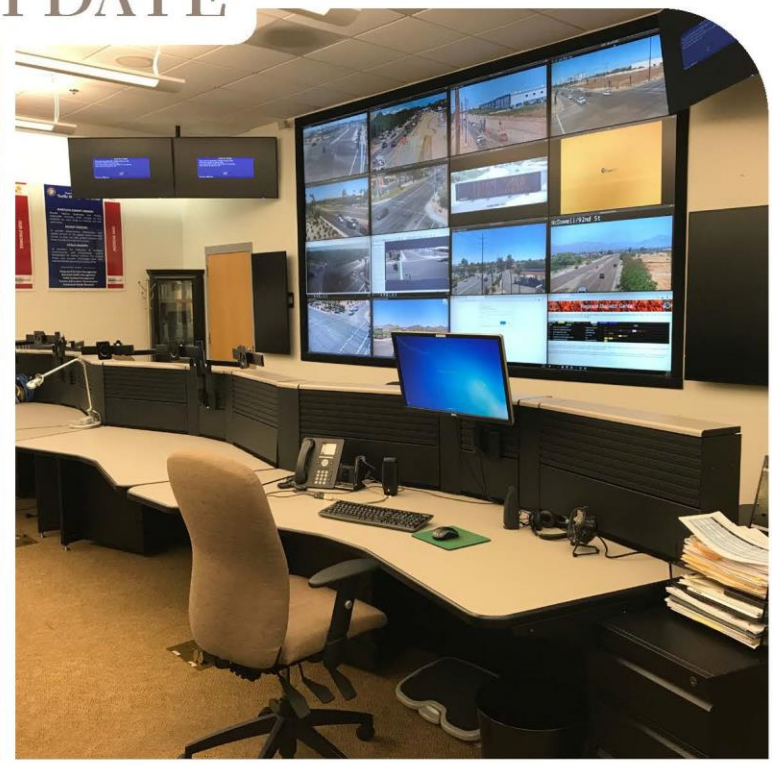
AZTech OPERATIONS IMPLEMENTATION PLAN

2020 UPDATE



Acknowledgments

AZTech would like to acknowledge the partnership's public and private partners:

Arizona Department of Public Safety

Arizona Department of Transportation

Arizona Division of Emergency Management

Arizona State University

University of Arizona

City of Avondale

City of Buckeye

City of Chandler

City of Glendale

City of Goodyear

City of Mesa

City of Peoria

City of Phoenix

City of Scottsdale

City of Surprise

City of Tempe

Town of Fountain Hills

Town of Gilbert

Town of Paradise Valley

Town of Queen Creek

Federal Highway Administration

Maricopa Association of Governments

Maricopa County Department of Emergency Management

Maricopa County Department of Transportation

Maricopa County Sheriff's Office

Phoenix Sky Harbor International Airport

Valley Metro

Phoenix Fire Department

Arizona Broadcasters Association

Kimley-Horn

List of Acronyms

AOC – AZTech Operations Committee

ARID – Anonymous Re-Identification Device

ASSC – AZTech Strategic Steering Committee

ATCMTD – Advanced Transportation and Congestion Management Technologies Deployment

ATIS – Advanced Traveler Information system

ATMS – Advanced Traffic Management System

ATSC – Adaptive Traffic Signal Control

CCTV – Closed-circuit Television Camera

CV/AV – Connected and Automated Vehicles

DSS – Decision Support System

EMS – Emergency Medical Service

HR – Human Resources

ICM – Integrated Corridor Management

IGA – Intergovernmental Agreement

ITS – Intelligent Transportation Systems

JPO – Joint Program Office

M&C TF – Media & Communications Task Force

MAG – Maricopa Association of Governments

MDI – Model Deployment Initiative

RADS – Regional Archive Data System

TIM – Traffic Incident Management

TMC – Traffic Management Center

TMC OWG – TMC Operators Working Group

TSMO – Transportation Systems Management and Operations

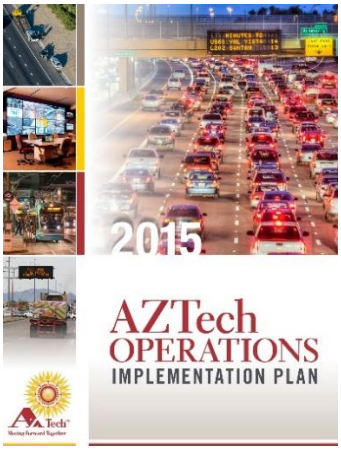
USDOT – United States Department of Transportation

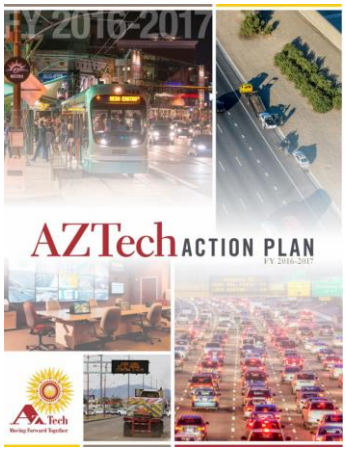
1. Purpose of the AZTech Operations Implementation Plan

AZTech began as a Federal Highway Administration (FHWA) Intelligent Transportation Systems (ITS) Model Deployment Initiative (MDI) for the Phoenix metropolitan area in 1996. As part of the MDI, AZTech's mission was to provide a champion for the integration of intelligent transportation and communication systems technologies focused on the creation and expansion of regional solutions that reduce travel time, reduce travel cost, and improve the safety of the traveling public.

AZTech has evolved into an ongoing regional operations initiative that continues to pursue opportunities resulting in increased inter-agency collaboration between state, county, regional and local transportation agencies in the greater Phoenix metropolitan region. ***AZTech has become an integrating mechanism that has demonstrated the distinct advantages of a regional operations-related partnership.***

In 2015, the first **AZTech Operations Implementation Plan** was developed that provided a five-year vision for operational strategies and collaboration to help AZTech advance key operations initiatives, such as integrated corridor management (ICM), expanding the Traffic Incident Management (TIM) Coalition, developing a business case for transportation systems management and operations (TSMO), and preparing for next-generation system management and operations. The 2015 Implementation Plan was used as the foundation for the **AZTech Action Plan**, where each of the AZTech Committees and Working Groups identified specific projects or initiatives that they wanted to pursue on an annual basis. The Action Plan identified project champions, key resources needed, and performance metrics to measure outcomes resulting from the project or initiative. The AZTech Action Plan has been updated annually since 2016 and continues to drive the priorities and initiatives of each of the Committees and Working Groups.





