

SPECIAL NOTICE REGARDING PUBLIC MEETINGS

Due to the risks to public health caused by the possible spread of the COVID-19 virus at public gatherings, the Maricopa Association of Governments has determined that public meetings will be indefinitely held through technological means. Meetings will be open to the public through technological means. In reliance on, and compliance with, the March 13, 2020, Opinion issued by Attorney General Mark Brnovich, the Maricopa Association of Governments provides this special advance notice of the technological means through which public meetings may be accessed. While this special notice is in effect, public comment at meetings will only be accepted through written submissions, which may or may not be read aloud during meetings.

To attend the meeting noticed below by technological means, members of the public may follow the steps below:

1. To watch a live video stream of the meeting, [click here to go to MAG's YouTube channel](#).
2. Members of the public may submit written comments relating to this meeting to azmag.gov/comment. Comments may be sent at any time leading up to the meeting, but must be received at least one hour prior to the posted start time for the meeting.

If any member of the public has difficulty connecting to the meeting, please contact MAG at (602) 254-6300 for support.

September 30, 2020

TO: Members of the MAG Intelligent Transportation Systems Committee

FROM: David Lucas, City of Tempe, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, October 7, 2020 - 10:00 a.m.

VIRTUAL MEETING

The MAG ITS Committee meeting has been scheduled at the time noted above. The meeting will be **held as a virtual meeting only**, with no in-person attendance options available at this time. Instructions on how to participate will be provided via email to members of the committee. Members of the public will be able to view and listen to the meeting via a live video stream. You can watch the meeting online by [clicking here to go to MAG's YouTube Channel](#). Public comments can be provided in written format through the MAG website at azmag.gov/comment. If you have questions, please contact the MAG office at (602) 254-6300.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the MAG ITS Committee meeting does not meet the quorum requirement, members who have joined the meeting will be notified that a legal meeting cannot occur and the meeting will end. Your participation in 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 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 MAG at (602) 254-6300.



ITS Committee TENTATIVE AGENDA

October 7, 2020

1. **Call to Order**

ITS Committee Chair David Lucas of City of Tempe calls the meeting to order. For the October 7, 2020 meeting, the quorum requirement is 11 committee members.

2. **Approval of Minutes**

Approval of minutes from the ITS Committee meeting held on September 2, 2020.

Action Requested:

Approve September 2, 2020, ITS Committee Meeting Minutes.

3. **Program Manager's Report**

The MAG TSM&O Program Manager, Jeff Jenq, will provide a report to the ITS Committee.

- Federal updates reported by FHWA
- Recognition of Faisal Saleem – NOCoE TSMO Champion of the year award
- Traffic detection evaluation methodology study update
- FY 2020 TSOP update
- RCN update

Action Requested:

Information.

4. **I-10 Broadway Curve: Project Update**

The I-10 Broadway Curve project is planned to improve Interstate 10 between

Interstate 17 and State Route 202/Santan Freeway. It will represent the region's first major freeway reconstruction project within the urban core. Construction will begin in the summer of 2021 and extend through 2024. MAG will provide an update on the project, including potential measures to mitigate construction impacts.

Action Requested:

For information and discussion.

5. Traffic Signal Optimization Program: Project Evaluation Methodology

In the past, the Traffic Signal Optimization Program (TSOP) would select three projects to be evaluated on the effectiveness of the implemented traffic signal timing plans in terms of travel time improvements of the project corridors. The travel time evaluations have been conducted using the traditional floating car method. For the current cycle of FY 2020 TSOP projects, a new evaluation methodology will be applied using the TranSync software and the INRIX Probe Data. WSP USA has been tasked to perform the evaluations for the FY 2020 cycle of TSOP projects. Kittelson & Associates has been tasked to develop the new methodology and work in coordination with WSP USA to validate and apply the new evaluation methodology. Kittelson & Associates will present an overview of the new project, including methodology development and training opportunities.

Action Requested:

For information and discussion.

6. FY 2021 Traffic Signal Optimization Program Planning

The programming of the FY 2021 Traffic Signal Optimization Program (TSOP) was originally scheduled to proceed in the summer and fall of 2020. However, due to the impact of COVID-19 on daily traffic conditions and the subsequent postponement of the FY 2020 TSOP projects to the fall of 2020, the FY 2021 TSOP programming has been postponed to the spring of 2021. MAG staff will present an overview and projected schedule for programming the FY 2021 TSOP projects.

Action Requested:

For information and discussion.

7. Request for Future Agenda Items

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

Action Requested:

Information.

