

PART A - CONTACT INFORMATION	
1. Sponsoring Agency	City of Phoenix
2. Contact Name	Marshall Riegel P.E.
3. Phone	602 534 5351
4. E-Mail Address	marshall.riegel@phoenix.gov
5. Mailing Address	200 W. Washington St., 6th Floor Phoenix, AZ 85003
(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 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	
<input type="checkbox"/>	Traffic signal system improvements that apply to more than one agency
<input checked="" type="checkbox"/>	Includes improvements to coordination between arterial and freeway traffic operations
<input checked="" type="checkbox"/>	Project conforms to local land use plans
<input type="checkbox"/>	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:	<input type="text"/>
b. Enter the post-improvement (current) average traffic speed of the corridor:	<input type="text"/>

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

Lead Agency	City of Phoenix
Other Partnering Agencies	
Project Title	South Phoenix Fiber and ARID
Project Category	Arterial ITS

B. Project Goals & Objectives

Project Goals:
 Install 5 miles of fiber using existing in place conduits and vaults along Baseline Road from 7th Avenue to 51st Avenue. This link of fiber will provide critically needed gateways for the wireless mesh network so that communication to south Phoenix area field devices and intersection controllers have a higher reliability including greatly expanded data transmission capability. In addition, this corridor will be equipped with traffic data acquisition equipment allowing for real time traffic data for use in signal optimization resulting in reduced congestion, reduced delay, greater signal progression reliability which will reduce energy consumption and vis a vis result in improved air quality.

Project Objectives:
 The addition of this 5 miles of fiber and point to point mesh radios will provide the highest impact on system connectivity and improve the signal system connectivity allowing for greater data demand capabilities. It will improve the capability to optimize signal timing through the use of actual traffic data on this identified corridor of interest resulting in improved level of service and vis a vis congestion reduction. This project will reduce travel time variability and minimize delay, reduce vehicle hours time along with travel time savings with the deployment of traffic data acquisition devices. Increased throughput and effective capacity of the roadways is expected. This corridor is tentatively identified as an alternate route for I-10 incident routing. The addition of the fiber link and the ARID devices allows the City to exchange data and traveler travel times to the RADS system. The reduction in travel times and the traveler information system in place through the RADS system will provide a very high systemwide benefit.

C. Project Information

Project Location Description - a PDF file of a map must be submitted to MAG as an attachment:
 This project extends the City's fiber network and mesh network gateways into south Phoenix along Baseline Road from 7th Avenue to 51st Avenue. ARID devices will be deployed along two parallel corridors on Southern Avenue and Broadway Rd.

Scope of the Project:
 Install fiber optic cable along Baseline Road from 51st Avenue to 7th avenue and procure and integrate ARID devices at signalized intersections along Baseline Road, Southern Avenue and Broadway Road.

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		
3. Communications	YES	ATMS03, ATIS01
4. Traveler Information	YES	ATMS01, ATMS06, ATIS01
5. Archived Data Mgmt	YES	ATMS03, ATMS07
6. ITS for Safety		
7. ITS Planning		
8. Fwy-Arterial Operations		

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	\$749,067.34	\$45,277.67	\$794,345.00
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)	5
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	\$50,000
Estimated additional annual O & M funds required for features added by this project	\$10,000
Estimated DATE from when required additional local O&M funds will be available	Jul-2021

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

COP commits to follow the SEA process.

