

October 30, 2012

TO: Members of the MAG Intelligent Transportation Systems Committee
FROM: Debbie Albert, City of Glendale, Chair
SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, November 7, 2012- **9:30 a.m. (Please note changed start time)**
MAG Office Building, 2nd Floor, Ironwood Room
302 North First Avenue, Phoenix

A meeting of 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 Jason Stephens 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>TENTATIVE AGENDA</u>	
	<u>COMMITTEE ACTION REQUESTED</u>
1. <u>Call to Order</u>	
2. <u>Approval of the October 3, 2012 Meeting Minutes</u>	2. Review and approve minutes of the meeting held on October 3, 2012.

3. Call to Audience

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.

4. Program Managers Report

The following items will be discussed:

- Status of current TSOP projects
- Request for new TSOP projects
- 2013 ITS Committee Meeting Schedule
- Evaluation of CMAQ Projects and Air Quality Scores

5. ITS Project Presentations

A total of 35 ITS project applications have been received in response to the MAG call for projects to be programmed in FY2015-2017. As part of the project review process, 17 of the 35 proposed projects were presented at the October meeting. Based on review comments by committee members, several agencies have revised their project applications. The remaining 18 projects will be presented to the committee. The updated project information is shown on Attachment One.

6. Air Quality Scores and Project Ranking

The air quality scores of all 35 proposed ITS projects have been generated by the Air

3. For information and discussion.

4. For information and discussion.

5. For information and discussion.

6. For information and discussion.

Quality Committee (See Attachment Two). These scores along with the CMP ranking methodology have been incorporated in an Excel-based Project Evaluation Form for use by committee members to generate an individual ranking of projects. The next steps for evaluating projects using the Project Evaluation Form will be discussed in detail. The final version of the Project Evaluation Form will be distributed to committee members via email shortly after the meeting. The completed forms will be due to MAG by Noon on November 16, 2012.

7. Reports by Committee Members

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

8. 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.

9. Next Meeting Date and Place

The next committee meeting is scheduled to be held at 10:00 a.m. on Wednesday, December 5, 2012. It will be held in the Ironwood Room on the 2nd Floor of the MAG office building.

Adjournment

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**

October 3, 2012

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

MEMBERS ATTENDING

Reza Karimvand, ADOT	Faisal Saleem for Nicolaas Swart, Maricopa County
* Soyoung Ahn, ASU	Avery Rhodes, City of Mesa
Margaret Boone for Bennie Robinson, City of Avondale	Ron Amaya, City of Peoria
+ Thomas Chlebanowski, Town of Buckeye	Marshall Riegel, City of Phoenix
Mike Mah, City of Chandler	Nancy Steptoe, Phoenix Public Transit
Captain Burley Copeland, DPS	* Bill Birdwell, Town of Queen Creek
Jorge Gastelum, City of El Mirage	+Steve Ramsey for Bruce Dressel, City of Scottsdale
Jennifer Brown, FHWA	Nicholas Mascia, City of Surprise
Erik Guderian, Town of Gilbert	Christine Warren for Catherine Hollow, City of Tempe
Debbie Albert, City of Glendale (Chair)	Ratna Korepella, RPTA
Luke Albert, City of Goodyear	

OTHERS PRESENT

Farzana Yasmin, ADOT	Lee Jimenez, MCDOT
Don Tappendorf, Tappendorf Engg.	Sarah Simpson, UCG
Arnab Gupta, PB	Dan Hartig, Ayres Associates
David Lucas, City of Tempe	Marta Gerber, Michael Baker Jr.
Ryan Gish, MAG	Joe Spadafino, YS Mantri
Audrey Skidmore, MAG	Giao Pham, City of Apache Junction
Lisa Burgess, KHA	Anitha Shanker, Stantec
Tricia Boyer, City of Mesa	Lydia Warnick, ADOT
Allan Galicia, City of Glendale	Dave Chamber, TransCore
Steve McKenzie, City of Peoria	Sarath Joshua, MAG
Doug McCants, ATKINS	Kiran Guntupalli, MAG
Joey Markuson, ATKINS	
Jeff Jenq, OZ Engineering	

* Not present

+ Via teleconference

1. **Call to Order**

Chair Debbie Albert called the meeting to order at 9:35 a.m.

2. Approval of the September 5, 2012 Meeting Minutes
Margaret Boone moved, Ron Amaya seconded and it was unanimously carried to approve the minutes of the meeting held on September 5, 2012.
3. Call to Audience
Chair Debbie Albert 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
Sarith Joshua addressed the following items in his report:
 - TSOP Projects
 - FY2011 TSOP 2 on-going projects
 - Bell Road Corridor Signal Optimization – Next step signal timing has to be implemented by ADOT√, Glendale√, Peoria√, Surprise√ -- Phoenix and MCDOT will complete timing this week
 - Avondale - Development and implementation of new signal timing plans – Project completed
 - FY2012 13 TSOP projects including 5 B/A evaluations
 - 4 projects completed incl. SYNCHRO training
 - 3 projects underway
 - 2 projects will begin work in October
 - 4 Task Orders under development
- 4A. 2012 MAG ITS Strategic Plan
In introducing this agenda topic, Sarith Joshua said that copies of the draft final version of the 2012 MAG ITS Strategic Plan has been delivered to the committee via email and is also posted at the MAG website. The Strategic plan developed reviews past accomplishments, sets new priorities for ITS application in the future and established resource allocation targets to be used as guidance when programming new projects in the future. He further reported that he has received a final set of comments from the members of the committee after sending out the draft final version. Lisa Burgess from Kimley Horn read out all the comments and also how they would be addressed in the revised Plan. **With the comments addressed as noted Reza Karimvand from ADOT moved to recommend formal adoption of the Draft Final MAG ITS Strategic Plan, Ron Amaya from City of Peoria seconded and it was unanimously carried to approve the motion.**
5. Reconsidering Previous Action on Project Ranking Methodology
Previous action by committee recommended a method that would sum CMP scores assigned to projects by individual members, to generate the overall committee project rank for CMP. The members of the committee agreed that this approach has been determined to be flawed and needs to be corrected. Sarith Joshua stated that the committee action is required to reconsider previous action, proposed by a member who voted in favor of the action. Faisal Saleem told the committee that as he moved the motion to recommend approval last month, he will make a motion to reconsider. **Faisal Saleem from Maricopa County moved to reconsider previous action and Reza Karimvand seconded and it was unanimously carried to approve the motion to reconsider previous action.**

6. Action on Project Ranking Methodology

Mr. Joshua explained the revised ranking methodology to the committee. He stated that the revised project ranking methodology would combine the rank based on Congestion Management Process Score (CMP) with the rank resulting from the air quality cost effectiveness analysis, with air quality rank receiving half the weight. **Marshall Reigel moved to change the maximum CMP score from 20 to 40 and adopt the revised methodology to generate overall project rank based on CMP score based rank and half the weightage of Air Quality score based rank. Erik Guderian from Town of Gilbert seconded. The motion was approved with one abstention by Jennifer Brown of FHWA.**

7. Project Presentations

This item was introduced by Sarath Joshua. He informed the committee that MAG received 35 applications for in response to MAG call for ITS projects. He stated that the applicants will make a short presentation of their application. He also stated that about half the projects will be presented at this meeting and the other half will be presented at the committee meeting on November 7, 2012. The following projects were presented by the individuals listed below:

ADOT-ITS-1: Farzana Yasmin from ADOT

AVN-ITS-1, AVN-ITS-2, AVN-ITS-3, AVN-ITS-4: Margaret Boone from Avondale.

