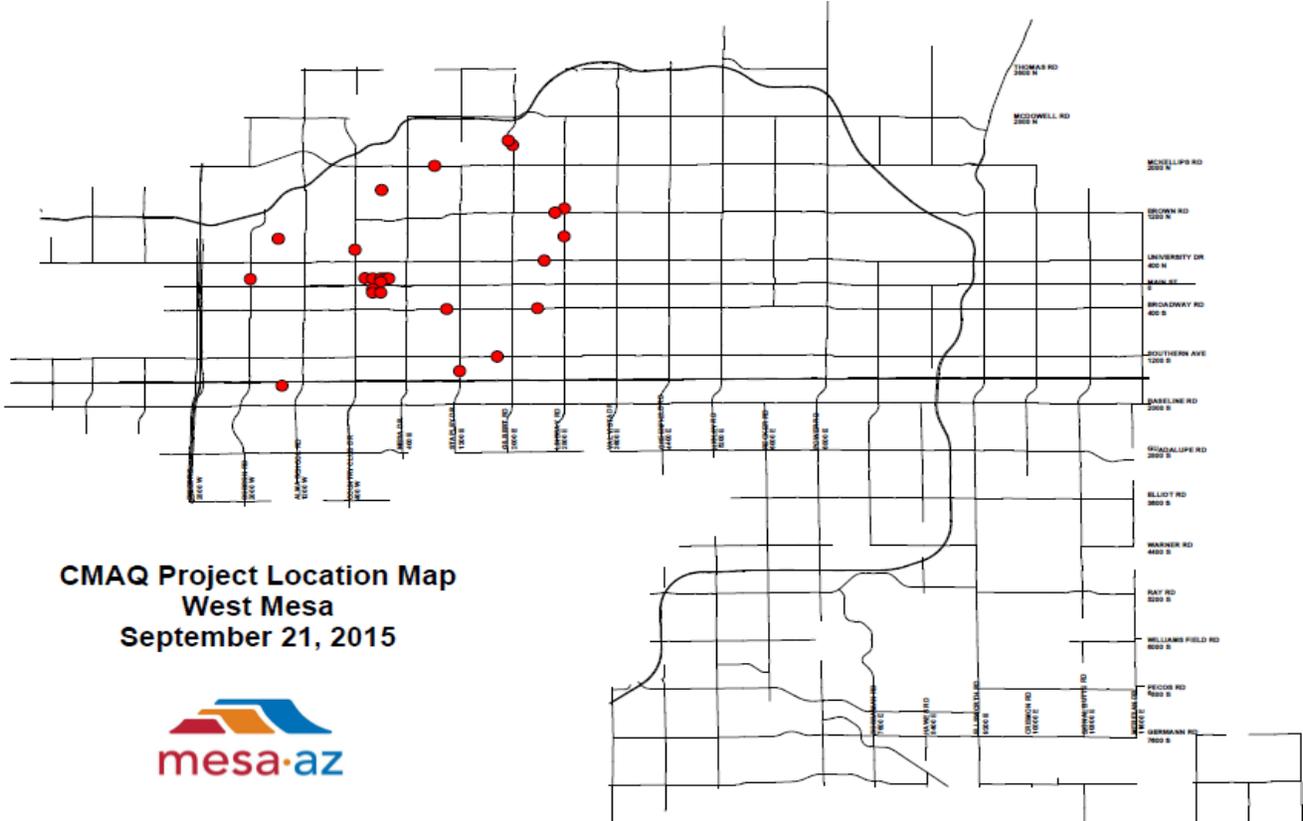


CMAQ Application - City of Mesa FY 2018 For FY 2018, 2019, 2020 ITS Projects



Due: September 21, 2015 at 10:00 a.m.
(LATE AND/OR INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED)

CMAQ Amount Available: \$3,680,000/year



RESOLUTION NO. 10680

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, AUTHORIZING THE SUBMITTAL OF A GRANT APPLICATION FOR TRAFFIC SIGNAL CABINETS AND CONTROL UPGRADING CONSTRUCTION PROJECT, AND AUTHORIZING THE CITY MANAGER TO EXECUTE SUCH DOCUMENTS AS MAY BE NECESSARY TO EVIDENCE AND IMPLEMENT THE GRANT IF AWARDED.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, AS FOLLOWS:

Section 1: That the City of Mesa does hereby approve the submittal of an application for the Grant, and accept all conditions of the Arizona Department of Transportation, Congestion Mitigation and Air Quality Improvement (CMAQ) Program, if awarded to the City, including without limitation, the requirement that the City pay all cost in excess of the amount of the Grant, provide matching funds equal to 5.7% of the Grant award, prepare the project for bid and authorize the project for construction within the federal aid fiscal year where the grant is programmed, and agree to maintain the project in perpetuity after its completion.

