MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
INTELLIGENT TRANSPORTATION SYSTEMS COMMITTEE

May 4, 2016
MAG Ironwood Room, 2nd Floor
302 North First Avenue
Phoenix, Arizona

MEMBERS ATTENDING

Farzana Yasmin for Reza Karimvand, ADOT
Yingyan Lou, ASU
Chris Hamilton, City of Avondale
Tammy Valadez Paz, City of Buckeye
Mike Mah, City of Chandler
Sergeant John Paul Cartier, DPS
Bryce Christo, City of El Mirage
* Toni Whitfield, FHWA
* Leslie Bubke, Town of Gilbert
* Debbie Albert, City of Glendale
Luke Albert, City of Goodyear
* Nicolaas Swart, Maricopa County
Avery Rhodes, City of Mesa
Steve McKenzie, City of Peoria
Marshall Riegel, City of Phoenix
Khamchanh Ratsavong for Reginald Fitzpatrick, City of Scottsdale
Albert Garcia, City of Surprise
David Lucas, City of Tempe
Abhishek Dayal, Valley Metro

OTHERS PRESENT

Dan Hartig, Ayres
Simon Ramos, ADOT
Lisa Burgess, Kimley-Horn
Tom McCullough, Kimley-Horn
Don Wiltshire, YSMA
Jeff Jenq, OZ Engineering
Sarah Simpson, UCG
Skye Gentile, Parsons
Doug McCants, Horrocks
Sandy Thoms, Jacobs
Anil Mudigonda, Jacobs
Natalie Carrick, Michael Baker
Elizabeth Barnes, Amec Foster Wheeler
Terry Conner, Gannett Fleming
Cory Steele, Strand
Margaret Boone, MAG
Ryan Gish, MAG
Micah Henry, MAG
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 April 6, 2016 ITS Committee Meeting Minutes
   Chair Riegel requested approval of the meeting minutes from the April 6th ITS Committee meeting. **David Lucas from City of Tempe moved, Albert Garcia from City of Surprise seconded, and it was unanimously carried to approve the minutes of the meeting held on April 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 the report:

- Status of Traffic Signal Optimization Program Projects:

  The task order for the final project for the I-10 ICM Final Phase is currently 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.

- Report on the RCN

  Sarath Joshua requested Ryan Gish to provide this report. He reported on the latest RCN developments that were discussed at the RCN Working Group meeting earlier in the day. He report that the network was expanded via wireless communication links with the Town of Queen Creek and Salt River Pima-Maricopa Indian Community. MAG staff will be coordinating with ADOT on the I-10 construction project that would involve fiber expansion. This coordination will also involve City of Goodyear and City of Avondale. The video management software Luxriot is now being used by 12 MAG agencies using it for Pan-Tilt-Zoom (PTZ) cameras as well as video detection streams. 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 connectivity included a temporary fiber link. This involved coordination with City of Surprise, City of Peoria, and MCDOT. Fiber testing was conducted for a connection between City of Peoria and City of Glendale. A fiber optic cable has been damaged and needs to be replaced. This work is anticipated over the next several weeks. Sarath Joshua stated that the Regional Community Network Working Group meets prior to the MAG ITS Committee at 9 AM. The Working Group serves as a collaboration between the ITS Committee and the MAG Technology Advisory Group. Anyone interested in attending should contact Ryan Gish.

- TOPS-BC Workshop

  FHWA, ADOT and MAG collaborated to hold a one-day workshop at MAG on the Tool for Operations Benefit-Cost Analysis (TOPS-BC) on April 26th. The all-day workshop was conducted by FHWA and attendance was by invitation only due to limited capacity. All members of the MAG ITS Committee were invited to attend. The Excel-based tool offers a method for agencies to identify the Benefit-Cost ratios for different operations strategies of TSMO projects. The TOPS-BC software tool is available to be downloaded. Mr Joshua mentioned that additional workshop binders and several related publications brought by the FHWA team were available in the room for anyone interested.

- 2016-2019 ITS On-Call Consultant Selection

  The list of consultants recommended by the evaluation team for the 2016-2019 MAG ITS On-Call was approved by the Regional Council Executive Committee on April 17th. Fifteen (15) contracts are currently being drafted and

are expected to be executed by the end of July 2016. The new three-year contracts will likely be for the period of October 1, 2016 to September 30, 2019.