GDY-ITS-1, GDY-ITS-2: Hugh Bigalk from Goodyear.

GLN-ITS-1, GLN-ITS-2, GLN-ITS-3: Debbie Albert from Glendale.

TMP-ITS-1: Christine Warren from Tempe.

PHX-ITS-2: Marshall Riegel from Phoenix.

APJ-ITS-1: Giao Pham from Apache Junction.

CHN-ITS-1, CHN-ITS-2: Mike Mah from Chandler.

GLB-ITS-1, GLB-ITS-2: Eric Guderian from Gilbert.

8. Reports by Committee Members

Ron Amaya from City of Peoria reported to the committee that they have implemented In-Sync Adaptive Signal Control System at four intersections west of Loop 101 on Bell Road. He stated that the system was working well and they plan to do a brief before-and-after analysis soon.

9. Request for Future Agenda Items

No future agenda items were received.

10. Next Meeting Date and Place

Next meeting will be held at 9:30 a.m. on Wednesday, November 7, 2012, in the Ironwood Room (2nd floor) at MAG.

Adjournment

Debbie Albert adjourned the meeting at 12:00 p.m.

2013 MAG ITS Meeting Schedule
RCN Working Group, ITS Committee

January 2, 2013:	8:45am 10:00am	RCN WG ITS Committee
February 6, 2013:	8:45am 10:00am	RCN WG ITS Committee
March 6, 2013:	8:45am 10:00am	RCN WG ITS Committee
April 3, 2013	8:45am 10:00am	RCN WG ITS Committee
May 1, 2013	8:45am 10:00am	RCN WG ITS Committee
June 5, 2013	8:45am 10:00am	RCN WG ITS Committee
July 3, 2013	8:45am 10:00am	RCN WG ITS Committee
August 7, 2013	8:45am 10:00am	RCN WG ITS Committee
September 4, 2013	8:45am 10:00am	RCN WG ITS Committee
October 2, 2013	8:45am 10:00am	RCN WG ITS Committee
November 6, 2013	8:45am 10:00am	RCN WG ITS Committee
December 4, 2013	8:45am 10:00am	RCN WG ITS Committee

	Project # & Partner Agencies	Project Description	Agency Priority	Priority Year	Project Category	Total cost	Requested CMAQ	Notes
1	ADOT-ITS-1 ADOT, MAG, Avondale, Goodyear	ADOT FMS Phase 11A project is currently planned to extend fiber communications backbone along I-10 up to Dysart Road. This project will expand the FMS Phase 11A scope to include the RCN expansion to City of Avondale (Section 1) and City of Goodyear (Section 2). This project will enable City of Avondale and City of Goodyear to view freeway cameras and respond to irregular traffic conditions due to freeway incidents on I-10 by adjusting signal timing and participate in coordinating traffic management strategies among affected agencies.	1	FY2015	ICMS	\$54,131.00	\$51,045.00	
2	AVN-ITS-2	Provide and install fiber communications backbone on McDowell Road east of Dysart Road, one of the City's highest volume corridors. It will be cost effective and very beneficial to include McDowell Road to the City's traffic signal communications. This project will allow City of Avondale to view CCTV Cameras and respond to irregular traffic conditions such as incidents on the surrounding arterial system by adjusting signal timings and coordinating traffic management strategies as well as reduce non-planned maintenance call response times allowing mitigation from a central location at the Avondale interim TOC. This corridor has high commercial land uses to be developed in the future. In addition, it continually serves as a corridor used to divert traffic during non-recurring incidents on the I-10.	2	FY2016	ICMS	\$881,585.00	\$733,035.00	
3	AVN-ITS-4	Provide and install fiber communications backbone on Van Buren Street from Central Avenue to 107th Avenue, one of the City's highest volume corridors which will only increase with future development. It will be cost effective and very beneficial to include Van Buren Street to the City's traffic signal communications. This project will allow City of Avondale to view ADOT CCTV Cameras and respond to irregular traffic conditions such as incidents occur on I-10 as well as on the surrounding arterial system by adjusting signal timings and coordinating traffic management strategies as well as reduce non-planned maintenance call response times allowing mitigation from a central location at the Avondale interim TOC.	4	FY2017	ICMS	\$1,522,194.00	\$1,268,607.00	
4	GDY-ITS-1	Expand Traffic Management Center (TMC) traffic surveillance and monitoring capability by connecting to existing CCTV cameras at Indian School Road and Camelback Road traffic signals at SR 303L; Facilitate the adjustment of traffic signal timing adjustments at these locations in response to real-time traffic conditions.	1	FY2015	ICMS	\$248,167.00	\$219,876.00	
5	GLN-ITS-3	Install four lane control signal bridges with overhead signs to allow for dynamic assignment of lanes along Maryland Avenue between 95th and 99th avenues. Install dynamic message signs for both east and westbound traffic on two of the structures.		FY2015	ICMS	\$1,473,069.00	\$1,222,193.00	
6	TMP-ITS-1	The project will install new conduit and make use of existing conduit to provide fiber connection from ADOT's node 12 building to the signals at Broadway and Ramp K and Broadway and 48th St, and 48th St and Ramp C. Wireless radios will be installed at Broadway and Ramp L, 48th and Cotton Center, 48th and Alameda, and 48th and Southern. High speed DSL copper communications will be installed along Rio Salado and McClintock. Communications devices to be installed include fiber optic cable, pull boxes, splice closure, patch panels, fiber optics jumper cables, VDSL switches, and ethernet switches. The project will also install 22 CCTV cameras at intersections in Tempe.		FY2015	ICMS	\$356,145.00	\$287,752.00	
7	PHX-ITS-2	Procure, install and provision the HAWK signals at identified locations. Based on the warranted HAWK list, install up to six HAWK signals on signalized, coordinated corridors with existing transit facilities.	2	FY2015	ITS for Safety	\$1,003,347.00	\$839,597.00	
8	APJ-ITS-1	The City of Apache Junction will hire a consultant to complete an ITS Strategic Plan for all current and future traffic signals within the City of Apache Junction. The consultant will review existing conditions; propose future conditions; evaluate the appropriate system for the City; and identify the steps to take to achieve the optimal ITS system including projects to be completed, required staffing, and O & M costs.	1	FY2015	ITS Plannig	\$160,000.00	\$141,450.00	

