

PART A - CONTACT INFORMATION	
1. Sponsoring Agency	City of Tempe
2. Contact Name	Christine Warren
3. Phone	480-858-2060
4. E-Mail Address	christine_warren@tempe.gov
5. Mailing Address	200 East 5th Street, Tempe, AZ 85281
(OPTIONAL)	
<a href="#">GIS Submittal Instructions</a>	

Project procurement and locations, updated and recommended at the February 14, 2018 MAG ITS Committee meeting. See Pages 21 through 24 of this PDF.

**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 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 checked="" 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.

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

Traffic signal system improvements at a single agency

**PART B - CMAQ Score Data**

- 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

**Arterial ITS**

**A. Project Title & Sponsor**

<b>Lead Agency</b>	City of Tempe
<b>Other Partnering Agencies</b>	n/a
<b>Project Title</b>	ITS Safety and Performance Upgrades - Phase 2
<b>Project Category</b>	Arterial ITS

**B. Project Goals & Objectives**

**Project Goals:**  
 Install ITS components to provide safety benefits that include enhancements to, and improved monitoring and operation of, the City's emergency vehicle response system and overall traffic signal network for reduced delay, congestion and emissions for all modes of travel. These ITS upgrades will result in a communications network that is more reliable and resilient and capable of supporting additional functionality.

**Project Objectives:**  
 Install a bi-directional Dynamic Message Sign (DMS), CCTV cameras, a high-speed wireless backbone link, intersection wireless radios, bicycle detection in mixed-use lanes and Emergency Vehicle Preemption networking.

**C. Project Information**

**Project Location Description - a PDF file of a map must be submitted to MAG as an attachment:**  
 Various locations including McClintock between Southern and Broadway, Price Road Intersections from Southern to Guadalupe, corridors of University, McClintock, Mill, Priest, Hardy, College and 52nd Street, various intersections including Priest/202, Broadway/Ramp K, University/Hardy, University/Doresy, Southern/Hardy, Southern/Dorsey, Southern/Country Club Way, Baseline/Hardy, Baseline/Lakeside, Baseline/Country Club Way, Elliot/Hardy, and Warner/Hardy.

**Scope of the Project:**  
 1) Bi-directional DMS located in the median of McClintock Road, between Southern and Broadway 2) 10 CCTV cameras at various intersections 3) Install redundant path between Broadway/Ramp K and Priest/202 4) Install 50 wireless radios at various intersections 5) install shared lane bicycle detection at 3 intersections 6) Install 50 media converters to network emergency vehicle preemption operations at various intersections

**PART C1 - ITS Project Information**

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

Service Area	Addressed in this Project (Yes or No)	<a href="http://www.azmag.gov/ITS/">Applicable ITS Service Packages http://www.azmag.gov/ITS/</a>
1. Traffic Management	Yes	ATMS01, ATMS03
2. Public Transportation	No	
3. Communications	No	
4. Traveler Information	No	
5. Archived Data Mgmt	No	
6. ITS for Safety	No	
7. ITS Planning	No	
8. Fwy-Arterial Operations	Yes	ATMS06

**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	\$392,009.82	\$23,695.19	\$415,705.00
Cost percentage	94.3%	5.7%	

**G. System Maintenance and Operations**

Current staff resources available to support ITS operations at the local agency (in FTEs)	2.5
Additional staff resources required for fully utilizing features added by project (in FTEs)	none
Agency's estimated current annual ITS operations & maintenance (O&M) budget	\$230,000
Estimated additional annual O & M funds required for features added by this project	\$5,000
Estimated DATE from when required additional local O&M funds will be available	May-2019

**PART C1 - ITS Project Information**

**Other comments:**

[Empty yellow comment box]

