

August 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, September 7, 2016- **9:30 a.m.**  
MAG Office Building, 2<sup>nd</sup> 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 September 7, 2016 meeting, the quorum requirement is 10 committee members.</p>	
<p>2. <u>Approval of the August 10, 2016 ITS Committee Meeting Minutes</u></p>	<p>2. Review and approve minutes of the meeting held on August 10, 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"><li>• Upcoming ITS Planning Projects</li><li>• Systems Management and Operations Plan</li><li>• Broadcasting of SPaT Data</li></ul>	<p>4. For information and discussion.</p>
<p>5. <u>Benefit-Cost Evaluation of a TSOP Project</u></p> <p>An FY2016 TSOP project produced optimized signal timing for two I-17 crossings, at Indian School Road and at Camelback Road. Both locations involved traffic signal infrastructure controlled by the City of Phoenix and by the Arizona DOT. The new signal settings recommended by the project was implemented by both agencies and both sites were evaluated through a</p>	<p>5. For information and discussion.</p>

before-and-after study. Significant traffic flow improvements resulted at these two locations. ADOT performed a benefit-cost assessment, which took into account all costs including agency staff time. It showed that the project produced a B-C ratio of 86 to 1. A brief presentation on this evaluation will be provided by Arizona DOT.

6. Implementation Status of FY2016 TSOP Projects & Plans for FY2017

A total of seven TSOP projects were carried out in FY2016, that included the Synchro Workshop and before-and-after evaluations at three sites. Brief reports will be provided on the implementation status of new signal timing at six locations across the region.

In preparation for the next cycle of TSOP projects, the committee will review the current project application (See Attachments One and Two) and discuss possible modifications to the process.

7. Reports by Committee Members

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

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.

9. Next Meeting Date and Place

The next meeting is scheduled to be held at 9:30 a.m. on Wednesday, October 12, 2016. It will be held in the Chaparral Room on the 2<sup>nd</sup> Floor of the MAG office building. This meeting will be followed by a 10:30 am meeting of the Technical Advisory Group for the Systems Management and Operations Study.

10. Adjournment

6. For information and discussion.

7. For information and discussion.

8. For information and discussion.

9. For information.

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

August 10, 2016  
MAG Chaparral Room, 2nd Floor  
302 North First Avenue  
Phoenix, Arizona

MEMBERS ATTENDING

Mark Poppe for Reza Karimvand, ADOT	# Faisal Saleem for Nicolaas Swart,
Yingyan Lou, ASU	Maricopa County
Chris Hamilton, City of Avondale	Tricia Boyer for Avery Rhodes, City of
Tammy Valadez Paz, City of Buckeye	Mesa
Mike Mah, City of Chandler	Steve McKenzie, City of Peoria
# Sergeant Jake Pruet for Sergeant John	Marshall Riegel, City of Phoenix
Paul Cartier, DPS	Khamchanh Ratsavong for Reginald
Bryce Christo, City of El Mirage	Fitzpatrick, City of Scottsdale
Edward Stillings for Jennifer Brown,	Albert Garcia, City of Surprise
FHWA	David Lucas, City of Tempe
Debbie Albert, City of Glendale	# Jay Yenerich for Abhishek Dayal, Valley
# Hugh Bigalk for Luke Albert, City of	Metro
Goodyear	

OTHERS PRESENT

Scott Beck, ADOT	Mike Blankenship, AMEC Foster
Simon Ramos, ADOT	Wheeler
Steve Ramsey, ADOT	Krishna Anantuni, Gannett Fleming
Kerry Wilcoxon, ADOT	Cory Steele, Strand
Farzana Yasmin, ADOT	Lisa Burgess, Kimley-Horn
Dave Dansevicius, r911	Pierre Pretorius, Kimley-Horn
Rick Hooker, Town of Gilbert	Amy Garinger, Kimley-Horn
Rajnish Gupta, Town of Gilbert	Nick Warren, Kimley-Horn
Allan Galicia, City of Glendale	John Kissinger, Kimley-Horn
Leslie Bubke, City of Scottsdale	Michael Grant, ICF
Dan Hartig, Ayres	Margaret Boone, MAG
Jeff Jenq, OZ Engineering	Monique de los Rios Urban, MAG
Skye Gentile, Parsons	Ryan Gish, MAG
Don Wiltshire, YSMA	Eric Nava, MAG
Arnab Gupta, AECOM	Audra Koester Thomas, MAG
Don Tappendorf, Michael Baker	Sarath Joshua, 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. Chair Riegel welcomed Debbie Albert, participating as Vice Chair of the Transportation Review Committee.
2. Approval of the June 1, 2016 ITS Committee Meeting Minutes

