

Contact Information	
1. Lead Agency	CITY OF CHANDLER
2. Contact Name	SRINI GOUNDLA
3. Phone	480-782-3481
4. E-Mail Address	SRINIVAS.GOUNDLA@CHANDLERAZ.GOV
5. Mailing Address	215 E BUFFALO ST MS-402 CHANDLER AZ 85225

CMAQ Data	
<p>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.</p>	
Federal Funding Eligibility	
<p>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.</p>	
1. Traffic Estimate and Roadway Characteristics	
<p>a. Current Average Daily Traffic (ADT) on the facility or the nearest parallel facility of a similar facility type:</p>	<input type="text" value="43,120"/>
<p>b. Please describe how the ADT was estimated:</p>	<p>The ADT was estimated based on the average traffic counts from 98 signalized intersections in City of Chandler conducted in 2018.</p>
<p>c. When was the ADT estimate developed:</p>	<input type="text" value="2018"/>
<p>d. Name of the roadway section used for the ADT estimate:</p>	<input type="text" value="98 signalized intersections in City of Chandler"/>
<p>e. Starting limit of the roadway section:</p>	<input type="text" value="City Boundary"/>
<p>f. Ending limit of the roadway section:</p>	<input type="text" value="City Boundary"/>
<p>g. Length (miles):</p>	<input type="text" value="136"/>
<p>h. Total number of through lanes on the roadway section:</p>	<input type="text" value="6"/>
<p>i. Federal Functional Classification of the roadway section:</p>	<input type="text" value="Principal Arterial - Other"/> <p>Link to ADOT Functional Classification Maps</p>

CMAQ Data

2. Improvements in Traffic Management & Operations

a. Enter the pre-improvement (current) average corridor traffic speed: 35

b. In the table, check the box 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 checked="" 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	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
- 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: (populated from #2a) 35

b. Enter the post-improvement average traffic speed of the corridor: 38

ITS Project Information

Enter information in highlighted cells ONLY. Links to various websites are provided for additional information and help.

1. Project Title & Sponsor

a. Project Title	City of Chandler Arterial Congestion Monitoring
b. Lead Agency	CITY OF CHANDLER
c. Other Partnering Agencies	None

2. Project Type

Prioritize SMO Buckets for the funding application

First Priority	Bucket #3 – Local Priority Corridors
Second Priority	(Please Select a Bucket)
Third Priority	(Please Select a Bucket)

3. Project Goals & Objectives

a. Project Goals	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries to provide real-time traveler information, and data for regional planning activities including origin-destination studies.
b. Project Objectives	Install Anonymous Re-Identification Devices (ARID) within the City of Chandler. Currently most of the East Valley agencies have ARID devices with the exception of City of Chandler. Installation will facilitate the calculation of the travel times within City of Chandler and across city boundaries. Incorporate existing ADOT travel time data with arterial data; and Disseminate travel time, speed and/or congestion levels for the East Valley Arterials to the public in the form of an online map or arterial signs. The travel speed information will be integrated into Regional Archive Database System (RADS) that will expand the congestion mapping.

4. Project Information

a. Project location description	ARID Devices will be installed at approximately one-mile spacing along : Elliot Rd, Warner Rd, Ray Rd, Chandler Blvd, Frye Rd, Pecos Rd, SR202L interchanges, Germann Rd, Queen Creek Rd, Ocotillo Rd, Chandler Heights Rd, Riggs Rd, 56th St, Kyrene Rd, Rural Rd, McClintock Dr, SR101L interchanges, Dobson Rd, Alma School Rd, Arizona Ave, McQueen Rd, Cooper Rd, & Gilbert Rd. Note: a PDF file of a map must be submitted to MAG as an attachment.
b. Scope of the project	Scope, design and contract to install 82 ARID devices in existing traffic signal cabinets throughout the City of Chandler. The device central control software will be installed at the city's TMC. The data from the devices will be in a format to be shared via Regional Archive Database System (RADS) and disseminated via a web map which may graphically display speeds or congestion elvels. Travel times to/from various destinations will also be calculated using the shared local agency aas well as using ADOT data. Travel times could be disseminated via the web or an arterial sign.

