

**INTELLIGENT TRANSPORTATION APPLICATION**  
**CMAQ Funding Available for Federal Fiscal Year 2015, 2016 and 2017**

**General Instructions:**

This Excel form is to be used to request federal Congestion Mitigation and Air Quality (CMAQ) funding available through the Maricopa Association of Governments (MAG) for ITS Projects to be included in the FY2014-FY 2018 MAG Transportation Improvement Program. Funding is available for Federal Fiscal Year (FFY) 2015, 2016 and 2017.

This application form includes:

- Part A - Contact and Project Description,
- PART B - ITS TIP Listing and CMAQ Score Data,
- PART C - ITS project Description,
- Part D - Checklist and Signature Page, and Transmittal Instructions and Schedule.

Each part is a separate tab of this excel file. Please complete Parts A - D. Alternative application forms are available upon request.

**Deadlines and Transmittal Instructions:**

Two copies of a printed, complete and signed application must be received in the MAG offices by **10:00 a.m. Wednesday, September 19, 2012**. The application is to be submitted electronically and should include ArcGIS shape files depicting the project location if they are available.

**Detailed transmittal Instructions are located in a separate tab in this excel sheet. Late applications will not be accepted.**

If member agencies need additional information or have questions, they should contact Teri Kennedy or Stephen Tate at (602) 254-6300 or contact them by e-mail at the following addresses:

- <mailto:state@azmaq.gov>
- <mailto:kennedy@azmaq.gov>
- <mailto:LLuo@azmaq.gov>

**All information is required, unless noted by the word - Optional.**

**PART A - CONTACT AND PROJECT DESCRIPTION**

<b>Contact Information</b>	
1. Sponsoring Agency	<b>Maricopa County</b>
2. Contact Name	<b>Nicolaas Swart</b>
3. Phone	<b>(602) 506-0599</b>
4. E-Mail Address	<b>NicolaasSwart@mail.maricopa.gov</b>
5. Mailing Address	<b>2919 W. Durango Street Phoenix, AZ 85009</b>

**ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'**

## PART B - ITS TIP Listing and CMAQ Score Data

*This part of the form identifies data to calculate an CMAQ Score and provide the minimum data needed for a listing of the project in the Transportation Improvement Program*

### Area 1 of 4: Bell Road & L303 & Grand Avenue From Cotton Lane through Ave of the Arts/114th Avenue



### 1. Traffic Estimate and Roadway Characteristics

a. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type:

b. Please Describe how the ADT was estimated:

MAG Transportation Data Management System: Average of two locations along the corridor.

- 1) Bell Rd from Reems to Bullard - Sept 2011 - 35470
- 2) Bell Rd from 115th Ave to El Mirage - April 2011 - 65460

c. When was the ADT estimate developed:

d. Name of the Roadway Section Used for the ADT Estimate:

e. Starting Limit of the Roadway Section:

f. Ending Limit of the Roadway Section:

g. Length (Miles)

h. Total Number of Through Lanes on the Roadway Section:

i. Federal Functional Classification of the Roadway Section:

[Link to Functional Classification Map on the MAG Website](#)

**2. Traffic Coordination Improvements**

If the project improves traffic signal coordination, please do the following:

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

36

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase In Speed
	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
X	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

**3. Other Improvements. Check all that apply:**

- Includes Traffic Signal Improvements for a Single Agency
- Includes Traffic Signal Improvements that Apply to More than One Agency
- Includes FMS Improvements
- The Project Conforms to Local Land Use Plans
- Adds Traffic Signals that increase pedestrian crossing time for seniors

**4. Traffic Speed Impacts of the Project (Not required for Traffic Coordination Improvements)**

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

N/A

b. Enter the post-improvement (current) traffic speed of the traffic corridor:

N/A

## PART B - ITS TIP Listing and CMAQ Score Data

This part of the form identifies data to calculate an CMAQ Score and provide the minimum data needed for a listing of the project in the Transportation Improvement Program

### Area 2 of 4: Bell Road & Loop 101 From 99th Avenue through 73rd Avenue



### 1. Traffic Estimate and Roadway Characteristics

a. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type:

b. Please Describe how the ADT was estimated:

The ADT for Area 2 was obtained from the ITIP detector station located 0.03 miles east of 88th Drive. The 24 hour volume data was collected on February 23, 2012 (Thursday).

c. When was the ADT estimate developed:

d. Name of the Roadway Section Used for the ADT Estimate:

e. Starting Limit of the Roadway Section:

f. Ending Limit of the Roadway Section:

g. Length (Miles)

h. Total Number of Through Lanes on the Roadway Section:

i. Federal Functional Classification of the Roadway Section:

[Link to Functional Classification Map on the MAG Website](#)

**2. Traffic Coordination Improvements**

If the project improves traffic signal coordination, please do the following:

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

33

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase In Speed
	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
X	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

**3. Other Improvements. Check all that apply:**

- Includes Traffic Signal Improvements for a Single Agency
- Includes Traffic Signal Improvements that Apply to More than One Agency
- Includes FMS Improvements
- The Project Conforms to Local Land Use Plans
- Adds Traffic Signals that increase pedestrian crossing time for seniors

**4. Traffic Speed Impacts of the Project (Not required for Traffic Coordination Improvements)**

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

N/A

b. Enter the post-improvement (current) traffic speed of the traffic corridor:

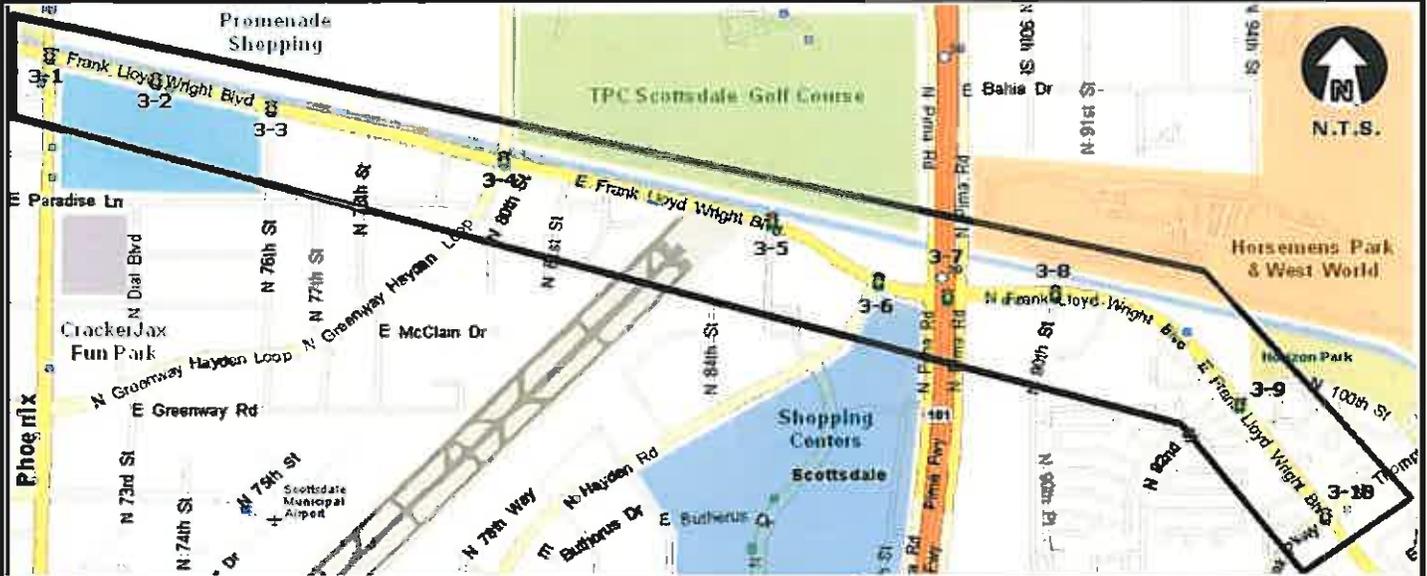
N/A

ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'

## PART B - ITS TIP Listing and CMAQ Score Data

*This part of the form identifies data to calculate an CMAQ Score and provide the minimum data needed for a listing of the project in the Transportation Improvement Program*

### Area 3 of 4: Frank Lloyd Wright Boulevard & L101 From Scottsdale Road through Thompson Peak Parkway



### 1. Traffic Estimate and Roadway Characteristics

a. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type:

b. Please Describe how the ADT was estimated:

