

September 25, 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, October 3, 2012- **9:30 a.m. (Please note changed start time)**  
MAG Office Building, 2<sup>nd</sup> 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 September 5, 2012 Meeting Minutes</u>	2. Review and approve minutes of the meeting held on September 5, 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 TSOP projects.

5. Reconsidering Previous Action on Project Ranking Methodology

At the previous meeting, the committee adopted a methodology that would combine Congestion Management Process scores provided by each member to generate an overall committee rank which would be combined with air quality score based ranks to produce the final project rank. Upon further review it has been determined that the adopted method has a flaw that needs to be corrected.

6. Action on Project Ranking Methodology

The committee will review a revised project ranking methodology that would combine Congestion Management Process score based ranking to generate an overall Congestion Management Process rank, which would then be combined with ranking based on air quality cost effectiveness.

3. For information and discussion.

4. For information and discussion.

5. For information, discussion and possible action to reconsider previous action on the method to generate the overall project rank based on combining Congestion Management Process scores for the project ranking process.

6. For information, discussion and possible action to adopt the methodology to generate the overall project rank based on Congestion Management Process score based rank and Air Quality score based rank.

7. Project Presentations

A total of 35 project applications have been received in response to the MAG call for projects. As part of the project review process, agencies proposing projects will have the opportunity to make brief five-minute presentations to the committee. About half the projects will be heard by the committee with the rest to be heard at the next committee meeting on November 7, 2012. The order of project presentations are shown on Attachment One.

8. Reports by Committee Members

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

9. 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.

10. Next Meeting Date and Place

The next committee meeting is scheduled to be held at 9:30 a.m. on Wednesday, November 7, 2012. It will be held in the Ironwood Room on the 2<sup>nd</sup> Floor of the MAG office building.

Adjournment

7. For information and discussion.

8. For information and discussion.

9. For information and discussion.

10. For information.

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

September 5, 2012  
MAG Ironwood Room, 2nd Floor  
302 North First Avenue  
Phoenix, Arizona

**MEMBERS ATTENDING**

Farzana Yasmin for Reza Karimvand,  
ADOT  
\*Soyoung Ahn, ASU  
Margaret Boone for Bennie Robinson,  
City of Avondale  
\*Thomas Chlebanowski, Town of  
Buckeye  
Hong Huo for Mike Mah, City of  
Chandler  
\*Captain Burley Copeland, DPS  
John Aleman for Jorge Gastelum, City of  
El Mirage  
Jennifer Brown, FHWA  
Erik Guderian, Town of Gilbert  
Debbie Albert, City of Glendale (Chair)

Luke Albert, City of Goodyear  
Faisal Saleem for Nicolaas Swart, Maricopa  
County  
\*Suresh Shrimavle, METRO  
Avery Rhodes, City of Mesa  
\*\*Ron Amaya, City of Peoria  
Marshall Riegel, City of Phoenix  
Nancy Steptoe, Phoenix Public Transit  
\*Bill Birdwell, Town of Queen Creek  
Steve Ramsey for Bruce Dressel, City of  
Scottsdale  
Nicholas Mascia, City of Surprise  
\*Catherine Hollow, City of Tempe  
Ratna Korepella, RPTA

**OTHERS PRESENT**

Jeff Brannan, Avondale  
Ashley Welton, UCG  
Dan Hartig, Ayres  
Art Brooks, Strand  
Jeff Jenq, OZ Engineering  
Bo Gao, Stanley  
Kiran Guntupalli, MAG  
Leo Luo, MAG

Michael Reese, Avondale  
David Riley, UCG  
Marta Gerber, Michael Baker  
Natalie Carrick, Michael Baker  
Jay Yenerich, PB  
Lisa Burgess, KHA  
Sarath Joshua, MAG

\* Not present

\*\* Via teleconference

1. Call to Order  
Debbie Albert called the meeting to order at 9:35 a.m.
  
2. Approval of the August 1, 2012 Meeting Minutes  
**Margaret Boone moved, Erik Guderian seconded and it was unanimously carried to approve the minutes of the meeting held on August 1, 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

Sarath Joshua addressed the following items in his report:

- FY2011 TSOP Projects
  - 2 Projects are on-going
    - Bell Road Traffic Coordination – 6 agencies
    - Development and implementation of new signal timing plans – Avondale
- FY2012 TSOP Projects
  - 14 TSOP projects including 7 B/A evaluations
  - SYNCHRO training is completed early this year
  - Five projects underway at Scottsdale FLW Blvd & Loop101
  - Two projects will begin work in September
  - Six more task orders under development
- On-call Contracts
  - MAG is extending most of the existing on-call contracts.
  - Some firms which expressed no interests in MAG' works or lost key personnel, their contract will not be extended.
  - The new On-call will incorporate DBE requirements and possibly combined with other MAG on-call contract.