8. Comments from the ITS Committee Members

An opportunity will be provided for ITS Committee members to present a brief summary of current events. The ITS Committee is not allowed to propose, discuss, deliberate or take action at the meeting on any matter in the summary unless the specific matter is properly noticed for legal action.

Action Requested:

Information.

9. Adjournment

Action Requested:

Motion to adjourn.

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

September 2, 2020
Virtual Meeting, Zoom

MEMBERS ATTENDING

# David Lucas, City of Tempe (Chair)	# Hugh Bigalk, City of Goodyear
# Susan Anderson, ADOT	# April Wire for Nicolaas Swart, Maricopa County
* Raquel Schatz, City of Apache Junction	# Joshua Plumb, City of Maricopa
# Yingyan Lou, ASU	* Tricia Boyer, City of Mesa
# Ward Stanford, City of Avondale	# Steve McKenzie, City of Peoria
# John Willett, City of Buckeye	# Bruce Littleton, City of Phoenix
# Srinivas Goundla, City of Chandler	# Scott Nodes, Pinal County
* Sergeant Stuart McGuffin, DPS	# Marshall Reigel, Town of Queen Creek
# Tessa Wessel, City of El Mirage	# Hong Huo, City of Scottsdale
# Mike Sutton, Town of Gilbert	# Albert Garcia, City of Surprise
# Allan Galicia, City of Glendale	# Steve Chayt, Valley Metro

EX-OFFICIO NON-VOTING MEMBERS ATTENDING

Toni Whitfield, FHWA

OTHERS PRESENT

# Adam Carreon, ADOT	# Ryan Gish, MAG
# Simon Ramos, City of Phoenix	# Jeff Jenq, MAG
# David Worley, MAG	# Eric Nava, MAG
# Jeremy Garcia, MAG	# Omar Aboulaban, MAG

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

1. Call to Order

Chair David Lucas called the meeting to order at 10:02 a.m. and conducted introductions. Chair Lucas made a call to the audience who submitted any comments, providing an opportunity for any members of the public to address the ITS Committee. No comments were received.

2. Approval of the Minutes from ITS Committee meeting held on August 5, 2020

Chair Lucas requested an amendment in Item #3, correcting the annual ITS Conference's date to October 14th, 2020. Chair Lucas requested the approval of the meeting minutes from the August 5th ITS Committee meeting as amended. **Scott Nodes with Pinal County moved, Bruce Littleton with City of Phoenix seconded, and it was unanimously carried to approve the minutes of the meeting held on August 5, 2020.**

3. Staff Report

Chair Lucas invited Jeff Jenq with MAG to present the Staff Report. Mr. Jenq addressed the following items in the report:

➤ Federal Updates reported by FHWA

Mr. Jenq invited Toni Whitfield with FHWA to provide an update on the item. Ms. Whitfield announced that the comment period for the Broadband Infrastructure Deployment Notice of Proposed Rulemaking (NPRM) closes on September 14th, 2020. For more information, please visit <https://www.federalregister.gov/documents/2020/08/13/2020-17525/broadband-infrastructure-deployment>. Ms. Whitfield announced the third series of Virtual events hosted by NHTSA on Automated Vehicle Transparency and Engagement for Safe Testing Initiative scheduled for September 2nd and September 3rd, 2020. For more information, please visit <https://www.nhtsa.gov/events-and-public-meetings>.

➤ FY2020 TSOP Projects

Mr. Jenq recounted that FY2020 TSOP projects were delayed at the beginning of the year to the Fall of 2020 due to COVID-19 and have recently resumed. Mr. Jenq invited Eric Nava with MAG to provide a status update on the FY2020 TSOP projects. Mr. Nava announced that all FY2020 projects have officially started with kickoff meetings and data collection initiated for some projects. The before and after travel time evaluations project is currently pending adjustments in the scope of work and will begin in the near future.

➤ ADOT automating traffic count data for MS2 modeling project update

Mr. Jenq referred that this item provides an update regarding the June ITS Committee presentation of the ADOT Statewide Traffic Data Collection Program. The project's purpose is to automate the collection of traffic count data for MS2 platform. Mr. Jenq announced that the project contractor had sent an online survey to committee members regarding traffic count detectors' inventory in jurisdictions. Mr. Jenq encouraged the ITS committee to respond to the survey.