The ADT for Area 3 was estimated by taking the average of weekday 24 hour volume counts collected in March 2012 at three points along the corridor: FLW between Scottsdale and Greenway-Hayden; FLW between Greenway-Hayden and L101; and FLW between L101 and Thompson Peak Pkwy.

c. When was the ADT estimate developed:

d. Name of the Roadway Section Used for the ADT Estimate:

e. Starting Limit of the Roadway Section:

f. Ending Limit of the Roadway Section:

g. Length (Miles)

h. Total Number of Through Lanes on the Roadway Section:

i. Federal Functional Classification of the Roadway Section:

[Link to Functional Classification Map on the MAG Website](#)

**2. Traffic Coordination Improvements**

If the project improves traffic signal coordination, please do the following:

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

31

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase In Speed
	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
X	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

**3. Other Improvements. Check all that apply:**

- Includes Traffic Signal Improvements for a Single Agency
- Includes Traffic Signal Improvements that Apply to More than One Agency
- Includes FMS Improvements
- The Project Conforms to Local Land Use Plans
- Adds Traffic Signals that increase pedestrian crossing time for seniors

**4. Traffic Speed Impacts of the Project (Not required for Traffic Coordination Improvements)**

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

N/A

b. Enter the post-improvement (current) traffic speed of the traffic corridor:

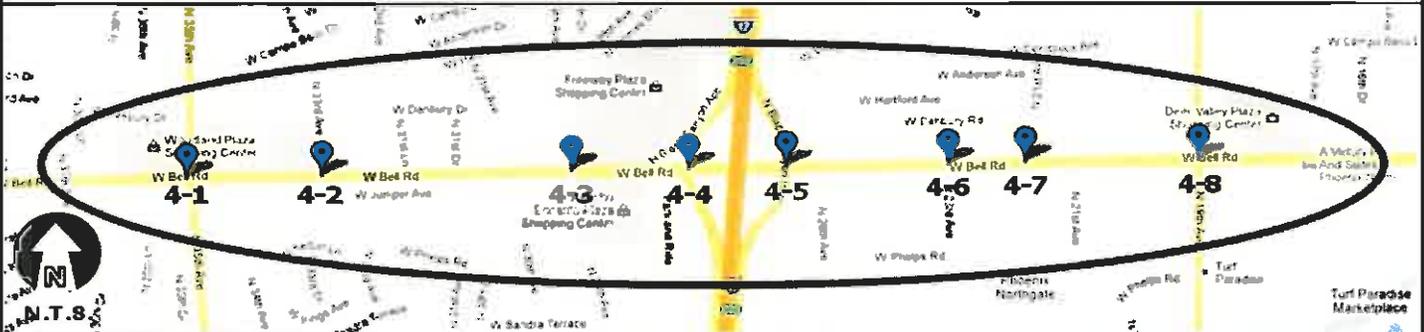
N/A

ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'

## PART B - ITS TIP Listing and CMAQ Score Data

*This part of the form identifies data to calculate an CMAQ Score and provide the minimum data needed for a listing of the project in the Transportation Improvement Program*

### Area 4 of 4: Bell Road & I-17 From 35th Avenue to 19th Avenue



### 1. Traffic Estimate and Roadway Characteristics

a. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type:

b. Please Describe how the ADT was estimated:

MAG Transportation Data Management System. Average of three locations along the corridor.

- 1) Bell Rd from 35th Ave to 31st Ave - April 2012 - 38995
- 2) Bell Rd from 31st Ave to I-17 - April 2012 - 41275
- 3) Bell Rd from I-17 to 23rd Ave - Oct 2011 - 47855

c. When was the ADT estimate developed:

d. Name of the Roadway Section Used for the ADT Estimate:

e. Starting Limit of the Roadway Section:

f. Ending Limit of the Roadway Section:

g. Length (Miles)

h. Total Number of Through Lanes on the Roadway Section:

i. Federal Functional Classification of the Roadway Section:

[Link to Functional Classification Map on the MAG Website](#)

**2. Traffic Coordination Improvements****If the project improves traffic signal coordination, please do the following:**

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

32

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase In Speed
	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
X	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

**3. Other Improvements. Check all that apply:**

- Includes Traffic Signal Improvements for a Single Agency
- Includes Traffic Signal Improvements that Apply to More than One Agency
- Includes FMS Improvements
- The Project Conforms to Local Land Use Plans
- Adds Traffic Signals that increase pedestrian crossing time for seniors

**4. Traffic Speed Impacts of the Project (Not required for Traffic Coordination Improvements)**

a. Enter the pre-improvement (current) traffic speed of the traffic corridor:

N/A

b. Enter the post-improvement (current) traffic speed of the traffic corridor:

N/A

**ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'**

## PART C - ITS Project Description

Please enter project data ONLY in highlighted cells, save the file with the lead agency name in it - ie. City 0 ITS Projects.xls

Submit this Excel workbook to MAG via email to: lluo@azmag.gov

Please use one worksheet per project, with the tab at the bottom indicating agency priority -- Mesa1, Mesa2,.. etc.

Links to various websites are provided for additional information and help

The worksheet titled "Example" shows an example on how to enter Data in the highlighted areas

Please enter required information in highlighted cells

### A. Project Title & Sponsor

<b>Lead Agency</b>	Maricopa County
<b>Other Partnering Agencies</b>	ADOT, Surprise, Peoria, Glendale, Phoenix, Scottsdale
<b>ITS Project Title:</b>	Bell Road Adaptive Signal Control Technology (ASCT) Deployment
<b>Project Category:</b>	Integrated Corridor Mgmt

### B. Project Goals & Objectives

#### Project Goals:

- \* Support the goal of the Every Day Counts ASCT initiative which is "to mainstream the use of adaptive control where traffic conditions and agency capability support its implementation".
- \* Provide coordination across jurisdictions at key locations on Bell Road
- \* Reduce recurring and non-recurring congestion on Bell Road and intersecting roadways
- \* Mitigate the effects of non-recurring congestion on Bell Road, intersecting roadways, and intersecting freeways
- \* Improve freeway and arterial operations at traffic interchanges and ramps

The vision of the ASCT system is to provide an advanced traffic control system that responds to changing traffic conditions, and reduces delays and corridor travel times, which managing queues and improving safety.

The goals of the ASCT system are to:

- \* Support vehicle traffic mobility
- \* Provide measurable improvements in personal mobility
- \* Support regional systems
- \* Support environmental policy objectives
- \* Meet a timely project implementation schedule

### **Objectives:**

The objective of the adaptive system that support the stated goals are:

To support vehicle traffic mobility:

- \* Allow effective use of all controller features currently in use or proposed to be used
- \* Minimize adverse effects caused by unpredictable traffic flow

To support measurable improvements in personal mobility:

- \* Adjust operation to changing conditions
- \* Reduce delays
- \* Reduce travel times
- \* Provide the same level of or improvements in safety provided by the existing system to vehicles, pedestrians, and transit

To support regional systems:

- \* Be compliant with the regional ITS Architecture
- \* Be part of the overall reduction of delays and travel time on the Bell Road corridor

To support environmental objectives:

- \* Reduce vehicle emissions through improvements in appropriate determinants such as vehicle stops and delays

To support a timely schedule:

- \* Be sufficiently mature and robust that risk is low and little or no development time will be required.
- \* Be ready for full operation based on funding requirements.

