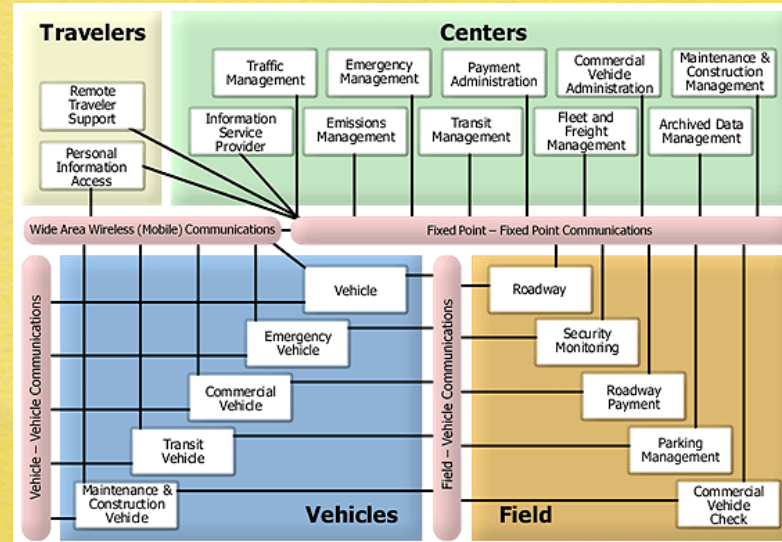


T3 Webinar – July 30, 2014

Regional ITS Architecture

Use and Maintenance



NEW MEXICO

We All Know -

ITS Architectures are a common framework transportation systems.

ITS Architectures define -

- functions,
- physical entities or subsystems, and
- information flows and data flows.

ITS Architectures are designed –

- for a specific term,
- for a defined area, and
- for regional transportation.

But

ITS Architectures –

Can be a catalyst for change,

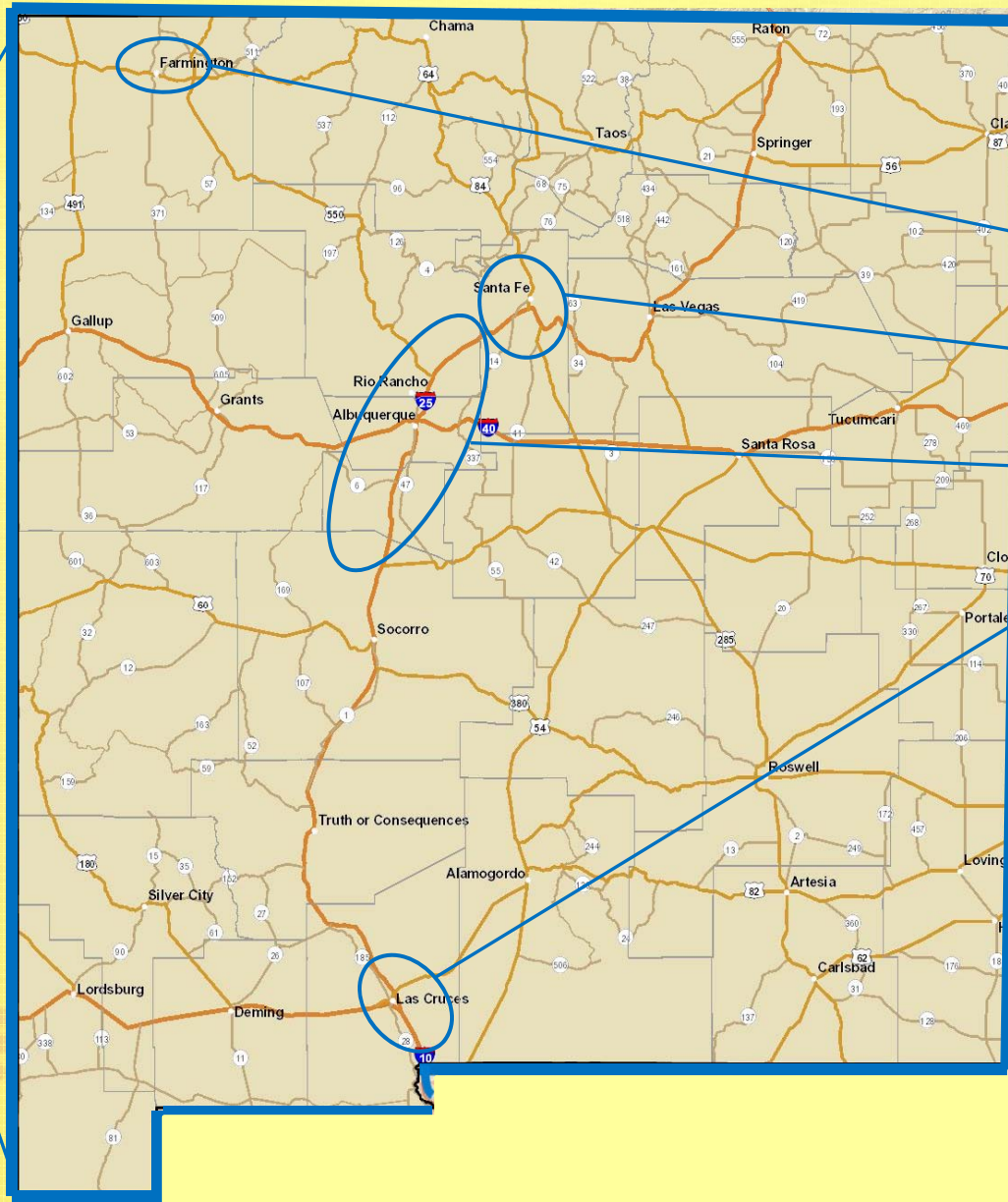
Can bridge historically disparate functions within an agency, and

Can serve as a basis of cooperation among different agencies,

And be leveraged further for other mutual gains.

New Mexico Has Five ITS Regional Architectures

STATEWIDE



Farmington

Santa Fe

Albuquerque

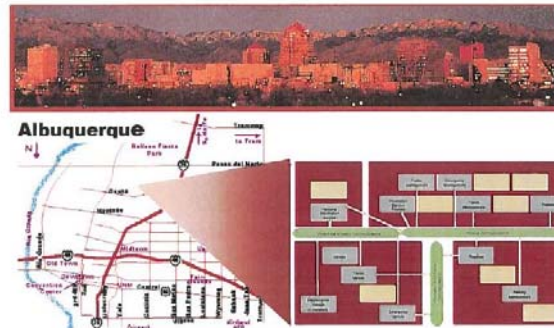
Las Cruces

The Beginning

First Regional Architecture Developed in December 2000 for Albuquerque Metropolitan Planning Area

Regional Architecture for the Albuquerque Metropolitan Planning Area (AMPA) Version 2

New Mexico State Highway and Transportation Department
Albuquerque AMTMS – Phase 1
Activity 2



Prepared by:

 Kimley-Horn
and Associates, Inc.
8501 Americas Parkway NE, Suite 240A
Albuquerque, New Mexico 87110
(505) 830-3381

