

Development of a Regional Intelligent Transportation System Architecture

Stakeholder Meeting #2 Executive Overview

In cooperation with:

Wichita-Sedgwick County Metropolitan Area Planning Department

City of Wichita

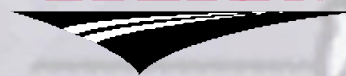
Sedgwick County

Kansas Department of Transportation

Federal Highway Administration

Presented by:

ITERISTM



In association with

RCC Consultants

March 10, 2005

Agenda – Day 3 Executive Overview

- Continental Breakfast
- Introduction
- What has been done so far?
- Architecture Website
- Projects
- Communications
- Next Steps

Project Objectives

- Develop a **Regional ITS Architecture** for the Wichita-Sedgwick County region (**Volume 1**)
 - Integrating advanced technologies
- **Development of Implementation Plan (Volume 2)**
 - Planning of ITS projects
 - Regional project development
- **Development of Communications Plan (Volume 3)**
 - Identify Communications Resources
 - Analyze Communications Needs
 - Identify Network Architecture Options

What is ITS?



“ITS represents the application of information processing, communications technologies, advanced control strategies, and electronics to the field of transportation.”

23 CFR Parts 655 and 940



ITS Architecture

Structure or framework for deploying
Integrated Transportation Systems

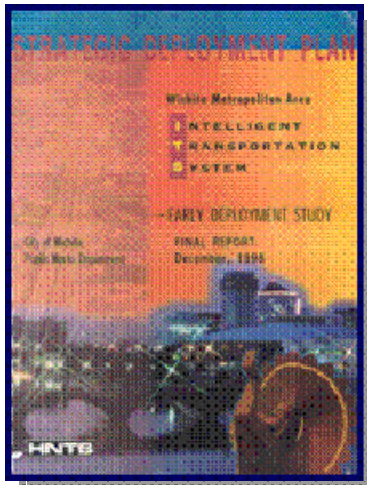
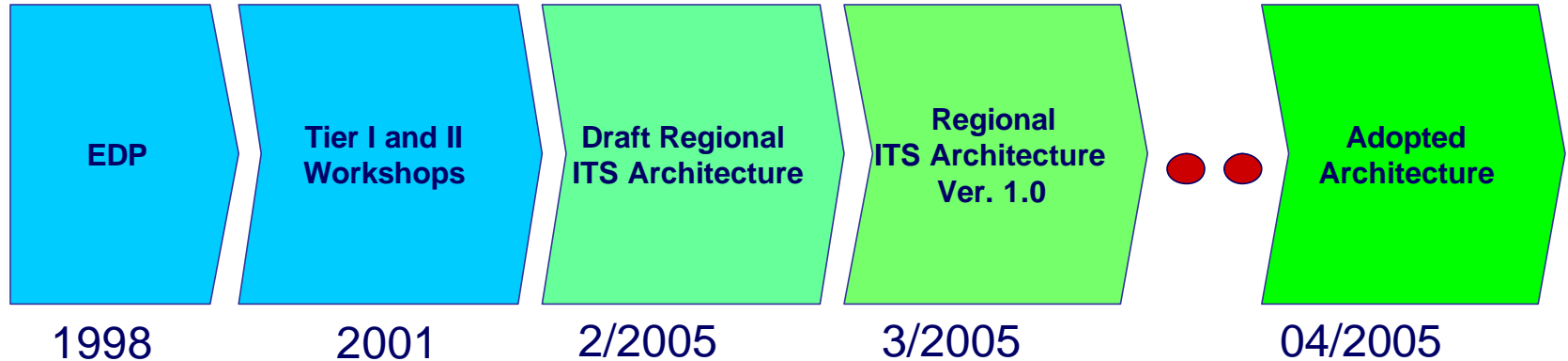
- blueprint for effective
cooperation



ITS Legislation

Section 520.6(e) of the Transportation Equity Act for the 21 Century (TEA-21) requires that all ITS projects funded through the Highway Trust Fund be in conformance with the National ITS Architecture and applicable standards