### **C. Project Information**

#### **Project Location:**

*A map of each area is provided in Part B of this application. Additional exhibits are attached.*

#### **Area 1 - 7.0 miles - 21 intersections**

Bell Road & L303 & Grand Avenue from Cotton Lane through Ave of the Arts/114th Avenue

#### **Partnering Agencies:**

- \* City of Surprise (Albert Garcia, albert.garcia@surpriseaz.com)
- \* ADOT (Reza Karimvand, rkarimvand@azdot.gov)

#### **Purpose of providing adaptive control:**

- \* Coordination across jurisdictions at Grand Avenue
- \* Overcome unpredictable traffic patterns to manage deficiencies at the Grand Avenue Rail Road Crossing (freight), queue backups at 134th Drive, and special event and holiday traffic
- \* Reduce queueing on ramps and at interchange

#### **Area 2 - 3.4 miles - 13 intersections**

Bell Road & L101 from 99th Avenue through 73rd Avenue

#### **Partnering Agencies:**

- \* Maricopa County (Faisal Saleem, faisalsaleem@mail.maricopa.gov; Bob Steele, bobsteele@mail.maricopa.gov)
- \* City of Peoria (Ron Amaya, ronalda@peoriaaz.gov)
- \* ADOT (Reza Karimvand, rkarimvand@azdot.gov)
- \* City of Glendale (Allan Galicia, agalicia@glendaleaz.com)

#### **Purpose of providing adaptive control:**

- \* Coordination across jurisdictions
- \* Overcome variable, unpredictable traffic patterns, peak period traffic, east-west traffic volume variation
- \* Minimize queues in the peak hours
- \* Reduce queueing on ramps and at interchange

**Area 3 - 3.2 miles - 10 intersections**

Frank Lloyd Wright & L101 from Scottsdale Road through Thompson Peak Parkway

**Partnering Agencies:**

\* City of Scottsdale (Bruce Dressel, bdressel@scottsdaleaz.gov)

**Purpose of providing adaptive control:**

- \* Overcome heavy, variable traffic patterns during special events
- \* Overcome unpredictable traffic patterns every day due to multiple trip generating land uses in the area
- \* Reduce queueing on ramps and at interchange

**Area 4 - 2.0 miles - 8 intersections**

Bell Road & I-17 from 35th Avenue through 19th Avenue

**Partnering Agencies:**

\* City of Phoenix (Ray Dovalina, raimundo.dovalina@phoenix.gov)

\* ADOT (Reza Karimvand, rkarimvand@azdot.gov)

**Purpose of providing adaptive control:**

- \* Coordination across jurisdictions
- \* Overcome unpredictable traffic patterns to manage queues at the freeway interchange
- \* Improve progression along Bell Road across the freeway interchange
- \* Reduce queueing on ramps and at interchange

**Scope of the project:**

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.

**D. Identify Components in MAG Regional ITS Architecture**

<b><u>ITS applications</u></b>	<b>Relevant Applications (ENTER: Yes or No)</b>	<b><u>Applicable ITS Market Packages</u></b> <a href="http://www.azmag.gov/ITS/">http://www.azmag.gov/ITS/</a>	<b>Note: Please attach the Architecture Flow Diagram in the application</b>
1. Traffic Management	Yes	ATMS01, ATMS03, ATMS13	
2. Transit Operations Support	No		
3. Communications	No		
4. Traveler Information	No		
5. Archived Data Management	No		
6. ITS for Safety	No		
7. ITS Plans	No		
8. Freeway-Arterial Operations	Yes	ATMS01, ATMS03	

**E. Program Year Preference**

First Choice                     FY2015             FY2016             FY2017  
 Second Choice                 FY2015             FY2016             FY2017  
 Third Choice                    FY2015             FY2016             FY2017

**F. Project Budget**

	<b>Federal Cost</b>	<b>Local Match (min 5.7%)</b>	<b>Total Cost</b>
<b>Amount</b>	\$2,315,065.00	\$139,935.00	\$2,455,000.00
<b>Cost percentage</b>	94.3%	5.7%	



**Other comments:**

The sponsoring and partnering agencies will contribute to the 5.7% local match based on the number of intersections they operate within the project area that are implemented with adaptive signal control technology.

The 5.7% match equates to \$2,565 per intersection based on the estimated total implementation cost of \$45,000 per intersection. \$45,000 is the median cost per intersection as reported in the 2010 NCHRP Synthesis 403 – Adaptive Traffic Control Systems: Domestic and Foreign State of Practice. This cost is also validated through the Concept of Operations and System Requirements study recently completed for the project.

Maricopa County will pay for design and the design cost will also be used to offset the local match.

As a self-certified agency, Maricopa County will pay the \$5,000 ADOT local projects review fee which is not eligible for federal reimbursement.

We are proposing to implement adaptive traffic signal control for all four areas as one project; however, will also consider phasing the project. For example, implementation on Area 1 and Area 4 (31 intersections) would be Phase 1 and implementation on Area 2 and Area 3 (21 intersections) would be Phase 2.

**I. Systems Engineering Analysis Requirement****Commitment to address the federal requirement for Systems Engineering Analysis:**

Agency's intent to follow the process described in the 'V' diagram during the project development process

The project sponsor intends to incorporate the Systems Engineering Analysis and ADOT System Engineering Checklist in the scope of work for the project's Project Assessment / Design Concept Report.

FHWA has recently introduced "Model Systems Engineering Documents for Adaptive Signal Control Technology (ASCT) Systems". These documents provide a means to develop systems engineering documents in compliance with system engineering requirements (23CFR940.11) specifically for Adaptive Signal Control Technology.

The partner agencies of this project have already applied this process and completed the Concept of Operation v1.0 and System Requirements v1.0 documents for this project. These Systems Engineering documents will be revisited and updated by all participating agencies as part of the project procurement process.

<http://www.azdot.gov/Highways/TTG/PDF/SystemsEngineeringChecklist.pdf>

**ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'**

TIP Programming FY2015 - FY2017

MAG ITS Project Data Form

Please enter project data ONLY in highlighted cells, save the file with the lead agency name in it - ie. City 0 ITS Projects.xls  
 Submit this Excel workbook to MAG via email to: [lluo@azmag.gov](mailto:lluo@azmag.gov)  
 Please use one worksheet per project, with the tab at the bottom labeled to indicate agency priority -- Mesa1, Mesa2,.. etc.  
 Links to various websites are provided for additional information and help.  
 The worksheet titled "Example" shows an example on how to enter Data in the highlighted areas.  
 Please enter required information in highlighted cells

**A. Project Title & Sponsor**

Lead Agency	City 0
Other Partnering Agencies	City 1, City 2 and City 3
ITS Project Title:	Seamless Traffic Operations Across City Boundaries
Project Category:	Arterial ITS

**B. Project Goals & Objectives**

**Project Goals:**

Implement the ability to efficiently manage traffic under normal, congested and incident conditions across city boundaries.

**Objectives:**

Expand TMC traffic surveillance and monitoring capability by installing CCTV cameras with peer-to-peer control; Facilitate the coordination of signal timing adjustments between neighboring cities in response to real-time traffic conditions.

### C. Project Information

#### Project Location:

Specific project location must be provided along with a GIS-Based Map in shape file format.  
Intersection 1, Intersection 2, Intersection 3, etc.

#### Brief Project Scope:

Purchase and install a total of X CCTV cameras along YY road from cross street1 to cross street 2 along with central control module/software at the TMC. The software would allow selected departments within the city and other adjacent agencies to control the cameras for traffic management purposes. Two dedicated servers will be procured to support the application. Communications links and IGAs have been established between our city and City 1, 2, 3 to facilitate the shared camera control. Communications between the intersections and the TMC is under construction through another TIP project #.

**D. Identify Components in MAG Regional ITS Architecture**

<b><i>ITS applications</i></b>	<b>Relevant Applications (ENTER: Yes or No)</b>	<b><a href="http://www.azmag.gov/ITS/">Applicable ITS Market Packages</a></b>
1. Traffic Management	Yes	ATMS01, ATMS03
2. Transit Operations Support	No	
3. Communications	No	
4. Traveler Information	No	
5. Archived Data Management	No	
6. ITS for Safety	No	
7. ITS Plans	No	
8. Freeway-Arterial Operations	Yes	ATMS08

Note: Please attach the Market Package diagram to the application

**E. Program Year Preference**

First Choice                     FY2015                     FY2016                     FY2017

Second Choice                 FY2015                     FY2016                     FY2017

Third Choice                     FY2015                     FY2016                     FY2017

**F. Project Budget**

	Federal Cost	Local Match (min 5.7%)	Total Cost
Amount	\$200,000.00	\$50,000.00	\$250,000.00
Cost Breakdown %	80.0%	20.0%	

**G. Project Schedule**

(Based on the first choice program year)

The table below is provided as a tool to assist local agencies develop a project planning schedule. Column A shows standard project milestones and Column B shows the schedule based on a typical project procurement process. To generate a custom Project Schedule:(1) select applicable milestones in Column C;(2) Enter estimated time to complete milestone measured in months from project development start date in Column D; **NOTE: The project obligation date generated in cell E111 MUST occur before Sept 15th of the programmed fiscal year.** Determine the appropriate Project Activity Start Date (by trial-and-error) in order to obligate the project on time.