ITS Project Information

5. Identify Project Components in MAG Regional ITS Architecture

Service Area	Addressed in this Project? <small>(Dropdown: Y/N)</small>	Applicable ITS Service Packages
Traffic Management	Yes	ATMS01, ATMS06, ATMS07
Maintenance and Construction		
Public Transportation		
Traveler Information		ATIS01
Emergency Management		
Archived Data Management		

NOTE: Insert the relevant ITS Architecture flow diagram in the "ITS Architecture" worksheet.

6. Quantitative Criteria

Enter Quantitative Criteria for Bucket(s) selected in Section 2 "Project Type"

Average Daily Traffic (ADT) from 'CMAQ Data' tab in this funding application.	43,120
Crashes Per Mile Per Year (MAG Will Complete)	
Maximum Peak Period Travel Time Index (MAG Will Complete)	
Percentage network communication connectivity to traffic signals & ITS devices.	85%
Regional Priority Corridor Ranking (Enter shares of work in "Regional Priority - Top 100")	
Latest year of your agency's Operations/Management Center upgrade.	2017

7. Program Year Preference

Preferred Program Year

2022

ITS Project Information				
8. Project Budget by SMO Strategy				
Strategies for Bucket #1 – ICM Corridors	Federal Cost	Local Match (min 5.7%)	Total Cost	Share of Total Project
2-Real-time CCTV monitoring capabilities at all major-major arterial intersections on ICM corridors				
3-Vehicle and pedestrian actuated detection at all signalized intersections to support signal operations and real-time collection of data collection, including data on turning movement counts				
11-Regional Asset Upgrade/Replace Program - ICM Corridors & Priority Arterials				
Total				
Cost Percentage				
Strategies for Bucket #2 – Regional Priority Arterials	Federal Cost	Local Match (min 5.7%)	Total Cost	Share of Total Project
8-Real-time visual monitoring capability at all major-major intersections on Priority Arterials				
9-Additional detection at signalized intersections for real-time collection of data, including turning movement counts stored by individual agencies and archived in RADS				
10-Reliable communications between TMCs and major-major intersections to facilitate remote management of traffic operations - Adds both fiber and wireless infrastructure				
11-Regional Asset Upgrade/Replace Program - ICM Corridors & Priority Arterials				
Total				
Cost Percentage				
Strategies for Bucket #3 – Local Priority Corridors	Federal Cost	Local Match (min 5.7%)	Total Cost	Share of Total Project
12-Local priority ITS projects	\$ 715,737.00			100%
Total	\$ 715,737.00	\$ 43,263.00	\$ 759,000.00	100%
Cost Percentage	94.3%	5.7%		

ITS Project Information

9. System Maintenance and Operations

a. Current staff resources available to support ITS operations at the local agency (in FTEs)	10
b. Additional staff resources required for fully utilizing features added by project (in FTEs)	0
c. Agency's estimated current annual ITS operations & maintenance (O & M) budget	1.5 Million
d. Estimated additional annual O & M funds required for features added by this project	\$0
e. Estimated DATE from when required additional local O & M funds will be available	Jul-20
f. Other comments	

10. 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.
[ADOT Systems Engineering Checklist](#)

