I. OVERVIEW

The Federal Highway Administration (FHWA) is encouraging states to shift their focus from a “build culture” to an “operations culture,” and to use the infrastructure they have built to better manage congestion and improve safety. Historically, federal funding has focused on building infrastructure with little allocated for operations and maintenance of the transportation systems; cities, counties, metropolitan planning organizations (MPOs) and states have had to find that funding. To leverage the investment already made, and to meet the public demand for a safe and efficient transportation system, the FHWA has identified ten “Opportunity States,” which includes Arizona. The states were identified using criteria including:

- Congested metropolitan areas
- Key management and operations elements in place
- Transitioning to an operations organization

The FHWA is asking that each state develop an Operations Vision and Action Plan. The goal is to have states shift their focus to reflect operations in organizational structure and decision-making and to incorporate operations into strategic planning processes and alignment of resources. As a result, the intention is to have operations-focused projects be on equal par with build projects when it comes to funding allocation. Arizona is beginning this planning process with the Phoenix Metropolitan area.

History

AZTech™ began as an 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. Since completion of the MDI, AZTech™ has evolved into an ongoing regional operations initiative that continues to pursue opportunities resulting in increased inter-agency collaboration between state, County, MAG, cities and towns across the greater Phoenix metropolitan region. AZTech™ has become an integrating mechanism that has demonstrated the distinct advantages of a regional operations-related partnership. The AZTech™ Operations Committee is supporting the FHWA in the development of this plan.
Participants

Sgt. Ann Fitzgerald – DPS
Lt. Jenna Mitchell – DPS
Arkady Bernshteyn – Metro Light Rail
Avery Rhodes – City of Glendale
Bob Steele – MCDOT
Brian Moberly – City of Surprise
Bruce Dressel – City of Scottsdale
Carl Jager – MCDOT
Cristina Herrera – MCDEM
Cynthia Lopez – MCDOT
Darrell Bingham – ADOT
Debbie Albert – City of Glendale
Barbara Hauser – MCDOT
Debra Bieber – City of Chandler
Eric Hillyer – MCDOT REACT
Faisal Saleem – MCDOT
Farzana Yasmin – ADOT
George Frangos – City of Phoenix
Gus Woodman – City of Avondale
Israel Lopez – MCDOT
Jeff Jenq – City of Mesa
Jennifer Brown – FHWA
Jim Michalak – Town of Fountain Hills
Leo Luo – MAG
Lydia Warnick – ADOT
Marshall Riege – City of Phoenix
Mike Nevarez – Phoenix Public Transit
Nicolaas Swart – MCDOT
Patricia Manos – MCDOT REACT
Peter Petrotta – Town of Fountain Hills
Steve Blair – City of Peoria
Steve McKenzie – City of Peoria
Valarie Vacanari – ADOT
Claudia Murphy – CMC, Inc., Facilitator
Heather Mignacca – CMC, Inc., Admin

Definition of Operations

In the region, there is no consistent definition of the term “operations.” Some organizations use the term to describe roadway maintenance related activities such as pothole filling, pavement sealing and other rehabilitation actions. The term “operations” in the context of this plan is defined as management of transportation systems and traffic flow to enhance safety and mobility through the application of ITS technology and regional collaboration.

ITS is a relatively new discipline that took shape in 1990’s. The goal of ITS is to improve safety and efficiency of transportation systems through the application of technology to enhance real time traffic management. The function of ITS professionals is complex and multi-disciplinary; they plan, design and implement integrated signal systems, traffic information systems, incident management systems, traffic monitoring systems and enabling communications systems to support civil and traffic engineering concepts through the application of knowledge in systems engineering, information technology and incident management practices.

Opportunity States Profile

The FHWA has identified some common characteristics of the end goal for states that have an operations culture:

- They are committed to customer service
- Accountable for investment and strategies
  - Actively involves the public in how they are performing
  - Continually strives to optimize operational decisions
• Strategic in allocation and management of resources
  – Planning
  – Program funding
  – Service delivery

Outcomes for the FHWA Opportunity States Planning

• Assist Opportunity States to make a cultural shift that includes operations as a core responsibility.
• Increase the pool of states where comprehensive operations is successfully making a difference in reducing congestion.
• Capitalize on opportunities to capture lessons learned on how states change to institutionalize operations.
Note: The following Operations Action Plan is ordered and numbered in order to facilitate discussion and enhancement. The order of vision statements does not illustrate priority order. All areas will be developed and worked on.