Wichita – Sedgwick County Regional ITS Architecture



Based on 1998 ITS Strategic
Deployment Plan and 2001
Regional ITS Architecture

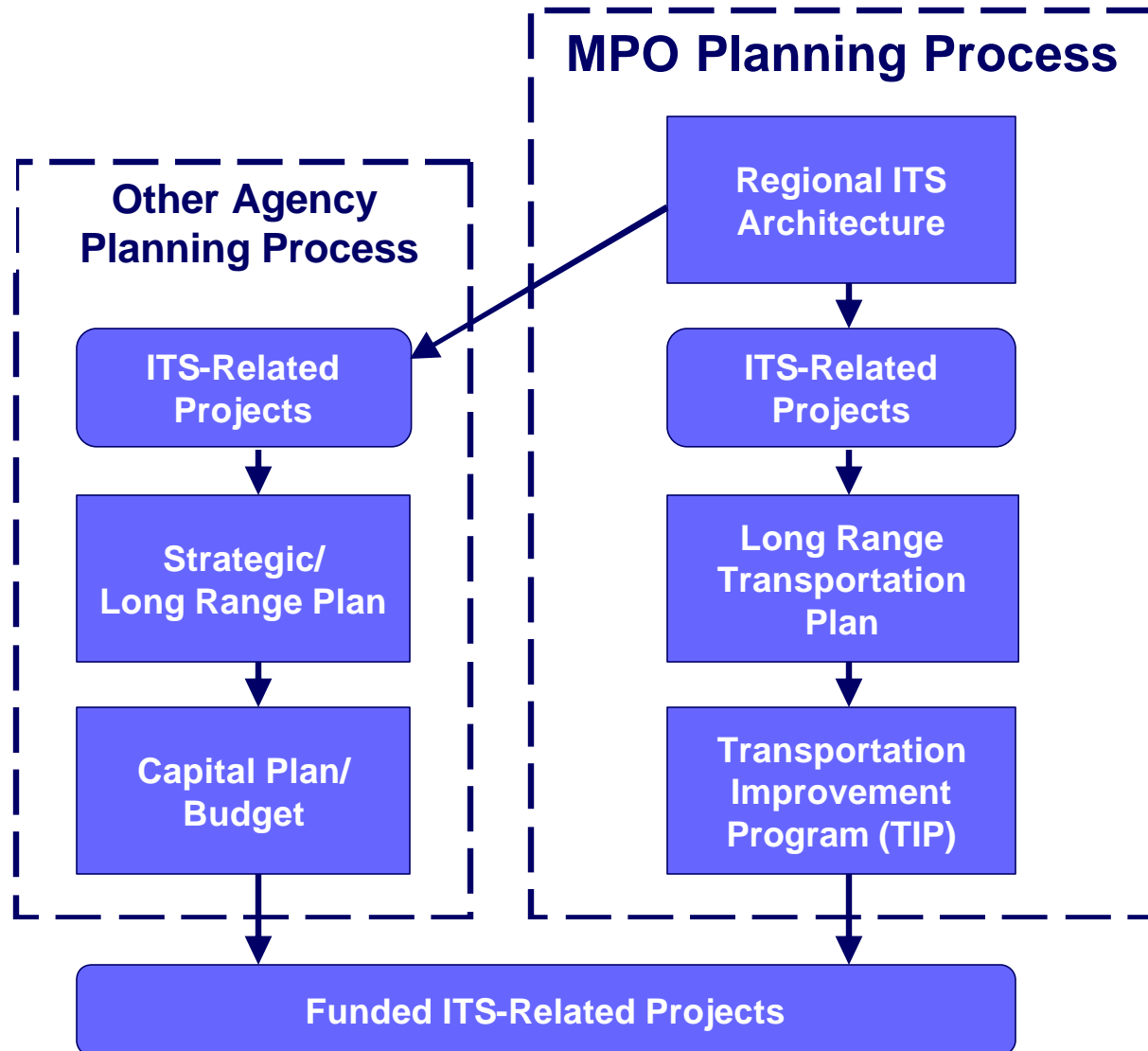
Partnering Memorandum of Understanding January 2002

- \$6.25 Million Total
 - \$3.75 Million (60%) KDOT
 - \$1.25 Million (20%) City of Wichita →
 - \$1.25 Million (20%) Sedgwick County → **CIP**
- MAPD - lead local coordinating agency
- Guiding Document – *Wichita Metropolitan Area ITS Strategic Development Plan*

Partnering Additional Federal Earmarks

FY	Grant	Recipient
• 2002	\$1.00 Million	City of Wichita
• 2003	\$4.00 Million	MAPD
• 2004	\$0.75 Million	Wichita Transit
• 2005	\$1.25 Million	MAPD

