

INTELLIGENT TRANSPORTATION APPLICATION

General Instructions:

This Excel form is to be used to request federal Congestion Mitigation and Air Quality (CMAQ) funding available through the Maricopa Association of Governments (MAG) for Bicycle Projects to be included in the FY2014-FY 2018 MAG Transportation Improvement Program. Funding is available for Federal Fiscal Year (FFY) 2015, 2016 and 2017.

This application form includes:

- Part A - Contact and Project Description,
- PART B - ITS TIP Listing and CMAQ Score Data,
- PART C - ITS project Description,
- Part D - Checklist and Signature Page, and Transmittal Instructions and Schedule.

Each part is a separate tab of this excel file. Please complete Parts A - D. Alternative application forms are available upon request.

Deadlines and Transmittal Instructions:

Two copies of a printed, complete and signed application must be received in the MAG offices by **10:00 a.m. Wednesday, September 19, 2012**. The application is to be submitted electronically and should include ArcGIS shape files depicting the project location if they are available.

Detailed transmittal instructions are located in a separate tab in this excel sheet. Late applications will not be accepted.

If member agencies need additional information or have questions, they should contact Teri Kennedy or Stephen Tate at (602) 254-6300 or contact them by e-mail at the following addresses:

<mailto:state@azmag.gov>
<mailto:tkennedy@azmag.gov>
<mailto:LLuo@azmag.gov>

All information is required, unless noted by the word - Optional.

PART A - CONTACT AND PROJECT DESCRIPTION

Contact Information	
1. Sponsoring Agency	City of Tempe
2. Contact Name	Catherine Hollow
3. Phone	(480) 350-8445
4. E-Mail Address	catherine_hollow@tempe.gov
5. Mailing Address	City of Tempe 200 E. Fifth St, 3rd floor, Tempe, AZ 85281

(OPTIONAL)

If the applicant will be providing a GIS coverage (shapefile or geodatabase), please see the tab labeled "GIS Transmittal Instructions)

GIS Submittal Instructions

ITS Application from City of Tempe for 'Fiber Optic Interconnection at Broadway/I-10 and Rio Salado/Loop101'

PART B-ITS TIP Listing and CMAQ Score Data

This part of the form identifies data to calculate an CMAQ Score and provide 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 in the 8-Hour Ozone Nonattainment Area. Please use the following link to verify that the map is located in the nonattainment area:

[Link to an 8-Hr Ozone Nonattainment Map on the MAG Website](#)

1. Traffic Estimate and Roadway Characteristics

a. Current Average Daily Traffic (ADT) on the Facility or the Nearest Parallel Facility of a Similar Type:

b. Please Describe how the ADT was estimated:

c. When was the ADT estimate developed:

d. Name of the Roadway Section Used for the ADT Estimate:

e. Starting Limit of the Roadway Section:

f. Ending Limit of the Roadway Section:

g. Length (Miles)

h. Total Number of Through Lanes on the Roadway Section:

i. Federal Functional Classification of the Roadway Section:

[Link to Functional Classification Map on the MAG Website](#)

2. Traffic Coordination Improvements. If the project improves traffic signal coordination, please do the following:

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

b. In the Table Check the Box in The Row That Best Describes the Project (Check Only One Box):

	Before (Pre-Improvement) Condition	After (Post Improvement) Condition	Expected Increase in Speed
<input type="checkbox"/>	Interconnected, pre-timed signals with old timing plan	Advanced computer-based control	17.5 percent
<input checked="" type="checkbox"/>	Non-interconnected signals with traffic-actuated controllers	Advanced computer-based control	16.0 percent
<input type="checkbox"/>	Interconnected, pre-timed signals with actively managed timing	Advanced computer-based control	8.0 percent
<input type="checkbox"/>	Interconnected, pre-timed signals with various forms of master control and various qualities of timing plans	Optimization of signal timing plans. No change in hardware	12.0 percent
<input type="checkbox"/>	Non-interconnected, pre-timed signals with old timing plan	Optimization of Signal Timing Plans	7.5 percent

3. Other Improvements. Check all that apply:

- Includes Traffic Signal Improvements for a Single Agency
- Includes Traffic Signal Improvements that Apply to More than One Agency
- Includes FMS Improvements
- The Project Conforms to Local Land Use Plans
- Adds Traffic Signals that increase pedestrian crossing time for seniors

4. Traffic Speed Impacts of the Project (Not required for Traffic Coordination Improvements)

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

b. Enter the post-improvement (current) traffic speed of the traffic corridor:

PART C-ITS project Description

Please enter project data ONLY in highlighted cells, save the file with the lead agency name in it - ie. City 0 ITS Projects.xls
 Submit this Excel workbook to MAG via email to: lluo@azmag.gov
 Please use one worksheet per project, with the tab at the bottom indicating agency priority -- Mesa1, Mesa2,.. etc.
 Links to various websites are provided for additional information and help
 The worksheet titled "Example" shows an example on how to enter Data in the highlighted areas

Please enter required information in highlighted cells

A. Project Title & Sponsor

Lead Agency	City of Tempe
Other Partnering Agencies	
ITS Project Title:	Fiber Optic Interconnection at Broadway/I-10 and Rio Salado/Loop101
Project Category:	Integrated Corridor Mgmt

B. Project Goals & Objectives

<p>Project Goals: To provide the City with a reliable communications network to be able to view, monitor, and actively manage traffic conditions both on the arterial streets and at the freeway ramp intersections to reduce delay and improve traffic flow.</p>
<p>Objectives: 1) To provide communication link to the ramps intersections (3) at the Broadway and I-10 interchange and at Rio Salado/ Loop 101 ramp intersections with fiber and wireless connections. This will complete the City's fiber backbone rings provided through ADOT's freeway system fiber. 2) To install wireless communication along 48th St on the City's western boundary. 48th St provides access to Diablo Stadium and communications and cameras will allow remote signal control during special events. 3) To install DSL copper communications along Rio Salado Pkwy and McClintock Dr in an area adjacent to a major freeway Interchange and Tempe Marketplace 4) To provide CCTV cameras at McClintock and Rio Salado and all 22 interchanges within Tempe to provide "eyes on the road" to actively manage signal timing and traffic flows. The cameras will support ICM efforts to manage arterial signals during freeway incidents.</p>

C. Project Information

<p>Project Location: The project is located at various locations throughout the City including Broadway Rd at I-10 (including Ramp K, Ramp C and Ramp L/52nd) Rio Salado and Loop 101, and the remaining interchanges within the City along I-10, Loop 202, Loop 101, and US 60. In addition, the project includes four intersections along 48th St including Broadway Rd, Cotton Center, Alameda, and Southern and four intersections along Rio Salado Pkwy at Pery, Smith, and McClintock Dr and McClintock Dr and Tempe Marketplace.</p>
<p>Scope of the project: The project will install new conduit and make use of existing conduit to provide fiber connection from ADOT's node 12 building to the signals at Broadway and Ramp K and Broadway and 48th St, and 48th St and Ramp C. Wireless radios will be installed at Broadway and Ramp L, 48th and Cotton Center, 48th and Alameda, and 48th and Southern. High speed DSL copper communications will be installed along Rio Salado and McClintock. Communications devices to be installed include fiber optic cable, pull boxes, splice closure, patch panels, fiber optics jumper cables, VDSL switches, and ethernet switches. The project also includes procuring and installing 22 CCTV cameras for each interchange intersection in Tempe.</p>

D. Identify Components in MAG Regional ITS Architecture

ITS applications	Relevant Applications (ENTER: Yes or No)	Applicable ITS Market Packages http://www.azmag.gov/ITS/	Note: Please attach the Architecture Flow Diagram in the application
1. Traffic Management	Yes	ATMS01	
2. Transit Operations Support			
3. Communications	Yes	ATMS03	
4. Traveler Information			
5. Archived Data Management			
6. ITS for Safety			
7. ITS Plans			
8. Freeway-Arterial Operations	Yes	ATMS08	

E. Program Year Preference

First Choice FY2015 FY2016 FY2017
 Second Choice FY2015 FY2016 FY2017
 Third Choice FY2015 FY2016 FY2017

F. Project Budget

	Federal Cost	Local Match (min 5.7%)	Total Cost
Amount	\$287,751.00	\$17,394.00	\$305,145.00
Cost percentage	94.3%	5.7%	

G. Project Schedule

The table below is provided as a tool to assist local agencies develop a project planning schedule. Column A shows standard project milestones and Column B shows the schedule based on a typical project procurement process. To generate a custom Project Schedule:(1) select applicable milestones in Column C;(2) Enter estimated time to complete milestone measured in months from project development start date in Column D; NOTE: The project obligation date generated in cell E111 MUST occur before Sept 15th of the programmed fiscal year. Determine the appropriate Project Activity Start Date (by trial-and-error) in order to obligate the project on time.

