

March 31, 2016

TO: Members of the MAG Intelligent Transportation Systems Committee

FROM: Marshall Riegel, City of Phoenix, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, April 6, 2016- **10:00 a.m.**
MAG Office Building, 2nd Floor, Ironwood Room
302 North First Avenue, Phoenix

The ITS Committee has been scheduled at the time and place noted above. Committee members or their proxies may attend **in person or by video conference or by telephone conference call**. Those attending by telephone conference call please contact MAG offices for conference call instructions.

Please park in the garage under the MAG building, bring your ticket, parking will be validated. For those using transit, Valley Metro/RPTA will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the ITS Committee does not meet the quorum requirement, members who have arrived at the meeting will be instructed a legal meeting cannot occur and subsequently be dismissed. Your attendance at the meeting is strongly encouraged.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Leila Gamiz at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

If you have any questions regarding the meeting, please contact Sarath Joshua at (602) 254-6300.

TENTATIVE AGENDA

	<u>COMMITTEE ACTION REQUESTED</u>
<p>1. <u>Call to Order</u></p> <p>For the April 6, 2016 meeting, the quorum requirement is 10 committee members.</p>	
<p>2. <u>Approval of the March 9, 2016 ITS Committee Meeting Minutes</u></p>	<p>2. Review and approve minutes of the meeting held on March 9, 2016.</p>
<p>3. <u>Call to Audience</u></p> <p>An opportunity will be provided to members of the public to address the ITS Committee on items not scheduled on the agenda that fall under the jurisdiction of MAG, or on items on the agenda for discussion but not for action. Members of the public will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the ITS Committee requests an exception to this limit. Please note that those wishing to comment on action agenda items will be given an opportunity when the item is heard.</p>	<p>3. For information and discussion.</p>
<p>4. <u>Program Managers Report</u></p> <p>The following items will be discussed:</p> <ul style="list-style-type: none">• Status of TSOP Projects• I-10 ICM Deployment Planning Project• Report on the RCN• TOPS-BC Workshop on April 26, 2016	<p>4. For information and discussion.</p>
<p>5. <u>2016-2019 MAG ITS On-Call Consultant Qualification</u></p> <p>A total of twenty-three (23) proposals were received in response to the MAG Request for Qualifications (RFQ) for ITS On-Call Consulting Services. An evaluation panel, consisting of committee members and MAG staff, reviewed the proposals and have recommended ranked lists of consultants for</p>	<p>5. For information, discussion and possible action to recommend the ranked list of consultants, as shown on Attachment One, for MAG ITS On-Call consulting services.</p>

each of the five (5) areas of technical expertise identified in the RFQ. Attachment One shows ranked lists of consultants, as recommended by the panel, for each area of technical expertise.

6. Buy America Compliance Requirements

On January 11, 2016, ADOT released a memo (See Attachment Two) that served notice to all local public agencies administering Federal-Aid projects that must ensure Buy America compliance for all steel and iron manufactured products. A brief overview will be provided by FHWA. The committee will discuss concerns and implications of this requirement on federally funded ITS projects in the MAG Transportation Improvement Program.

6. For information and discussion.

7. Reports by Committee Members

Members will be provided an opportunity to share information related to ongoing ITS activities in their jurisdictions.

7. For information and discussion.

8. Request for Future Agenda Items

Topics or issues of interest that members of the committee would like to have considered for discussion at a future meeting will be requested.

8. For information and discussion.

9. Next Meeting Date and Place

The next meeting is scheduled to be held at 10:00 a.m. on Wednesday, May 4, 2016. It will be held in the Ironwood Room on the 2nd Floor of the MAG office building.

