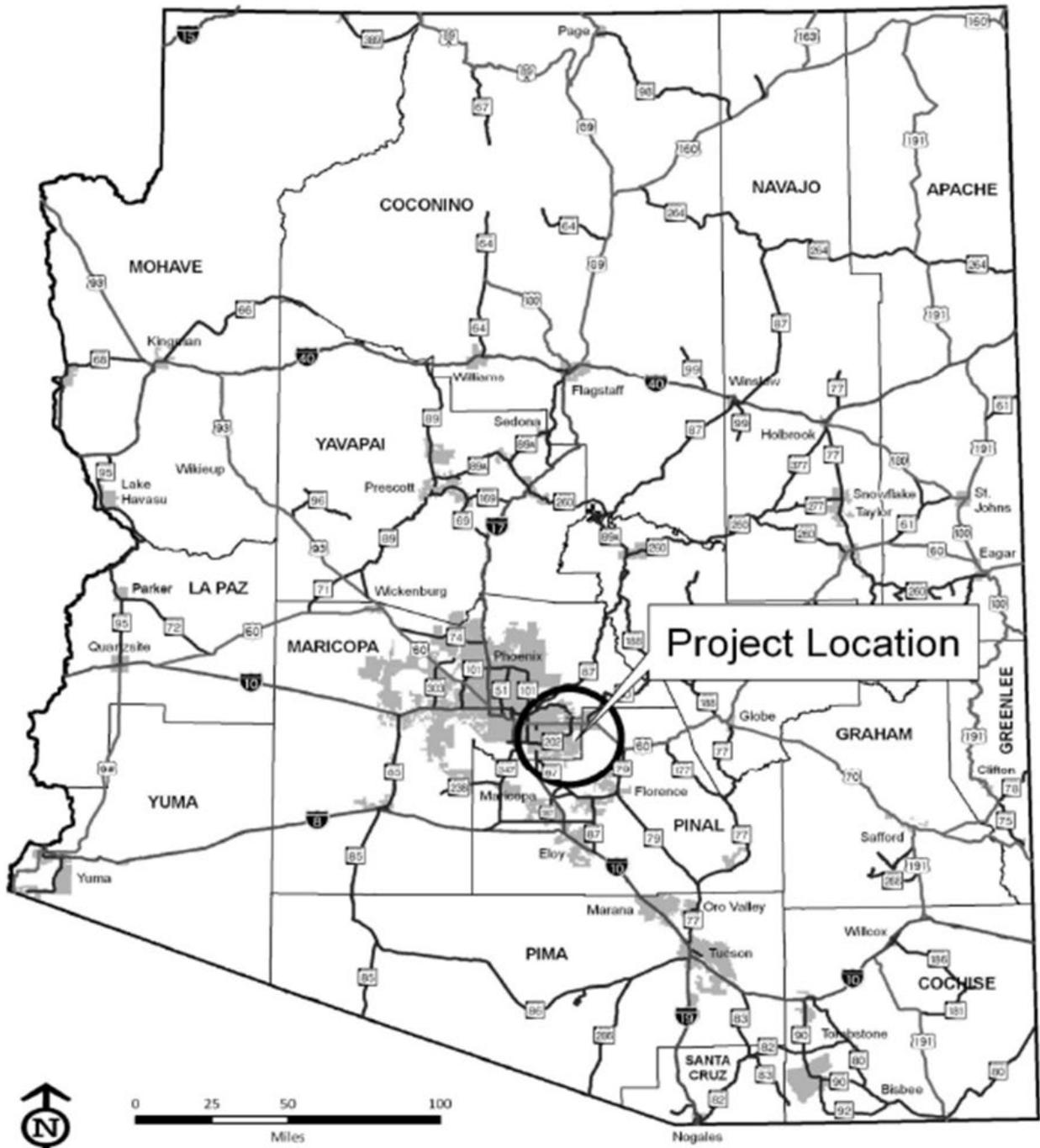


State Route 24 ITS Enhancements



Project Location Map

Contact Information	
1. Lead Agency	City of Mesa
2. Contact Name	Maria Angelica Deeb
3. Phone	480-644-2845
4. E-Mail Address	mariaangelica.deeb@mesaaz.gov
5. Mailing Address	PO BOX 1466, Mesa AZ 85211-1466

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:	83997
b. Please describe how the ADT was estimated:	<div style="border: 1px solid black; background-color: #e0f0e0; padding: 5px; min-height: 100px;"> ADT shown is the value for SR24 at Ellsworth (2040). The 2025 and 2040 AADT values for SR24 developed by CivilTech and presented in the SR24 DCR are shown in the next tab. </div>
c. When was the ADT estimate developed:	2017
d. Name of the roadway section used for the ADT estimate:	SR24 @ Ellsworth DCR
e. Starting limit of the roadway section:	Ellsworth
f. Ending limit of the roadway section:	Ironwood
g. Length (miles):	4.6
h. Total number of through lanes on the roadway section:	4
i. Federal Functional Classification of the roadway section:	Principal Arterial - Other Freeway/Expressway Link to ADOT Functional Classification Maps

CMAQ Data			
2. Improvements in Traffic Management & Operations			
a. Enter the pre-improvement (current) average corridor traffic speed:	<input style="width: 100px;" type="text" value="0"/>		
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 of	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)			
<input type="checkbox"/> Traffic signal system improvements at a single agency <input checked="" 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: (populated from #2a)	<input style="width: 100px;" type="text" value="0"/>		
b. Enter the post-improvement average traffic speed of the corridor:	<input style="width: 100px;" type="text" value="45"/>		

