

<b>Contact Information</b>	
1. Lead Agency	Maricopa County
2. Contact Name	April Wire
3. Phone	602-506-7174
4. E-Mail Address	april.wire@maricopa.gov
5. Mailing Address	2901 W. Durango Street, Phoenix, AZ 85009

<b>CMAQ Data</b>	
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.	
<b>Federal Funding Eligibility</b>	
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.	
<b>1. Traffic Estimate and Roadway Characteristics</b>	
a. Current Average Daily Traffic (ADT) on the facility or the nearest parallel facility of a similar facility type:	15,400
b. Please describe how the ADT was estimated:	Average reported ADT for each portion of the project was summed to get total ADT for entire project location. Average of 2015 ADT data reported in MAG 2015 Annual Average Weekday Traffic Volume Map for proposed project locations
c. When was the ADT estimate developed:	Estimate developed in 2019 using 2015 ADT data
d. Name of the roadway section used for the ADT estimate:	Broadway Road, Meridian Road, University Drive, Ellsworth Road, Brown Road
e. Starting limit of the roadway section:	The corridor limits include Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. On University Drive from 98th Street to Meridian Road then south to Southern Road on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.
f. Ending limit of the roadway section:	See above
g. Length (miles):	11
h. Total number of through lanes on the roadway section:	5
i. Federal Functional Classification of the roadway section:	Minor Arterial
	<a href="#">Link to ADOT Functional Classification Maps</a>

**CMAQ Data**

**2. Improvements in Traffic Management & Operations**

a. Enter the pre-improvement (current) average corridor traffic speed: 32

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
X	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
	Interconnected, pre-timed signals with various forms of master control and various qualities of	Optimization of signal timing plans. No change in hardware	12.0 percent
	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

NOTE: All ITS projects MUST involve eligible infrastructure improvements.

**3. Other Improvements (Check all that apply)**

- Traffic signal system improvements at a single agency
- Traffic signal system improvements that apply to more than one agency
- Includes improvements to coordination between arterial and freeway traffic operations
- Project conforms to local land use plans
- Adds features to traffic signals that would better accommodate seniors at pedestrian crossings

**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) 32

b. Enter the post-improvement average traffic speed of the corridor: 37

## 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	Broadway/University Communications Enhancement Project
b. Lead Agency	Maricopa County Department of Transportation (MCDOT)
c. Other Partnering Agencies	N/A

### 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	This project will connect and provide reliable communication for traffic signals and ITS devices to extend the real-time management capability along Broadway Road/University Drive and provide the ability to connect to ADOT communications at the Loop 202 Red Mountain Freeway in support of future ICM efforts. In future will also support traffic management coordination with City of Mesa.
b. Project Objectives	Construct 11 miles of new fiber optic infrastructure along the Broadway/University Corridor that can connect to ADOT and City of Mesa infrastructure and establish direct connection to the MCDOT TMC to support traffic, incident, and special event management.

### 4. Project Information

a. Project location description	The project on the Broadway/University Corridor runs for 11 miles and includes Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. Then on University Drive from 98th Street to Meridian Road then south to Southern Avenue on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.  Note: a PDF file of a map must be submitted to MAG as an attachment.
b. Scope of the project	Install conduit, fiber optic infrastrcuture, pull boxes, and ethernet switches along the 11-mile Broadway/University corridor.

**ITS Project Information**

**5. Identify Project Components in MAG Regional ITS Architecture**

Service Area	Addressed in this Project? (Dropdown: Y/N)	<a href="#">Applicable ITS Service Packages</a>
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.	15,400
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.	2019

**7. Program Year Preference**

Preferred Program Year

ITS Project Information				
<b>8. Project Budget by SMO Strategy</b>				
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				
<b>Total</b>				
<b>Cost Percentage</b>				
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				
<b>Total</b>				
<b>Cost Percentage</b>				
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	\$ 1,898,207.14			100%
<b>Total</b>	\$ 1,898,207.14			
<b>Cost Percentage</b>	67.4%	32.6%		

**ITS Project Information**

**9. System Maintenance and Operations**

a. Current staff resources available to support ITS operations at the local agency (in FTEs)	8
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	\$2,000,000
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	N/A

f. Other comments

Operations and maintenance of new infrastrcuture is accomodated by the current staff and funding resources available at MCDOT. No additional staff or funding will be needed.