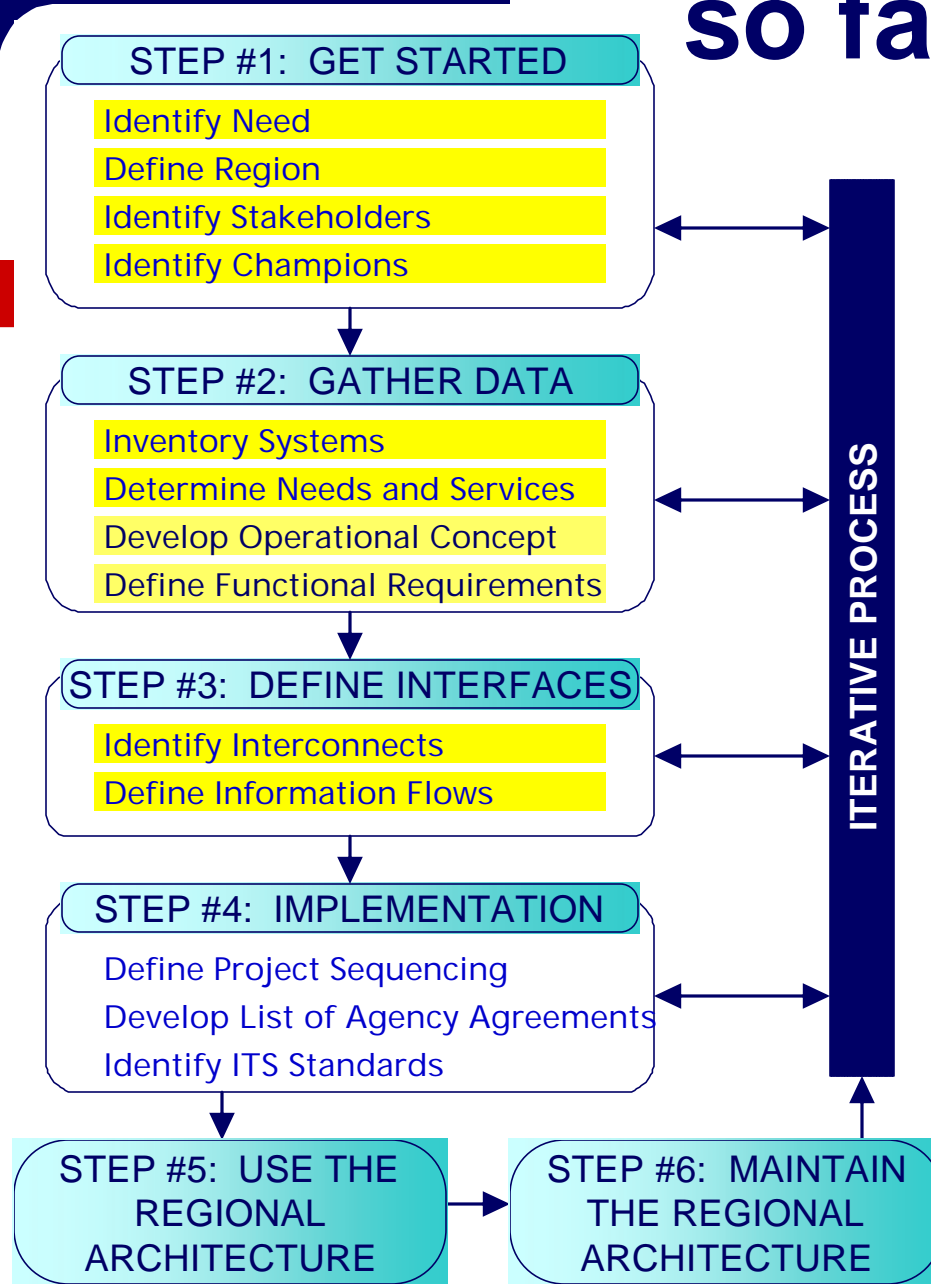
ITS Planning Process



Workshops

- Three Workshops to review and gather inputs
 - Architecture
 - Implementation Plan / Communications Plan
 - (2) Three-day Workshops
 - Two days for Detailed Review
 - One half-day for Management
 - (1) One-day workshop to finish Emergency Management Services
- MPO – Executive Overview
- MPO-sponsored Public Forum

What has been done so far ?