Section 2: That the City Manager or his designee is hereby authorized to take such actions and to execute such documents as are necessary or appropriate to effectuate the purposes of this resolution and to implement the Grant, if awarded to the City of Mesa.

PASSED AND ADOPTED by the City Council of the City of Mesa, Maricopa County, Arizona, this 14th day of September, 2015.

APPROVED:


MAYOR

ATTEST:


CITY CLERK



INTELLIGENT TRANSPORTATION SYSTEMS - PROJECT APPLICATION

CMAQ Funding Available for **Federal Fiscal Year 2018 and 2019**

General Instructions:

This Excel-based Project Application form must be used to request federal Congestion Mitigation and Air Quality (CMAQ) funds available through the Maricopa Association of Governments (MAG) for qualified ITS Projects in Federal Fiscal Years (FFY) 2018 & 2019. Approved projects will be included in the FY2017-FY 2021 MAG Transportation Improvement Program.

This application form includes:

- PART A - Contact Information -- for agency submitting the application
- PART B - CMAQ Score Data,
- PART C1 - ITS Project Information (including example),
- PART C2 - ITS Architecture Flow Diagrams (including example),
- PART D - Detailed Cost Estimate
- PART E - Signature & Checklist

TRANSMITTAL INSTRUCTIONS and SCHEDULE

The due date and time for project applications to be submitted to MAG is
Monday, September 21, 2015 at 10:00 a.m.

Application Submittal Requirements:

1) Transmit this Excel application and all other attachments electronically to MAG by 10:00 a.m. on Monday, September 21, 2015

To transmit the application electronically, please save the completed Excel file using the following filenaming convention - Example: AVN-1.xlsx, AVN-2.xlsx, PHX-1.xlsx etc. Next, send the applications and all required attachments via email to MAG. Please send all graphic attachments as PDF files. Emails to MAG should be sent to **Steve Tate, Teri Kennedy and Eric Nava**. Their email addresses are provided below.

AND EITHER 2(a) or 2(b) options:

2a) Send two printed, signed, and complete applications via mail to reach MAG by 10:00 a.m. on Monday, September 21, 2015

The MAG Mailing Address is listed below.

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

OR

2b) Submit a scanned image of a printed signed application, to reach MAG via email or fax by 10:00 a.m. on September 21, 2015

Send emailed applications to Steve Tate, Teri Kennedy & Eric Nava
Send faxed applications to: ATTN: Teri Kennedy Fax: 602-254-6490

Application Workshops and Open Working Group Meeting Schedule*

Date	Time	Room	Event
Wednesday, August 19, 2015	10:00-11:30 PM	Saguaro	Workshop on MAG Transportation Programming & Federal Fund Project Applications
Monday, August 24, 2015	8:30-10:00 AM	Chaparral	Open Working Group - Federal Fund Project Applications
Monday, September 14, 2015	9:00-10:00 AM	Chaparral	Open Working Group - Federal Fund Project Applications

* All meetings will be held on the 2nd floor of the MAG Offices at 302 N. 1st Avenue, Phoenix, AZ 85003

MAG CONTACT INFORMATION

Contact Name	Phone	E-Mail Address
Teri Kennedy	602-254-6300	TKennedy@azmag.gov
Stephen Tate	602-254-6300	State@azmag.gov
Eric Nava	602-254-6300	enava@azmag.gov

PART A - CONTACT INFORMATION	
1. Sponsoring Agency	City of Mesa
2. Contact Name	Avery Rhodes
3. Phone	480-644-4960
4. E-Mail Address	avery.rhodes@mesaaz.gov
5. Mailing Address	PO Box 1466, Mesa, AZ 85211-1466
(OPTIONAL)	
GIS Submittal Instructions	

PART B - CMAQ Score Data

This part of the form is used to gather project related data to calculate an CMAQ Score and also gather the minimum data needed for a listing of the project in the Transportation Improvement Program

Federal Funding Eligibility

All ITS projects to be funded with Federal CMAQ funds must be located within a nonattainment area. Please use the map provided in the tab named "Map" to verify that the project is located in a nonattainment area.