The year 2020 marks the sunset of the 5-year horizon of the 2015 Implementation Plan. The AZTech Partnership took this opportunity to review key focus areas and set new priorities in light of recent successes in TSMO, changes to the regional and national transportation operations and policy environment, and evolution and advancements in transportation technologies.

The **AZTech Operations Implementation Plan Update**:

- Documents key successes since the 2015 plan;
- Updates the previous strategic focus areas for the AZTech Partnership;
- Highlights key priorities for each AZTech Committee/Working Group, and
- Establishes the framework to guide the next series of updates to the AZTech Action Plan.

2. AZTech Highlights and Successes

Since the development of the 2015 Implementation Plan, AZTech partners have advanced several important initiatives and priorities and have led and contributed to a variety of successes to advance TSMO in the region, as well as the nation. Some of these successes are highlighted here. The AZTech Traffic Management and Operations Performance Indicators Book (years 2017 and 2019) can be referenced for comprehensive documentation of all of the AZTech successes and initiatives.

AZTech Media and Communications Task Force

In 2017, the previous AZTech Advanced Traveler Information system (ATIS) Working Group was phased out to make way for the AZTech Media and Communications Task Force. This group was put in place to engage public information officers from AZTech partner agencies to support initiatives with input and collaboration from news media representatives. The goal of the Task Force is to increase safety and mobility in the region by improving the quality, accessibility, and timeliness of traveler information that is provided to the public.

In its first couple of years, the Task Force took on five key activities and initiatives related to its goals and mission, and have either successfully completed or are in progress on all of these initiatives, including:

- Plan Media & Transportation Forum to exchange ideas and identify gaps in traveler information (Forums have been held in February 2018 and October 2019)
- Assess the feasibility of camera access by the media (proposed guidelines for sharing local agency camera images with the media have been developed and presented to other AZTech Committees)
- Identify best practices/protocols to contact other jurisdictions
- Develop a standard for disseminating information on alternative route information (included in current Loop 101 Mobility Project effort)
- Promote AZTech Performance Indicators Book (updated structure and process for developing the Performance Indicators Book has been set and will take effect starting in 2020).

Bell Road Adaptive Signal Control Technology Pilot Project

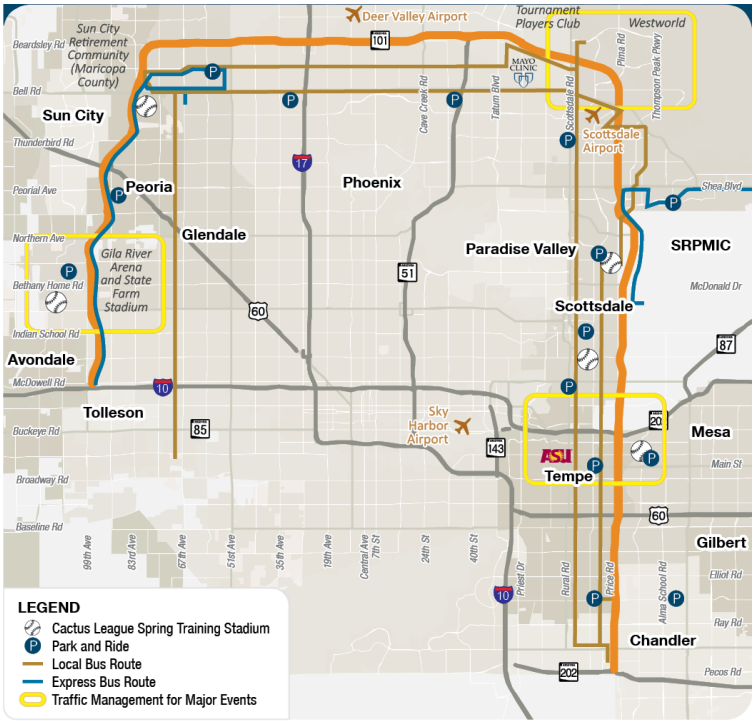
A multi-agency adaptive traffic signal control (ASCT) project has been deployed on over 15 miles of Bell Road at 50 intersections owned by the Cities of Surprise, Peoria, Glendale, Phoenix and Scottsdale as well as Maricopa County and ADOT. The system was officially activated on February 7, 2018. A unique feature of this pilot is that the corridor is divided into four project areas where three different ASCT systems are deployed. Selection of the ASCT for each area was driven by the agency partners, their existing systems, and by the priority operational issue of the ASCT

deployment, which ranged from special event traffic management, peak-hour traffic management, and traffic progression.

Initial evaluation results of the Bell Road pilot project showed an average improvement of 16% for corridor travel times, with improved travel times being experienced in both eastbound and westbound directions. One segment of westbound Bell Road was calculated to experience a 34% reduction in travel time in the afternoon peak commute period. In addition to the improved corridor operations, this deployment highlights the successful coordination among AZTech partners and the ability to coordinate between difference systems. It also provided a variety of lessons learned that will inform future advanced corridor operational strategies and improve the likelihood of future successes. The project was programmed through MAG Transportation Improvement Plan funding and MCDOT led the design and development of the project.

Loop 101 Mobility Project

In 2017, AZTech partners continued to support and expand the Loop 101 ICM initiatives through the Loop 101 Mobility Project. This project was awarded federal grant funds through the Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program to explore implementing ICM for the entire Loop 101 corridor, expanding from the initial pilot corridor through Scottsdale. The Loop 101 Mobility Project will implement ICM through a Decision Support System (DSS), which will collect and use real-time and preset data to assess and recommend the best response plan (detour route, signal timing plans, traveler messages, ramp meter operations) for the circumstances.