9. For information.

Adjournment

**DRAFT MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
INTELLIGENT TRANSPORTATION SYSTEMS COMMITTEE**

March 9, 2016

MAG Ironwood Room, 2nd Floor
302 North First Avenue
Phoenix, Arizona

MEMBERS ATTENDING

Reza Karimvand, ADOT	Faisal Saleem for Nicolaas Swart, Maricopa County
* Yingyan Lou, ASU	Tricia Boyer for Avery Rhodes, City of Mesa
Chris Hamilton, City of Avondale	Steve McKenzie, City of Peoria
Mike Mah, City of Chandler	Marshall Riegel, City of Phoenix
Sergeant John Paul Cartier for Captain Burley Copeland, DPS	Armando Lopez for Albert Garcia, City of Surprise
# Bryce Christo, City of El Mirage	David Lucas, City of Tempe
* Toni Whitfield, FHWA	* Abhishek Dayal, Valley Metro
# Leslie Bubke, Town of Gilbert	
* Debbie Albert, City of Glendale	
# Luke Albert, City of Goodyear	

OTHERS PRESENT

Gary Bonner, City of Mesa	Dan Hartig, Ayres
Reginald Fitzpatrick, City of Scottsdale	Shanthi Krishnan, Jacobs
Khamchanh Ratsavong, City of Scottsdale	Natalie Carrick, Michael Baker
John Dee, City of Phoenix	Scott Kelley, AMEC FW
Mark Poppe, ADOT	Alan Ferreira, Wilson
Scott Beck, ADOT	Paul Porell, RTE
Tammy Valadez Paz, City of Buckeye	Tim Wolfe, Dibble
Vinay Vanapalli, Stantec	Terry Conner, Gannett Fleming
Srini Goundla, PB	Margaret Boone, MAG
Steve Wilcox, AECOM	Ryan Gish, MAG
Arnab Gupta, AECOM	Micah Henry, MAG
Lisa Burgess, Kimley-Horn	Chaun Hill, MAG
Don Wiltshire, YSMA	Sarath Joshua, MAG
	Eric Nava, MAG

- * Not present or represented by proxy
- # Participated by teleconference
- + Participated by videoconference

1. Call to Order
Chair Marshall Riegel called the meeting to order at 10:00 a.m.
2. Approval of the January 6, 2016 ITS Committee Meeting Minutes
Chair Riegel requested approval of the meeting minutes from the January 6th ITS Committee meeting. **Reza Karimvand from ADOT moved, Faisal Saleem from Maricopa County seconded, and it was unanimously carried to approve the minutes of the meeting held on January 6, 2016.**

3. Call to Audience

Chair Riegel made a call to the audience providing an opportunity for any members of the public to address the ITS Committee. No comments were received.

4. Program Manager's Report

Chair Riegel invited Sarath Joshua from MAG to present the Program Manager's Report. Mr. Joshua addressed the following items in his report:

➤ Status of Traffic Signal Optimization Program Projects:

For FY2015 TSOP projects ten out of the eleven projects have been completed. The task order for the final project for the I-10 ICM Final Phase is underway by Lee Engineering. For FY2016 TSOP projects, seven (7) projects, including the Before and After Evaluation and the Synchro training, are underway. The Synchro Training Workshop is scheduled for Wednesday, July 13th through Friday, July 15th from 8:30 AM to 5:00 PM at the MCDOT Training Facility.

➤ DPS Co-location at the Traffic Operations Center Pilot Project

The DPS Co-location Pilot Project was recommended as the first priority for the Spine Study near-term solutions. The first year evaluation of results compared 2014 baseline against 2015 data. DynusT and crash data from the ALISS crash database were used to simulate freeway operations. Key findings included an average reduction to clear the roadway was reduced by nearly one hour, despite a 23% increase in the number of crashes, producing an estimated economic benefit of \$165 million, and a benefit/cost ratio of 368:1. A media event was held at the Traffic Operations Center on January 19, 2016. The results of the pilot project were presented at Regional Council, Management Committee, Transportation Policy Committee, and Transportation Review Committee. Reza Karimvand with ADOT thanked the ITS Committee for recommending the project and JP Cartier with DPS for championing the project. Sarath Joshua recognized former DPS Commander Terry Conner in the audience, as he helped launch a similar effort with the Freeway Service Patrol. Faisal Saleem with MCDOT identified the REACT as another successful program that promotes close coordination between responders and TMC operators during traffic incident management.