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:

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 Update at the MAG Website](#)

2. Improvements in Traffic Management & Operations.

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

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
<input checked="" type="checkbox"/>	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
<input type="checkbox"/>	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
<input type="checkbox"/>	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
<input type="checkbox"/>	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
<input type="checkbox"/>	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

NOTE: All ITS projects MUST involve eligible infrastructure improvements.

PART B - CMAQ Score Data**3. Other Improvements. Check all that apply:**

- Traffic signal system improvements at a single agency
- Traffic signal system improvements that apply to more than one agency
- Includes improvements to coordination between arterial and freeway traffic operations
- Project conforms to local land use plans
- Adds features to traffic signals that would better accommodate seniors at pedestrian crossings

4. Traffic Flow Improvement Due to Project (Not required for Traffic Mgmt & Operations Improvements)

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

PART C1 - ITS Project Information

Please enter information ONLY in highlighted cells
Links to various websites are provided for additional information and help
The worksheet titled "Part C Example" shows an example on how to enter information

A. Project Title & Sponsor

Lead Agency	City of Mesa
Other Partnering Agencies	NA
Project Title	Upgrade Traffic Signal Cabinet & Controllers in West Mesa
Project Category	Arterial ITS

B. Project Goals & Objectives

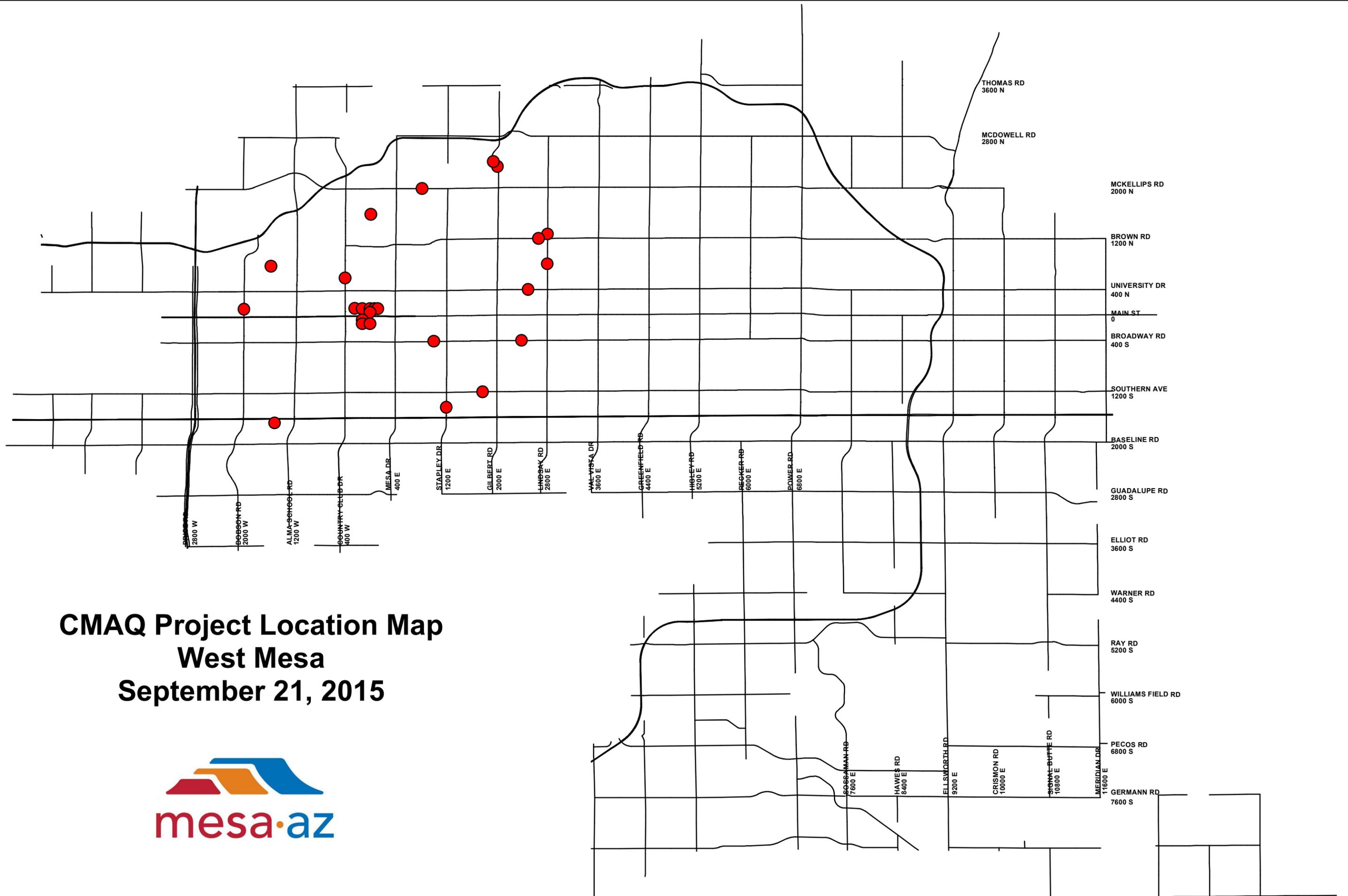
Project Goals:
 Install new traffic signal cabinets and controllers to more effectively manage traffic; improve motorist, pedestrian/bicyclist and technician safety; and promote more efficient energy use.