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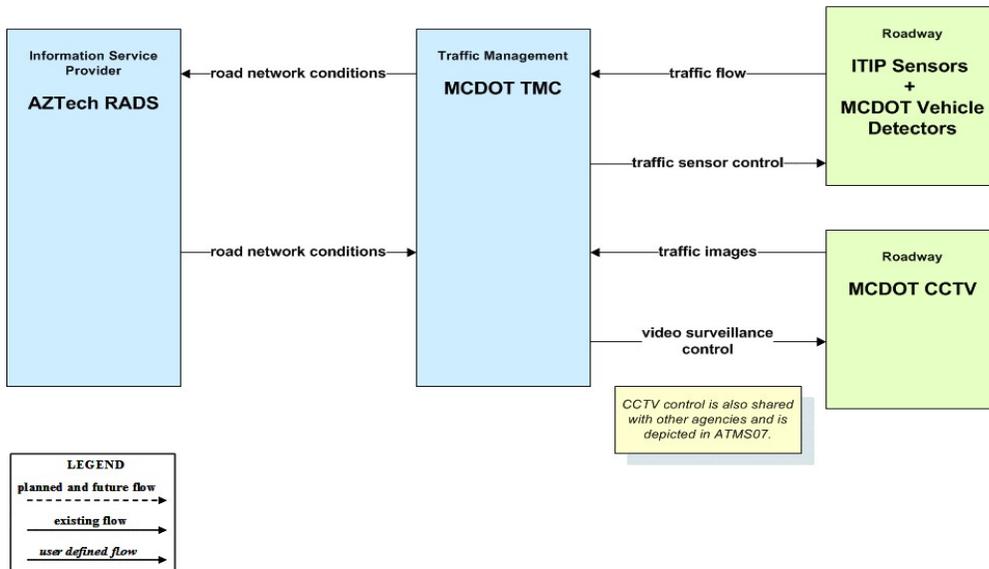
## ITS Architecture Flow Diagram

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.

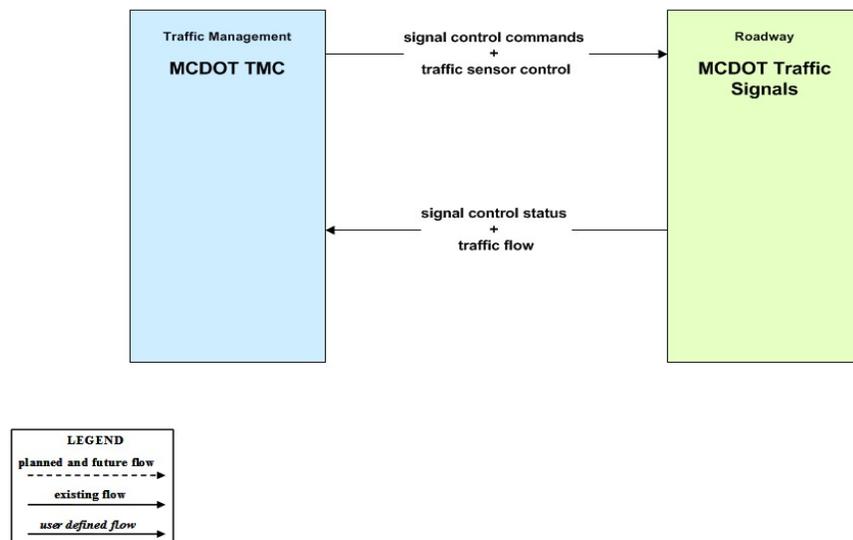
Find the relevant Service Packages addressed by the project in the MAG ITS Architecture (found in the link below). Copy and paste the graphic in the space provided.