Chair Riegel requested approval of the meeting minutes from the June 1<sup>st</sup> ITS Committee meeting. **Chris Hamilton from City of Avondale moved, Chair Riegel from City of Phoenix seconded, and it was unanimously carried to approve the minutes of the meeting held on June 1, 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:

➤ Synchro Training Workshop

The Synchro Training Workshop was successfully conducted on Wednesday, July 13<sup>th</sup> through Friday, July 15<sup>th</sup> at the MCDOT Training Facility. Seventeen people attended the workshop for all three days. There were comments to conduct two separate workshops, one for beginner and intermediate users and one for advanced users. This will be considered for future training opportunities.

➤ Traffic Signal Optimization Program

Eight Traffic Signal Optimization Program (TSOP) projects were completed between February and July for a total cost of \$313,000. Three TSOP projects developed ICM/signal timing strategies for freeway closure scenarios including I-10 and US-60. The I-10 ICM project produced the "Operators Playbook" including 410 signal timing plans. The deliverable has been provided to project stakeholders for implementation.

➤ Upcoming ITS Planning Projects

Mr. Joshua detailed upcoming ITS planning projects. The regional Emergency Vehicle Preemption (EVP) Coordination for Unified Operations project will establish a regional EVP Coordination working group and will entail a series of workshops to generate consensus on standards for operations and future deployment. The budgeted amount is for \$80,000 for the ITS on-call task order. The City of Buckeye will be coordinating with MAG staff to develop the ITS Strategic Plan. The budgeted amount is for \$100,000 for the ITS on-call task order. MAG staff will be conducting the next round of TSOP projects for FY2017. The budgeted amount is for \$300,000 for the ITS on-call task orders.

➤ ITS Committee Revised Meeting Schedule

Mr. Joshua identified the following dates for future ITS Committee meetings:

- September 7, 2016 – Ironwood Room
- October 12, 2016 – Chaparral Room
- November 9, 2016 – Chaparral Room
- December 14, 2016 – Chaparral Room

These scheduled ITS Committee meetings will begin at 9:30 AM and go until 10:20 AM. There will be a 10 minute break before the Systems Management and Operations (SM&O) Plan Technical Advisory Group (TAG) meets between 10:30 AM and 11:30 AM.

5. Systems Management and Operations Plan

Chair Riegel invited Sarath Joshua with MAG to introduce the agenda item. Sarath Joshua stated that this study was recommended by the Committee, to develop the SM&O Plan for the region. The firm Kimley-Horn and Associates has been hired by MAG to carry out this 16-month study. He stated that the scope of services including the study approach, tasks, key milestones, and the planned schedule has been provided as an attachment to the agenda. The Project Team consists of project manager Lisa Burgess and her staff with Kimley-Horn, and Michael Grant and his staff with ICF. Sarath stated that he will be the project manager for MAG. He stated that all members of the Committee have been invited to participate in the Technical Advisory Group (TAG) that will provide oversight to this study. Others invited to participate in the TAG include Chair and Vice Chair of the Transportation Review Committee, staff of the ADOT TSM&O division and MAG staff.