➤ ITS & Safety On-Call Request for Qualifications

The current MAG contracts for ITS & Safety On-Call Consulting Services end in August and September 2016. The MAG Request for Qualifications for On-Call services closed on March 1st, and a total of 23 Statements of Qualifications (SOQs) were received. An evaluation panel is now reviewing the SOQs and will be recommending consultants for the five (5) areas of expertise within ITS. The recommended list of consultants will be presented at the April 6th ITS Committee meeting for a committee recommendation. The resulting new On-Call Services contracts are expected to be in place by the end of August 2016.

➤ Systems Management & Operations

A Request for Proposals (RFP) for developing the Systems Management & Operations (SM&O) Plan is scheduled to be released on Friday March 11th. MAG staff has been working with a review panel to finalize the scope of work.

Sarath Joshua expressed appreciation to committee members who are serving on the review panel with their next task being the review of proposals. FHWA is about to begin an effort to develop guidelines for TSMO Planning. MAG will be able to provide input based on the MAG study to the national effort.

➤ FHWA Benefit-Cost Tool Workshop

FHWA, ADOT and MAG have collaborated to hold a workshop at MAG on a Tool for Operations Benefit-Cost Analysis (TOPS-BC). This is scheduled for April 26th at MAG from 8:30 AM to 4:30 PM. This software tool is used to develop benefit-cost ratios for ITS and operations projects. MAG is coordinating with FHWA and ADOT to bring this opportunity to Arizona. Local agencies are encouraged to attend. There is a capacity of 25 people so interested parties should contact MAG staff as soon as possible, as seating will be limited.

➤ Status Report on the Regional Community Network (RCN)

Ryan Gish reported on the latest RCN developments that were discussed at the RCN Working Group meeting earlier in the day. He reported that network updates have been done including the establishment of the redundant connection to City of Surprise in preparation for the Bell Road & Grand Avenue construction project. This involved coordination with City of Surprise, City of Peoria, and MCDOT. This connectivity is anticipated to be established within a week. The network was also expanded via wireless connections with the Town of Queen Creek and Salt River Pima-Maricopa Indian Community. This also involved coordination with City of Mesa and Maricopa Region 911. MAG staff will be coordinating with ADOT on the upcoming I-10 construction project from 83rd Avenue to Loop 303. This coordination would also involve City of Goodyear, City of Avondale, and City of Tolleson, as well as the 911 Dispatch Center.

5. Use of ARID to Generate Arterial Traffic Congestion Maps – City of Mesa

Chair Riegel invited Tricia Boyer with City of Mesa to present the city's deployment of ARID sensors and how they are being used in traffic operations. The City of Mesa has implemented a ITS project, funded by MAG with CMAQ funds, that has installed a network of traffic sensors to generate information to help improve city traffic operations. A total of 82 Anonymous Re-identification (ARID) sensors have been installed across the city's street network to gather travel time and traffic speed data by matching encoded media access control (MAC) addresses from mobile devices in passing vehicles. The information on traffic flow gathered using data from ARID sensors enables city staff at the Traffic Management Center to identify and respond faster to crashes and other non-recurring traffic events.

This project has helped improve traffic operations in the City of Mesa. Tricia Boyer provided a live demonstration of the software. She explained that the installation of the Iteris Vantage Velocity devices took one day for two construction crews, including equipment mounted in traffic signal cabinets. The data generated is being used to create congestion maps that identify street segments with reported real-time speeds. Each segment is defined based on posted speed with user-defined color sequences. The map is updated every 30 seconds, which is user configurable. Following some configuration challenges the map appears on the Traffic Management Center (TMC) video wall. The

primary application is to identify hotspots in operations. The alert system indicates when speeds drop below an identified threshold.