Project Objectives:
 Improve reliability and safety of traffic signal operations by replacing obsolete equipment with new equipment with simplified wiring and communications, support for additional vehicle detectors, increased diagnostics that enhance safety (clearance time monitoring, MMU to controller communication, detector status monitoring, enhanced diagnostics to help technicians more quickly diagnose failures, improved data collection capabilities to support MOE functionality and cabinet failures are communicated to the controller so that this information can be passed back to central traffic signal system). Newer cabinets are designed for lower electrical consumption devices such as LED indications further improving technician safety and lowering power consumption as compared to the TS1 standard cabinets that are being replaced.

C. Project Information

Project Location Description - a PDF file of a map must be submitted to MAG as an attachment:
 Multiple locations throughout West Mesa. See attached map.

Scope of the Project:
 Purchase, test and install new ATC traffic signal cabinets & controllers at 25 locations. Establish communications with new controllers to the TMC for enhanced traffic management and diagnostics capabilities.



**CMAQ Project Location Map
West Mesa
September 21, 2015**



**Proposed locations throughout West Mesa for installing new
traffic signal infrastructure**

INT_Number	INTERSECTION_NAME	Cabinet_Type
33	Hermosa Vista & Gilbert	West
188	Old Gilbert & Gilbert	West
350	McKellips & Horne	West
975	McLellan & Center	West
1000	Seminary & Lindsay	West
1500	Brown & Yale	West
1990	Rio Salado & Longmore	West
2350	Adobe & Lindsay	West
2395	6th. Street & Country Club	West
3150	University & 25th. Street	West
3475	1st. Street & Dobson	West
3525	1st. Street & Robson	West
3550	1st. Street & Macdonald	West
3600	1st. Street & Center	West
3625	1st. Street & East 50 X-Walk	West
3650	1st. Street & Centennial Way	West
3720	Pepper & Center	West
4850	South MacDonald X-Walk	West
4950	1st. Avenue & Macdonald	West
5000	1st. Avenue & Center	West
5700	Broadway & Solomon	West
5875	Broadway & 24th. Street	West
7650	Southern & Hall	West
8325	Harmony/Hilton & Stapley	West
8630	Isabella & Longmore	West

PART C1 - ITS Project Information

D. Identify Project Components in MAG Regional ITS Architecture

Service Area	Addressed in this Project (Yes or No)	Applicable ITS Service Packages http://www.azmag.gov/ITS/
1. Traffic Management	Yes	ATMS01, ATMS03
2. Public Transportation	Yes	APTS09
3. Communications	No	
4. Traveler Information	No	
5. Archived Data Mgmt	No	
6. ITS for Safety	Yes	
7. ITS Planning	No	
8. Fwy-Arterial Operations	No	

NOTE: Insert the relevant Architecture Flow Diagrams in worksheet: Part C-ITSArchFlowDiags

E. Program Year Preference (enter FY2018 oor FY2019)

Preferred program FY

F. Project Budget

	Federal Cost	Local Match (min 5.7%)	Total Cost
Amount	\$390,000.00	\$60,500.00	\$450,500.00
Cost percentage	3.0%	13.4%	

G. System Maintenance and Operations

Current staff resources available to support ITS operations at the local agency (in FTEs)	18
Additional staff resources required for fully utilizing features added by project (in FTEs)	0
Agency's estimated current annual ITS operations & maintenance (O&M) budget	\$2.49 M
Estimated additional annual O & M funds required for features added by this project	\$0
Estimated DATE from when required additional local O&M funds will be available	NA

PART C1 - ITS Project Information**Other comments:**

O&M savings should be realized by this project due to lowered energy costs and more reliable signal operations that reduce the number of trouble call outs.