➤ RCN Update

Mr. Jenq invited Ryan Gish, MAG RCN Manager, to present an update on the recent activity of the RCN Network. Mr. Gish remarked previous work of repairing a major RCN link between the Rental Car Center and Chandler that was inactive for approximately six months. Mr. Gish expressed his thanks to ADOT, the City of Phoenix, and the City of Chandler for their support in the RCN efforts. Mr. Gish reported on the work with the City of Chandler to provide network support on the field network to improve efficiency. Mr. Gish mentioned the assistance with Peoria and ADOT with the Emerging Technologies project. Mr. Gish announced the annual testing and maintenance of the RCN fiber links and will notify the committee members of any on-site testing. Mr. Gish also announced the collaboration with MCDOT and AzTech in the development of a notification system to relay any RCN outages to the local agencies. Mr. Gish provided an update on the MAG On-call services contract for Regional Fiber Maintenance Support stating the first task force meeting will be on September 15th. If any

members of the committee are interested in joining, please contact Ryan Gish.

➤ ATCMTD Grant update

Mr. Jenq provided an update regarding the ATCMTD Grant. Mr. Jenq reported that the Grant proposal led by MCDOT, co-lead by MAG and ADOT, and local agency supports was submitted on August 31st, 2020. The proposed project is regarding next-generation regional congestion management through integrated real-time systems and operations data in the greater Phoenix area. Mr. Jenq signified the proposal as a testament to the strong collaboration of agencies in the MAG region.

4. ADOT Smart Work Zone Program

Chair Lucas stated, ADOT initiated a Smart Work Zone Program and is using technology and transportation data to improve highway workers and the traveling public's safety. Chair Lucas invited Adam Carreon with ADOT to present this item.

Mr. Carreon stated that ADOT has been working on the Smart Work Zone (SWZ) Program for two years and provided an update of its efforts. Mr. Carreon reported that this program follows ADOT guidance documents for the Work Zone Safety and Mobility Policy document and the Implementation Guidelines. The SWZ program is the application of computers, communications, and sensor technology to freeway transportation. This system possesses real-time portable, automated, and reliable characterizes. Mr. Carreon implied that it could also be implemented in arterial transportation, as MCDOT has shown in the region. Mr. Carreon viewed some examples of the SWZ devices, indicating many devices are discreet and easy to integrate into current freeway structures. Mr. Carreon mentioned the development of Section-710 SWZ Systems with the assistance of Kimley-Horn and Associates. Section-710 consists of furnishing and installing all components to provide a fully functional, automated, and portable SWZ system and covers multiple key subsystems. Mr. Carreon also mentioned the development of the SWZ Device Quantities & Locations Tool as well as the SWZ Queue Analysis Tool to aid with the design phase. Mr. Carreon highlighted the use of funds from the Technology and Innovation Deployment Program (TIDP), which increased the federal share for project-level innovation. Typical SWZ will cost one percent of the project's budget, and using TIDP offers to lower local matching costs. ADOT SWZ has saved over \$10 Million in state matching funds since 2014. Mr. Carreon showed a cost sheet example of SWZ projects displaying the potential savings of using SWZ through federal funding opportunities Mr. Carreon recognized the aspect of using Connected Vehicles and SWZ. Automated vehicles currently do not handle unexpected changes very well, as their systems are not designed for it. Mr. Carreon stated that ADOT recognizes the need for a Connected Vehicle Work Zone Notification System to increase mobility and safety by alerting the vehicles of an incident location. Mr. Carreon mentioned the FHWA Work Zone Data Initiative (WZDI) with the focus of MCDOT and ADOT on the Work Zone Data Exchange Specification subpart of the initiative. Mr. Carreon highlighted the submission of a grant through the AzTech Partnership to further develop and standardize the language the devices use to broadcast data for anyone to use and allow services such as car manufacturers or navigation services to inform drivers and vehicles. Mr. Carreon congratulated Faisal Saleem with MCDOT on the work he's doing to standardize the language by collecting the data from local agencies unto the RADS System, distributed through the ADOT 511 System. Mr. Carreon informed the ITS Committee of

the next steps of the SWZ Program of adding a portable speed feedback sign, smart arrow boards, location sensors, and truck entry-exit system. Mr. Carreon also stated that ADOT would be providing training on the design phase tools. For more information, please contact Adam Carreon with ADOT.

Jeff Jenq, with MAG, added, the Smart Work Zone Program is one of the USDOT major initiatives. ADOT and MCDOT in the MAG region are at the forefront of working with USDOT on several leading-edge work zone initiatives. Mr. Jenq congratulated Mr. Carreon on being the ADOT champion of the SWZ Program.

5. Traffic Signal Operations Utilizing Dynamic Maximum Green Action

Chair Lucas stated that the dynamic maximum green feature is being used by some local member agencies to improve the efficiency of traffic signal operations under specific conditions. Chair Lucas invited Jeff Jenq with MAG to provide a background of the item.