 JAFFE ENGINEERING

P.O. Box 517
17 Miller Avenue
Shenorock, New York 10587-0517
(914) 248-8466

December 15, 2000

Prepared for the New Mexico State Highway and Transportation Department

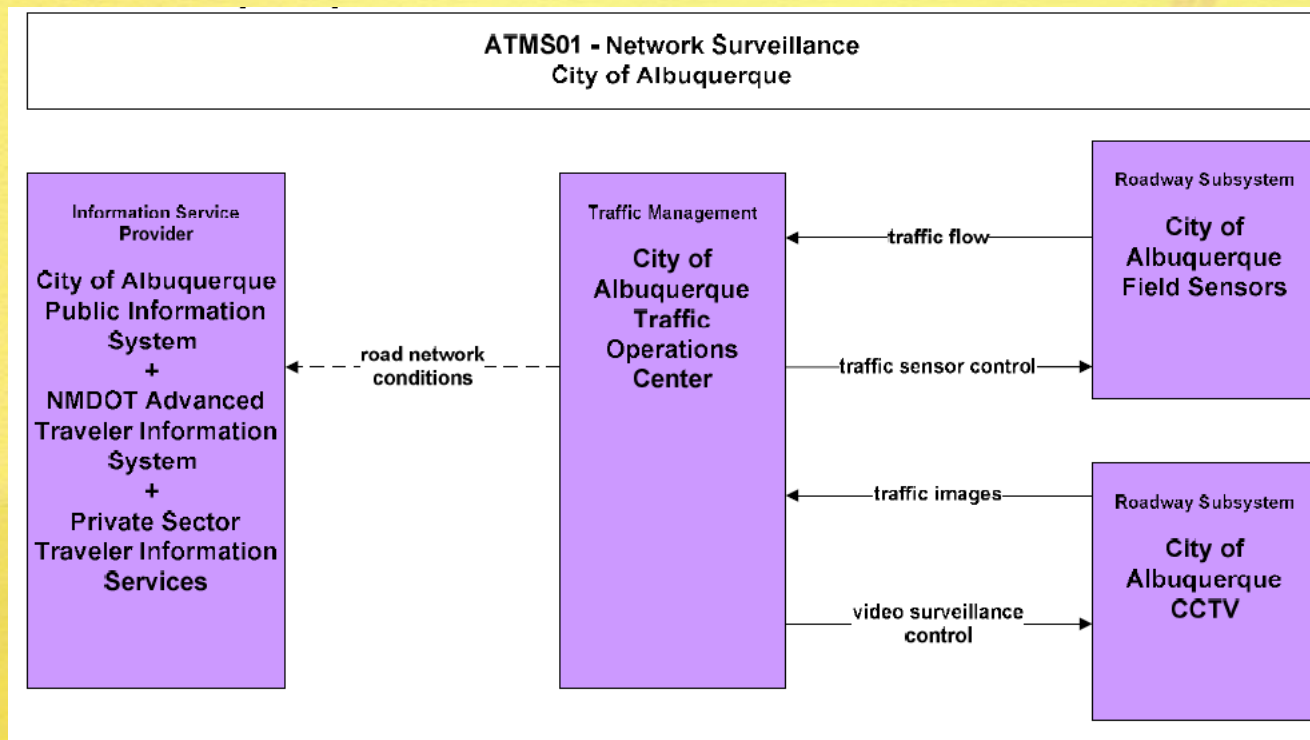
Architecture Development Timelines

- **Las Cruces first developed in 2003, updated in 2007, 2nd update in June 2014**
- **Santa Fe first developed in 2005, updated in 2011**
- **Statewide first developed in 2007, updated in 2013**
- **AMPA first update in 2007,**
 - **another major update is planned 2014**
 - **biannual updates align with TIP / MTP cycle**
- **Farmington first developed in 2006, updated in 2012**

More Background Information

- **Patterned after the National Architecture**
- **Turbo Architecture® Format**
 - **Tied to same database**
 - **Allows consistency and accuracy at boundaries and for services that cross boundaries**
 - **Farmington architecture is slated for update and inclusion in that database**
- **Developed with contractual support**
- **Architecture Documents Use Visio® Files for Service Packages depictions that define relationships and flows**

Typical Service Package Depiction



Different Needs – Different Architecture Uses



Use of Architecture in the AMPA



Architecture Maintenance and Planning

What we had before.....frustration!

- TIP and MTP program development was not “ITS Friendly”..... Project submittal and review process did not fully recognize all ITS elements
- ITS was project “TYPE” only; ITS elements included in *other project types* were not being recognized

Only the **Major** ITS developments were known, smaller- scale ***ITS Mainstreaming*** was not being captured

Our fix - ITS in MRCOG's *Transportation Program Development*

TIP Project Submittal Form:

FORM C: ADDENDUM for TIP PROJECT PROPOSALS

Complete Form C: Addendum for TIP Project Proposals in its entirety for proposals which add a project to the TIP. (Also, during development of a new TIP, those proposals for additional funding to an existing TIP project.) Complete only Steps C.1 and C.2 for TIP revision proposals which split an existing project into two or more projects, combine two or more existing projects into one project, or for any proposal which changes the termini of a capacity project any length OR a non-capacity project more than 1/4 mile cumulative change. Also complete Forms A and B for all TIP proposals.

Page references refer to the *Project Prioritization Process Guidebook (PPPG)*.

MPO ID#: Control Number: Project Title:

STEP C.1 - LEAD AGENCY (PROJECT SPONSOR) INFORMATION

Lead Agency: Department: Address: Address Line 2: City: State: NM Zip: Contact Person: Title: Telephone: (505) ###-#### Ext: Fax: (505) ###-#### Email:

ITS - Will this project include any of the following (check ALL boxes that apply):

This is NOT an inclusive or comprehensive list of ITS Architecture project elements, only common ones

<input type="checkbox"/> -Traffic monitoring sensors such as in-pavement loops/acoustic sensors	<input type="checkbox"/> -Traffic signal installation or coord.	<input type="checkbox"/> -Message Signs
<input type="checkbox"/> -RWIS pavement sensors	<input type="checkbox"/> -Traffic signal pre-emption	<input type="checkbox"/> -Transit stops/Rail stations/Airport
<input type="checkbox"/> -Video imaging and/or CCTV	<input type="checkbox"/> -Traffic signal prioritization	<input type="checkbox"/> -Other:
<input type="checkbox"/> -Remote traffic monitoring	<input type="checkbox"/> -Fiberoptic cable and/or connection	
	<input type="checkbox"/> -ITS integration	

If you checked any box the project most likely will need to be included in the Albuquerque Metropolitan Planning Area ITS Regional Architecture and New Mexico Statewide ITS Architecture before any Federal funds can be expended for any ITS component project element. For information, contact Nathan Masek at (505) 724-3620 or Nmasek@mrcog-nm.gov

If "yes", who will be the contact person for data collection? Name: Off. Phone: (505) ###-#### Ext: email:

If "yes", after contacting the ITS coordinator, is this project included/being added to the ITS Architecture? ☐ -Yes ☐ -No

<input type="checkbox"/> Capacity	<input type="checkbox"/> Freight Movement
<input type="checkbox"/> Roadway Efficiency Improvements	<input type="checkbox"/> Safety Improvements
<input type="checkbox"/> Preservation/Maintenance of Infrastructure	<input type="checkbox"/> Transit (Commuter Rail, Park & Ride, Vehicle Purchase)
<input type="checkbox"/> ITS (Intelligent Transportation Systems)	<input type="checkbox"/> Alternate Modes (includes Bike/Ped)
	<input type="checkbox"/> Other:

Preservation of Existing Infrastructure: (refer to pages 34-35 of the PPPG)

What percentage of the project is dedicated to preservation of the existing infrastructure? (Reconstruction, rehabilitation, resurfacing, bridge replacement/rehab., vehicle replacement, transit buildings repairs, etc.) % =

