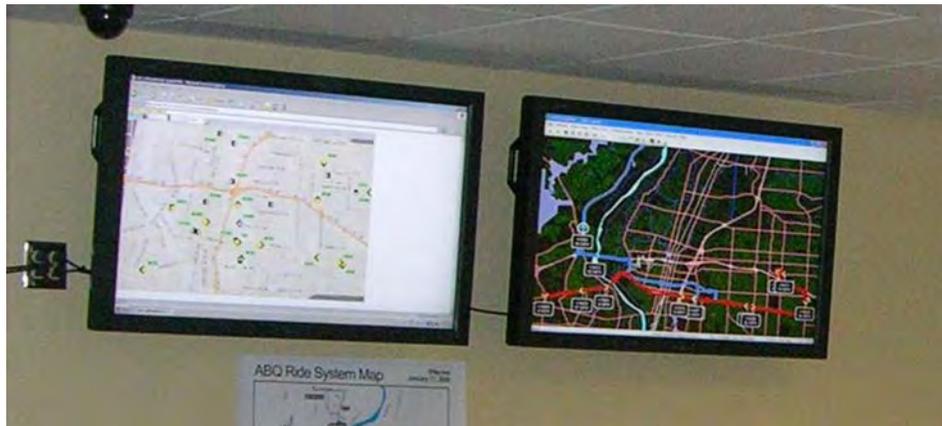


AMPA Regional ITS Architecture Addendum

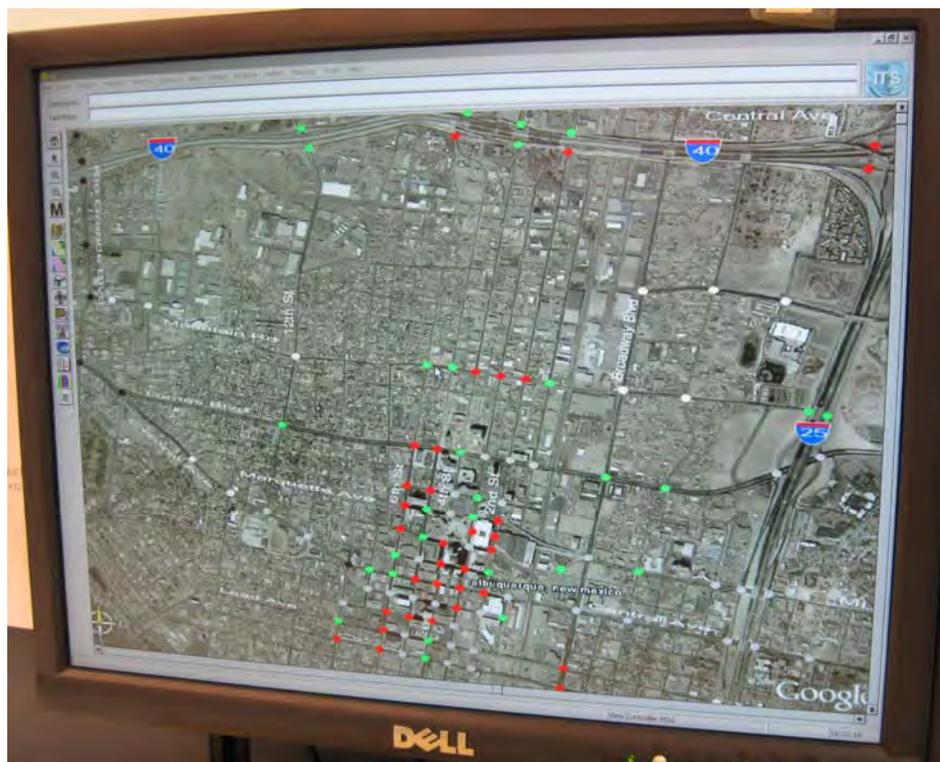
Version 1.2

December 2011

Developed by: the ITS Subcommittee/Maintenance Working Group



ABQ Ride Transit Operations and Dispatch



City of Albuquerque Traffic Operations Center

December 2011

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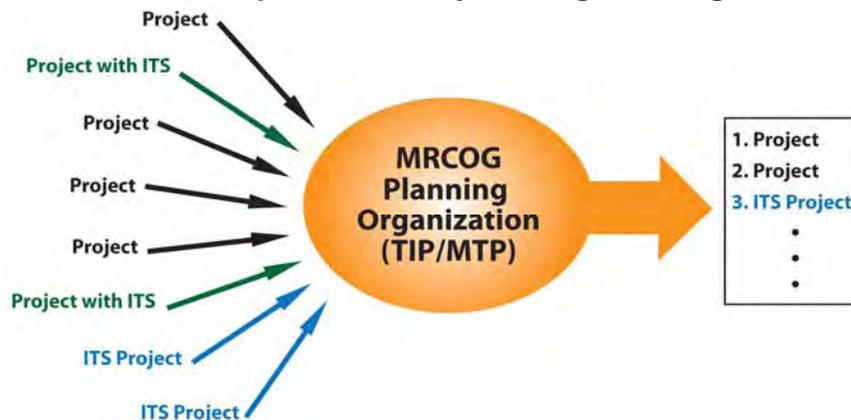
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Summary

This addendum to the *AMPA Regional ITS Architecture* is developed as part of the ITS Architecture Maintenance responsibilities of the Mid Region Council of Governments' (MRCOG) ITS Subcommittee in close coordination with the New Mexico Department of Transportation (NMDOT) ITS Bureau pursuant to FHWA/FTA ITS Architecture and Standards Final Rule (Rule 940.11). The rule establishes federal mandate/guidance for ITS stakeholders and ITS deployment undertaken within the AMPA that utilizes any portion of the Highway Trust Fund. The maintenance activities summarized in this document are part of the Change Management Process prescribed in the AMPA Regional ITS Architecture document, Chapter 13, and is intended to promote and monitor ITS deployment within the AMPA consistent with established regional and national ITS priorities. In short, the AMPA Regional ITS Architecture has established the baseline for ITS within the AMPA, and is designed to be updated on a less frequent basis, such as those triggered by major changes in the National Architecture and/or local priorities. Interim architecture addendums tied to the recurring 2-year Transportation Improvement Program (TIP) provide the mechanism to update and monitor ITS projects and priorities as programmed in the Transportation Improvement Program (TIP), review the national architecture for applicable changes, and establish the appropriate market packages to any newly programmed projects.

The maintenance activity is supported by the ITS Subcommittee and is integrated into the TIP development cycle. Experience has shown this integration of ITS architecture maintenance into the transportation planning process in this manner has proven quite effective to ensure that the document is utilized most effectively. In addition to the integration and mapping of ITS projects and the TIP, the architecture addendum process provides for the monitoring of ITS deployments in the current and near-term program year in the production of system maps and summaries by ITS element and agency. These products are included in this document and provide a snapshot of existing/near term programmed deployment in both map and summary table format.

ITS in the Transportation Project Programming Process



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Note that one key function of the Architecture Addendum is the project level association of projects in the TIP to the appropriate “Market Packages” included in the Baseline Architecture document. In this manner, the Architecture Addendum provides an easy reference whereby projects in the TIP can be examined for their inclusion of ITS and their connections to the Regional Architecture.

Transportation Planning Process and ITS Architecture

MRCOG is the Metropolitan Planning Organization (MPO) for the AMPA which supports transportation planning including the development of the Transportation Improvement Program (TIP), Metropolitan Transportation Plan (MTP), and any other applicable federal transportation planning requirements. Integrating the ITS architecture and periodic maintenance activity into the ongoing planning and programming activities provides the best opportunity to capture and monitor ITS project development among member and non-member entities. It is crucial that all those involved in the project planning and development stages (planners, managers, engineers, etc) coordinate with those involved in latter final design/project implementation stages so that ITS Elements are consistent for the project, “cradle to grave”. This coordination will also ensure that any changes in project scope occurring during project development may be reflected back to the MPO and Architecture Maintenance activities accordingly. **Figure 1** below shows the TIP development and process flow chart for the AMPA. Areas where the ITS Subcommittee and ITS project review is included are identified in red.