<p>The project sponsor/lead agency of this application intends to incorporate the Systems Engineering Analysis in the project's scope of work, following guidance on the ADOT's System Engineering Checklist.</p>	<input checked="" type="checkbox"/> Yes, the agency intends to follow the process.
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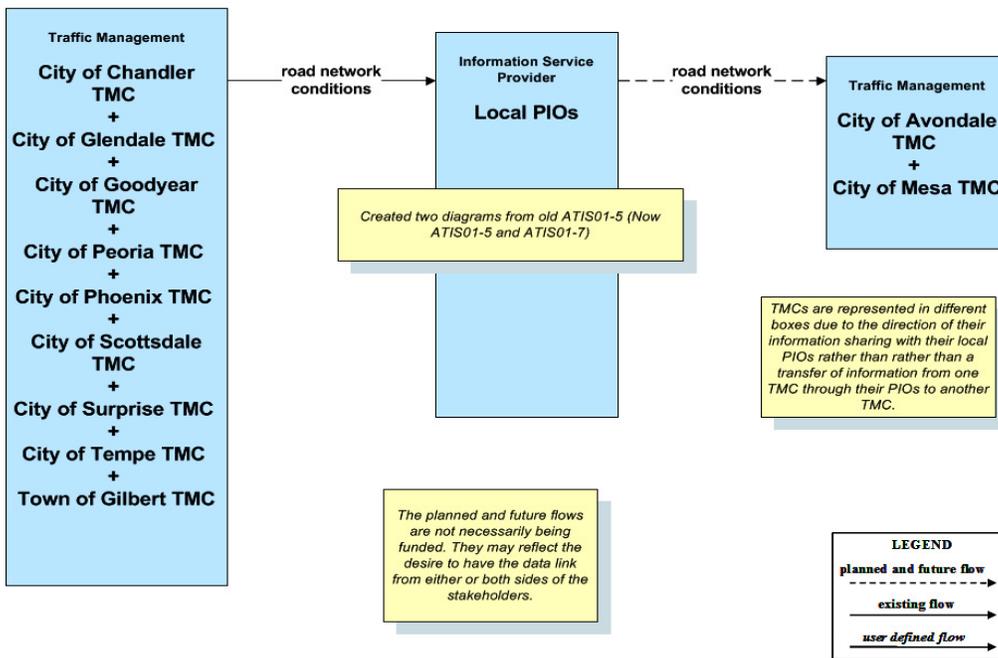
ITS Architecture Flow Diagram

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.

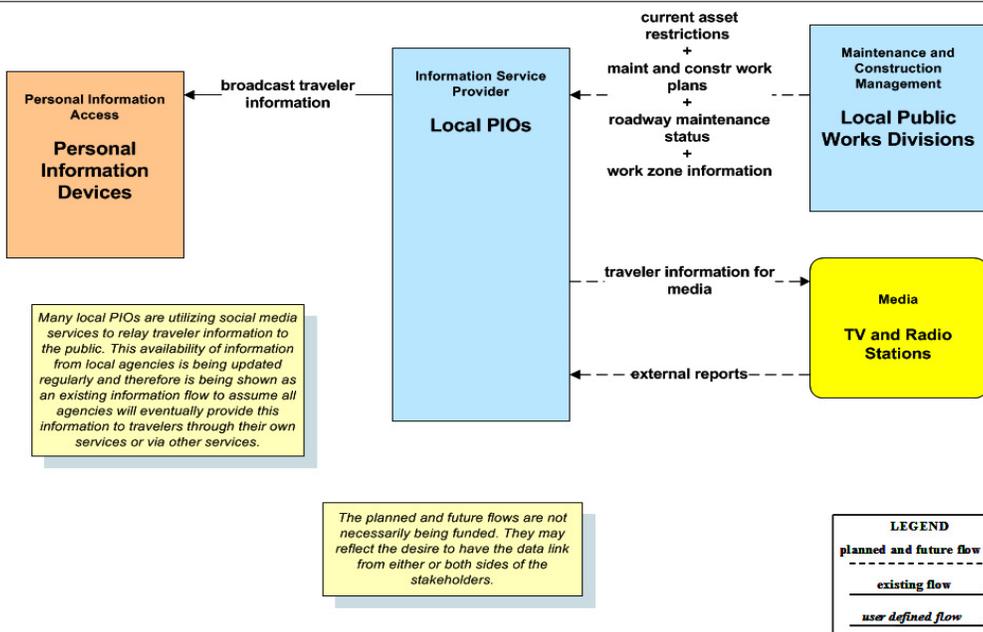
Find the relevant Service Packages addressed by the project in the MAG ITS Architecture (found in the link below). Copy and paste the graphic in the space provided.