Wichita Architecture Website

www.iteris.com/wichitaarchitecture

Home - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

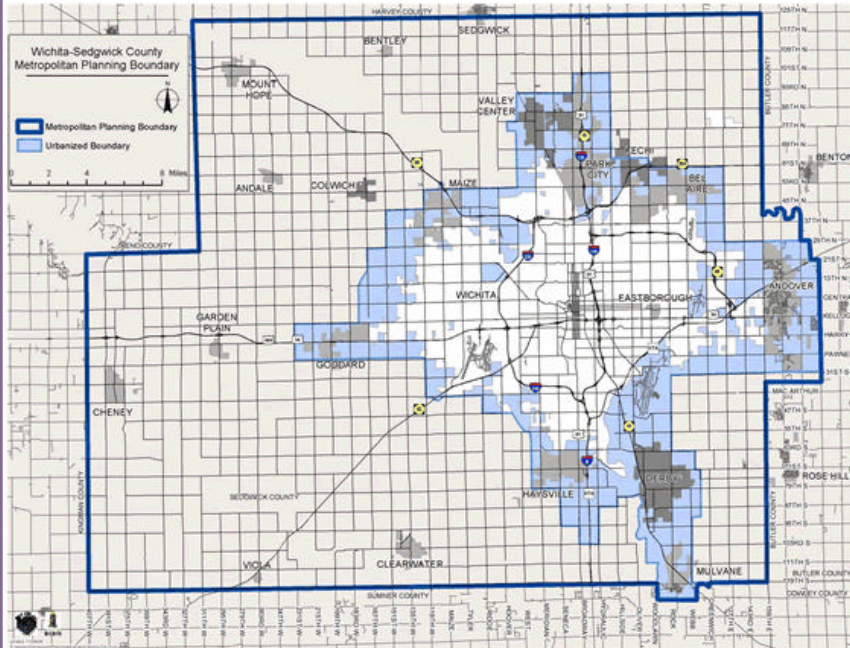
http://www.iteris.com/wichitaarchitecture/ Go

bLink Customize Links Explore the Web Free Hotmail New User Search Support The Arena

National ITS Architecture Home

Wichita Regional ITS Architecture

Welcome to the Wichita Regional Intelligent Transportation System Architecture web site. This site will provide you with information on the development of the Wichita Architecture..



Wichita-Sedgwick County Metropolitan Planning Boundary

Metropolitan Planning Boundary
Urbanized Boundary

Version 1.0
Site updated: 03/04/05

Done

Documents

The screenshot shows a Mozilla Firefox browser window with the title 'Documents - Mozilla Firefox'. The address bar displays the URL 'http://www.iteris.com/wichitaarchitecture/html/documei'. The browser's menu bar includes File, Edit, View, Go, Bookmarks, Tools, and Help. The toolbar contains navigation buttons (back, forward, home, stop) and a search bar. The bookmarks bar shows links to bLink, Customize Links, Explore the Web, Free Hotmail, New User, Search, Support, and The Arena. The page content features a sidebar with a navigation menu containing links to Home, Workshops, Architecture, Documents, Resources, and Comments. The main content area is titled 'Documents' and contains a table with three rows of document information. The status bar at the bottom indicates 'Done'.

Documents - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.iteris.com/wichitaarchitecture/html/documei

bLink Customize Links Explore the Web Free Hotmail New User Search Support The Arena

National ITS Architecture Documents

Documents

Date	Document
March 2, 2005	Turbo Architecture database (Turbo Architecture™ 3.0 software required)
March 3, 2005	Volume 1 Wichita Architecture
March 3, 2005	Volume 2 Implementation Plan

Home
Workshops
Architecture
Documents
Resources
Comments

Version 1.0
Site updated: 03/04/05

Done

Comments

Comments - Mozilla Firefox

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http://www.iteris.com/wichitaarchitecture/html/commer Go

bLink Customize Links Explore the Web Free Hotmail New User Search Support The Arena

National ITS Architecture Comments

Comments

Name:

Email: Phone:

Organization: Architecture Version:

Comment:

Cancel Submit

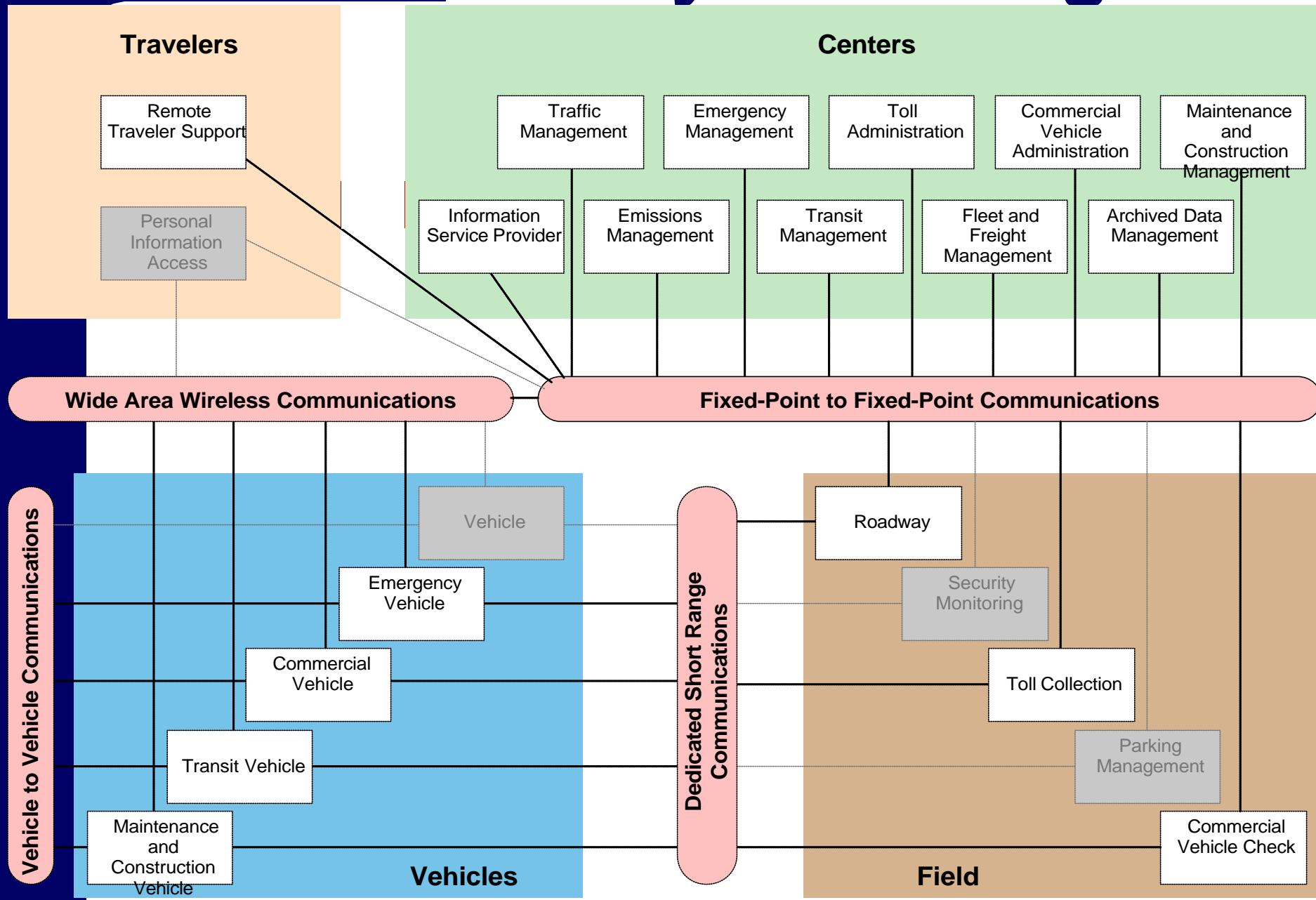
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Site updated: 03/04/05