Standard Project Milestones	Default Schedule for Process	Applicable Milestones (ENTER - Yes OR No)	Estimated Time to Milestone (ENTER #Months)	Estimated Date
Apply for ADOT project number				Oct-2014
Receipt of ADOT project number	Dec-2014	yes	1	Nov-2014
Initial DCR	Jan-2015	no		NA
Final DCR	Feb-2015	no		NA
30% Preliminary Plans, Cost Estimate and Report	Apr-2015	yes	2	Dec-2014
60% Preliminary Plans, Cost Estimate and Report	Jun-2015	yes	3	Jan-2015
Final Preliminary Plans, Cost Estimate and Report	Aug-2015	yes	5	Mar-2015
Environmental Clearance	Jun-2015	yes	1	Nov-2014
Utility Clearance	Jul-2015	yes	1	Nov-2014
Right-of-Way Clearance	Apr-2015	yes	1	Nov-2014
Approval of IGA	Oct-2015	no		NA
Obligation authority of Federal funds	Nov-2015	yes	7	May-2015
Advertised Date	Jan-2016	yes	6	Nov-2015
Final Deployment	Jul-2016			NA

< ENTER mm/yyyy – Project Activity S

H. System Maintenance and Operations

Current staff resources available for ITS operations at the local	2
Additional staff resources required for fully utilizing features added by	0
Estimated current annual ITS operations & maintenance budget	\$225,000
Estimated additional annual operations & maintenance funds required	\$10,000
Estimated DATE from when required additional O&M funds will be	Jul-2016

Other comments:

I. Systems Engineering Analysis Requirement

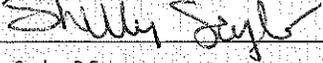
Commitment to address the federal requirement for Systems Engineering Analysis:

Agency's intent to follow the process described in the 'V' diagram during the project development process

The City of Tempe commits to completing the Systems Engineering Analysis for this project. Details on the ADOT System Engineering Checklist can be found at:
<http://www.azdot.gov/Highways/TTG/PDF/SystemsEngineeringChecklist.pdf>

PART D - SIGNATURE AND CHECKLIST

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

Signature: 

Name: Shelly Seyler, P.E.

Title: Deputy Public Works Director - Traffic Engineering and Operations Division

Date: September 18, 2012

WILL FILL OUT AFTER QUESTIONS APPROVED.

Checklist - OPTIONAL

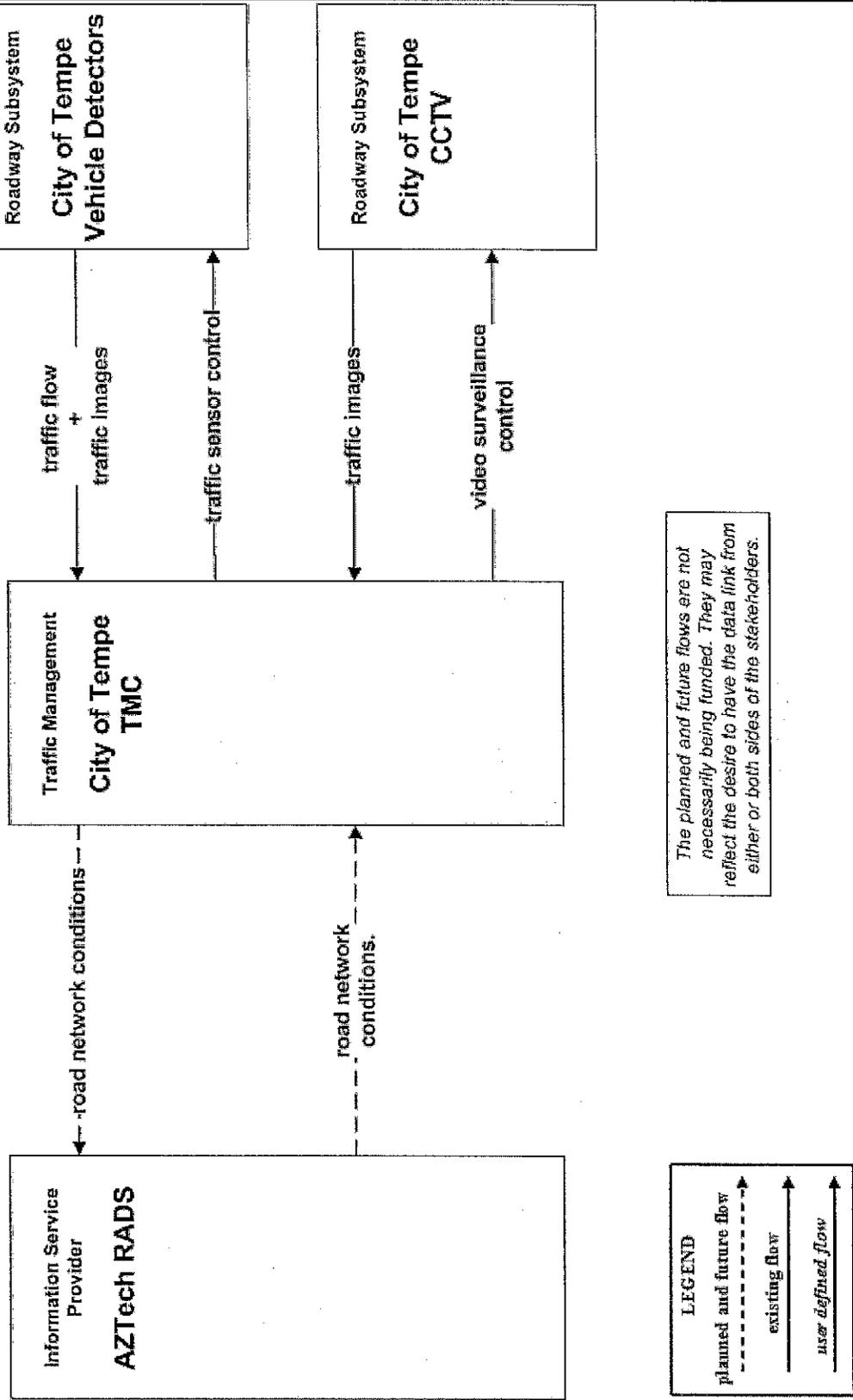
This check list is optional, but is included to facilitate applicant review and verification that all required fields in the form have been completed.