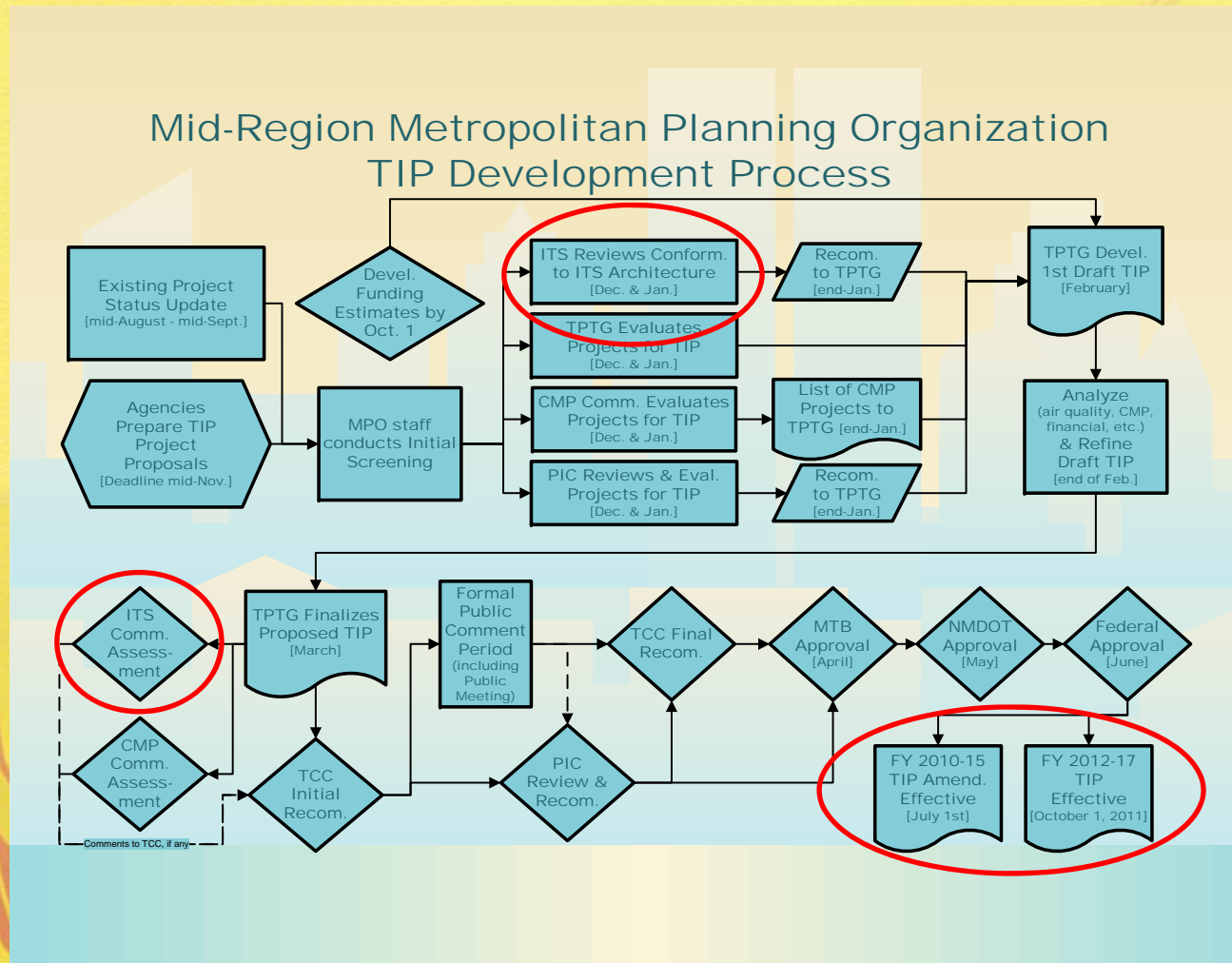
☐ -Yes ☐ -No Is there a bridge included in this project that is on the NMDOT deficient bridge list that will have those deficiencies addressed to remove the bridge from the deficient bridge listing?

Safety Improvement Assessment Information:

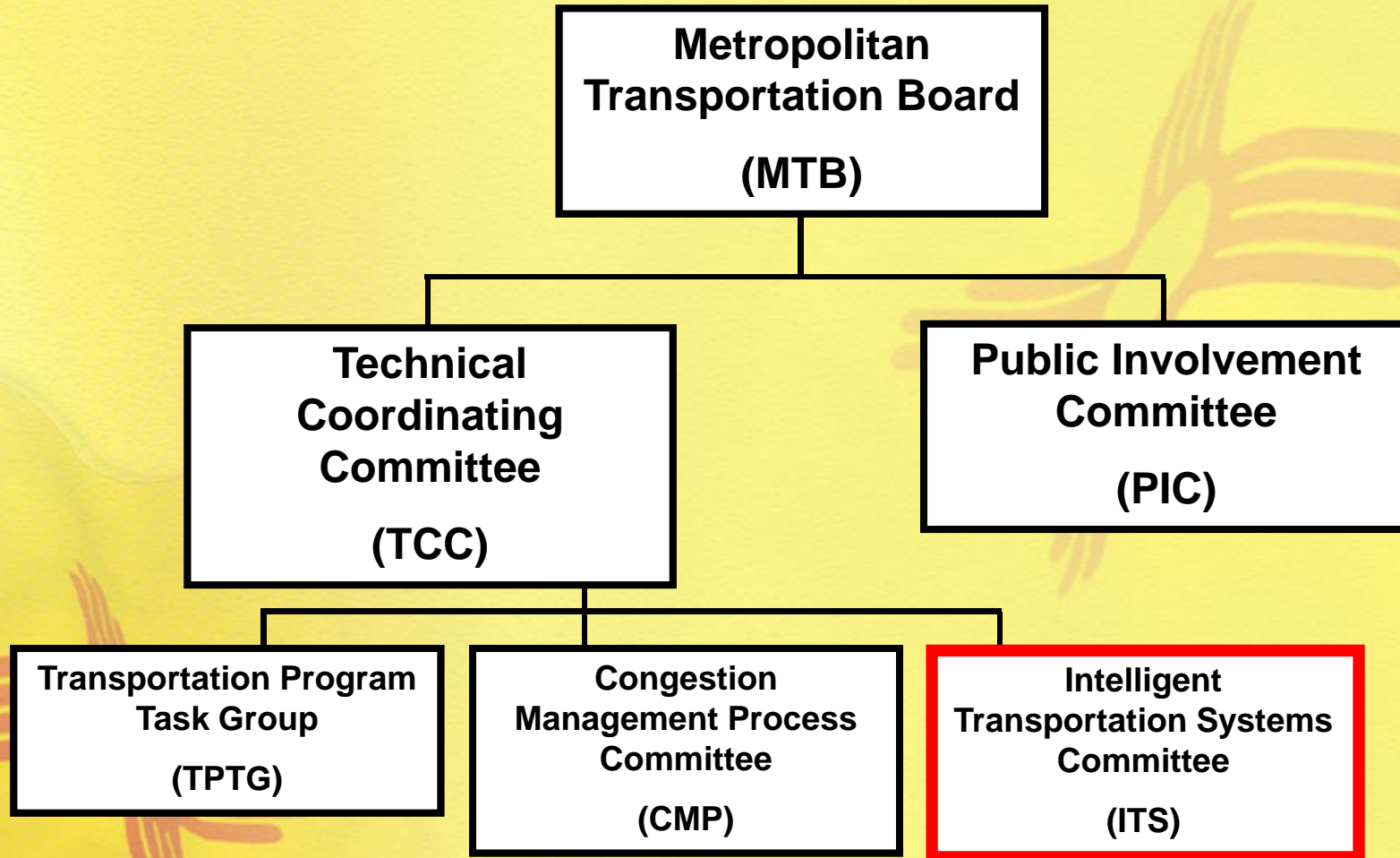
☐ -Yes ☐ -No Does this project include any "safety strategy" identified on pages 26-30 of the PPPG?