[MAG Regional ITS Architecture](#)

### ATMS01 - Network Surveillance Maricopa County



### ATMS03 - Traffic Signal Control Maricopa County



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	The project on the Broadway/University Corridor runs for 11 miles and includes Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. Then on University Drive from 98th Street to Meridian Road then south to Southern Avenue on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.						
		Work Description	Install conduit, fiber optic infrastructure, pull boxes, and ethernet switches along the 11-mile Broadway/University corridor.						
		Funding Source Preferred Year to Program Work	Local						
	COST ESTIMATE FOR DESIGN		UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PRELIMINARY ENGINEERING (15% plans) (Required for Budget)	Preliminary Design (15% Plans)	LS	1	25,000	\$ 25,000.00	No	-	25,000
						\$ -	No	-	-
						\$ -	No	-	-
						\$ -	No	-	-
						\$ -	No	-	-
	SUBTOTAL - PRELIMINARY ENGINEERING COSTS					\$ 25,000.00	-	-	25,000
FINAL DESIGN (30, 60, 95, 100% plans) (Required for Budget)	Final Design (Plans, Specifications and Cost Estimate)	LS	1	225,000	\$ 225,000.00	No	-	225,000	
					\$ -	No	-	-	
					\$ -	No	-	-	
					\$ -	No	-	-	
					\$ -	No	-	-	
SUBTOTAL - FINAL DESIGN COSTS					\$ 225,000.00	-	-	225,000	
TOTAL PRELIMINARY ENGINEERING AND DESIGN COST AVAILABLE FOR PROGRAMMING					\$ 250,000.00	-	-	250,000	
PROCUREMENT	REQUESTED PROGRAMMING	Location Description							
		Work Description							
		Funding Source Preferred Year to Program Work							
	COST ESTIMATE FOR PROCUREMENT		UNITS	QUANTITY	UNIT COST	TOTAL	USES FEDERAL AID	FEDERAL	LOCAL
	PROCUREMENT COSTS					\$ -	Yes	-	-
						\$ -	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	The project on the Broadway/University Corridor runs for 11 miles and includes Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. Then on University Drive from 98th Street to Meridian Road then south to Southern Avenue on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.						
		Work Description	Install conduit, fiber optic infrastructure, pull boxes, and ethernet switches along the 11-mile Broadway/University corridor.						
		Funding Source Preferred Year to Program Work	CMAQ						
	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.					\$ -	Yes	-	-
						\$ -	Yes	-	-
						\$ -	Yes	-	-
						\$ -	Yes	-	-
						\$ -	Yes	-	-
						\$ -	Yes	-	-
					\$ -	Yes	-	-	
SUBTOTAL - UTILITY RELOCATION COSTS					\$ -	-	-	-	
CONSTRUCTION (Required for Budget)	4 Inch HDPE Fiber Optic Conduit (Directional Drill)	LF	55,250	25.00	\$ 1,381,250.00	Yes	1,302,519	78,731	
	Fiber Optic Cable (Single Mode 144)	LF	55,250	4.00	\$ 221,000.00	Yes	208,403	12,597	
	ITS Type A Pull Box	EA	25	2,000	\$ 50,000.00	No	47,150	2,850	
	ITS Type E Pull Box	EA	17	3,500	\$ 59,500.00	Yes	56,109	3,392	
	Fiber Optic Splice Closure	EA	17	1,500	\$ 25,500.00	Yes	24,047	1,454	
	Field Hardened Ethernet Switch (1G)	EA	14	4,800	\$ 67,200.00	Yes	63,370	3,830	
	Fiber Optic Equipment (Breakaway Connector System)	EA	17	1,500	\$ 25,500.00	Yes	24,047	1,454	
	Force Account Work (Remove and Salvage Wireless Equipment)	LSUM	1	182,995	\$ 182,995.00	Yes	172,564	10,431	
	SUBTOTAL - CONSTRUCTION COST					\$ 2,012,945.00	-	1,898,207	114,738
	MOBILIZATION AND ADMINISTRATION COSTS	CONTRACTOR MOBILIZATION (Typically 8% of construction cost)				161,036	\$ 161,035.60	No	-
TRAFFIC CONTROL (0-8% of construction cost)					161,036	\$ 161,035.60	No	-	161,036
CONSTRUCTION SURVEY & LAYOUT (Typically 1% of construction cost)					20,129	\$ 20,129.45	No	-	20,129
CONSTRUCTION CONTINGENCIES (Typically 5% of construction cost)					100,647	\$ 100,647.25	No	-	100,647
CONSTRUCTION ADMINISTRATION (Averaging 18% of construction cost)					362,330	\$ 362,330.10	No	-	362,330
SUBTOTAL - MOBILIZATION & ADMINISTRATION COSTS					\$ 805,178.00	-	-	805,178	
TOTAL UTILITIES, CONSTRUCTION AND MOBILIZATION FOR PROGRAMMING					\$ 2,818,123.00	-	1,898,207	919,916	
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					\$ 3,077,323	-	1,898,207	1,179,116	