**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

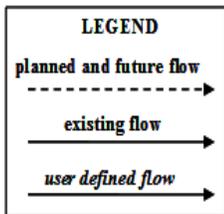
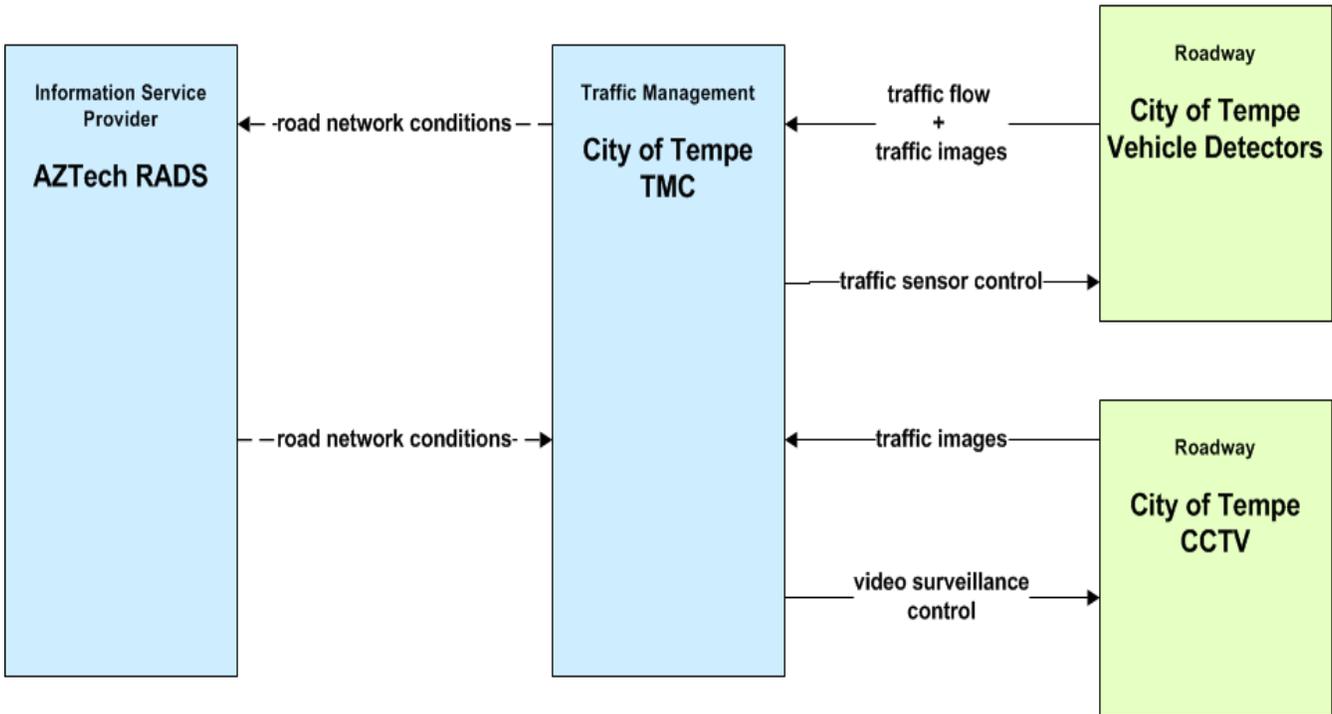
The City of Tempe intends to incorporate the Systems Engineering Analysis in the scope of work for the project's Project Assessment, following guidance on the ADOT's System Engineering Checklist provided at:  
[http://azmag.gov/Documents/ITS\\_2010-11-22\\_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf](http://azmag.gov/Documents/ITS_2010-11-22_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf)

## PART C2 - ITS Architecture Flow Diagrams

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 City of Tempe

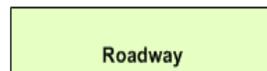


The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.

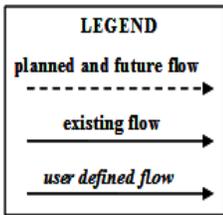
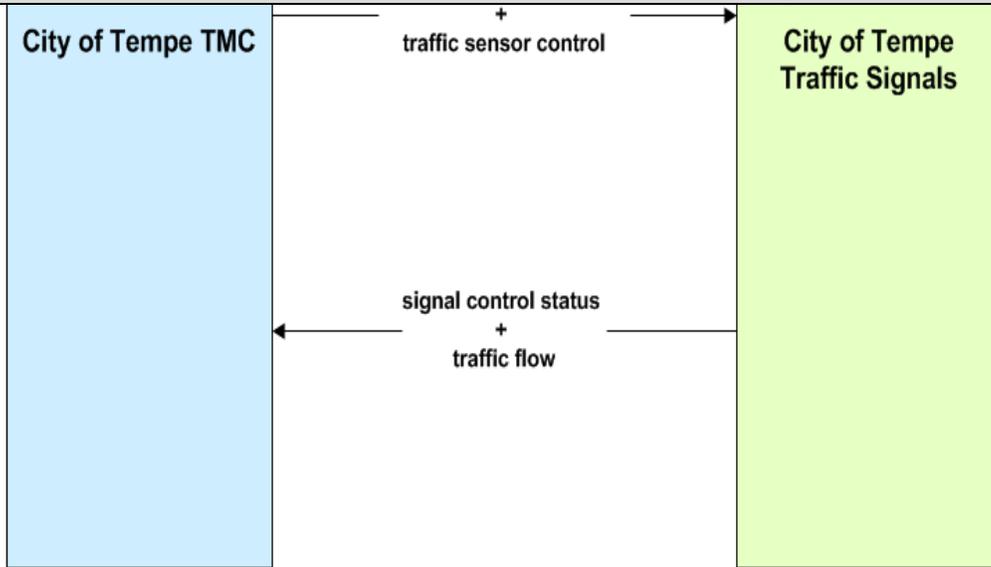
### ATMS03 - Traffic Signal Control City of Tempe