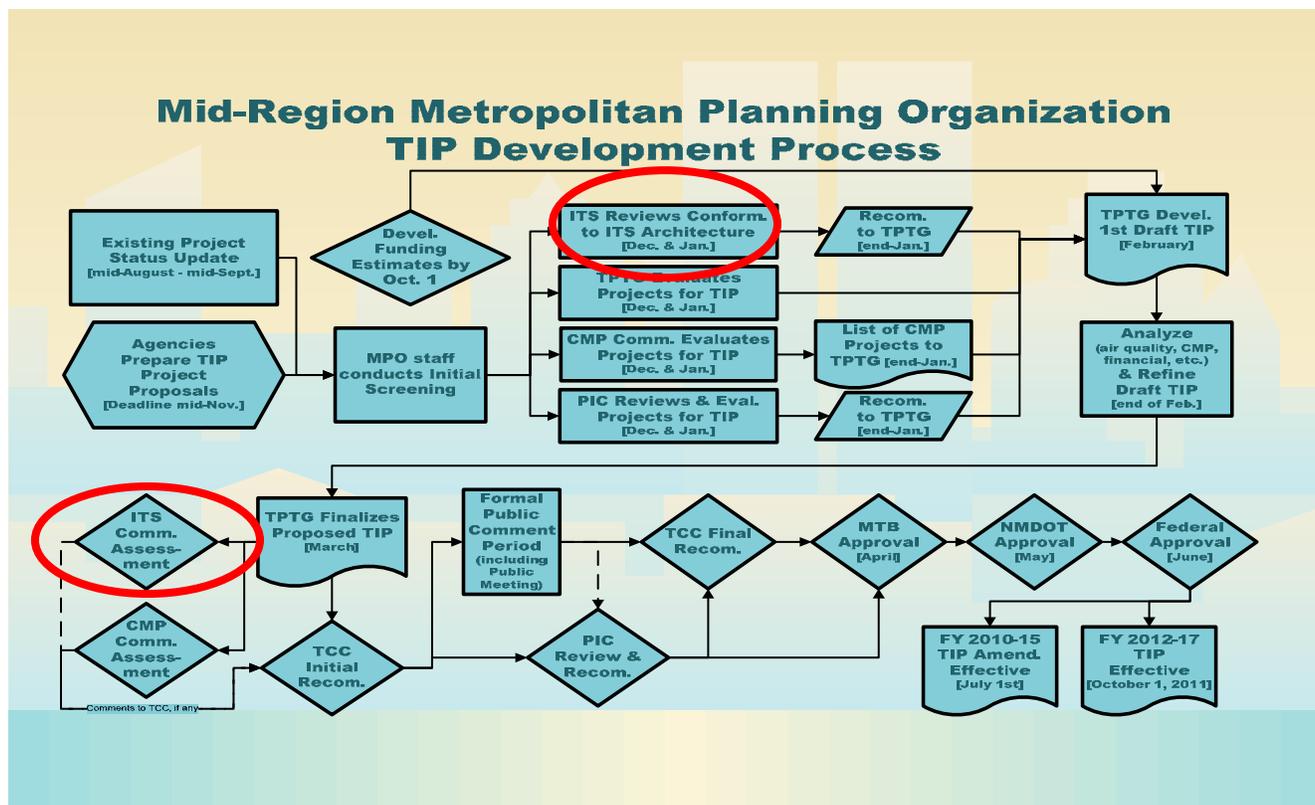


Figure 1. MRCOG TIP Development Flow Chart; ITS Subcommittee Participation Noted

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Areas of ITS Architecture Maintenance

There are Seven (7) primary areas identified in the AMPA Regional ITS Architecture document that are included in the maintenance activity and where changes are monitored. These include:

- Project Definition
- Project Addition/Deletion
- Project Priority
- Regional Needs
- Changes in the Statewide Architecture
- New ITS Stakeholders
- New or evolving ITS Standards applicable to ITS Projects within the AMPA

ITS projects are separated in terms of project “Category”. These include:

1. Traffic Management, Incident Management, and O & M
2. Transit and Transit Operations
3. Archive Data and Communications

Because projects can contain multiple ITS elements, it is therefore possible for a project to be included in more than one category.

In addition to this, the ITS Subcommittee working as the Maintenance Working Group (MWG) employs additional features to ensure that the Architecture Maintenance Plan is robust enough to capture any changes and to satisfy the needs of the ITS Stakeholders throughout the MPO transportation planning process. These include:

- Project tables that associate TIP and/or MTP project programming with the architecture document including existing, currently programmed, and new ITS projects
- Integration of ITS project tracking into a regional (AMPA) Geographic Information System (GIS) and generation of a series of “Existing ITS Deployments” by project type GIS maps
- FHWA Systems Engineering Project Certification summary

ITS Architecture Maintenance Activity, Maintenance Working Group

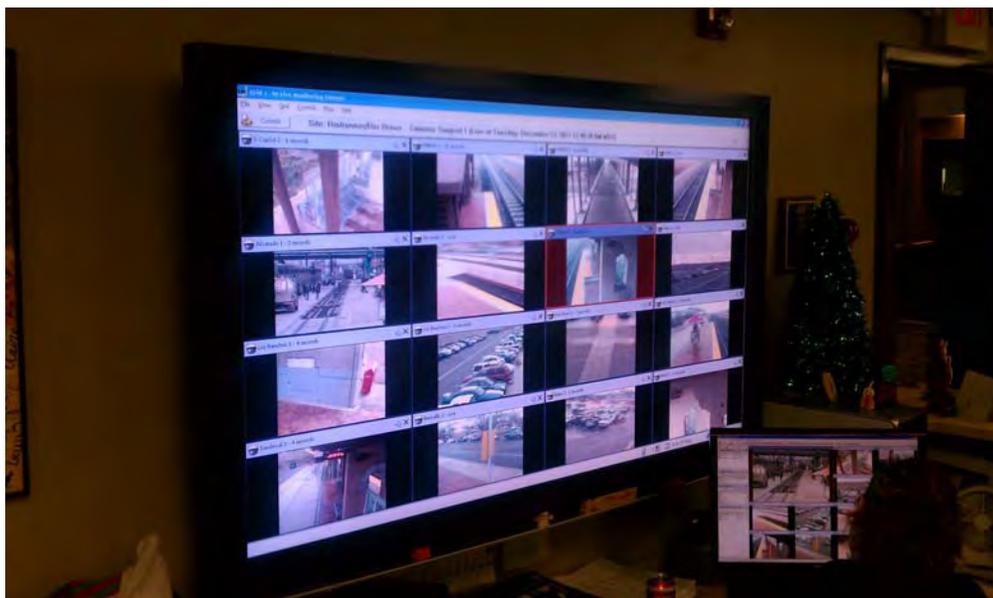
The ITS Maintenance Working Group evaluated all TIP projects submitted for inclusion in the interim program year between Addendum V 1.1 and V 1.2, ie, 2011, and the 2012-17 TIP on the basis and/or recommendation of appropriate ITS “services” that the ITS element will provide. These services are expressed as *Market Packages* (MPs) which further detail the components of the ITS service as data or information flows between entities, data collection devices, etc. The projects are summarized into tables for each ITS project category with project MPs along with recommended MPs from the architecture for comparison. Projects are identified by TIP year, and “deployed”, “planned”, or “proposed” disposition to provide an immediate comparison of project definition, sequencing, etc.

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As an example, let's take a roadway widening project which has been identified to include CCTV cameras and fiber telemetry in order for remote monitoring of roadway and travel conditions. The appropriate "Market Package" for "roadway surveillance" is utilized to identify the data and information flows and information terminals necessary to ensure that this ITS service is conducted optimally. Specific pieces from the Architecture including identification of roadside data collection equipment to capture the images and/or data, telemetry to the Traffic Management Center that receives and monitors those images, and the two-way logical data flows between those elements that facilitate the information exchange. The ITS Maintenance Working Group identifies/maps the project with the market package *ATMS01, Network Surveillance*, and the project is then listed in the project table in the Addendum for quick reference.

If the committee identified a MP not included in the previous architecture version, then that market package was identified for maintenance action in the Change Management Database, and appropriate Change Request Forms (CRFs) were processed. All modifications identified in this addendum are submitted to the NMDOT ITS Bureau corresponding modifications to the Turbo database in which the architecture resides.

The intent of this addendum is to serve as the immediate resource for ITS project status and project development activities in the AMPA for the current Transportation Improvement Program (TIP). Corresponding reference to the AMPA Regional ITS Architecture document will provide additional support including background on the establishment of the regional ITS priorities, identification of the regional stakeholders, and all other aspects of developing the baseline architecture.



Rail Runner Operations/Dispatch and Security Cameras

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I. How This Document Should be Used