H. 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/lead agency City A intends to incorporate the Systems Engineering Analysis in the scope of work for the project's Design Concept Report, following guidance on the ADOT's System Engineering Checklist provided at:

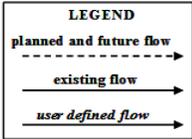
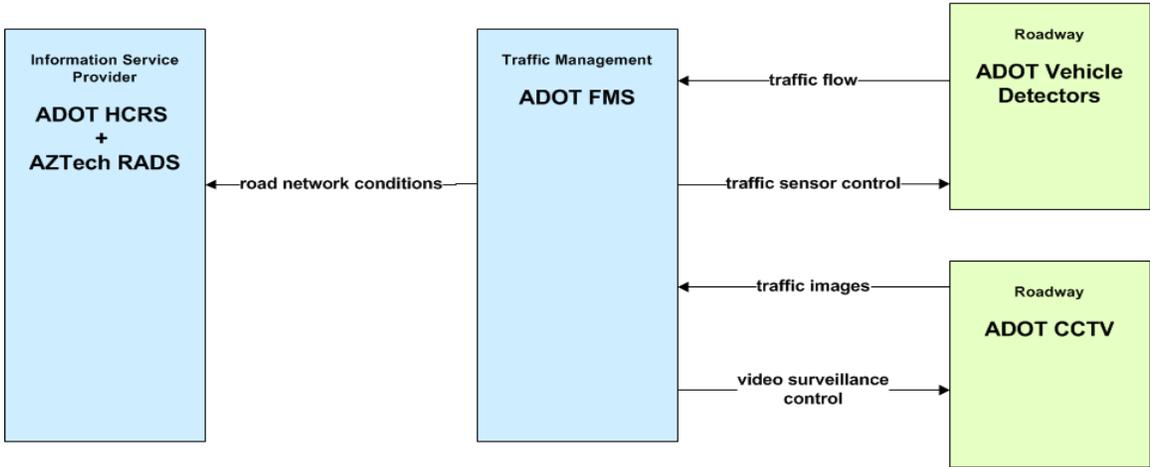
http://azmag.gov/Documents/ITS_2010-11-22_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf

PART C2 - ITS Architecture Flow Diagrams

All relevant ITS Architecture Flow Diagrams MUST be inserted below for the relevant ITS Service Packages addressed by the proposed ITS project. This is to ensure that the project complies with the Regional ITS Architecture and meets a federal requirement for all federally funded ITS projects.

Insert Architecture Flow Diagrams in the space below:

**ATMS01 - Network Surveillance
Arizona DOT**

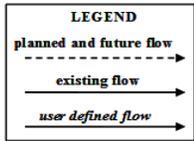
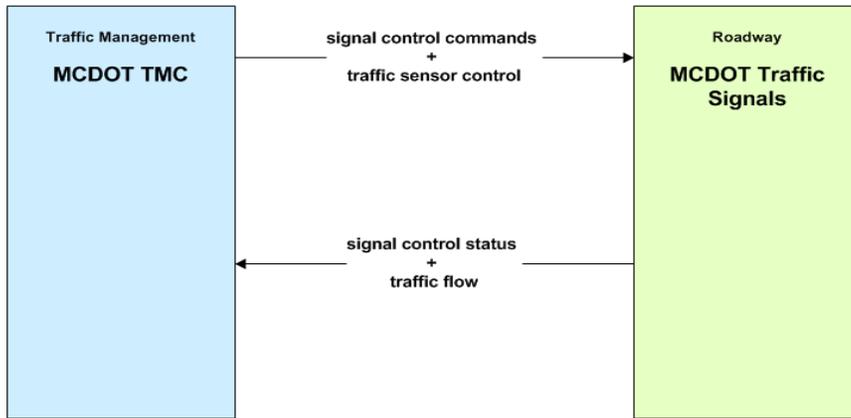


PART C2 - ITS Architecture Flow Diagrams

All relevant ITS Architecture Flow Diagrams MUST be inserted below for the relevant ITS Service Packages addressed by the proposed ITS project. This is to ensure that the project complies with the Regional ITS Architecture and meets a federal requirement for all federally funded ITS projects.