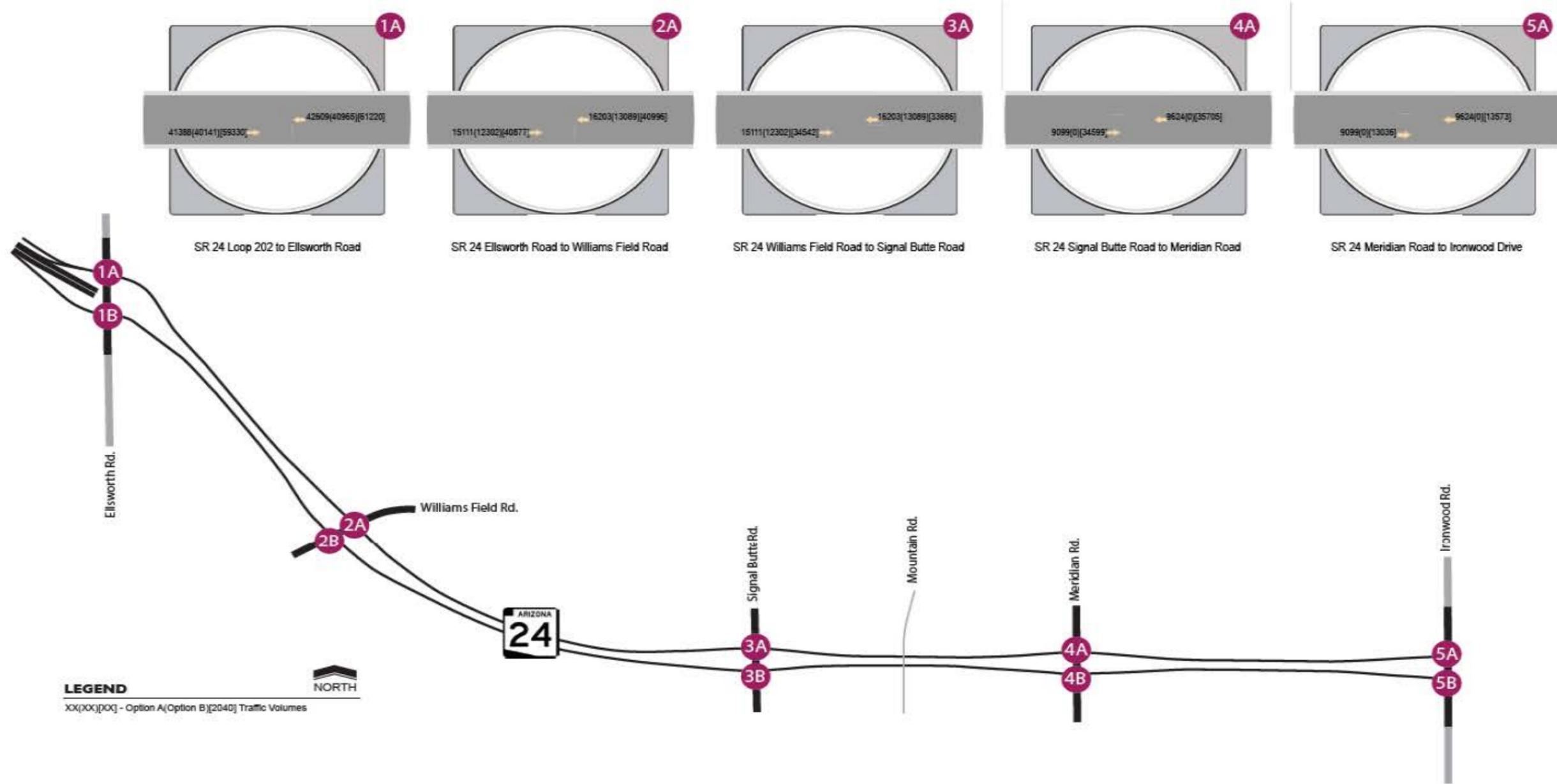


Figure 5: 2025 and 2040 AADT Volumes

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	SR 24 City of Mesa, Town of Queen, and ADOT ITS Enhancements
b. Lead Agency	City of Mesa
c. Other Partnering Agencies	ADOT, MAG, QC

2. Project Type

Prioritize SMO Buckets for the funding application

First Priority	Bucket #1 – ICM Corridors
Second Priority	Bucket #3 – Local Priority Corridors
Third Priority	(Please Select a Bucket)

3. Project Goals & Objectives

a. Project Goals	<ul style="list-style-type: none"> ▪ Support enhanced traffic management in the corridor. ▪ Promote the consistency of technology throughout the corridor ▪ Ensure that ITS elements are installed with the construction of the SR24 ▪ Ensure that affected Traffic Management Systems are upgraded appropriately to support traffic operations on the SR24 ▪ Ensure that local, regional and state ITS communications needs are addressed ▪ Ensure that the resulting projects will be compliant with the regional ITS architecture ▪ Enhance the availability of traveler information in the corridor
b. Project Objectives	<ul style="list-style-type: none"> ▪ Mesa/QC/ADOT joint application for SM&O funds would include funds to purchase and install: <p style="margin-left: 20px;">For Mesa:</p> <ul style="list-style-type: none"> • EVP at Williams Field Rd and Signal Butte Rd. • 4 - CCTV Cameras at Signal Butte Rd and at Williams Field • 2" dia quad-duct at Williams Field Rd and Signal Butte Rd. • 200 OM Fiber <p style="margin-left: 20px;">For QC:</p> <ul style="list-style-type: none"> • Pre-emption at Meridian and Ironwood • Quad-duct <p style="margin-left: 20px;">For ADOT:</p> <ul style="list-style-type: none"> • CCTV cameras at Meridian and Ironwood. ▪ Agencies request ADOT install fiber in at the appropriate interduct. ADOT’s contractor to install fiber with the SR 24 project.