If yes, briefly state the strategies:

ITS in MRCOG's *Transportation Program Development:*



ITS in MRCOG's *Transportation Planning & Decision-Making committees*



ITS in MRCOG's *Transportation Program:* *ITS Architecture Maintenance, Systems Engineering* *Certification*

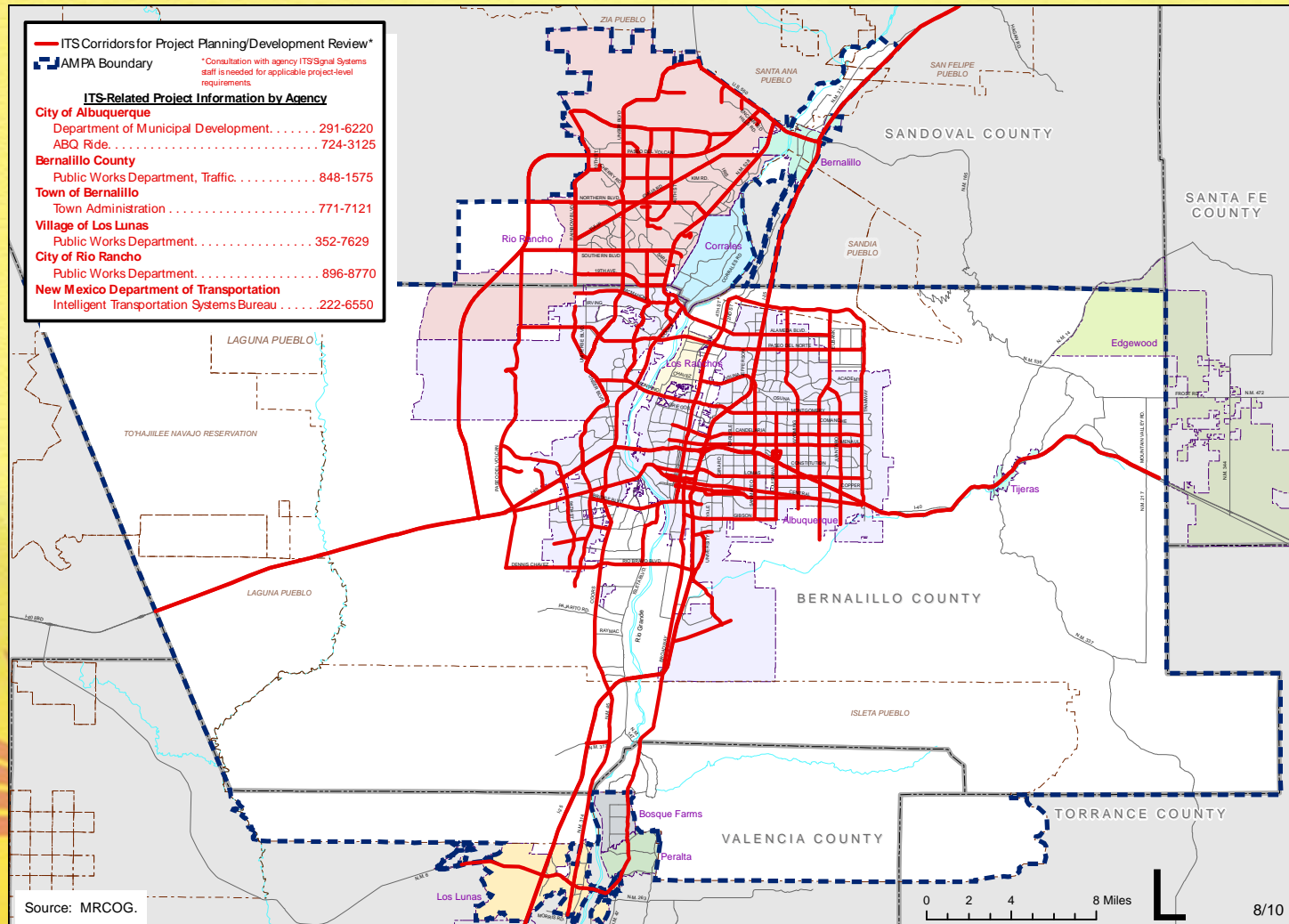
- Architecture Maintenance “Addendum”, coincident with TIP/MTP
 - All TIP projects reviewed, ITS elements identified
 - “Linked” to Regional Architecture, project Service Packages identified
 - Easy planning-level project reference
 - Deployment maps
- Agency/project representation at ITS SC
- Support **Systems Engineering** project certification
 - NMDOT conducts certification
 - Guidance established on NMDOT's website
 - Certification is required for project approval

Project Tracking as Part of the Maintenance Process

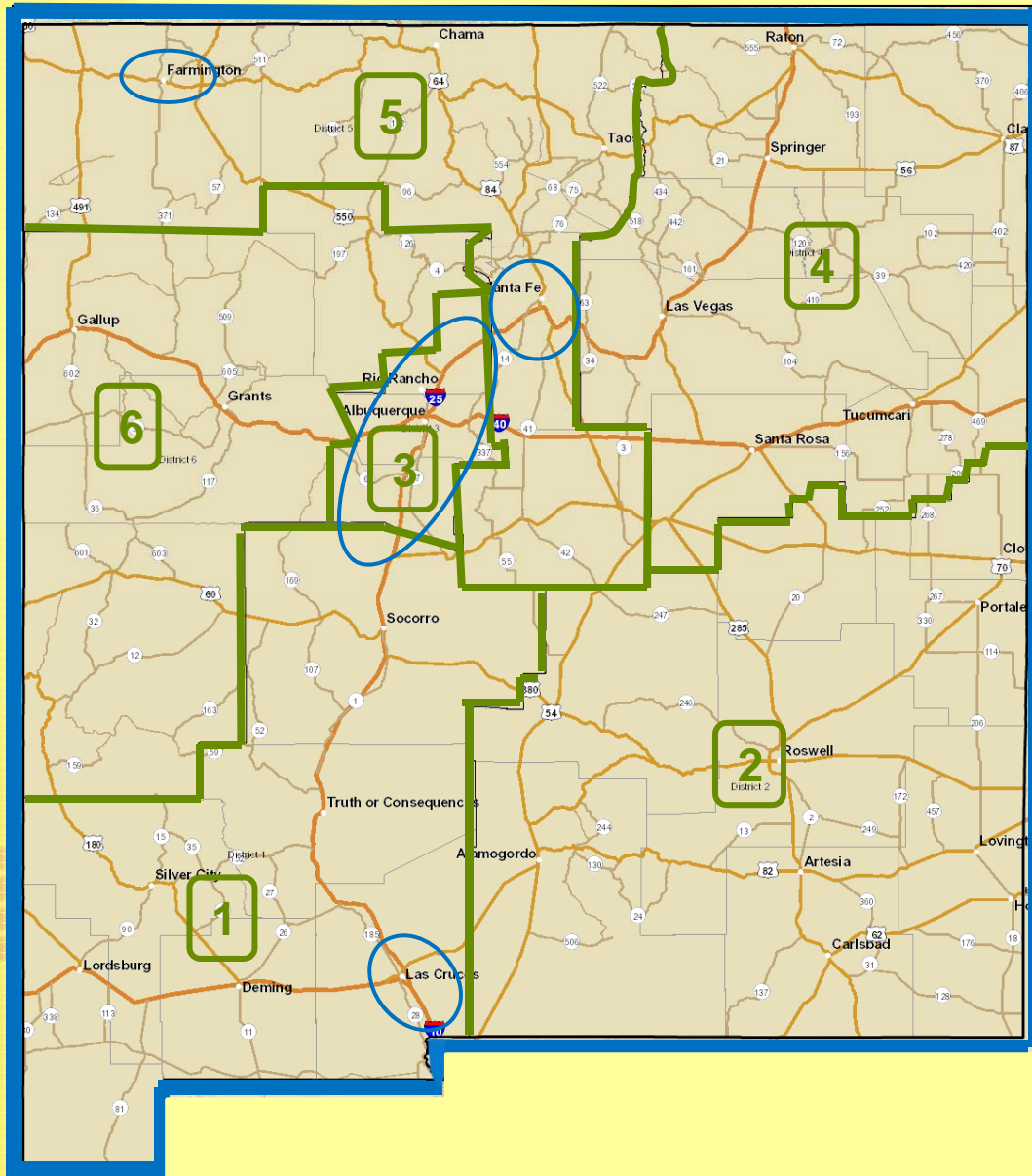
Category I. Traffic Management, Incident Management, and Maintenance Operations Projects				BLACK text = Projects currently programmed in TIP ('09) BLUE text = Projects programmed in 2010-15 TIP Gray Cells = Projects submitted but unfunded			
MTP/TIP Project Database Information				ITS Regional Architecture Information		2010-15 Project-Level ITS Elements	
Seq.	MPO ID	Project Name in TIP	Lead Agency	On ITS Map?	In ITS Arch.?	Recommended MPs in Regional Architecture	Agency-Proposed Project Market Packages (MPs) – Use This Column for Project MPs
1		Isleta Blvd Impr. SIB Repayment	Bern Co	Y	Y	ATMS01, ATMS03	ATMS01, ATMS03
2	40.0*	ITS-Abq ATMS	CoA	Y	Y	ATMS01, ATMS03	ATMS01, ATMS03, APTS09