[MAG Regional ITS Architecture](#)

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

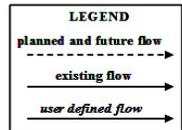
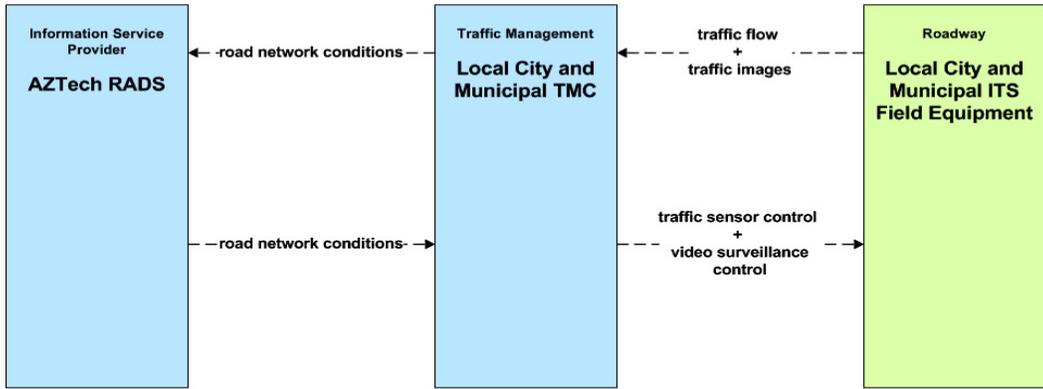


ATIS01 - Broadcast Traveler Information Local Cities and Municipalities (2 of 2)



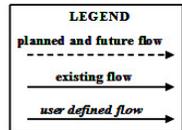
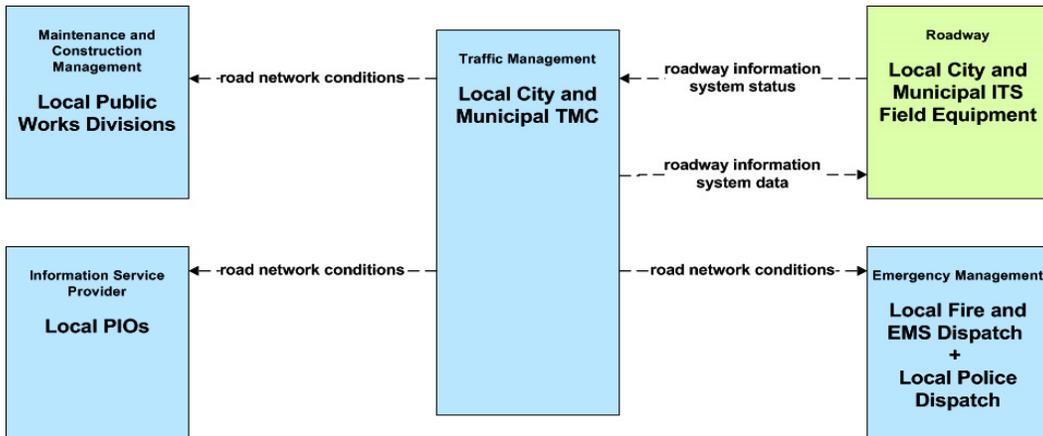
ITS Architecture Flow Diagram

ATMS01 - Network Surveillance Local Cities and Municipalities - Generic



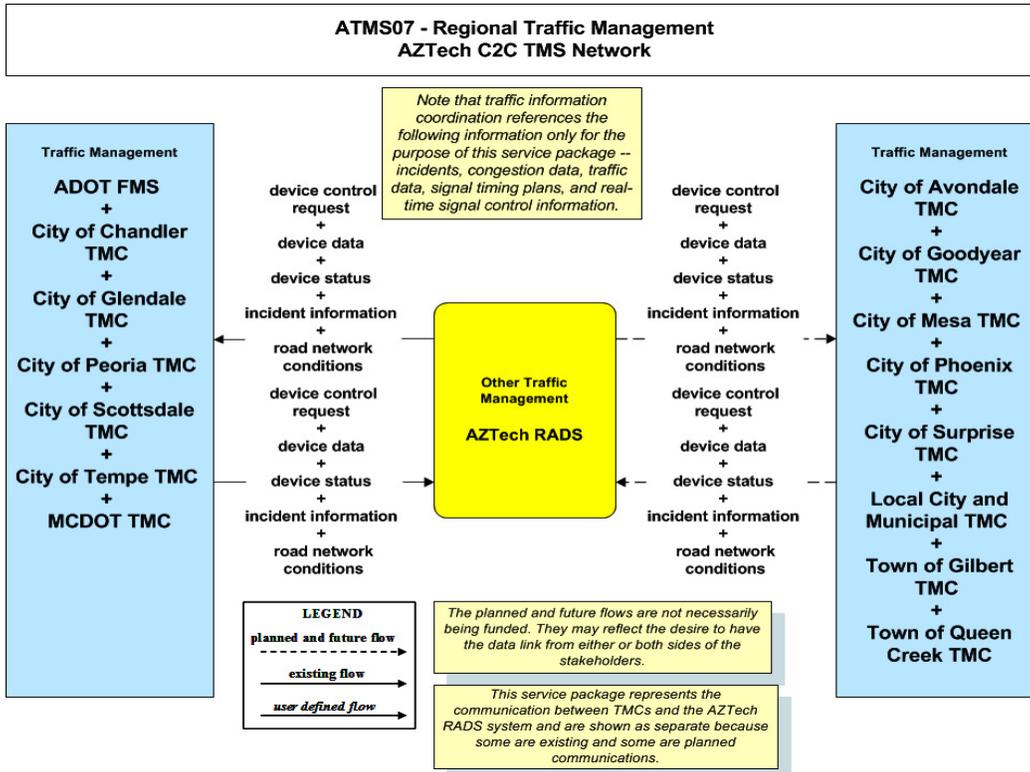
The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.