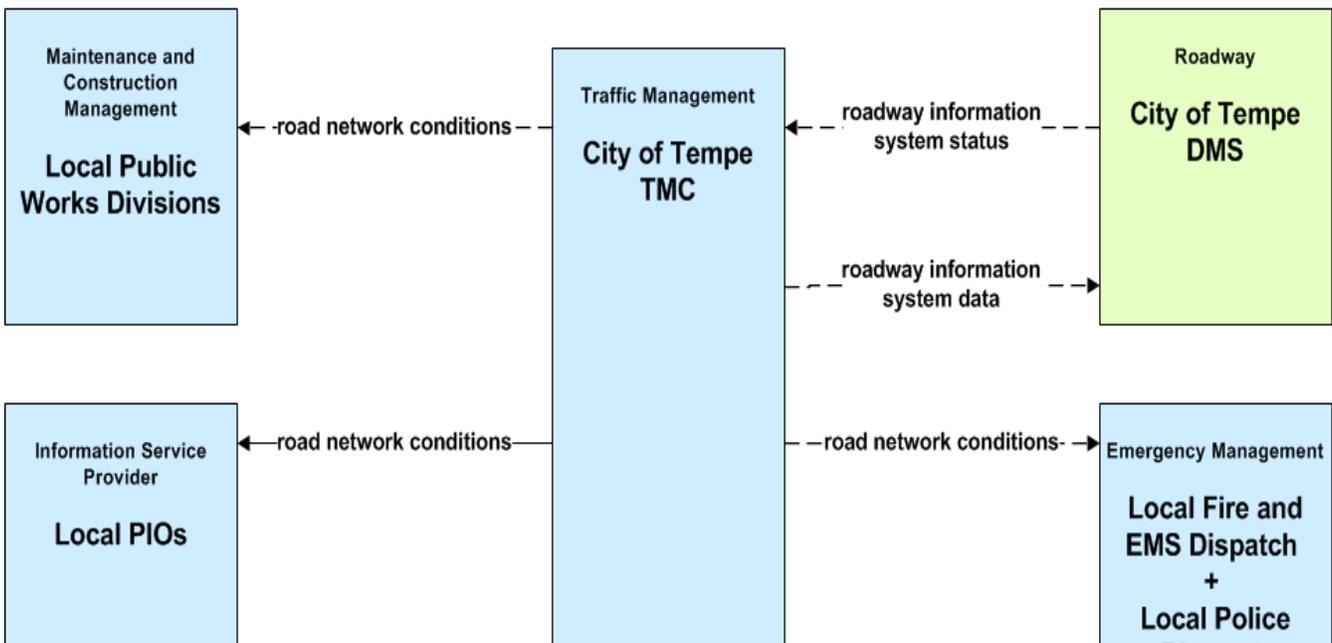
signal control commands



**PART C2 - ITS Architecture Flow Diagrams**



**ATMS06 - Traffic Information Dissemination  
City of Tempe**



# PART C2 - ITS Architecture Flow Diagrams

Dispatch

**LEGEND**

planned and future flow  
----->

existing flow  
—————>

user defined flow  
—————>

*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.*

**PART C2 - ITS Architecture Flow Diagrams**



<b>PART D1 - Detailed Cost Estimate</b>					
				\$0	Yes
				\$0	Yes
<b>SUBTOTAL - CONSTRUCTION</b>				\$345,000	\$345,000

**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
<b>SUBTOTAL – PROCURMENT</b>				\$0	\$0

**3. OTHER ITEMS (Insert additional rows if necessary)**

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$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
				\$0.00	Yes
				\$0.00	Yes
<b>SUBTOTAL - OTHER CONSTRUCTION LINE ITEMS</b>				\$0.00	\$0

**4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only. If Section 1 is filled out, please fill out this section)**