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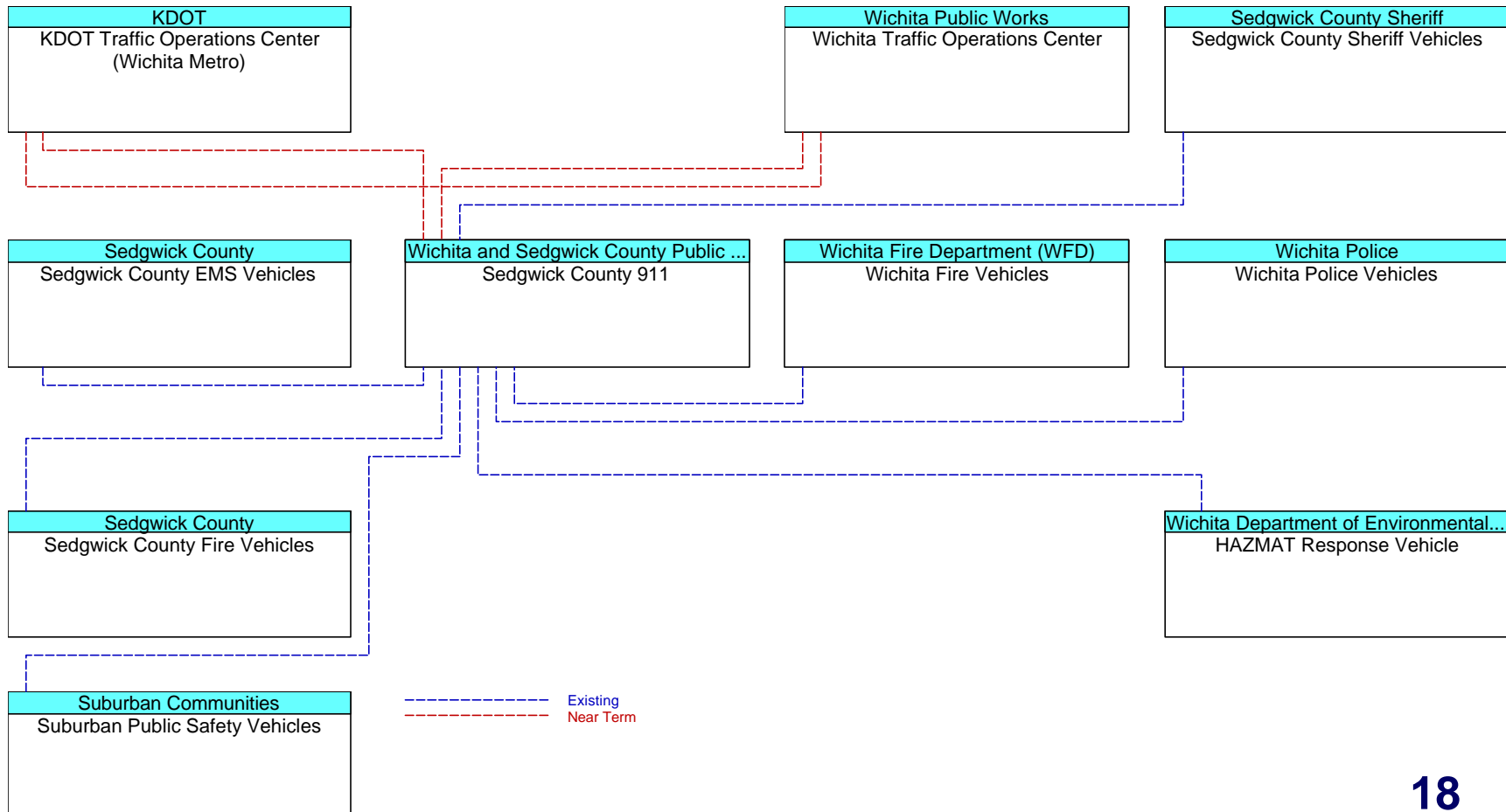
Comments received to date

- 9 On-Line Comments Received
 - Wichita Dept of Environmental Health (6)
 - Kansas Highway Patrol (1)
 - City of Wichita (1)
 - KDOT (1)
- Approximately 15 Comments received over the past 2 days from participants