ITS Project Information

4. Project Information

a. Project location description

The project limits for this project begins west of the existing, interim at-grade intersection of SR-24 at Ellsworth Road and extend east to Ironwood Drive, a distance of approximately 4.6 miles.

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

b. Scope of the project

This project focused on the implementation of the local and state ITS Framework for the 4.6-mile segment of the SR24 Corridor from Ellsworth Road to Ironwood Drived. SR24 will be constructed as an expressway. The interim posted speed from Ellsworth Road to Ironwood Drive will be 45 mph. Such implementation will be achieved by install with SR24 CCTV quipment, pre-emption and other misc. units needed at Signal Butte, Mountain Road, Williams Field Road, Meridian Road and Irownwood Drive.

Also, the project will fund the installation of fiber in one interduct and pull fiber with the SR 24 project to Signal Butte Road and other locations as needed.

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	ATMS01,03, 07, 08
Maintenance and Construction	No	
Public Transportation	No	
Traveler Information	No	
Emergency Management	No	
Archived Data Management	No	

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.	83,997
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.	2018

ITS Project Information				
7. Program Year Preference				
Preferred Program Year	2020			
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	\$ 77,044			9%
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				0%
11-Regional Asset Upgrade/Replace Program - ICM Corridors & Priority Arterials	\$ 785,084			91%
Total	\$ 862,128	\$ 52,112	\$ 914,240	100%
Cost Percentage	94.3%	5.7%		
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	\$ 862,128			100%
Total	\$ 862,128	\$ 52,112	\$ 914,240	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)	18 1/2
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	\$2.850M
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	07/2020

f. Other comments

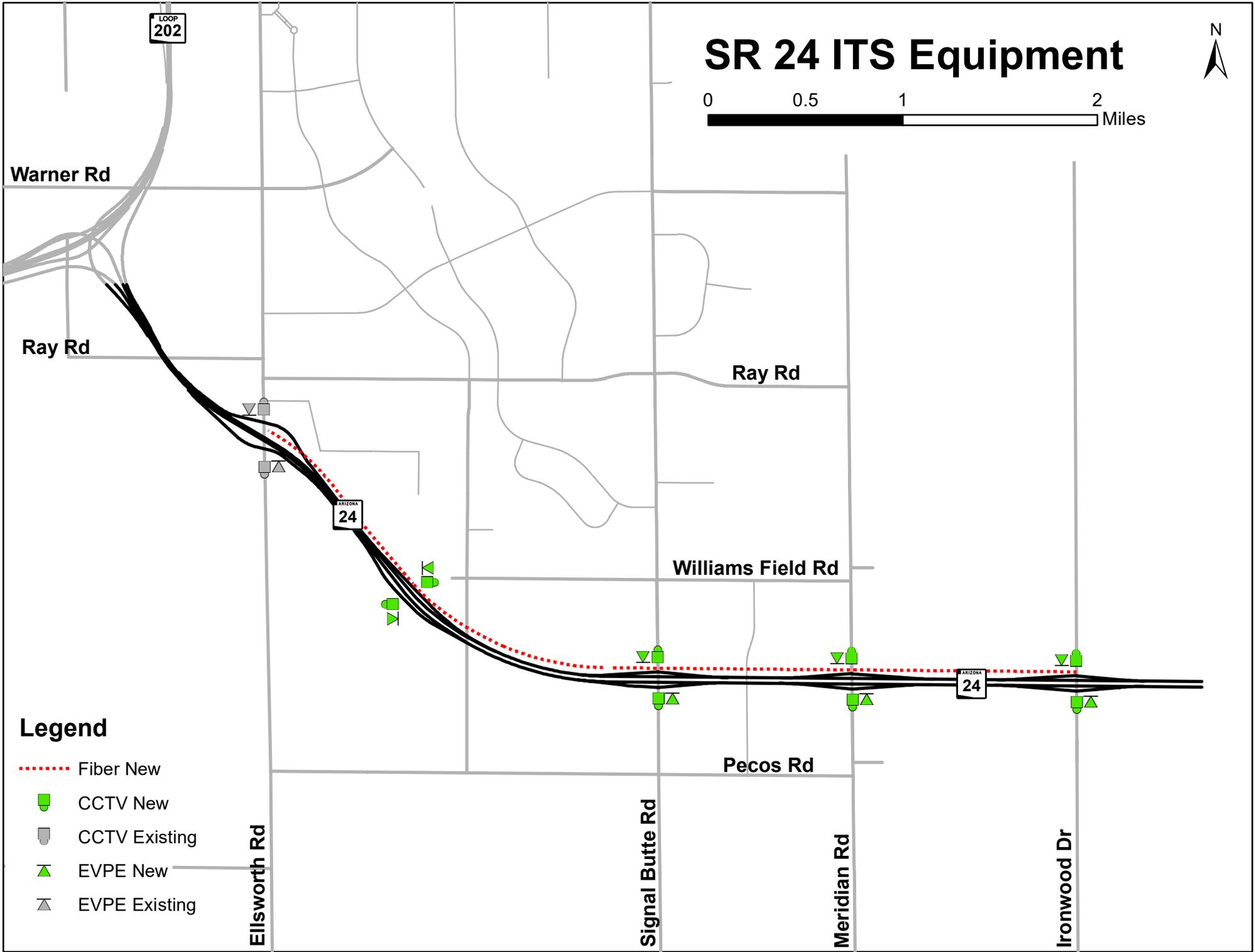
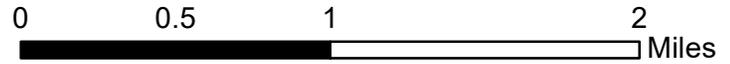
For the City of Mesa (COM), the curent available staff (FTEs) is 18; for the Town of Queen Creek (TOQC) 1/2. For COM the annual O&M budget is \$2.8M; for TOQC \$50K. ADOT is going to own, operate, manage and maintain SR24 and the traffic signals at Meridian and Ironwood Roads. Additional O&M funds and staff resources were accounted for with the construction of SR24 and it's FMS system. No additional FTE and O&M \$ are required by ADOT for this enhancement project. The ITS committe (9-4-19) recommended for approval the \$2.4M FMS system construction for SR24; such is expected to receive on 10/23/19 Regional Council approval and the TIP programming will be completed soon after.