<b>PART D1 - Detailed Cost Estimate</b>					
<b>Item Description</b>	<b>Unit</b>	<b>Quant.</b>	<b>Unit Prices</b>	<b>Total</b>	<b>Eligible for CMAQ?</b>
CONTRACTOR MOBILIZATION	LS	1	\$10,000.00	\$10,000.00	Yes
TRAFFIC CONTROL	LS	1	\$25,000.00	\$25,000.00	Yes
CONSTRUCTION SURVEY & LAYOUT	LS	1	\$5,000.00	\$5,000.00	Yes
CONSTRUCTION CONTINGENCIES	LS	1	\$17,500.00	\$17,250.00	Yes
CONSTRUCTION ADMINISTRATION	LS	1	\$13,650.00	\$13,455.00	Yes
<b>SUBTOTAL – MOBILIZATION &amp; ADMINISTRATION COSTS</b>				\$ 70,705	\$70,705
<b>TOTAL CONSTRUCTION OR IMPLEMENTATION COST</b>				\$ 415,705	\$ 415,705

<b>PART D1 - Detailed Cost Estimate</b>					
<b>D. ADOT Fee for PE Reviews and Staff Charges</b>	LS	1	\$10,000	\$10,000	No
<b>TOTAL ADOT Fee COST</b>				\$10,000	\$0
<b>E. TOTAL PROJECT COST</b>				\$478,205	\$415,705
<b>F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS</b>					
<b>TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION</b>					<b>\$478,205</b>
<b>TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT</b>					<b>\$415,705</b>
<b>TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)</b>					<b>\$392,010</b>
<b>LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)</b>					<b>\$23,695</b>
<b>LOCAL AGENCY FUNDS <u>NOT</u> ELIGIBLE FOR FEDERAL REIMBURSEMENT</b>					<b>\$62,500</b>

**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.

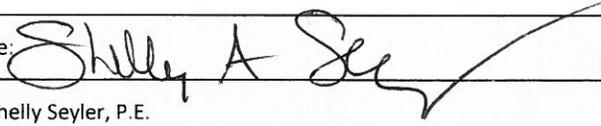
**Section 1 - Total Project Budget**

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).	\$ -	\$ 17,500	\$ 17,500	
B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E (Not applicable to non-infrastructure projects)	\$ -	\$ 35,000	\$ 35,000	
C. CONSTRUCTION OR IMPLEMENTATION				
1. CONSTRUCTION ELEMENTS	\$ 345,000	\$ -	\$ 345,000	
2. PROCUREMENT	\$ -	\$ -	\$ -	
3. OTHER ITEMS	\$ -	\$ -	\$ -	
4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only)	\$ 70,705	\$ -	\$ 70,705	
SUBTOTAL	\$ 415,705	\$ -	\$ 415,705	
D. ADOT Fee for PE Reviews and Staff Charges	\$ -	\$ 10,000	\$ 10,000	
<b>Total Project Cost</b>	\$ 415,705	\$ 62,500	\$ 478,205	