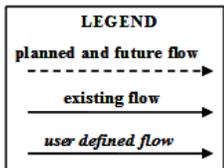
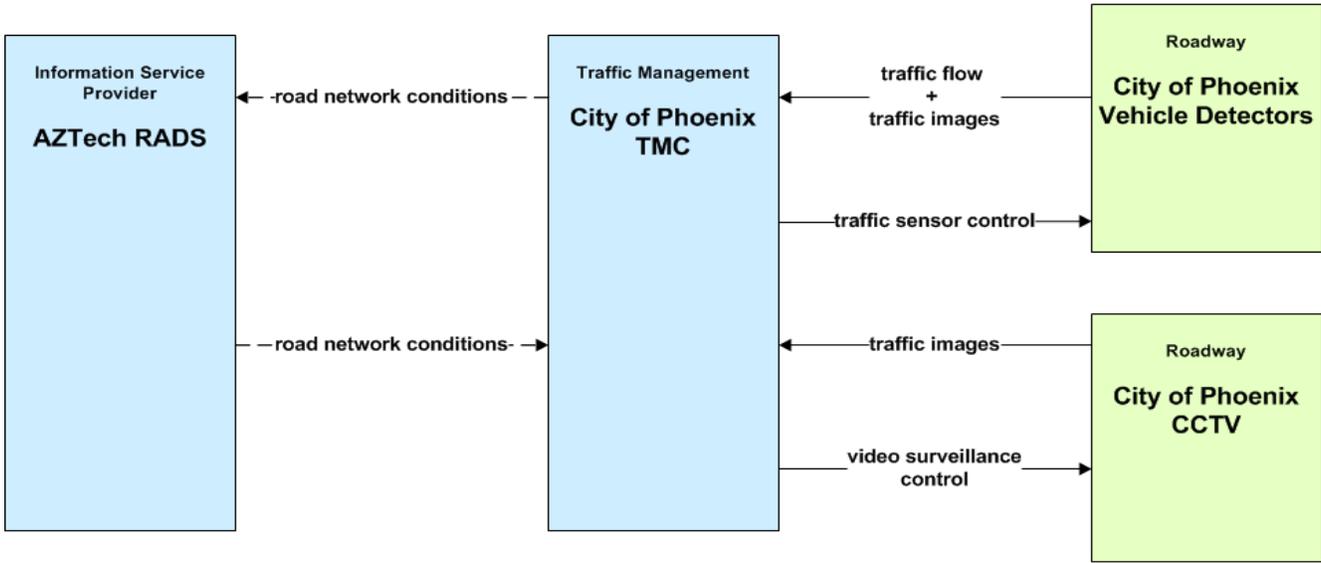
http://azmag.gov/Documents/ITS_2010-11-22_ITS-Systems-Engineering-and-Architecture-Compliance-Checklist.pdf

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.

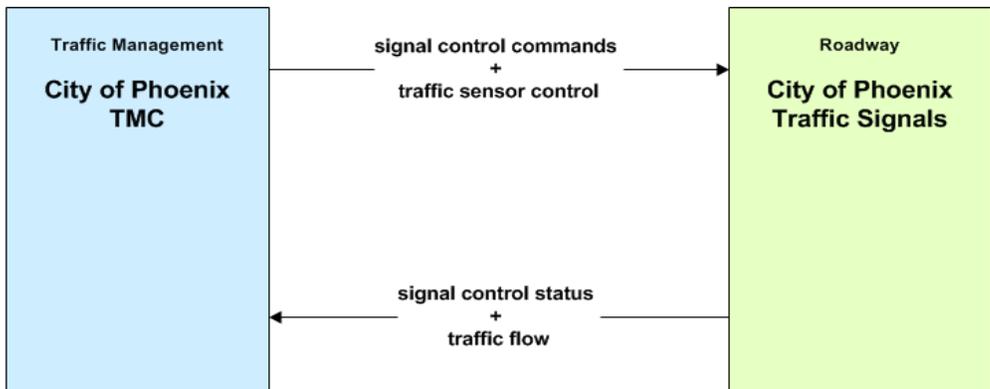
Insert Architecture Flow Diagrams in the space below:

**ATMS01 - Network Surveillance
City of Phoenix**

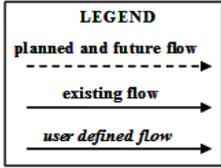


The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.

