Contact Information	
1. Lead Agency	City of Tempe
2. Contact Name	David Lucas
3. Phone	480-350-8666
4. E-Mail Address	david_lucas@tempe.gov
5. Mailing Address	200 E 5th Street, MAILSTOP 04-1, Tempe, AZ 85281

CMAQ 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 facility type:	32711
b. Please describe how the ADT was estimated:	ADT acquired from City of Tempe 2016-18 traffic counts. Average project ADT based on average of all major arterial corridor ADTs collected citywide.
c. When was the ADT estimate developed:	Sep-19
d. Name of the roadway section used for the ADT estimate:	McClintock, Rural, Mill, Kyrene, Priest, University, Broadway, Southern, Baseline, Guadalupe, Elliot & Warner
e. Starting limit of the roadway section:	Citywide
f. Ending limit of the roadway section:	Citywide
g. Length (miles):	50
h. Total number of through lanes on the roadway section:	5
i. Federal Functional Classification of the roadway section:	Principal Arterial - Other Link to ADOT Functional Classification Maps

CMAQ Data

2. Improvements in Traffic Management & Operations

a. Enter the pre-improvement (current) average corridor traffic speed: 40

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
	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
X	Interconnected, pre-timed signals with various forms of master control and various qualities of	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 elegible infrastructure improvements.

3. Other Improvements (Check all that apply)

- [X] Traffic signal system improvements at a single agency
- [ ] Traffic signal system improvements that apply to more than one agency
- [X] Includes improvements to coordination between arterial and freeway traffic operations
- [X] 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) 40

b. Enter the post-improvement average traffic speed of the corridor: 45

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 Tempe Traffic Management Center Upgrade
b. Lead Agency	City of Tempe
c. Other Partnering Agencies	

2. Project Type

Prioritize SMO Buckets for the funding application

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

3. Project Goals & Objectives

a. Project Goals	Improved visibility of real-time traffic conditions in and around Tempe via multiple data sources, including video detection and CCTV cameras.
b. Project Objectives	Replace outdated video wall displays and processors with modern systems for lower O&M costs and enhanced monitoring capabilities. Integrate multiple real-time data sources for complete situational awareness of traffic conditions. Upgrade communications infrastructure to support sharing of data with other Tempe departments while providing greater resiliency and disaster preparedness.

4. Project Information

a. Project location description	City of Tempe Traffic Management Center (TMC)

Note: a PDF file of a map must be submitted to MAG as an attachment.

b. Scope of the project	Remove existing video wall displays and processors, modify existing wall to accommodate new equipment and install new displays and processors. Integrate existing TMC subsystems to exchange information, produce more actionable data and improve operational effectiveness. Upgrade fiber optic communications between the TMC and the City of Tempe Data Center. Integrate video detection and CCTV camera sources within the City's enterprise video management system.

ITS Project Information

5. Identify Project Components in MAG Regional ITS Architecture

Service Area	Addressed in this Project? (Dropdown: Y/N)	Applicable ITS Service Packages
Traffic Management	Yes	ATMS01, ATMS03
Maintenance and Construction		
Public Transportation		
Traveler Information		
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.	-
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.	100%
Regional Priority Corridor Ranking (Enter shares of work in "Regional Priority - Top 100")	
Latest year of your agency's Operations/Management Center upgrade.	2008

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	**$ 743,084.00**			**100%**
Total	**$ 743,084.00**	**$ 44,916.00**	**$ 788,000.00**	**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)	3
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	$300,000
d. Estimated additional annual O & M funds required for features added by this project	$5,000
e. Estimated DATE from when required additional local O & M funds will be available	05/2022
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