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 project's scope of work, following guidance on the ADOT's System Engineering Checklist.</p>	<input checked="" type="checkbox"/> Yes, the agency intents to follow the process.
---	--

SR 24 ITS Equipment



Legend

- Fiber New
- CCTV New
- CCTV Existing
- ▲ EVPE New
- ▲ EVPE Existing

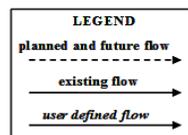
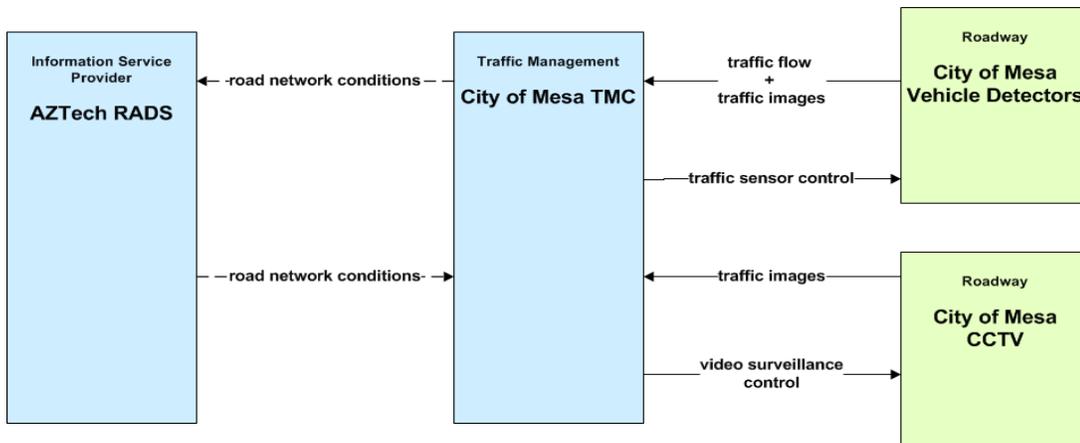
ITS Architecture Flow Diagram

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.

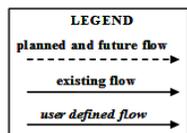
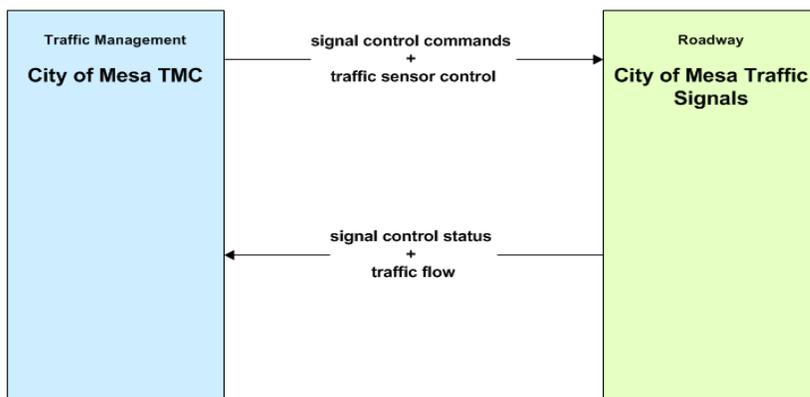
[MAG Regional ITS Architecture](#)