Standard Project Milestones	Default Project Schedule	Applicable Milestones (ENTER - Yes OR No)	Estimated Time to Milestone (ENTER #Months)	Estimated Date
Apply for ADOT project number				Aug-2013
Receipt of ADOT project number	Oct-2013	Yes	2	Oct-2013
Initial DCR	Nov-2013	Yes	3	Nov-2013
Final DCR	Dec-2013	Yes	4	Dec-2013
30% Preliminary Plans, Cost Estimate and Report	Feb-2014	Yes	7	Mar-2014
60% Preliminary Plans, Cost Estimate and Report	Apr-2014	Yes	9	May-2014
Final Preliminary Plans, Cost Estimate and Report	Jun-2014	Yes	11	Jul-2014
Environmental Clearance	Apr-2014	Yes	24	Aug-2015
Utility Clearance	May-2014	Yes	10	Jun-2014
Right-of-Way Clearance	Feb-2014	Yes	10	Jun-2014
Approval of IGA	Aug-2014	Yes	14	Oct-2014
Obligation authority of Federal funds	Sep-2014	Yes	15	Aug-2015
Advertised Date	Nov-2014	Yes	2	Oct-2015
Final Deployment	May-2015	Yes	7	May-2016

< ENTER mm/yyyy -- Project Activity

**H. System Maintenance and Operations**

Current staff resources available for ITS operations at the local agency (FTEs)

Additional staff resources required for fully utilizing features added by project (FTEs)

Estimated current annual ITS operations & maintenance budget

Estimated additional annual operations & maintenance funds required for features/functions added by this project

Estimated DATE from when required additional O&M funds will be available to support this project

3
None
\$100,000
\$20,000
May-2016

Other comments:

**I. Systems Engineering Analysis - Federal Requirement for All ITS Projects**

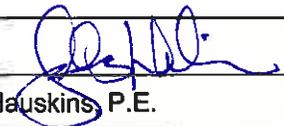
Agency commitment to address the federal requirement for Systems Engineering Analysis:

The project sponsor or lead agency intends to incorporate the Systems Engineering Analysis in the scope of work for the project's Design Concept Report. Details on the ADOT System Engineering Checklist can be found at:  
<http://www.azdot.gov/Highways/TTG/PDF/SystemsEngineeringChecklist.pdf>

ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'

**PART D - SIGNATURE AND CHECKLIST**

As the jurisdiction's manager/administrator or designated representative, I certify that this application is accurate and complete and that the project will be included in the sponsoring MAG member agency's local CIP/TIP if the project is selected for federal funding.

Signature: 

Name: John Hauskins, P.E.

Title: Director, Maricopa County Department of Transportation

Date: 9/19/2012

**WILL FILL OUT AFTER QUESTIONS APPROVED.**

**Checklist - OPTIONAL**

This check list is optional, but is included to facilitate applicant review and verification that all required fields in the form have been completed.

<b>PART A - Contacts and Project Description Fields</b>	<b>Complete?</b>
Contact Information, fields 1 – 5 are complete	Yes
<b>PART B - TIP Listing and CMAQ Score Data</b>	<b>Complete?</b>
1. Traffic Estimate and Roadway Characteristics - Fields a - I are complete	Yes
2. Traffic Coordination Improvements - as applicable table is complete	Yes
3. Other Improvements - As applicable all fields are completed	Yes
<b>PART C - Total Project Schedule and Budget Including All Segment Fields</b>	<b>Complete?</b>
Section A is Complete	Yes
Section B is Complete	Yes
Section C is Complete	Yes
Section D is Complete	Yes
Section E is Complete	Yes
Section F is Complete	Yes
Section G is Complete	Yes
Section H is Complete	No
Section I is Complete	Yes
<b>PART D - Signature Page Fields</b>	<b>Complete?</b>
Form is signed	
Name, title and date fields are completed.	

## TRANSMITTAL INSTRUCTIONS and SCHEDULE

The due date and time for project applications to be submitted to MAG is **Wednesday, September 19, 2012 by 10:00 a.m.**

### Member agencies are to:

**1) Transmit the application and all attachments electronically, and**

To transmit the application electronically, please save the excel file, and then send the application and all attachments to Teri Kennedy, Transportation Programming Manager. Please send graphic attachments in PDF form. Click cell below to send e-mail.

<mailto:MAG Staff>

**2) Submit two printed, signed, and complete applications to MAG.**

To submit two printed, signed, and complete applications to MAG, the applicant can mail (at MAG offices by Wednesday September 19, 2012 at 10:00 a.m.) or drop off application to:

Maricopa Association of Governments  
ATTN: Teri Kennedy,  
302 N. 1st Avenue, Suite #300,  
Phoenix, AZ 85003.

Or, the applicant can scan a printed and signed application and transmit it via e-mail or fax to: [tkennedy@azmag.gov](mailto:tkennedy@azmag.gov) or 602.254.6300 by Thursday September 19th @ 10:00 a.m. If the applicant is transmitting a scanned, printed, and signed application via e-mail or fax, the applicant will mail or drop off the original printed application by Wednesday, September 26, 2012.

### Application Workshops and Open Working Group Meeting Schedule\*

Monday, August 13, 2012 from 9:00-11:00 AM	Workshop on MAG Transportation Programming and Federal Fund Project Applications
Monday, August 27, 2012 from 1:00-3:30 PM	Open Working Group - Federal Fund Project Applications
Monday, September 10, 2012 from 8:30-11:00 AM	Open Working Group - Federal Fund Project Applications

\* All meetings will be held on the 2nd Floor of the MAG Offices at 302 North 1st Ave, Suite 300, Phoenix, Arizona 85003

ITS Application from Maricopa County for 'Bell Road Adaptive Signal Control Technology (ASCT) Deployment'

## Instructions for the Submittal of GIS Data for CMAQ Funding Applications

It is preferred that, when possible, member agencies submit GIS data representing the locations of projects defined in their CMAG Applications. For member agencies unable to meet this requirement, MAG staff is available to assist in this area.

### Submission Requirements

**GIS Data** – For each geometry type (point, line, polygon), please provide a single GIS shapefile or feature class for your jurisdiction. Example: if you are submitting Project Applications that are for both linear features (bike lanes) and point features (crossings), you would submit a total of two shapefiles or geodatabase feature classes along with your Project Application.

**File Formats** – Agencies that are able to submit GIS data along with CMAQ Applications shall provide the data in one of three formats that are compatible with ESRI products: (1) shapefile, (2) Personal Geodatabase, or (3) File Geodatabase.

**Spatial Reference** – The preferred spatial reference system of submitted GIS data is State Plane Arizona Central NAD 83 HARN.

**Attributes** – All GIS data submitted shall, at a minimum, have the following attributes:

- **PROJECT\_TITLE** – the name of the project; this should be the same as the Project Title in the Project Application
- **LOCATION** – (optional) a description of the location of the project. Linear features should be described by their start and end locations. Polygon features should be described using streets, water courses, canals, city boundaries, or other landmarks as a means of describing the location of the project.

<Provide screenshot showing graphic link between survey response in Excel and the attribute table.>

**MAG CMAQ Project**

**Intelligent Transportation Systems Project**

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
<b>A. SCOPING</b> (15% Preliminary Engineering Design) (Non-infrastructure projects: Only #2 applies).					
1. SITE TOPOGRAPHIC SURVEY	LS	1	\$0.00	\$0.00	No
2. PROJECT ASSESSMENT REPORT or DETAILED WORKPLAN	LS	1	\$30,000.00	\$30,000.00	No
3. SYSTEMS ENGINEERING ANALYSIS (must address FHWA requirements)	LS	1	\$55,000.00	\$55,000.00	No
4. ENVIRONMENTAL DETERMINATION (Infrastructure projects, including technical supporting documents)	LS	1	\$25,000.00	\$25,000.00	No
5. HAZMAT ASSESSMENT	LS	1	\$0.00	\$0.00	No
<b>SUBTOTAL – PROJECT SCOPING COSTS</b>				\$110,000.00	\$0
<b>B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&amp;E</b> (Not applicable to non-infrastructure projects)					
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
1. Right-of-Way Acquisition	LS	1		\$0.00	No
2. Plans, Special Provisions or Bid Manual, Cost Estimate & Schedules.	LS	1	\$190,000.00	\$190,000.00	No
3. GEOTECHNICAL INVESTIGATION and Materials & Pavement Design Report	LS	1		\$0.00	No
4. DRAINAGE REPORT	LS	1		\$0.00	No
5. Storm Water Pollution Prevention Plan (SWPPP)	LS	1		\$0.00	No
<b>SUBTOTAL – PROJECT DESIGN COSTS</b>				\$190,000.00	\$0

**C. CONSTRUCTION OR IMPLEMENTATION**

For non-infrastructure projects (no ground disturbing activities), address only parts 2, 3 and D.