9	AVN-ITS-1	Provide and install fiber communications backbone on Dysart Road north of the I-10, one of the City's highest volume corridors. It will be cost effective and very beneficial to include Dysart Road to the City's traffic signal communications. This project will allow City of Avondale to view ADOT CCTV Cameras and respond to irregular traffic conditions such as incidents occur on I-10 as well as on the surrounding arterial system by adjusting signal timings and coordinating traffic management strategies as well as reduce non-planned maintenance call response times allowing mitigation from a central location at the Avondale interim TOC.	1	FY2015	Arterial ITS	\$821,654.00	\$675,564.00	
10	AVN-ITS-3	Provide and install fiber communications backbone on Dysart Road south of the I-10, one of the City's highest volume corridors. It will be cost effective and very beneficial to include Dysart Road to the City's traffic signal communications. This project will allow City of Avondale to view ADOT CCTV Cameras and respond to irregular traffic conditions such as incidents occur on I-10 as well as on the surrounding arterial system by adjusting signal timings and coordinating traffic management strategies as well as reduce non-planned maintenance call response times allowing mitigation from a central location at the Avondale interim TOC.	3	FY2016	Arterial ITS	\$820,249.00	\$675,564.00	
11	CHN-ITS-1	The City has about 201 traffic signal controllers operating in field. The existing controllers constantly have clock drifting problems, causing timing differences and creating a ripple effect between intersections. The existing controllers skip phases in the presence of long pedestrian crossings and disrupt coordination. The existing controllers cannot implement Flashing Yellow Arrow functionality. Currently, the city is in the process to upgrade the controller firmware and proposes to use CMAQ funding to purchase new compatible traffic signal controller hardware to solve the issues mentioned above.	1	FY2015	Arterial ITS	\$547,700.00	\$511,766.00	
12	CHN-ITS-2	City of Chandler is planning to add four-section Flashing Yellow Arrows to signalized intersections with protected-only and protected/permissive left turn signals. This will improve traffic safety and signal efficiency by providing the flexibility to restrict left turns by time-of-day.	2	FY2016	Arterial ITS	\$676,560.00	\$633,281.00	
13	GDY-ITS-2	Purchase and install approximately 5,500 LF of 2-2" conduits, 5,500 3" conduit, 15,000 LF of 96 strand SMFO cable, 8 fiber optic splice enclosures, 7 field hardened Ethernet switches, 7 video codecs and 7 CCTV cameras. This project will connect the City of Goodyear TMC to the seven traffic signals along Cotton Lane and Yuma Road.	2	FY2016	Arterial ITS	\$926,957.00	\$820,001.00	
14	GLB-ITS-1	Many of Gilbert's most congested intersections are located in northwest Gilbert. The recently completed Gilbert Fiber Optic Strategic Plan identified the northwest section of Gilbert needing a fiber optic ring. This project, Segment 1 of 2, installs 3.5 miles of fiber optic cable in new and existing conduit, upgrades traffic controllers and installs CCTV cameras at intersections to improve communication from Gilbert's TOC to multiple intersections in northwest Gilbert. The project will help reduce congestions and improve air quality.	1	FY2015	Arterial ITS	\$717,820.00	\$549,599.00	
15	GLB-ITS-2	Many of Gilbert's most congested intersections are located in northwest Gilbert. The recently completed Gilbert Fiber Optic Strategic Plan identified the northwest section of Gilbert needing a fiber optic ring. This project, Segment 2 of 2, installs 3.5 miles of fiber optic cable in new and existing conduit, upgrades traffic controllers and CCTV cameras at intersections to improve communication from Gilbert's TOC to multiple intersections in northwest Gilbert. The project will help reduce congestions and improve air quality.	2	FY2016	Arterial ITS	\$719,080.00	\$546,072.00	
16	GLN-ITS-1	Installation of conduit, fiber optic cable, communications equipment and CCTV cameras at intersections along Olive and 51st Avenues to complete several last mile connections to expand the City's remote control and management capabilities of the signal system. Specifically, 2.5 miles of conduit and 3 miles of fiber optic cable will be installed to expand the communications to 8 intersections. Additionally, 7 new CCTV cameras will be installed to allow for real time traffic monitoring.		FY2016	Arterial ITS	\$1,130,415.00	\$904,728.00	
17	GLN-ITS-2	Installation of count stations and travel time data collectors at key intersections and locations throughout the city. Additionally, the project will include development of a database and GUI to manage, query, and present the data.		FY2015	Arterial ITS	\$663,046.00	\$555,470.00	
18	MES-ITS-1	Purchase 4 access points per radio tower on 12 existing radio towers for a total of 38 access points. Purchase 40 remotes to support field device communications back to the radio towers.	1	FY2015	Arterial ITS	\$258,000.00	\$233,864.00	

19	MES-ITS-2 Mesa, Tempe, Chandler	Purchase and install 91 ARID Bluetooth devices in traffic signal cabinets throughout the East Valley along with central control software for each partnering agency's TMC. The data from each agency's devices will be in a format to be shared via RADS and disseminated via a web map which may graphically display speed or congestion levels. Travel times to/from various destinations will also be calculated using the shared local agency data as well as existing ADOT data. Travel times could be disseminated via the web or arterial sign. This project will expand a current City of Mesa project which will deploy 80 ARID sensors.	2	FY2016	Arterial ITS	\$820,000.00	\$655,385.00	
20	MES-ITS-3 Mesa, Maricopa County	Coordinate access to Mesa's CAD with the Mesa Fire Department. Develop an electronic means of sharing CAD data with RADS. Develop filters for integrating Mesa 9-1-1 CAD data in RADS. Develop a user interface that Traffic Management Center operators can use to monitor incidents. This project and scope was identified in the Regional Archive Data System User Needs Assessment dated June 5, 2012.	3	FY2016	Arterial ITS	\$70,000.00	\$56,580.00	
21	MMA-ITS-1 Maricopa County, Surprise, Glendale, Peoria, Phoenix, Scottsdale, ADOT	Adaptive Signal Control Technology (ASCT) is an operations strategy with great potential to reduce congestion and improve safety. An adaptive traffic signal system is one in which some or all of the signal timing parameters are modified in response to changes in the traffic conditions, in real time. The purpose of providing adaptive control in these areas are to overcome variable, unpredictable traffic patterns and to minimize queues during periods of congestion. This project will add adaptive capabilities to the existing signal system and offer coordination between agencies that currently does not exist in each area. All the capabilities of the existing system will be maintained. Adaptive capability will be provided for all of the signals within the Bell Road corridor for four areas as described above which are operated by Surprise, ADOT, Maricopa County, Peoria, Glendale, Scottsdale, and Phoenix.		FY2015	Arterial ITS	\$2,760,000.00	\$2,315,065.00	
22	MMA-ITS-2 Maricopa County, ADOT	Install pull boxes and fiber optic cable. Along Indian School Road, the fiber will connect traffic signals at 99th Avenue and Loop 101 with spliced branch fiber to existing traffic signal pull boxes along Indian School Road from Loop 101 to 99th Avenue. Along McDowell Road, the conduit infrastructure will tie a new MCDOT pull box at the eastside of the McDowell Road/Loop 101 interchange to an existing ADOT pull box at the McDowell Road/Loop 101 interchange. In Anthem, fiber and pull boxes will be installed along Daisy Mountain Drive from Gavilan Peak Parkway to I-17 Black Canyon Freeway to connect to MCDOT-owned pull box to be installed in ADOT ROW as part of the ADOT FMS at the east corner of Daisy Mountain Drive intersection with I-17. Project will include any required RADS software updates or integration needs. MCDOT will develop agreements with ADOT and City of Phoenix for the connections/permits.		FY2017	Arterial ITS	\$702,979.00	\$429,988.00	
23	MMA-ITS-3	Connect MCDOT-owned traffic signals to new MCDOT-owned fiber to bring back control of signals to MCDOT TMC through the RCN network. The project includes the install of conduit, pull boxes, and fiber optic cable along Riggs Road, connecting to traffic signals with spliced branch fiber to existing traffic signal pull boxes at South Sun Lakes Boulevard, South Dobson Road, South Glenburn Drive, South E J Robson Boulevard and South Alma School Road. The project also includes the install of conduit, pull boxes, and fiber optic cable along Alma School Road between Chandler Heights Blvd and Riggs Road to connect to the existing City of Chandler fiber at Alma School Rd/Chandler Heights Blvd. Project also includes the installation of 2 CCTV cameras along Riggs Road at S Dobson Road and S Alma School Road. This project will require a construction permit from City of Chandler to install fiber and conduit infrastructure in City's ROW.		FY2016	Arterial ITS	\$1,055,680.00	\$734,295.00	
24	PEO-ITS-1	Establish communication between the TMC and two traffic signals near the Peoria Sports Complex in order to facilitate timing changes during special events and incidents.		FY2015	Arterial ITS	\$316,770.00	\$206,772.00	
25	PEO-ITS-2	Establish communication between the TMC and the traffic signal at Loop 303 and Lake Pleasant Parkway in order to monitor and operate these signals.		FY2016	Arterial ITS	\$868,200.00	\$630,113.00	
26	PEO-ITS-3	Upgrade legacy electronic equipment to continue operation of Peoria's Traffic Mangement Center.		FY2017	Arterial ITS	\$526,500.00	\$482,345.00	