**Budget and Signature Page**

Phase	Location Description	Work Description	Year to be Programmed	Funding Source	Federal Amount	Local Amount	Total	Local Share
<b>Design, excludes ADOT review fees</b>	The project on the Broadway/University Corridor runs for 11 miles and includes Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. Then on University Drive from 98th Street to Meridian Road then south to Southern Avenue on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.	Install conduit, fiber optic infrastructure, pull boxes, and ethernet switches along the 11-mile Broadway/University corridor.	2022	Local	\$ -	\$ 250,000	\$ 250,000	100.0%
<b>Construction</b>	The project on the Broadway/University Corridor runs for 11 miles and includes Brown Road from Signal Butte Road to Crismon Road then south of Crismon Road to University Drive. Then on University Drive from 98th Street to Meridian Road then south to Southern Avenue on Meridian Road. On Broadway Road from Meridian Road to Ellsworth Road then south to Southern Avenue on Ellsworth Road.	Install conduit, fiber optic infrastructure, pull boxes, and ethernet switches along the 11-mile Broadway/University corridor.	2022	CMAQ	\$ 1,898,207	\$ 919,916	\$ 2,818,123	32.6%
<b>Total Programmed</b>					\$ 1,898,207	\$ 1,169,916	\$ 3,068,123	38.1%
<b>ADOT Design Review Fee</b>					\$ -	\$ 9,200	\$ 9,200	100.0%
<b>Total Cost</b>					\$ 1,898,207	\$ 1,179,116	\$ 3,077,323	38.3%