**1. CONSTRUCTION ELEMENTS (Insert additional rows if necessary)**

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
<b>SUBTOTAL - CONSTRUCTION</b>				\$0	\$0

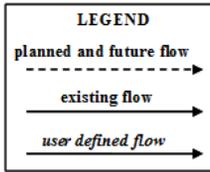
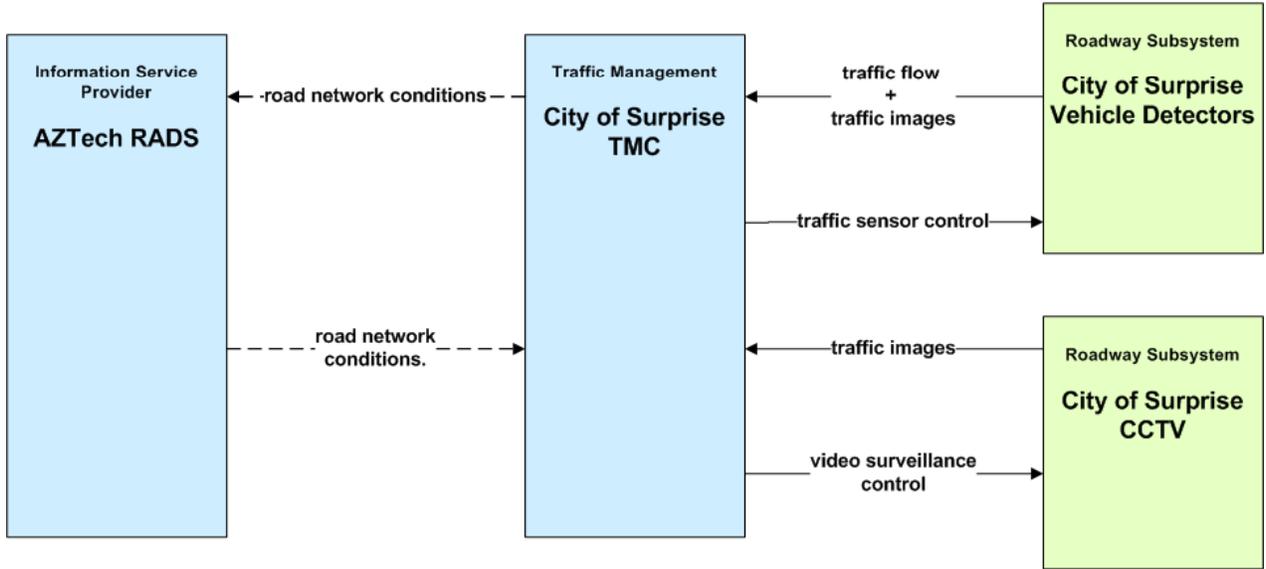
**2. PROCUREMENT (Insert additional rows if necessary)**

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
<i>ASCT System - Area 1 - Surprise/ADOT</i>	EA	21	\$45,000	\$945,000	Yes
<i>ASCT System-Area 2 - MCDOT/Peoria/ADOT/Glendale</i>	EA	13	\$45,000	\$585,000	Yes
<i>ASCT System - Area 3 - Scottsdale</i>	EA	10	\$45,000	\$450,000	Yes
<i>ASCT System - Area 4 - Phoenix/ADOT</i>	EA	8	\$45,000	\$360,000	Yes
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
<b>SUBTOTAL - PROCURMENT</b>				\$2,340,000	\$2,340,000

<b>3. OTHER ITEMS</b> (Insert additional rows if necessary)					
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
<b>SUBTOTAL - OTHER CONSTRUCTION LINE ITEMS</b>				\$0.00	\$0
<b>4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only. If Section 1 is filled out, please fill out this section)</b>					
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
CONTRACTOR MOBILIZATION	LS	1		\$0.00	Yes
TRAFFIC CONTROL	LS	1		\$0.00	Yes
CONSTRUCTION SURVEY & LAYOUT	LS	1		\$0.00	Yes
CONSTRUCTION CONTINGENCIES	LS	1	\$115,000.00	\$115,000.00	Yes
CONSTRUCTION ADMINISTRATION	LS	1		\$0.00	Yes
<b>SUBTOTAL – MOBILIZATION &amp; ADMINISTRATION COSTS</b>				\$ 115,000	\$115,000
<b>TOTAL CONSTRUCTION OR IMPLEMENTATION COST</b>				\$ 2,455,000	\$ 2,455,000
<b>D. ADOT Fee for PE Reviews and Staff Charges</b>	LS	1	\$5,000	\$5,000	No
<b>TOTAL ADOT Fee COST</b>				\$5,000	\$0
<b>E. TOTAL PROJECT COST</b> (All <u>subtotals</u> + ADOT local projects review fee)				\$2,760,000	\$2,455,000

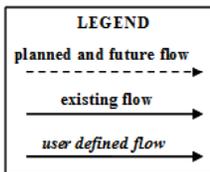
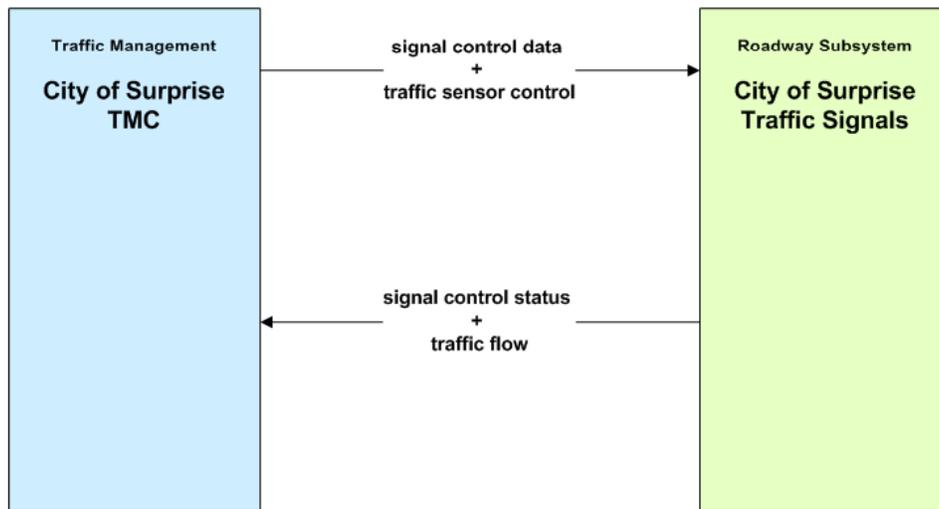
<b>F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS</b>	
<b>TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION</b>	<b>\$2,760,000</b>
<b>TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT</b>	<b>\$2,455,000</b>
<b>TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)</b>	<b>\$2,315,065</b>
<b>LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)</b>	<b>\$139,935</b>
<b>LOCAL AGENCY FUNDS <u>NOT</u> ELIGIBLE FOR FEDERAL REIMBURSEMENT</b>	<b>\$305,000</b>