Mr. Jenq recounted in the August MAG ITS Committee, April Wire with MCDOT asked about the feasibility of using dynamic max in future TSOP projects. As a follow-up, Steve McKenzie, with the City of Peoria, kindly agreed to share his experience in deploying dynamic max in the City of Peoria. Mr. Jenq explained that dynamic max is a feature defined in NTCIP 1202 standard and available on all modern NCTIP compliant traffic signal controllers. One of the prerequisites for dynamic max is installing detectors, and the Dynamic max functions allow a signal phase to extend the green time by a user-defined maximum time. The City of Peoria utilizes dynamic max when the intersection is not coordinated with other intersections, unlike the TSOP projects, which facilitate progression along the corridor. Mr. Jenq invited Steve McKenzie with the City of Peoria to share his experience with dynamic max.

Mr. McKenzie provided a presentation of dynamic max free (DMF) regarding the implementation of DMF, the City of Peoria's history with DMF, supporting critical information, and the advantages and disadvantages of using DMF. Mr. McKenzie provided a graphic showing the ASC/3 panel view highlighting that Max1 timing plans are set, and the dynamic max timing plans are set for a higher duration as the user-defined maximum time allowed for each phase under certain conditions. Mr. McKenzie stated that the City of Peoria utilizes DMF only during the day, and other agencies may only use it for a specific time based on their need. Mr. McKenzie cautioned that as DMF operates detectors to be triggered, there may be conflicting elements such as parked vehicles that may confuse the sensor into falsely triggering. Mr. McKenzie shared the history of the City of Peoria's start of using DMF in 2006 due to one intersection at Lake Pleasant Parkway and Happy Valley Parkway that the Time of Day (TOD) plans were not working well due to vehicle platoons spreading out before the arrival at the intersection. The City staff decided to use DMF and immediate improvements by observing peers who used the corridors. At that time, the City's policy was using TOD at almost all locations, and for some locations, it wasn't effective due to platoons spreading out. The City staff decided to implement DMF on many of those examples and saw an improvement by monitoring CCTVs of the intersections, driving over the corridors, and receiving great feedback from peers using the roadways. Mr. McKenzie remarked his observation of best implementing DMF is starting with the highest Max1 timing plans as the base for dynamic max and adjust with increments of five seconds as needed through

observation. For some other jurisdictions, they use higher increments to enable it to work faster for major events. The city of Peoria is currently implementing DMF with every new traffic signal unless it's in the middle of a coordinated corridor, then DMF is only used to aid with calculating the Max 1 timing plans. Mr. McKenzie explained to implement DMF; there must be good detection on all phases. On corridors with low volumes, DMF works very well, and the spacing of the signals doesn't seem to have a high impact. While on corridors with high volumes, it works well when portions are greater than half a mile between signals such as the example of Happy Valley and Lake Pleasant. On corridors with high volumes and closely spaced signals, DMF is less likely to be effective. Mr. McKenzie also shared that DMF works great for areas with construction as traffic is more unpredictable, and the detector can learn the presence of a stationary object after a certain time and doesn't trigger a DMF state for that object. For more information, please contact Steve McKenzie with the City of Peoria.

6. Performance Evaluation of Traffic Signal Timing Plans

Chair Lucas stated that the MAG Traffic Signal Optimization Program typically collects travel time data to measure the re-timed corridors' performance. For FY2020 TSOP project evaluation, MAG will be using a software tool called TranSync-M that records and displays real-time vehicle location on the time-space diagram and a video of the drive-through as part of the evaluation workflow. Chair Lucas invited Jeff Jenq with MAG to provide a background of the item.

Mr. Jenq stated that the MAG Traffic Signal Optimization Program is well received for making positive impacts on the regional traffic operations. Every year, the program includes an evaluation project for assessing the effectiveness of the selected TSOP projects. The primary evaluation method is the floating car study, which includes driving through the project corridors to measure the number of stops and delays at the intersections as the key performance measures. The floating car study issue is that it's labor-intensive in that only a limited number of vehicle runs can be afforded during the peak period, and the information reported is relatively limiting. Starting this year, MAG will be using the TranSync software on the mobile device for TSOP evaluation. This new tool can record and display vehicle location and overlay it on the time-space diagram, generated with the timing plan, as you drive through the corridor. In addition, it records the video of the entire journey, which is extremely useful for verifying the traffic conditions. The software automatically calculates the delay encountered at each intersection. When presented with the time-space diagram, it shows how much you are off from the green band to adjust the offset setting. Mr. Jenq reported that a TSOP task order is being developed for Kittelson and Associates, considering their experience with TranSync. The task order is used to procure the software and mobile devices, develop an evaluation methodology using TranSync, and provide training for MAG and member agency staff, and other TSOP contractors. We expect to use this new evaluation methodology in the current FY2020 TSOP evaluation. Currently, the new tool is used only for the evaluation. As MAG gains experience, in the future, MAG may include this tool for signal re-timing applications. Mr. Jenq invited Simon Ramos of the City of Phoenix to share his expertise with the TranSync software.