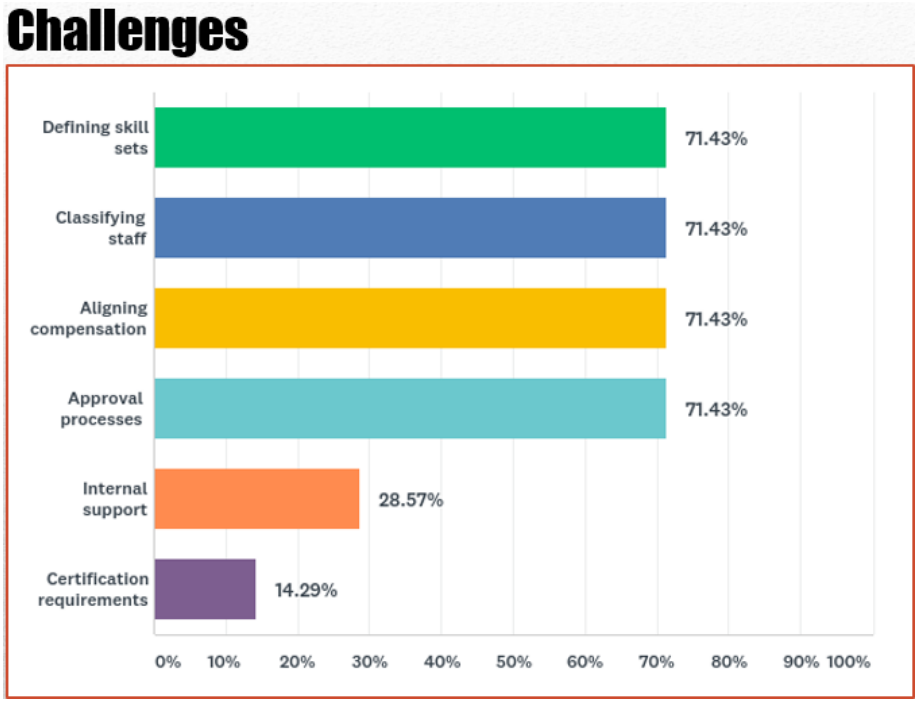
The Loop 101 Mobility Project is currently underway and grant-funded activities will continue through 2022.

After the completion of the grant-specific activities, the results of the Loop 101 Mobility Project, including technologies, infrastructure, processes, and partnerships will continue to be operated, maintained, and enhanced by AZTech Partners.

AZTech Workforce Development and TSMO Job Descriptions

The rapid and continual changes to the transportation environment have created a greater need to focus on staffing and workforce for TSMO. Recognizing the need for a more in-depth look at the different levels of staff depth and capability, AZTech identified a priority action to develop job description guidance and information on characteristics such as position duties, responsibilities, requirements, and desired experience levels for various TSMO and ITS roles.

The primary outcome of the AZTech Workforce Development project was to provide an easily accessible tool that agencies can use to guide the development of updated or new TSMO job positions and descriptions.



The TSMO/Human Resources working session held in April 2018 was an interactive information exchange between transportation operations and agency Human Resources staff. This working session promoted better understanding of unique TSMO workforce needs and identified ways that the AZTech partnership can address current workforce needs, better prepare for future needs, and partner with agency HR groups to recruit and retain staff with the skill sets needed by TSMO.

The input captured from this working session was combined with agency feedback from a survey and the current job description exploration. The AZTech TSMO Job Description Tool was developed and made available to AZTech partners. This tool includes:

- A *Job Description Generator* that can be used by agency transportation and HR staff to provide guidance for the development of job descriptions for TSMO-related staff and would eliminate the need for agency staff to collect and review job descriptions from other agencies;
- A compilation of *Certification Resources and Training Resources* that provide information about various training and certification programs offered by different organizations that are relevant to TSMO, ITS, and Traffic Operation; and
- A compilation of *General Salary Ranges*, which provides representative salary ranges for TSMO positions across agencies in Maricopa County, Arizona that be used as an input when identifying a salary for a TSMO position.

The AZTech Committees and Working Groups also identified the following key accomplishments since 2015 that helped to advance the 2015 AZTech Focus Areas:

2015 Focus Areas	AZTech Key Accomplishments (2015 – 2020)
We have a well-informed traveling public	• **Arterial data** – expanded data coverage by using Inrix data. Initiated deployment of smart sensors. • **AZTech Media Summits** – successful in heightening collaboration with local media • **Arterial Camera Sharing Guidelines** – established a process to share CCTV snapshots with local media during arterial incidents
We have qualified, well-trained staff and a pipeline of new talent	• **TSMO Job Description Templates** – provides information and resources agencies can reference when developing new job descriptions • **TSMO/HR Working Session** – improved dialogue and understanding related to unique workforce needs for TSMO • **AZTech Central Resource Database** – facilitated agency resource sharing
We leverage our regional infrastructure and partnerships to support proactive system management	• **RADS Expansion** – collection of more data and information (ATSPM, arterial construction restrictions from more agencies, arterial travel times from ARID, 911 dispatch and police data feeds) and dissemination of information to the public via 511 • **TMC Operators collaboration** – shared contact information, best practices on operational strategies, and experiences with systems and technologies • **East Valley ARID Deployment Project** – shared lessons learned between agencies and getting arterial travel times to 511 for a period of time • **Signal Timing Strategy Sharing** – AOC sessions for agencies to share signal timing strategies and lessons learned • **TMC Functions Assessments and White Papers** – baseline assessment of local TMCs and guidance on investments to elevate TMC functionality to support local and regional operations priorities
Incident management is responsive and effective on freeways and arterials	• **ARIS Updates** – expand and improve functionality, especially for new operational strategies (such as ICM) • **TIM Training** – more TIM training sessions held with an increased number of trainers • **TIM Recognition Program** – highlights TIM trainers and trainees who have elevated the success and progress of TIM practices within the region
Our performance measures tell our story	• **AZTech Performance Indictors Book** – tracks and reports on operations performance and promotes partner TSMO successes (bi-annual) • **AZTech Action Plan** – each committee sets priorities and track progress • **ATSPMs** – agency's participation in training to collect and use this data to support elevated arterial intersection performance
Upper management, the public and elected officials appreciate our value	• **Arizona TSMO Summit and Executive Summit** – partnered with USDOT to hold successful and well-attended events • **AZTech Visioning Workshop** – good participation from partner agency executive and operations staff to discuss the next-gen vision for AZTech
Technology supports operations innovation	• **MCDOT Smarter Work Zone Pilot** – pilot testing and subsequent evaluation of use of technology to support work zone management and traveler information • **Adaptive traffic signal systems deployments** – sharing lessons learned from Bell Road ATSC pilot that showcased successful inter-agency coordination and use of multiple systems • **Wireless Technology White Paper** – identified state-of-the-practice and local inventory for transportation communications • **CV Updates** – Staying appraised of state of the practice related to CV/AV • **ATMS Comparison Research Project** – comparing different ATMS systems used in the valley to support agency decision making and investments