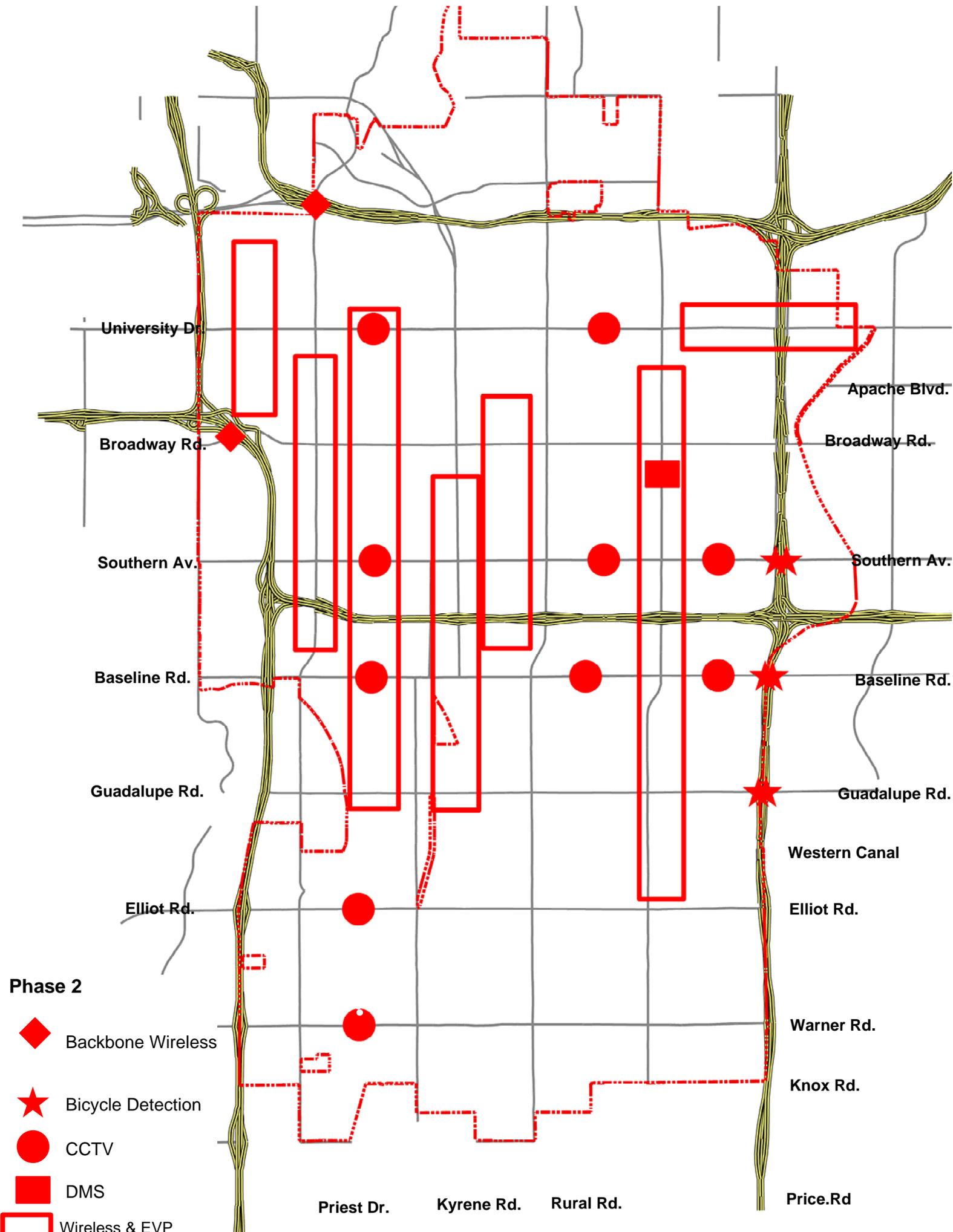
**Agency Programming**

Please describe the programming of the project in the agency's own CIP/TIP.	Design Funding will be programmed 2 fiscal years in advance of construction funding. Construction Funding will be programmed in the fiscal year (July prior) to the TIP year.
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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	ITS Safety & Performance Upgrades - Phase	2019	\$ 23,695	\$ 392,010	\$ 415,705	6%
<b>Totals</b>			\$ 23,695	\$ 392,010	\$ 415,705	6%

<b>PART E - SIGNATURE AND CHECKLIST</b>	
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: Shelly Seyler, P.E.	
Title: Deputy Public Works Director, Transportation Division	
Date: September 16, 2015	
<b>Checklist - OPTIONAL</b>	
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</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 completed	Yes
2. Improvements in Traffic Management & Operations	Yes
3. Other Improvements - As applicable all fields are completed	Yes
4. Traffic Flow Improvement Due to Project	Yes
<b>PART C1 - ITS Project Information</b>	<b>Complete?</b>
Section A is Complete	Yes
Section B is Complete	Yes
Section C is Complete & A PDF file of map will be attached to the submittal to MAG	Yes
Section D is Complete & All relevant Architecture Flow Diagrams have been inserted in the worksheet	Yes
Section E is Complete	Yes
Section F is Complete	Yes
Section G is Complete	Yes
Section H is Complete	Yes
<b>PART C2 - ITS Architecture Flow Diagrams have been inserted</b>	Yes
<b>PART D1 - Detailed Cost Estimate</b>	Yes

<b>PART E - SIGNATURE AND CHECKLIST</b>	
<b>PART D1 - Detailed Cost Estimate</b>	Yes
<b>PART D2 - TOTAL PROJECT BUDGET AND TIP PROGRAMMING</b>	Yes
<b>PART E - Signature &amp; Checklist</b>	<b>Complete?</b>
Form is signed	Yes
Name, title and date fields are completed.	Yes



**Phase 2**

-  Backbone Wireless
-  Bicycle Detection
-  CCTV
-  DMS
-  Wireless & EVP

Priest Dr. Kyrene Rd. Rural Rd. Price Rd.

## REVISION TO APPLICATION

On February 14, 2018, the ITS Committee took action to revise the application for the project. Below are a copy of the agenda item and minutes pertaining to the agenda item.