### III. Vision and Action Steps

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<tr>
<th>Vision Statement</th>
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| **1.0 We Have a Well-informed Traveling Public** (Customer Service) | 1.1 Travel Time | - Enhance 511 phone system and az511.com website for easier user access to travel time information.  
- Explore potential to relate current travel times to average travel time to convey difference from norm.  
- Study feasibility of providing travel time or congestion status information for both freeways and arterials on arterial DMS and/or static signs with DMS component for time/status. If feasible, implement the system on a test corridor.  
- Review and evaluate other travel time dissemination methods including, but not limited to, traditional and social media (Twitter, Facebook, Nixle, etc.).  
- Expand dissemination of travel time during peak commute hours from twelve freeway DMS to appropriate decision point locations within the Phoenix Metro FMS. |
| | 1.2 Other Public Information Dissemination | - Expand TMC traffic condition email alerts to media.  
- Have peer to peer sharing/education of how to send email alerts.  
- Develop policies for social networking dissemination vehicles (i.e. Twitter).  
- Develop ways to get helicopter information/images back to partners in transportation and emergency response.  
- Expand the use of DMS to support emergency management and for special event information dissemination.  
- Explore possibility of IGA with commercial electronic billboard companies for coordinated use of their signs for urgent messages. (Example Amber Alerts)  
- Develop and utilize reverse 511. |
| | 1.3 Information Clearinghouse | - Continue using and advertising 511 as one-stop traveler information center.  
- Incorporate a centralized mechanism through 511 system for public feedback (i.e. signal outages, signal timing, etc) with call-forwarding feature to local jurisdictions. (Might need outreach on traffic engineering focus and capabilities to manage public expectations)  
- Share information on multi-modal alternatives.  
- Advance public awareness related to signal operations, traveler info, system tools, etc. |
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| 2.0 Performance Measures Tell    | 2.1 Develop Regional Performance Measures  | - Decide on and develop regional baseline measures.  
| Our Story                        |                                            | - Begin identifying, gathering and analyzing data that feeds the measure.  
| (Performance Measures)           |                                            | - Develop benefits comparison between ITS/Ops and construction.                                                                                                                                                                                                               |
|                                  | 2.2 Utilize a Regional Scorecard          | - Develop a regional report card for ITS.  
|                                  |                                            |  - Create an implementation plan that addresses process of data collection, roles and monitoring.  
|                                  |                                            |  - Influence public perception of ITS using performance measures. (Idea from AEC input: Base the measures on corridors to identify areas in region that work or need help because of bottlenecks. Use for developing priorities for funding and improve regional mobility.) |
| 3.0 Upper Management, the Public | 3.1 Arizona Operations Academy            | - Host Arizona Operations Academy with three targets – 1) elected and appointed officials, executive leaders, 2) Operations Technical Staff and 3) GITA – Government IT Advisory Board.  
| and Elected/Appointed Officials   |                                            |  - Intention is to create a desire to influence, fund and support ITS.  
| Understand and Appreciate Our    |                                            |  - There is money available for 2009-2010. If successful, will repeat every X years to incorporate new leaders and staff.  
| Processes)                       |                                            |                                                                                                                                                                                                                                                                            |
|                                  | 3.2 ITS Talking Points and Outreach       | - Create a group from within the ITS community that can successfully bring these stories (academy and talking points) to executive and appointed officials in order to be able to visit these individuals on their turf.  
|                                  |                                            |  - Develop consistent region-wide talking points to provide to upper management as well as customers.  
|                                  |                                            |  - Create management level package and presentation that explains ITS.  
|                                  |                                            |  - Develop new city council orientation to ITS.  
|                                  |                                            | - Develop benefits comparison between ITS/Operations and construction.  
|                                  |                                            | - Create a “Citizen’s Academy”.  
<p>|                                  |                                            | Note: ADOT Communication and Community Partnerships (CCP) and City/County PIOs should be engaged in the development and outreach.                                                                                                                        |</p>
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| **4.0 There Are Seamless Operational Partnerships Between Agencies and Departments Within Agencies**  
(External – Between Police, Fire, Transportation, Transit, etc. Internal – Between IT, HR, JPA Branch, Procurement, Public Works, etc.) | **4.1 Policy** | • Allow policy change, as needed, to alert travelers to take alternate routes. |
|  | **4.2 Relationships** | • Feasibility study to determine challenges for joint operations (i.e. technical, policy, staffing).  
• Develop a regional Operations IGA.  
• Improve communication with ADOT Maintenance to address issues such as encroachment permits and activities that may impact RCN operation.  
• Develop relationships with schools and large employers as partners in congestion mitigation.  
• Encourage executive level participation in relationship building.  
  