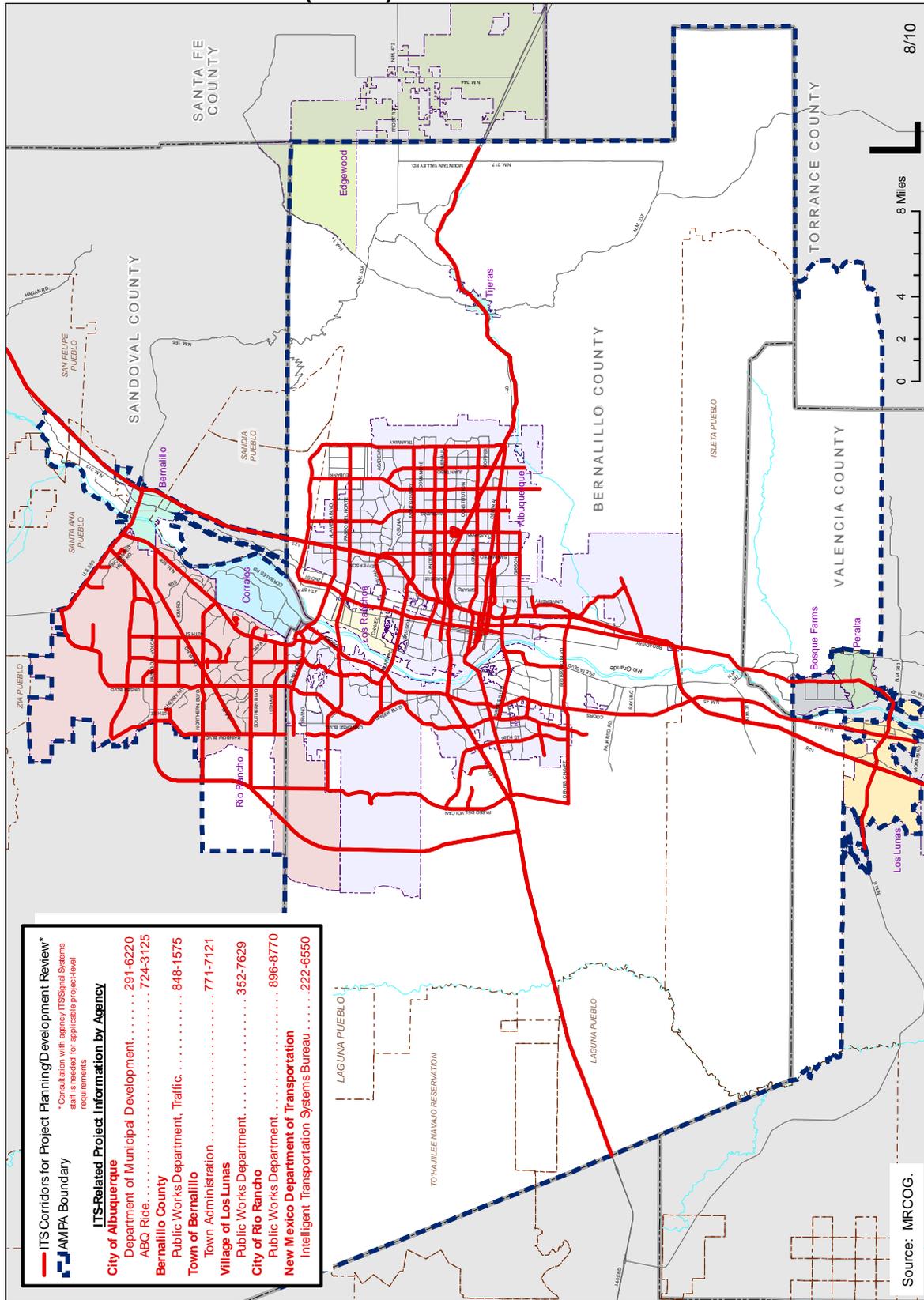
As noted above, this Addendum reflects the current edits to the AMPA Regional ITS Architecture in support of the **2012-17 TIP** and is intended to support federal, state, and local ITS planning and project development activities of the MRCOG MPO member agencies and associated ITS Stakeholders. In addition, this update addresses the requirements included in Rule 940.9 (f) for architecture maintenance. The project tables with associated market packages, system maps, and related documentation should be used by all project managers and engineers involved with ITS project development included in the AMPA's **2012-17 TIP**. This addendum along with the full AMPA Regional ITS Architecture is available on the MRCOG website, ITS Subcommittee page. If hard copies are required, these can be obtained by contacting MRCOG ITS planning staff at (505) 724-3620 or nmasek@mrcog-nm.gov.

II. Other ITS Planning and Project Development Efforts Supported by this Document

ITS Corridors Map

To assist in ITS planning efforts the ITS Subcommittee maintains the *ITS Corridors Map (Map 1)*. This map identifies roadways within the AMPA prioritized for ITS deployments and is intended for use by staff at various levels of the transportation and planning process. The map has been distributed to all member agencies with development review responsibilities for roadway planning and project development with specific instructions to reference the map and to coordinate with the appropriate ITS staff within their agency. Included in the legend is direct contact information to the appropriate ITS contact information to ensure that specific ITS requirements can be identified in the event that project review is outside of direct ITS staff involvement. By limiting the ITS planning information to corridor-identification, the system map has demonstrated its effectiveness in expanding the reach of ITS planning and project mainstreaming to a broader audience within the transportation project planning and development arena.

MAP 1. ITS CORRIDORS (AMPA) V1.2



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Transportation Project Planning and Agency Development Review

The planning process for transportation projects within local jurisdictions typically follows a sequence whereby project proposals are carried through a series of review stages by department to ensure that all project requirements are identified and/or met prior to final approval. This review presents an excellent opportunity for staff to identify ITS project opportunities, particularly on “non-ITS” roadway projects or projects within the roadway right of way that may not be included in other ITS project review. This practice is referred to as *ITS project mainstreaming*, and has expanded the scope of incremental ITS project development tremendously. Project examples include typical roadway maintenance activities, widening, and projects within or in proximity of the roadway right of way such that if identified early enough in the process can include ITS elements such as the inclusion of fiber/telemetry, thereby presenting a cost saving opportunity. The key is to identify these opportunities at critical stages of the development review process and for staff to have correct ITS reference and planning materials, such as the ITS Corridors Map mentioned above. Since this effort has been initiated, numerous opportunities for including ITS elements on non-ITS projects have been identified, resulting in additional ITS deployment done in an extremely cost-effective manner.

Congestion Management Process

ITS strategies are identified in the Congestion Management Process “Toolbox” as one approach to mitigate congestion on the transportation system; the CMP Project Prioritization Process matrix identifies additional points when a project includes ITS elements. Along with the ITS Subcommittee, the Congestion Management Process group is part of the MRCOG monthly meeting structure. Coordination of this group and the ITS Subcommittee is maximized through shared representation at both committees, thereby resulting in direct communication and project level cooperation between the groups. In addition, the ITS Corridor Profiles initiated in FY2011 focus on top-ranked CMP corridors for use by the CMP Committee in their congestion analysis and corridor mitigation strategy evaluation. Those products are available on the MRCOG ITS webpage.

Systems Engineering and ITS Project Certification

As noted above, Rule 940 states that ITS related projects must be consistent with the regional architecture in order to be eligible for funding through the Highway Trust Fund. Additionally, ITS projects that meet minimum criteria are subject to Systems Engineering (SE) requirements (see FHWA Rule 940.11). Briefly, Systems Engineering is defined as:

..... a systematic approach to ITS project development that focuses on defining user needs and required functionality early in the project development cycle, documenting requirements to meet those needs, then proceeding with design and system validation such that the user needs are met.

In response to this requirement, the FHWA has developed guidance entitled *Using Systems Engineering and Regional ITS Architectures For ITS Projects* to assist in meeting the project level ITS Systems Engineering requirement. The NMDOT, in close coordination with MRCOG and the FHWA has taken this requirement a step further with the development of an

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ITS Project Checklist that provides a relatively easy and straight forward way to meet these requirements. The form is accessed from the NMDOT's webpage, and is accompanied by an online training presentation specifically designed for planners, project development engineers, and project managers. The checklist provides for project name, description, and contact information, and leads the respondent through a series of specific project related questions where detailed project information, procurement methods, and phasing is identified. Other queries associate the project to the regional Architecture and market packages, as well as the stages included in the Systems Engineering "V Diagram". The form allows for the attachment of all applicable market packages obtained directly from the appendices included in the Regional Architecture Addendum.

The current ITS Architecture Addendum v 1.2 has identified 21 projects which were reviewed for ITS SE Certification:

1. CN G1153, DMS at I-40 and Louisiana Blvd, NMDOT
2. CN 4085, DMS, I-25 north of Bernalillo, NMDOT
3. CN 1163, DMS/CCTV/MVDS, I-40 Carlisle to Pennsylvania, NMDOT
4. CN G1143, DMS/CCTV/MVDS/fiber backhaul to DOT Hilltop facility, NMDOT
5. N/A ATIS NMROADS.com website development, NMDOT
6. CN D3017, CCTV/MVDS I-25 Rio Bravo to Gibson Blvd, NMDOT
7. CN G1233, DMS/CCTV I-40 Tijeras to Zuzax Intch, NMDOT
8. CN G4013, DMS/CCTV/MVDS, I-40 Paseo del Volcan Intch, NMDOT
9. CN 4086, various ITS equipment upgrade, I-40 Coors Blvd Intch, NMDOT
10. CN G2B13, CCTV I-25 Tramway Blvd to Bernalillo, NMDOT
11. CN 2976, CCTV/MVDS, I-40 Pennsylvania to Tramway Blvd, NMDOT
12. CN A300630, CCTV/MVDS/Fiber, I-40 Tijeras Canyon, PdN, I-25 Tramway to US 550, I-25 Rio Grande Bridge to Broadway, NMDOT
13. CN A300631, CCTV/MVDS/Fiber, I-25 Broadway to Rio Bravo, NMDOT
14. CN A300120, Albuquerque Metropolitan Area Wide Regional Bicycle Monitoring System Project-BC
15. CN 3184, Traffic Signal System Expansion, PH XII-COA
16. CN 9823 (HPP) McMahon Blvd, Bandelier to Rockcliff-COA **NSE**
17. CN A300670, Alameda/Alameda Park, Prosperity/Broadway Signalizations – NMDOT/COA and BC signals
18. CN A300610 Alameda Blvd/Balloon Museum intersection- COA
19. CN A300270, McMahon and Universe Blvd Extension - COA
20. CN 4095, Lead/Coal Lane Reduction – COA
21. CN L3069, Alameda Trail Fiber Installation - BC

An overview of the FHWA System Engineering requirements can be referenced here:

http://www.ops.fhwa.dot.gov/its_arch_imp/policy_1.htm

For further support on Systems Engineering and for customized training covering all aspects for projects in the state of New Mexico including a downloadable version of the NMDOT's *ITS Project Checklist*, please see the web link below:

<http://www.nmshtd.state.nm.us/main.asp?secid=16566>

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III. Architecture Maintenance Areas

The AMPA Regional ITS Architecture establishes the general framework for maintaining the architecture. A “Change Management Process” is used to monitor all ITS changes, which follow the TIP/MTP 2 year periodic project development cycle. Seven (7) key areas are specifically identified for maintenance activity, and the Subcommittee has identified additional mechanisms that support the integration of these maintenance activities into the MPO project development process. The following sections identify each of the change areas and note any change action for this Addendum.