Sarath invited Lisa Burgess with Kimley-Horn & Associates to present an overview of the study tasks. Task 0 addresses project management and technical oversight process and will produce the Project Management Plan (PMP) identifying the TAG role, the stakeholder communications plan, the quality control plan, and the project schedule. She went on to describe study tasks as follows:

Task 1 will include a review of best practices in urban transportation systems management and operations (TSM&O) in major urban regions. MAG has already established a panel of TSMO experts. The panel of experts will provide input via an online survey. This task will also include interviews with “exemplary regions” to identify institutional frameworks, alternative business models, and tools that support SM&O practices, performance measurement and data. The consultant will utilize the survey experts to identify up to ten urban regions with exemplary practices, follow-up with key agency staff in these regions to gather information and coordinate their participation in a Best Practices Webinar to be held at MAG on September 7<sup>th</sup>.

Task 2 will include a review and documentation of current and planned ITS infrastructure and current SM&O practices. The review will include freeway and arterial operational functions, connectivity and control of ITS infrastructure, ITS infrastructure life-cycle evaluation, performance measures, staffing and development in essential technical skills, and lessons learned over the last 20 years of ITS deployment in the region. The Project Team will also conduct a freeway and arterial ITS infrastructure survey. For freeway considerations the review will include freeway management system (FMS) infrastructure, ITS instrumentation of South Mountain freeway, and funding cost for capital and operations. For arterial considerations the review will include an update of the 2011 survey, current coverage of traffic signal systems, funding costs for capital and operations, infrastructure features and operations elements, signal controller technologies, and data collection for system performance monitoring.

Task 3 will establish the long term vision and concept of SM&O. This will include any infrastructure improvements identified in current MAG plans, the influence of emerging technological advances and future scenarios, and potential trends in travel behavior and patterns based on a 2030 horizon year.

Task 4 will identify regional priorities for SM&O. The Project Team will investigate the

recommended methodology for classifying and establishing a hierarchy for facilities on the freeway and arterial road networks. This will serve as the bases for future regional SM&O investments. The Project Team will also develop the initial list of prioritized facilities for regional SM&O investments.

Task 5 will develop the initial SM&O implementation plan using a three-phase strategy. The first phase is for 2021 through 2024, the second phase is for 2025 through 2027, and the third phase is for 2028 through 2030. The Project Team will develop estimated implementation costs for infrastructure and operations. This plan will inform the MAG TIP programming process for future SM&O projects.

Task 6 will identify the recommended data collection, performance measurement, and reporting processes, including best practices and data elements required for performance measurements. The Project Team will identify existing data sources and explore the feasibility of establishing regional data collection infrastructure.

Task 7 will develop the framework for annual SM&O performance reviews. The Project Team will identify best practices and potential models for MAG to emulate, as well as the process for establishing key performance goals and targets. The focus will be on strategies that demonstrate a clear return on investment and automating performance monitoring where feasible.

Task 8 is the final task and includes the final MAG SM&O Plan for FY2021-2030. This task involves the development of the final report and an executive summary. Each of the prior task reports will form a chapter of the final report.

Ms. Burgess presented the project timeline for all tasks, identifying draft deliverable due dates, review periods, and final deliverable due dates. It is anticipated that the project will conclude in December 2017. The project meetings scheduled for 2016 coincide with the previously identified schedule as presented by Sarath Joshua. The following deliverables are anticipated for the upcoming TAG meetings:

- August 10, 2016 – Draft Project Management Plan (PMP)
- September 7, 2016 – Final PMP, Draft Best Practices Review, Draft Current SM&O Practices
- October 12, 2016 – Final Best Practices Review, Final Current SM&O Practices
- November 9, 2016 – Draft Long Term Vision for SM&O
- December 14, 2016 – Final Long Term Vision for SM&O, Draft Regional Priority Investments

6. Regional Community Network – No Cost Service Addition

Chair Riegel invited Ryan Gish with MAG to provide this report. He reported on the latest Regional Community Network (RCN) developments. MAG staff is coordinating with staff members from City of Avondale and City of Goodyear to prepare for connections to the RCN.