5. FY2016 Systems Management and Operations Plan Consultant Selection

Chair Riegel invited Sarath Joshua with MAG to present the results of the Request for Proposals (RFP) for developing the Systems Management & Operations (SM&O) Plan. On April 8th MAG received proposals from Gannett Flemming Inc., Kimley-Horn and Associates, Inc. and Lee Engineering, LLC. Mr. Joshua thanked those who served on the evaluation team. The nine (9) member evaluation panel that reviewed the proposals included: Marshall Riegel (City of Phoenix), Jim Windsor (ADOT), Faisal Saleem (MCDOT), Steve McKenzie (City of Peoria), David Lucas (City of Tempe), Bill Tsuei (Valley Metro), Bob Hazlett (MAG), Margaret Boone (MAG), and Sarath Joshua (MAG). The evaluation panel reviewed the proposals and met on April 25th to unanimously recommended Kimley-Horn and Associates, Inc. for conducting this MAG study.

He stated that upon ITS Committee action this recommendation will go before the MAG Management Committee on May 11th, and then Regional Council Executive Committee for approval on May 16th. It is expected that a contract will be executed by the end of July, with the project Kick-off Meeting scheduled in August 2016. The duration of the study is anticipated to be sixteen (16) months.

He described the goal of the study as developing the SM&O Plan for the MAG planning area. The SM&O Plan will help guide the MAG region in making necessary investments related to SM&O in both infrastructure and operations, as well as leading to improved safety, efficiency, and reliability of the transportation system. This is a truly pioneering planning effort for an urban region. The available examples for TSMO planning are focused mostly on affecting organization changes at state departments of transportation. The forthcoming FHWA primer will address "How to develop a TMSO program". The MAG ITS program already has most of the desired TSMO planning features.

The key tasks for the study include:

- Task 1 – Best practices review for urban TSMO at 10 locations, including identifying institutional framework, business models, SM&O tools, performance measurement and data, and technology investment decisions.
- Task 2 – Review current and near-term (five years) ITS infrastructure and SM&O practices.
- Task 3 – Develop the long-term (2030) vision and concept of SM&O.
- Task 4 – Establish regional priorities for SM&O investments, including criteria for facility hierarchy and an initial list of prioritized facilities. This will identify ICM corridors and others of significance to the regional economy.
- Task 5 – Develop initial SM&O Implementation Plan and Programming Process. This will be an approach for allocating regional resources driven by established regional priorities.
- Task 6 – Collect data for performance measurements and reporting, incorporating the MAG Performance Measurement dashboard. This regional data collection strategy will be built into the new SM&O infrastructure.
- Task 7 – Create the framework for the MAG annual SM&O performance review using field data to model safety, efficiency, and reliability.
- Task 8 – Draft the Final Report for the MAG SM&O Plan for FY2021-2030.

Committee members discussed the proposal review process as well as the MAG process for approving the project. Avery Rhodes with City of Mesa inquired on the roles of the evaluation panel and the MAG ITS Committee members. Consisting of several members of the ITS Committee, the evaluation panel reviewed the merits of each proposal with the scores clearly differentiating the proposers. The panel's recommendation of Kimley-Horn and Associates, Inc. was unanimous. Mike Mah with City of Chandler also inquired on the MAG proposal review process. Mike Mah requested a clarification regarding regional priorities for allocating resources for operations. Mr. Joshua explained that reference was in relation to regional funds that might be provided to support operations and would not impact funding priorities of local agencies. He stated that this is a key aspect of the study - to identify how to provide funding support for improving operations on facilities of regional significance.

Committee action was requested to recommend approval of the consultant for the MAG Systems Management & Operations Plan. **Luke Albert from City of Goodyear moved, David Lucas from City of Tempe seconded, and it was unanimously carried that the MAG Intelligent Transportation Systems Committee, based on the recommendation of the study panel, recommended approval of the firm Kimley-Horn and Associates, Inc. for performing the Systems Management and Operations Study.**

6. Developing a More Strategic Approach to Improving Traffic Signal Operations Region-wide

Chair Riegel invited Sarath Joshua and Micah Henry to discuss the exploration of a more strategic approach to improving traffic signal operations for the region. Since initiation of the program in 2004, the MAG Traffic Signal Optimization Program (TSOP) has carried out more than 110 projects optimizing signal operations at over 1200 intersections. The MAG region has a total of about 3500 signalized intersections. In addition, the program has provided assistance to many local agencies in coding their Synchro networks. The program has also provided an annual Synchro workshop to provide a training opportunity to over 200 local agency staff on the Synchro software. Most local agencies in the region appear to have the software tools and competent staff for addressing routine signal timing issues.

The current approach to identifying TSOP projects is through an open call for projects, with local agencies submitting projects that would meet criteria established by the committee. Projects are then reviewed by the committee and recommended for funding. Programs such as TSOP are a key component of many urban TSMO programs. Retiming traffic signals is one of the most cost-effective tasks that an agency to do to improve traffic flow, but many traffic engineers do not have the budgetary resources to conduct a program using the conventional methods. The conventional approach is to organize existing information, collect new data, model the corridor using a signal timing optimization program, reviewing the results with engineering judgement and local experience, and implementing the timing and fine-tuning the signal timing plans. The general principle for signal timing is that signals should be re-timed every 3 years.