**Note**: actions under other emphasis areas may also need policy change, support and coordination within and amongst agencies |

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| **5.0 We Leverage Our Regional Infrastructure for Operational Efficiency and Redundancy**  
(Infrastructure) | **5.1 Signal Coordination** | • Advance real time inter-jurisdictional signal timing data exchange by posting current timing plans on the Regional Archived Data System (RADS), which consolidates ITS information from systems throughout the Valley, stores it in a centralized archived data server, and makes it available for a variety of stakeholders via a web interface. Most cities in the region are already posted. Focus on integration of signal systems operated by Phoenix, Mesa, Surprise and Avondale will complete the database.  
• Begin development of strategies/plans/processes to provide alternate signing timing plans for planned and unplanned closures.  
• Develop “library” of signal timing plans that may be invoked during construction, special events and incidents.  
• Perform table-top exercises and evaluate the use of available signal timing plans for alternate routing.  
• Implement signal timing and alternate route plans and strategies on a pilot corridor. (*Also part of incident management actions.*)  
• Implement and expand adaptive signal control systems (Mesa and Bell Road) where feasible. |
### 5.2 Shared Utilization/Management of Hardware (Cameras, Signals, DMS, etc…)
- Expand the physical Regional Communications Network (RCN) to all interested jurisdictions.
- Leverage RCN capabilities to share CCTV, DMS and Center-Center data.
- Develop and implement plan for after-hours operation of arterial DMS.
- Complete last mile and other minor communication links to facilitate sharing of CCTV and data.

### 5.3 Pre-emption
- Address pre-emption coding and phasing pattern issues.

### 5.4 24/7 TMC Functionality
- Create contact lists for various purposes. (i.e.: public access, between TMC’s only, media lists) in order to have right contact points for both during regular and after hour operations. Includes signal functionality, timing, and traffic management on affected roadways. Share the list with all appropriate agencies.
- Prepare regional after hours operations plan (rolling up of city plans).
- Investigate and develop a concept for 24/7 operation of TMC functionality (considering concepts such as shared/rotational staffing) primarily for arterial operations.* Consider 12/5 operations as first achievement.

* Note: Provides safety net for incident management, after-hours personnel and signal technicians.

### Vision Statement

**6.0 Incident management is responsive and effective on freeways and arterials**

**6.1 Establish Incident Management Coalition**
- Complete study on developing Incident Management Coalition. (Study national IM coalition efforts)
- Establish pilot Incident Management Coalition. (I-10, West Valley)
  - Develop Incident Management protocols and goals.
  - Support Coalition with online forum for ongoing collaboration between meetings.
- Implement recommendations from MAG nonrecurring congestion study.