27	PHX-ITS-1	Procure, install and provision the Dynamic Message Signs near identified intersections. The 7th Avenue portion of the project will install DMS to provide travel times and/or incident messaging to encourage use of adjacent local streets (15th Ave., 19th Ave) or I-17 as well as advise the public of downtown incidents and events with the DMS at McDowell Road. The 7th Street portion of the project will install two DMS north of Thunderbird Road to provide travel times and/or incident messaging to encourage use of alternate routes through the hills on alternate routes including I-17, 19th Ave., or AZ 51; one DMS north of Camelback Road to encourage use of Central Ave. as well as advise the public of downtown incidents and events with the last DMS at McDowell Road. Travel time data from existing devices or services will be used to provide the real time traveler information for the DMS along with messages generated by the TMC staff.	1	FY2015	Arterial ITS	\$1,019,480.00	\$854,811.00	
28	PHX-ITS-3	Procure, install and provision the CCTV PTZ traffic monitoring cameras at identified intersections. To provide additional CCTV PTZ traffic monitoring cameras on six major corridors, 7th Avenue and 7th Street for North-South movements and on Bell Road, Greenway Road, Northern Road and Glendale Ave. for East-West movements. All of the CCTV locations are at intersections that are currently or will be connected to the TMC at the time of installation. This project provides for the purchase and installation of the cameras. These cameras are extending the existing coverage along the corridor and/or providing coverage in between existing cameral locations.	3	FY2015	Arterial ITS	\$853,070.00	\$730,891.00	
29	PHX-ITS-4	The City of Phoenix Police use the existing DTMS system extensively to control traffic after large special events held downtown. The existing software and hardware will be upgraded/expanded to provide additional flexibility for controlling ingress and egress to the special events. The current system is concentrated in the immediate downtown area and does not provide traveler information at key decision points to promote alternate route choice for inbound traffic nor more importantly, for outbound traffic to seek alternate routes to the freeways. The project will add 3 DMS at critical decision points to encourage use of alternate access to I-10 and I-17 as well as Grand Ave.	4	FY2017	Arterial ITS	\$773,750.00	\$566,507.00	
30	SCT-ITS-1	Replace standard Signal Cabinets with Advanced Hybrid Cabinets.		FY2016	Arterial ITS	\$736,000.00	\$678,960.00	
31	SCT-ITS-2	Replace standard Signal Cabinets with Advanced Hybrid Cabinets.		FY2016	Arterial ITS	\$736,000.00	\$678,960.00	
32	SCT-ITS-3	Highway Advisory Radio (HAR) uses low power, short range, AM broadcast radio to advise the public on a variety of important travel and safety related information. Typical range of a single HAR unit is about a 5 mile radius. This project would utilize 4 - 5 such transmission units plus approximately 60 flashing advisory signs with a message such as; [TUNE TO 610AM FOR VITAL INFORMATION WHEN FLASHING]. The transmission sites will be connected to and receive data from the Scottsdale TMC via existing the fiber-optic network. The Flashing Advisory signs will be activated through special functions already available through the City's interconnected Signal System.		FY2015	Arterial ITS	\$401,040.00	\$358,378.00	
33	SUR-ITS-1	Procure and install a fiber optic backbone on Reems Road from Peoria Avenue to Waddell Avenue. This fiber optic line would splice on to an existing fiber optic backbone at the interesection of Reems Road and Peoria Avenue. Procure and install necessary equipment to connect the intersections of Reems Road and Cactus Road and Reems Road and Waddell Road to the newly installed Reems Road fiber optic backbone. Install a total of two (2) dynamic message signs at the following locations: Reems Road north of Waddell Road; Litchfield Road south of Waddell Road	1	FY2016	Arterial ITS	\$930,570.00	\$804,851.00	
34	TMP-ITS-2	The project will install conduit and fiber in the Rural Rd corridor from US 60 north. Conduit location will vary along the route and could include installation under the roadway, under LRT, and on a bridge. Devices to be installed to complete the system include pull boxes, splice closures, patch panels, fiber optic jumper cables, and ethernet switches. The installation will be based on the overall design of the Rural Rd fiber corridor which will be funded locally through the City's CIP.		FY2016	Arterial ITS	\$1,184,081.00	\$983,626.00	
35	TMP-ITS-3	The project will install conduit and fiber in the Rural Rd corridor from US 60 south. Conduit location will vary along the route and could include installation under the roadway, and on a bridge. Devices to be installed to complete the system include pull boxes, splice closures, patch panels, fiber optic jumper cables, and ethernet switches. The installation will be based on the overall design of the Rural Rd fiber corridor which will be funded locally through the City's CIP.		FY2017	Arterial ITS	\$960,028.00	\$887,390.00	
						\$27,694,267.00	\$22,924,381.00	



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October 29, 2012

TO: Members of the MAG Transportation Review Committee
Members of the MAG Intelligent Transportation Systems Committee
Members of the MAG Bicycle and Pedestrian Committee