The software allows for comparisons between historical data and real-time data, and to differentiate between recurring and non-recurring congestion. It is anticipated that alerts generated by the system will provide users with information on non-recurring congestion. The system can use either Wi-Fi or Bluetooth technologies. A review of the reported data resulted in accuracy of speeds within 1 mph. Average speeds over 3-month periods are being used for performance measurements, reporting quarterly. Real-time data is available in speed tables based on the selected roadway. The devices are under a 1-year warranty and there have been very few failures; replacements were quickly installed. All data is hosted locally. The software provides for report setting configuration, allowing system users to define specific outputs based on segments and time. The report can be configured for either speed or travel time, providing that information for the selected segments. The Origin-Destination feature is also an option for analysis.

Sgt. John Paul Cartier with DPS inquired on how the system is used in coordination with the police department. Ms. Boyer responded that as the system is still relatively new, a planned expansion project will include the cities of Tempe and Gilbert, police involvement is still under development. Sgt. Cartier also inquired on historical reporting capabilities and comparing with real-time data to detect incidents. A new feature anticipated for the software will include these alerts. Mike Mah inquired on the configuration of the individual segments on the map display as well as other agency experience. Each segment can be configured for color depiction and both Scottsdale and Peoria have deployed the system.

Sarath Joshua with MAG inquired about individual data points that exceed may usual averages. Statistical outliers are filtered from data sets. The upcoming deployment on Ellsworth Road will involve higher speeds as the posted speed limit is 50 mph. Reza Karimvand inquired about the application of the traffic speedmap in traffic management. Currently the map is for internal use only, but City of Mesa is coordinating with other agencies to share data with AZ511, RADS, and Performance Metrics Dashboard. The sampling rate of the total traffic volume is approximately 5% for Bluetooth and much higher for WIFI. Report configurations can be saved and there are user options to download the raw data.

6. Status of Autonomous Vehicles (AVs), Connected Vehicles (CVs), & Potential Impact on Traffic Operations

Chair Riegel invited Sarath Joshua and Faisal Saleem with MCDOT to discuss the potential impacts of AVs and CVs on regional traffic operations. Sarath Joshua provided a brief report on AVs. Recent developments in autonomous and connected vehicle technology have created some uncertainty about future transportation infrastructure needs, future modes of travel, etc. One of the responsibilities of the committee is to make recommendations to policy makers on technology-related solutions for making the region's transportation system safer and more efficient. The development of new technology is a challenge for long-range planning. Scenario-based planning is seen as the path forward, where multiple planning scenarios offer a range of plausible futures.

As AV and CV technologies are developed there will be impacts. There are issues and challenges related to local agency resources to accommodate AVs and CVs from a traffic

management and operations perspective. Clear definitions will maintain the focus of coordinating resources to prepare for and integrate these technologies. An Autonomous Vehicle is a vehicle that can take control from drivers in certain circumstances or a vehicle that can drive itself without a human driver. A Connected Vehicle is a vehicle with technology to support safe interoperable networked wireless communications among vehicles, infrastructure, and personal communication devices. The goal is to improve safety, increase mobility, and reduce environmental impact. There are challenges that AVs might pose to freeway and arterial street operations, and intersection operations. The current AV concept is that they are totally self-reliant with driving functions that mimic those of a human driver. CVs are being designed and tested to be able to navigate both freeways and city streets, and utilize real-time traffic signal status information such as Signal Phase and Timing (or SPaT) data. Signal status information is dynamic and is currently not shared by local agencies that operate traffic signal systems.

The FY2017 budget proposed by the President identified \$4 billion over 10 years for AV/CV pilot programs. NHTSA's goal is to eliminate 94% of fatal crashes caused by human error. The agencies 2016 milestones over the next six months include issuing AV guidance and developing a model state policy. NHTSA defined the levels of automation. Level 0 is no automation, where the driver is in complete control. Level 1 is one driving function is automated, leaving hands or feet free. Level 2 is two or more driving functions are automated, where the driver remains constantly attentive but both hands and feet are free. Level 3 is driving functions are sufficiently automated that the driver can safely engage in other activities. Level 4 is the vehicle can drive itself without a human driver.