Maricopa Region 9-1-1 (r911) submitted a request for a no-cost service addition to the RCN. The request is for additional bandwidth allocation to better separate back-up traffic from critical 9-1-1 data. This would be provided at the Mesa PD and Phoenix Fire locations to run back-up data outside of normal data paths. The back-up data will be encrypted and run between r911 firewalls at the locations, running daily between 7:00

AM and 3 PM. The request is for a 1 Gpbs handoff. This request has been reviewed and recommended for approval by the RCN Working Group. The MAG Technology Advisory Group (TAG) also recommended approval of the requested service addition at the June 16<sup>th</sup> meeting.

Chair Riegel requested a motion from the ITS Committee to approve of requested addition. **Chris Hamilton from City of Avondale made a motion that the MAG Intelligent Transportation Systems Committee approve the no-cost service addition to the Regional Community Network as requested by Maricopa Region 9-1-1. Steve McKenzie from City of Peoria seconded the motion, and the motion carried unanimously.**

7. Emergency Vehicle Pre-emption Study

Chair Riegel invited Micah Henry with MAG to discuss the Emergency Vehicle Pre-emption (EVP) Study. MAG concluded a consultant study on EVP State of the Practice that included a comprehensive review of EVP-related practices in the MAG region and elsewhere, and identified some best practices for the MAG region to consider adopting in the future. The study also compiled an inventory of regional EVP installations. The draft final report has been reviewed and all comments have been addressed in the final version of the report that was recently distributed to the committee.

Recent revisions to the report better reflect the state of the practice. This includes all comments from member agencies as well as updated data for EVP deployment and operations. The final section identifies future considerations and all alternatives are identified for system interoperability, confirmation light control, encoding, preemption phasing, and confirmation lights.

The additional data was collected for preemption phasing and confirmation lights. Of the regional intersections operating with EVP, 72% use green ball indications for both through movements for the approaching emergency vehicle and only 5% operate with confirmation lights. System interoperability is more clearly defined and future considerations include “do nothing” alternatives. The report also documents suggested regional EVP coordination goals. Next steps are to be considered under a new project in the FY2017 MAG Work Program.

Committee action was requested to recommend approval of the final report. **Albert Garcia from City of Surprise moved, Bryce Christo from City of El Mirage seconded, and it was unanimously carried that the MAG Intelligent Transportation Systems Committee recommend approval of the Emergency Vehicle Preemption State of the Practice Study Final Report.**

8. Reports by Committee Members

Chair Riegel called on members to report items of interest to the committee. Rick Hooker with Town of Gilbert identified a new 5-mile fiber loop installation project to connect fire department stations. David Lucas with City of Tempe stated that the fiber installation project on Elliot Road from I-10 to Loop 101 includes 4.5 miles of fiber optic cable to help establish redundancy in communications. The notice to proceed has been issued. Chair Riegel with City of Phoenix stated that the travel time project on 7<sup>th</sup> Street and 7<sup>th</sup> Avenue will be advertised next week. Travel times and alternative routes will be posted on the signs for both freeway and arterial operations. Ed Stillings with FHWA introduced himself as the new representative on the Committee for the agency. Allan

Galicia with City of Glendale stated that the agency will initiate a project on 67<sup>th</sup> Avenue and that the department is preparing for the Cardinals kick-off game and the Guns N' Roses mega event scheduled on August 15<sup>th</sup>. Farzana Yasmin with ADOT stated that FMS projects are under design, including segments of Loop 202, I-10, and Loop 303. Construction has also begun for a segment of Loop 202.

9. Request for Future Agenda Items

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

10. Next Meeting Date and Place

Chair Riegel noted that the next meeting will be held at 9:30 a.m. on Wednesday, September 7, 2016, in the Ironwood Room (2<sup>nd</sup> floor) at MAG.

11. Adjournment

Chair Riegel adjourned the meeting at 10:51 a.m.