FROM: Oddvar Tveit, Tempe, Chair of the MAG Air Quality Technical Advisory Committee

SUBJECT: MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE
RECOMMENDATIONS ON THE EVALUATION OF PROPOSED FY 2015,
2016, AND 2017 CMAQ PROJECTS FOR THE DRAFT FY 2014-2018 MAG
TRANSPORTATION IMPROVEMENT PROGRAM

On October 25, 2012, the MAG Air Quality Technical Advisory Committee made a recommendation to forward the air quality evaluation of proposed Congestion Mitigation and Air Quality Improvement (CMAQ) projects for fiscal years 2015, 2016, and 2017 sorted by cost-effectiveness to the MAG Transportation Review Committee and modal committees. This information is being provided to assist the committees in the project selection process. In addition, the AQTAC made a recommendation to forward the Air Quality Projects for fiscal years 2015, 2016, and 2017 ranked in order of cost-effectiveness to the Transportation Review Committee for the draft FY 2014-2018 MAG Transportation Improvement Program.

The purpose of the CMAQ Program is to fund transportation projects or programs that will contribute to attainment or maintenance of the federal air quality standards. Federal CMAQ guidance requires that the project selection process include an assessment of the projects expected emission reduction benefits and cost-effectiveness. MAG staff conducted an evaluation of the proposed CMAQ projects using the CMAQ Methodologies, September 2011 and information provided in each project application.

If you have any questions, please contact Dean Giles, MAG, at (602) 254-6300.

Attachments

cc: Intergovernmental Representatives

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 1 - Evaluation of Proposed AIR QUALITY Projects for the Federal Fiscal Year 2015 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
MAG	Regionwide	Purchase PM-10 Certified Street Sweepers ¹	2015		0.00	0.00	1110.50	1110.50	\$387	\$1,100,000
MAG	Regionwide	Trip Reduction Program ²	2015		53.01	136.05	184.50	373.56	\$7,270	\$962,347
MAG	Regionwide	Regional Rideshare and Telework Program ³	2015		30.36	78.33	106.36	215.05	\$7,795	\$594,000
MAG	Regionwide	Travel Reduction Program ³	2015		0.29	0.76	1.03	2.09	\$182,536	\$135,000

Table 2 - Evaluation of Proposed Bicycle and Pedestrian Projects for the Federal Fiscal Year 2015 Sorted by Cost Effectiveness

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Maricopa County	East McDowell Road, 76th Street to 92nd Street	Construct bicycle lane and paved shoulder on both sides. ^{4,5}	2015	2.10	0.01	0.02	5.20	10.40	\$9,858	\$556,747
Cave Creek	Cave Creek Road at Carefree Highway through the Town Core of Cave Creek to the Town Core of Carefree ending at Pima Road (Carefree)	Provide Bike Lanes along Cave Creek Road from Carefree Highway through Cave Creek Town Core to Carefree Town Core. ⁴	2015	8.40	0.03	0.05	2.02	2.09	\$258,538	\$2,938,480
Phoenix#2	32nd St from State Route 51 to Reach 11.	The proposed project is to implement bike lanes along 32nd street from State Route 51 to Reach 11. ⁴	2015	7.00	0.05	0.07	0.10	0.22	\$283,917	\$445,568
Valley Metro	Regionwide	School Resource Officer Training Program. ⁴	2015		0.30	0.78	1.06	2.15	\$308,847	\$235,365
Phoenix#1	The Roosevelt Row along Roosevelt Street between 4th Street and 7th Street .	This project will reduce roadway width to allow room to widen sidewalks, install landscape, pedestrian amenities and a bikelane. ^{4,6}	2015	0.25	0.01	0.02	0.29	0.32	\$331,412	\$750,260
Phoenix#5	Shea Blvd:32nd St to SR-51.	The project scope consists of reducing the roadway cross-section from approximately 94ft to approximately 64ft. ⁶	2015	0.14	0.03	0.05	0.07	0.15	\$338,534	\$364,941
Phoenix#6	Regional Bike Share along Metro rail corridor in Phoenix and Tempe	Bike share extends the envelope of public transit to bikeable distance rather than walking distance. Bike Share is a sustainable way to clean our air, build community, save money and improve health. ⁴	2015	18.00	0.27	0.42	0.61	1.30	\$348,691	\$1,414,500
Glendale#3	New River starting at Hillcrest Boulevard and ending north of Hillcrest Boulevard.	This will be a 1/4 mile pathway segment on the east bank of New River that will connect an existing pathway in Glendale to a pathway in the City of Peoria. ⁶	2015	0.25	0.03	0.04	0.06	0.13	\$352,444	\$330,850
Scottsdale#2	Shea Boulevard Tunnel Access at 124th Street between Sahuaro Drive and Via Linda	Provide Shea Tunnel nonmotorized access and one mile of connectivity from 124th Street/CAP Canal to 124th Street near Via Linda. Includes shared use path, trail and access to existing Shea Tunnel. ⁶	2015	5.00	0.07	0.09	0.13	0.28	\$471,523	\$1,253,032