The maps that follow this note constitute the revision and supersede any conflicts between the the map in the initial application

### February 14, 2018 ITS Committee Meeting Agenda

Agenda Item 6

#### City of Tempe - Changes to Projects in FY2018 & FY2019

City of Tempe - Changes to Projects in FY2018 & FY2019 The City of Tempe has requested approval for proposed changes to project TMP 18-460 in FY2018 and project TMP 19-760 in FY2019. Each of these projects originally included a Dynamic Message Sign and the installation of shared bicycle lane detection systems at three interchanges along the Loop 101 freeway. The City is seeking approval to replace some of these components with additional CCTV cameras and Emergency Vehicle Preemption infrastructure at new locations. The original and revised locations are shown in Attachments Three to Six.

#### Action

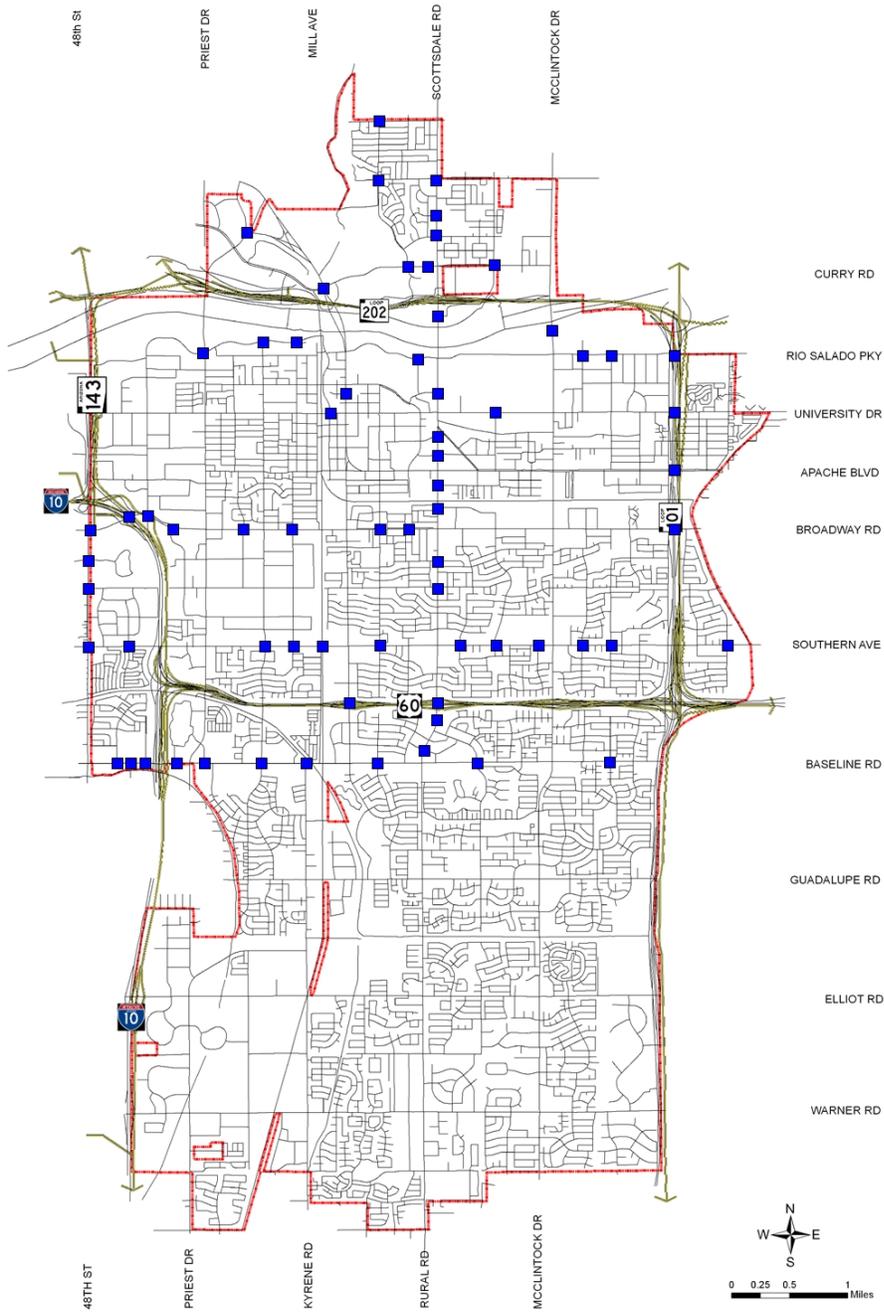
For information, discussion and possible action to recommend approval of the requested changes to City of Tempe projects in FY2018 and FY2019.