AZTech's progress over time is also highlighted in the progression of results from the Capability Maturity Model (CMM) Self-Assessment that AZTech Partners have participated in since 2010. Through the CMM, partners discuss and evaluate capabilities, challenges, and constraints regarding system deficiencies, existing opportunities, and consider what future transportation needs are required to best move people and goods throughout the state.

The complete CMM results over time for the AZTech partnership are shown in the table.

DIMENSIONS	ENTITY	LEVEL 1 PERFORMED	LEVEL 2 MANAGED	LEVEL 3 INTEGRATED	LEVEL 4 OPTIMIZING
BUSINESS PROCESSES	AZTECH	2014 (+)		2019	
SYSTEMS & TECHNOLOGY	AZTECH		2010 | 2014	2019	
PERFORMANCE MEASUREMENT	AZTECH	2010	2014	2019	
CULTURE	AZTECH	2010 (+)	2014	2019	
ORGANIZATION/ STAFFING	AZTECH	2010 (+) | 2014 (+)		2019	
COLLABORATION	AZTECH		2010 (+) | 2014	2019	

Legend	
Gray	2010 CMM Results
Blue	2014 CMM Results
Green	2019 CMM Results
(+)	Plus or + 0.5

AZTech Priority Focus Areas

The 2015 Operations Implementation Plan included seven priority focus areas that were derived from needs and challenges identified by AZTech partners related to ITS and Operations. These priority focus areas were used as the foundation for identifying projects and initiatives that each AZTech Committee or Working Group wanted to pursue as part of their annual Action Plan.

In 2020, the priorities have not dramatically changed, although there is acknowledgement of a need for some shifted focus in order to address the changing operations and technology environment:

- Shifting from a focus on "operations" to a focus on TSMO. This includes identifying ways to emphasize TSMO within the wider project planning process, in addition to operational processes. For example, to truly advance TSMO, it needs to be a foundational part of the roadway design process, and not just something that is included at the end.
- Shifting from the tendency to look at operations at the intersection level to instead consider and understand the implications and needs for operations at the corridor- and system-level.
- Recognition that many partners are still working with "first-gen" systems and technologies, and part of day-to-day functions are not always innovative, but essential to keep existing systems working.
- Evolution of connected and automated vehicles. Development and testing of connected vehicle applications at the Anthem test bed to promote 'intelligent' traffic signal and corridor operations.

The table shows the 2020 AZTech Focus Areas and how and why they have evolved from the 2015 Focus Areas.

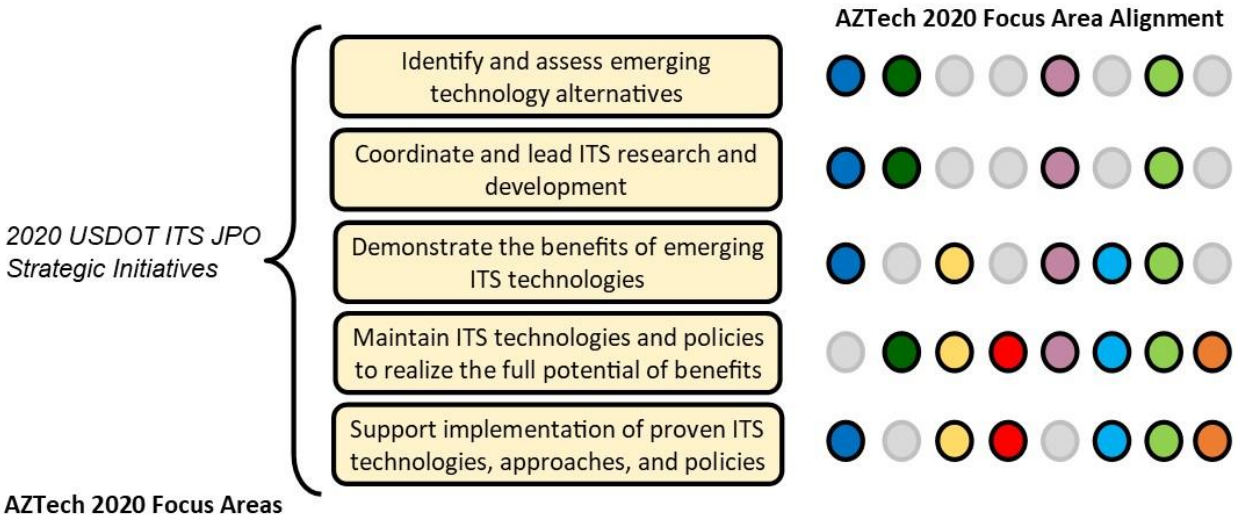
AZTech Focus Areas

2020	Changes from 2015
We actively partner as agencies and with the private sector to provide information to the traveling public	*Expanded to show more collaboration with private sector for information dissemination, and to acknowledge agency roles in reliability of data*
We are focused on developing and training our current and future workforce to meet expanding technical needs for operations	*"Pipeline" continues to be a challenge, so many agencies do in-house/on-the-job training, but still look for ways to outreach to different education institutions.*
We leverage our regional infrastructure, data and partnerships to provide proactive system management.	*Included "data" to emphasize importance of data sharing and management, and to tie in heightened technology-focus*
Incident management is consistently responsive and effective on freeways and arterials	*Need more focus on arterial TIM and involving local law enforcement, but also should expand media/public information relationships*
Performance measures are used to improve operations and demonstrate benefits of collaboration	*Expanded to emphasize use of performance outcomes to improve operations*
Agency leadership, elected officials and the public recognize the impact of our operations focus	*Reconfigured to focus on linking operations efforts to mobility and safety improvements, but still need more intentional outreach to leaders and executives*
We actively deploy and evaluate technologies that support operations and promote safety, innovation and mobility	*Highlight piloting, testing, and evaluating new technologies and the use of technology to make decisions*
We actively maintain a strong foundation of operations infrastructure and assets.	*New focus area – maintaining foundational and existing infrastructure a big part of day-to-day operations*

4. Alignment with Federal Initiatives

AZTech and its partners continually strive to be a national leader and innovator in TSMO. These are highlighted through achievements in both operations and in collaboration and partnering over the years – AZTech partners are frequently the recipient of national recognition for operational strategies and initiatives, innovative technology deployments, and collaboration and partnering.

