

CITY OF CHANDLER

RAY ROAD SIGNAL DETECTION SYSTEM FOR BICYCLES

20 SIGNALIZED INTERSECTIONS ALONG RAY RD, MCCLINTOCK DR, RURAL RD, KYRENE RD AND 56<sup>TH</sup> ST

## **FY2019 CMAQ ITS Project Application**

9/15/2015



**Chandler • Arizona**

PART A - CONTACT INFORMATION	
1. Sponsoring Agency	City of Chandler
2. Contact Name	Hong Huo, PE, PTOE
3. Phone	480-782-3481
4. E-Mail Address	hong.huo@chandleraz.gov
5. Mailing Address	Mail Stop 402 PO Box 4008 Chandler, AZ 85244-4008
(OPTIONAL)	
<a href="#">GIS Submittal Instructions</a>	

### 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
X	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
	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

NOTE: All ITS projects MUST involve eligible infrastructure improvements.

#### 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

**PART B - CMAQ Score Data**

**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	▼
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**A. Project Title & Sponsor**

**Install Bicycle Signal Detection System**

<b>Lead Agency</b>	City of Chandler
<b>Other Partnering Agencies</b>	None
<b>Project Title</b>	Ray Road Signal Detection System for Bicycles
<b>Project Category</b>	Arterial ITS

**B. Project Goals & Objectives**

**Project Goals:**  
 Provide the ability to detect bicycle traffic and safely accommodate bicyclists at signalized intersections; Provide additional minimum green time and green extension only when bicycles are present and therefore reduce delays for vehicles; Increase the bike use and reduce vehicle trips.

**Project Objectives:**  
 Implement a reliable detection technology that is able to detect bicycles and differentiate them from vehicles at 11 signalized intersections along Ray Rd and 9 signalized intersections on McClintock Dr, Rural Rd and Kyrene Rd and 56th St.

**C. Project Information**

**Project Location Description - a PDF file of a map must be submitted to MAG as an attachment:**  
 11 signalized intersections along Ray Rd and 9 signalized intersections on McClintock Dr, Rural Rd and Kyrene Rd and 56th St.

**Scope of the Project:**  
 Procure bicycle detection systems for 20 signalized intersections in the City of Chandler with CMAQ grant. The field installation, wiring and configuration will be done by city employees and is not counted as part of the project cost.

**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	ATMS03, ATMS01
2. Public Transportation	No	
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
<b>Amount</b>	\$396,060.00	\$23,940.00	\$420,000.00
<b>Cost percentage</b>	94.3%	5.7%	

**G. System Maintenance and Operations**

Current staff resources available to support ITS operations at the local agency (in FTEs)	10
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	1.5 million
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	Jul-2018

**PART C1 - ITS Project Information**

**Other comments:**

**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

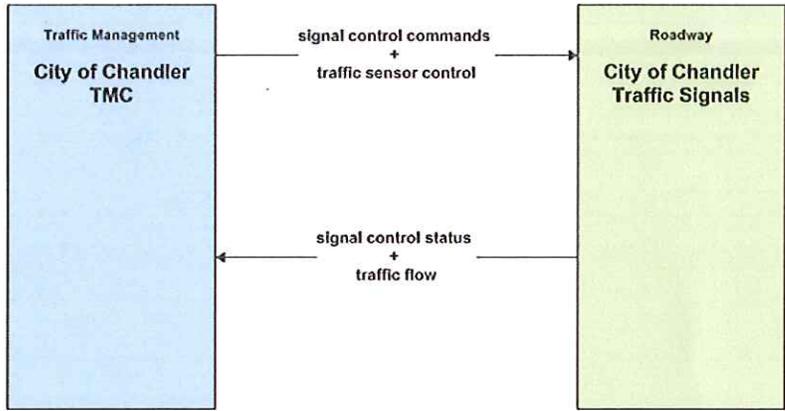
City of Chandler committed that the ITS Systems Engineering and Architecture Compliance Checklist will be finished and submitted during the project development process.  
[http://azmag.gov/Documents/ITS\\_2010-11-22\\_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf](http://azmag.gov/Documents/ITS_2010-11-22_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf)