**ATMS01 - Network Surveillance  
City of Surprise**

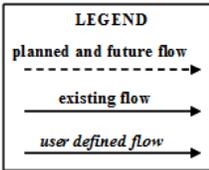
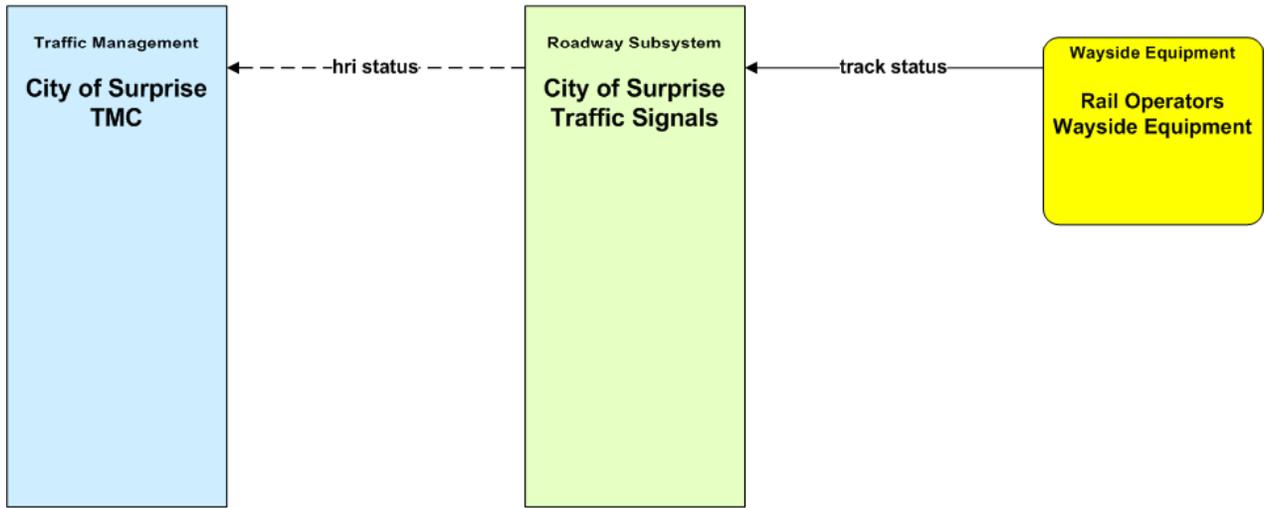


*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

**ATMS03 - Surface Street Control  
City of Surprise**

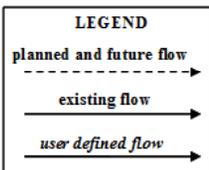
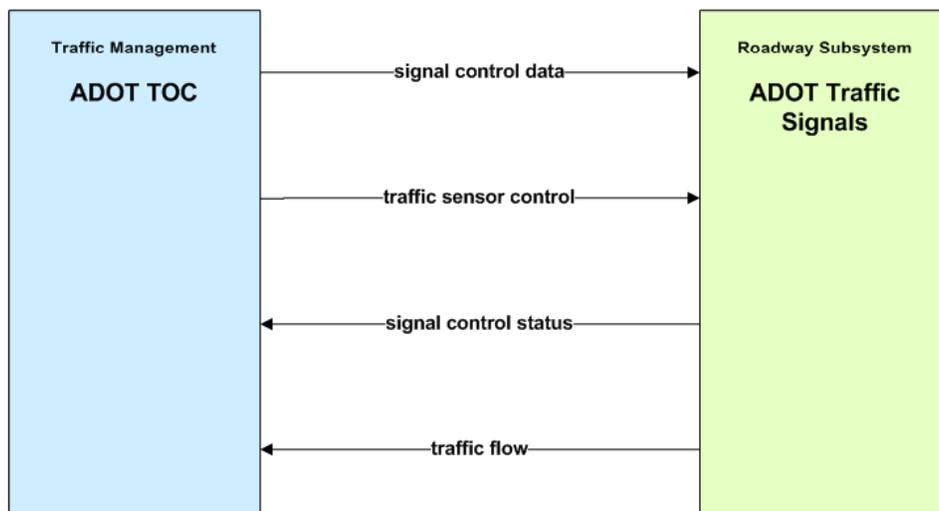


**ATMS13 - Standard Railroad Crossing  
City of Surprise**

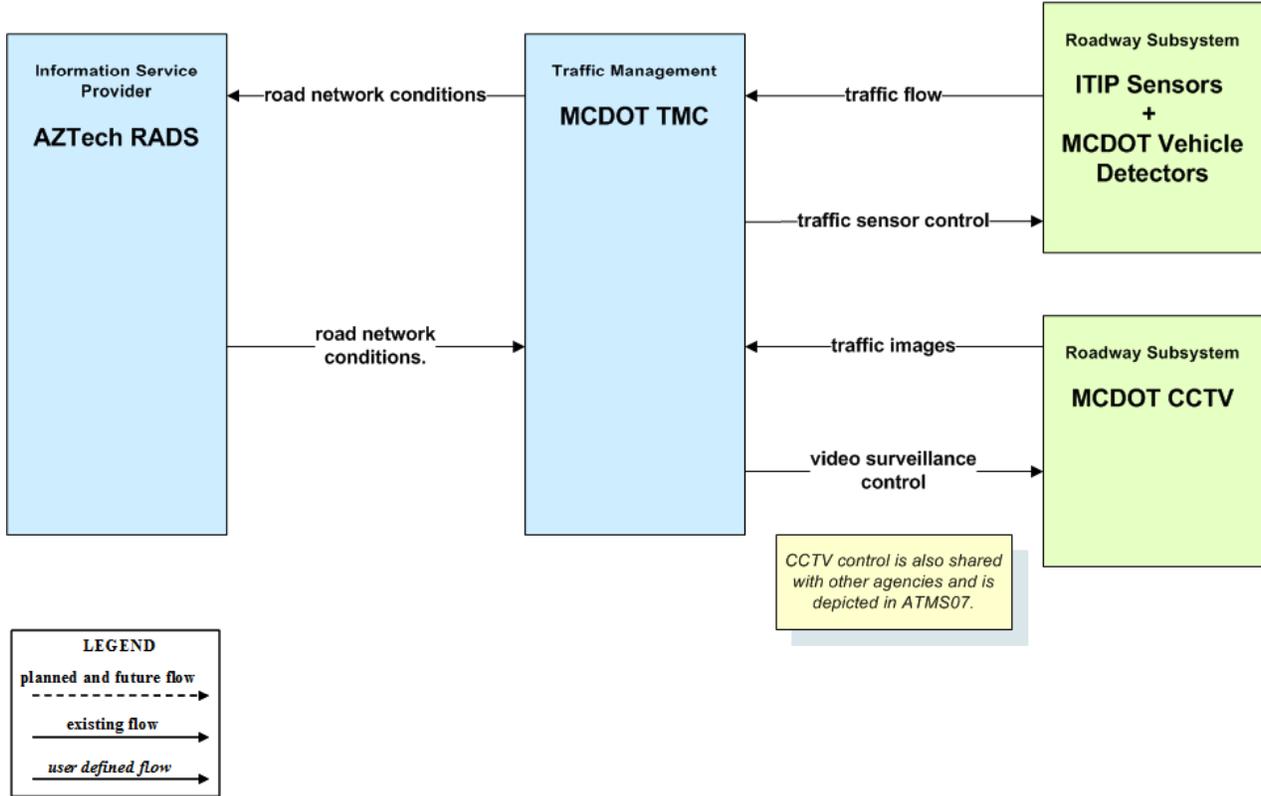


*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

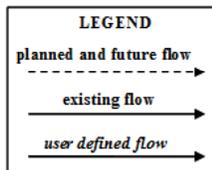
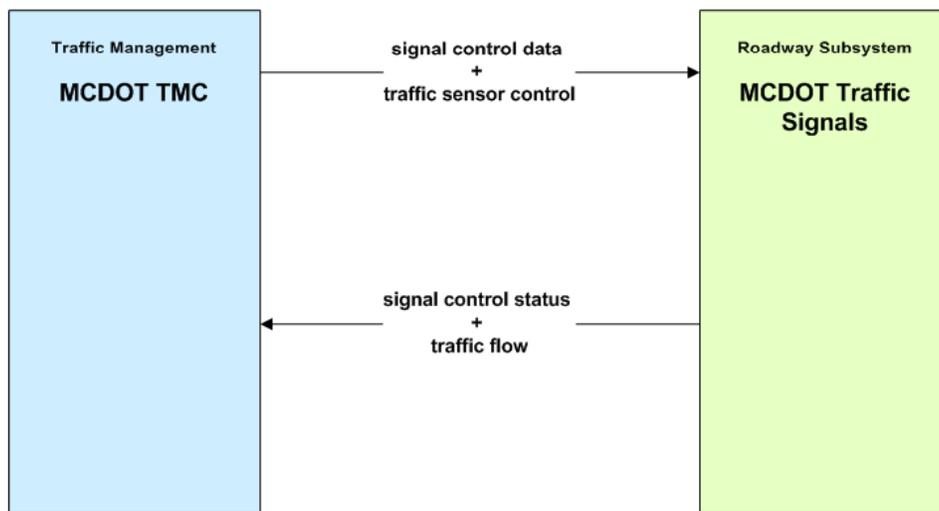
**ATMS03 - Surface Street Control  
Arizona DOT**



