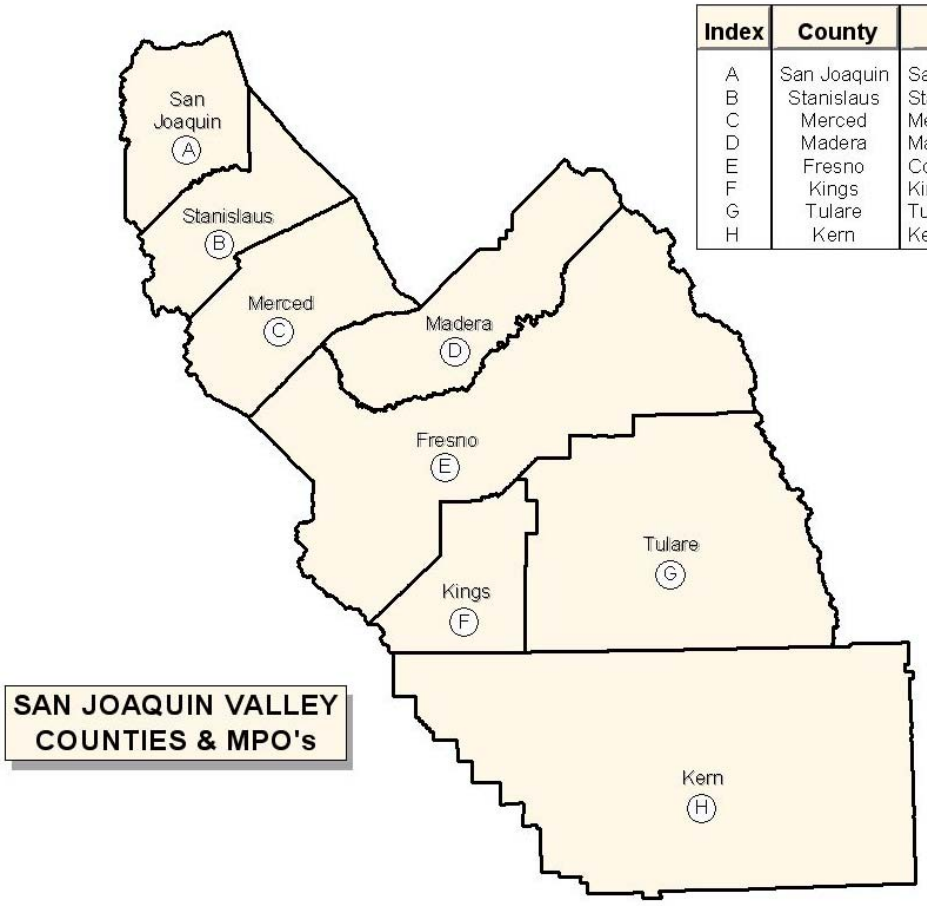
San Joaquin Valley
Intelligent Transportation Systems (ITS)
Architecture Maintenance Plan



Index	County	MPO
A	San Joaquin	San Joaquin Council of Governments
B	Stanislaus	Stanislaus Council of Governments
C	Merced	Merced County Association of Governments
D	Madera	Madera County Transportation Commission
E	Fresno	Council of Fresno County Governments
F	Kings	Kings County Association of Governments
G	Tulare	Tulare County Association of Governments
H	Kern	Kern Council of Governments

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SAN JOAQUIN VALLEY
INTELLIGENT TRANSPORTATION SYSTEM (ITS)
ARCHITECTURE MAINTENANCE PLAN

INTRODUCTION

The San Joaquin Valley ITS Strategic Deployment Plan is a unique document that requires periodic maintenance to remain relevant. Changes to the Intelligent Transportation Systems (ITS) in the San Joaquin Valley Region, such as newly implemented projects or changes in agency priority, will be documented through updates to the San Joaquin Valley ITS Strategic Deployment Plan. This maintenance plan documents the procedures for updating the San Joaquin Valley ITS Strategic Deployment Plan.

This plan is laid out in two parts, both of which act as instruction manuals for changes to the regional ITS architecture. The first portion of this document is presented for the user or regional stakeholder. It provides some common questions and answers. The second portion of this document is presented for the maintainer of the regional ITS architecture. It identifies how the change is managed after a request is made.