### Minutes of the February 14 ITS Committee Meeting

#### 6. City of Tempe Request for Project Change

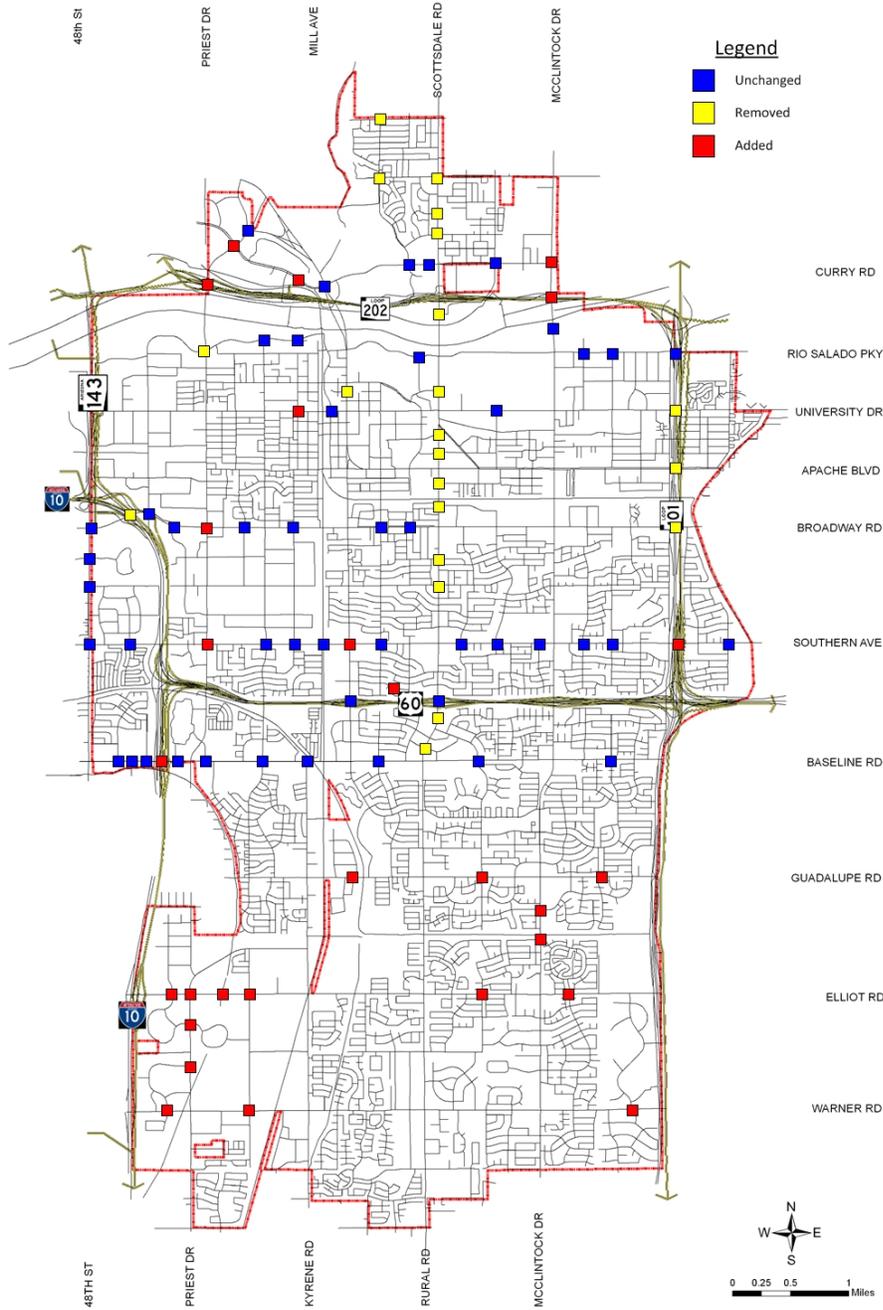
David Lucas of the City of Tempe presented a request for approval for proposed changes to project TMP 18-460 in FY 2018 and project TMP 19-760 in FY 2019. Each of these projects originally included a Dynamic Message Sign and the installation of shared bicycle lane detection systems at three interchanges along the Loop 101 freeway. The City is seeking approval to replace some of these components with additional CCTV cameras and Emergency Vehicle Preemption infrastructure at new locations. The original and revised locations were shown in Attachments Three to Six. **Bruce Littleton with City of Phoenix moved, Steve McKenzie with City of Peoria seconded, and it was unanimously carried to recommend approval of the requested project changes.**