1. Changes for Project Definition

During project development and implementation, it is possible that the project’s ITS components such as interfaces or information flows can change as the project passes from original inception to implementation. The maintenance document and associated edits to the Turbo database will reflect changes in project definition by including a review of project market packages and data flows, and the identification of changes from “planned” to “existing” as appropriate. Since the baseline architecture document includes market packages by stakeholder “functional area” and not project-specific market packages, any “planned” to “existing” change will apply to the respective stakeholder functional area. In this manner, the appropriate market packages are identified broadly and can then be applied at each project level. The project tables below identify differences between recommended market package project definition from the baseline architecture and submitted projects. Final project implementation definition will be identified through the ongoing maintenance activities such as review of interim project completion summaries submitted by stakeholders, and other ITS Subcommittee input.

CHANGES IDENTIFIED: NONE

2. Changes for Project Addition/Deletion

Each of the projects included in the Maintenance Addendum were evaluated for changes for additions and/or deletions. Any changes to projects resulting from programmatic additions or deletions through MPO programming activities will be identified and changes to the architecture will be made as applicable.

CHANGES IDENTIFIED: Project tables were updated consistent with the development of the 2012-17 Transportation Improvement Program

3. Changes for Project Priority

Project priorities are subject to change in the MPO project development and programming process. This can be due to funding or other project development factors by sponsoring agencies that would affect project sequencing included in the architecture. Furthermore, federal rule making can establish new priorities that could affect project sequencing and will be captured in the Addendum. Chapter 10 of the baseline architecture document includes project sequencing information and will be used to evaluate the projects upon finalization of the 2012-17 TIP.

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CHANGES IDENTIFIED: NONE

4. Changes in Regional Needs

Part of this addendum includes an evaluation of the ITS Regional Needs for the AMPA. No additional needs were identified among any of the Regional Stakeholders.

CHANGES IDENTIFIED: New Cooperative Agreements/MOUs were developed:

- | | | |
|----------------------------|-------------------------|-----------|
| a. DMS & Fiber | COA/NMDOT | 2010/10 |
| b. Fiber | BC/NMDOT | 2008/2010 |
| c. DMS | CoRR/NMDOT(forthcoming) | 2012 |
| d. Congestion Data Sharing | NMDOT/Local Media | 2011 |

5. Changes in the Statewide Architecture

Representatives from the NMDOT ITS Bureau are included on the ITS Subcommittee. Their input was sought, and an ITS element name change (CHDB to TIMS) was identified with this addendum.

CHANGES IDENTIFIED: ITS Element name change from Consolidated Highway Database (CHDB) to Transportation Information Management System (TIMS). Affected Market Packages include AD1 and AD2 in reference to the NMDOT Historical Traffic Database.

6. New stakeholder Identification

Stakeholder participation has remained strong since the baseline document was developed and Regional Stakeholders were identified. Further coordination with non-MPO stakeholders has been facilitated primarily through two groups – the ITS Operations Committee facilitated by the NMDOT ITS Bureau and District III, and the New Mexico Chapter of ITS America. Both of these groups are open to all ITS stakeholders and the ITS Subcommittee has designated representatives to participate with each group. For the current cycle, Rio Metro has been established as the regional transit district (RTD) in the Mid Region, and as such has absorbed smaller transit stakeholder entities such as Sandoval County Express and the Rail Runner. For a list of all stakeholders see **Appendix IV**.

CHANGES IDENTIFIED: Rio Metro RTD has absorbed Rail Runner and Sandoval County Express

7. Changes or Evolution in ITS Standards Applicable to ITS Projects in the AMPA

The current set of architecture changes in place since the baseline architecture was developed is included below. These changes were evaluated for those that would affect MPs included with projects included in this Addendum and no major changes were identified, however, detailed project level changes should be evaluated and identified upon Systems Engineering Certification.

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Current National ITS Architecture High-Level Changes:

Version	Description	Scope
6.1	ICM Related updates	Major
6.1	VII General Maintenance Related Updates	Major
6.1	Clarus Related Updates	Moderate
6.1	Communications Update	Moderate
6.1	Internal Vehicle Architecture Flow Removal	Moderate
6.1	TMDD Related Updates	Moderate
6.1	Transit Schedules - Static vs. Dynamic Information	Moderate
6.1	Transportation Information for Operations	Moderate
6.1	VII Standards Related Changes	Moderate
6.1	International Border Crossing Systems	Minor
6.1	UEFM Related Updates	Minor

CHANGES IDENTIFIED: NONE

Per the Change Management process recommended in the maintenance section of the Architecture document, Change Request Forms (CRFs) for each of these are included in **Appendix I**. The disposition of each associated maintenance activity will be followed and reported through the ITS Subcommittee/MWG and all appropriate Stakeholders will be notified of the update via email. Corresponding updates to the Turbo Architecture Database will be conducted by the NMDOT and reported to the Subcommittee.

IV. Current Year ('11) and 2012-17 TIP Project Level ITS and Market Packages Summary

The 2 year maintenance cycle for the Architecture Maintenance Addendum coincides with the transportation program development cycle of the TIP and the Metropolitan Transportation Plan (MTP). Because the TIP is a 6 year programming document, inherently there is project overlap between addendums as projects sequence through the programming cycle beginning with project conception in the MTP, then environmental assessment and planning, preliminary and final design, then final construction. Further, the TIP is subject to amendment as project and programming needs change, and for these reasons the 2 year architecture maintenance cycle must include a review of interim year projects to ensure that project changes, additions, or deletions are captured. Therefore, a review 2010-2015 along with all 2012-17 TIP project submittals was conducted. Reviewing by ITS Maintenance Category, a combined 88 projects with 63 discreet projects were identified.

The Regional ITS Architecture identifies ITS projects by common functional category:

- I. Traffic Management, Incident Management (IM), and Maintenance/Operations
- II. Transit and Transit Operations
- III. Archive Data and Communications

Table I. TIP Projects Summary by ITS Project Category as defined per Regional Architecture.

TIP Years	ITS Project Category	Number of Projects
Programmed Yr 10-15	I. Traffic Mgmt, Incident Mgmt, O&M	16
	II. Transit and Transit Operations	2
	III. Archive Data and Communications	3*
New or Carryover, Yr 12-17	I. Traffic Mgmt, Incident Mgmt, O&M	31
	II. Transit and Transit Operations	10
	III. Archive Data and Communications	24*
All	I. Traffic Mgmt, Incident Mgmt, O&M	49
	II. Transit and Transit Operations	12
	III. Archive Data and Communications	27*
	Total	88*

“*” denotes projects that are included in more than one category.

The architecture document identifies 8 ITS “Functional Areas” that group ITS elements by general type of stakeholder and communication, data collection, and associated information flow(s). Projects in the AMPA Regional ITS Architecture Addendum **V 1.2** involve 6 of these areas:

ITS Functional Area:

Archive Data Management (AD)
Advanced Traffic Management (ATMS)
Advanced Traveler Information (ATIS)
Advanced Public Transit (ATIS)
Emergency Management (EM)
Maintenance and Construction (MC)

Market Packages:

2 Market Packages
6 Market Packages
2 Market Packages
9 Market Packages
1 Market Package
1 Market Package

Project level MPs were identified and are listed in the project tables below. Project Tables II – IV below include all projects with their associated/corresponding market packages referenced from the AMPA Regional ITS Architecture document. The list is categorized into the 3 project categories identified in the Architecture and includes all projects with ITS from the 2010-15 TIP (to ensure capturing of changes and 2011 projects as noted above) and the 2012-17 TIP. It is important to note that this project level ITS information will be retained in the project database and will be available for each project as necessary for future programming.

Of particular significance is the increased amount of projects identified (25) to include elements from more than one ITS Project Category, ie, inclusion of Data Collection/Archiving elements such as with some of the NMDOT's freeway projects and agency arterial projects. This facet alone shows the importance our stakeholders are placing on the importance of travel data monitoring and data archiving in support of operations as well as for planning purposes.

