Regional Intelligent Transportation Systems Architecture Maintenance Plan

METROPOLITAN TRANSPORTATION PLAN 2040

AECOM

Table of Contents

1.0 Introduction

The Flint Hills Regional Intelligent Transportation Systems (ITS) Architecture has been created as a consensus view of what ITS systems the stakeholders within the architecture boundary already have in place and what systems they plan to implement in the future. By its nature, the architecture is not a static set of outputs. The Architecture should be modified as plans and priorities change, ITS projects are implemented, and the ITS needs and services evolve in the region. There are many actions that may cause a need to update the architecture, including:

- **Changes in Project Definition.** When actually defined, a project may add, subtract or modify elements, interfaces, or information flows of the ITS Architecture. Because the architecture is meant to describe not only ITS planned, but also the current ITS implementations, it should be updated to correctly reflect the deployed projects.

- **Changes due to Project Addition/Deletion**. Occasionally a project will be added, deleted or modified during the planning process. When this occurs, the aspects of the ITS Architecture associated with the project should be added, deleted or modified.

- **Changes in Project Status.** As projects are deployed, the status of the architecture elements, services and flows that are part of the projects will have to be changed from planned to existing. Elements, services and flows should be considered to exist when they are substantially complete.

- **Changes in Project Priority.** Due to funding constraints, technological changes or other considerations, a project planned may be delayed or accelerated. Such changes should be reflected in the ITS Architecture.

- **Changes in Regional Needs.** Transportation planning is done to address regional transportation needs. Over time these needs change and the corresponding aspects of the ITS Architecture that addresses these needs should be updated.

- **Changes in Participating Stakeholders.** Stakeholder involvement can also change over time. The ITS Architecture should be updated to reflect the participating stakeholder roles in the statewide view of ITS elements, interfaces, and information flows.

- **Changes in Other Architectures.** The ITS Architecture includes not only elements and interfaces within the architecture boundary, but also interfaces to elements in adjacent and other areas in Kansas. Changes in the Statewide ITS Architecture may necessitate changes in the Flint Hills Regional ITS Architecture to maintain consistency. A Regional ITS Architecture may overlap with the Statewide ITS Architecture, and a change in one architecture may necessitate a change in the other.

- **Changes in National ITS Architecture.** The National ITS Architecture will be expanded and evolved from time to time to include new user services or refine existing services. These changes should be considered as the ITS Architecture is updated. Updates to the National ITS Architecture and

Turbo will be publicized on the ITS Joint Program Office (JPO) Architecture website: http://www.its.dot.gov/arch/.

The following sections define the key aspects of the process for the maintenance of the Flint Hills Regional ITS Architecture:

- Who is responsible for architecture maintenance?
- What will be maintained?
- How changes are identified?
- How often changes are made?
- Change review, implementation and release process

2.0 Who Is Responsible for Architecture Maintenance?

The primary responsibility for managing the maintenance activities of the ITS Architecture will lie with the Flint Hills Metropolitan Planning Organization (FHMPO). It is recommended that an ITS Committee be established to oversee all ITS activities in the region, including planning, architecture, design, implementation, operations, and maintenance. The ITS Committee will consist of regional stakeholders who have implemented or are interested in implementing ITS. Such stakeholders include, but are not limited to, traffic, transit, and emergency management agencies at the city, county and state levels, academia and research institutions, and Fort Riley. The ITS Committee will also serve as a technical group to assist the FHMPO in reviewing and evaluating changes proposed by stakeholders and providing recommendations to the FHMPO for making changes to the ITS Architecture. The FHMPO should coordinate the architecture update and maintenance activities with the ITS Committee and be the point of contact, including collecting, reviewing, and summarizing change requests, tracking change requests, requesting additional information from stakeholders, distributing documentation, and hosting meetings as needed. The FHMPO, with the assistance of region partners, and/or consultant support, will revise the ITS Architecture and notify stakeholders of the changes.

3.0 What Will Be Maintained?

The following should be reviewed and updated at regular intervals:

- Description of the region
- Participating agencies and other stakeholders, including key contact information
- Inventory of existing and planned ITS systems in the region
- Operational concept that identifies the roles and responsibilities of participating agencies and stakeholders in the operation and implementation of the systems

- Agreements for operations and interoperability
- System functional requirements
- Interface requirements and information exchanges with planned and existing systems and subsystems
- Applicable ITS standards supporting regional and national interoperability
- Sequence of projects for implementation

There are several different components that make up the ITS Architecture. Some may require more frequent updates than others, but the entire architecture will need periodic review to ensure that it is consistent with the regional goals. The current version (version 1.00) of the Flint Hills Regional ITS Architecture shall be the baseline architecture upon which future revisions are conducted as necessary.

The Flint Hills Regional ITS Architecture was created based on the National ITS Architecture Version 7.1 using Turbo Architecture Software Version 7.1. The Architecture was documented and stored in the following forms:

- Flint Hills Regional ITS Architecture Report
- Turbo Architecture Report for the Flint Hills Regional ITS Architecture
- Flint Hills Regional ITS Architecture Website
- Electronic Turbo Architecture database

The Turbo Architecture database can generate a set of outputs including various reports, tables, diagrams, and the architecture webpages. Such outputs include interconnect and architecture flow diagrams, inventory lists, stakeholders lists, service package lists, functional requirements, and other diagrams and reports. A generic ITS architecture report can also be generated directly from the Turbo Architecture. At a minimum, the architecture should be maintained through updates in the database using Turbo Architecture.