ATMS01 - Network Surveillance City of Mesa

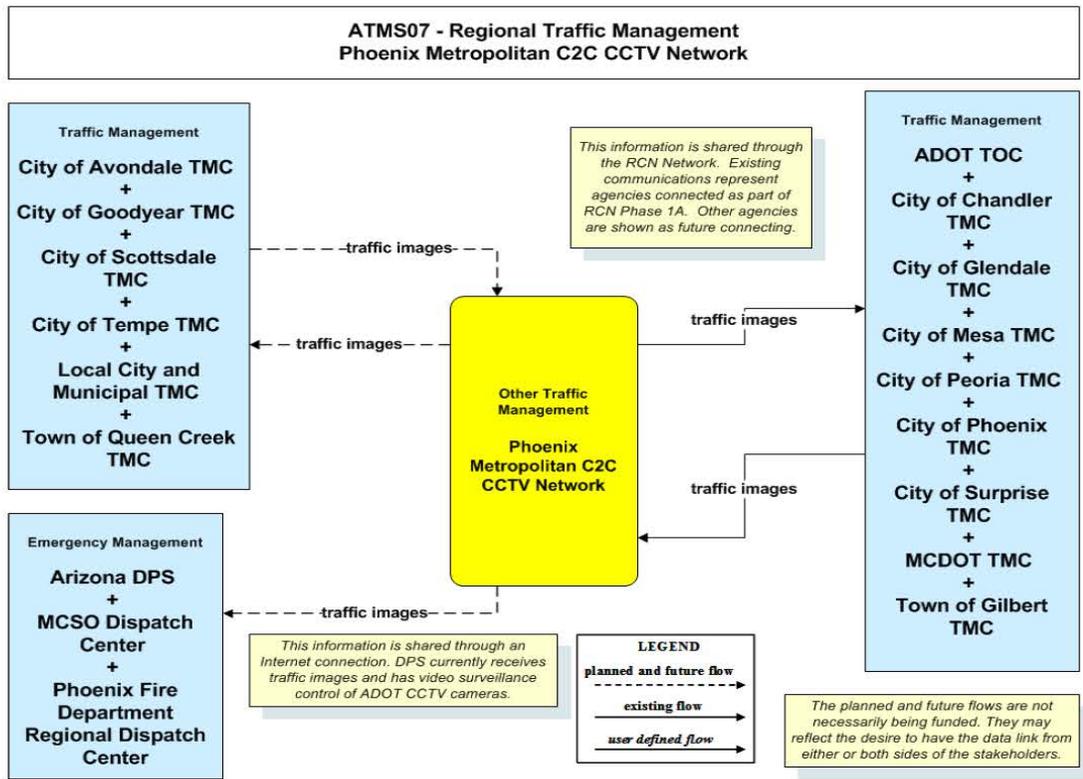


The planned and future flows are not necessarily being funded. They may reflect the desire to have the data link from either or both sides of the stakeholders.

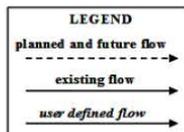
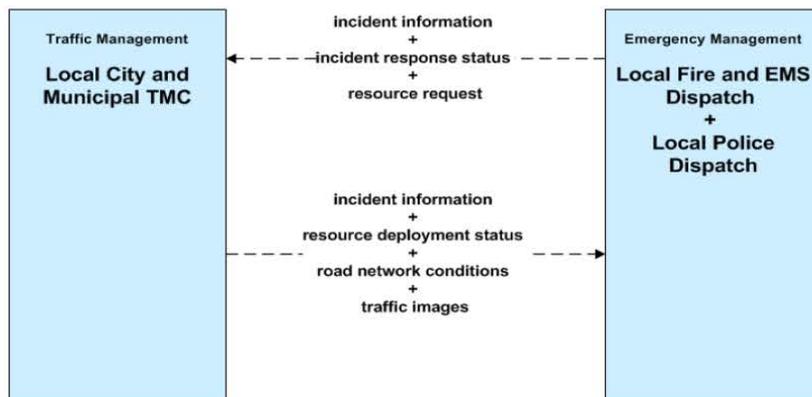
ATMS03 - Traffic Signal Control City of Mesa



ITS Architecture Flow Diagram



**ATMS08 - Traffic Incident Management System
Local Cities and Municipalities – Generic (TM to EM)**



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.

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

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								
		Work Description								
		Funding Source	Local							
		Preferred Year to Program Work	2020							
	COST ESTIMATE FOR DESIGN			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Topographic Survey	LS	1		\$ -	No	-	-	
		Project Assessment Report or Detailed Workplan	LS	1		\$ -	No	-	-	
		Systems Engineering Analysis (must address FHWA requirements)	LS	1		\$ -	No	-	-	
		Federal Project Environmental Determination	LS	1		\$ -	No	-	-	
		HAZMAT Assessment	LS	1		\$ -	No	-	-	
	SUBTOTAL – PRELIMINARY ENGINEERING COSTS					\$ -		-	-	
	FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Right-of-Way Acquisition	LS	1		\$ -	No	-	-	
		Plans, Specifications, Cost Estimates, Bidding	LS	1	60,831	\$ 60,831.00	No	-	60,831	
		Geotechnical Report	LS	1		\$ -	No	-	-	
		Drainage Report	LS	1		\$ -	No	-	-	
SWPPP		LS	1		\$ -	No	-	-		
SUBTOTAL – FINAL DESIGN COSTS					\$ 60,831.00		-	60,831		
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING					\$ 60,831.00		-	60,831		
PROCUREMENT	REQUESTED PROGRAMMING	Location Description								
		Work Description								
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
	COST ESTIMATE FOR PROCUREMENT			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PROCUREMENT COSTS	Place for entering item #1	L.FT.			\$ -	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	SR 24 City of Mesa, Town of Queen Creek, and ADOT ITS Enhancements							
		Work Description	Installation of ITS Enhancements, conduit, pull boxes, and fiber optic cabling							
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							

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)	Utility work	LS	1	78,520	\$ 78,520.00	Yes	74,044	4,476	
	Other Utilities	EA			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	Other Utilities	LS			\$ -	Yes	-	-	
	SUBTOTAL – UTILITY RELOCATION COSTS					\$ 78,520.00		74,044	4,476
	CONSTRUCTION (Required for Budget)	<i>Real time CCTV monitoring capabilities at an major-major arterial intersections on ICM corridors</i>	LS		77,044	\$ 77,044.00	Yes	72,652	4,392
<i>Regional Asset Upgrade/Replace Program - ICM Corridors & Priority Arterials</i>		LS		481,656	\$ 481,656.00	Yes	454,202	27,454	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
					\$ -	Yes	-	-	
SUBTOTAL - CONSTRUCTION COST					\$ 558,700.00		526,854	31,846	
MOBILIZATION AND ADMINISTRATION COSTS		CONTRACTOR MOBILIZATION (Typically 8% of construction cost)			44,696	\$ 44,696.00	Yes	42,148	2,548
	TRAFFIC CONTROL (0-8% of construction cost)			44,696	\$ 44,696.00	Yes	42,148	2,548	
	CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)			5,587	\$ 5,587.00	Yes	5,269	318	
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)			81,475	\$ 81,475.00	Yes	76,831	4,644	
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)			100,566	\$ 100,566.00	Yes	94,834	5,732	
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS					\$ 277,020.00		261,230	15,790	
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING					\$ 914,240.00		862,128	52,112	
ADOT REVIEW FEE	Please enter 'Yes' if your agency is certified accepted by ADOT for construction		Yes						
	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					\$ 984,271		862,128	122,143	