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 2 - Evaluation of Proposed Bicycle and Pedestrian Projects for the Federal Fiscal Year 2015 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Avondale	East bank of the Agua Fria River, South of I-10 to north of the I-10 connecting to the existing Friendship Park path at McDowell Road.	Construct an asphalt path and I-10 underpass along the Agua Fria River east bank connecting a privately developed path. ⁶	2015	1.00	0.05	0.07	0.09	0.20	\$657,680	\$1,264,427
Phoenix#3	Rio Salado Pathway : 32nd Street alignment to 40th Street.	This phase of the Rio Salado Pathway will construct a 12-foot wide paved multi-modal path on the south bank of the Salt River. ⁶	2015	1.10	0.05	0.08	0.10	0.24	\$666,785	\$1,122,642
Buckeye#2	Watson Road	Multi-Use Detached Sidewalk to connect Westpark MPC/Youngker High School to Sundance MPC/Inca Elementary. ^{4,6}	2015	0.50	0.01	0.02	0.03	0.06	\$689,482	\$302,206
Mesa	Rio Salado Pathway-Segment 3	The project will design and construct 4,000 linear feet of a 10-foot concrete shared-use path starting east of the ADOT Segment Two. ⁶	2015	0.90	0.02	0.03	0.05	0.11	\$1,304,259	\$999,999
Salt River Pima-Maricopa Indian	Longmore Road from McDowell Road to Osborn Road .	Design and construct an 8-foot wide pedestrian sidewalk. ⁶	2015	1.55	0.00	0.00	0.04	0.05	\$1,522,928	\$497,796
Glendale#1	55th Avenue is north/south collector street designated as a bike route.	This project will widen a 622 feet long section of 55th Ave from 20 feet wide to 40 feet wide. Bike lanes, a sidewalk and curb and gutter will be added to the widened roadway. ^{4,6}	2015	0.12	0.00	0.00	0.01	0.01	\$1,553,417	\$159,266
Litchfield Park	Old Litchfield Road from West Fairway Drive to Bird Lane	This project proposes to provide a sidewalk connection/link from historic old town Litchfield in Litchfield Park to areas on the north side of the Litchfield Park area. ⁶	2015	0.52	0.00	0.00	0.01	0.01	\$2,126,263	\$213,911
Phoenix#7	107th Avenue: Indian School Road to Camelback Road.	Tiling the existing Roosevelt irrigation ditch facility, providing a pedestrian/bicycle path with landscaping, improving air quality and traffic congestion. ^{4,6}	2015	1.00	0.02	0.03	0.04	0.09	\$2,302,656	\$1,500,000
Buckeye#1	Rainbow Road to west of the Rainbow Road/Lower Buckeye Road intersection	Multi Use sidewalk to connect over 20,000 persons to the "Destination" located at Rainbow Road and Lower Buckeye Road. ^{4,6}	2015	0.60	0.00	0.01	0.01	0.02	\$3,217,665	\$392,592
Apache Junction	Southern Avenue between Winchester and Royal Palms .	Construct sidewalks, curb & gutter, ADA sidewalk ramps and driveways along Southern Ave between Winchester and Royal Palms and winchester between Hondo and Southern. ⁶	2015	0.75	0.00	0.00	0.00	0.01	\$3,303,114	\$197,604
Glendale#2	Thunderbird Paseo Pathway at Sweetwater Avenue, Hearn Road and 71st Avenue.	This project will improve three neighborhood connections to the Thunderbird Paseo Multi-use Pathway and a connection to the Skunk Creek Multi-use Pathway. ^{4,6}	2015	0.50	0.0005	0.0007	0.0010	0.0022	\$6,714,031	\$107,832
Phoenix#4	First Street between Roosevelt Street and Moreland Street.	This project will reduce roadway width to allow more room to widen sidewalks, add landscape and install pedestrian amenities. It will complete the gap in the downtown pedestrian loop. ⁶	2015	0.18	0.0007	0.0005	0.0004	0.0016	\$84,470,793	\$989,631

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 3 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2015 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Tempe#1	Various locations throughout the city including Broadway/I-10 and RioSalado/Loop 101	The project will install new conduit and make use of existing conduit to provide fiber connection from ADOT's node 12 building to the signals a. The project also includes procuring and installing 22 Closed Circuit Television (CCTV) cameras for each interchange intersection in Tempe. ⁷	2015	90.00	26.55	36.36	24.04	86.95	\$1,980	\$287,751
Phoenix#3	65 Locations Citywide	Procure, install and provision the CCTV Pan,Tilt, Zoom (PTZ) traffic monitoring cameras at identified intersections. ⁷	2015	59.00	38.87	123.70	24.78	187.35	\$2,403	\$752,543
Chandler#1	Citywide	To improve traffic flow and reduce delays by upgrading 201 new signal controller equipment to be compatible with the latest software. ⁷	2015	136.00	31.21	29.63	29.59	90.43	\$3,386	\$511,766
Phoenix#1	The 7th Ave:Northern Ave., Glendale Ave., Camelback Rd., and McDowell Rd. 7th St.: Bell Rd, Thunderbird Rd., Camelback Rd., and McDowell Rd.	Procure, install and provision the Dynamic Message Signs near identified intersections. ⁷	2015	22.00	14.49	46.13	9.24	69.86	\$7,320	\$854,811
Scottsdale#3	Scottsdale Rd. & Carefree Highway to Hayden Rd. & McKellips and eastward along the Shea Blvd. corridor to 136th St.	Highway Advisory Radio (HAR) uses low power, short range, AM broadcast radio to advise the public on a variety of important travel and safety related information. ⁷	2015	101.00	5.25	16.09	4.82	26.16	\$8,669	\$379,005
Mesa#1	Multiple locations throughout the city	Purchase 4 access points per radio tower on 12 existing radio towers for a total of 38 access points. Purchase 40 remotes to support field device communications back to the radio towers. ⁷	2015	3.00	0.79	2.65	0.35	3.79	\$36,930	\$233,864
Apache Junction	Citywide	Apache Junction ITS Strategic Plan. ⁷	2015	452.00	0.86	0.55	0.85	2.26	\$37,478	\$141,450
Phoenix#2	16th St & Virginia, 7th St & Oak, 3rd St. & Moreland, 25th Ave 1/4 mile north of Dunlap, 19th Ave & Buchanan, Central Ave & Olympic.	Procure, install and provision the High Intensity Activated Crosswalk (HAWK) signals at identified locations. ⁷	2015	6.00	1.35	4.30	0.86	6.52	\$77,088	\$839,597
Maricopa County#1	Bell Road & L303 & Grand Ave from Cotton Lane to 114th Ave., Bell Road L101 from 99th Ave. to 73rd Ave., FrankLloyd Wright & L101 from Scottsdale Rd to Thomposon Peak Pwky, Bell Rd & I-17 from 35th Ave to 19th Ave.	Install adaptive signal control technology at 52 intersections. ⁷	2015	15.60	4.19	8.41	3.97	16.56	\$83,629	\$2,315,065
Glendale#2	Citywide	Installation of count stations and travel time data collectors at key intersections and locations throughout the city. ⁷	2015	3.00	0.37	1.06	0.37	1.80	\$184,403	\$555,470

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 3 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2015 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Goodyear#1	SR 303L: McDowell Road traffic interchange (TI) to Camelback Road TI.	Expand Traffic Management Center (TMC) traffic surveillance and monitoring capability by connecting to existing CCTV cameras at Indian School Road and Camelback Road traffic signals at SR 303L; Facilitate the adjustment of traffic signal timing adjustments at these locations in response to real-time traffic conditions. ⁷	2015	3.00	0.37	-0.11	0.43	0.69	\$190,323	\$219,876
Avondale#1	Dysart Road : Rancho Santa Fe Boulevard to Indian School Road	Connect Eight signals to increase traffic flow, streamlined and more efficient signal coordination and fault diagnosis for transportation applications, including public safety communications. Support Regional traffic initiatives including Integrated Corridor Management Systems (ICMS) along I-10 West. ⁷	2015	2.25	0.32	0.39	0.30	1.01	\$301,851	\$508,579
Surprise	Reems Road between Peoria Avenue and Waddell Road; Reems Road north of Waddell Road; Litchfield Road south of Waddell Road	Procure and install a fiber optic backbone on Reems Road from Peoria Avenue to Waddell Avenue. ⁷	2015	2.00	0.25	0.85	0.13	1.23	\$425,533	\$875,575
Peoria#1	75th Avenue: Greenway to Paradise lane and Paradise Lane from 75th Avenue to 77th Avenue	Expand TMC traffic surveillance and monitoring capability by installing CCTV cameras with peer-to-peer control. ⁷	2015	0.50	0.03	0.10	0.03	0.17	\$743,038	\$206,772
Gilbert#1	Town of Gilbert's boundaries in northwest Fiber Optic Ring.	This project will connect 8 traffic signals to the Town of Gilbert's fiber optic network and install approximately 3.5 miles of fiber optic cable in existing and new conduit, 3 CCTV cameras, 5 Controllers and other associated equipment. ⁷	2015	3.00	0.23	-0.10	0.29	0.42	\$778,053	\$549,600
Glendale#3	Maryland Avenue from 95th Avenue to 99th Avenue.	Install four lane control signal bridges with overhead signs to allow for dynamic assignment of lanes along Maryland Avenue between 95th and 99th avenues. Install dynamic message signs for both east and westbound traffic on two of the structures. ⁷	2015	0.50	0.03	0.09	0.03	0.15	\$4,877,626	\$1,222,193

