

CITY OF CHANDLER

CHANDLER BLVD SIGNAL DETECTION SYSTEM FOR BICYCLES

20 SIGNALIZED INTERSECTIONS ALONG CHANDLER BLVD AND MCCLINTOCK DR

## **FY2018 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<br>PO Box 4008<br>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  |                                 |
|---|---------------------------------|
| <b>4. Traffic Flow Improvement Due to Project (Not required for Traffic Mgmt &amp; Operations Improvements)</b> |                                 |
| a. Enter the pre-improvement (current) average traffic speed of the corridor:                                   | <input type="text" value="45"/> |
| b. Enter the post-improvement (current) average traffic speed of the corridor:                                  | <input type="text" value="45"/> |

**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** **Install Bicycle Signal Detection System**

|                                  |  |
|----------------------------------|--|
| <b>Lead Agency</b>               | City of Chandler                                   |
| <b>Other Partnering Agencies</b> | None   |
| <b>Project Title</b>             | Chandler Blvd 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 and travel time for vehicles; Increase bike use and reduce vehicle trips.

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**Project Objectives:**  
 Implement a reliable detection technology at 19 signalized intersections along Chandler Blvd and one at the interchange of McClintock Dr and Santan Freeway that is able to detect bicycles and differentiate them from vehicles.

**C. Project Information**

**Project Location Description - a PDF file of a map must be submitted to MAG as an attachment:**  
 19 signalized intersections on Chandler Blvd and one at the interchange of McClintock Dr and Santan Freeway.

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**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<br/>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   |
|-----------------|--------------|------------------------|--------------|
| Amount          | \$396,060.00 | \$23,940.00            | \$420,000.00 |
| 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)   | 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-2017    |

**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.

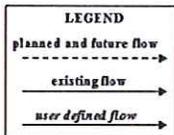
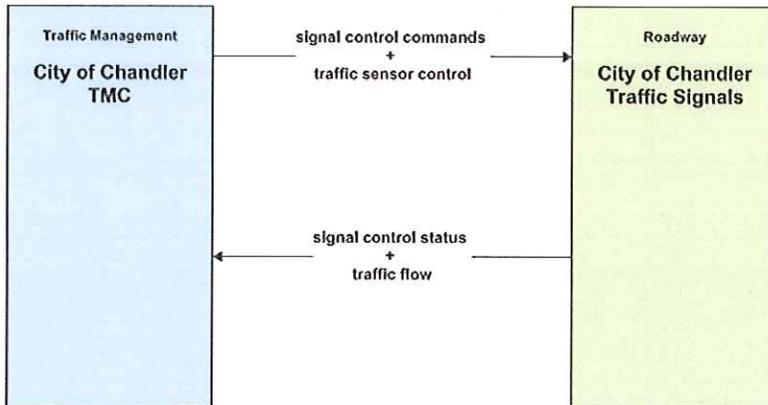
[http://azmag.gov/Documents/ITS\\_2010-11-22\\_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf](http://azmag.gov/Documents/ITS_2010-11-22_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf)

**PART C2 - ITS Architecture Flow Diagrams**

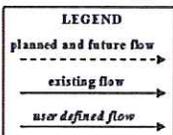
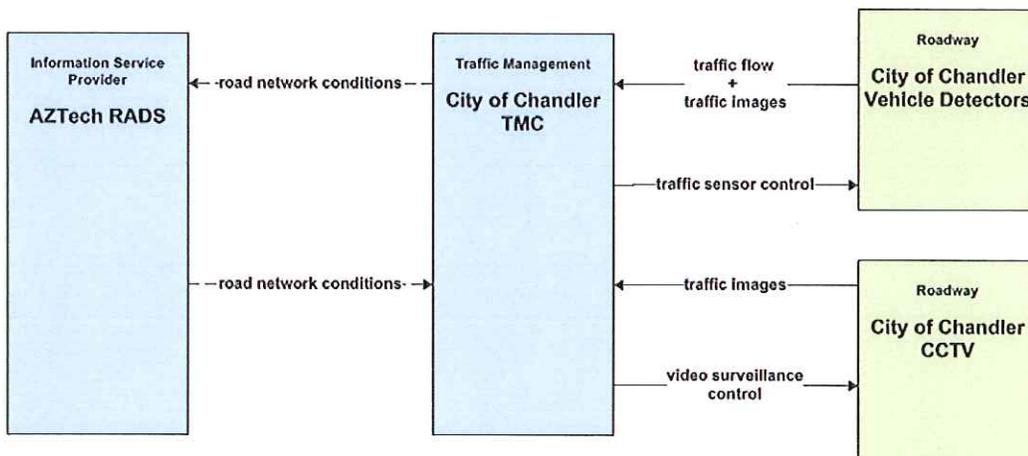
All relevant ITS Architecture Flow Diagrams MUST be inserted below for the relevant ITS Service Packages addressed by the proposed ITS project. This is to ensure that the project complies with the Regional ITS Architecture and meets a federal requirement for all federally funded ITS projects.

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.*



| PART D1 - Detailed Cost Estimate |  |  |  |     |     |
|----------------------------------|--|--|--|-----|-----|
|                                  |  |  |  | \$0 | Yes |
|                                  |  |  |  | \$0 | Yes |
|                                  |  |  |  | \$0 | Yes |
| SUBTOTAL - CONSTRUCTION          |  |  |  | \$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**

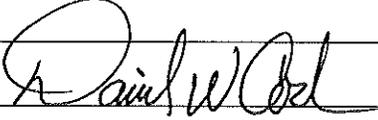
| Cost Estimate for the Project from Part D1   | Eligible Federal Cost | Local Cost Only | Total Cost | (Optional) Additional Notes |
|--|-----------------------|-----------------|------------|-----------------------------|
| A. SCOPING (15% Preliminary Engineering Design)<br>(Non-infrastructure projects: Only #2 applies).                       | \$ -                  | \$ -            | \$ -       |                             |
| B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E<br>(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<br>(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, PE  |
| 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 FY2018 CMAQ ITS Project