4.0 How Changes Are Identified?

Changes to the ITS Architecture may be identified by utilizing a combination of two channels; stakeholders submit a request to the MPO and the FHMPO actively soliciting changes from each stakeholder on an annual basis.

Stakeholders should contact the FHMPO with any changes to the ITS Architecture. The FHMPO will perform an initial assessment of the proposed change for the impact to the ITS Architecture and/or the affected documentation. If the proposed change has an impact on other stakeholders, the FHMPO will contact the affected parties to discuss the proposed modification.

The second channel for making changes to the Architecture is for the FHMPO to distribute an annual survey to stakeholders to actively solicit the need for updating the architecture. A sample survey can be found in Table 1.

Table 1 Sample Architecture Maintenance Survey Questionnaire

Flint Hills Regional ITS Architecture Maintenance Survey Questionnaire

1. Did your agency implement (including upgrade) any technology and communications related projects for transportation systems or emergency management in the past 12 months?

   ☐ Yes ☐ No

If YES, please describe the project(s) and/or provide project name(s) and available documentation source(s).

_____
_____
_____
_____
_____
_____

2. Do you plan to implement any technology or communications related projects in the next 5 years?

   ☐ Yes ☐ No

If YES, please describe the project(s) and/or provide project name(s) and available documentation source(s).

_____
_____
_____
_____
_____
_____

3. Please provide your contact information:

Name: _____

Agency: _____

Phone: _____

Email: _____

Please submit this form to: XXXXXXXX, Email: XXXX, Phone: XXXX, Fax: XXXX. Thank you!

5.0 How Often Changes Are Made?

A comprehensive, formal update of the ITS Architecture Baseline should be performed concurrently with (or within six months prior to) updating the FHMPO's Metropolitan Transportation Plan to ensure the architecture continues to accurately represent regional goals. The Flint Hills Transportation Plan 2040 goals include:

- Safety and Security: Provide a safe and secure multi-modal transportation system.
- Mobility and Accessibility: Contribute to a high quality of life by providing comprehensive mobility and accessibility opportunities for all travelers.
- Transportation System Integration: Foster intra- and inter-modal connectivity, including connectivity across inter-jurisdictional boundaries and regions.
- Multi-Modal Choice: Make available and promote the usage of alternative transportation options for area residents and workers.
- Asset and System Management: Preserve and maintain existing transportation assets and strategically manage roadway operations.
- Economic Vitality: Support the economic health of the region through the provision of a reliable and accessible transportation system to move people and goods.

Between major updates of the Architecture, minor or informal modifications may be made at the discretion of the FHMPO and the ITS Committee, following the process in 4.0 above.

In addition, this Maintenance Plan should also be reviewed and evaluated periodically for required changes to the maintenance process. The actual maintenance process and procedures may differ from those anticipated during the initial development.

6.0 Change Review, Implementation and Release

The general steps in the change management process are described below:

1. Stakeholders identify changes, notify the FHMPO of changes, (or complete the annual survey), and submit it to the FHMPO.
2. The FHMPO coordinates with the ITS Committee to review the proposed changes, offer comments, and/or ask for additional information.
3. The FHMPO and the ITS Committee, in coordination with the appropriate stakeholders affected by the proposed changes, evaluate the changes and determine any potential impact on the Architecture and/or associated documentation.

4. After reviewing the proposed changes, the ITS Committee decides whether to accept the modification.

5. If the decision is to accept the modification, the appropriate portions of the architecture baseline are updated by the FHMPO.

6. Once the ITS Architecture is modified, the FHMPO publishes the updated architecture documentation, database, and website.

7. The FHMPO notifies all stakeholders of the architecture update and provides information on how to obtain the latest version of the Architecture.

7.0 Training and Resources

Before beginning the architecture maintenance and update process, it is encouraged that FHMPO staff become familiarized with the National ITS Architecture, Turbo Architecture, and the necessary steps and procedures for updating the Architecture. A consultant team can also be hired to assist the FHMPO in updating and maintaining the Architecture.

A list of useful resources is provided below. The list includes introductory training courses and documents related to the National ITS Architecture and Turbo Architecture.

- **Introduction to the National ITS Architecture.** This course provides a comprehensive overview of the National ITS Architecture. The course was developed in 2009 based on a previous version of the National ITS Architecture (version 6.1). Although it is based on an older version of the Architecture, the information is still very relevant. This course is highly recommended. If due to limited time availability, FHMPO staff should at a minimum go through Lessons 4 through 6. The course can be accessed via: http://www.citeconsortium.org/courses/initsa.html.

- **ITS Architecture Use and Maintenance Training.** The ITS Architecture Use and Maintenance Training consists of four modules. The training can be found at http://www.iteris.com/itsarch/html/training/useandmainttraining.htm.

- **Turbo Architecture Web-Based Training.** This is a National Highway Institute (NHI) training course. The course number is 137048. The course and description can be found on https://www.nhi.fhwa.dot.gov/training/course_search.aspx?tab=0&key=137048&res=1. This course provides information on how to use the Turbo Architecture Software.

- **The National ITS Architecture website** at http://www.iteris.com/itsarch/.

- **Regional ITS Architecture Guidance Document**. This document provides high-level information and helps to understand the process of developing/updating an ITS architecture. It can be accessed via: http://ntl.bts.gov/lib/jpodocs/repts_te/13598.pdf.