Insert Architecture Flow Diagrams in the space below:

**ATMS03 - Traffic Signal Control
Maricopa County**

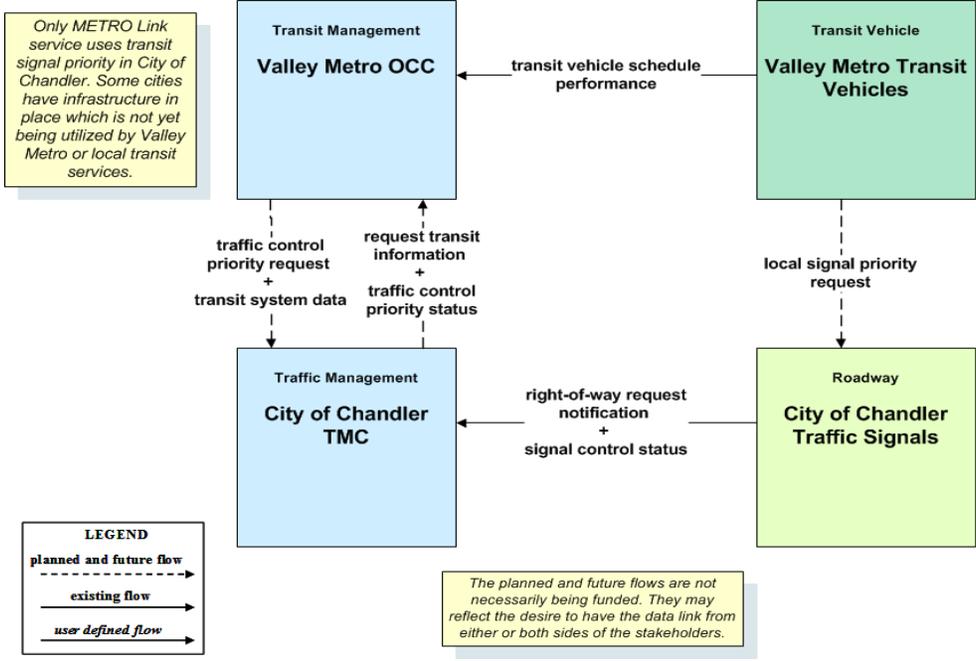


PART C2 - ITS Architecture Flow Diagrams

All relevant ITS Architecture Flow Diagrams MUST be inserted below for the relevant ITS Service Packages addressed by the proposed ITS project. This is to ensure that the project complies with the Regional ITS Architecture and meets a federal requirement for all federally funded ITS projects.

Insert Architecture Flow Diagrams in the space below:

**APTS09 – Transit Signal Priority
Valley Metro – City of Chandler**



PART D1 - Detailed Cost Estimate

2. PROCUREMENT (Insert additional rows if necessary)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$0	No
				\$0	No
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
SUBTOTAL – PROCURMENT				\$0	\$0

3. OTHER ITEMS (Insert additional rows if necessary)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
Test Cabinets prior to Installation	EA	25	\$1,000.00	\$25,000.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
				\$0.00	Yes
SUBTOTAL - OTHER CONSTRUCTION LINE ITEMS				\$25,000.00	\$25,000

PART D1 - Detailed Cost Estimate					
D. ADOT Fee for PE Reviews and Staff Charges	LS	1	\$10,000	\$10,000	No
TOTAL ADOT Fee COST				\$10,000	\$0
E. TOTAL PROJECT COST				\$520,500	\$450,500
F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS					
TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION					\$520,500
TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$450,500
TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)					\$424,822
LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)					\$25,679
LOCAL AGENCY FUNDS <u>NOT</u> ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$70,000

PART D2 - TOTAL PROJECT BUDGET AND TIP PROGRAMMING
(All Items are Required, Unless Identified as 'Optional')

Please provide a cost and programming estimate for the total project (e.g. the cost to complete all planned segment improvements). The design for the project should be programmed at least 1 year, preferably 2 years, prior to construction.

Section 1 - Total Project Budget

Cost Estimate for the Project from Part D1	Eligible Federal Cost	Local Cost Only	Total Cost	(Optional) Additional Notes
A. SCOPING (15% Preliminary Engineering Design) (Non-infrastructure projects: Only #2 applies).	\$ -	\$ 30,000	\$ 30,000	
B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E (Not applicable to non-infrastructure projects)	\$ -	\$ 30,000	\$ 30,000	
C. CONSTRUCTION OR IMPLEMENTATION				
1. CONSTRUCTION ELEMENTS	\$ 387,500	\$ -	\$ 387,500	
2. PROCUREMENT	\$ -	\$ -	\$ -	
3. OTHER ITEMS	\$ 25,000	\$ -	\$ 25,000	
4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only)	\$ 38,000	\$ -	\$ 38,000	
SUBTOTAL	\$ 450,500	\$ -	\$ 450,500	
D. ADOT Fee for PE Reviews and Staff Charges	\$ -	\$ -	\$ 10,000	
Total Project Cost	\$ 450,500	\$ 60,000	\$ 520,500	

Agency Programming

Please describe the programming of the project in the agency's own CIP/TIP.