Summarizes TIP Project Level ITS
 Identifies Incorporated Service Packages
 Also Includes Category II – Transit Projects
 and Category III – Archive Data and Communications Projects

ITS Corridors Map



NMDOT Districts and Architecture Use



District Architectures

One **Las Cruces
Statewide**

Two **Statewide**

Three **Albuquerque
Statewide**

Four **Statewide**

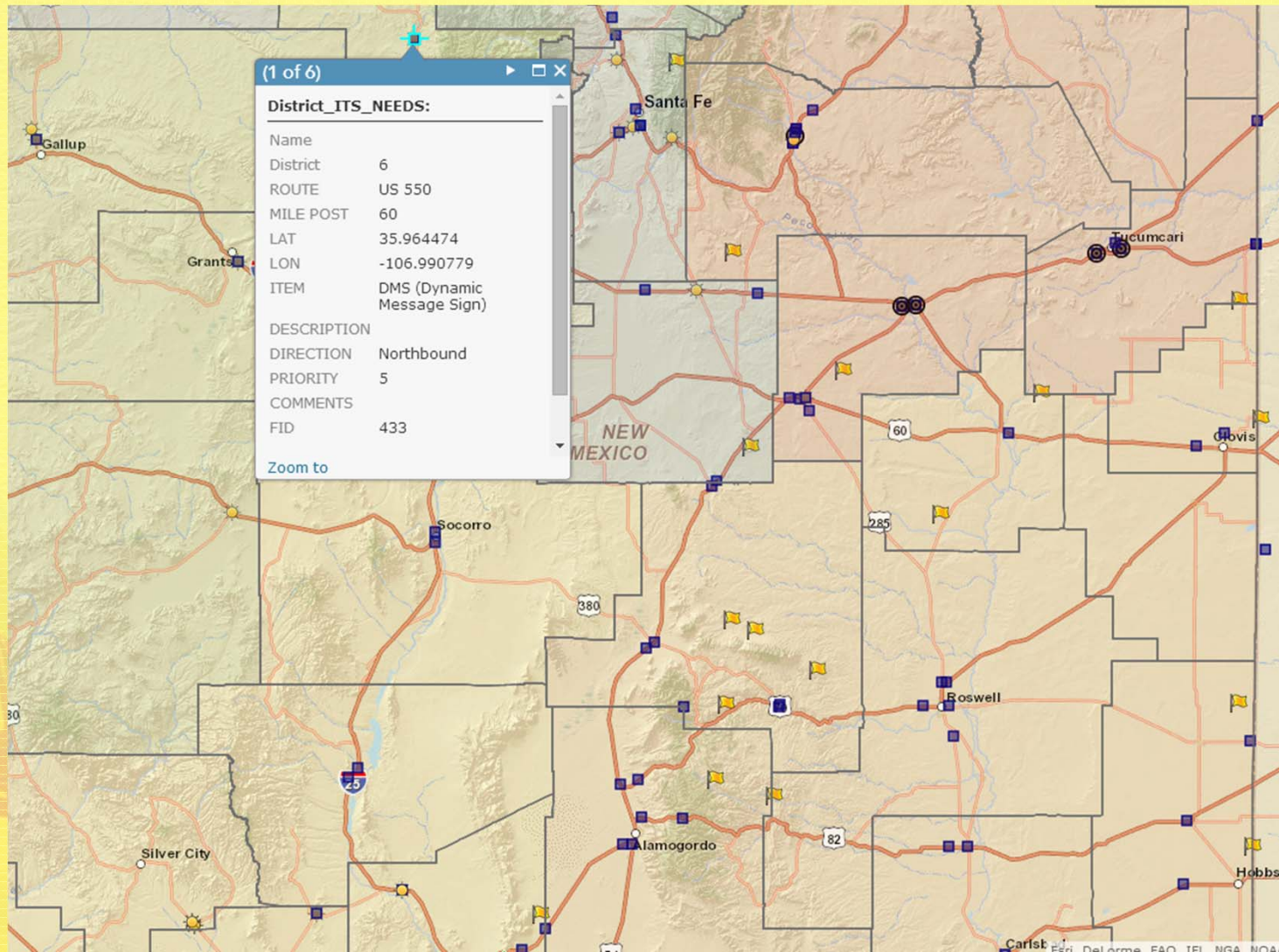
Five **Santa Fe
Farmington
Statewide**

Six **Statewide**

NMDOT District ITS Planning and Operations

- **NMDOT's operations are distributed among Six Districts with support from a centralized G.O.**
- **ITS Operations for the NMDOT is within the G.O.**
- **ITS activities and projects within the Six Districts are centrally coordinated and managed by the Department's ITS Bureau**
- **Associated ITS Architecture(s) Reviewed**
- **District ITS Strategic Plan Developed**
 - **Reviewed Annually**
 - **Contains Mapping Attributes**