PART A - Contacts and Project Description Fields	Complete?
Contact Information, fields 1 – 5 are complete	Yes
PART B - TIP Listing and CMAQ Score Data	Complete?
1. Traffic Estimate and Roadway Characteristics - Fields a - I are complete	
2. Traffic Coordination Improvements - as applicable table is complete	Yes
3. Other Improvements - As applicable all fields are completed	Yes
PART C - Total Project Schedule and Budget Including All Segment Fields	Complete?
Section A is Complete	Yes
Section B is Complete	Yes
Section C is Complete	Yes
Section D is Complete	Yes
Section E is Complete	Yes
Section F is Complete	Yes
Section G is Complete	Yes
Section H is Complete	Yes
Section I is Complete	Yes
PART D - Signature Page Fields	Complete?
Form is signed	Yes
Name, title and date fields are completed.	Yes

ITS Application from City of Tempe for Fiber Optic Interconnection at Broadway/I-10 and Rio Salado/Loop101

All Market Packages Market Packages by Stakeholder Send Your Comments (ATMS01-13)

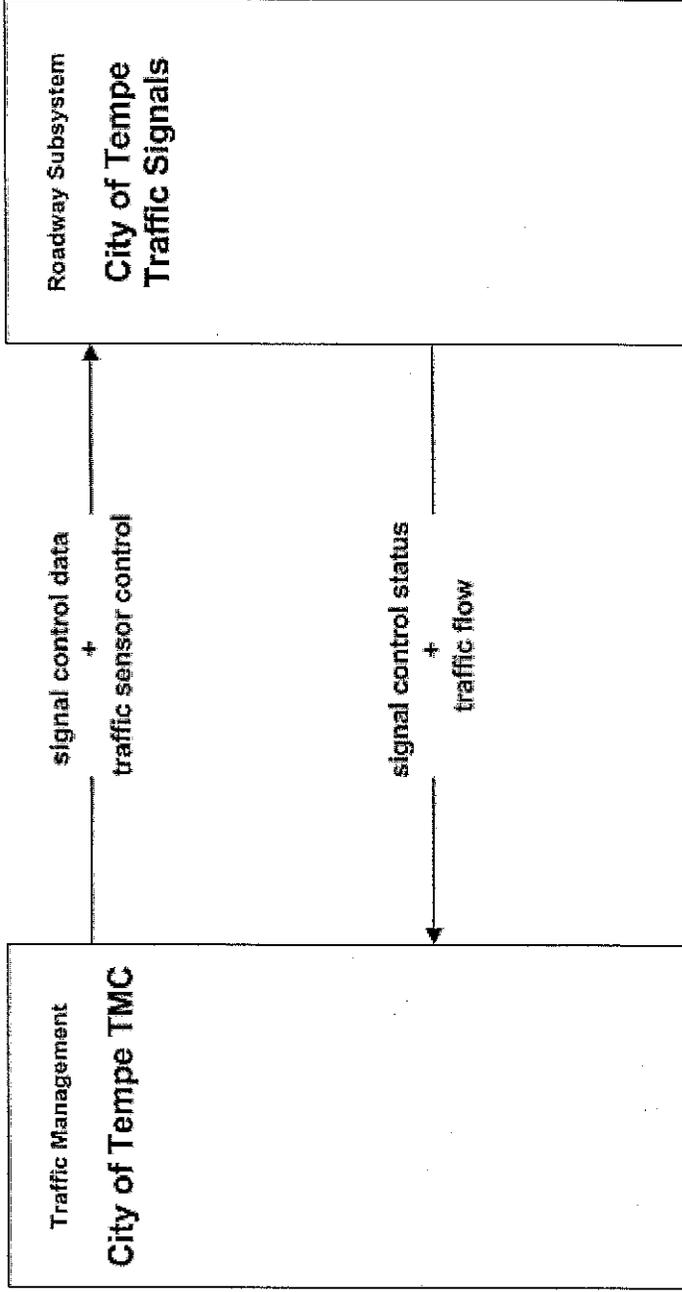
ATMS01 - Network Surveillance City of Tempe