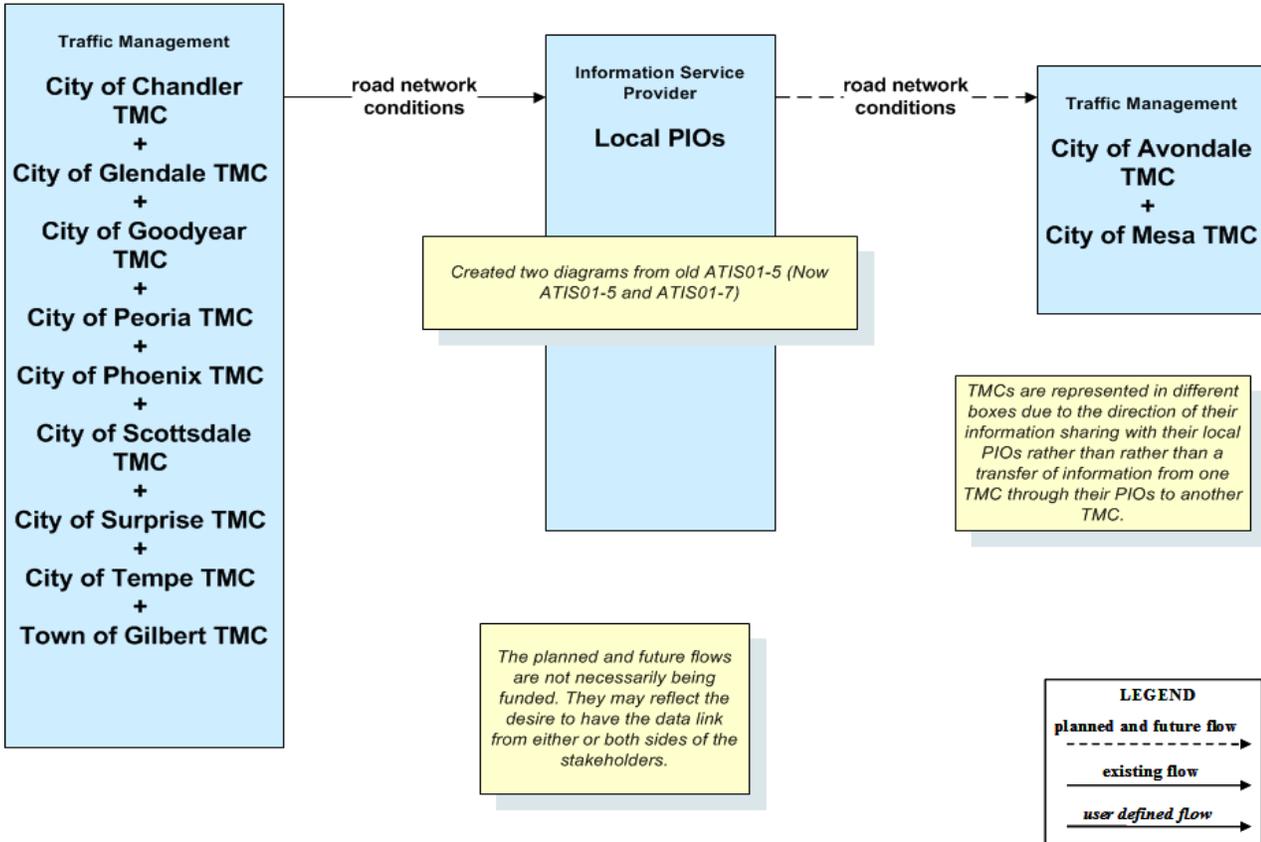
**ATMS03 - Traffic Signal Control
City of Phoenix**