Category I. Traffic Management, Incident Management, Maintenance Operations Projects, and Studies					BLACK text = Completed or Projects in 2010-2015 TIP			
					BLUE text = Projects programmed in 2012-17 TIP			
MTP/TIP Project Database Information					ITS Regional Architecture Information and TIP Project Descriptions			
Seq.	MPO ID	TIP Yr	Project Name in TIP	Lead Agency	Proj Type	Recommended MPs in Regional Architecture	Agency-Proposed Project Market Packages (MPs) – Use This Column for Project MPs	Market Package Description
1		all	NMRoads.COM	NMDOT ITS	ITS-TSM	ATIS01,2	ATIS01,2	Broadcast Traveler Information, Interactive Traveler Information
2	48.7	10	I-25 Safety Project	NMDOT ITS	ITS-TSM		ATMS01, ATMS06	Network Surveillance, Traffic Info Dissemination (DMS)
3	103.0	11-17	Albuquerque T M S	Abq DMD	ITS-TSM	ATMS01, 03	AMTS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
4	464.0	10-12	Unser Blvd Connection (Middle)	Abq DMD	Capacity	ATMS01, 3, APTS9*	ATMS01, 3, APTS9*	Network Surveillance, Surface St Control, Transit Signal Priority
5	585.1	11	Wyoming Blvd Widening Ph I	Abq DMD	Capacity	ATMS03	AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface Street Control
6	585.3	11	Wyoming Blvd Widening Ph II	Abq DMD	Capacity	ATMS01,3	AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface St Control
7	587.0	11-17	Great Streets	Abq DMD	misc		ATMS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
8	616.0	10	Coors Corridor Study	Abq DMD	misc		All MPs	
9	538.0	11	Eubank Blvd Reconstruction	Bern Co	Capacity	ATMS01, ATMS03	ATMS01, ATMS03	Network Surveillance, Surface Street Control
10	2.2	11	AMPA Wide Bicycle Monitoring	Bern Co	Bike/Ped/ITS	AD1, ATMS01	AD1, ATMS03	ITS Data Mart, Network Surveillance
11	511.0	11	Isleta Blvd (NM 314) Reconstruction	Bern Co	Capacity	ATMS01, 03	ATMS01, 03	Network Surveillance, Surface St Control
12	406.0	11	Double Eagle II Rd (PdV) Rehab	CoA-Aviation	Capacity		ATMS03	Surface Street Control
13	332.0	10-16	Broadmoor Blvd Expansion Study/Expansion	CoRR	Capacity		ATMS01,3	Network Surveillance, Surface St Control
14	347.0	10	Northern Blvd Expansion Ph I	CoRR	Capacity	ATMS03	ATMS03	Surface St Control
15	347.2	11	Northern Blvd Expansion Ph II	CoRR	Capacity	ATMS03	ATMS03	Surface St Control
16	653.0	10-17	AMPA Intersection Impr (placeholder)	MRCOG	H&BP	all MPs	All MPs	*Placeholder Project - for use by mbr agencies' projects
17	408.0*	10	I-25 Tramway Rd to Bernalillo	NMDOT CRDC	Capacity		AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Information Dissemination(DMS), Traffic Incident Management
18	408.1*	11	I-25 Bernalillo to US 550 PE	NMDOT CRDC	Capacity		AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
19	449.0*	11	I-40 Reconstr. West Side	NMDOT CRDC	Capacity	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08, MC03	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt, Road Weather Data Collection
20	420.1	10-13	I-40 Rio Puerco Area Interchange Study& Reconstr.	NMDOT D-3/CRDC	H&BP	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
21	448.6	12	I-25/Rio Bravo Interchange	NMDOT-CRDC	Capacity		AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
22	104.0	11-17	Regional ITS Deployment, D3	NMDOT-D3	ITS-TSM	ATMS01, 3, 6	All MPs	
23	493.3*	11-12	NM 528 Improvements (Upper) Southrn. to Northrn.	NMDOT-D3	Capacity		AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface St Control
24	568.0	11-17	Courtesy Patrols, AMPA	NMDOT-D3	ITS-TSM	EM04	EM04	Roadway Service Patrols
25	381.1	11	Unser Blvd Widening, Middle Section	CoRR	Capacity		ATMS03	Surface Street Control

26	653.3	10	Bernalillo Intersection Improvements	ToB	Capacity/Safety	ATMS01, 03	ATMS01, ATMS03	Network Surveillance, Surface Street Control
27	653.2	10	NM 314/ Courthouse Rd Intersection	VoLL	Capacity		ATMS01, ATMS03, ATMS14	Network Surveillance, Surface St Control, RailRoad Crossing
28	66.2	16-17	Central Ave Improvements	Abq DMD	Capacity		ATMS01, 3, APTS9*	Network Surveillance, Surface St Control, Transit Signal Priority
29	438.2	13	Osuna Blvd Widening Ph II	Abq DMD	Capacity	ATMS01, 3, APTS9*	AD 1, ATMS01, 3, APTS9*	ITS Data Mart, Network Surveillance, Surface St Control, Transit Signal Priority
30	439.0	13	Irving Blvd Widening	Abq DMD	Capacity	ATMS01, 3, APTS9*	ATMS01, 3, APTS9*	Network Surveillance, Surface St Control, Transit Signal Priority
31	456.0	15	Coors/Quail Intersection	Abq DMD	Capacity	ATMS01, 3, APTS9*	ATMS01, 3, APTS9*	Network Surveillance, Surface St Control, Transit Signal Priority
32	465.0	12-17	Unser Blvd Corridor Improvements	Abq DMD	Capacity	ATMS01, 3, APTS9*	ATMS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
33	508.1	16	Westside Blvd Recon and Widening	Abq DMD	Capacity	ATMS01, 3	ATMS01, 3	Network Surveillance, Surface St Control
34	581.0	16	North Diversion Channel Rd	Abq DMD	Capacity		ATMS01, 3, 6, AD1	Network Surveillance, Surface St Control, DMS, ITS Data Mart
35	616.2	13-16	Coors Corridor Improvements	Abq DMD	Capacity		ATMS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
36	24.0	12	Alameda Drain Trail (includes fiber)	Bern Co	Bike/Ped/ITS	AD1, ATMS01	AD1, ATMS03	ITS Data Mart, Network Surveillance
37	65.0	12	Coors Blvd & Blake Rd Intersection Improvements	Bern Co	Safety	ATMS01, 03	ATMS01, 03	Network Surveillance, Surface St Control
38	437.0	12	Sunport Blvd Extension	Bern Co	Capacity	ATMS01, 03	ATMS01, 03	Network Surveillance, Surface St Control
39	538.0	13	Eubank Blvd Improvements (North End)	Bern Co	Capacity	ATMS01, 03	ATMS01, 03	Network Surveillance, Surface St Control
40	872.2	15-17	Bridge Blvd Reconstruction	Bern Co	Capacity		ATMS01, 03, 06, AD1, APTS07,8,9*	ITS Data Mart, Network Surveillance, Surface St Control, Traffic Info Dissemination, MultiModal Coord, Transit Traveler Info, Transit Signal Priority
41	9.0	16	Southern Blvd Corridor Study	CoRR	misc	ATMS01,3	All MPs	
42	613.0	13-15	Idalia Widening	CoRR	Capacity		ATMS01,3,6	Network Surveillance, Surface St Control, Traffic Information Dissemination
43	442.0*	16	I-25 Paseo del Norte Interchange	NMDOT CRDC	Capacity		AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
44	447.0*	13	I-25 US 550 Interchange	NMDOT CRDC	Capacity	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
45	454.0	12	I-25 MdS Interchange	NMDOT-D3	Capacity	AD1, ATMS01,6,8	AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
46	493.4	16-17	NM 528 Improvements (Upper) PH II	NMDOT-CRDC	Capacity		AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface St Control
47	8.0	16-17	NM 500 (Rio Bravo) EB Bridge Replacement	NMDOT-D3	H&BP		ATMS01?	Network Surveillance? - possible fiber installation?
48	49.1	16-17	Regional Transportation Management Center (TMC)	NMDOT-D3	ITS-TSM	all MPs	All MPs	
49	448.1	17	I-25 Reconstr, Broadway to Rio Bravo	NMDOT-D3	Capacity	AD1, ATMS01,6,8	AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt

Table 2. 2012-2017 TIP Projects with ITS Elements; Category I. Traffic Management, Incident Management, and Maintenance Operations. * indicates project is in multiple ITS Project Categories

Category II. Transit, Transit Operations Projects					BLACK text = Completed or Projects in 2010-2015 TIP			
					BLUE text = Projects programmed in 2012-17 TIP			
MTP/TIP Project Database Information					ITS Regional Architecture Information			2010-15 TIP Project-Level ITS Elements
Seq.	MPO ID	TIP Yr	Project Name in TIP	Lead Agency	Proj Type	Recommended MPs in Regional Architecture	Agency-Proposed Project Market Packages (MPs) – Use This Column for Project MPs	Market Package Description
50	123.2	10-17	Rio Metro TDM	Rio Metro	TDM	APTS1,2,3,4,5,7,8	APTS01,2,3,4,5,7,8	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Transit Security, Multi-Modal Coordination, Transit Traveler Information Dissemination
51	122.2	11-15	TDM	ABQ Ride	TDM	APTS02, 08	APTS02, 08	Transit Fixed Route Operations, Transit Traveler Information
52	431.1	10-15	Bust Stop Facility Improvements	ABQ Ride	Transit	APTS01, 2,3,4, 8	APTS01, 2,3,4, 8	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Traveler Information Dissemination
53	121.0	10-17	Vehicles & Equip Purchase	ABQ Ride	Transit	APTS01, 2,3,4,5	APTS01, 2,3,4,5	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Transit Security
54	130.0	11-17	Transit Technology Upgrade	ABQ Ride	Transit	APTS01, 2,3,4,5, 8	APTS01, 2,3,4,5, 8	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Transit Security, Traveler Information Dissemination
55	423.0	11	Commuter Rail: Montano Rail Runner Station	ABQ Ride	Transit	APTS01, 2,3,4,5, 8	APTS01,2,3,4,5,7,8	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Transit Security, Multi-Modal Coordination, Transit Traveler Information Dissemination
56	0.0	11	Commuter Rail: Sandia Rail Runner Station	Rio Metro	Transit	APTS01, 2,3,4,5, 8	APTS01, 2,3,4,5, 8	Transit Vehicle Tracking, Fixed Route Operations, Demand Response, Passenger and Fare Mgmt, Transit Security, Traveler Information Dissemination
57	120.0	13	Park & Ride Facility Development	ABQ Ride	Transit	APTS04, 5, 8	APTS04, 5, 8	Transit Passenger and Fare Management, Transit Security, Kiosks
58	120.1	16	Park and Ride NW Abq/S Rio Rancho	ABQ Ride	Transit	APTS04, 5, 8	APTS04, 5, 8	Transit Passenger and Fare Management, Transit Security, Kiosks
59	374.0	12	Park and Ride Eagle Ranch & Coors	ABQ Ride	Transit	APTS04, 5, 8	APTS04, 5, 8	Transit Passenger and Fare Management, Transit Security, Kiosks
60	429.0	12-14	Transit Security Upgrade	ABQ Ride	Transit	APTS05	APTS05	Transit Security
61	39.1	16-17	NW Metro BRT Ph I	Rio Metro	Transit	ATMS01,3,5,6, APTS8,9*	ATMS01,3,5,6, APTS8,9*	Network Surveillance, Surface St Control, HOV Lane Mgmt, Traffic Information Dissemination, Transit Traveller Information, Transit Signal Priority

Table 3. 2012-2017 TIP Submittals with ITS Elements; Category II. Transit, Transit Operations.

