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Addendum to the ITS Architecture for Metropolitan Sioux City Area

Architecture Long Term Maintenance Plan

Final: May 2006

Introduction

From the beginning of the ITS architecture specification process, it has been noted that maximum utility of the architecture will only be obtained if a regular and structured maintenance approach is adopted. In other words, the plan should be referred to often and kept up to date with the most recent regional ITS project developments and changes on the national ITS scene.

As stated in the main document, the SIMPCO ITS Architecture is the result of a collaborative effort by the Metropolitan Planning Organization and other stakeholders to catalog existing ITS systems in the area and use the results obtained as a base for future ITS projects in the region. This document describes the activities that are planned to meet the ongoing maintenance requirements of the present ITS architecture.

According to the statewide Iowa DOT architecture plan and several Iowa MPO regional architecture plans, there are several instances for which an update of the architecture is required. They include:

- ◆ **Changes in Project Definition:**-Actual projects may have changes in definition upon implementation that differ from the definition anticipated in the regional architecture when such was being defined. Such changes could include modified elements, interfaces, information flows, roles, responsibilities etc. To keep the regional architecture current, changes are thus necessary.
- ◆ **Changes due to Project Additions/Deletions:** - Projects are occasionally added or deleted after the regional architecture definition process is complete. This necessitates updates to the regional architecture to reflect these developments.
- ◆ **Changes in Project Status:** - In the SIMPCO architecture, projects are broken down into existing and planned. As projects are thus deployed, it is necessary to change the elements, flows, services, roles, operation concepts etc. from planned to existing in the regional architecture.
- ◆ **Changes in Project Priority:** - Several aspects may cause a project to be accelerated in importance or delayed such as technological change (Highly likely in the fast changing ITS world), funding, and political considerations among others. This implies that needs expressed as functional requirements, timelines etc. corresponding to elements, flows, services will need to be correspondingly changed.
- ◆ **Changes in Participating Stakeholders:** - Over time the original stakeholders may change. For example, a railroad may change hands, the transit agency may fall under different jurisdictions, companies may change owners, new companies may become involved, etc.
- ◆ **Changes in Other Architectures:** - The SIMPCO Regional ITS Architecture was compiled from two state ITS project architectures, Nebraska and South Dakota and includes several cities and jurisdictions. As the Iowa statewide architecture is completed

as well, it will be important to keep the architecture consistent with the other linked architectures in the region. Hence, any change in those architecture definitions will need to be transferred to the SIMPCO Regional ITS Architecture.

- ◆ **Changes in National ITS Architecture:-** The National ITS Architecture is constantly evolving with new market packages, user services etc. added or refined as more experience with ITS is gained nationwide. Hence, it is important to ensure that the definitions in the SIMPCO ITS Architecture are kept consistent thus requiring ongoing maintenance.

As with similar plans statewide, the maintenance process consists of key aspects described below:

1. Who does the maintenance of the architecture?
2. What will be maintained?
3. How will it be maintained?

Who does the Maintenance of the Architecture

The principal responsibility for maintaining the SIMPCO Regional ITS Architecture will be SIMPCO (Siouxland Interstate Metropolitan Planning Council) the MPO for the Siouxland Region and the RPA for SRTPA (the Siouxland Regional Transportation Planning Association), RPA 4. As a subgroup, a core group of assembled stakeholders within the region will serve as the technical and institutional organization via which change proposals are evaluated and adopted. A portion of this group has already been assembled with additional stakeholders added as deemed necessary based on the evolution of ITS needs in the region.

Members of this group include/will include the technical advisory committee for both the MPO and RPA, dependent on jurisdiction affected. Additionally, group members will include stakeholders with specific expertise in various ITS related technologies but are not MPO/RPA technical advisory committee members. Examples include law enforcement, emergency communication, incident management personnel, DOT and Federal personnel with ITS expertise. Based on the review and comments by the broader subgroup, the technical advisory committee of the relevant jurisdiction makes recommendations to the MPO or RPA Policy Board. It is entirely possible that some specific ITS projects may involve both the MPO and RPA dependent on the application.

Once approval of the changes has been granted by the Policy Board, SIMPCO planning staff will be responsible for making or arranging to make the actual document and electronic database modifications to the architecture. SIMPCO staff will also be responsible for coordinating and heading up the subcommittee, organizing any necessary meeting dates, times and locations, assembling agendas and approving minutes.