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.

LEGEND
 planned and future flow
 existing flow
 user defined flow

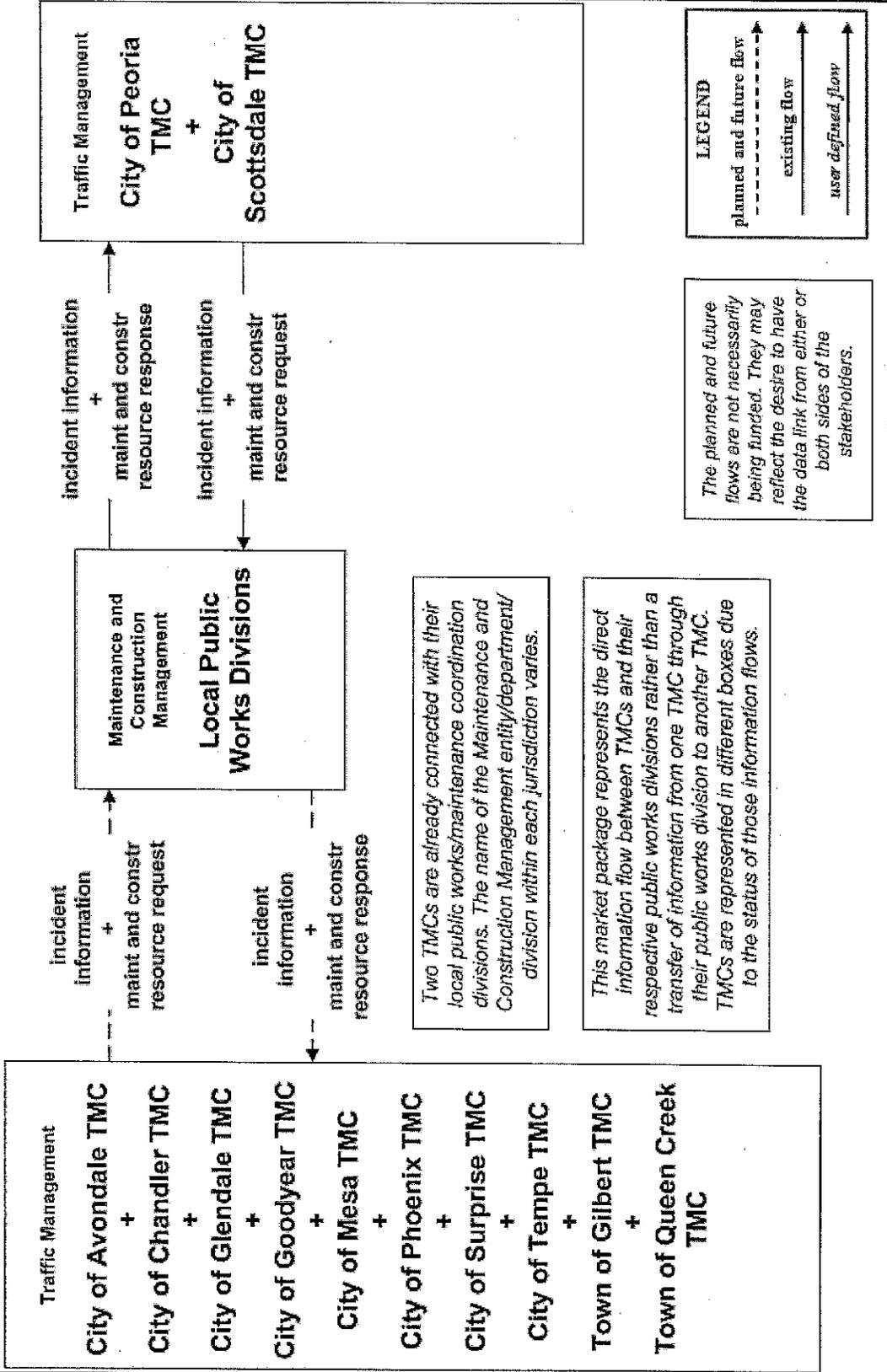
ATMS03 - Surface Street Control City of Tempe