Category III. Archive Data and Communications Projects					BLACK text = Completed or Projects in 2010-2015 TIP			
					BLUE text = Projects programmed in 2012-17 TIP			
MTP/TIP Project Database Information					ITS Regional Architecture Information			2010-15 TIP Project-Level ITS Elements
Seq.	MPO ID	TIP Yr	Project Name in TIP	Lead Agency	Proj Type	Recommended MPs in Regional Architecture	Agency-Proposed Project Market Packages (MPs) – Use This Column for Project MPs	Market Package Description
62	107.2	11-15	CMP Travel Time Program	MRCOG	ITS-TSM	ATMS02, AD1, 2	ATMS02, AD1, 2	Probe Surveillance, ITS Data Mart, Data Warehouse
63	384.2	10-17	Regional Traffic Surveillance	MRCOG	ITS_TSM	AD1, AD2	AD1, AD2	ITS Data Mart, ITS Data Warehouse
64	448.6*	12	I-25/Rio Bravo Interchange	NMDOT-CRDC	Capacity		AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
65	408.1*	11	I-25 Bernalillo to US 550 PE	NMDOT CRDC	Capacity		AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
66	449.0*	11	I-40 Reconstr. West Side	NMDOT CRDC	Capacity	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08, MC03	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt, Road Weather Data Collection
67	493.3*	11-12	NM 528 Improvements (Upper) Southrn. to Northrn.	NMDOT-D3	Capacity		AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface St Control
68	420.1*	10-13	I-40 Rio Puerco Area Interchange Study& Reconstr.	NMDOT D-3/CRDC	H&BP	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
69	653*	10-17	AMPA Intersection Impr (placeholder)	MRCOG	H&BP	all MPs	All MPs	*Placeholder Project - for use by mbr agencies' projects
70	384.2*	10-17	Regional Traffic Surveillance	MRCOG	ITS_TSM	AD1, AD2	AD1, AD2	ITS Data Mart, ITS Data Warehouse
71	103*	11-17	Albuquerque T M S	Abq DMD	ITS-TSM	ATMS01, 03, 098	AMTS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
72	104*	11-17	Regional ITS Deployment, D3	NMDOT-D3	ITS-TSM	ATMS01, 3, 6	All MPs	
73	616*	10	Coors Corridor Study	Abq DMD	misc		All MPs	
74	24*	12	Alameda Drain Trail (includes fiber for Signals)	Bern Co	Bike/Ped/ITS	AD1, ATMS01	AD1, ATMS03	ITS Data Mart, Network Surveillance
75	447*	12	I-25/US 550 Interchange	NMDOT-CRDC	Capacity		AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
76	454*	12	I-25 MdS Interchange	NMDOT-D3	Capacity	AD1, ATMS01,6,8	AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
77	454.0*	12	I-25 MdS Interchange	NMDOT CRDC	Capacity	ATMS01, ATMS03, ATMS06	AD01, ATMS08	ITS Data Mart, Incident Mgmt
78	447.0*	13	I-25 US 550 Interchange	NMDOT CRDC	Capacity	ATMS01, ATMS03, ATMS06	AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
79	442*	15	I-25/PdN Interchange	NMDOT-CRDC	Capacity		AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt
80	581*	16	North Diversion Channel Rd	Abq DMD	Capacity		ATMS01, 3, 6, AD1	Network Surveillance, Surface St Control, DMS, ITS Data Mart
81	442.0*	16	I-25 Paseo del Norte Interchange	NMDOT CRDC	Capacity		AD01, ATMS01, ATMS06, ATMS08	ITS Data Mart, Network Surveillance, Traffic Info Dissemination (DMS), Incident Mgmt
82	448.1*	17	I-25 Reconstr, Broadway to Rio Bravo	NMDOT-D3	Capacity	AD1, ATMS01,6,8	AD1, ATMS01,6,8	ITS Data Mart, Network Surveillance, Traffic Information Dissemination, Traffic Incident Mgmt

83	465*	12-17	Unser Blvd Corridor Improvements	Abq DMD	Capacity	ATMS01, 3, APTS9*	ATMS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
84	616.2*	13-16	Coors Corridor Improvements	Abq DMD	Capacity		ATMS01, 3, 6, AD1, APTS9*	Network Surveillance, Surface St Control, DMS, ITS Data Mart, Transit Signal Priority
85	872.2*	15-17	Bridge Blvd Reconstruction	Bern Co	Capacity		ATMS01, 03, 06, AD1, APTS07,8,9*	ITS Data Mart, Network Surveillance, Surface St Control, Traffic Info Dissemination, MultiModal Coord, Transit Traveler Info, Transit Signal Priority
86	493.4*	16-17	NM 528 Improvements (Upper) PH II	NMDOT-CRDC	Capacity		AD1, ATMS01, 3	ITS Data Mart, Network Surveillance, Surface St Control
87	49.1*	16-17	Regional Transportation Management Center (TMC)	NMDOT-D3	ITS-TSM	all MPs	All MPs	
88	9*	16	Southern Blvd Corridor Study	CoRR	misc	ATMS01,3	All MPs	

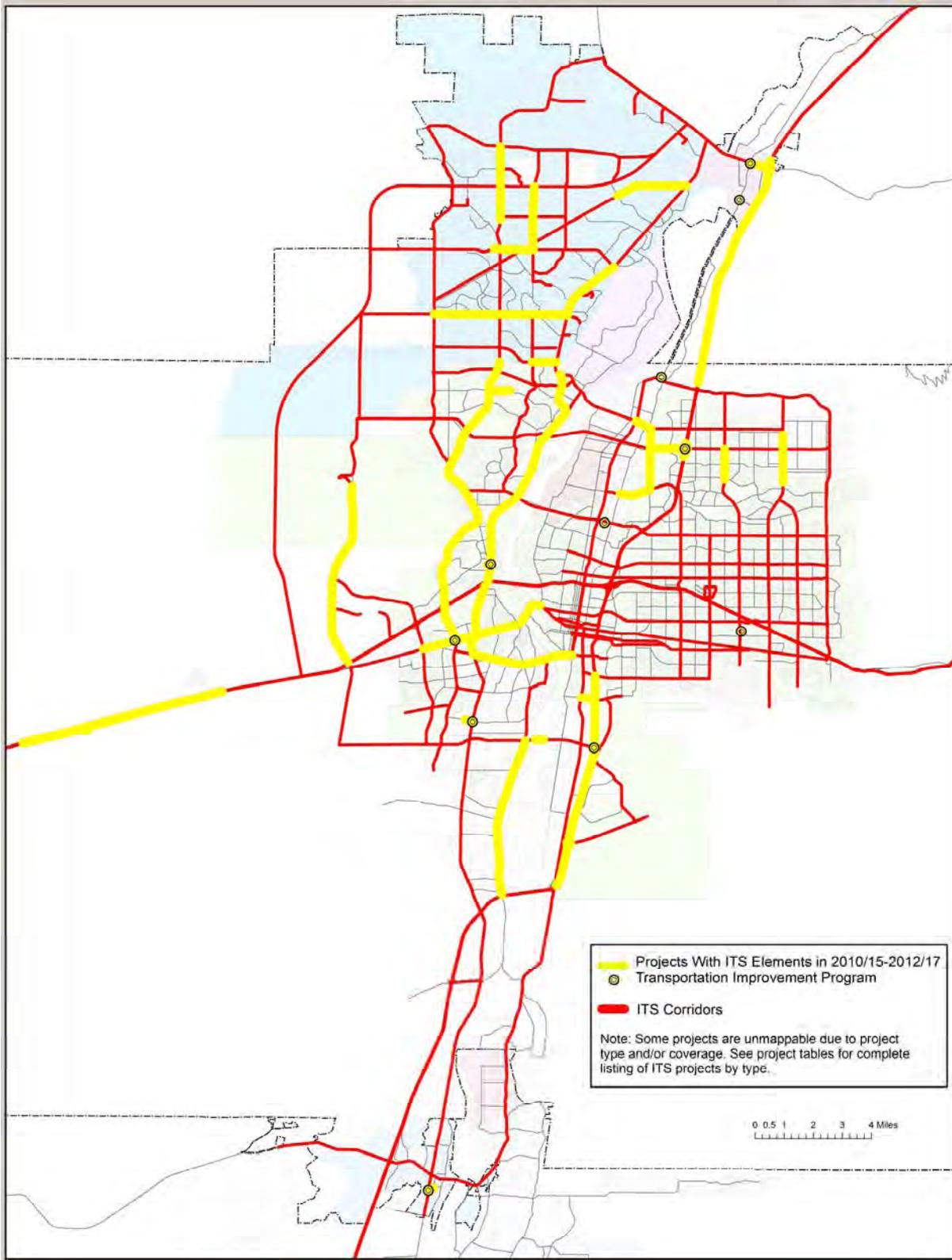
Table 4. 2012-2017 TIP Submittals with ITS Elements; Category III. Archive Data and Communications. * Indicates project is in multiple ITS Project Categories