STRATEGIC DEPLOYMENT PLAN AND MAINTENANCE PLAN

Released in 2001, the Federal Highway Administration (FHWA) Final Rule and the Federal Transit Administration (FTA) Policy require regions, which are using funds from the Highway Trust Fund, to establish a Regional ITS Architecture /Strategic Deployment Plan that complies with the National ITS Architecture. In response, the eight counties within the San Joaquin Valley adopted the San Joaquin Valley ITS Strategic Deployment Plan in September 2001. This plan received federal approval in January 2002. The plan fosters the integration of regional ITS systems and defines the system components, key functions, stakeholders, and information sharing. It guides the development and deployment of ITS projects. Having a plan in place safeguards against the loss of future funding for projects.

The Final Rule/Policy also requires the development and implementation of an architecture maintenance plan. One component of the San Joaquin Valley ITS Strategic Deployment Plan is the regional ITS architecture. The regional ITS architecture should be periodically updated to reflect: new ITS regional needs; plans and priorities; projects; scope; and stakeholders. The regional ITS architecture was developed with a twenty-year planning horizon and as the architecture is updated, the timeline will be extended further into the future. The goal of maintaining the architecture is to keep an up-to-date regional ITS architecture that is relevant and accessible for deploying ITS projects within the San Joaquin Valley.

MAINTENANCE QUESTIONS

Key aspects of the maintenance process are:

- Who is responsible for architecture maintenance?
- What will be maintained?
- When will the architecture be updated?
- Who will pay for the costs?
- How will the baseline architecture be maintained?

Who is responsible for architecture maintenance?

The Maintenance Team consists of representatives from each of the eight San Joaquin Valley Metropolitan Planning Organizations (MPO). This team was instrumental in the development of the San Joaquin Valley ITS Strategic Deployment Plan and will be the primary force for plan maintenance. Since each MPO works closely with their local agencies, the MPO's role in maintaining the regional architecture will be to coordinate ITS efforts throughout the county. Therefore, ITS changes made at local levels will be accurately reflected in the regional ITS architecture.

A Maintenance Manager and Assistant Maintenance Manager will be appointed for 3 year terms by the San Joaquin Valley COG Directors. If the Maintenance Manager is unable to complete the required 3-year term, the Assistant Maintenance Manager will assume managing duties. The Maintenance Manager will be responsible for coordinating and organizing the maintenance update schedule and making physical changes toward maintaining the architecture. The Maintenance Manager will not be responsible for the completion of the maintenance plan, this is the responsibility of the Maintenance Team.

What will be maintained?

The San Joaquin Valley ITS Strategic Deployment Plan is comprised of several sections that will need periodic review for consistency with regional visions and goals. The current version of the regional ITS architecture, as adopted September 2001 as part of the San Joaquin Valley ITS Strategic Deployment Plan, will be established as the baseline architecture.

The following baseline information should be maintained in the Turbo Architecture databases:

- Description of the region
- List of stakeholders, including key contact information
- Inventory of existing and planned ITS systems in the region
- Documented regional needs and ITS services associated with supporting systems in the region (Market Packages)
- Existing and planned interconnects and information flow for the region

Outputs such as interconnect and architecture flow diagrams, inventory lists, stakeholders lists and other diagrams and reports can be produced by a member of the Maintenance Team from

TurboArchitecture™ outputs, so they are by-products of the architecture database. These outputs can be updated as necessary for meetings or outreach activities.

Additionally, the San Joaquin Valley ITS Strategic Deployment Plan contains several high-level components that do not necessarily need to be modified each time a revision to the architecture is made, but will need to be modified as the architecture is broadened to address new needs and services. These components are: Project Sequencing Report, Operational Concept, Functional Requirements and List of Agency Agreements.

When will the architecture be updated?

Each MPO should monitor ITS changes made within its own county and meet with the seven other Valley MPOs at least annually, or when sufficient change requests warrant discussing such changes. A comprehensive architecture update will be completed every three years, concurrent with the update of the RTPs, as needed.

Who will pay for the costs?

Each MPO will budget staff time in their respective Overall Work Programs to help maintain the baseline architecture. Major ITS expenses that may arise, i.e. consulting fees, will be divided by county population share.

How will the baseline architecture be maintained?

The maintenance process is the procedure for modifying the baseline architecture. It specifies how changes are identified, how often they will be made, and how the changes will be defined, reviewed, implemented and released. Because changes can arise from many sources, and very likely will arise from some sources outside the technical expertise of a single agency, it is a good idea for a group of people from different stakeholder areas to be involved in maintenance of the architecture. Representatives from traffic, transit, emergency management, and other key stakeholders from the team that developed the architecture should provide input to the Maintenance Team for review. Each county has a Technical Advisory Committee (TAC), comprised of City and County staff, as well as other ITS stakeholders. These meetings are an ideal place to remind agencies of the architecture, and for the TACs to be a point of contact to discuss ITS architecture updates and processes. Acquiring input from the stakeholders guarantees that the architecture continues to reflect the desires of the stakeholders in the region.