**6.2 Cross Train Incident Management Partners**
- Develop “ride-along” program.
  - Can be used for cross training between freeway and arterial teams and as education for TOC personnel, media and elected official/executive leaders. (Consider “Citizen Academy”)
- Explore feasibility of integrated freeway and arterial incident management teams.
- Explore use of existing contracts, including the Arizona Mutual Aid Compact.
  - If needed, establish IGA for integrated freeway and arterial team. (Police and Fire might be good partners to bring this forward.)
| 6.3 Incident Management Communication During Events | Establish internal (intra-agency) incident notification process. Get info from DPS dispatch to Police Department and then to city traffic agency.  
  Complete and leverage DPS and local CAD systems interoperability projects.  
  Develop physical radio communication to patch communities together during event.  
  Expand use of DMS and other signs, for example, freeway and arterial incident notification. |
| 6.4 Develop and Implement Incident Management Outreach | Inform drivers of “Minor Crash Remove Vehicle from Travel Lane” (ARS §28-674) and “Move Over” Law (ARS §28-775E-1-2).  
  Partner with AZ Broadcaster’s Association, AAA and insurance companies to develop outreach, including PSAs to Use government fleets (via decals, placards, etc.) to publicize “Minor Crash Remove Vehicle from Travel Lane” and “Move Over” Law.  
  DOTs create signage – possibly funded by safety grants from GOHS  
  511 PSAs website and phone  
* Note: Public communication handled in Focus area #1 |
| 6.5 Provide Leadership in Incident Management Technology Advancement | Advance IntelliDrive (EVII) to reduce incident response and clearance times.  
  Implement recommendation of ATRC Dynamic Routing System |
| 6.6 Alternate Routes | Prepare regional alternate route plan for freeways and arterials.  
  To achieve better cross-jurisdictional integration and cooperation, implement a pilot project for testing signal coordination on freeways and arterials simulating an unplanned closure or restriction. i.e.: I-10 corridor (Litchfield to 35th Ave)  
  Expansion of the regional congestion map (from just Peoria to region).  
  Develop mechanisms to obtain system status data on planned alternate routes. |
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| 7.0 We have qualified, well-trained staff and a pipeline of new talent (Staff Management) | 7.1 Human Resource Management - ITS Job Descriptions | • Submit quick study/small budget project to Arizona Transportation Research Center (ATRC) to create a standardized set of ITS job descriptions.  
  – Describe staff positions involved in ITS/Ops. Discuss knowledge, skills and abilities (KSA’s) required to do the work and develop job descriptions.  
  • Leverage national agencies/organizations (i.e. USDOT, FHWA, ITS America, IMSA, TRB) to create standardized ITS position descriptions that can be used both locally and nationally. |
|                   | 7.2 Certification/Training Programs | • Submit quick study/small budget project to ATRC to research existing collegiate and professional programs to fill pipeline (both 2 and 4-year institutions).  
  • Develop a curriculum for ITS technicians and engineers.  
  • Leverage national agencies/organizations to create an ITS Certification Program.  
  • Develop On-the-job Training program, available in the valley that teaches key elements of ITS. Utilize existing core competencies and then train them in others.  
  • Consider ways to put training in practice across the region – example, if training on fiber splicing, have plan in place to use skills quickly, even with other AZTech agencies if needed. |
APPENDIX

PLAN DEVELOPMENT PROCESS

I. REGIONAL CONTEXT

The Phoenix metropolitan area is a region of 26 individual jurisdictions that do transportation planning through MAG. The population is roughly 4.3 million people in a 2008 estimate. The population of the Phoenix metropolitan area increased by 45.3% from 1990 through 2000, compared to the average US rate of 15%, helping to make Arizona the second fastest growing state in the nation. The metro area added an additional one million people between 2000 and 2008. The daily commute for most of the traveling public involves passing through multiple jurisdictions – and the public desires and expects seamless operations between areas.

Key Issues Currently Facing the Region and Transportation:

- The economy and tax base is built on growth and sales tax. With the recent economic downturn, the state is facing a $1.7 billion dollar deficit with declining revenue streams. This makes it imperative to leverage the system we already have to mitigate congestion and improve safety.
- As a result of budget cuts, some agencies have reduced staff in transportation departments, including technical staff and reduced access to other key project resources.
- Having had their budgets cut deeply for the next year some cities have limited or no money for transportation operations.
- Many jurisdictions had difficulty coming up with local match for approved federally funded (ITS) projects.
- Since 2002, the Valley has added five Traffic Management Centers for a total of 11. There is an opportunity to more fully expand the use but many lack adequate numbers and technical proficiency of staff to fully operate them.
- It is vital to operations to have staff that is knowledgeable in the operation of ITS. Staff needs to understand myriad of parts of a complicated system (Traffic Management, information technology (IT) infrastructure, communications, etc). Current job classifications are not designed to fit this unique discipline. The jobs are misunderstood and clustered with operations (striping, maintaining roads, etc.) or as Information Technology (IT), when they are much more complex.
- Ridership on public transportation has increased, especially with the introduction of the Metro Light Rail system, which is carrying more riders than anticipated. However, funding for the system has been cut, making fare increases necessary and making it more difficult to meet the public need. Multi-modal alternatives are a key part of system effectiveness and efficiency.
- Technology innovations are moving faster than the procurement process can accommodate – resulting in procurement specifications that don’t anticipate
needed changes in emerging technology between the time a proposal is requested and the project commences. We need to be more objective/outcomes focused in procurement language.

- The climate in the Valley impacts two factors – because of the winter visitor population, traffic management in the winter season is different than in the summer. Additionally much of the infrastructure has a shorter lifecycle because of the excessive summer heat.
- While fatality numbers have declined in recent past, (according to ALLIS data) the metropolitan area is still one of the highest in the country. There are numerous reasons cited for the decline, including speed and red light cameras, rising unemployment and lower traffic counts.
- The Legislature, public officials, and even agencies themselves have shied away from both maintenance (repairs, life-cycle replacement of equipment such as controllers, camera, detectors, communications equipment) and operations (staffing) funding because it’s a recurring cost, not one-time, like a construction project. But with current deficit and revenue situation, construction projects will likely be fewer, making the importance of transportation management even greater.

II. WHAT IS WORKING WELL?

The combination of initial MDI funding and subsequent FHWA, MAG and Proposition 400 funding has gained the region solid ground in the development, deployment and operations of integrated traffic management system. MAG was one of the first agencies in the country to develop a Regional Concept of Transportation Operations. There is much progress to celebrate and still a ways to go to fully realize the impact of the infrastructure. Below are some examples of what is currently working well.

- One of the benefits of the MDI seed money was the creation of \textit{AZTech\textsuperscript{TM}} a voluntary collaborative organization focused on the development and deployment of infrastructure and advanced traveler information. The region has built one of the most collaborative operational groups in the country. There are four committees that meet regularly to discuss and collaboratively resolve regional issues. The committees are multi-jurisdictional, and multi-disciplinary involving transportation, media, public safety and emergency response participants. \textit{AZTech\textsuperscript{TM}} received the Return on Investment award in 2005 from ITS America.
- Deployment of integrated systems is working well. There is shared communications structure, including CCTV, shared signal systems and institutional requirements to support shared use and inter-agency operability is increasing.
- While the Regional Community Network (RCN) is not yet finished, the collaboration and cooperation required for concept, design and to get construction started is a great achievement. When completed, it will enable even more functionality to the region.
- Travel times on the DMS are enjoying high public approval.
- Relationships with the media and the transportation and public safety communities have advanced due to three “summits” focused on advancing information to the traveling public.
• Interagency coordination of arterial incident and planned event management shows great results in traffic movement.
• Sharing of CCTV control and operation data (traffic counts, signal timing, emergency dispatch data) among jurisdictions is a significant achievement in regional transportation management. This is done through agreed upon guidelines, but there are gaps that more formal agreements would address.
• Through Intergovernmental Agreements (IGAs), ADOT transferred control of traffic signals at freeway interchanges to the local jurisdictions in order to permit more effective management of freeway/arterial interfaces.
• Freeway Service Patrol, ADOT Local Emergency Response Team (ALERT) and Regional Emergency Action Coordinating Team (REACT) are active and well received by public safety agencies as traffic management support teams.
• There are statewide procurement contracts that allow economy of scale discounts and encourage system compatibility.
### III. VISION OF THE FUTURE, GAPS AND ACTIONS TO GET THERE