This recognition is a testament to AZTech's forward-thinking vision and alignment with federal initiatives and priorities related to TSMO and ITS. The synergies between the AZTech focus areas and the 2020 USDOT ITS Joint Program Office (JPO) Strategic Initiatives are shown in the following figure:



5. Initiatives to Advance Focus Areas

Each of the AZTech Committees and Working Groups will play an important role in advancing the 2020 Focus Areas.

The following pages identify the focus areas and categories of initiatives that were identified by the partners that would contribute to addressing the focus areas. In some cases, the group acknowledged that the initiative would take joint efforts and partnering between groups to truly be successful.

The intent is to identify broad initiatives for each focus group that will be more specifically detailed and specified by each committee or working group during the development of respective Action Plans. This process will allow each group to define the actions or projects that they feel best align with their mission and that they are interested in pursuing, while also highlighting those that may benefit from a collaborative effort between committees to fully address.

The **Appendix** provides examples of more detailed actions that each group identified as potential projects or initiatives that they may consider including in their 2020 Action Plan.

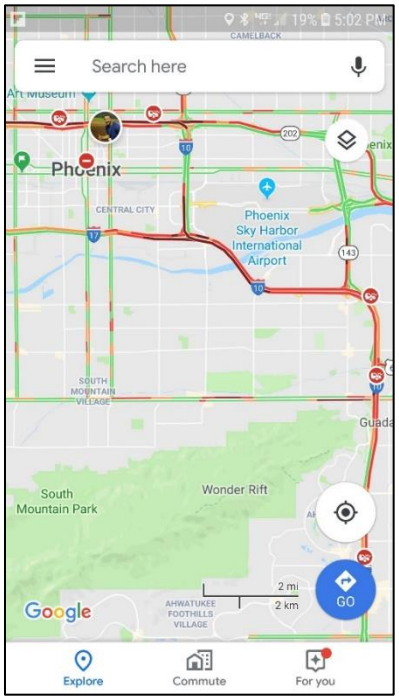
Focus Area: We actively partner as agencies and with the private sector to provide information to the traveling public.

In this day of rapidly evolving technology and influence of social media and staying constantly 'connected', AZTech knows the importance of providing the public with accurate, real-time, and easily accessible information on the conditions of the transportation network. However, public agencies are also realizing opportunities to increase efficiencies and reach a broader audience by focusing on producing the data and information and partnering with companies such as Google, Waze, and others, to distribute data to a much broader range of users.

The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	ASSC	AOC	TMC OWG	TIM Coalition	M&C TF
Exploring collection and use of third party data in RADS to support operational decision making and traveler information		X	X		
Leveraging third party data to support creating comprehensive and timely public information		X	X		X
Exploring partnering with companies like Waze or Google for data, infrastructure, and public dissemination outlets	X	X	X		X
Promoting events to the public and media that highlight operational successes and initiatives	X			X	X

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force



Focus Area: We are focused on developing and training our current and future workforce to meet expanding technical needs for operations.

Rapid and continual changes to the transportation environment have created a greater need to focus on staffing and workforce for TSMO. New skill sets are being required for advanced transportation operations strategies and technologies, and there is an emphasis on data-driven decision making and performance tracking. There is more focus on integrating and managing the transportation system as a network, which requires a higher level of coordination and real-time availability from staff. These factors and more are requiring staff to be flexible and nimble and take on much expanded roles. This is occurring in parallel to a realized shortage of qualified candidates to fill these technical roles.

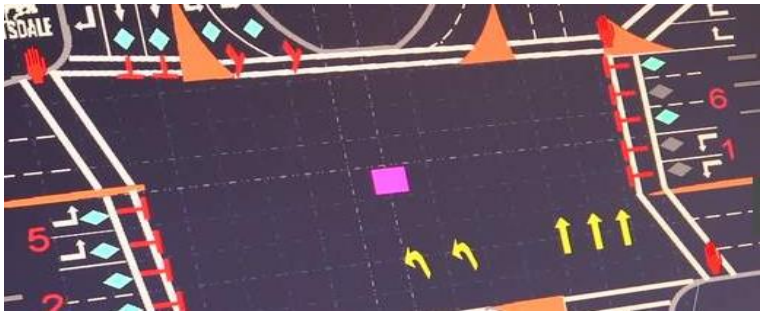
The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Sharing training resources, strategies, and lessons learned for developing TSMO staff (current and future)	X	X	X		
Partnering with targeted educational institutions to promote teaching of knowledge and skills important to TSMO positions	X				
Identifying and communicating key TSMO skill sets to those who have influence on hiring	X	X			
Leverage existing staff with unique skills in the region and utilize them as resources for training and sharing lessons learned	X	X	X		
Exploring advanced technology training opportunities resulting from the evolution of connected and automated vehicle technologies		X			
Re-engage with HR staff who participated in the first HR Working Session to continue the discussion	X	X			

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

Focus Area: We leverage our regional infrastructure, data and partnerships to provide proactive system management.