There have been updates on AV developments. There are safety benefits for automated and autonomous driving, but it remains untested on a large scale. Many configurations are possible for AV, both with and without connectivity to infrastructure. There are two envisioned incremental paths; the first is gradual introduction of automation and the second is vehicles without a human driver are introduced in limited context and then expanded. Driverless cars are being developed and will have a significant impact on society. People may live further away from economic centers, creating more traffic congestion. Taxis and bus services may be replaced by ride-sharing services. Transit agencies may use new business models to address mobility. Google claimed a new patent in 2015 that included display screens and speakers on the outside of the vehicle along with robotic arms and eyes to give pedestrians the feel of authentic human acknowledgement that the "driver" sees them. Several states have enacted autonomous vehicle legislation, including California, Florida, Michigan, Nevada, North Dakota, Tennessee, as well as Washington D.C. Arizona has an executive order.

AVs are designed to operate in a road environment with some defined level of reliability regarding road surface conditions, pavement markings, and road signage. Human drivers readily adapt to inconsistencies and even conflicting signage. There is an assumption of a certain level of perfection that may imply liability if safety is compromised. There are embedded solutions and shared data plans, with competitions in the US, Europe, and China. Cyber security is also a concern. These issues and others will provide as input to the USDOT decision-making process for use in the national CV development efforts. The development of USDOT Vehicle-to-Infrastructure (V2I) Guidance is underway. Armando Lopez with City of Surprise stated that liability and insurance concerns are major factors as a recent crash involved the Google vehicle that was at fault.

Faisal Saleem provided an overview of the Connected Vehicle developments. He indicated that there are several V2I initiatives deployed in test bed scenarios throughout the US. There are connected vehicle pilot deployment projects in Wyoming, Florida, and New York. Numerous goals have been established for V2I deployment, including helping accelerate the deployment of technologies: at intersections where the majority of crashes and/or congestion occur; to support end of queue warnings in locations with high rates of rear-end collisions; for work zone management; and for curve warning systems.

The Crash Avoidance Metrics Partnership (CAMP) is a V2I consortium that includes numerous automobile makers. The CAMP V2I Safety Applications project is implementing red light violation warning, curve speed warning, and reduced speed zone warnings for school and work zones. A partnership between MCDOT, ADOT, and the University of Arizona has developed a connected vehicles deployment with a goal to support incident management. The stated goal is to enable an emergency within five minutes of dispatch 90 percent of the time. Safety is the primary objective. The MCDOT SMARTDrive test bed is deployed in Anthem using multimodal priority applications. This includes multi-vehicle incident response through several signals as well as transit priority.

The challenges include communication, use of the 5.9GHz spectrum, static-to-dynamic maps, big data analytics, policy and legal frameworks, public acceptance, and impacts to the workforce. Coordination with public agencies has included the request that controller data be SPaT-capable. Mike Mah indicated that City of Chandler was recently contacted by a private entity, inquiring on the availability of traffic signal timing information. They wish to install a blackbox equipment in the cabinet to interface with the controller and send data wirelessly to receivers. The vendor claimed that their proprietary device would be able to provide data to the local agency, but specifics were left undefined. As the technology proliferates and deployment increases, funding will be a constraint. V2V technology is less financially constrained and might develop faster than V2I technology.

7. Reports by Committee Members

Chair Riegel called on members to report items of interest to the committee. Reza Karimvand introduced Scott Beck who joined the ADOT TSMO. He also stated that Steve Ramsey has joined ADOT; he is responsible for emergency management and operations at the TOC. Faisal Saleem with MCDOT reported that procurement was underway for the Bell Road adaptive traffic signal system. He also reported that MCDOT is working with City of Glendale and City of Mesa on a pilot project for automating construction data into RADS. The effort is expanding to eight agencies. Tammy Valadez Paz with City of Buckeye stated that the ITS Strategic Plan is to be approved by City Council and then presented at MAG for approval.

8. Request for Future Agenda Items

Chair Riegel called on members to request future agenda items. There were no requests.