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								
		Work Description								
		Funding Source	Local							
		Preferred Year to Program Work	2020							
COST ESTIMATE FOR DESIGN			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Topographic Survey		LS	1		\$ -	No	-	-	
	Project Assessment Report or Detailed Workplan		LS	1		\$ -	No	-	-	
	Systems Engineering Analysis (must address FHWA requirements)		LS	1		\$ -	No	-	-	
	Federal Project Environmental Determination		LS	1		\$ -	No	-	-	
	HAZMAT Assessment		LS	1		\$ -	No	-	-	
	SUBTOTAL – PRELIMINARY ENGINEERING COSTS						\$ -		-	-
FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Right-of-Way Acquisition		LS	1		\$ -	No	-	-	
	Plans, Specifications, Cost Estimates, Bidding		LS	1	31,731	\$ 31,731.00	No	-	31,731	
	Geotechnical Report		LS	1		\$ -	No	-	-	
	Drainage Report		LS	1		\$ -	No	-	-	
	SWPPP		LS	1		\$ -	No	-	-	
SUBTOTAL – FINAL DESIGN COSTS						\$ 31,731.00		-	31,731	
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING						\$ 31,731.00		-	31,731	
PROCUREMENT	REQUESTED PROGRAMMING	Location Description								
		Work Description								
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
COST ESTIMATE FOR PROCUREMENT			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
PROCUREMENT COSTS	Place for entering item #1		L.FT.			\$ -	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	SR 24 Enhancements COM							
		Work Description	Installation of COM ITS Enhancements, conduit, pull boxes, and fiber optic cabling							
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
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 involved are directly related to the transportation project. Generally, burying overhead utilities is cost prohibitive.	CITY OF MESA FIBER OPTIC MANHOLE (COM STD 66.01.1)	EA	4	5,000	\$ 20,000.00	Yes	18,860	1,140	
		ABOVE GROUND COMMUNICATIONS STRUCTURE	EA	2	1,500	\$ 3,000.00	Yes	2,829	171	
		Misc work	LS	1	26,420	\$ 26,420.00	Yes	24,914	1,506	
		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						\$ 49,420.00		46,603
	CONSTRUCTION (Required for Budget)	ELECTRICAL CONDUIT (2")(PVC)	Lft	1,050	6	\$ 6,300.00	Yes	5,941	359	
		ELECTRICAL CONDUIT (4-2" QUAD DUCT)	Lft	2,700	50	\$ 135,000.00	Yes	127,305	7,695	
		PULL BOX (NO. 5)	EA	4	600	\$ 2,400.00	Yes	2,263	137	
		PULL BOX (NO. 7)(CITY OF MESA)	EA	2	1,000	\$ 2,000.00	Yes	1,886	114	
		SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	Lf	15,000	4	\$ 52,500.00	Yes	49,508	2,993	
		SINGLE MODE FIBER OPTIC CABLE (4 FIBER GATORPATCH)	Lf	1,250	4	\$ 5,000.00	Yes	4,715	285	
		FIBER OPTIC SPLICE CLOSURE	EA	3	1,500	\$ 4,500.00	Yes	4,244	257	
		EVP PRE-EMPT SENSORS	EA	10	800	\$ 8,000.00	Yes	7,544	456	
		CCTV FIELD EQUIPMENT	EA	4	6,000	\$ 24,000.00	Yes	22,632	1,368	
		PATCH PANELS IN CCTV CABINETS	EA	2	750	\$ 1,500.00	Yes	1,415	86	
		PULL BOXES	LS	1	3,500	\$ 3,500.00	Yes	3,301	200	
		FIBER OPTICS	LS	1	8,000	\$ 8,000.00	Yes	7,544	456	
		CABINETS	LS	1	15,000	\$ 15,000.00	Yes	14,145	855	
		Place for entering an additional item #9				\$ -	Yes	-	-	
	Place for entering an additional item #10				\$ -	Yes	-	-		
	SUBTOTAL - CONSTRUCTION COST						\$ 267,700.00		252,441	15,259
MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)				21,416	\$ 21,416.00	Yes	20,195	1,221	
	TRAFFIC CONTROL (0-8% of construction cost)				21,416	\$ 21,416.00	Yes	20,195	1,221	
	CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)				2,677	\$ 2,677.00	Yes	2,524	153	
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)				66,925	\$ 66,925.00	Yes	63,110	3,815	
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)				48,186	\$ 48,186.00	Yes	45,439	2,747	
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS						\$ 160,620.00		151,465	9,155	
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING						\$ 477,740.00		450,509	27,231	
ADOT REVIEW FEE	Please enter 'Yes' if your agency is certified accepted by ADOT for construction		Yes							
	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	-	-		
TOTAL COST ESTIMATE						\$ 518,671		450,509	68,162	