**FY2017 MAG TRAFFIC SIGNAL OPTIMIZATION PROGRAM  
PROJECT APPLICATION FORM**

Agency Name		
Project Title		
Project Goal		
Brief Description		
Please answer the following questions:		
1. Is this TSOP project an ICM project with regional impact? (YES/NO)		
If "YES", please list participating MAG member agencies.		
a.	c.	
b.	d.	
2. Is this a multi-jurisdictional signal timing project? (YES/NO)		
If "YES", please list participating MAG member agencies.		
a.	c.	
b.	d.	
3. Is this project limited to traffic data collection for use by agency staff in determining new signal timing? (YES/NO)		
If YES, how many weeks following the delivery of traffic data, would your agency staff require to determine new signal timing and to implement them in the field? <i>(This information is CRITICAL when MAG develops the project schedule with the on-call consultant)</i>	<i>(max. 12 weeks)</i>	
<i>NOTE: All projects that would involve ONLY traffic data collection MUST include a before-and-after study as part of the project scope, and requires the local agency to implement new signal timing using the data, within two months.)</i>		

4. Please list signalized intersections addressed by the project.	
a. b. c. d. e. f. g.	
<i>For each intersection listed above provide the following information:</i> <i>Identify type of traffic signal controller:</i> <i>Time source used for coordination:</i> <i>Interconnection between signals:</i> <i>(add more lines if necessary)</i> <i>(Provide a map identifying the intersections included in the project)</i> <i>(signal timing projects may be selected for a before-and-after study)</i>	
5. When were these intersection signals last retimed?	
6. Existing conditions at intersections and along the corridors. (ie. LOS at intersections, along corridors, public complaints, traffic flow characteristics, activity centers, signal spacing, etc. For regional projects, please describe the regional significance of the project)	(Attach information)
7. Is this corridor presently coordinated? (YES/NO)	
8. If a 3-day SYNCHRO training is available, how many personnel (whose responsibility is directly related to signal timing) will your agency send to the training?	
9. Estimated project cost?	(\$60,000 budget limit for ICM project with regional impact and multi-jurisdictional projects, \$30,000 budget limit for others)
10. Estimated project duration?	
Agency Project Managers (list project managers from each agency involved)	
Agency 1	
Name:	
Title:	
E-mail:	
Phone:	
Agency 2	
Name:	
Title:	

E-mail:	
Phone:	
Agency 3	
Name:	
Title:	
E-mail:	
Phone:	
Agency 4	
Name:	
Title:	
E-mail:	
Phone:	
<p><i>Please send your applications to <a href="mailto:TSOP@AZMAG.GOV">TSOP@AZMAG.GOV</a></i></p> <p><i>If there are any questions about this form, please contact:</i></p> <p><i>Micah Henry, P.E., ITS &amp; Safety Engineer, MAG at (602) 452-5097 or <a href="mailto:mhenry@azmag.gov">mhenry@azmag.gov</a></i></p>	

## FY2017 MAG TRAFFIC SIGNAL OPTIMIZATION PROGRAM

### REQUEST FOR PROJECTS

The Maricopa Association of Governments (MAG) serves as the forum for planning regional transportation improvements that involve strategic investments in advanced traffic management infrastructure and operations. The Traffic Signal Optimization Program (TSOP) program provides technical assistance to MAG member agencies that own and operate traffic signal systems to ensure that these systems are well adjusted to match prevailing traffic patterns.

TSOP projects are launched through MAG on-call consultant services contracts with a number of qualified engineering consultants. Projects provide technical assistance to MAG member agencies for improving traffic signal coordination and optimization. Projects could also assist member agencies in developing computer-based traffic signal coordination networks that are utilized by local agency staff to refine signal timing. A total of \$300,000 is available in FY2017 for TSOP projects. This call for projects will identify projects for the available funding.

The deadline for TSOP application submittals is **Monday October 3, 2016**. Please complete and submit the attached application to:

Traffic Signal Optimization Program  
Maricopa Association of Governments  
302 N. 1<sup>st</sup> Avenue, Suite 300  
Phoenix, Arizona 85003

Project applications may also be submitted via email to: [tsop@azmag.gov](mailto:tsop@azmag.gov). The application form may be downloaded from the MAG website at: <http://www.azmag.gov/Projects/Project.asp?CMSID=1050&CMSID2=1138>

If you have any questions please contact Micah Henry at (602) 452-5097 or via Email: [mhenry@azmag.gov](mailto:mhenry@azmag.gov)

The anticipated schedule for MAG approvals and launching projects is:

Receive all project applications	<b>Oct 3, 2016</b>
Review at ITS Committee	Oct 12, 2016
MAG Approvals	Nov 2016 – Jan 2017
Task Order Development	Jan/Feb 2017
Project Kickoff Meetings	Feb/Mar 2017
Project Completion Deadline	June 30, 2017

**Information on Project Review Process, Agency Responsibilities etc,**

MAG ITS Committee members and MAG staff will review TSOP project applications. All TSOP projects proposed must lead to improvements to traffic signal operations.