ITS Project Map

ITS Projects having discreet termini are identified on the ITS Corridors map shown in **Map 1** below. Others that are programmatic or that cannot be shown on the map must be referenced in the project tables above. As noted above, 63 discreet TIP projects were identified to include ITS elements. This translates to over **75** mappable centerline miles (13%) of the approximate 600 centerline miles of ITS corridors identified on the map are proposed to include ITS elements. Furthermore, there are systematic or programmatic ITS projects that are unmappable; they provide additional ITS coverage on the interstate system and the arterial system within the AMPA such as the Freeway Motorist Assistance/Courtesy Patrol, transit projects with stations and/or vehicle upgrades, and programmatic upgrades involving operations and maintenance. See the project tables for more clarification.

The 63 projects with ITS Elements included in the current and proposed TIP by agency are as follows:

- Bernalillo County – 8
- City of Albuquerque – 15
- City of Rio Rancho - 6
- Town of Bernalillo – 1 (4 intersections)
- NMDOT – 16
- Rio Metro – 3
- ABQ Ride - 9
- Village of Los Lunas – 1
- MRCOG – 2



Map 1. FY11, FY2012-17 TIP Projects with ITS Elements

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V. ITS Elements: Infrastructure Geodatabase and Deployment Maps

ITS Infrastructure Monitoring in GIS

Current ITS deployments for each AMPA Stakeholder are mapped as part of the ongoing architecture maintenance task. An ArcGIS regional geodatabase using a uniform “feature dataset” of common ITS elements deployed within the AMPA is used for this purpose, which allows for sophisticated mapping of the ITS elements, as well as establishes an optimal environment for system inventory and operational integration on a multi-agency basis. The value of this information for planning purposes as well as operations and maintenance activities is a driving force that has been key in developing, integrating, and maintaining the dataset. With this approach, user’s are assured of uniformity and consistency across the dataset(s).

The geodatabase is in early stages of development and agency integration, however, the ArcGIS platform and access to “cloud computing” is already proving to be a valuable tool for combining datasets from multiple agencies for their wide ranging needs. Critical to the success of this approach has been the establishment of a common data “schema”, which includes all the ITS components (*ArcGIS Feature Classes*), with all aspects of ITS infrastructure data such as ITS element type, ie, telemetry, DMS, CCTV, VDS, etc, as well as detailed inventory data such as unit specifications, equipment manufacturer, maintenance history, and other critical information essential for public-works level maintenance and inventory needs. A User’s Group comprised of GIS staff familiar with their agency’s ITS data needs has been established to monitor the development and use of the dataset following a *change management* process. By involving the GIS staff combined with ITS staff, the database meets the needs of more than one level of user for any of the stakeholder agencies, thus increasing the value and utility of the database. Also, this approach ensured that each agency could integrate the database into their existing inventory and O&M activities to provide data maintenance and upkeep.

ITS Deployment Summaries and Mapping

The ITS Subcommittee identified the list below as valuable ITS infrastructure to include as part of the ITS planning process and architecture maintenance effort. ITS infrastructure data is collected and maintained by each respective owner agency as part of their respective GIS/Inventory efforts so as to ensure that each agency is responsible for its own infrastructure reporting. MRCOG staff performs the integration of these datasets into the ITS Infrastructure Geodatabase for summary and map production. Feature class items include:

1. Telemetry/Communications
2. Closed Circuit Television (CCTV)
3. Dynamic Message Signs (DMS)
4. Count Stations (VDS)
5. Roadway Weather Information Stations (RWIS)
6. Transit Priority Signals
7. Isolated Video Detection Imaging (VDI)
8. Traffic Operation Centers/Management Centers/Dispatch (TOCs/TMCs)
9. Transit Priority Corridors
10. Transit Station Upgrades/LED Counters/Kiosks

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In addition to the physical deployments, Memorandums of Understanding (MOUs) which establish coordination between stakeholders have been developed. One of the major benefits of regionally coordinated ITS are the sharing opportunities of agency infrastructure. ITS elements with shared coordination outlined in formal MOUs include DMS and Fiber Optic telemetry. These include:

1. NMDOT and City of Albuquerque – Fiber sharing and DMS shared control
2. NMDOT and Bernalillo County – Fiber sharing
3. NMDOT and City of Rio Rancho – Fiber sharing
4. NMDOT and Local Media – Congestion Data Sharing

Agency Deployment Summaries

The current ITS deployment for **FY 2012** is shown in **Maps 2, 3, and 4** below. ITS deployment summaries by Stakeholder agency are also shown below. Note that the NMDOT data is included in a separate map. Source is the ITS Infrastructure Geodatabase in ESRI's ArcGIS.

1. City of Albuquerque, DMD

The city continues to develop ITS through a federally programmed project Albuquerque Traffic Management System (ATMS) to include the core ITS elements summarized below. Recently, Phase 12 and 13 have involved installation of VDS stations and DMS for posting travel time data. Further, direct access is established to the NMDOT's TOC for operation and MRCOG for data archiving. This project to provide travel time and roadway information is part of a coordinated interagency regional ITS operations strategy.

- a. Telemetry –
 - i. Fiber – 78.8 miles
 - ii. Aerial – 12.1
 - iii. Conduit – 96.6
 - iv. Microwave – 3.2
- b. CCTV installations – 75
- c. DMS – 10
- d. VDS - 27
- e. Traffic Operations Centers (TOC) – 1 Primary, 1 as backup

2. City of Rio Rancho:

The City of Rio Rancho has expanded the installation of Fiber telemetry with the addition of 4.25 miles to bring the total miles of fiber to 7.25 mi, from 3.0 in FY 2008.

- a. Telemetry
 - i. Fiber – 7.25 miles
 - ii. Conduit – 4.2 mi (1.8 mi empty, 2.4 mi with copper)
 - iii. Qwest Dialup – T1 Communications between Southern Blvd and Civic Center Circle
- b. Traffic Operations Centers (TOC) – 1

3. Bernalillo County Public Works Division:

The County of Bernalillo has expanded the installation of Fiber telemetry with the addition of 0.8 miles to bring the total miles of fiber to 9.1 mi, from 8.3 in FY 2008. Central controlling signal software package Centracs is being pursued for acquisition.

- a. Telemetry-
 - i. Fiber – 9.1 miles
 - ii. Conduit – 4.6
 - iii. Qwest Dialup – Leased Phone Lines from TOC to CCTVs
- b. CCTV installations – 11
- c. Traffic Operations Center (TOC) - 1

4. ABQRide Transit:

A critical component of the ABQRide ITS deployment involves the monitoring of Bus Rapid Transit (BRT) along Central Avenue’s Red and Green Lines with Automatic Vehicle Location (AVL) and/or GPS devices. BRT stations employ LED-based next bus arrival displays at 33 of 55 stations. Fourteen of these have Multiple Route capability with the option audible announcement upgrade capability, and nine of them have Single Route with no audio upgrade capability.

Additionally, the entire fleet of fixed route buses are being equipped with GPS devices that will provide location and “predictive arrival” information for the Operations/Dispatch Center and at stations via the LED displays. Trip Planning is available via the web, and “Rider alert” text messaging is offered. Numerous multi-modal projects are in the early stages of planning, and ITS will be a major part of them with the potential for transit queue jumpers at intersections, and other ITS enhancements at stations and/or along the routes.

- a. Transit Priority Corridors – 13.3 miles; 21 (of 29) Transit Priority Stations with LED Counters
- b. Transit Operations Center/Dispatch - 1

5. Rio Metro

- a. CCTV Installations (dedicated to station security/surveillance) - 18
- b. Station LED based kiosk/Message boards located at each station (8) with scrolling message and audio capability.

6. NMDOT ITS/District 3:

NMDOT ITS bureau has the largest level of ITS deployment within the AMPA, and recognizes the role in establishing a platform from which member agencies and first responders can integrate their efforts seamlessly while maintaining their respective ITS functionality and locally defined priorities. NMDOT has recently completed the second phase of improvements to its TMC and continues ITS installations within the AMPA consistent with the pursuit of this directive.