**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.**

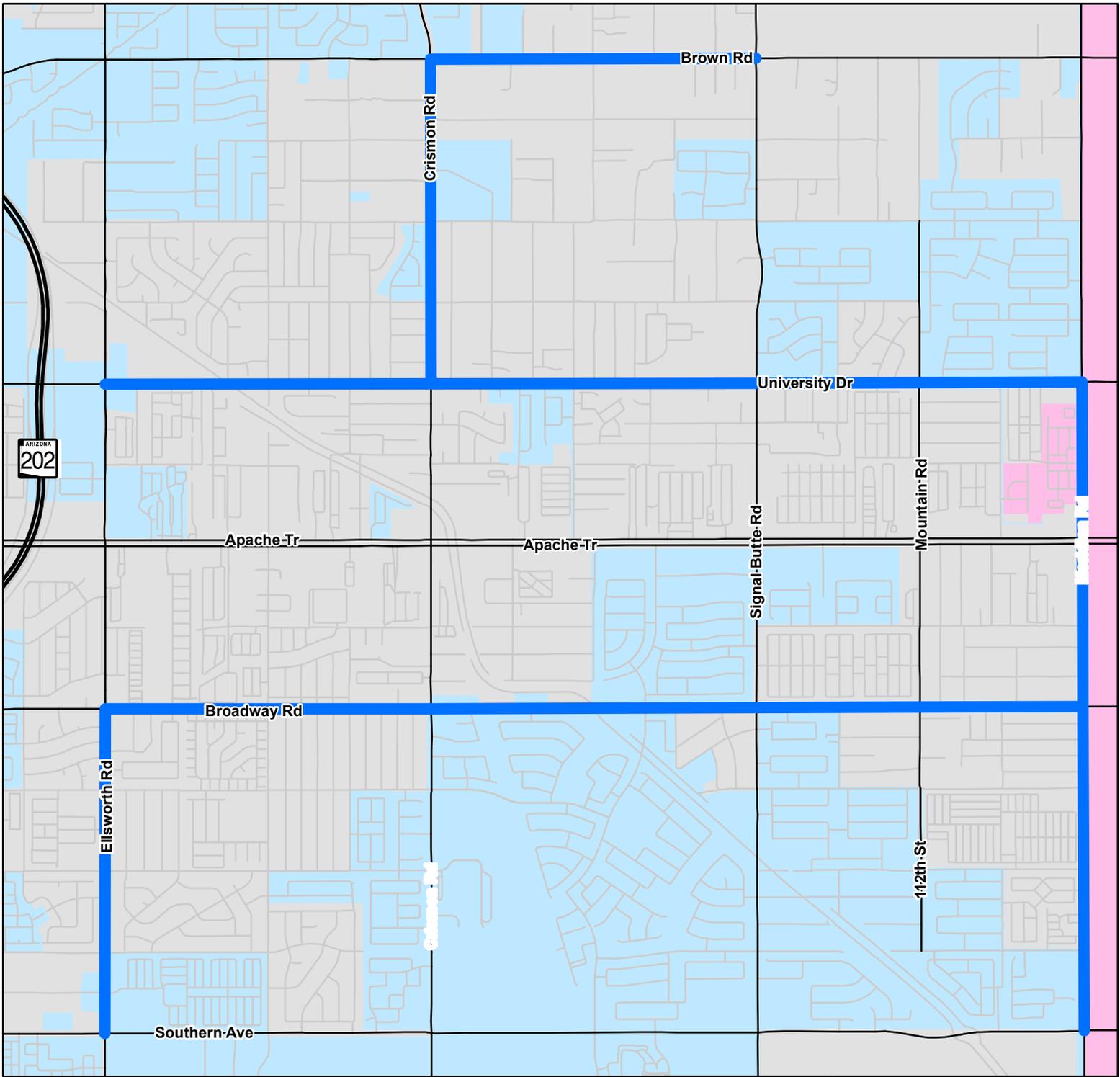
Signature:

Name: Nicolaas Swart, P.E

Title: Transportation Systems Management Division Manager

Date:

<b>CHECKLIST - OPTIONAL</b>	
This check list is optional, but is included to facilitate applicant review and verification that all required fields in the form have been completed.	
<b>Contact Information</b>	<b>Complete?</b>
Contact Information, fields 1 – 5	Yes
<b>CMAQ Data</b>	<b>Complete?</b>
1. Traffic Estimate and Roadway Characteristics: Fields a - i	Yes
2. Improvements in Traffic Management & Operations: Fields a - b	Yes
3. Other Improvements: As applicable	Yes
4. Traffic Flow Improvement Due to Project: Fields a - b	Yes
<b>ITS Project Information</b>	<b>Complete?</b>
Section 1 is complete	Yes
Section 2 is complete	Yes
Section 3 is complete	Yes
Section 4 is complete & a PDF file of map will be attached to the submittal to MAG	Yes
Section 5 is complete & all relevant Architecture Flow Diagrams have been inserted in the worksheet	Yes
Section 6 is complete	No
Section 7 is complete	Yes
Section 8 is complete	Yes
Section 9 is complete	Yes
Section 10 is complete	Yes
<b>ITS Architecture Flow Diagram</b>	<b>Complete?</b>
ITS Architecture Flow Diagram have been inserted	Yes
<b>Prproject Cost Estimate Worksheet</b>	<b>Complete?</b>
ITS Architecture Flow Diagram have been inserted	Yes
<b>Budget &amp; Signature Page</b>	<b>Complete?</b>
Form is signed	Yes
Name, title and date fields are completed	Yes



## Broadway/University Communications Enhancement Project Project Location Map

- |  |                       |   |
|--|-----------------------|---|
|  | FY2022 Proposed Fiber | <b>Jurisdictions</b>  |
|  | Freeways              |  Apache Junction |
|  | Arterials             |  Mesa            |
|  | Other Streets         |  Maricopa County |