MAINTENANCE PROCESS

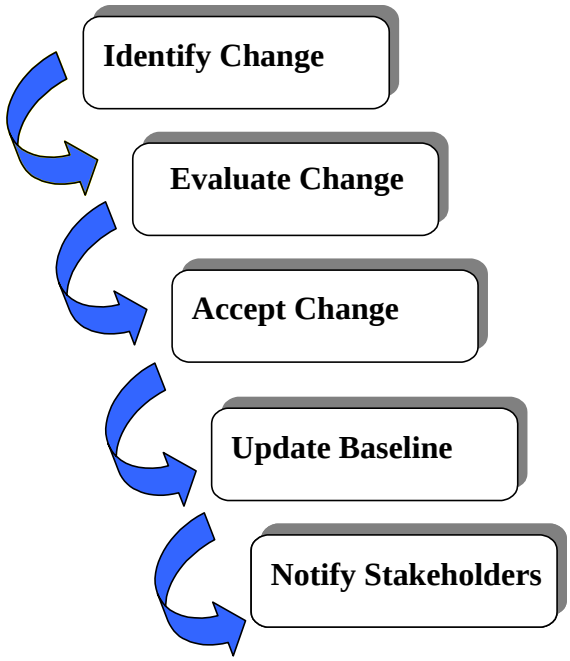


Figure 1: Process for changing the baseline architecture

Identifying a change

The primary aspects of change identification are:

- Who can suggest a change?
- How is the change request documented?

Suggesting a change

All requests for change to the San Joaquin Valley baseline architecture shall be made through members of the Maintenance Team, defined as representatives from each of the eight San Joaquin Valley Metropolitan Planning Organization's. Any identified stakeholder in the region would be allowed to submit change requests to the local representative on the Maintenance Team. Stakeholders are defined as any agency or private organization identified as a participant in the architecture.

Documenting a change

Stakeholders shall propose changes in writing to their representative on the Maintenance Team. This approach will create project champions at the local level that will become the source of change requests. Web and form based change requests should be available.

The change request form to be used in proposing changes is shown in Appendix A. The form contains the following information, which should be completed by the requesting stakeholder:

- Agency/agencies requesting the change;
- Date of the request;
- Description of the proposed change;
- Reason for change;
- Architecture aspects to be added, deleted or changed;
- Contact information for the person proposing the change if questions arise;
- Originator name and agency;
- Signature of authorized representative of the originating stakeholder; and
- Signature of the authorized representative of other stakeholders directly affected by the proposed change.

To support the understanding of the proposed changes, copies of the sections or diagrams marked with the proposed changes should be included with the change requests. Other information on the change request form, to be completed by the Maintenance Manager includes:

- Change request number or identifier to be assigned by the Maintenance Manager;
- Date the change request was evaluated for recommendation;
- Disposition date;
- Change disposition acceptance, denial, deferred (incomplete information); and
- Disposition comments.

A database shall be maintained by the Maintenance Manager to track change order requests. The database shall include all the information entered on the change request form (Appendix A).

Evaluating a change

The initial assessment shall include an analysis of what impacts the proposed change has on the baseline architecture. The Maintenance Manager shall then provide a written recommendation to the Maintenance Team on the impact of the proposed change, whether or not to accept the change, if the change requires a major or minor revision, and if the change requires immediate action.

If the proposal for the architecture modification has an impact on other stakeholders, the Maintenance Manager shall contact the stakeholders to confirm their agreement with the modification. All stakeholders directly involved with the change request must concur by signing the change request proposal before the Maintenance Team considers the modification.

Accepting a change

Minor changes require approval from the affected stakeholders, the appropriate MPO and the Maintenance Manager. Minor changes have small impacts on one or two stakeholders' element status, description, or other attributes of the elements such as change in status of an interface or information flow. They do not need approval from the other members of the Maintenance Team,

nor do they need to be brought before other representatives. Minor changes may be handled via email and do not require face-to-face meetings.

For major changes, upon completing the initial assessment, the Maintenance Manager will distribute the assessment to members of the Maintenance Team for discussion at the next Maintenance Team meeting. Major changes have a wider impact on the baseline architecture, such as a new or deleted service that affects more than two stakeholders. The Maintenance Manager is responsible for assembling an agenda for the Maintenance Team. The agenda should include, at a minimum, what change proposals are to be discussed during the meeting as well as related material.