MAG staff conducted a review of practices in similar programs with a view to possibly adopt of some best practices for improving the MAG program, through better project selection. This exploration effort seeks a better link between TSOP solutions and congestion hotspots across the region. Local and peer agencies were researched for existing methodologies for selecting corridors. City of Scottsdale has used probe

vehicles to develop travel times and compared the results with existing time-space diagrams to determine potential improvements. A Before-and-After study using probe car data was used for comparisons. City of Tempe re-timings are based on engineering judgment if corridor operations have deteriorated based on personal experience or citizen inquiries. Some re-timings are based on when the last optimization effort was conducted. Candidate corridors are identified through a consensus and prioritized by staff. City of Mesa identifies the corridor based on engineering judgement of needs. The TSOP projects are catered towards the TSOP selection criteria. ARID devices will help establish historical speed data for corridor average speeds to identify corridors that need to be retimed. There have been discussions on a defined list of prioritized corridors and establishing a rotation such that each corridor is reviewed at a uniform time interval.

Seattle and Denver both have deployed adaptive control to respond to changing traffic conditions. Seattle uses a 5-year rotation to retime signals. Metropolitan Washington Council of Governments utilizes on-going field observations and monitoring from the traffic control center to identify corridors. Monitoring operations for the corridors and responding to citizen inquiries are the key components to identifying corridors.

Potentials method in identifying corridors to retime include reviewing performance indicators based on metrics gathered over a period of time to show if the corridor operations has degraded over time. Using public and private sector data sources, an agency could produce a congestion map for peak periods to identify trends along a specific corridor. Sources include Anonymous Re-Identification (ARID) sensor deployment, Google Typical Travel Maps, and the MAG Transportation Performance Dashboard. ARID device deployment will gather historical data to produce congestion maps for peak periods. Planning algorithms will help operators identify changing conditions in operations through comparing current traffic demand with historical demand. Google Typical Traffic Maps are available on the website to review typical corridor congestion based on day of the week and time of the day. By toggling from "Live traffic" to "Typical traffic" users can review expected operations and compare with current operations.

On the MAG Performance Measurement Dashboard website, the tools use private sector data that has been scrubbed and reduced to provide arterial travel speeds for AM, Midday, and PM peaks. Specific focus has been on 21 primary corridors in the metropolitan region, with each corridor divided into natural segments. Annual data is available from 2010 to 2014. Speeds, delay, congestion, and Travel Time Indexes can be compared year-to-year to determine if there has been any degradation. There is a potential approach that would identify congested intersections and develop a map similar to the methodology used for ranking crash locations for transportation safety. Identifying trends of heavy congestion along corridors may provide guidance in selection criteria.

The committee discussed the methodologies presented. Chair Riegel identified specific data that could be collected and analyzed including: arrival on green, arrival on red, unused or underutilized green time, approach delay by movement, v/c ratio by movement, phase failure, and queue lengths. These parameters will define the relative performance of individual intersections. This level of data collection is anticipated in the future and the region should be looking at opportunities to provide this data. Chair Riegel stated the importance of the region collecting the same performance metrics which could be used to change and improve operations. Abhishek Dayal with Valley Metro

stated that they use on-time performance which identifies congested areas, particularly the local bus routes that run on arterial streets. This data is tracked by segments over time of day operations. If performance is down that typically identifies points of congestion along transit routes. There is potential to share this data with traffic operations. Yingyan Lou with ASU stated that combining multiple data sources is a good approach but it is limited to the resolution of the data. Using the highest resolution data available can identify congested intersections to further review. David Lucas with City of Tempe stated that after-study data are vital to defining metrics detailing improvements. Committee members were encouraged to bring methodologies to the table for future discussion.

7. Reports by Committee Members

Chair Riegel called on members to report items of interest to the committee. City of Phoenix is preparing to advertise the first federally-funded HAWK signal, funded by the Transportation Alternatives Program. City of Phoenix is also deploying a new method for installing fiber optic cable using air to push cable through conduit. Steve McKenzie with City of Peoria stated that a pilot program was launched to beta test the Intelight product MaxAdapt on Thunderbird Road. The initial effort includes adjusting splits and offsets based on current signal timing plans with future efforts including adjusting cycle lengths. Wireless detection is available on the implemented corridors so pre-installation data was collected for comparison purposes. City of Peoria is reviewing advanced detection solutions, as well as upstream exit loops.

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, June 1, 2016, in the Ironwood Room (2nd floor) at MAG.

10. Adjournment

Chair Riegel adjourned the meeting at 11:20 a.m.