5. Regional ITS Strategic Plan Update

Sarath Joshua briefly mentioned the background of the project. Lisa Burgess of KHA presented the draft final report to committee members. Ms Burgess also shared some comments received from the member agencies. Jennifer Brown from FHWA mentioned that AZTech planned to produce performance measure book and continue that effort. Sarath Joshua mentioned that MAG is required by legislature to produce a performance measures report for the region and that MAG is concerned about a duplicate report from the region. Jennifer Brown suggested that MAG inform AZTech Executive Committee about this. Sarath Joshua mentioned that MAG management will be discussing this issue with Maricopa County and ADOT management. Jennifer Brown suggested deleting the language "This will result in one report on transportation performance measures produced by MAG" until the discussion occurred. Sarath Joshua also mentioned that the definition of AZTech needs to be included in the report. Faisal Saleem from Maricopa County suggested including more quantitative achievements of the region. Cathy Hollow and Erik Guderian both pointed out some minor errors that need to be corrected in the report. Jennifer Brown mentioned that FHWA prefers using Adaptive Signal Control Technology (ASCT) instead of Adaptive Traffic Control Systems (ATCS). Lisa Burgess mentioned that Valley Metro should be included in the list of MAG member agencies. Chair Debbie Albert asked if the Strategic Plan update will occur every other year. After some discussion it was agreed that the frequency of updating the Strategic Plan would need to be coordinated with other events such as RTP updates, a bi-annual schedule for review of the Plan was agreed upon as a general guidance. Lisa Burgess mentioned that the final version of the Strategic Plan will be sent to committee members at least two (2) weeks before the next ITS committee meeting.

6. ITS Projects Ranking Methodology

Sarath Joshua briefly reviewed the project ranking methodology that is incorporated in an Excel sheet, based on past discussion at ITS committee meetings. One remaining question needed to be addressed by the committee on how to incorporate the air quality scores into the overall project ranking process. A method of using the rankings of the air quality scores instead of the scores themselves was proposed based on the previous air quality scores ITS projects received. Leo Luo explained that a direct use of the air quality scores would create major bias because the range of the air quality scores is too wide. Faisal expressed his concern about combining the rankings of individual ITS committee member CMP scores. Avery mentioned that the weight of the air quality in the proposed method depends on the number of applications MAG received. Hong Huo suggested utilizing ranks for both ITS Committee CMP scores and Air Quality scores, and then combining both rankings together. Faisal Saleem suggested considering 0.5 as the weight to the air quality ranking. Cathy Hollow expressed concern of not considering the Air Quality ranking equally as the CMP ranking. Nicholas Mascia suggested that the final CMP ranking be based on the average of individual CMP scores instead of using the ranks based on committee member scores. **Faisal Saleem moved, Avery Rhodes seconded, sixteen (16) members voted in favor, three members (Cathy Hollow, Nancy Steptoe and Erik Guderian) voted against, one member (Jennifer Brown) abstained, and it was approved by the ITS committee that the rankings of the ITS projects should be based on a combination of the overall CMP ranking and the Air Quality ranking weighted by 0.5. The overall CMP ranking will be based on the average scores among ITS committee members and not on individual committee member ranking.**

7. Clarification of ITS Project Categories and Other TIP Related Questions

Sarath Joshua mentioned that a discussion with Jennifer Brown of FHWA has resulted in a clarification that HAWK signals can qualify for ITS projects if they are connected to traffic signal systems. In response to a question from Faisal Saleem pertaining to who should sign the TIP applications for projects involving multiple agencies, Sarath Joshua indicated that he obtain a clarification and provide that information to everyone via email.

8. Reports by Committee Members

Marshall Riegel reported that the City of Phoenix has advertised a project to develop an ITS Strategic Plan. Margaret Boone reported that results from the Avondale TSOP project have been fully implemented. She also reported that the Project Assessment for the McDowell Road fiber backbone is underway. Farzana Yasmin reported that several FMS projects are underway. Kiran Guntupalli mentioned that the ITS Arizona annual conference will be held from September 26 to 27 at the Mesa Convention Center.

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, October 3, 2012, in the Ironwood Room (2<sup>nd</sup> floor) at MAG.

Adjournment

Debbie Albert adjourned the meeting at 11:35 a.m.

	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	\$881,544.00	\$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	\$1,298,607.00	
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	\$1,033,674.00	\$865,562.00	
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	\$810,249.00	\$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	\$455,979.00	
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 (15thAve., 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	FY2017	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	
						\$27,896,246.00	\$23,170,370.00	