Requested MAG TIP Programming	Short Work Description (E.g. Construct HAWK)	Year (Choose One)	Local Cost	CMAQ Cost	Total Cost	Local Share
1. Scoping and PE (Optional)				\$ -	\$ -	
2. Other (Optional)				\$ -	\$ -	
3. Other (Optional)				\$ -	\$ -	
4. Construction or Implementation	Upgrade Traffic Cabinets and Controllers in the west area of the City	2018	\$ 60,500	\$ 390,000	\$ 450,500	13%
Totals			\$ 60,500	\$ 390,000	\$ 450,500	13%

PART E - 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:	<i>Scott Butler</i>
Name:	Scott J. Butler
Title:	Deputy City Manager
Date:	9/17/15

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 CMAQ 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.

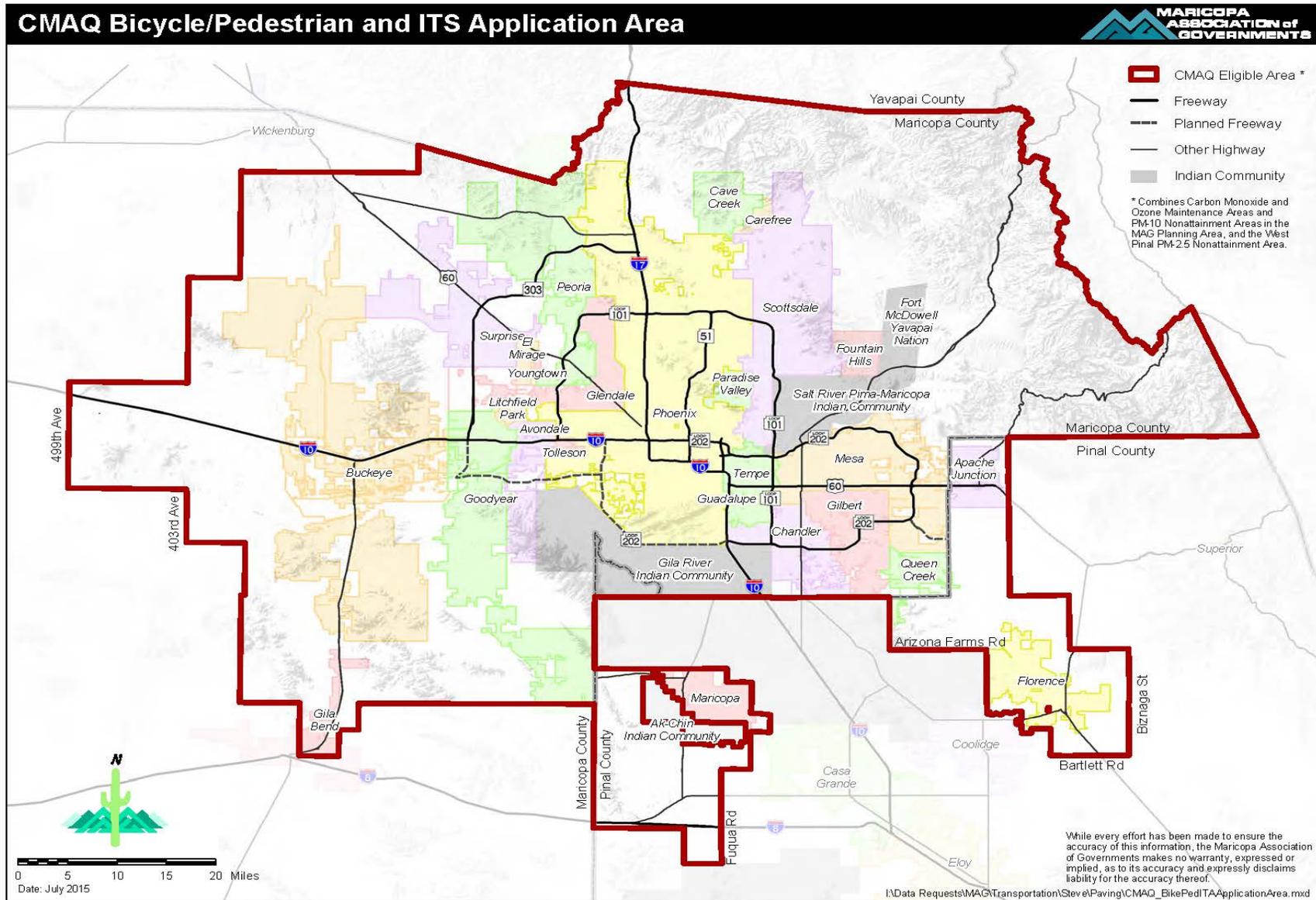
File Formats – Agencies that are able to submit GIS data along with CMAQ Applications shall provide the data in one of three formats that are compatible with ESRI products: (1) shapefile, (2) Personal Geodatabase, or (3) File Geodatabase.