ATMS06 - Traffic Information Dissemination Local Cities and Municipalities - Generic



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.

ITS Architecture Flow Diagram



PROJECT COST ESTIMATE WORKSHEET (Cost Estimates Are Required Regardless of Programming)										
DESIGN	REQUESTED PROGRAMMING (Complete if item will be programmed in the MAG TIP)	Location Description	City of Chandler Arterial Congestion Monitoring							
		Work Description	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries and provide real-time traveler information.							
		Funding Source	Local							
		Preferred Year to Program Work	2021							
	COST ESTIMATE FOR DESIGN		UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
	PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Project Assessment Report or Detailed Workplan	LS	1	15,000	\$ 15,000.00	No	-	15,000	
		Systems Engineering Analysis (must address FHWA requirements)	LS	1	5,000	\$ 5,000.00	No	-	5,000	
		Federal Project Environmental Determination	LS	1	35,000	\$ 35,000.00	No	-	35,000	
		SUBTOTAL - PRELIMINARY ENGINEERING COSTS				\$ 55,000.00		-	55,000	
	FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Plans, Specifications, Cost Estimates, Bidding	LS	1	80,000	\$ 80,000.00	No	-	80,000	
					\$ -	No	-	-		
					\$ -	No	-	-		
SUBTOTAL - FINAL DESIGN COSTS				\$ 80,000.00		-	80,000			
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING					\$ 135,000.00		-	135,000		
PROCUREMENT	REQUESTED PROGRAMMING (Complete only if Construction will be programmed in the MAG TIP)	Location Description	City of Chandler Arterial Congestion Monitoring							
		Work Description	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries and provide real-time traveler information.							
		Funding Source	CMAQ							
		Preferred Year to Program Work	2022							
	COST ESTIMATE FOR PROCUREMENT		UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
	PROCUREMENT COSTS					\$ -	Yes	-	-	
						\$ -	Yes	-	-	
						\$ -	Yes	-	-	
						\$ -	Yes	-	-	
						\$ -	Yes	-	-	
					\$ -	Yes	-	-		
					\$ -	Yes	-	-		
					\$ -	Yes	-	-		
TOTAL - PROCUREMENT					\$ -		-	-		
CONSTRUCTION	REQUESTED PROGRAMMING (Complete only if Construction will be programmed in the MAG TIP)	Location Description	City of Chandler Arterial Congestion Monitoring							
		Work Description	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries and provide real-time traveler information.							
		Funding Source	CMAQ							
		Preferred Year to Program Work	2022							
	COST ESTIMATE FOR CONSTRUCTION		UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
	UTILITY RELOCATIONS (Required for Budget, May be 0 if no Utilities)					\$ -		-	-	
						\$ -		-	-	
						\$ -		-	-	
						\$ -		-	-	
	The cost of utility relocation for the transportation project are eligible for federal aid if the costs/activities involved are directly related to the transportation project. Generally, burying overhead utilities is cost prohibitive.									
CONSTRUCTION (Required for Budget)	ARID Sensors Installation	EA	82	6,500	\$ 533,000.00	Yes	502,619	30,381		
	Central Software	LS	1	75,000	\$ 75,000.00	Yes	70,725	4,275		
	Information Dissemination	LS	1	100,000	\$ 100,000.00	Yes	94,300	5,700		
					\$ -		-	-		
					\$ -		-	-		
					\$ -		-	-		
					\$ -		-	-		
	SUBTOTAL - UTILITY RELOCATION COSTS				\$ -		-	-		
SUBTOTAL - CONSTRUCTION COST					\$ 708,000.00		667,644	40,356		
MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)			10,000	\$ 10,000.00	Yes	9,430	570		
	TRAFFIC CONTROL (0-8% of construction cost)			6,000	\$ 6,000.00	Yes	5,658	342		
	CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)				\$ -	Yes	-	-		
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)			20,000	\$ 20,000.00	Yes	18,860	1,140		
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)			15,000	\$ 15,000.00	Yes	14,145	855		
SUBTOTAL - MOBILIZATION & ADMINISTRATION COSTS					\$ 51,000.00		48,093	2,907		
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING					\$ 759,000.00		715,737	43,263		
ADOT REVIEW FEE	Please enter 'Yes' if your agency is certified accepted by ADOT for construction									
	ADOT REVIEW FEE	AGENCY TYPE	RATE	HOURS	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL		
		Contracts and Specs \ Advertise Project	Non CA	55	100	\$ -	No	-	-	
		District \ Review Stage Submittals	Non CA	50	40	\$ -	No	-	-	
		Environmental Planning \ Issue Clearance	All	50	40	\$ 2,000	No	-	2,000	
		Right of Way \ Issue Clearance	Non CA	55	24	\$ -	No	-	-	
		Compliance Review\ Compliance Review	Non CA	175	40	\$ -	No	-	-	
		Project Management Group\ Project Management	Non CA	120	100	\$ -	No	-	-	
		Project Management Group\ Project Management	CA Only	120	60	\$ 7,200	No	-	7,200	
		Utilities and Railroad Sections\ Issue Clearance	Non CA	50	24	\$ -	No	-	-	
				\$ 9,200		-	9,200			
TOTAL COST ESTIMATE					\$ 903,200		715,737	187,463		