Mr. Ramos shared a map of where TranSync software had been used in the past. Mr. Ramos stated that TranSync is developed to manage timing plans, optimize timing plans, diagnose and fine-tune timing plans in the field, and evaluate the performance and quality of signal timing

plans implemented. Mr. Ramos compared Synchro and TranSync as data inputs; Synchro uses turning volume and lane configuration while TranSync uses cycle lengths, splits, and speeds. In terms of timing data management, Synchro created one file for each timing plan while in TranSync, there can be multiple agencies and multiple timing plans under one single database. In terms of optimizing plans, Synchro is mainly geared for improving delay while TranSync is geared towards maximizing the bandwidth for progression. Synchro currently doesn't offer a field diagnosis while TranSync offers GPS and real time-space diagram diagnosis on IOS devices. In terms of evaluation metrics, Synchro provides you with delays, stops, and other metrics such as environmental impacts, and TranSync provides performance metrics or proprietary indexes that can be taken to the field and assessed with the travel time runs. The city of Phoenix utilizes both software for optimizing a corridor through building the model in Synchro to optimize the splits and then imports the model into TranSync, providing the time-space diagram as it's intuitive to use. Mr. Ramos showed an example of the time-space diagram in both software, emphasizing that TranSync optimization will provide the best bandwidth and be considered a little change from the NEMA phase ring structure to more a lead and lag. Mr. Ramos addressed the setup of signal timing plans and the ease of using the software as it took the City staff between five to ten sessions for the staff to be trained on using. A great feature of TranSync is the recording of driving the corridor as the software will track your GPS location and overlay it on the time-space diagram in real-time, allowing the user to troubleshoot any issues on the field and make any necessary timing adjustments. The city of Phoenix uses TranSync as turning movement counts are not available due to the vast network of signals. While most of the traffic signals are optimized, this tool allows further refining, verifying, and validating the Synchro plans. Mr. Ramos also mentioned that TranSync Mobile provides a clearer insight when making field adjustments in real-time while Synchro data can easily be imported in TranSync. One of the software's major benefits is offering the City's signal shop a better understanding of how coordination works by correlating the signal timing plans and field operations. Mr. Ramos shared a recent example of utilizing TranSync to optimize a corridor when there was no ability to obtain turning movement counts and highlighted that it couldn't have been done without the use of TranSync software. For any questions, please contact Simon Ramos with the City of Phoenix.

Mr. Jenq added that for the TSOP program, the use of TranSync in evaluation is the preliminary step to familiarize with the tool and will report back to the committee with the findings of using this tool.

Mike Sutton, with the Town of Gilbert, added, Kittelson and Associates used TranSync on a local TSOP project in the Town of Gilbert previously, and it worked very well.

7. Request for Future Agenda Items

Chair Lucas called on members to request future agenda items. There were no requests. Any future requests should be provided to the MAG staff.

8. Comments from the ITS Committee Members

Chair Lucas called on members to report items of interest to the committee.

Srinivas Goundla, with the City of Chandler, reported the start of the citywide ARID device

installation project recently and had a small workshop with the east valley cities and City of Phoenix. The project will finish the design late next year and then begin construction.

Bruce Littleton, with the City of Phoenix, reported the collaboration with the City of Tempe and City of Chandler on the I-10 Broadway Curve Project in allowing center to center communication features by working with TransCore.

Steve McKenzie, with the City of Peoria, reported the emerging technologies project in Peoria has restarted and the sensors Rhythm installed are in the AI learning phase and will begin to see some results in the next few months for the turning movement counts and the suggested Time of Day Plans.

John Willett, with the City of Buckeye, reported through the collaboration with ADOT and MAG, the ITS network on I-10 is back running, extending the system from Perryville to State Route 85, including DMS signs and fiber. Construction will begin early 2021 and will allow the City of Buckeye to connect some of the city's network to the RCN network

9. Next Meeting Date and Place

Chair Lucas announced that the Intelligent Transportation Committee's next meeting will be held at 10:00 a.m. on Wednesday, October 7, 2020, via virtual conference unless otherwise notified.

10. Adjournment

The meeting was adjourned by Chair Lucas at 11:35 a.m.