For more than two decades, the local, county and state agencies in the region have been focused on improving the way the transportation network is managed and operated through a variety of processes, infrastructure, and partnerships. AZTech has been an important forum to centralize discussions, data, and activities to facilitate the widespread, consistent, and efficient use of resources to support this purpose. Investments that highlight this include: the development and regular upgrading of the AZTech Regional Archived Data System (RADS), which created not only a historical archive of operational data, but has also evolved to be a centralized database and data engine for real-time data; or the structures of the various AZTech committees and working groups that allow partners to engage at different levels and with different missions depending on their roles and interest, but that all operate under the umbrella of the AZTech mission. For the update, the partners will continue to partner, innovate, and progress initiatives that create the foundation of AZTech and continue to elevate TSMO for the region.



The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	ASSC	AOC	TMC OWG	TIM Coalition	M&C TF
Elevating arterial data/information availability and reliability (ex: construction information, TIM data)	X	X		X	
Participating in ICM and advanced operational strategy planning and decision making	X	X	X	X	X
Identifying untapped/underutilized data sources and making data more usable and accessible (ex: ARID devices)		X		X	
Sharing and using regional resources and tools within the Central Resource Database	X	X	X	X	

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

Focus Area: Incident management is consistently responsive and effective on freeways and arterials.

The AZTech partnership has been dedicated to improving safety and operations since its inception, and the management of incidents on both freeways and arterials is a key component. Effective incident management helps keep responders and drivers safe, reduces the likelihood of secondary crashes, decreases delay resulting from incidents, and can reduce the time it takes to respond to incidents. While the TIM Coalition has a specific focus on promoting collaboration for regional traffic incident management, all AZTech Partners play a role in collaborating for safer and more efficient management of incidents that occur on, or significantly impact, the region's roadways.

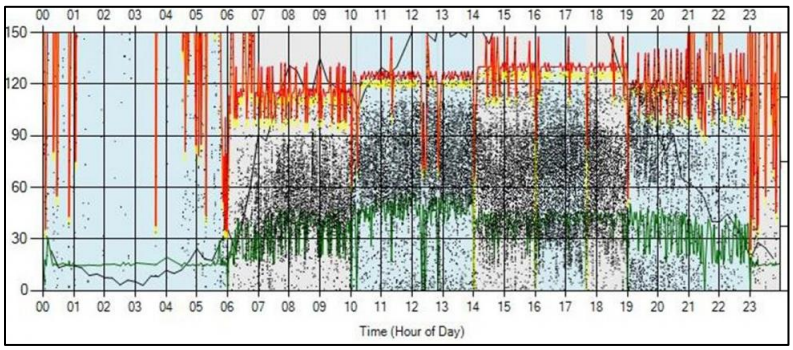
The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Sharing TIM successes, best practices, and lessons learned to improve incident management		X	X	X	
Garnering interest in TIM training among local emergency responders and decision-makers	X	X	X	X	
Expanding media coverage of TIM activities (ex: Move Over/Quick Clearance) and benefits				X	X

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

Focus Area: Performance measures are used to improve operations and demonstrate benefits of collaboration.

Measurable benefits have accompanied AZTech and partner agency efforts and applications in ITS and advanced operations strategies such as signal timing optimization, freeway ramp metering, and adaptive traffic signal control. These successes have elevated the need to actively measure the operational performance of the regional transportation network to show that these investments are important investments of agency resources. The collection, tracking and reporting of performance measures helps AZTech monitor the implementation and effectiveness of its strategies and identify gaps between actual and targeted performance.



The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Tracking and documenting success stories and lessons learned in the Performance Indicators Book	X	X	X	X	X
Identifying and collecting influential/impactful TSMO/TIM performance measures for internal and public reporting	X	X	X	X	X
Advancing tools to support effective use of operational data that is available (ex: ATSPM) for performance-based operations	X	X			
Exploring ways to standardize and centralize collection of key TIM performance measure data				X	

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

Focus Area: Agency leadership, elected officials, and the public recognize the impact of our operations focus.

In a time when resources are limited, it is important for AZTech Partners to be able to communicate the value of AZTech's efforts and investments in ways that are understandable and meaningful to leadership and the public. Going hand-in-hand with a focus on performance measurement, garnering support from decision makers and the public for investing in ITS and supporting collaboration is essential to AZTech's current and future mission of advancing technology and operations in the region.

The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Identifying and reporting to management the tangible benefits that operations/TIM brings to an agency	X			X	X
Supporting a recurring Executive TSMO Summit and promoting attendance from agency leadership	X	X			X
Developing outreach products that communicate TSMO in terms that align with interests of agency leadership (ex: Smart Cities)	X	X			X
Promoting media coverage of TIM or TSMO-related events and outcomes (ex: National TIM Week; traffic management successes for large scale events like the Super Bowl; deployment of new infrastructure like Bell Road Adaptive or TMC upgrades)	X	X		X	X
Leveraging MAG's platform to highlight TSMO at a regional level	X	X			

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

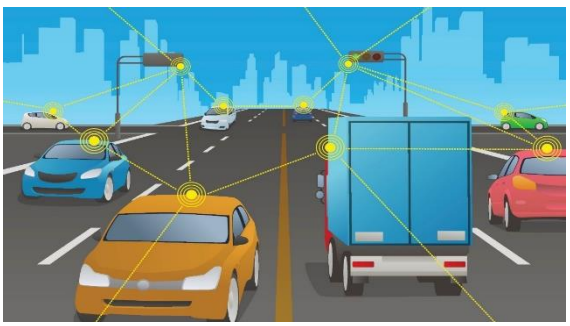
Focus Area: We actively deploy and evaluate technologies that support operations and promote safety, innovation and mobility.

As an operational partnership, a benefit that AZTech provides to the region is a forum to create consensus and a shared way forward in terms of transportation operations and management. This includes both operational processes and technologies. As such, AZTech can provide a platform to support partner agencies the region for testing and evaluating different and emerging technologies that support operations, sharing that information with others, and sometimes identifying a regional approach to deploying or using a technology. This helps the region stay informed, avoid duplicating efforts, and make efficient investments in transportation technologies and systems.