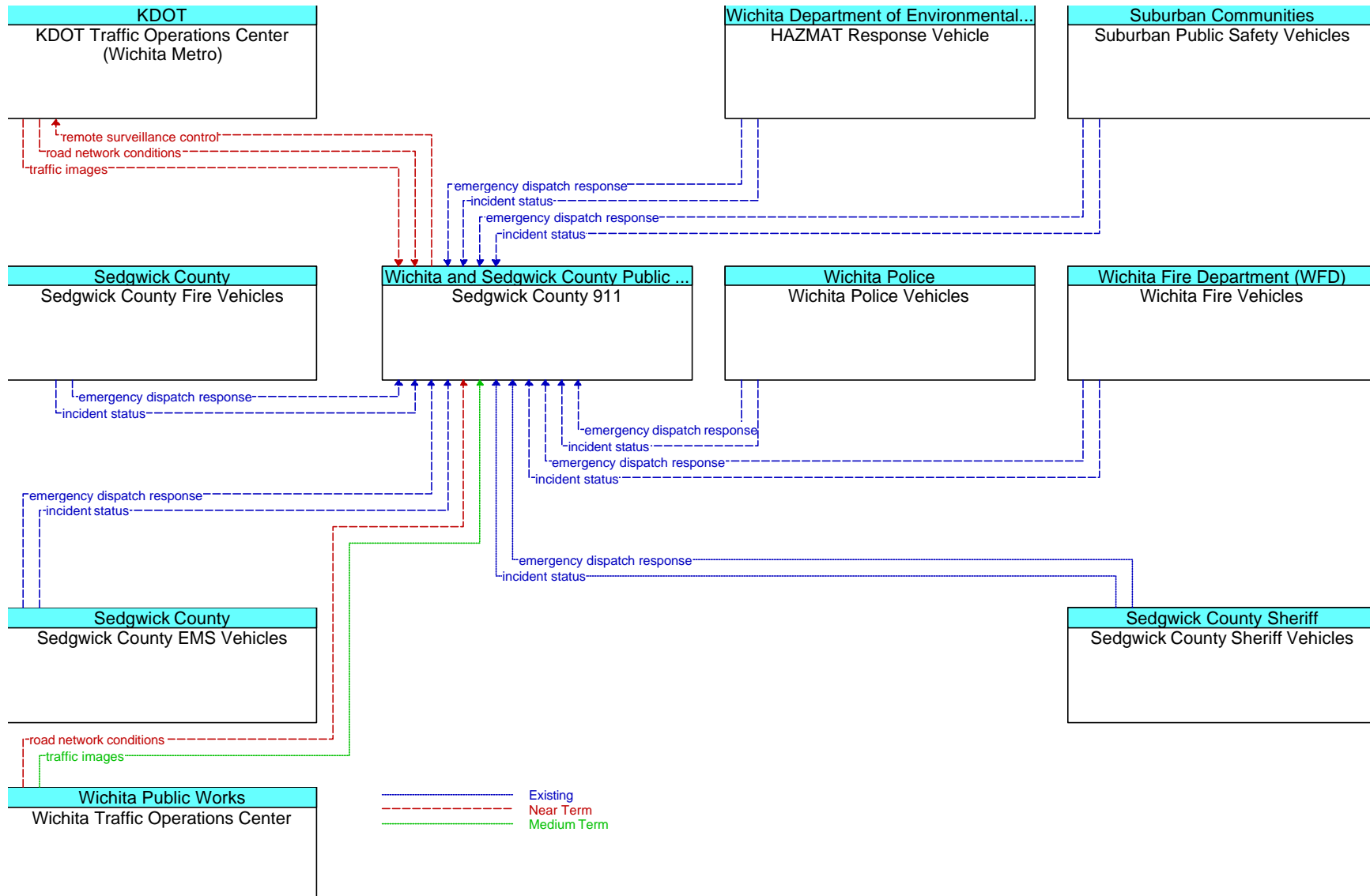
Subsystem Diagram



Sedgwick County 911 Interconnects



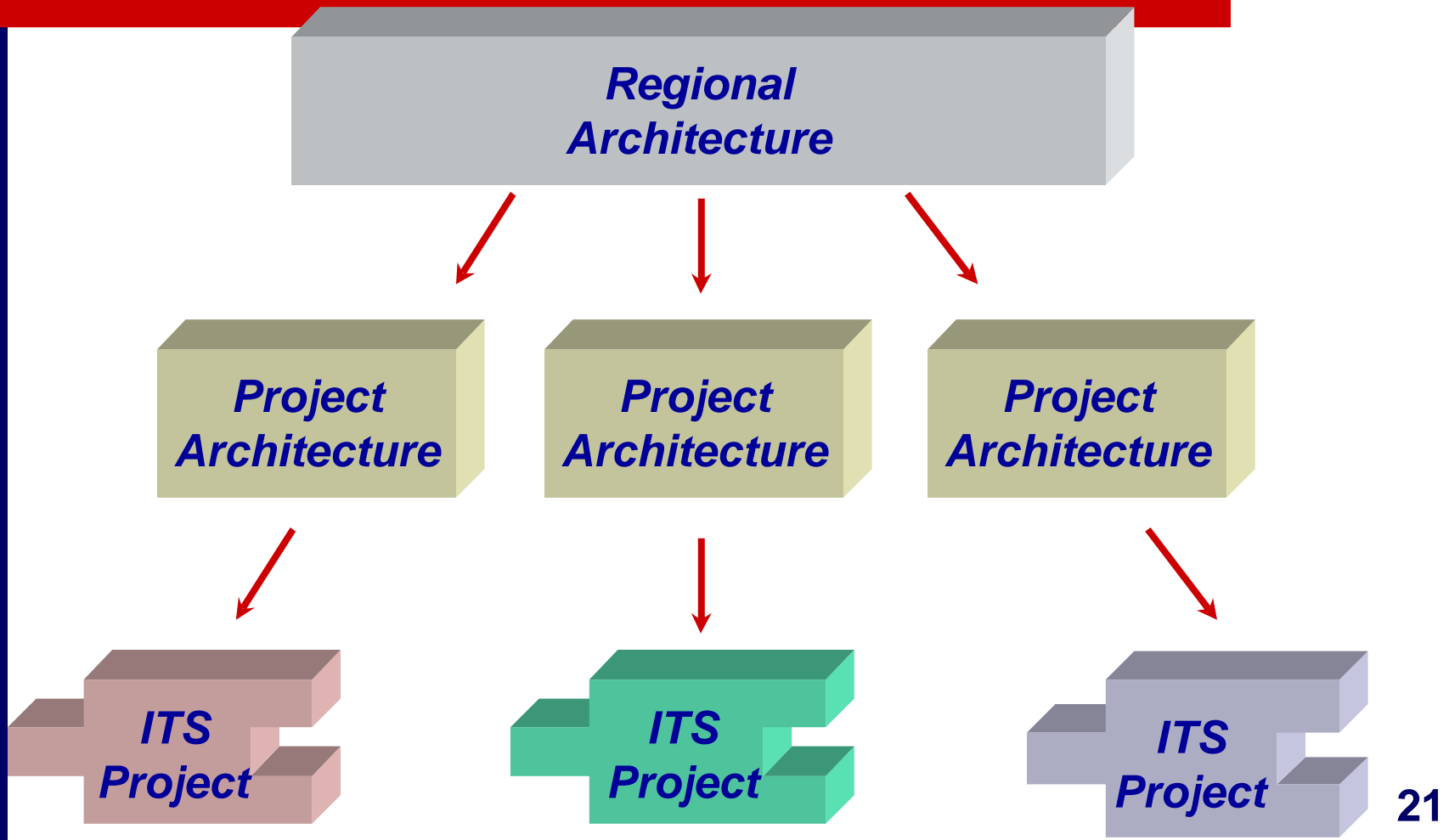
Sedgwick County 911 Flows



The Architecture is Ready for MPO Adoption

- This Architecture forms the Blueprint for Transportation System Integration for the Region
- This is Your Architecture and it Reflects Your Existing and Future ITS projects