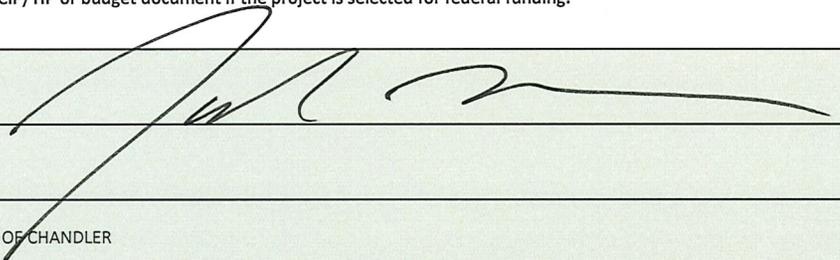
Budget and Signature Page

Phase	Location Description	Work Description	Year to be Programmed	Funding Source	Federal Amount	Local Amount	Total	Local Share
Design, excludes ADOT review fees	City of Chandler Arterial Congestion Monitoring	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries and provide real-time traveler information.	2021	Local	\$ -	\$ 135,000	\$ 135,000	100.0%
Construction	City of Chandler Arterial Congestion Monitoring	Implement the ability to monitor congestion within the City of Chandler and across jurisdictional boundaries and provide real-time traveler information.	2022	CMAQ	\$ 715,737	\$ 43,263	\$ 759,000	5.7%
Total Programmed					\$ 715,737	\$ 178,263	\$ 894,000	19.9%
ADOT Design Review Fee					\$ -	\$ 9,200	\$ 9,200	100.0%
Total Cost					\$ 715,737	\$ 187,463	\$ 903,200	20.8%

Signature: To be signed and scanned with PDF copy that is sent to MAG via email

As the jurisdiction's manager/administrator or designated representative, I certify that the information contained in this application is accurate and complete and that the local funds for this project will be included in the sponsoring MAG member agency's local current CIP/TIP or budget document if the project is selected for federal funding.