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</table>
| **We Have a Well Informed Traveling Public** (Customer Service) | - DMS used for more than transportation information (i.e. emergency and event management per the Manual on Uniform Traffic Control Devices (MUTCD) guidelines)  
- Alternate Routes are agreed upon and provided  
- Multi-modal alternatives are provided  
- There are known places to go for information  
- We are utilizing social network technology where appropriate  
- There are well known ways for public to contribute information back to us  
- Travel times are available using multiple dissemination tactics | - Do not have consistent cross boundary information – real time  
- Don’t currently provide alternate route information  
- No cross-jurisdictional standard of technologies so they’re all compatible  
- Enhancements to 511- funding gap  
- No one stop # for public to get information and report problems  
- Need better dissemination and communication of info between agencies  
- Inadequate media links in some locations  
- Public awareness is low on ITS – travel, signalization, systems, etc.  
- No dedicated radio station with travel information  
- Driver education – knowing the rules of the road and also some traffic philosophy | - Begin to develop alternate route strategies/plans/processes  
- use plans developed for planned closures to begin “library” of alternate routes  
- Expand email alerts to media  
  - Have peer to peer sharing/education of how to send email alerts  
- Plan to expand travel time dissemination  
  - On all DMS  
  - On arterial DMS  
- Develop philosophy and policies about Twitter and other social network dissemination vehicles  
- Develop ways to get helicopter information/images back to transportation, emergency response  
- Continue using 511 as one-stop information center  
- Develop and utilize reverse 511 |
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| We have qualified, well-trained staff and a pipeline of new talent (Staff Management) | - We have clear job descriptions and classifications that are reflective of the diverse skill set of ITS staff  
- Certification process is developed  
- Uniform training across the region | - No ITS specific position descriptions  
- No ITS certification programs  
- No redundancy w/assigned staff, skills  
- No competitive salary  
- No standardized training  
- No collegiate courses in ITS technology  
- Insufficient support to colleges to provide training  
- Lack of understanding/recognition of value/importance of ITS  
  - State engineers, management, HR, city managers, elected officials are unaware.  
  - No training program/mandate for upper management to understand ITS. ITS is not seen as a profession.  
  - ITS/Operations – limiting language | - Leverage national agencies to create standardized ITS position descriptions both locally and nationally  
  - Submit to ATRC for quick study/small budget to create a set of standardized job descriptions (need HR partnerships)  
  - Create management level presentation that explains ITS  
  - Submit ATRC quick study to research existing collegiate and professional programs to fill pipeline (both 2 and 4-year institutions)  
  - Develop a curriculum for ITS engineers in the field |
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<td>We leverage our regional infrastructure for operational efficiency and redundancy (Infrastructure)</td>
<td>- We would have regional shared 24/7 coverage of the TMC’s Shared resources for regional coverage; closed-circuit television (CCTV), DMS, signal systems, data through RADS - We leverage the full potential of CCTV - Camera and signal coordination across boundaries; i.e. Peoria operates Glendale’s signals for baseball games, Glendale operates Peoria signals for football games - We leverage transit and other multi-modal alternatives - Trip reduction and tele-work programs are supported and active - Real-time system status information will be available on identified freeways, arterials, transit routes for efficient routing of traffic</td>
<td>- Lack of traffic management services for routing traffic during incidents more so during after hours. If public is advised on alternate route(s) then that alternate route/routes need to be managed to address the demand. We lack plans for such operations, lack staff and coordination for such action. We lack system information on alternate routes. There are significant opportunities due to excellent arterial network to efficiently route the traffic and manage the demand but we are not there yet. - Light rail needs better planning and integration (Park and Ride issue) - FMS not redundant - 24/7 TOC but no signal traffic management expertise. Do cities really need this (i.e.: traffic management)? - Shared facility that understands all the components and has a shared plan - RCN not there yet - CCTV – Utilization - Bus dispatch access to CCTV - Transit access to CCTV and TMC - PD in some cities</td>
<td>- Develop a concept for 24/7 operation of TMC functionality; shared/rotational staffing - Prepare after hours operations plan - Prepare regional alternate route plan - To achieve better cross-jurisdictional integration and cooperation, implement a pilot project for testing signal coordination on freeways and arterials simulating unplanned closure or restriction (i.e.: I-10 corridor - Litchfield to 35th Ave) - Obtain system status data on planned alternate routes - Bring Tim Wolfe in to talk (encroachment permits, and ADOT and you) - Fix the 5’ gaps. Last mile is now last few feet - Create the correct phone lists for different purposes (i.e.: public access, between TMC’s only, media lists)</td>