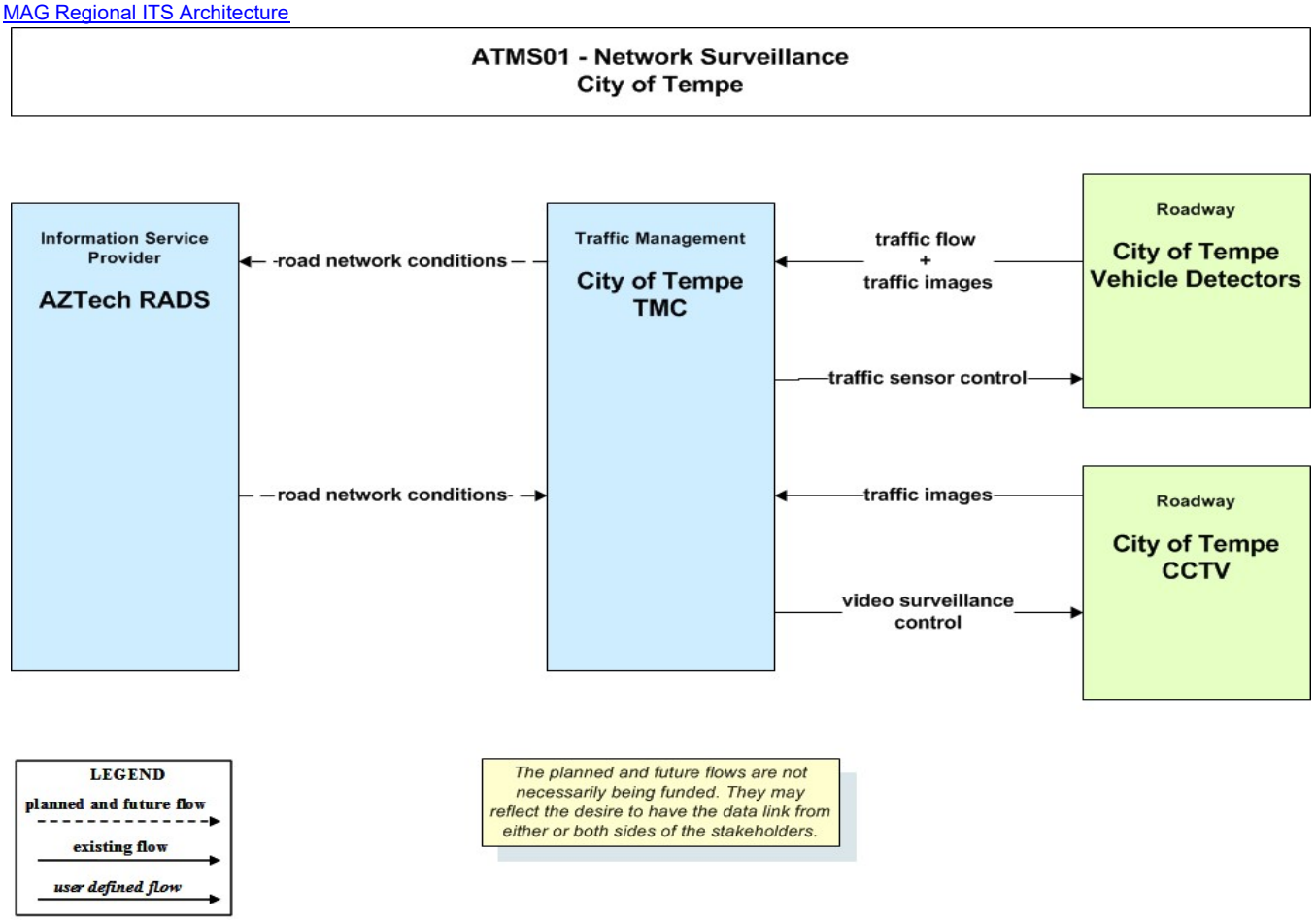
The project sponsor/lead agency of this application intends to incorporate the Systems Engineering Analysis in the project's scope of work, following guidance on the ADOT's System Engineering Checklist.	☑ Yes, the agency intents to follow the process.