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

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								
		Work Description								
		Funding Source	Local							
		Preferred Year to Program Work	2020							
	COST ESTIMATE FOR DESIGN			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Topographic Survey	LS	1		\$ -	No	-	-	
		Project Assessment Report or Detailed Workplan	LS	1		\$ -	No	-	-	
		Systems Engineering Analysis (must address FHWA requirements)	LS	1		\$ -	No	-	-	
		Federal Project Environmental Determination	LS	1		\$ -	No	-	-	
		HAZMAT Assessment	LS	1		\$ -	No	-	-	
	SUBTOTAL – PRELIMINARY ENGINEERING COSTS					\$ -		-	-	
	FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Right-of-Way Acquisition	LS	1		\$ -	No	-	-	
		Plans, Specifications, Cost Estimates, Bidding	LS	1	23,167	\$ 23,166.78	No	-	23,167	
		Geotechnical Report	LS	1		\$ -	No	-	-	
		Drainage Report	LS	1		\$ -	No	-	-	
SWPPP		LS	1		\$ -	No	-	-		
SUBTOTAL – FINAL DESIGN COSTS					\$ 23,166.78		-	23,167		
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING					\$ 23,166.78		-	23,167		
PROCUREMENT	REQUESTED PROGRAMMING	Location Description								
		Work Description								
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
	COST ESTIMATE FOR PROCUREMENT			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PROCUREMENT COSTS	Place for entering item #1	L.FT.			\$ -	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	SR 24 Enhancements TOQC							
	Work Description	Installation of conduit, pull boxes, and fiber optic cabling							
	Funding Source	CMAQ							
	Preferred Year to Program Work	2020							
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.	Misc work	LS	1	29,100	\$ 29,100.00	Yes	27,441	1,659	
	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					\$ 29,100.00		27,441	1,659
	CONSTRUCTION (Required for Budget)	<i>ELECTRICAL CONDUIT (8-1 1/4" QUAD DUCTS)</i>	LF	3,600	50	\$ 180,000.00	Yes	169,740	10,260
<i>PULL BOX (NO. 9)(TOQC)</i>		EA	10	4,500	\$ 45,000.00	Yes	42,435	2,565	
<i>SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)</i>		LF	6,800	3	\$ 17,000.00	Yes	16,031	969	
<i>PRE-EMPT SENSORS</i>		EA	8	2,500	\$ 20,000.00	Yes	18,860	1,140	
<i>Example: Wireless Communication Link</i>					\$ -	Yes	-	-	
Place for entering an additional item #1					\$ -	Yes	-	-	
Place for entering an additional item #2					\$ -	Yes	-	-	
Place for entering an additional item #3					\$ -	Yes	-	-	
Place for entering an additional item #4					\$ -	Yes	-	-	
Place for entering an additional item #5					\$ -	Yes	-	-	
Place for entering an additional item #6					\$ -	Yes	-	-	
Place for entering an additional item #7					\$ -	Yes	-	-	
Place for entering an additional item #8					\$ -	Yes	-	-	
Place for entering an additional item #9					\$ -	Yes	-	-	
Place for entering an additional item #10					\$ -	Yes	-	-	
SUBTOTAL - CONSTRUCTION COST					\$ 262,000.00		247,066	14,934	
MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)			20,960	\$ 20,960.00	Yes	19,765	1,195	
	TRAFFIC CONTROL (0-8% of construction cost)			20,960	\$ 20,960.00	Yes	19,765	1,195	
	CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)			2,620	\$ 2,620.00	Yes	2,471	149	
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)			13,100	\$ 13,100.00	Yes	12,353	747	
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)			47,160	\$ 47,160.00	Yes	44,472	2,688	
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS					\$ 104,800.00		98,826	5,974	
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING					\$ 395,900.00		373,334	22,566	
ADOT REVIEW FEE	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
	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	
TOTAL COST ESTIMATE					\$ 450,087		373,334	76,753	

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								
		Work Description								
		Funding Source	Local							
		Preferred Year to Program Work	2020							
COST ESTIMATE FOR DESIGN			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Topographic Survey	LS	1		\$ -	No	-	-		
	Project Assessment Report or Detailed Workplan	LS	1		\$ -	No	-	-		
	Systems Engineering Analysis (must address FHWA requirements)	LS	1		\$ -	No	-	-		
	Federal Project Environmental Determination	LS	1		\$ -	No	-	-		
	HAZMAT Assessment	LS	1		\$ -	No	-	-		
	SUBTOTAL – PRELIMINARY ENGINEERING COSTS					\$ -		-	-	
FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Right-of-Way Acquisition	LS	1		\$ -	No	-	-		
	Plans, Specifications, Cost Estimates, Bidding	LS	1		\$ -	No	-	-		
	Geotechnical Report	LS	1		\$ -	No	-	-		
	Drainage Report	LS	1		\$ -	No	-	-		
	SWPPP	LS	1		\$ -	No	-	-		
SUBTOTAL – FINAL DESIGN COSTS					\$ -		-	-		
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING						\$ -		-	-	
PROCUREMENT	REQUESTED PROGRAMMING	Location Description								
		Work Description								
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
COST ESTIMATE FOR PROCUREMENT			UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL	
PROCUREMENT COSTS	Place for entering item #1	L.FT.			\$ -	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	SR 24 Enhancements by ADOT							
		Work Description	Installation of CCTV							
		Funding Source	CMAQ							
		Preferred Year to Program Work	2020							
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 involved 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)	CCTV FIELD EQUIPMENT	EA	4	6,000	\$ 24,000.00	Yes	22,632	1,368	
		PATCH PANELS IN CCTV CABINETS	EA	2	750	\$ 1,500.00	Yes	1,415	86	
		PULL BOXES	LS	1	3,500	\$ 3,500.00	Yes	3,301	200	
						\$ -	Yes	-	-	
		Example: Wireless Communication Link				\$ -	Yes	-	-	
		Place for entering an additional item #1				\$ -	Yes	-	-	
		Place for entering an additional item #2				\$ -	Yes	-	-	
		Place for entering an additional item #3				\$ -	Yes	-	-	
		Place for entering an additional item #4				\$ -	Yes	-	-	
		Place for entering an additional item #5				\$ -	Yes	-	-	
		Place for entering an additional item #6				\$ -	Yes	-	-	
		Place for entering an additional item #7				\$ -	Yes	-	-	
		Place for entering an additional item #8				\$ -	Yes	-	-	
		Place for entering an additional item #9				\$ -	Yes	-	-	
	Place for entering an additional item #10				\$ -	Yes	-	-		
	SUBTOTAL - CONSTRUCTION COST						\$ 29,000.00		27,347	1,653
MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)				2,320	\$ 2,320.00	Yes	2,188	132	
	TRAFFIC CONTROL (0-8% of construction cost)				2,320	\$ 2,320.00	Yes	2,188	132	
	CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)				290	\$ 290.00	Yes	273	17	
	CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)				1,450	\$ 1,450.00	Yes	1,367	83	
	CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)				5,220	\$ 5,220.00	Yes	4,922	298	
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS						\$ 11,600.00		10,939	661	
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING						\$ 40,600.00		38,286	2,314	
ADOT REVIEW FEE	Please enter 'Yes' if your agency is certified accepted by ADOT for construction		Yes							
	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	-	-		
TOTAL COST ESTIMATE						\$ 49,800		38,286	11,514	