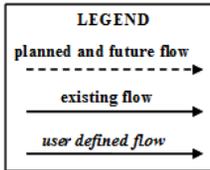
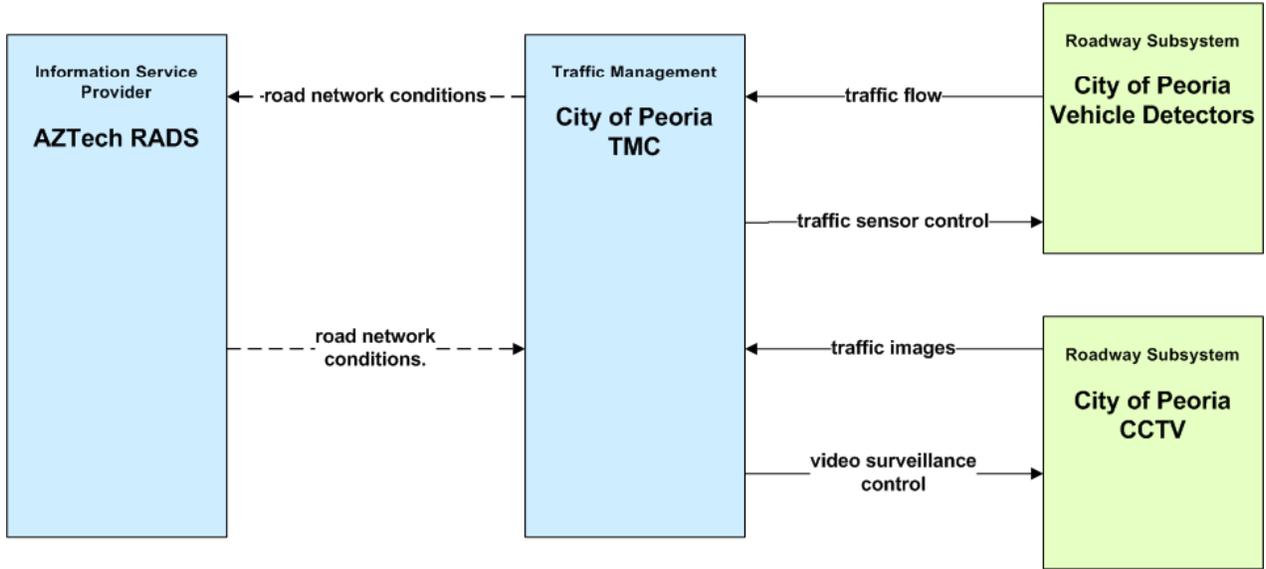
**ATMS01 - Network Surveillance  
Maricopa County**



**ATMS03 - Surface Street Control  
Maricopa County**

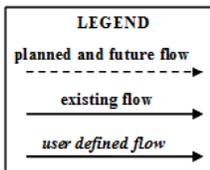
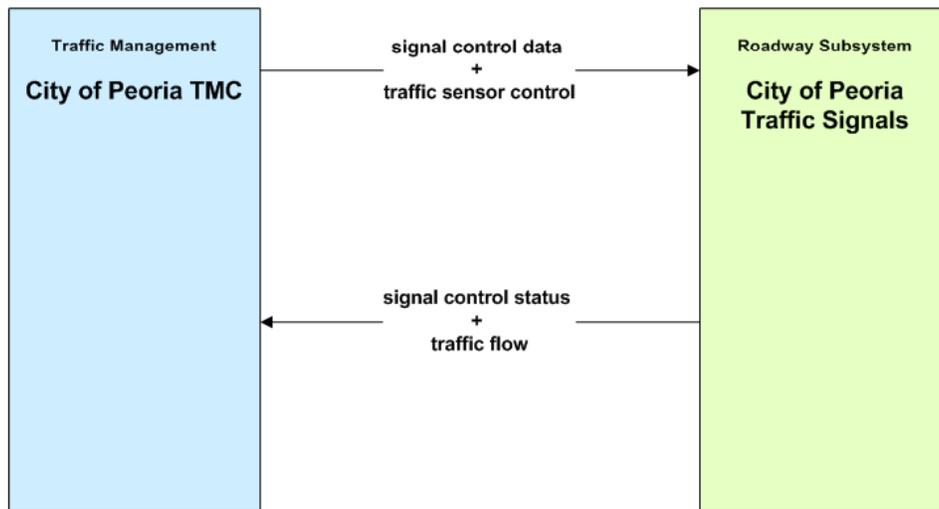


**ATMS01 - Network Surveillance  
City of Peoria**

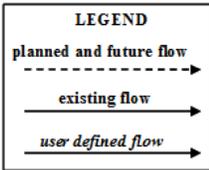
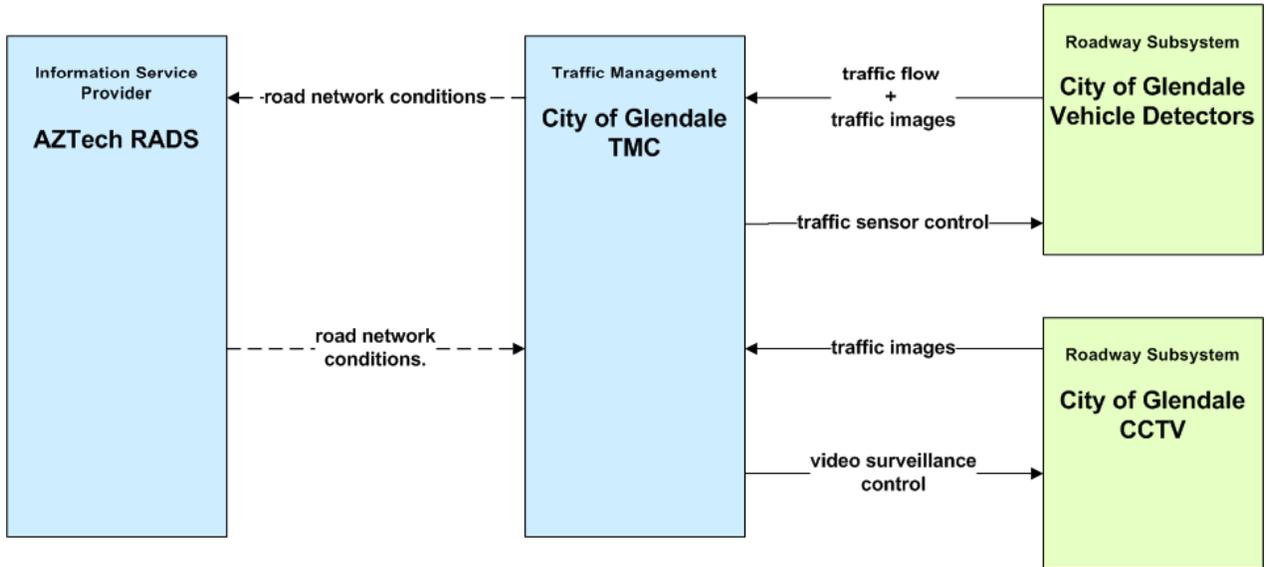