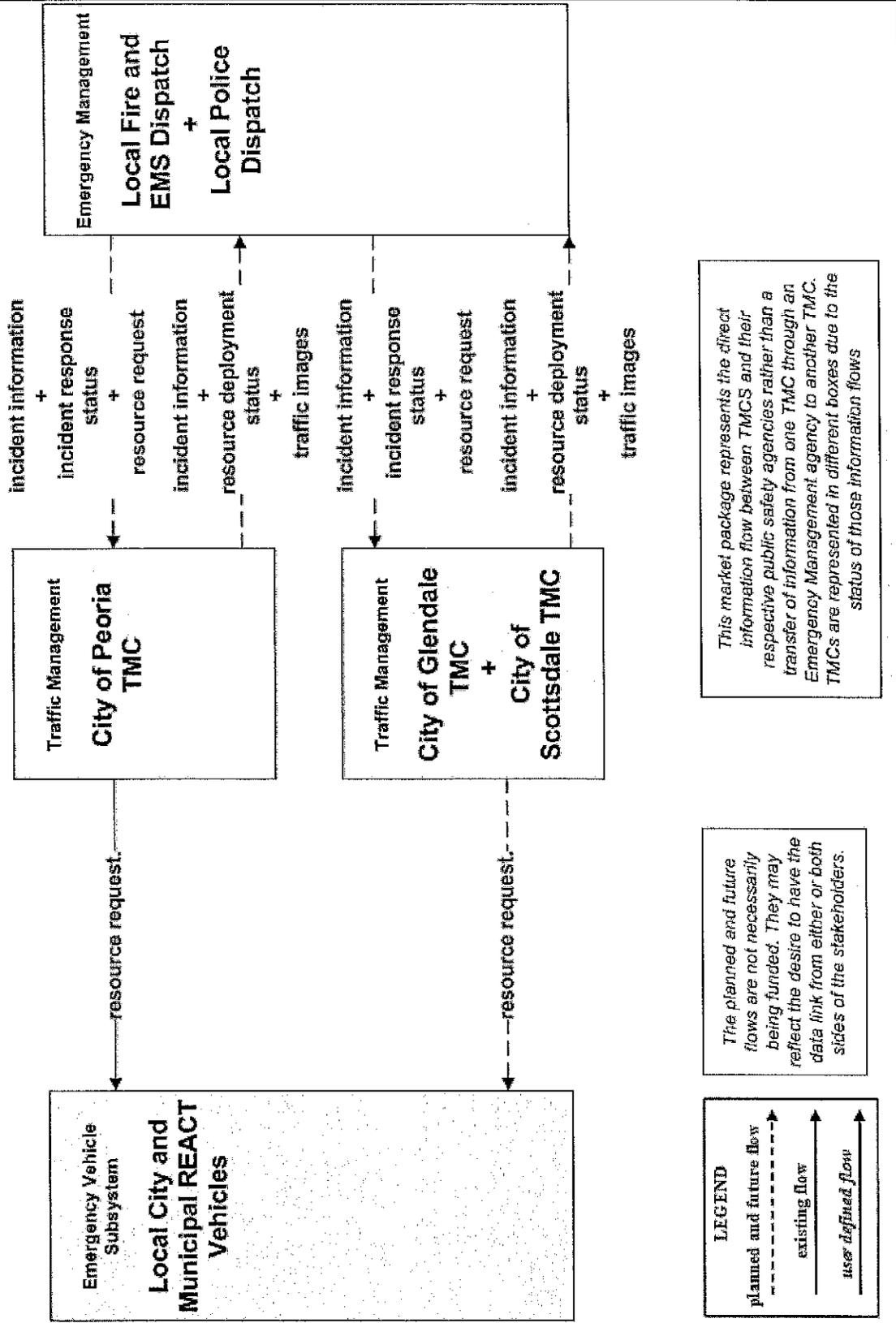
LEGEND

- planned and future flow (dashed arrow)
- existing flow (solid arrow)
- user defined flow (solid arrow)