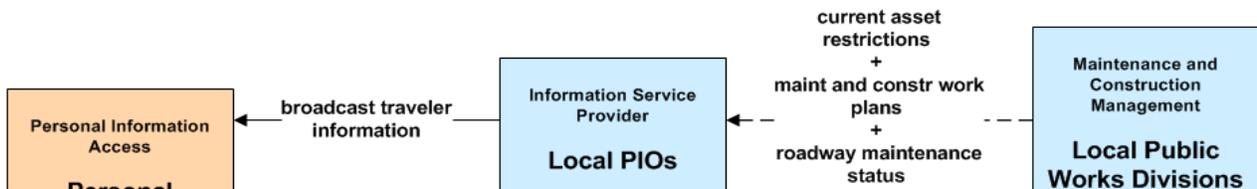
PART C2 - ITS Architecture Flow Diagrams



**ATIS01 - Broadcast Traveler Information
Local Cities and Municipalities (1 of 2)**



**ATIS01 - Broadcast Traveler Information
Local Cities and Municipalities (2 of 2)**



PART C2 - ITS Architecture Flow Diagrams

Personal Information Devices

Many local PIOs are utilizing social media services to relay traveler information to the public. This availability of information from local agencies is being updated regularly and therefore is being shown as an existing information flow to assume all agencies will eventually provide this information to travelers through their own services or via other services.

work zone information

work zone information

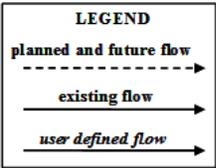
work zone information

traveler information for media

Media
TV and Radio Stations

external reports

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.



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

Emergency Management
Phoenix Fire Department Regional Dispatch Center + Phoenix Police Dispatch

Traffic Management
City of Phoenix TMC

Roadway
City of Phoenix DMS

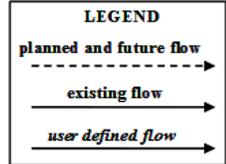
Transit Management
Local Dial-A-Ride Transit Dispatches + Valley Metro OCC