The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

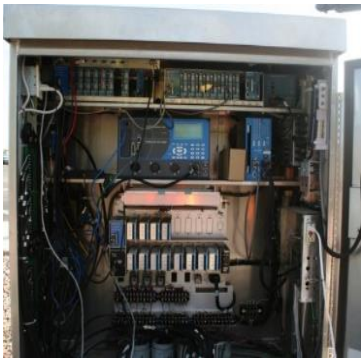
Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Exploring ways that AZTech and its partners can be preparing for automated vehicles	X	X		X	
Investigating ways to leverage findings from the MAG Emerging Technology Pilot Program from an operational perspective	X	X			
Coordinating on piloting/testing of new technologies, including those for decision support systems and advanced corridor management strategies, to avoid duplicating efforts and to create useful guidance for other agencies	X	X	X		
Staying informed on the status of connected vehicle technologies and deployments		X			
Promoting compatibility between new technology and systems and legacy equipment and systems		X			

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force



Focus Area: We actively maintain a strong foundation of operations infrastructure and assets.

In a world of rapid technology innovation, the AZTech partners want to elevate the focus on maintaining the baseline infrastructure, systems, and processes that created the foundation for traffic and transportation operations in the region. Without allocating time and investment in maintaining and keeping operational legacy equipment and systems, such as traffic signals, cabinets, or central management systems, the region will not be able to pursue the cutting-edge technologies and strategies that will help advance operational efficiency and safety of the regional transportation network.



The AZTech Partners identified the following ways that the different Committees and Working Groups can help advance this focus area in the near-term:

Initiatives to Support the Focus Area	**ASSC**	**AOC**	**TMC OWG**	**TIM Coalition**	**M&C TF**
Sharing information on successful asset management and lifecycle planning processes and practices		X			
Explore possibilities for, and implications of, various models for device and system maintenance	X	X			
Sharing information on maintenance and upgrade techniques		X	X		

ASSC = AZTech Strategic Steering Committee;
AOC = AZTech Operations Committee;
TMC OWG = TMC Operators Working Group;
TIM Coalition = Traffic Incident Management Coalition;
M&C TF = Media & Communications Task Force

Appendix A – Example Actions by AZTech Group

AZTech Strategic Steering Committee

2020 Focus Areas	Ways ASSC Can Advance Focus Area

We are focused on developing and training our current and future workforce to meet expanding technical needs for operations	• Sharing information on in-house training that agencies are doing to train their staff
	• Use lessons learned to reach out to colleges and technical schools to present or suggest coursework focuses
	• Identify the type of student that would best fit new types of technical roles (traffic, IT, data)
	• Revisit workshop outcomes and better leverage HR partnership
	  ○ Re-engage HR staff
	  ○ Leverage existing staff at agencies in the region who have skill set that is needed (ex: between technology operations – LeShawn, Arthur) and work with HR to see how to support development and hiring for this job description at other agencies (including salary and qualifications)

We leverage our regional infrastructure, data and partnerships to provide proactive system management.	• Consider ways to leverage MAG's platform as a way to highlight operations (bigger picture successes, initiatives) at the regional level (to management and other departments)
	• Participate in ICM discussions related to policy, DSS parameters, and collaboration
	• Collaborate with AOC and TMC OWG to strategize how to make operations data usable and accessible, potentially through trainings
	  ○ Need to find ways to more effectively and efficiently use technologies that are deployed (ex: ARID data)
	• Work to use/share resources in the central resource database more frequently
	• Need to get better arterial construction information out to public and other agencies
	  ○ And consider how to best make use of information/data on a regional basis

Performance measures are used to improve operations and demonstrate benefits of collaboration	• Revamp of PI book to capture stories and successes continually, rather than only every 2 years • Support AOC in exploring ways to **use** ATSPM data after it is collected

Agency leadership, elected officials and the public recognize the impact of our operations focus	• Help highlight to agency management the tangible benefits that operations/TMCs brings to your agency
	  ○ Explore how to leverage hype in 'smart cities' to highlight and bring investment to ITS/operations, especially what partners are already doing
	• Support conducting an executive summit on recurring basis and getting agency executives to attend (partnership between all committees to engage leadership)
	  ○ Consider conducting east valley/west valley summits to attract more agency leadership participation

2020 Focus Areas	Ways ASSC Can Advance Focus Area

We actively deploy and evaluate technologies that support operations and promote safety, innovation and mobility	• Partner with MAG's emerging technology pilot program staff to explore the best way to create a single/consistent source of information/results for agency leadership to reference on the evaluation and usefulness of new technologies. This will reduce the need for each agency to evaluate a technology independently (reduce duplication of efforts) and help inform whether or not an agency wants to use a particular technology.
	  ○ Be the voice to remind leadership and others of why we are using technologies and what makes them useful (align with core focus of efficiently moving traffic)
	  ○ Consider how AZTech can be used as a forum to inform evaluation results from an operational standpoint (i.e. lessons learned from different agencies who have tested/deployed a technology on what has worked and what has not) – should be a collaboration between ASSC, AOC, and TMC OWG
	• After new technologies are deployed, work with AOC to up with ways that agencies can more effectively use them (ex: ARID)

We actively maintain a strong foundation of operations infrastructure and assets	• Share information and lessons on asset management programs or processes/techniques, including for lifecycle planning/replacements, and devices upgrades, that have worked • Consider implications of different potential maintenance mechanisms, such as regional maintenance contracts, IGAs for maintenance, etc. on agencies and the region

AZTech Operations Committee

2020 Focus Areas	Ways AOC Can Advance Focus Area
We actively partner as agencies and with the private sector to provide information to the traveling public	• Need to better utilize available third party data for operational decision making and for public dissemination (including a focus on ICM response) • Explore partnering with companies like Waze, Google, or others that are not yet identified (related to smart cities) for both data, infrastructure, and public dissemination outlets • Develop an AZTech Traveler Information White Paper and identify actions to advance traveler information • Explore needs for RADS upgrades to support data processing for traveler information

We are focused on developing and training our current and future workforce to meet expanding technical needs for operations	• Pursue more internal resource sharing among group and with ASSC and TMC OWG, including operational strategies, internal training, and staff who may have skill sets that can be leveraged by other agencies
	  ○ Continue to learn what each agency is doing, see what others might want to get more information about, and provide a forum to share that information
	• Partner with ASSC to engage with agency HR to see how to support development and hiring for next generation of operations and tech staff (including salary and qualifications)
	  ○ Support/advocate for internship positions at your agency and help develop/contribute to training materials or intern guidelines/ responsibilities