- a. Telemetry – 86 miles fiber
- b. CCTV installations – 65 total (62 fiber, 3 wifi)
- c. Dynamic Message Signs (DMS) – 53
- d. VDS – 58 installations/64 MRCOG roadway sections
- e. Traffic Management Center (TMC) - 1

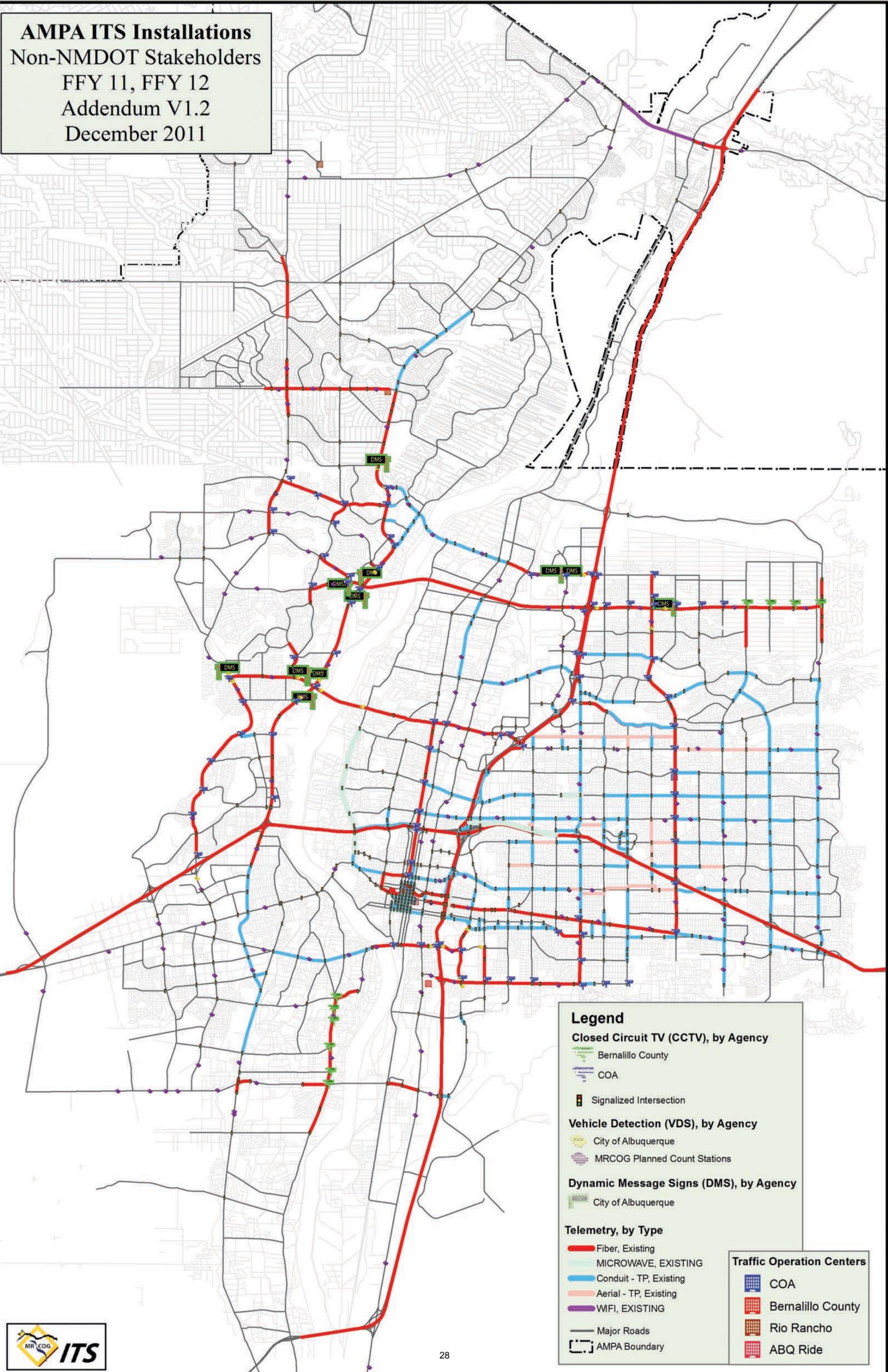
7. NMDOT Planning, ITS Installations Only

Side Fire Radar installation replaces previous inductance loop installation. Future coordination and integration with the ITS Bureau data collection is anticipated as new installations and project level communications develop.

- a.** Count Stations – 1 (Side Fire Radar on I-25 at Los Lunas Intch)

Map 2. FFY2012 ITS Deployment (non-NMDOT)

AMPA ITS Installations
 Non-NMDOT Stakeholders
 FFY 11, FFY 12
 Addendum V1.2
 December 2011



Legend

Closed Circuit TV (CCTV), by Agency

- Bernalillo County
- COA

Signalized Intersection

Vehicle Detection (VDS), by Agency

- City of Albuquerque
- MRCOG Planned Count Stations

Dynamic Message Signs (DMS), by Agency

- City of Albuquerque

Telemetry, by Type

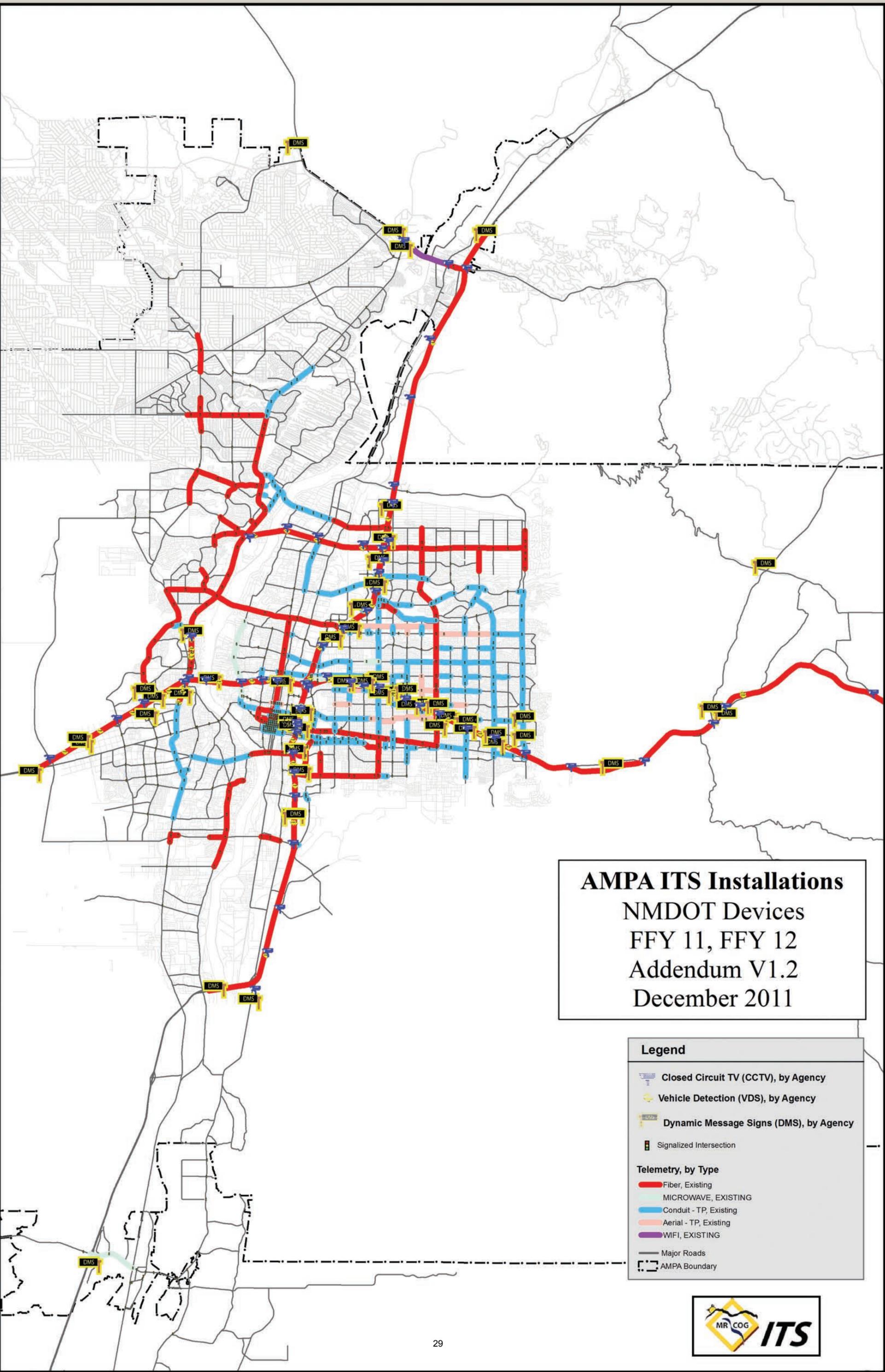
- Fiber, Existing
- MICROWAVE, EXISTING
- Conduit - TP, Existing
- Aerial - TP, Existing
- WIFI, EXISTING
- Major Roads
- AMPA Boundary

Traffic Operation Centers

- COA
- Bernalillo County
- Rio Rancho
- ABQ Ride



Map 3. FFY2012 ITS Deployment (NMDOT)



AMPA ITS Installations
NMDOT Devices
FFY 11, FFY 12
Addendum V1.2
December 2011

Legend

- Closed Circuit TV (CCTV), by Agency
- Vehicle Detection (VDS), by Agency
- Dynamic Message Signs (DMS), by Agency
- Signalized Intersection

Telemetry, by Type

- Fiber, Existing
- MICROWAVE, EXISTING
- Conduit - TP, Existing
- Aerial - TP, Existing
- WIFI, EXISTING

- Major Roads
- AMPA Boundary



