Regional ITS Architecture Report

Prepared for:

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The Missouri Department of Transportation has completed the regional ITS architecture documentation for three regions in the state: Springfield, St. Louis and Kansas City. As ITS projects continue to be deployed throughout the state, additional regions will be defined and ITS Architectures for those regions developed. This document summarizes the status of the three regions with completed architectures and provides guidance for developing other region's architectures.

Springfield, MO:

Although the Springfield region had moved forward with several ITS projects it had not yet begun the process of developing a regional ITS architecture. This region was the only one of the three regions encompassed in this project that had not participated in the Tier I and Tier II process. A unique and beneficial element to ITS projects in the region is the strong partnership between MoDOT and the City of Springfield, this partnership plays well into the development of an ITS architecture for the region. Since no groundwork for an ITS architecture had been established, the work started with a "clean slate". Beginning with a workshop for those individuals involved in the ITS projects to date, the Regional ITS Architecture was developed based on the information provided in the workshop and information from existing ITS projects. It was determined that in continuing the already established partnership, the Regional ITS Architecture would be maintained by both the City (Tom Dancey), and MoDOT D-8 (Laurel McKean). The Springfield Regional ITS Architecture was completed in February 2004.

St. Louis, MO:

The St. Louis metropolitan area participated in Tier I and Tier II Workshops in the latter part of the year 2000. With this early work completed, the work for this project started with the existing files generated with that Tier II database. Two elements made the St. Louis regional architecture work change substantially from the early work: changing stakeholders and updating the early database. Stakeholders expressing interest in the architecture process had changed from the early work on Tier I and Tier II, most notably with the interest and participation of the East West Gateway Council of Government (COG). The involvement of the COG will benefit the future development of the Regional ITS Architecture. Additionally, stakeholders that were involved in the early development but did not remain involved should be encouraged to re-engage in the architecture process. Using the Turbo Architecture Product is a great aid in organizing

and documenting the architecture. When revisions to that product occur the architecture must follow suit. Sometimes these revisions involve a lengthy process to update files, but this work is a necessary element in maintaining the architecture. A workshop was held to update information from St. Louis' Tier II Workshop and the Regional ITS Architecture was revised to its current form. It was determined that MoDOT would take the lead in maintaining the architecture, specifically Tyson King of MoDOT D-6. The St. Louis Regional ITS Architecture was completed in May 2004.

Kansas City, MO:

The Kansas City metropolitan area participated in Tier I and Tier II Workshops in late 2000. Since that time the Mid America Regional Council (MARC), the regional metropolitan planning organization, has championed and maintained the regional architecture. MARC has worked to create a web-based tool to display the architecture and has kept the turbo files up-to-date (www.marc.org/transportation/ITS/). MoDOT is a key stakeholder in this process. This work documented the architecture as it stands currently, knowing the web interface would contain the most current information. MARC (Ron Achelpohl) is committed to maintaining the architecture electronically and will continue to maintain the Kansas City Regional ITS Architecture. The Kansas City Regional ITS Architecture was completed in July of 2004 and approved by the MARC Board.

Architecture Template

The Federal Highway Administration (FHWA) has provided guidance in the *FHWA's Final Rule and FTA's Policy for Applying the National ITS Architecture at the Regional Level*. There are eight recommended and defined areas that a Regional ITS Architecture should contain in documenting the architecture's existence, those areas are:

- A description of the region;
- A listing of stakeholders involved in the workshop process;
- An Operational Concept that will identify the roles and responsibilities of stakeholders;
- Agreements (existing or new) necessary for operations identified in the Regional Architecture;
- System functional requirements;
- Interface requirements and information exchanges with planned and existing systems;
- Identification of ITS Standard supporting regional and national interoperability; and
- A sequence of projects in the region.

Using the FHWA's document as guidance the three MoDOT regional architectures followed a consistent format and documentation sequence. Below is a sample of documentation content where "XXX" would refer to the location of the architecture:

Recommendations:

MoDOT should support and offer training on the ITS architecture at regular intervals. The ITS architecture is constantly be revised at the national level and regional agencies that influence the architecture are ever changing and growing in number. As new users become involved in the process training should be readily available and MoDOT is the obvious agency to provide that training. The National Highway Institute offers the following ITS Architecture training course:

> *Using the National ITS Architecture for Deployment" (NHI #137013) is a course developed by the National ITS Architecture Team, in conjunction with the University of Florida Transportation Research Center (TRC), for the U.S.DOT. The course is delivered by the U.S.DOT National Highway Institute (NHI), with technical oversight by the U.S.DOT ITS Joint Program Office (JPO). The training course serves as an introduction to the fundamentals of the National ITS*

Architecture, plus how it can be applied. This course is intended for public- and private-sector transportation professionals involved in ITS planning and deployment. Delivered in an interactive workshop format, the course will develop an understanding of the concepts and terminology of the National ITS Architecture, and will also assist in identifying the institutional and organizational issues associated with the effective use of the National ITS Architecture in planning, operations and management.

Definitions:

Turbo Architecture Product:

Turbo Architecture Product is an interactive software application that assists transportation planners and system integrators, both in the public and private sectors, in the development of regional and project architectures using the National ITS Architecture as a starting point.

Tier I and Tier II Workshops:

Tier I and II Workshops assist metropolitan planning organizations (and other lead agencies) in developing their regional architectures. The Tier I Workshop is a one-day training session focused on organizing the architecture development process. The Tier II Workshop is a two and a half day session focused on laying out an initial regional architecture and pointed at steps to complete the process.