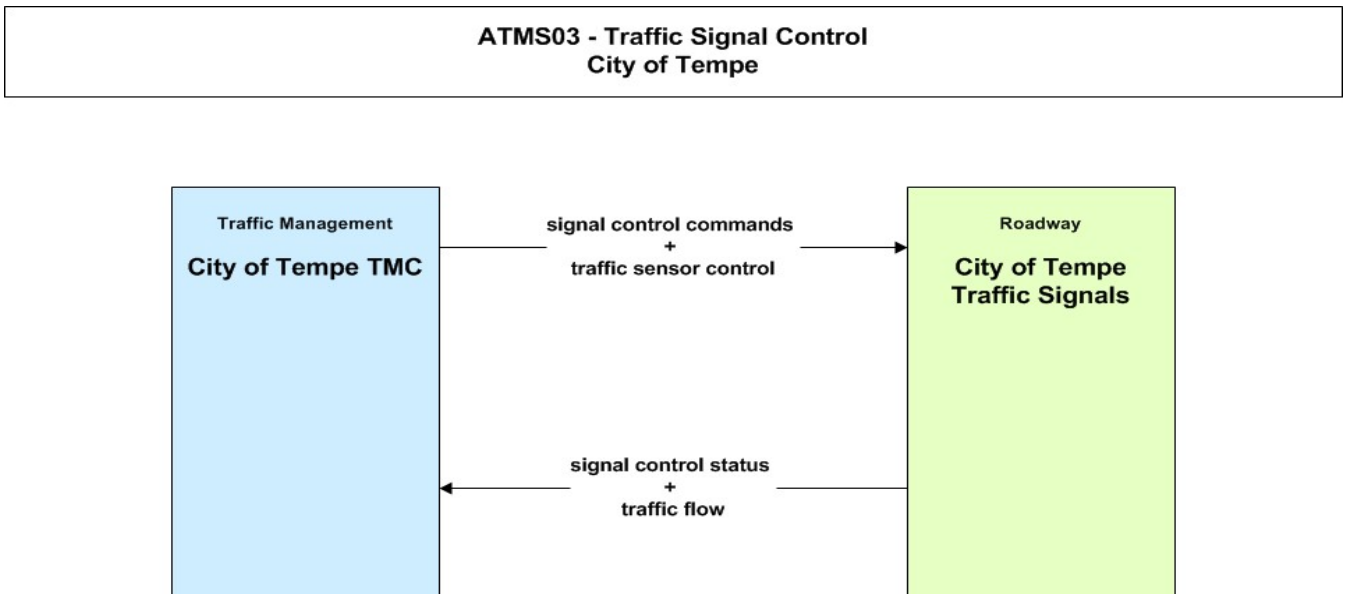
ITS Architecture Flow Diagram

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





PROJECT COST ESTIMATE WORKSHEET
(Cost Estimates Are Required Regardless of Programming)