Table 4 - Evaluation of Proposed AIR QUALITY Projects for the Federal Fiscal Year 2016 Sorted by Cost Effectiveness

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
MAG	Regionwide	Purchase PM-10 Certified Street Sweepers ¹	2016		0.00	0.00	1110.50	1110.50	\$387	\$1,100,000
MAG	Regionwide	Trip Reduction Program ²	2016		48.57	122.48	188.66	359.71	\$7,550	\$962,347
MAG	Regionwide	Regional Rideshare and Telework Program ³	2016		27.83	70.59	108.87	207.29	\$8,086	\$594,000
MAG	Regionwide	Travel Reduction Program ³	2016		0.26	0.67	1.03	1.96	\$194,199	\$135,000

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 5 - Evaluation of Proposed Bicycle and Pedestrian Projects for the Federal Fiscal Year 2016 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Tempe#2	Priest Drive Bridge at Rio Salado River.	Priest Dr Rio Salado River Underpass-grade separated bicycle and pedestrian connection. ^{4,6}	2016	0.18	0.04	0.06	3.50	3.60	\$45,265	\$1,165,396
Chandler	Western Canal Multi-Use Path Crossing at the UPRR	Construct at-grade bicycle/pedestrian crossing improvements at the Western Canal crossing at the UPRR. Improvements include concrete path, panels, and RR signals & gates. ^{4,6}	2016	0.04	0.02	0.03	0.04	0.09	\$545,021	\$355,275
Scottsdale#1	WestWorld / Indian Bend Trail and Path Connections	Provide 4.7 miles of nonmotorized connectivity from McDowell Mountain Ranch Community Center through WestWorld to Pima Road / East Trailside View. Includes shared use path, trail, crossings through four existing tunnels, and sidewalk connection. ⁶	2016	4.70	0.08	0.11	0.16	0.35	\$1,284,705	\$4,223,645
Surprise#1	Reems Road westside sidewalk between Peoria & Cactus	This project will install a missing 1 mile section of sidewalk on the west side of Reems Road. This will connect the neighborhood access to the existing signalized, ADA ramps at Cactus and Peoria. ⁶	2016	1.00	0.01	0.01	0.01	0.02	\$1,335,386	\$198,900
Surprise#2	West Point Gap Study Sidewalk	Project will consist of construction of a 5 ft wide sidewalk and ADA ramps that will connect to Bell Road Retail Shopping center. ⁶	2016	1.20	0.0014	0.0010	0.0009	0.0033	\$9,996,026	\$233,125

Table 6 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2016 Sorted by Cost Effectiveness

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Chandler#2	Citywide	Purchase and install 652 four-section flashing yellow arrow signal heads at 114 signalized intersections in City of Chandler. ⁷	2016	136.00	17.55	30.31	9.46	57.33	\$6,609	\$633,281
Mesa#3	Citywide	Integrate Mesa 9-1-1 Call Center Computer Aided Dispatch (CAD) data into the Regional Archive Data System (RADS). ⁷	2016	4.00	0.86	2.77	0.80	4.42	\$7,650	\$56,580
ADOT	Two segments from I-10 to Avondale Blvd and I-10 Dysart Road to Litchfield Road.	Extend fiber communications coverage on I-10, as part of the ADOT FMS Phase 11A project, to expand Regional Community Network to link two West Valley agencies. ⁷	2016	2.00	0.51	1.75	0.24	2.50	\$12,205	\$51,045
Scottsdale#1	60 Major Arterial/Arterial Intersections throughout The City of Scottsdale	Replace standard Signal Cabinets with Advanced Hybrid Cabinets. ⁷	2016	101.00	5.25	16.09	4.82	26.16	\$15,480	\$676,800

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 6 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2016 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Scottsdale#2	60 Arterial/Collector Intersections throughout The City of Scottsdale	Replace standard Signal Cabinets with Advanced Hybrid Cabinets. ⁷	2016	101.00	5.25	16.09	4.82	26.16	\$15,480	\$676,800
Mesa#2	Rio Salado, University, Apache, Broadway, Southern, Baseline, Guadalupe, Elliot, Warner, Val Vista, Lindsay, Gilbert, Cooper, McQueen, Arizona Ave, Alma School, Dobson, Price, McClintock and Rural.	Purchase and install 91 Anonymous Re-identification (ARID) devices in existing traffic signal cabinets throughout the East Valley along with central control software for each partnering agency's TMC. ⁷	2016	3.50	0.59	2.21	0.53	3.34	\$117,553	\$655,385
Glendale#1	Olive Ave: 47th Ave to 59th Ave, 51st Ave: Glendale Ave to Peoria Ave, Northern Ave: 47th Ave to 51st Ave	Installation of conduit, fiber optic cable, communications equipment and CCTV cameras at intersections. Additionally, 7 new CCTV cameras will be installed to allow for real time traffic monitoring. ⁷	2016	3.00	0.66	2.01	0.60	3.27	\$165,323	\$904,728
Tempe#2	Rural Road (North).	The project will install conduit and fiber in the Rural Rd corridor from US 60 north. ⁷	2016	5.00	0.46	1.73	0.42	2.61	\$225,377	\$983,625
Avondale#3	Dysart Road :Coldwater North to Buckeye Road/MC 85	Connect six signals to increase traffic flow, streamlined and more efficient signal coordination and fault diagnosis for transportation applications, including public safety communications. Support Regional traffic initiatives including Integrated Corridor Management Systems (ICMS) along I-10 West. ⁷	2016	1.55	0.21	0.25	0.19	0.65	\$383,840	\$419,118
Avondale#2	McDowell Rd - Dysart Road to Avondale Boulevard.	Connect two existing signals and two future signals to increase traffic flow, streamlined and more efficient signal coordination and fault diagnosis for transportation applications, including public safety communications. Support Regional traffic initiatives including Integrated Corridor Management Systems (ICMS) along I-10 West. ⁷	2016	2.08	0.19	0.24	0.18	0.60	\$419,959	\$424,498
Goodyear#2	Yuma Road - Cotton to Estrella, Cotton Lane - Yuma to Lilac.	Expand Traffic Management Center (TMC) traffic surveillance and monitoring capability by connecting to seven existing traffic signals along Cotton Lane and Yuma Road. ⁷	2016	2.50	0.22	0.59	0.20	1.01	\$483,729	\$820,001
Gilbert#2	Town of Gilbert's boundaries in northwest Fiber Optic Ring (Segment II).	This project will connect 7 traffic signals to the Town of Gilbert's fiber optic network and install approximately 3.5 miles of fiber optic cable in existing and new conduit, 5 CCTV cameras, 3 signal controllers and other associated equipment. ⁷	2016	4.00	0.30	-0.12	0.36	0.54	\$609,823	\$546,072
Maricopa County#3	Riggs Road from South Sun Lakes Boulevard to South Arizona Avenue and along Alma School Road between Chandler Heights Blvd and Riggs Road.	Install 3.5 miles of new fiber and conduit infrastructure to connect MCDOT traffic signals and 2 new CCTV cameras to existing City of Chandler fiber infrastructure to be centrally controlled from the MCDOT TMC through the RCN network and eliminate need for leased lines. ⁷	2016	4.00	0.15	0.31	0.15	0.61	\$722,303	\$734,295