roadway information system status

roadway information system data

road network conditions

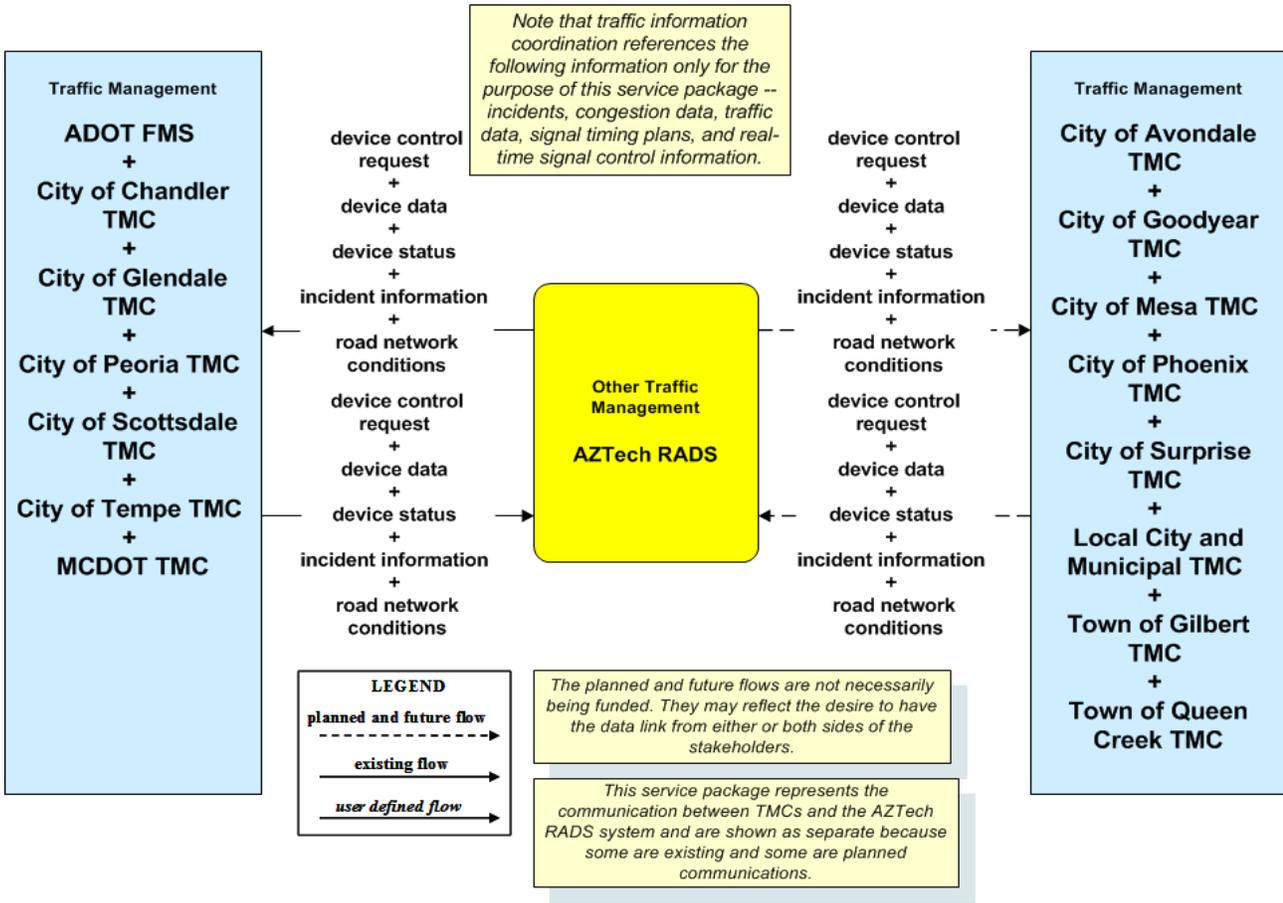
road network conditions



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

**ATMS07 - Regional Traffic Management
AZTech C2C TMS Network**



PART D1 - Detailed Cost Estimate					
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
A. SCOPING (15% Preliminary Engineering Design)					
1. SITE TOPOGRAPHIC SURVEY	LS	1		\$0.00	No
2. PROJECT ASSESSMENT REPORT or DETAILED WORKPLAN	LS	1		\$15,000.00	No
3. SYSTEMS ENGINEERING ANALYSIS (must address FHWA requirements)	LS	1		\$5,000.00	No
4. ENVIRONMENTAL DETERMINATION (Infrastructure projects, including technical supporting documents)	LS	1		\$20,000.00	No
5. HAZMAT ASSESSMENT	LS	1		\$0.00	No
SUBTOTAL – PROJECT SCOPING COSTS				\$40,000.00	\$0
B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E					
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		\$65,000.00	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
SUBTOTAL – PROJECT DESIGN COSTS				\$65,000.00	\$0
C. CONSTRUCTION OR IMPLEMENTATION					
1. CONSTRUCTION ELEMENTS (Insert additional rows if necessary)					
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
SMFO 144	LF	26,400	\$2	\$52,800	Yes
SMFO Splice Closure	EA	12	\$4,000	\$48,000	Yes
Innerduct	LF	26,400	\$1	\$26,400	Yes
Fiber Optic Transciever	EA	12	900	\$10,800	Yes
Mesh Radio PTP	EA	2	\$2,500	\$5,000	Yes
SMFO 12	LF	6,030	\$2	\$9,045	Yes
EtherNet Switch	EA	45	\$600	\$27,000	Yes
ARID	EA	65	\$3,500	\$227,500	Yes
Pull Box no.9	EA	12	\$4,400	\$52,800	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes
				\$0	Yes

PART D1 - Detailed Cost Estimate					
				\$0	Yes
				\$0	Yes
SUBTOTAL - CONSTRUCTION				\$459,345	\$459,345