9. Next Meeting Date and Place

Chair Riegel noted that the next meeting will be held at 10:00 a.m. on Wednesday, April 6, 2016, in the Ironwood Room (2nd floor) at MAG.

10. Adjournment

Chair Riegel adjourned the meeting at 11:43 a.m.

MAG ITS On-Call: Recommended List of Consultants

Arterial Traffic Signal

Operations (A.1)

1. Kimley-Horn and Associates, Inc.
2. Lee Engineering, LLC
3. Y.S. Mantri & Associates, LLC
4. United Civil Group
5. Parsons Brinckerhoff, Inc.
6. AECOM Technical Services, Inc.
7. Kittleson & Associates, Inc.
8. ASJ Engineering Consultants LLC
9. Jacobs Engineering Group, Inc.
10. Amec Foster Wheeler
11. Michael Baker International
12. Horrocks Engineers, Inc.
13. Ayres Associates

Regional ITS Planning (A.2)

1. Kimley-Horn and Associates, Inc.
2. Lee Engineering, LLC
3. Jacobs Engineering Group, Inc.
4. AECOM Technical Services, Inc.
5. OZ Engineering LLC

Systems Management and Operations Planning (A.3)

1. Kimley-Horn and Associates, Inc.
2. Lee Engineering, LLC
3. AECOM Technical Services, Inc.
4. Jacobs Engineering Group, Inc.
5. Parsons Brinckerhoff, Inc.

Systems Management and Operations Training (A.4)

1. Kimley-Horn and Associates, Inc.
2. AECOM Technical Services, Inc.
3. Jacobs Engineering Group, Inc.
4. Lee Engineering, LLC

Traffic Incident Management

Evaluation (A.5)

1. Kimley-Horn and Associates, Inc.
2. Jacobs Engineering Group, Inc.
3. AECOM
4. Dibble Engineering

ITS Evaluation Team:

Marshall Riegel - City of Phoenix

Avery Rhodes - City of Mesa

David Lucas - City of Tempe

Sarath Joshua - MAG

Margaret Boone - MAG

Micah Henry - MAG



Intermodal Transportation

MEMORANDUM

TO: All Local Public Agencies, LPA Section, Project Management, Utilities and Railroad, C&S, Environmental Planning Group

FROM: Jodi Rooney, Local Public Agency Section Manager

CC: Steve Boschen, ITD Director; Tom Deitering, FHWA; Eunice Chan, FHWA

DATE: January 11, 2016

RE: EFFECTIVE IMMEDIATELY: ACTION REQUIRED - Buy America Compliance Requirements

This memorandum serves as notice that, effective immediately, ADOT and local public agencies administering Federal-aid projects must ensure Buy America compliance for all steel and iron manufactured products, in accordance with existing Federal regulations and policy memos. Contracting agencies should take reasonable steps (consistent with their procurement process) to implement the revision on all new construction project awards. This decision will not impact Federal-aid construction projects that have already been awarded.

BACKGROUND

On December 22, 2015, Judge Amit P. Mehta from the U.S. District Court for the District of Columbia issued a decision granting Plaintiffs' motion for summary judgment and denying Defendant's motion for summary judgment in a case that challenged FHWA's issuance of a [December 21, 2012 memorandum](#).

In the memo, "miscellaneous steel or iron components, subcomponents and hardware" that are not predominantly steel or iron would not be subject to Buy America coverage. The memo defined predominately steel and iron manufactured products as those that have more than 90 percent steel or iron and waived Buy America requirements for miscellaneous steel or iron components, subcomponents and hardware. As a result, the judge vacated the 90 percent threshold exemption for manufactured steel and iron products and the miscellaneous steel or iron components, subcomponents and hardware waiver.

As a result of the court decision, the FHWA has withdrawn the December 21, 2012 memorandum. Until FHWA updates its regulatory policy, State DOTs and local public agencies administering Federal-aid projects must use the existing statute, regulation and implementing policy memos to administer the Buy America requirements. For details, see [FHWA's Construction Program Guide for Buy America](#).