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.>



ITS Project Requirements & Evaluation Criteria

Essential Requirements: (All proposed ITS projects MUST meet these three requirements)

<p>1) Proposed project must be in compliance with the Regional ITS Architecture.</p>	<p>Regional ITS Architecture>>>>> National ITS Architecture>>>>></p>
<p>2) Proposed project must address a regional priority identified in the 2012 MAG ITS Strategic Plan.</p>	<p>2012 MAG ITS Strategic Plan>>>>></p>
<p>3) Proposed project MUST be located within the CMAQ eligible area (See Map).</p>	

Project Evaluation Criteria:

<p>A) Congestion Management Process (CMP) Score</p>
<p>B) Air Quality Score</p>
<p>C) Safety Score</p>

PROJECT FINAL SCORE AND RANKING:

The scores generated for a list of projects, for each criteria, are normalized such that the highest score is equal to 100. The normalized scores for all three criteria are then combined using the following weights:

- CMP - 75%
- Air Quality - 15%
- Safety - 10%

The resulting Final Score is used to rank projects. The project ranking will be used by the ITS Committee in generating a recommendation for programming ITS projects in FY2018 and FY2019.

CMP Objectives	Evaluation Criteria	Addresses	Score			
			1	2	3	4
1. Minimize Delay and Improve Travel Time (TT)	<ul style="list-style-type: none"> Increased vehicle throughput VHT Reduction TT Savings 	<ul style="list-style-type: none"> Does the project help decrease TT or delay? 	No impact on travel time or delay	May reduce travel time or delay	Likely to reduce travel time or delay	Highest impact on travel time and delay
2. Reduce Travel Time Variability	<ul style="list-style-type: none"> TT Reliability (reduces hours of unexpected delay) 	<ul style="list-style-type: none"> Improves Traffic Incident Management Provides TT and detour information 	No impact on travel time variability	May reduce travel time variability	Likely to reduce travel time variability	Highest impact on travel time variability
3. Improve System Connectivity	<ul style="list-style-type: none"> Improves ITS communications within city or with adjacent cities 	<ul style="list-style-type: none"> Improves communications links to local or regional facilities <u>i.e.RCN</u> 	No impact on system connectivity	May improve system connectivity	Likely to improve system connectivity	Highest impact on system connectivity
4. Increase Alternative Mode Share	<ul style="list-style-type: none"> Reduce Vehicle Trips Reduce SOV Mode Share <u>Increase</u> HOV Mode Share Increase Transit Mode Share 	<ul style="list-style-type: none"> Reduces mode share for drive alone trips? Increases alternative mode share? 	No impact on alternative mode share	May increase alternative mode share	Likely to increase alternative mode share	Highest impact on alternative mode share
5. Improve Level of Service (LOS) & Reduce Congestion	<ul style="list-style-type: none"> LOS Improvement V/C Ratio Increased Person-throughput 	<ul style="list-style-type: none"> Improves the LOS of the facility Increases effective capacity of the roadway 	No impact on congestion	May reduce congestion	Likely to reduce congestion	Highest impact on congestion
6. Measures of Cost Effectiveness	<ul style="list-style-type: none"> Benefit/Cost Ratio 	<ul style="list-style-type: none"> Provides system-wide benefits Benefits may outweigh the costs 	No impact on <u>systemwide</u> benefits	May provide some benefits	Likely to provide <u>systemwide</u> benefits	Highest impact on <u>systemwide</u> benefits