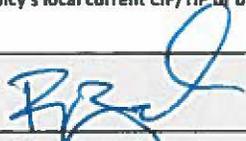
Budget and Signature Page

Phase	Location Description	Work Description	Year to be Programmed	Funding Source	Federal Amount	Local Amount	Total	Local Share
Procurement	0	0	2020	CMAQ	\$ -	\$ -	\$ -	0.0%
Design, excludes ADOT review fees	0	0	2020	Local	\$ -	\$ 60,831	\$ 60,831	100.0%
Construction	SR 24 City of Mesa, Town of Queen Creek, and ADOT ITS Enhancements	Installation of ITS Enhancements, conduit, pull boxes, and fiber optic cabling	2020	CMAQ	\$ 862,128	\$ 52,112	\$ 914,240	5.7%
Total Programmed					\$ 862,128	\$ 112,943	\$ 975,071	11.6%
ADOT Design Review Fee					\$ -	\$ 9,200	\$ 9,200	100.0%
Total Cost					\$ 862,128	\$ 122,143	\$ 984,271	12.4%

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:

R.J. Zeder

Title:

Transportation Department Director

Date:

9/12/19

Budget and Signature Page

Phase	Location Description	Work Description	Year to be Programmed	Funding Source	Federal Amount	Local Amount	Total	Local Share
Procurement	0	0	2020	CMAQ	\$ -	\$ -	\$ -	0.0%
Design, excludes ADOT review fees	0	0	2020	Local	\$ -	\$ 60,831	\$ 60,831	100.0%
Construction	SR 24 City of Mesa, Town of Queen Creek, and ADOT ITS Enhancements	Installation of ITS Enhancements, conduit, pull boxes, and fiber optic cabling	2020	CMAQ	\$ 862,128	\$ 52,112	\$ 914,240	5.7%
Total Programmed					\$ 862,128	\$ 112,943	\$ 975,071	11.6%
ADOT Design Review Fee					\$ -	\$ 9,200	\$ 9,200	100.0%
Total Cost					\$ 862,128	\$ 122,143	\$ 984,271	12.4%

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:

Title:

Date:

SR 24: Ellsworth Road to Ironwood Road
 COM TOQC ADOT ITS Enhancements from Ellsworth Road to Ironwood
 Prelim estimate for SM+O funds

Item	Quantity	Unit	Unit Cost	Total
ELECTRICAL CONDUIT (2")(PVC)	1,050	L.FT.	6.00	6,300.00
ELECTRICAL CONDUIT (4-2" QUAD DUCT)	2,700	L.FT.	50.00	135,000.00
PULL BOX (NO. 5)	4	EA	600.00	2,400.00
PULL BOX (NO. 7)(CITY OF MESA)	2	EA	1,000.00	2,000.00
SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	15,000	LF	3.50	52,500.00
SINGLE MODE FIBER OPTIC CABLE (4 FIBER GATORPATCH)	1,250	LF	4.00	5,000.00
FIBER OPTIC SPLICE CLOSURE	3	EA	1,500.00	4,500.00
EVP PRE-EMPT SENSORS	10	EA	800.00	8,000.00
CCTV FIELD EQUIPMENT	4	EA	6,000.00	24,000.00
CITY OF MESA FIBER OPTIC MANHOLE (COM STD 66.01.1)	4	EA	5,000.00	20,000.00
PATCH PANELS IN CCTV CABINETS	2	EA	750.00	1,500.00
ABOVE GROUND COMMUNICATIONS STRUCTURE	2	EA	1,500.00	3,000.00
SINGLE MODE FIBER OPTIC CABLE (4 FIBER GATORPATCH)	1	LS	5,000.00	\$ 3,500.00
FIBER OPTIC SPLICE CLOSURE	1	LS	8,000.00	\$ 8,000.00
EVP PRE-EMPT SENSORS	1	LS	15,000.00	\$ 15,000.00
ELECTRICAL CONDUIT (8-1 1/4" QUAD DUCTS)	3600	LF	50.00	180,000.00
PULL BOX (NO. 9)(TOQC)	10	EA	4,500.00	45,000.00
TOQC SINGLE MODE FIBER OPTIC CABLE (144 FIBERS)	6800	LF	2.50	17,000.00
PRE-EMPT SENSORS FOR TOQC	8	EA	2,500.00	20,000.00
ADOT CCTV FIELD EQUIPMENT	4	EA	6,000.00	24,000.00
PATCH PANELS IN CCTV CABINETS	2	EA	750.00	1,500.00
PULL BOXES	1	LS	3,500.00	3,500.00
			Subtotal 1:	581,700.00
Miscellaneous Work			10%	78,520.00
			Subtotal 2:	660,220.00
Design				44,362.00
CONTRACTOR MOBILIZATION (Typically 8% of construction cost)				44,696.00
TRAFFIC CONTROL (0-8% of construction cost)				44,696.00
CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)				5,587.00
CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)				81,475.00
CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)				100,566.00
			Subtotal 4:	981,602.00
			TOTAL:	984,271.00