Application guidelines and project requirements:

**A. Regional Integrated Corridor Management (ICM) Projects involving Signal**

**Optimization:** Requests for regional TSOP projects are being accepted up to a maximum estimated cost of \$60,000 per project. Regional projects shall have at least two agencies involved. The outcome of these projects may be evaluated through a before-and-after study by an independent consultant if it involves regular timing improvements. The scopes of these projects could include:

- Develop the Concept of Operations and Associated Signal Timing Strategies for Integrated Corridor Management: CONSULTANT will provide technical assistance for developing signal timing strategies for freeway-arterial corridors. These projects would typically involve: ADOT, DPS, Maricopa County, Traffic and Law Enforcement staff at affected local agencies.

**B. Single/Multi-jurisdictional TSOP Projects:** Requests for single agency projects are being accepted up to a maximum estimated cost of \$30,000 per project, and each agency may request ONE single-jurisdiction project. Requests for Multi-jurisdictional projects are accepted up to \$60,000. Agencies can request for any number of multi-jurisdictional projects. The scopes of the Single/Multi-jurisdictional projects could include:

- Signal Timing Refinement Project: CONSULTANT1 will gather traffic data, develop and recommend new signal timing plans. LOCAL AGENCY will implement signal timing. If recommended by the ITS Committee, the project will be subjected to a before-and-after evaluation by CONSULTANT2 (using the MAG methodology). The evaluation report will be provided to the LOCAL AGENCY and MAG.
- Collect Traffic Data Required for Signal Timing Refinement: CONSULTANT1 will gather traffic data and provide them to the LOCAL AGENCY. LOCAL AGENCY staff uses the data to determine new signal timing. New signal timing is implemented in field devices within 4 months of delivery of data. LOCAL AGENCY will also perform a before-and-after study (using the MAG methodology) and deliver the study report to MAG within 6 months and present study findings to the ITS Committee during TSOP program updates.
- Collect Traffic Data Required for Signal Timing Refinement: CONSULTANT1 will gather traffic data and provide them to the LOCAL AGENCY. LOCAL AGENCY staff uses the data to determine new signal timing, and implement new timing in the field within 4 months of delivery of data. CONSULTANT1 will also perform a before-and-after study (using the MAG methodology) and deliver the study report to MAG and the LOCAL AGENCY.

**C. SYNCHRO Network Development Projects:** These projects must include a task to implement new signal timing on selected portions of the network. These projects may be evaluated through a before-and-after study by an independent consultant.

Regional ITS Priorities Established in the 2012 MAG ITS Strategic Plan:

- ICM Projects with regional significance
- Multi-jurisdictional projects

Local Agency Responsibilities:

Agencies that receive TSOP assistance will be expected to undertake the following:

- Appoint a project manager to be the single source of contact for the agency
- Provide the necessary background information to the CONSULTANTS assigned by MAG to the project, including:
  - Scaled aerial photos or maps of the local agency to create the background SYNCHRO network.
  - A map identifying project boundaries and ALL signalized intersections that are included in the project
  - Existing signal phasing, clearance intervals, lane geometry, speed limits and other timing parameters
- Implement the new signal timing, recommended by the CONSULTANT or developed by LOCAL AGENCY staff using project data, in signal controllers within 4 months to allow for timely before-and after evaluation.
- Provide the final traffic signal timing information to MAG, to be shared with other adjacent jurisdictions via the Regional Archived Data Server (RADS).
- If a before-and-after study was performed by the agency, provide the report to MAG