**ATMS08 - Incident Management
Local Cities and Municipalities (TM to MCM)**



**ATMS08 - Incident Management
Local Cities and Municipalities (TM to EM)**



Proposed 2015 Project: ICM for Broadway/I10 and Price/Rio Salado

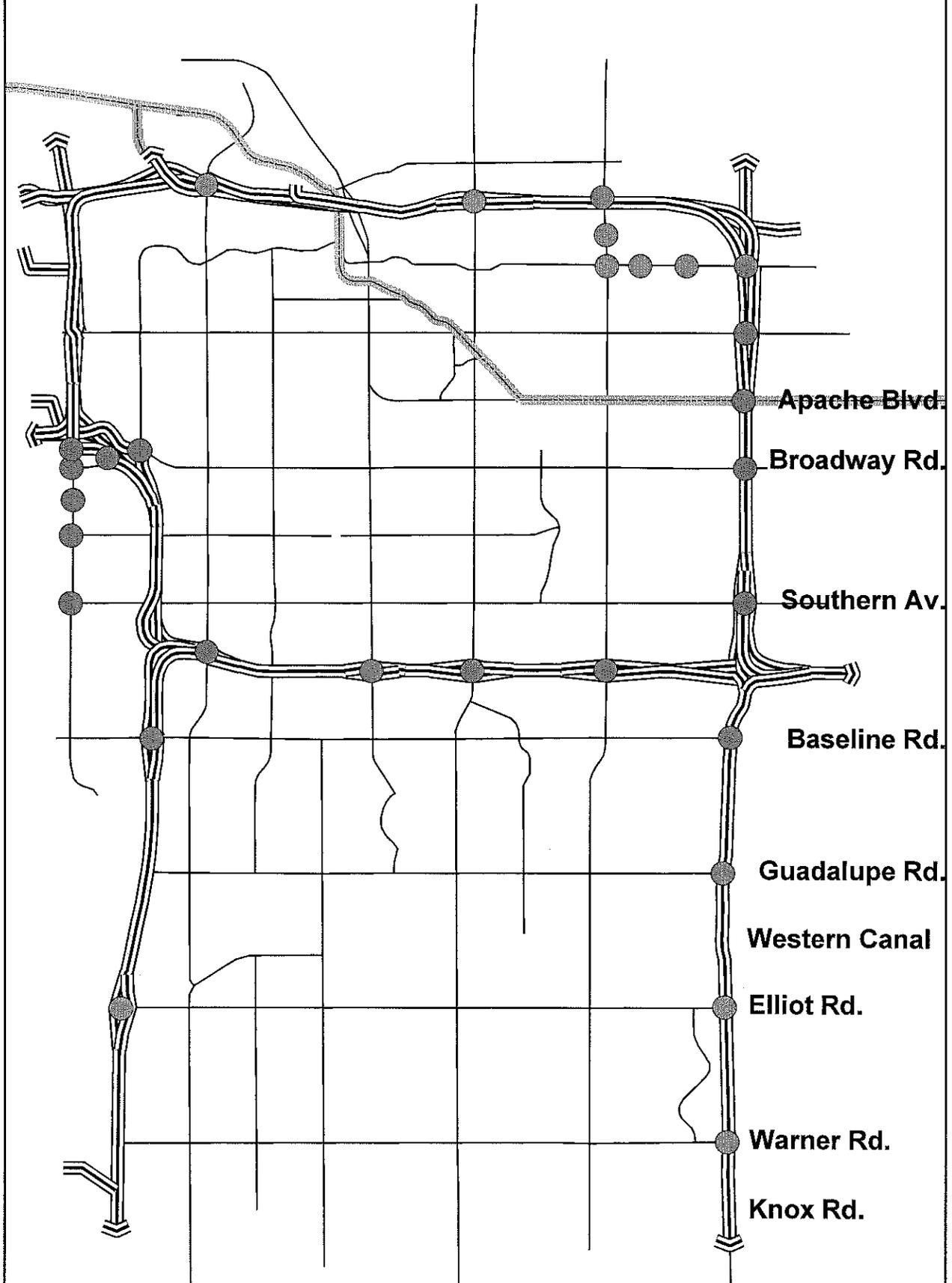
Legend

SIGNALS

<all other values>



ICM



MAG CMAQ Project

Intelligent Transportation Systems Project

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
------------------	------	--------	-------------	-------	--------------------

A. SCOPING (15% Preliminary Engineering Design)
(Non-infrastructure projects: Only #2 applies).

1. SITE TOPOGRAPHIC SURVEY	LS	1	\$5,000.00	\$5,000.00	No
2. PROJECT ASSESSMENT REPORT or DETAILED WORKPLAN	LS	1	\$0.00	\$0.00	No
3. SYSTEMS ENGINEERING ANALYSIS (must address FHWA requirements)	LS	1	\$0.00	\$0.00	No
4. ENVIRONMENTAL DETERMINATION (Infrastructure projects, including technical supporting documents)	LS	1	\$11,000.00	\$11,000.00	No
5. HAZMAT ASSESSMENT	LS	1	\$0.00	\$0.00	No
SUBTOTAL – PROJECT SCOPING COSTS				\$16,000.00	\$0