District Strategic Plan Mapping Feature



NMDOT District ITS Projects

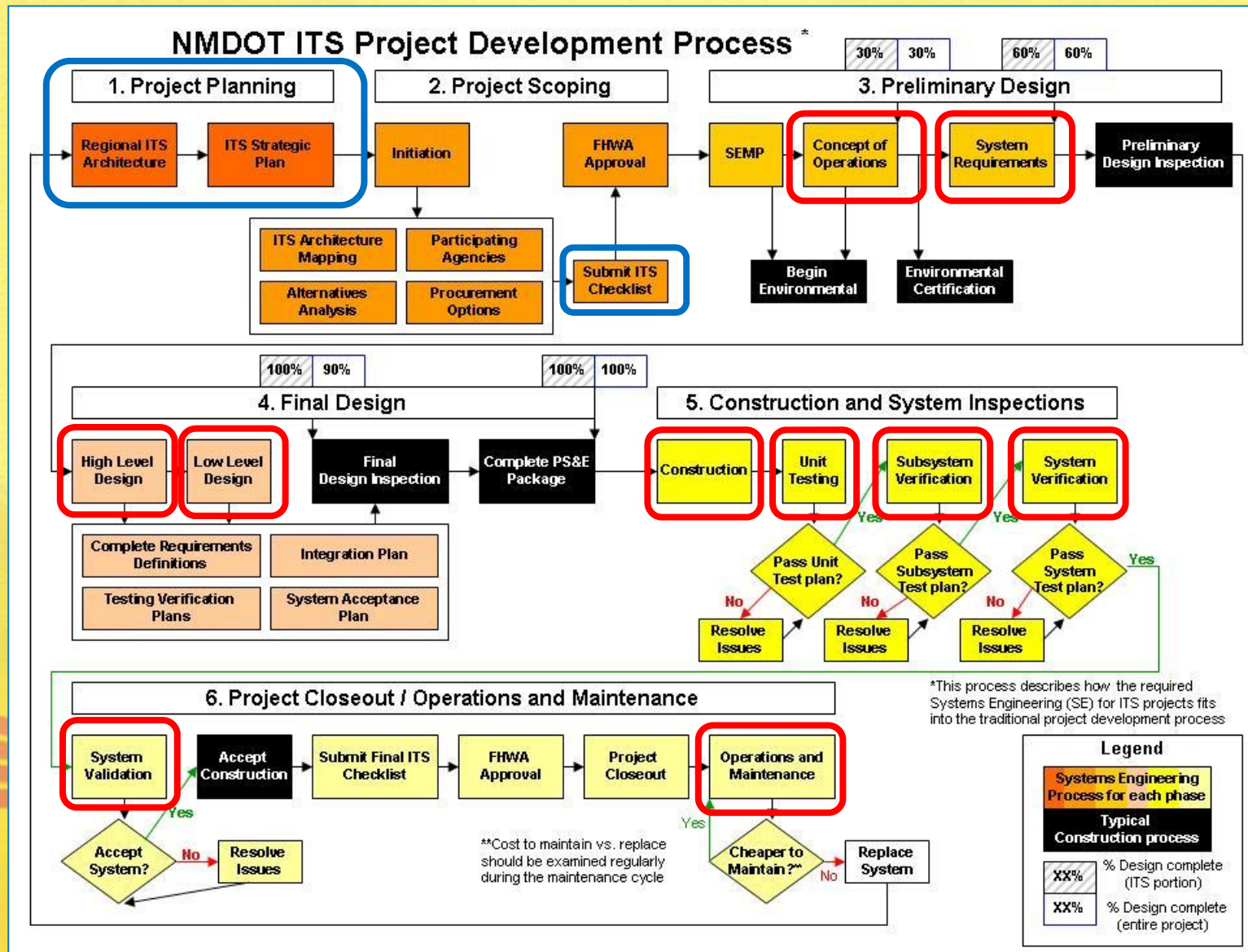
District's Strategic Plan Reviewed and Used to –

- **Identify District ITS Projects and Deployments for TIP/STIP**
 - **Recurring Funding**
 - **One-time Funding**
 - **Project with ITS Elements**

OR

- **ITS Bureau's Annual Goals and Objectives**
 - **Staff Resources**
 - **Operational Funds**
 - **Priorities**
 - **Schedule**
 - **Needs-driven**
 - **Used as a Performance Measure**

ITS Project Development Flow



Systems Engineering Checklist a.k.a. – ITS Cert

Section 4 - For ITS Bureau Use Only

NSE ☐ MIN ☐ MAJ ☐

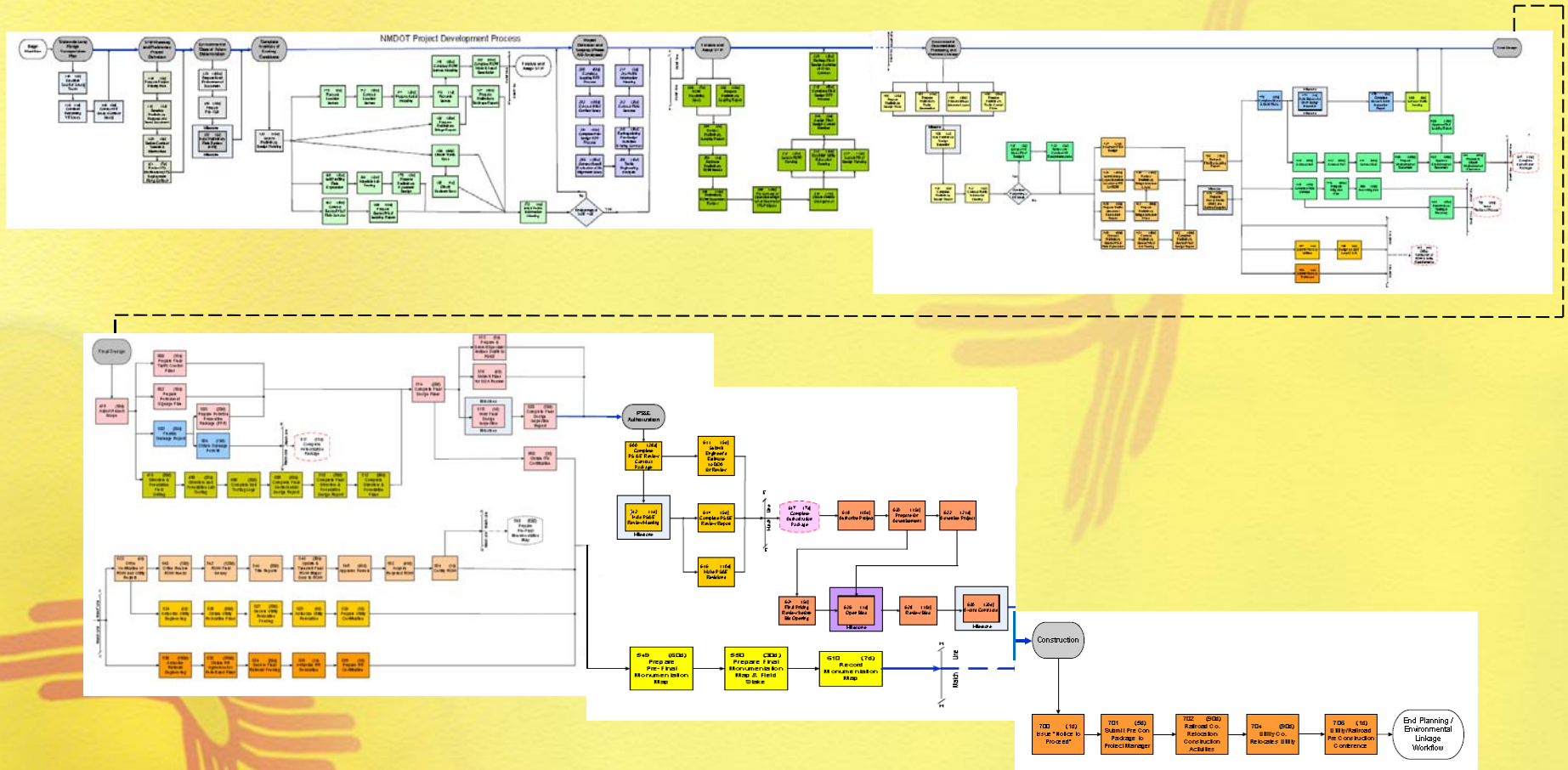
NMDOT Approval: _____
Print Name Signature Date

[Clear Form](#) [Save](#) [Email Form](#)