What will be Maintained

The SIMPCO Regional ITS Architecture is made up of several components including the actual document describing projects, flows, etc. and an architecture database file converted to Turbo3 Architecture format. The Turbo database software itself can be considered a component in need

of occasional maintenance based on vendor changes to keep in synch with changes at the National ITS Architecture level. Within the architecture itself, project modifications, deletions and additions will need to be documented and described along with their corresponding flows, roles, operational concepts, agreements etc. The version of the Architecture presented as required on April of 2005 will be regarded as the base from which the maintenance timeline is referenced.

As with the other peer ITS Architectures regionally, the SIMPCO Regional ITS Architecture was completed using Turbo Architecture software and stored as an electronic Turbo Architecture database. The primary architecture document is represented as a set of diagrams, flows and interconnections representing the linkages of users with ITS technologies at a very high level of design. The architecture documentation also includes tables mapping user needs to predefined market packages that provide a general description of known or planned ITS solutions at the national level. Maintenance of the Architecture will be done always using the most recent version of the Turbo database via the Turbo Software tool or otherwise.

As mentioned earlier, several instances warrant Architecture updates, hence the following items in the architecture need to be periodically reviewed and updated as required:

- ◆ Regional description
- ◆ Participating stakeholders
- ◆ Inventory of planned and existing ITS systems
- ◆ Operational Concepts
- ◆ Agreements where applicable
- ◆ Functional requirements
- ◆ Information flows, interface requirements
- ◆ Project sequence required for implementation
- ◆ ITS standards to maintain national consistency

All the above can be easily produced in report and diagram form to assist policy makers and planners in decision making and public outreach. As with any technical endeavor, it is good to keep track of changes via appropriate dating of filenames and documentation.

How will it be Maintained

The following describes the process by which the architecture will be maintained.

Identification of the Need for Change

The primary method of change identification is via SIMPCO identifying changes based on ITS related projects in the region. The other method is via alert and involved stakeholders including other overlapping jurisdictions like the State DOTs making change requests to be consistent with their Architecture projects and definitions. Change requests should be sent in writing to SIMPCO. The subgroup committee will comment on the requests after which the applicable technical committee will evaluate the request and comments and recommend changes to the Policy Board. The request for change should include the actual changes to be made to the architecture, the reason for the proposed changes and the stakeholder contact information in the application.

Frequency of Changes

The transportation planning process via SAFETEA-LU has requirements for a 5 year update of the Long Range Transportation Plan LRTP. Given that ITS related activities are an integral portion of the planning process, it is wise to have the Architecture update completed prior to or concurrently with the update of the LRTP. To this end, the Architecture update, starting with the LRTP update due in 2010 should be completed within 9 months, preferably closer to LRTP adoption date. The ITS Architecture is likely to need continual changes even more frequently than the LRTP and thus, the shorter the timeframe between LRTP adoption and ITS Architecture update, the more likely it will still be relevant.

Additionally, if major ITS projects or changes to the National ITS Architecture are planned/implemented mid LRTP plan or immediately succeeding LRTP adoption, it will be necessary to modify the plan to reflect such changes.

Minor or routine changes will be undertaken on a day to day basis as required by SIMPCO, pending approval by the SIMPCO MPO/RPA Policy Board at an annual review meeting.

Change Review Process, Approval and Implementation

1. The stakeholders identify necessary changes based on current ITS activities. They subsequently formally define and propose the changes to the SIMPCO ITS Committee. The stakeholder identifying the change may be either SIMPCO or an outside entity.
2. The SIMPCO ITS maintenance subgroup and affected stakeholders will evaluate the impact of the changes on the regional architecture and submit comments.
3. The SIMPCO ITS technical committee (MPO/RPA dependent on jurisdiction) reviews the proposed changes along with the comments from the maintenance subgroup and makes recommendation(s) to the Policy Boards regarding change acceptance. The review material may be communicated by all standard modern means of communication including facsimile, email, ftp sites and regular paper mail. The recommendation(s) to the policy board will be made primarily at regular MPO technical meetings. Special combined technical committee/policy board meetings may be convened as necessary.
4. The Policy board (RPA/MPO) based on the recommendation(s) submitted decides to accept the changes, decline the changes or defer approval of the changes pending the submission of further information. Projects that span both MPO/RPA jurisdictions could potentially see conflicting decisions from the MPO and RPA Policy boards thus necessitating special processes for conflict resolution.
5. SIMPCO implements the changes to the architecture dependent on the decision of the Policy Board(s). Such changes may include update of the baseline database files, the documentation and installing any new software that may be necessary. Implementation of the changes will usually be made by SIMPCO staff directly. In the event of inadequate MPO technical resources, consultant update with strict SIMPCO version control management may be undertaken as a last resort.
6. Upon modification of the regional architecture, stakeholders, particularly those affected should be notified of the updates and if requested, provided the latest version of the architecture.