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| Incident management is responsive and effective on freeways and arterials (Customer Service and Coordination) | • Utilize REACT, FSP, ALERT across boundaries and disciplines  
• There are shared and understood protocols across the region | • No forum for incident responders to meet on regular basis  
• No standard incident protocols and no common goals  
• No regional REACT program that provides coverage on all corridors  
• No integrated team response to both freeways and arterials  
• No communication interoperability between different responding agencies  
• No collaborative training between responders  
• Public education on minor incidents  
• Agency notification of incidents  
• No planned alternate routes for diverting the traffic. No TMC support during after hours. | • Establish pilot Incident Management Coalition paired with online forum (develop protocols and goals)  
• Advance IntelliDrive to reduce response and clearance times  
• Have Incident Management session at Operations Academy  
• Develop ride on program (cross training)  
• Explore feasibility of integrated incident management teams  
• Establish IGA for integrated freeway and arterial team  
• Establish internal incident notification process  
• DPS interoperability project  
• Use DMS and other signs  
• MAG nonrecurring congestion study – incorporate some of the recommendations into it  
• Partner with AZ Broadcaster’s Association, AAA and insurance companies to develop PSAs to inform customers of move over law  
• Use emergency vehicles to publicize move over law |
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<td>There are seamless operational partnerships between agencies and departments within agencies</td>
<td>• Pre-planning and protocols developed for planned and unplanned events&lt;br&gt;• Police, fire and emergency management view transportation as partners&lt;br&gt;• Schools and large employers are partners in congestion mitigation</td>
<td>• Different equipment in standards&lt;br&gt;• Different procedures and operational policies&lt;br&gt;• Need more information exchange workshops&lt;br&gt;• Need simulation exercises&lt;br&gt;• Cross border simulations&lt;br&gt;• Multi-modal cooperation&lt;br&gt;• Document lessons learned&lt;br&gt;• Cross-jurisdiction capabilities and cooperation&lt;br&gt;• TMC off hours cooperation&lt;br&gt;• Ability to operate other TMC’s&lt;br&gt;• Turf protection&lt;br&gt;• Cooperation between freight/rail and agencies</td>
<td>• Develop a regional Operations IGA&lt;br&gt;• Allow policy change to alert travelers to take alternate routes&lt;br&gt;• Feasibility study to determine challenges for joint operations; i.e.: technical, policy, staffing&lt;br&gt;• Tabletop exercise to determine better incident management coordination&lt;br&gt;• Jurisdictions put timing plans on RADS for viewing of other jurisdictions&lt;br&gt;• Develop relationships with schools and large employers</td>
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| **Our performance measures tell our story**  
(Performance Measures) | • Archived and Real-time system information will be available on identified freeways, arterials, and transit routes for developing the performance measures that are understood by public, management and system managers and operators. | • Lack of roadway utilization data  
• Don't have ability to obtain, manipulate, analyze data from ITS equipment  
• Lack of consistent data across the region to conduct performance measures  
• Lack of Performance Measurement for ITS elements  
• Inability to assess customer satisfaction  
• Lack of public awareness of what ITS is  
• Little sharing of lessons learned | • Decide on and develop baseline measures – begin gathering data that feeds the measure  
• Develop a regional report card for ITS | |
<table>
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<tr>
<th>Vision Statement</th>
<th>What Would be Happening?</th>
<th>What is the Gap?</th>
<th>What is the Action?</th>
<th>Who? By When?</th>
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| Upper Management, the public and elected/appointed officials appreciate our value (Effective Management Processes) | - The public and officials are educated on our technology and partnerships  
- Our performance measures are understood and supported  
- We have support for appropriate funding to operate the system | - REACT, ALERT, FSP are not recognized as the same level as first responders  
- Lack of understanding of traffic management and ITS in upper management  
- We do not articulate benefits in the language public and upper management understand  
- Do not have champions in upper management  
- Do not have consistent talking points for media and elected officials  
- Traffic management is not on same organizational level as planning and construction in most organizations | - Host Arizona Operations Academy with two targets - senior leaders and operators  
- Develop consistent region-wide talking points to provide to upper management  
- Prepare a package for elected officials  
- ADOT Communications and Community Participation should be engaged in outreach and help promote  
- Develop benefits comparison between ITS/Operations and construction |
III. BENEFITS OF ACHIEVING THE VISION TO THE PUBLIC