# ITS Safety & Performance Upgrades – Phase I ORIGINAL Device Locations

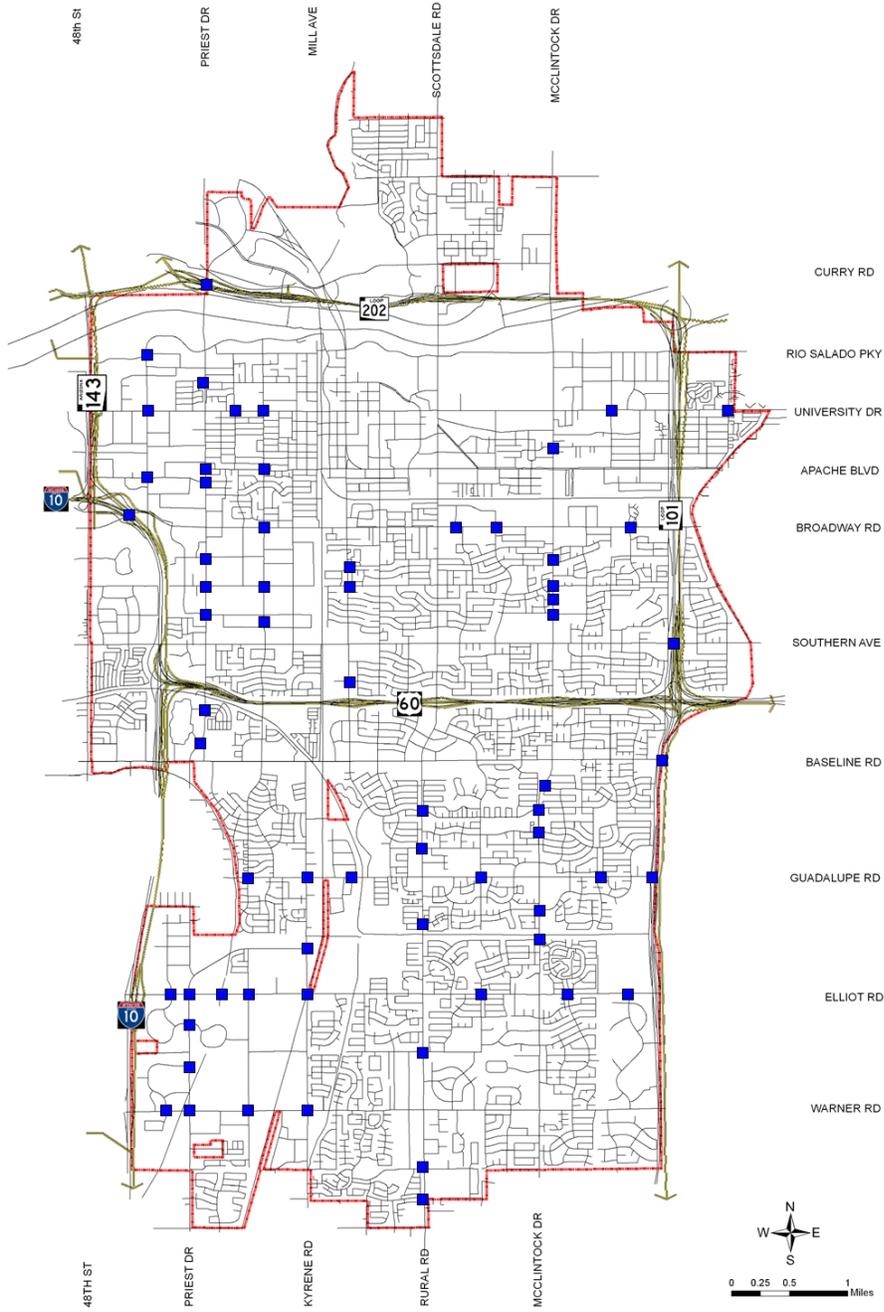


# ITS Safety & Performance Upgrades – Phase I Revised Device Locations

Project procurement and locations, updated and recommended at the February 14, 2018 MAG ITS Committee meeting.



# ITS Safety & Performance Upgrades – Phase II ORIGINAL Device Locations



# ITS Safety & Performance Upgrades – Phase II REVISED Device Locations

Project procurement and locations, updated and recommended at the February 14, 2018 MAG ITS Committee meeting.