	REQUESTED PROGRAMMING (Complete if Item will be programmed in the MAG TIP)	Location Description	**Citywide**							
		Work Description	**City of Tempe Traffic Management Center Upgrade**							
		Funding Source	**Local**							
		Preferred Year to Program Work	**2021**							
	COST ESTIMATE FOR DESIGN		**UNITS**	**QUANTITY**	**UNIT COST**	**TOTAL**	**USES FEDERAL AID**	**FEDERAL**	**LOCAL**
DESIGN	**PRELIMINARY ENGINEERING (15% plans) (Required for Budget)**	Topographic Survey	LS	1		$ -	No	-	-
		Project Assessment Report or Detailed Workplan	LS	1	2,000	$ 2,000.00	No	-	2,000
		Systems Engineering Analysis (must address FHWA requirements)	LS	1	1,000	$ 1,000.00	No	-	1,000
		Federal Project Environmental Determination	LS	1		$ -	No	-	-
		HAZMAT Assessment	LS	1	1,000	$ 1,000.00	No	-	1,000
		SUBTOTAL – PRELIMINARY ENGINEERING COSTS				**$ 4,000.00**		**-**	**4,000**
	FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Right-of-Way Acquisition	LS	1		$ -	No	-	-
		Plans, Specifications, Cost Estimates, Bidding	LS	1	20,000	$ 20,000.00	No	-	20,000
		Geotechnical Report	LS	1		$ -	No	-	-
		Drainage Report	LS	1		$ -	No	-	-
		SWPPP	LS	1	-	$ -	No	-	-
		SUBTOTAL – FINAL DESIGN COSTS				**$ 20,000.00**		**-**	**20,000**
	TOTAL PRELIMNARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING					**$ 24,000.00**		**-**	**24,000**
	REQUESTED PROGRAMMING	Location Description							
		Work Description							
		Funding Source	**CMAQ**						
		Preferred Year to Program Work	**2022**						
	COST ESTIMATE FOR PROCUREMENT		**UNITS**	**QUANTITY**	**UNIT COST**	**TOTAL**	**USES FEDERAL AID**	**FEDERAL**	**LOCAL**
PROCUREMENT	**PROCUREMENT COSTS**	Place for entering item #1	EA			$ -	Yes	-	-
		Place for entering item #2	EA			$ -	Yes	-	-
		Place for entering item #3	EA			$ -	Yes	-	-
		Place for entering item #4	EA			$ -	Yes	-	-
		Place for entering item #5	EA			$ -	Yes	-	-
		Place for entering item #6	EA			$ -	Yes	-	-
		Place for entering item #7	EA			$ -	Yes	-	-
		Place for entering item #8	EA			$ -	Yes	-	-
		Place for entering item #9	EA			$ -	Yes	-	-
		Place for entering item #10	EA			$ -	Yes	-	-
	TOTAL – PROCUREMENT					**$ -**		**-**	**-**
	REQUESTED PROGRAMMING (Complete only if Construction will be programmed in the MAG TIP)	Location Description							
		Work Description							
		Funding Source	**CMAQ**						
		Preferred Year to Program Work	**2022**						
	COST ESTIMATE FOR CONSTRUCTION		**UNITS**	**QUANTITY**	**UNIT COST**	**TOTAL**	**USES FEDERAL AID**	**FEDERAL**	**LOCAL**
CONSTRUCTION	**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 invloved are directly related to the transportation project. Generally, burying overhead utilities is cost prohibitive.	Relocate 69 kv (+) Poles	EA			$ -	Yes	-	-
		Relocate/Underground 12 kv lines	LF			$ -	Yes	-	-
		Relocate/Underground Irrigation Canal	LF			$ -	Yes	-	-
		SWG Relocations	LS			$ -	Yes	-	-
		Telephone/Cable TV Relocations	LS			$ -	Yes	-	-
		Upgrade Railroad Crossings	LS			$ -	Yes	-	-
		Other Utilities	LS			$ -	Yes	-	-
		Other Utilities	LS			$ -	Yes	-	-
		SUBTOTAL – UTILITY RELOCATION COSTS				**$ -**		-	-
	CONSTRUCTION (Required for Budget)	*Remove existing video wall/Install new LCD panels and processors*	*LS*	1	400,000	$ 400,000.00	Yes	377,200	22,800
		Data source integration	*LS*	1	100,000	$ 100,000.00	Yes	94,300	5,700
		Upgrade communications between TMC and Data Center	*LS*	1	100,000	$ 100,000.00	Yes	94,300	5,700
		Replicam VMS software and hardware upgrade	*LS*	1	100,000	$ 100,000.00	Yes	94,300	5,700
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
						$ -	Yes	-	-
				1		$ -	Yes	-	-
		SUBTOTAL - CONSTRUCTION COST				**$ 700,000.00**		**660,100**	**39,900**
	MOBILIZATION AND ADMINISTRATION COSTS	**CONTRACTOR MOBILIZATION (Typically 8% of construction cost)**				**$ 25,000.00**	Yes	23,575	1,425
		TRAFFIC CONTROL (0-8% of construction cost)				**$ -**	Yes	-	-
		CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)				**$ -**	Yes	-	-
		CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)				**$ 35,000.00**	Yes	33,005	1,995
		CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)				**$ 28,000.00**	Yes	26,404	1,596
		SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS				**$ 88,000.00**		**82,984**	**5,016**
	TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING					**$ 788,000.00**		**743,084**	**44,916**
	Please enter 'Yes' if your agency is certified accepted by ADOT for construction		No						
	ADOT REVIEW FEE		**AGENCY TYPE**	**RATE**	**HOURS**	**TOTAL**	**USES FEDERAL AID**	**FEDERAL**	**LOCAL**
ADOT REVIEW FEE		Contracts and Specs \ Advertise Project	Non CA	55	100	$ 5,500	No	-	5,500
		District \ Review Stage Submittals	Non CA	50	40	$ 2,000	No	-	2,000
		Environmental Planning \ Issue Clearance	All	50	40	$ 2,000	No	-	2,000
		Right of Way \ Issue Clearance	Non CA	55	24	$ 1,320	No	-	1,320
		Compliance Review\ Compliance Review	Non CA	175	40	$ 7,000	No	-	7,000
		Project Management Group\ Project Management	Non CA	120	100	$ 12,000	No	-	12,000
		Project Management Group\ Project Management	CA Only	120	60	$ -	No	-	-
		Utilities and Railroad Sections\ Issue Clearance	Non CA	50	24	$ 1,200	No	-	1,200
						$ 31,020		**-**	**31,020**
TOTAL COST ESTIMATE						**$ 843,020**		**743,084**	**99,936**

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	Citywide	City of Tempe Traffic Management Center Upgrade	2021	Local	$ -	$ 24,000	$ 24,000	100.0%
Construction	0	0	2022	CMAQ	$ 743,084	$ 44,916	$ 788,000	5.7%
Total Programmed					$ 743,084	$ 68,916	$ 812,000	8.5%
ADOT Design Review Fee					$ -	$ 31,020	$ 31,020	100.0%
Total Cost					$ 743,084	$ 99,936	$ 843,020	11.9%

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: Shelly A Seyler

Name: Shelly Seyler, P.E.

Title: Deputy Engineering and Transportation Director, Transportation Division

Date: September 11, 2019

City of Tempe Traffic Management Center Upgrade – Vicinity Map