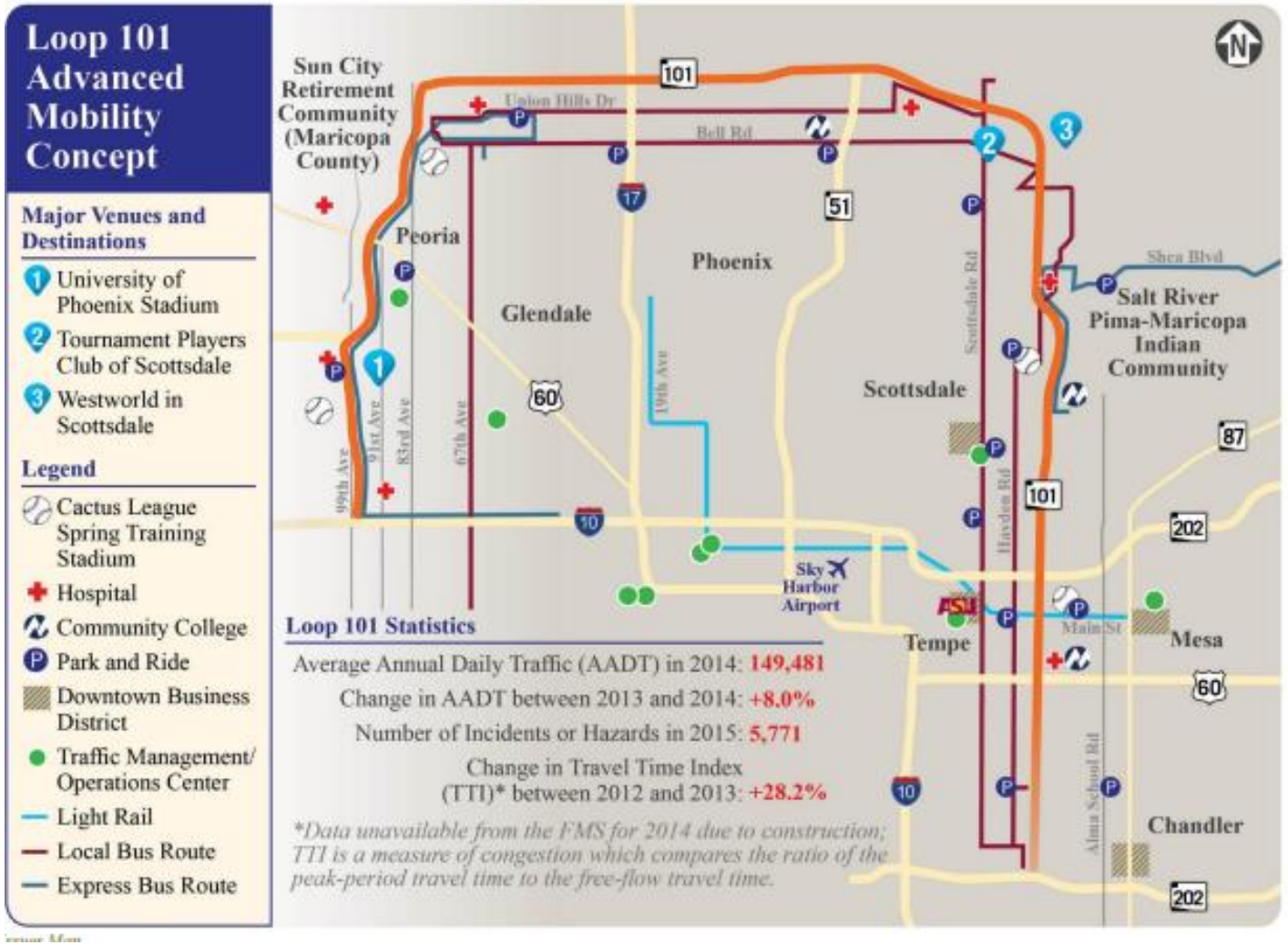
CMM EVALUATION (2016)

Dimension	2013 CMM Score	2016 CMM Score	Comments
Business Processes	1.5	2.5	There are now formal agreements in place between members which will allow approval at the Director level to implement TSMO aspects in a streamlined manner than previously done. Funding is still limited for ITS and TSMO projects-Stakeholders are exploring other funding sources aside from CMAQ funding for projects.
Systems and Technologies	2	3	Advances have been made in data sharing among agencies/jurisdictions via ARIS to include traffic signaling, construction events, incidents, and camera feeds. EMS and police are on different systems and data sharing between these organizations are not seamless.
Performance Measurement	Local: 1 Regional: 2	Local: 2.5 Regional: 3	There is now a robust amount of data available and agencies are now exploring how to best utilize it.
Culture	Local: 1 Regional: 2	Local: 1.25 Regional: 2.75	There is a wide range of integration of TSMO concepts among the many jurisdictions. Overall, as the larger jurisdictions advance, the smaller ones are following suit, but there is still limited acceptance in TSMO among executives at the local level.
Organization and Staffing	1.5	2	More training is occurring regarding TIM and TSMO, especially among the agencies in the smaller jurisdictions.
Collaboration	Some Local: 1.5 Some Local and Regional: 2.5	3 across the AZTech Region	The formalization of ICM projects is advancing collaboration. Also, improved data sharing capabilities are improving interagency collaboration.

Overview of ICM in the Maricopa County Region



Loop 101 – ICM Implementation



Loop 101 – ICM Implementation

Key Elements for Successful Operations

- Partnership (Sustainable)
- Plan (Detailed for operations)
- Agreements (Formal)
- Technology (Robust, data, signal operations)
- Staff (well trained, culture acceptance, champions)
- Agency resources
- Ongoing (table-top)

Challenges & Early Lessons Learned

- **Overall Challenge – Quickly implement an efficient alternate route traffic management plan without sophisticated Decision Support System**
  - **Agency staff is very important**
    - Staffing, TMC "business hours"
    - Staff turnovers
    - ITS professional challenges (education, certification)
  - **Partnerships play a key role**
    - AZTech provided a good start for forging ICM Partnership
    - Relationships Evolve: Field operations collaboration takes time to develop and integrate new partners
    - Needs more agency commitment and higher priority at the regional level

Challenges & Early Lessons Learned

- **ICM is an Evolutionary Process**
  - Plan is never final – Continuous improvement based on real-world experience
  - Agency staff engagement is important from inception
  - Plan process helps agency staff come together

SESSION 2:
Loop 101 ICM Plan & Operations
Working Lunch Group Discussion

Challenges & Early Lessons Learned

- **Sustainability**
  - Unlike construction and maintenance projects operations have no time limit boundaries
  - Sustainable funding for ICM operations – key gap for agencies
  - Funding processes do not align with operations
    - Predictable cycles vs. real-time operations needs
  - Performance reporting key to long-term support and sustainability
  - Transferability to other corridors

Challenges & Early Lessons Learned

- **Interoperability**
  - Individual agency systems (Integration where applicable)
  - Tools for ‘situational awareness’
  - Operational synergies/systems still in progress

Contact

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