If we achieve our vision, the benefits to the public are numerous.

- A recent Institute of Transportation Engineers (ITE) study noted there is a potential 40:1 cost benefit ratio on all ITS projects
- Environmental impact – gas savings, emissions, energy, reduce carbon footprint
- Business/Financial impact – quicker delivery, getting people to work sooner
- Less asphalt required
- Public satisfaction – less public complaints
- Safety
- Financial Savings – rather than adding a lane, better manage the traffic system.
- Less congestion = quicker incident response
- Quicker clearance and reduction of secondary accidents
- Greater mobility – alternate modes
- More public awareness = satisfaction
- Better use of resources, quicker response (ex: seamless pre-emption)
- Relationships = proactive planning and lessons learned, shared equipment, coordinating signals
- Delay in construction makes funding available for other work
- Europe – as an example, aggressive goals
- Congestion = bus timing/rail. “Get out of the car”
- Reduced response times – coordination, pre-emption

IV. PARKING LOT ITEMS

The items below were posted by participants and will be integrated either as ideas for the future or issues that need to be addressed during the planning process:

- Including transit portion in the Operations plan
- What part is Federal Transit Administration (FTA) playing in the state plan?
- Plans still reference “operations”, though we previously discussed the word “management” would be a better term.
- Procurement/plan review process needs to improve. Currently it is a bottleneck to get things finalized through ADOT review.
- Develop reverse 511.
- Call center for all traffic issues.
- More intelligence between systems. Ability to have responsive alert sent to neighboring system and that system can respond, react and implement predetermined plans.
- Dedicated voice communications utilizing ITS infrastructure. Not relying on cell or public systems.
- Evaluate upcoming technology in vehicles that may be able to communicate to roadway/ITS network.
- Certifications needs to cover all 12 components of ITS.
- Clearing, detecting and liability of incidents.
- Public education and perception of technology – cameras.
- Set limitations.
- Benefit to victims/insurance companies.
- Effective use of infrastructure: Are we running parallel to other Federal efforts when we should be looking to merge?
- Procurement contracts specifications should not be restrictive to allow upgrades as new technology emerges.
- Shared /joint operations needs to be more of a monitor and respond.
- Trying to find a staff that knows all 5 signal systems, controller types and brands.
- ITS elements/skill sets:
  - Electronics background
  - Communications
  - Networking
  - Traffic signal operations
  - Systems specialists – servers, workstations, etc.
- ITS is a relatively new discipline that took shape in 1990’s and there is a lack of understanding of the profession in many transportation organizations. ITS professionals are sometimes incorrectly referred as Information Technology professionals. The function of ITS professionals is to plan, design and implement integrated signal systems, traffic information systems, incident management systems, traffic monitoring systems and enabling communications systems through the application of knowledge in civil engineering, traffic engineering, systems engineering, information technology and incident management practices. The goal of ITS is to improve safety and efficiency of transportation system through real time traffic management applications.

Traffic engineering is an established discipline and focuses primarily on planning, design and implementation of signals, striping and signing to achieve safe and efficient and convenient movement of people and goods.

ITS and traffic engineering professionals closely collaborate to develop and implement strategies for traffic management on freeways, arterials and streets together with their relationships with other transportation modes.

- ITS is more than discussed in this group. There are 12 categories including tolling, freight management, etc., needs to include all elements for job descriptions