At least every year or when sufficient major change requests warrant, the Maintenance Team shall meet and discuss the change proposals and assessments. The Maintenance Team shall have sufficient time to review the change proposals and assessments before the meeting (meeting may be in person or teleconference).

During the meeting, the Maintenance Team will review major change proposals, reach consensus and make a recommendation on the disposition of each change proposal. All stakeholders will have an opportunity to comment on each change proposal. Recommendations shall be accepted, rejected or deferred for more information. Acceptance of major changes shall be by majority vote of the affected San Joaquin Valley Metropolitan Planning Organizations represented at the meeting and a subsequent signature given by the Executive Directors of all affected Metropolitan Planning Organizations. If consensus cannot be reached, then attempts should be made to amend the change so that consensus is developed. If more information is requested, the Maintenance Manager will send the request to the stakeholder that submitted the change proposal.

The Maintenance Manager shall be responsible for seeing that minutes are taken at both the Maintenance Team and stakeholder meetings. Minutes are to be distributed to the attendees and the identified representatives of each stakeholder no less than fifteen working days after the meeting. Comments are due within 10 working days to the Maintenance Manager.

Minutes shall include, at a minimum, an attendance list, comments made on each change proposal, and the consensus recommendation (accept/reject/request more information) of the Maintenance Team. Approved minutes will be distributed to all stakeholders and posted on the website. The minutes provide a recording mechanism for the change management process and provide traceability.

Updating baseline architecture

This activity involves inputting changes into the approved baseline architecture documents and databases. This requires the same skills and techniques used in creating the initial baseline. When using the incremental change approach, all changes should be entered by one or more assigned personnel, and then checked per the process described in the maintenance plan. When updating the full baseline architecture, new versions of documents and databases should be circulated to stakeholders for a wider review. In addition, the change log should be updated to describe the actual change made and the version identification of all baseline architecture material.

Notifying stakeholders

Authorized representatives from each stakeholder shall be notified by email from the Maintenance Manager when baseline architecture documents are updated. All baseline architecture documents shall be available to stakeholders from a website or other electronic location, such as a FTP site. It is the responsibility of the Maintenance Manager to ensure the most recent documents are available on the website.

Request for copies or access to the approved baseline architecture documents shall be made to the Maintenance Manager. Stakeholders or Maintenance Team members may request baseline architecture documents. It is the responsibility of that stakeholder representative to distribute the revised documents to all other members from his/her agency who requests a copy.

Appendix A

San Joaquin Valley ITS Architecture and System Plan
Change Request (CR) Form

Originator Name:		Date Submitted:
Originator Telephone:	Originator Fax:	Originator Email:
Originator Agency:		Revision Type: ☐ Major ☐ Minor
Agency Authorized Signature:		Signature Date:

Planning Region Representative:	
Planning Region Representative Signature:	Signature Date:

Description of Proposed Changes:

Rationale for Proposed Change:

Affected Agency #1:	Authorized Signature:	Signature Date:
Affected Agency #2:	Authorized Signature:	Signature Date:
Affected Agency #3:	Authorized Signature:	Signature Date:
Affected Agency #4:	Authorized Signature:	Signature Date:

List Attachments:

Baseline Documents Affected:

☐ Website ☐ Turbo Arch. ☐ Customized ☐ Document ☐ Other

To Be Completed By Maintenance Manager

Change Request Number:	Date CR Received:	Date CR Logged:
Date Initially Discussed:	Disposition: ☐ Accept ☐ Reject ☐ More Info.	Comments:
	Disposition: ☐ Accept ☐ Reject ☐ More Info.	Comments:
Date Discussed:	Disposition: ☐ Accept ☐ Reject ☐ More Info.	Comments:

Date Approval by SJV Stakeholders:

Baseline Documents Affected/Version Implemented:

☐ Turbo Arch.	Date/Version:	☐ Website	Date/Version:	☐ Document
☐ Customized	Date/Version:	☐ Other	Date/Version:	☐ Document