We leverage our regional infrastructure, data and partnerships to provide proactive system management.	• Need to get more data disseminated for arterials – strategize on what data is needed, how to get it, how accurate is it, and how valuable is it (ex: constriction restriction information) – need to take it to the next step and use it on a regional level • Participate in ICM discussions related to operational strategies, traveler notifications, infrastructure DSS parameters, and collaboration • Collaborate with ASSC and TMC OWG to strategize how to make operations data usable and accessible, potentially through trainings ○ Need to find ways to more effectively and efficiently use technologies that are deployed (ex: ARID data) • Work to use/share resources in the central resource database more
Incident management is consistently responsive and effective on freeways and arterials	• Share success stories and good practices related to coordination and data sharing between agency operations and local TIM responders

2020 Focus Areas	Ways AOC Can Advance Focus Area
Performance measures are used to improve operations and demonstrate benefits of collaboration	• Revamp of PI book to capture stories and successes continually, rather than only every 3 years • Need to keep working on how to collect and, more importantly, **use** ATSPM data
Agency leadership, elected officials and the public recognize the impact of our operations focus	• Help to bridge leadership's idea of 'smart cities' with what agencies are already doing in the ITS/operations world – this will help communicate to agency leadership our worth in a language that they care about • Support AZTech conducting an executive-level summit on a recurring basis and encourage agency executives to attend (need a partnership between all committees to engage leadership)
We actively deploy and evaluate technologies that support operations and promote safety, innovation and mobility	• Work with ASSC on strategies to engage with the MAG Emerging Technology Pilot program to provide an operations perspective to technology testing and deployments (including things like ability of emerging technologies to be integrated into existing systems) ○ Share experiences using different technologies and systems and provide input to AZTech on what is working and what is not in relation to technologies and systems • Need to have a good understanding of what different agencies are doing in terms of emerging technologies and operational strategies and come up with a way to identify what is appropriate for different agencies – the goal is to support agencies in making strategic investments to pilot and test technologies and avoid duplicating efforts • After new technologies are deployed, discuss ways that agencies can more effectively use them (ex: ARID) and coordinate with the ASSC on findings • CV deployment, integration, testing, training • Operations and impact on AV, and AV influences on operations • Explore the compatibility between new technologies and legacy ITS technologies
We actively maintain a strong foundation of operations infrastructure and assets	• Share information and lessons learned on asset management programs, processes and techniques that have been effective • Share information and lessons learned on maintenance techniques, lifecycle planning/replacements, and device upgrades • Consider implications of different potential maintenance mechanisms, such as regional maintenance contracts, IGAs for maintenance, etc. on agencies and the region

TIM Coalition and TMC Operators Working Group

2020 Focus Areas	Ways TIM Coalition and TMC Operators Working Group Can Advance Focus Area
We actively partner as agencies and with the private sector to provide information to the traveling public	• Partner with other committees to understand the best ways to communicate information about a crash to the public, and include these in TIM discussions
We leverage our regional infrastructure, data and partnerships to provide proactive system management.	• Collaborate among committees to make sure that necessary input is provided during development of a DSS – this includes participation from REACT, DPS, local agency first responders to make sure that DSS has all necessary inputs to make informed recommendations ○ Use Loop 101 Mobility Project as a way to discuss a strategy of collecting critical data to support real-time operations, regular after-action debriefs, and TIM performance reporting • Work with other committees to share useful information or resources through the AZTech central resource database • Partner between these two committees to discuss outcomes of smaller, more day-to-day incidents, as these are where the most cumulative impact can be made in terms of response and clearance time (as opposed to big incidents that involve many external factors that impact response and clearance time)

Incident management is consistently responsive and effective on freeways and arterials	• Need to find the right people at local agencies to make the case for TIM training – learn from other agency successes and leverage partnerships
	  ○ Garner responder interest in TIM through an Arizona TIM Conference, publicizing TIM Awards, and other activities that provide recognition to TIM-trained responders
	  ○ May start with City of Peoria, who is working on getting all of their staff trained and having it be a priority in the department
	• Create a strategy to reach out to the Arizona Emergency Medical Service (EMS) to encourage the department to train their crews – may include messages based on data, such as the 'struck by' exposures risk assessment data

Performance measures are used to improve operations and demonstrate benefits of collaboration	• Support development of new AZTech Performance Indicators book with data and stories on a continual basis ○ Partner with Media Task Force to provide TIM success stories as they occur so that they can be documented and disseminated • Get TIM dashboard linked to collision databases of agencies who are interested • Foster better collaboration between TIM Coalition and TMC Operators Working Group to come up with a strategy to consistently gather information and calculate key TIM performance metrics, such as response and clearance time

2020 Focus Areas	Ways TIM Coalition and TMC Operators Working Group Can Advance Focus Area

	• Work with ADOT to identify strategies to improve number of agencies reporting on TIM performance measures and consistency of reporting.
	  ○ Coordinate with ADOT staff who are responsible for crash data to share processes and ideas about how to improve crash data collection
	  ○ Within the TIM Coalition, identify key barriers to updating crash forms (ex: vendor won't update to include the new crash report) and consider engaging with FHWA on ways to address this (there is already a significant amount of work going on through the US DOT JPO on TIM)
	  ○ Have representatives from the TIM Coalition attend an ADOT transportation safety meeting to discuss TIM and performance metrics – promote why it is important and get them to help promote it

Agency leadership, elected officials and the public recognize the impact of our operations focus	• Support organization of and participation in public events that highlight TIM (Move Over Day, National TIM Week) • Work with Media Task Force and agency PIOs to promote events and have media attendance at events to help tell our story in a method accessible by the public

We actively deploy and evaluate technologies that support operations and promote safety, innovation and mobility	• Discuss how the Coalition will engage with emerging technologies, such as autonomous vehicles
	  ○ FHWA HQ is working directly with OEMs on this – research what FHWA is doing and present at a TIM Coalition meeting to get feedback and identify questions to be answered.
	  ○ Engage City of Chandler PD to have them present on their efforts developing processes for how to manage/respond to incidents involving AVs