PART D1 - Detailed Cost Estimate					
CONTRACTOR MOBILIZATION	LS	1	\$55,000.00	\$55,000.00	Yes
TRAFFIC CONTROL	LS	1	\$70,000.00	\$70,000.00	Yes
CONSTRUCTION SURVEY & LAYOUT	LS	1	\$5,000.00	\$5,000.00	Yes
CONSTRUCTION CONTINGENCIES	LS	1	\$140,000.00	\$140,000.00	Yes
CONSTRUCTION ADMINISTRATION	LS	1	\$65,000.00	\$65,000.00	Yes
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS				\$ 335,000	\$335,000
TOTAL CONSTRUCTION OR IMPLEMENTATION COST				\$ 794,345	\$ 794,345

PART D1 - Detailed Cost Estimate					
D. ADOT Fee for PE Reviews and Staff Charges	LS	1	\$15,000	\$15,887	No
TOTAL ADOT Fee COST				\$15,887	\$0
E. TOTAL PROJECT COST				\$915,232	\$794,345
F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS					
TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION					\$915,232
TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$794,345
TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)					\$749,067
LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)					\$45,278
LOCAL AGENCY FUNDS <u>NOT</u> ELIGIBLE FOR FEDERAL REIMBURSEMENT					\$120,887

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).	\$ -	\$ 40,000	\$ 40,000	
B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E (Not applicable to non-infrastructure projects)	\$ -	\$ 65,000	\$ 65,000	
C. CONSTRUCTION OR IMPLEMENTATION				
1. CONSTRUCTION ELEMENTS	\$ 459,345	\$ -	\$ 459,345	
2. PROCUREMENT	\$ -	\$ -	\$ -	
3. OTHER ITEMS	\$ -	\$ -	\$ -	
4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only)	\$ 335,000	\$ -	\$ 335,000	
SUBTOTAL	\$ 794,345	\$ -	\$ 794,345	
D. ADOT Fee for PE Reviews and Staff Charges	\$ -	\$ -	\$ 15,887	
Total Project Cost	\$ 794,345	\$ 105,000	\$ 915,232	

Agency Programming

Please describe the programming of the project in the agency's own CIP/TIP.	All associated phases and local costs will be programmed in the upcoming City of Phoenix CIP.
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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)	Design Fiber and traffic data acquisition devices PSE package.	2017	\$ 120,887	\$ -	\$ 120,887	100%
2. Other (Optional)				\$ -	\$ -	
3. Other (Optional)				\$ -	\$ -	
4. Construction or Implementation	Install Fiber and procure and integrate traffic data acquisition devices.	2019	\$ 45,278	\$ 749,067	\$ 794,345	6%
Totals			\$ 166,165	\$ 749,067	\$ 915,232	18%

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:	
Name:	Ray Dovalina, P.E.
Title:	Street Transportation Director
Date:	September 16, 2015
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.	
PART A - Contacts	Complete?
Contact Information, fields 1 – 5 are complete	Y
PART B - TIP Listing and CMAQ Score Data	Complete?
1. Traffic Estimate and Roadway Characteristics - Fields a - i are completed	Y
2. Improvements in Traffic Management & Operations	Y
3. Other Improvements - As applicable all fields are completed	Y
4. Traffic Flow Improvement Due to Project	Y
PART C1 - ITS Project Information	Complete?
Section A is Complete	Y
Section B is Complete	Y
Section C is Complete & A PDF file of map will be attached to the submittal to MAG	Y
Section D is Complete & All relevant Architecture Flow Diagrams have been inserted in the worksheet	Y
Section E is Complete	Y
Section F is Complete	Y
Section G is Complete	Y
Section H is Complete	Y
PART C2 - ITS Architecture Flow Diagrams have been inserted	Y
PART D1 - Detailed Cost Estimate	Y
PART D2 - TOTAL PROJECT BUDGET AND TIP PROGRAMMING	Y
PART E - Signature & Checklist	Complete?
Form is signed	Y
Name, title and date fields are completed.	Y

South Phoenix Fiber