Appendix B

GLOSSARY

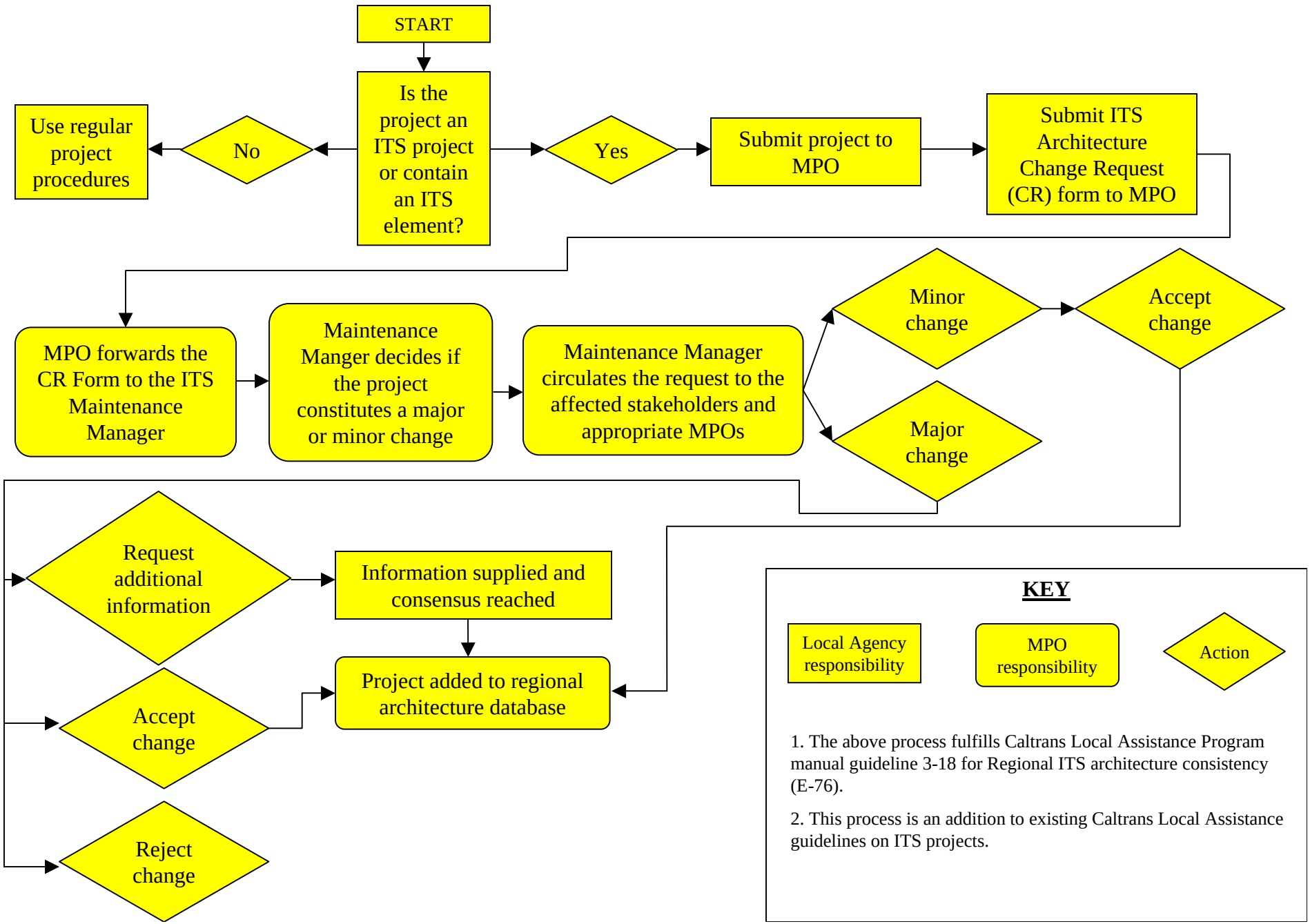
Approved baseline architecture: current version of the regional ITS architecture as adopted in September 2001 as part of the San Joaquin Valley ITS Strategic Deployment Plan.

Intelligent Transportation System (ITS): involves a variety of elements that improve the operation, safety, and convenience of the system using computers, sensors, and high-speed communications technology to collect, process, disseminate and act on information in real time.

Maintenance Plan: acts as a control mechanism to keep the baseline architecture up to date.

Maintenance Team: consists of representatives from each of the eight San Joaquin Valley Metropolitan Planning Organizations (MPO).

San Joaquin Valley Intelligent Transportation Systems (ITS) Strategic Deployment Plan: uses ITS to address issues concerning traffic congestion, air quality, road safety, emergency services, and traveler information. The San Joaquin Valley adopted this plan in September 2001 and received federal approval in January 2002.

Stakeholders: any agency or private organization identified as a participant in the architecture (Stakeholder list is managed by Maintenance Manager).

Appendix C - **San Joaquin Valley ITS Change Management Flow Chart**