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 6 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2016 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Peoria#2	Lake Pleasant Parkway from Westwing Parkway to Loop 303	Install conduit and fiber on Lake Pleasant Parkway from Westwing Parkway to Loop 303 & Lake Pleasant Parkway to connect these intersection with the City's communication network. ⁷	2016	2.00	0.04	0.14	0.04	0.23	\$1,657,805	\$630,113

Table 7 - Evaluation of Proposed AIR QUALITY Projects for the Federal Fiscal Year 2017 Sorted by Cost Effectiveness

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
MAG	Regionwide	Purchase PM-10 Certified Street Sweepers ¹	2017		0.00	0.00	1110.50	1110.50	\$387	\$1,100,000
MAG	Regionwide	Trip Reduction Program ²	2017		45.67	112.17	192.98	350.82	\$7,741	\$962,347
MAG	Regionwide	Regional Rideshare and Telework Program ³	2017		26.19	64.70	111.46	202.36	\$8,283	\$594,000
MAG	Regionwide	Travel Reduction Program ³	2017		0.24	0.60	1.03	1.87	\$203,871	\$135,000

Table 8 - Evaluation of Proposed Bicycle and Pedestrian Projects for the Federal Fiscal Year 2017 Sorted by Cost Effectiveness

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Phoenix#8	Rio Salado Pathway: 40th Street to S.R. 143	This phase of the Rio Salado Pathway (40th Street to S.R.143) will construct a 12-foot wide paved path on the south bank of the Salt River and two underpass below 44th Street and S.R.143. ⁶	2017	10.00	0.04	0.06	0.10	0.20	\$1,085,665	\$2,058,310
Buckeye#3	Watson Road/Lower Buckeye Road to west of the Rainbow Road/Lower Buckeye Road intersection	Multi-Use Sidewalk to connect Westpark MPC and Youngker High School to Destination and other facilities within Sundance MPC. ^{4,6}	2017	0.90	0.00	0.00	0.01	0.01	\$4,235,833	\$388,830
Tempe#1	8th Street/Creamery Branch	The project includes length of 8th Street, from Rural to McClintock, the Creamery rail corridor extending from Dorsey east/northeast to University, and west of Rural Road west/northwest along the canal and rail corridor to University. ^{4,6}	2017	1.20	0.00	0.01	0.01	0.02	\$8,930,130	\$1,379,021

OCTOBER 25, 2012 MAG AIR QUALITY TECHNICAL ADVISORY COMMITTEE RECOMMENDATION TO FORWARD THE EVALUATION OF PROPOSED CMAQ PROJECTS

Table 9 - Evaluation of Proposed ITS Projects for the Federal Fiscal Year 2017 Sorted by Cost Effectiveness

ATTACHMENT TWO

Agency	Location	Work Type	FY	Length (miles)	Emission Reduction Weighted TOG(kg/day)	Emission Reduction Weighted NOx(kg/day)	Emission Reduction Weighted PM10(kg/day)	Emission Reduction Weighted Total(kg/day)	Cost Effectiveness (\$/met.ton)	CMAQ Funds Requested
Peoria#3	Peoria Traffic Management Center (TMC).	Replace legacy TMC equipment, including switches, servers, workstations, video screens, wall encoders, firewall. ⁷	2017	409.00	10.37	36.77	7.66	54.79	\$5,266	\$482,345
Phoenix#4	I-10 to the north, I-17 to the south, I-10 to the east and I-17 to the west, Grand Ave (SB) prior to 7th Ave., and 7th St. (NB) prior to Buckeye Rd., and for 3 new DMS outbound at 7th St. (NB) prior to Van Buren St., 7th St (SB) prior to Buckeye Rd., and Lincoln St. (WB) prior to 7th Ave.	The City of Phoenix Police use the existing Downtown Traffic Management System (DTMS) extensively to control traffic after large special events held downtown. ⁷	2017	12.00	4.89	14.67	3.58	23.14	\$14,643	\$566,507
Tempe#3	Rural Road (South).	The project will install conduit and fiber in the Rural Rd corridor from US 60 south. ⁷	2017	4.20	0.34	1.27	0.31	1.91	\$278,018	\$887,389
Avondale#4	Van Buren Street from Central Avenue to 107th Avenue.	Connect five existing signals and provide for communications to three future signals to increase traffic flow, streamlined and more efficient signal coordination and fault diagnosis for transportation applications, including public safety communications. Support Regional traffic initiatives including Integrated Corridor Management Systems (ICMS) along I-10 West. ⁷	2017	3.00	0.21	0.26	0.20	0.67	\$653,069	\$731,990
Maricopa County#2	Indian School Rd: L101 to 99th Ave, eastside of the McDowell Rd L101 interchange, Daisy Mountain Dr: Gavilan Peak Pkwy to I-17 (Anthem)	Install Last Mile fiber optic connections and new fiber and conduit infrastructure along Indian School Road, McDowell Road, and in Anthem. ⁷	2017	1.10	0.09	0.19	0.09	0.37	\$694,607	\$429,988

Notes:

¹Supports the Measure in the Serious Area PM-10 Plan: "PM-10 Efficient Street Sweepers"

²Supports the TCM in the Serious Area PM-10 Plan and CO Maintenance Plan: "Trip Reduction Program"

³Supports the TCMs in the Serious Area PM-10 Plan and CO Maintenance Plan: "Areawide Public Awareness Program" and "Employer Rideshare Program Incentives"

⁴Supports the TCM in the Serious Area PM-10 Plan and CO Maintenance Plan: "Development of Bicycle Travel Facilities"

⁵These projects also include shoulder paving which supports the measure in the Serious Area PM-10 Plan: "Curbing, Paving or Stabilizing Shoulders on Paved Roads"

⁶Supports the TCM in the Serious Area PM-10 Plan and CO Maintenance Plan: "Encouragement of Pedestrian Travel"

⁷Supports the TCMs in the Serious Area PM-10 Plan and CO Maintenance Plan: "Coordinate Traffic Signal Systems" and "Develop Intelligent Transportation Systems"

⁸Goodyear#1, Gilbert#1, Gilbert#2 NOx value under evaluation