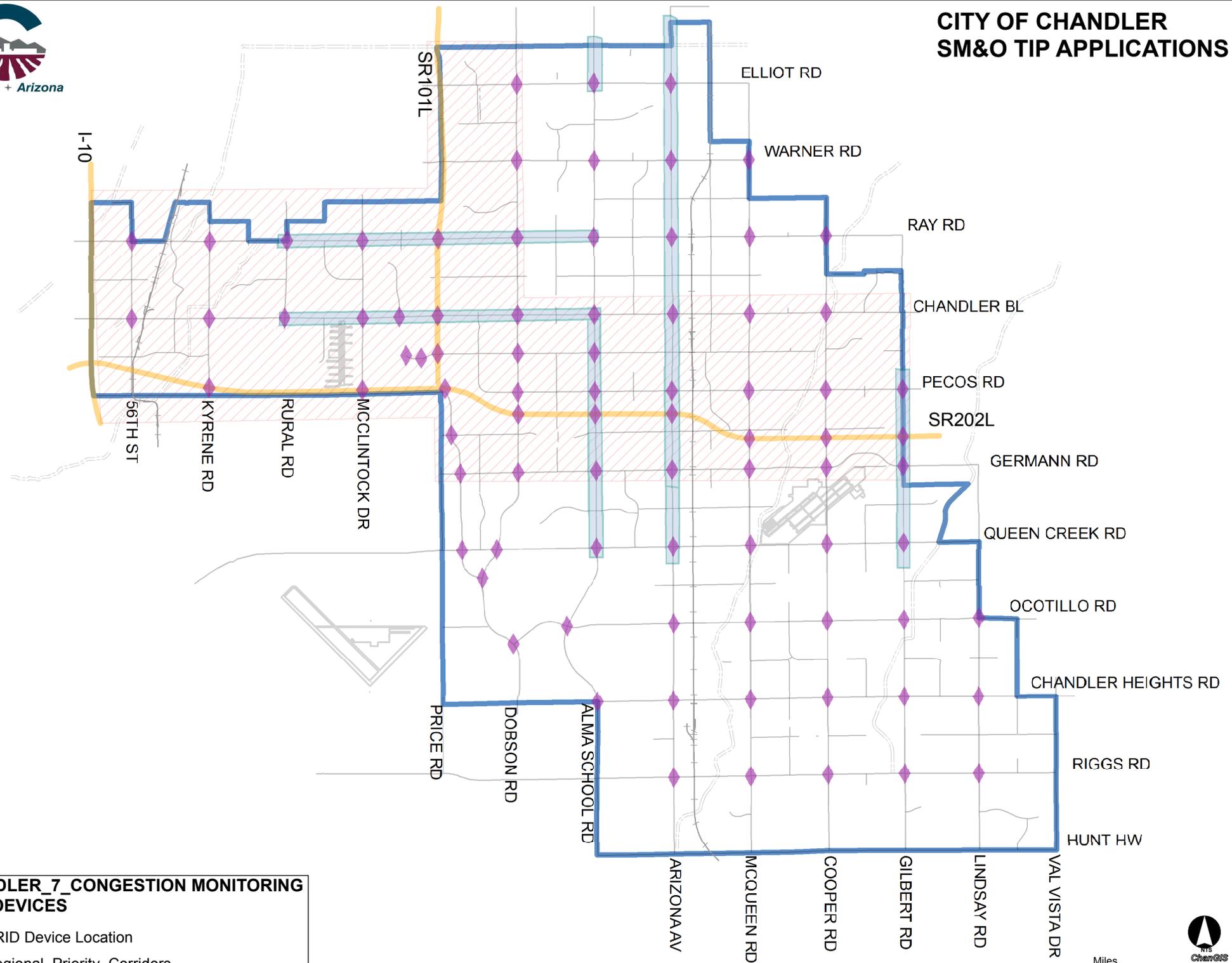
Signature:



Name: JOHN KNUDSON P.E.

Title: DIRECTOR, PUBLIC WORKS, CITY OF CHANDLER

Date: 9/13/19



**CHANDLER_7_CONGESTION MONITORING
ARID DEVICES**

-  ARID Device Location
-  Regional_Priority_Corridors
-  ICM_Corridor

Miles
1 0.5 0 1




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