*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

**ATMS03 - Surface Street Control  
City of Peoria**

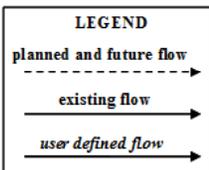
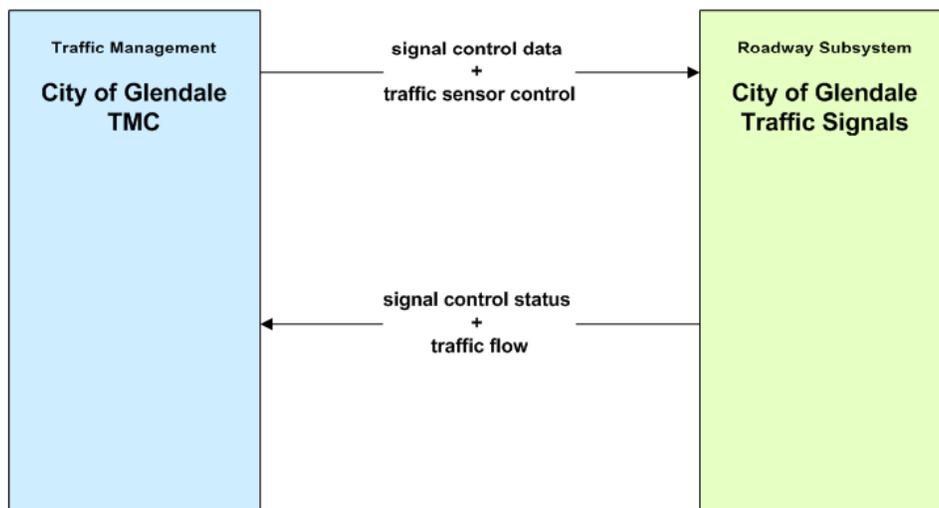


**ATMS01 - Network Surveillance  
City of Glendale**

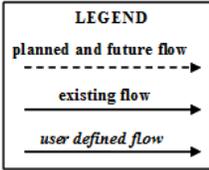
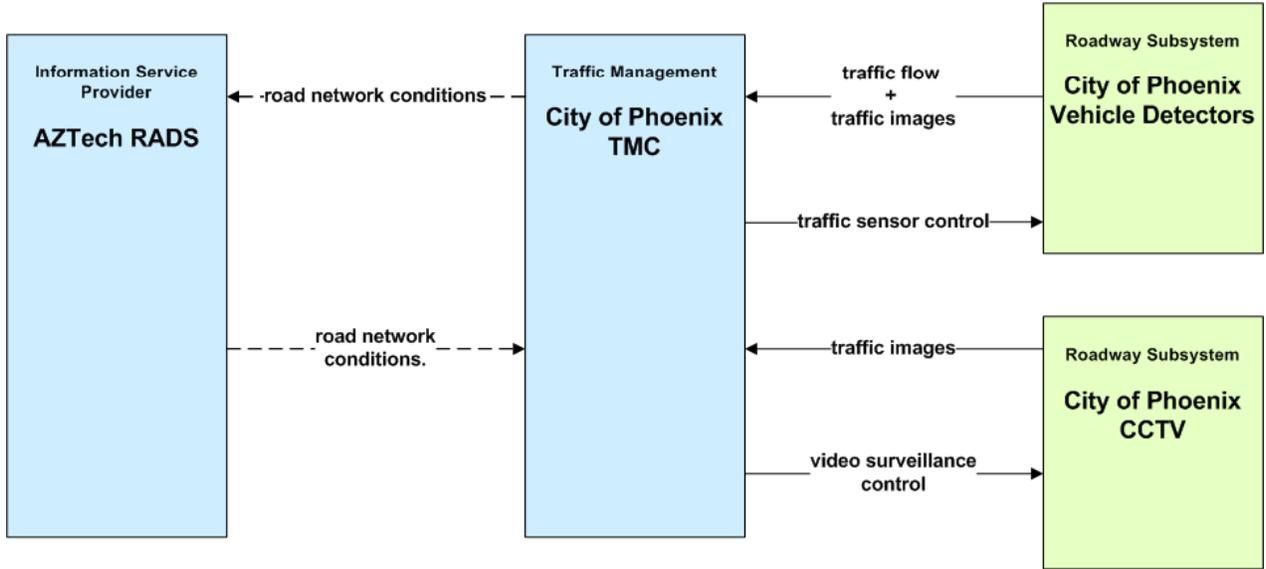


*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

**ATMS03 - Surface Street Control  
City of Glendale**

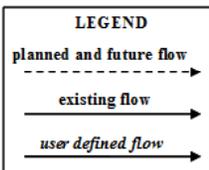
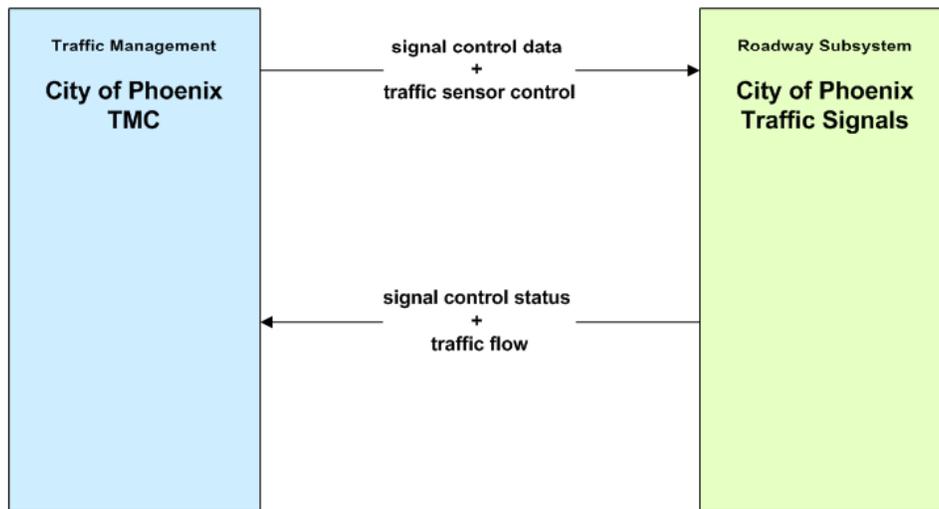


**ATMS01 - Network Surveillance  
City of Phoenix**

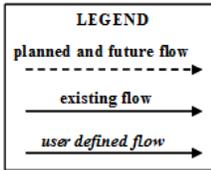
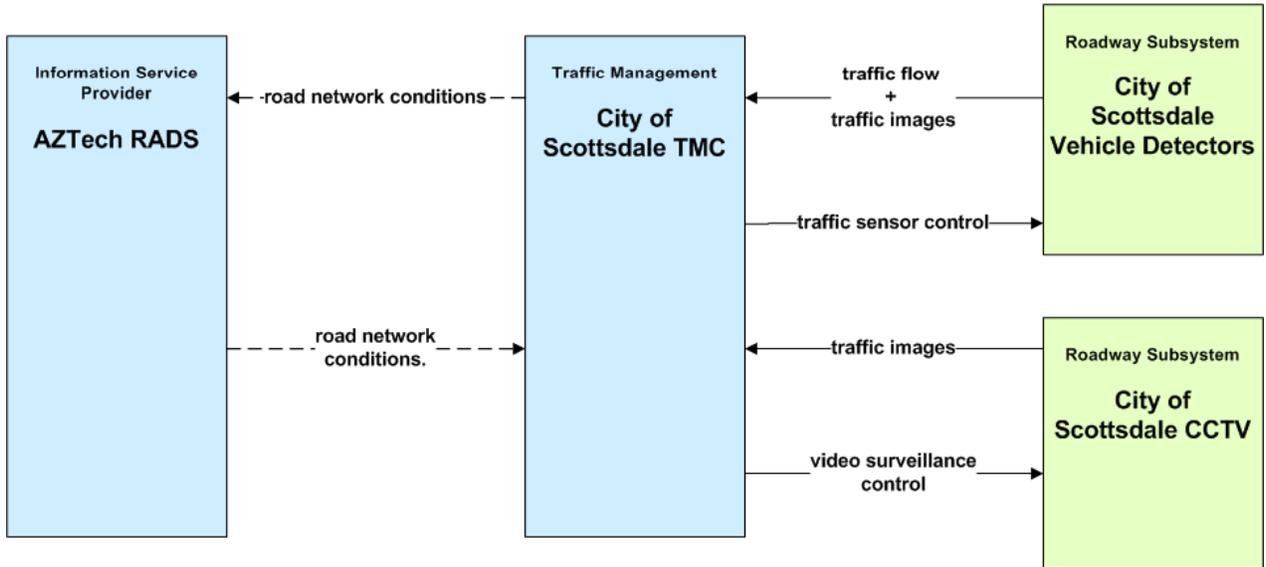


*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

**ATMS03 - Surface Street Control  
City of Phoenix**



**ATMS01 - Network Surveillance  
City of Scottsdale**



*The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.*

**ATMS03 - Surface Street Control  
City of Scottsdale**