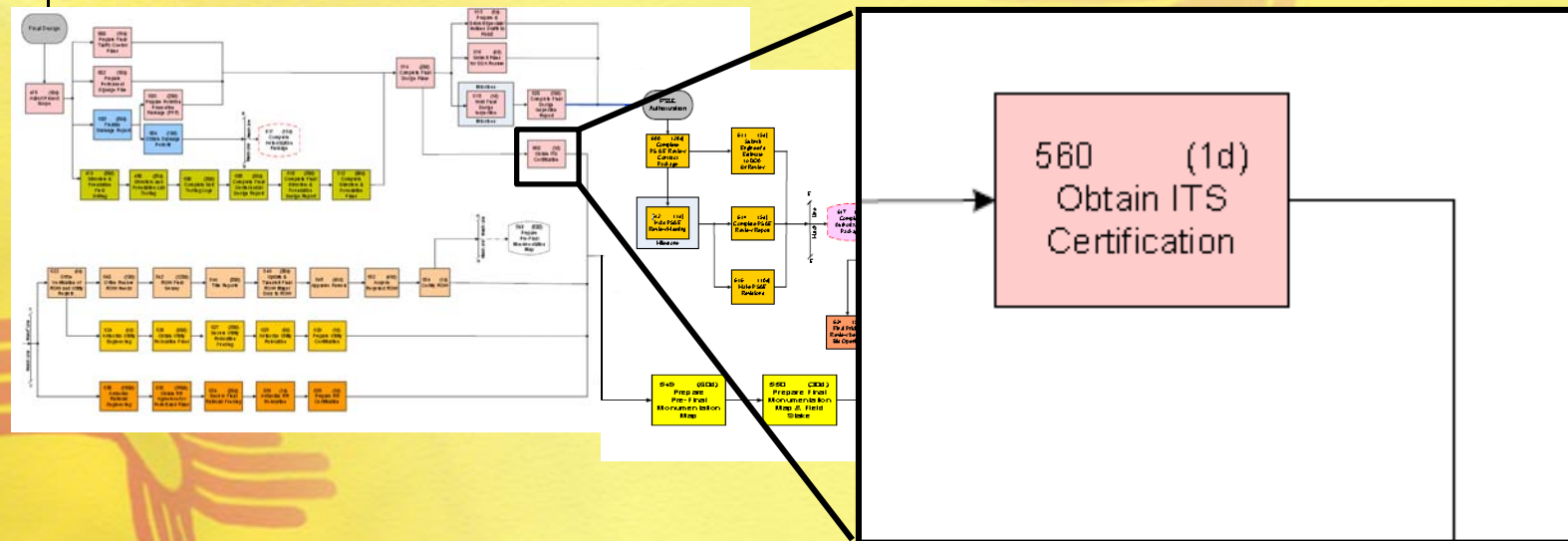
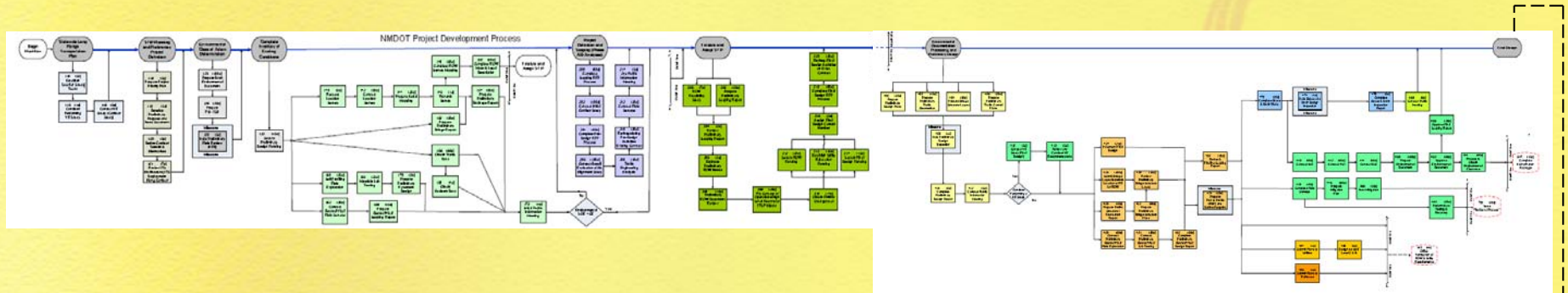
Considerations when Developing

- **Easy to Use**
- **No Impediment to Project Development Process**
- **Ties Projects Back to Architecture**
- **Ensure Compliance to 23 CFR 940.11**
- **On-line Submittal and Training for PMs**
- **Process Administrators Use a Responsive Customer Service Model**
- **Patterned from Oregon DOT Model**
- **Another Opportunity to Identify Non-ITS Projects as Candidate ITS Projects**