**PART C2 - ITS Architecture Flow Diagrams**

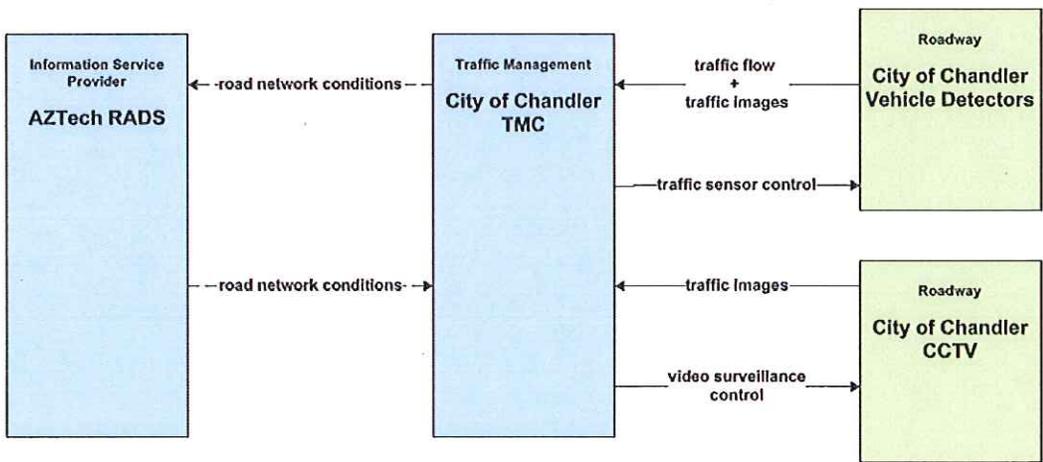
All relevant ITS Architecture Flow Diagrams MUST be inserted below for the relevant ITS Service Packages addressed by the proposed ITS project. This is to ensure that the project complies with the Regional ITS Architecture and meets a federal requirement for all federally funded ITS projects.

Insert Architecture Flow Diagrams in the space below:

**ATMS03 - Traffic Signal Control  
City of Chandler**



**ATMS01 - Network Surveillance  
City of Chandler**



*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.*



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



<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		\$0.00	Yes
TRAFFIC CONTROL	LS	1		\$0.00	Yes
CONSTRUCTION SURVEY & LAYOUT	LS	1		\$0.00	Yes
CONSTRUCTION CONTINGENCIES	LS	1		\$0.00	Yes
CONSTRUCTION ADMINISTRATION	LS	1		\$0.00	Yes
<b>SUBTOTAL – MOBILIZATION &amp; ADMINISTRATION COSTS</b>				\$ -	\$0
<b>TOTAL CONSTRUCTION OR IMPLEMENTATION COST</b>				\$ 420,000	\$ 420,000

<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>				\$430,000	\$420,000
<b>F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS</b>					
TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION					\$430,000
TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$420,000
TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)					\$396,060
LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)					\$23,940
LOCAL AGENCY FUNDS <u>NOT</u> ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$10,000

**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**

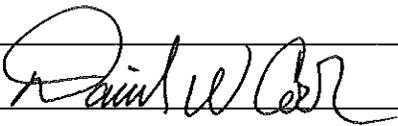
Cost Estimate for the Project from Part D1	Eligible Federal Cost	Local Cost Only	Total Cost	(Optional) Additional Notes
A. SCOPING (15% Preliminary Engineering Design) (Non-infrastructure projects: Only #2 applies).	\$ -	\$ -	\$ -	
B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E (Not applicable to non-infrastructure projects)	\$ -	\$ -	\$ -	
C. CONSTRUCTION OR IMPLEMENTATION				
1. CONSTRUCTION ELEMENTS	\$ -	\$ -	\$ -	
2. PROCUREMENT	\$ 420,000	\$ -	\$ 420,000	
3. OTHER ITEMS	\$ -	\$ -	\$ -	
4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only)	\$ -	\$ -	\$ -	
SUBTOTAL	\$ 420,000	\$ -	\$ 420,000	
D. ADOT Fee for PE Reviews and Staff Charges	\$ -	\$ -	\$ 10,000	
<b>Total Project Cost</b>	\$ 420,000	\$ -	\$ 430,000	

**Agency Programming**

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

This project will be programmed under City of Chandler 2018 CIP budget.

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	Procure bicycle signal detection system for 20 signalized intersections	2018	\$ 33,940	\$ 396,060	\$ 430,000	8%
<b>Totals</b>			\$ 33,940	\$ 396,060	\$ 430,000	8%

<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:	Dan Cook, P.E.
Title:	City Engineer
Date:	9/14/2015
<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 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

# City of Chandler FY2019 CMAQ ITS Project