B. FINAL PRELIMINARY ENGINEERING DESIGN - Stages II, III, IV and PS&E
(Not applicable to non-infrastructure projects)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
1. Right-of-Way Acquisition	LS	1	\$0.00	\$0.00	No
2. Plans, Special Provisions or Bid Manual, Cost Estimate & Schedules.	LS	1	\$20,000.00	\$20,000.00	No
3. GEOTECHNICAL INVESTIGATION and Materials & Pavement Design Report	LS	1	\$0.00	\$0.00	No
4. DRAINAGE REPORT	LS	1	\$0.00	\$0.00	No
5. Storm Water Pollution Prevention Plan (SWPPP)	LS	1	\$0.00	\$0.00	No
SUBTOTAL – PROJECT DESIGN COSTS				\$20,000.00	\$0

C. CONSTRUCTION OR IMPLEMENTATION

For non-infrastructure projects (no ground disturbing activities), address only parts 2, 3 and D.

1. CONSTRUCTION ELEMENTS (Insert additional rows if necessary)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
Pull Box	EA	3	\$2,000	\$6,000	Yes
Conduit in Dirt	LF	490	\$23	\$11,270	Yes
Conduit under Road	LF	175	\$50	\$8,750	Yes
Fiber	LF	4100	\$4	\$16,400	Yes
Microduct	LF	345	\$2	\$690	Yes
Splice Closure ADOT	EA	2	\$1,200	\$2,400	Yes
Splice Closure Tempe	EA	3	\$750	\$2,250	Yes
Fan Out Kit	EA	4	\$700	\$2,800	Yes
Patch Panel Long	EA	2	\$1,000	\$2,000	Yes
Patch Panel Short	EA	1	\$1,000	\$1,000	Yes
Fiber Optic Jumper Cables	EA	4	\$25	\$100	Yes
Field Hardened Ethernet Switch - GB	EA	4	\$3,500	\$14,000	Yes
Field Hardened Ethernet Switch - 100 MB	EA	5	\$2,500	\$12,500	Yes
CCTV	EA	23	\$5,000	\$115,000	Yes
Wireless Radio	EA	6	\$5,000	\$30,000	Yes
A/C Power Receptacle	EA	27	\$75.00	\$2,025	Yes
Testing/Integration	LS	1	\$4,840.00	\$4,840	Yes
Project Documentation	LS	1	\$2,420.00	\$2,420	Yes
VDSL Swtich	EA	5	\$3,000.00	\$15,000	Yes
SUBTOTAL - CONSTRUCTION				\$249,445	\$249,445



2. PROCUREMENT (Insert additional rows if necessary)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
				\$0	No
SUBTOTAL - PROCURMENT				\$0	\$0



3. OTHER ITEMS
(Insert additional rows if necessary)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
				\$0.00	No
SUBTOTAL - OTHER CONSTRUCTION LINE ITEMS				\$0.00	\$0

4. MOBILIZATION AND ADMINISTRATION COSTS (Construction Only. If Section 1 is filled out, please fill out this section)

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
CONTRACTOR MOBILIZATION	LS	1	\$0.00	\$0.00	No
TRAFFIC CONTROL	LS	1	\$19,370.00	\$19,370.00	Yes
CONSTRUCTION SURVEY & LAYOUT	LS	1	\$0.00	\$0.00	No
CONSTRUCTION CONTINGENCIES	LS	1	\$24,220.00	\$24,220.00	Yes
CONSTRUCTION ADMINISTRATION	LS	1	\$12,110.00	\$12,110.00	Yes
SUBTOTAL – MOBILIZATION & ADMINISTRATION COSTS				\$ 55,700	\$55,700
TOTAL CONSTRUCTION OR IMPLEMENTATION COST				\$ 305,145	\$ 305,145

D. ADOT Fee for PE Reviews and Staff Charges	LS	1	\$15,000	\$15,000	No
TOTAL ADOT Fee COST				\$15,000	\$0

Item Description	Unit	Quant.	Unit Prices	Total	Eligible for CMAQ?
E. TOTAL PROJECT COST (All <u>subtotals</u> + ADOT local projects review fee)				\$356,145	\$305,145



F. SUMMARY OF FEDERAL AND NON-FEDERAL FUNDS

TOTAL COST FOR PROJECT CONSTRUCTION/IMPLEMENTATION	\$356,145
TOTAL COST FOR PROJECT ELIGIBLE FOR FEDERAL REIMBURSEMENT	\$305,145
TOTAL FEDERAL FUNDS @ 94.3% (.943 x Total Eligible Cost shown highlighted above)	\$287,752
LOCAL AGENCY MATCHING FUNDS (.057 x Total Cost shown highlighted above)	\$17,393