Non-ITS Project Development Flow

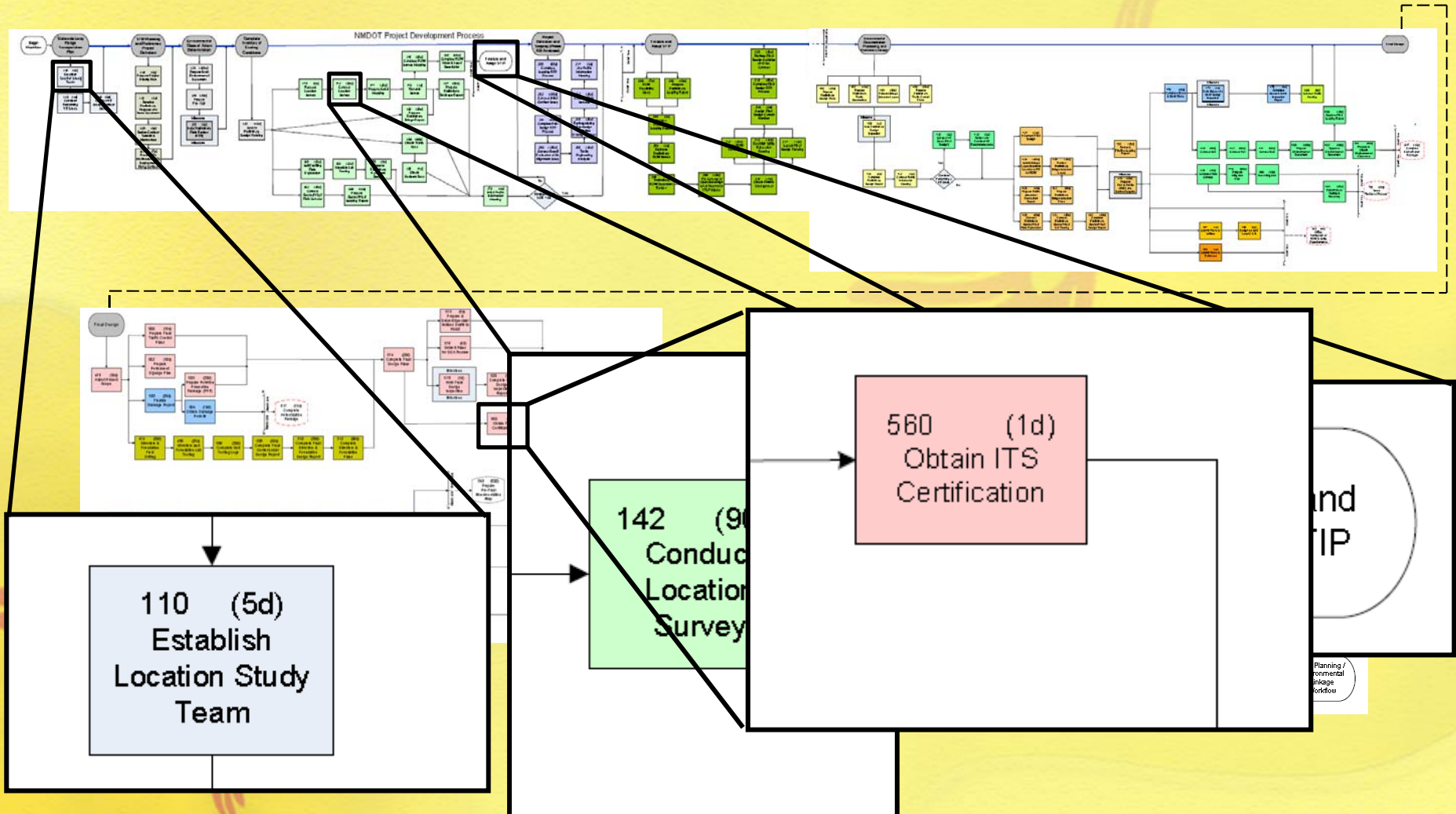


Good – But Not Good Enough



Planning /
Promotional
Linkage
Window

Influential Elements Occur Well Before ITS Is Considered



Programmed Amount vs. Engineer's Estimate

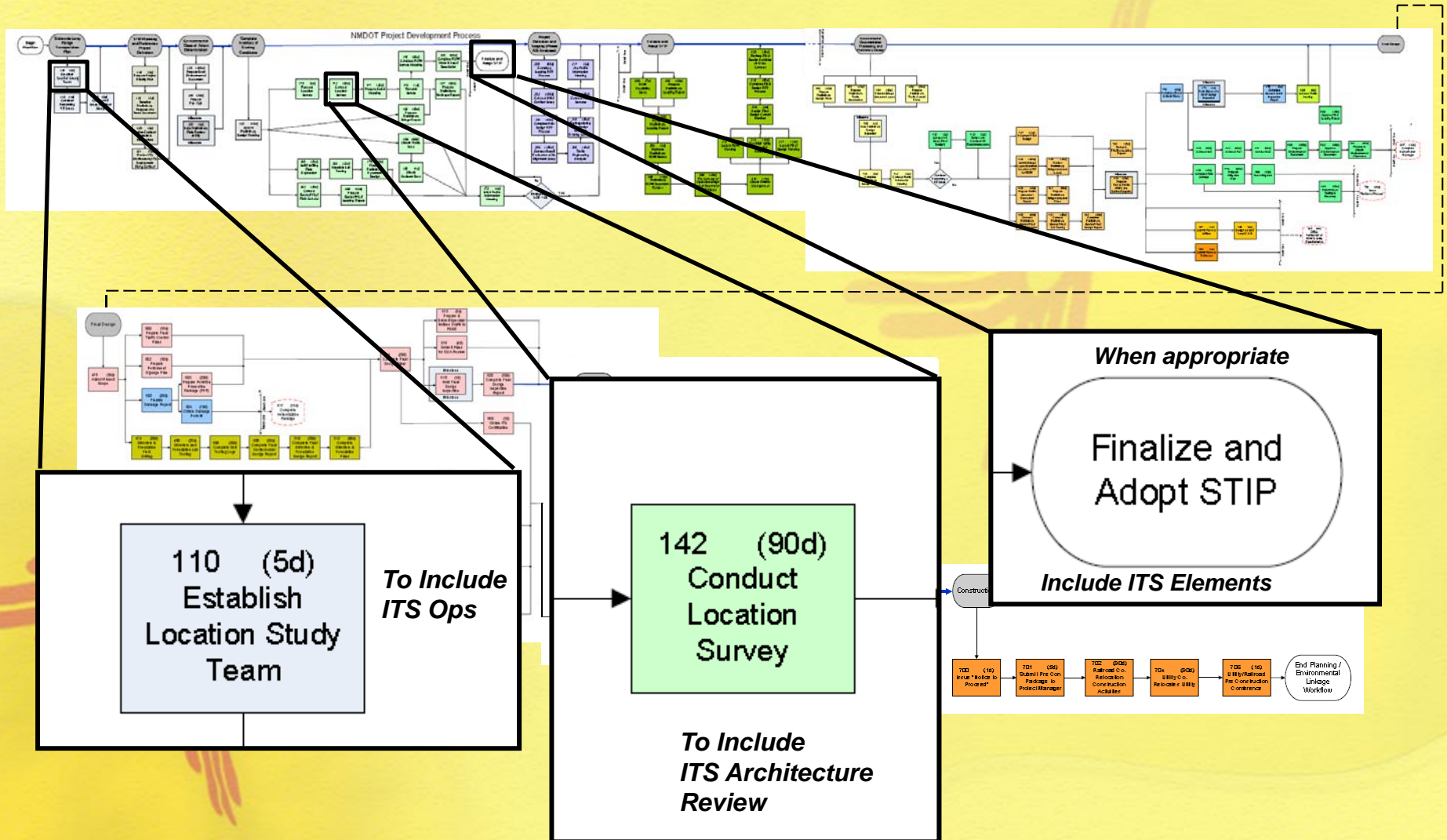
Project Scope		Schedule				Budget	
CN: LC00100 Project Phase: Active FHWA Work Zone Type: Regionally Significant Termini: I-25/MISSOURI AVENUE BRIDGE REHABILITATION - MISSOURI AVENUE Scope: BRIDGE REPLACEMENT AND WIDENING (STRUCTURE # 6825, 6826), ADDITION OF AUXILIARY LANES, AND PAVEMENT PRESERVATION	District 1 County: DONA ANA Route: I00025 Beg MP: 1.500 End MP: 3.500 Oversight: DS Structure(s):	Letting Date: October 17, 2014		STIP Year: 2014		Total STIP Amt: \$13,800,000.00	
		Production Date: August 25, 2014		Est Amt: \$13,500,000.00			
		PSE Review: July 21, 2014					
		Survey Request Date: 05/01/2012					
			Field Exploration Request Date: 12/31/2013		Budget Issues:		
		ADA Request Date: 6/3/14					
		Survey:	Design	Environmental:	Fund Pgm	Amount	
		Archeology:	ROW Maps:	Appraisals:	NHPP:	\$13,000,000.00	
		Acquisition:	Utilities:	Railroad:	STPF:	\$800,000.00	
		Environmental Clearance		04/18/2014 *			
		Obtain SHPO Concurrence		04/18/2014 *			
		RR Certification		01/01/2015 *			
		Utility Certification		01/01/2015 *			
		ROW Certification		01/01/2015 *			
		ITS Certification		01/01/2015 *			
Takes: 0 Owners: 0 TCP: No							
ROW: No							
Development Engineer: SHERRI HOLLIEFIELD							
Consultant/Designer: Molzen Corbin							
Comments: IACR Not Needed; Waiting for CE approval; Survey Corrected 5-22-14							
Actions for Next Month:							



Project Scope		Schedule		Budget		
CN: S100310 Project Phase: Active FHWA Work Zone Type: Regionally Significant Termini: I-25 BRIDGE MAINTENANCE PROJECTS Scope: BRIDGE MAINTENANCE ON I-25 BRIDGES 7372, 7373 WITHIN THE MPO AREA	District 5 County: SANTA FE Route: 490058 Beg MP: 0.000 End MP: 1.000 Oversight: DS Structure(s):	Letting Date: September 19, 2014		STIP Year: 2014		
		Production Date: July 21, 2014		Total STIP Amt:	\$1,203,406.00	
		PSE Review: July 15, 2014		Est Amt:	\$1,341,571.00	
		Survey Request Date: 12/10/2013 Field Exploration Request Date: ADA Request Date: 3/11/2014		Budget Issues:		
	Survey:		Design:		Fund Pgm	Amount
	Archeology:		ROW Maps:		NHPP:	\$1,203,406.00
	Acquisition:		Utilities:			
	Takes:	Environmental Clearance 07/14/2014 *				
	Owners:	Obtain SHPO Concurrence 07/14/2014 *				
ROW:	TCP:	RR Certification 12/27/2013 A				
Development Engineer: CHRIS URIOSTE		Utility Certification 02/19/2014 A				
Consultant/Designer:		ROW Certification 12/30/2013 A				
		ITS Certification 01/15/2014 A				
Comments: Cultural resource survey and public outreach needed. I am consulting with Environmental Section.						
Actions for Next Month: 90% Design review will be held.						



Change to Facilitate Earlier Involvement



Contact Information

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charles.remkes@state.nm.us