- Over 60 stakeholders have participated on this activity

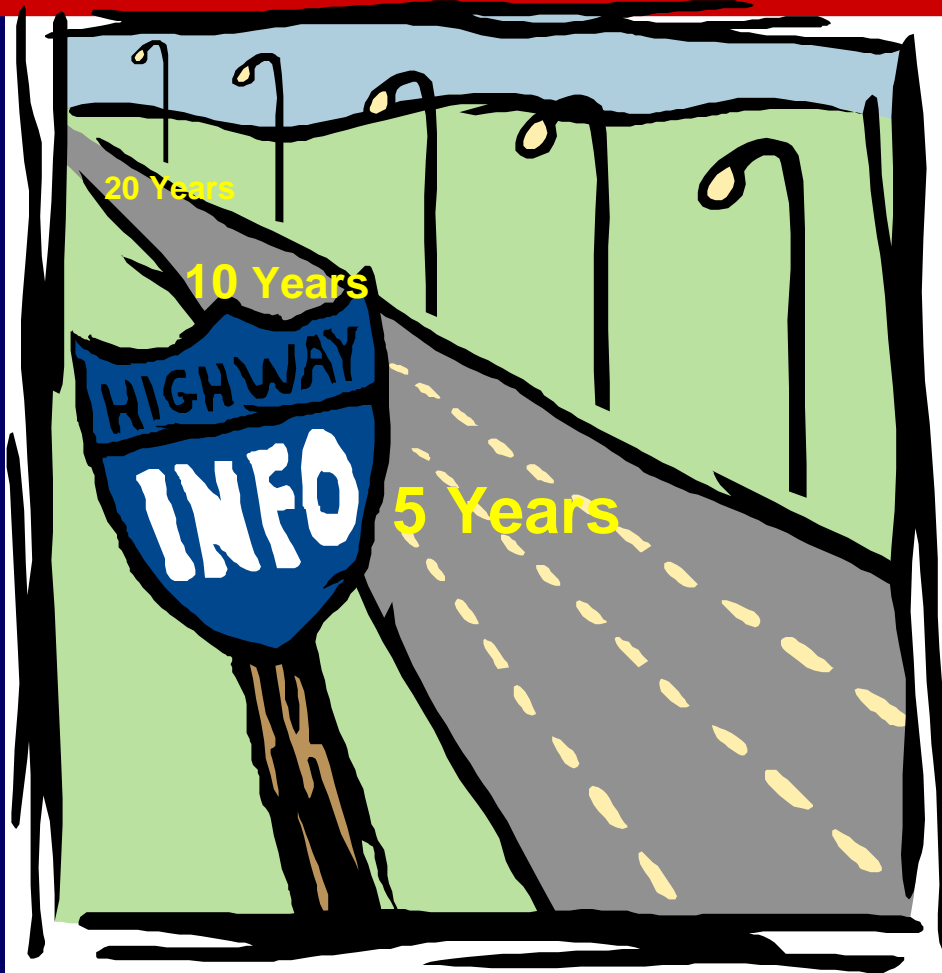
Project Deployment Using an Architecture



Review of Wichita – Sedgwick County Region's Projects

- Name
- Timeframe
- Services
- Stakeholders
- Approximate Cost
- Benefits
- Project Sequencing and/or Dependencies
- Agency Agreements

Timeframe



- Existing
- Near Term 0-5 years
- Medium Term 6-10 years
- Long Term 10+ years

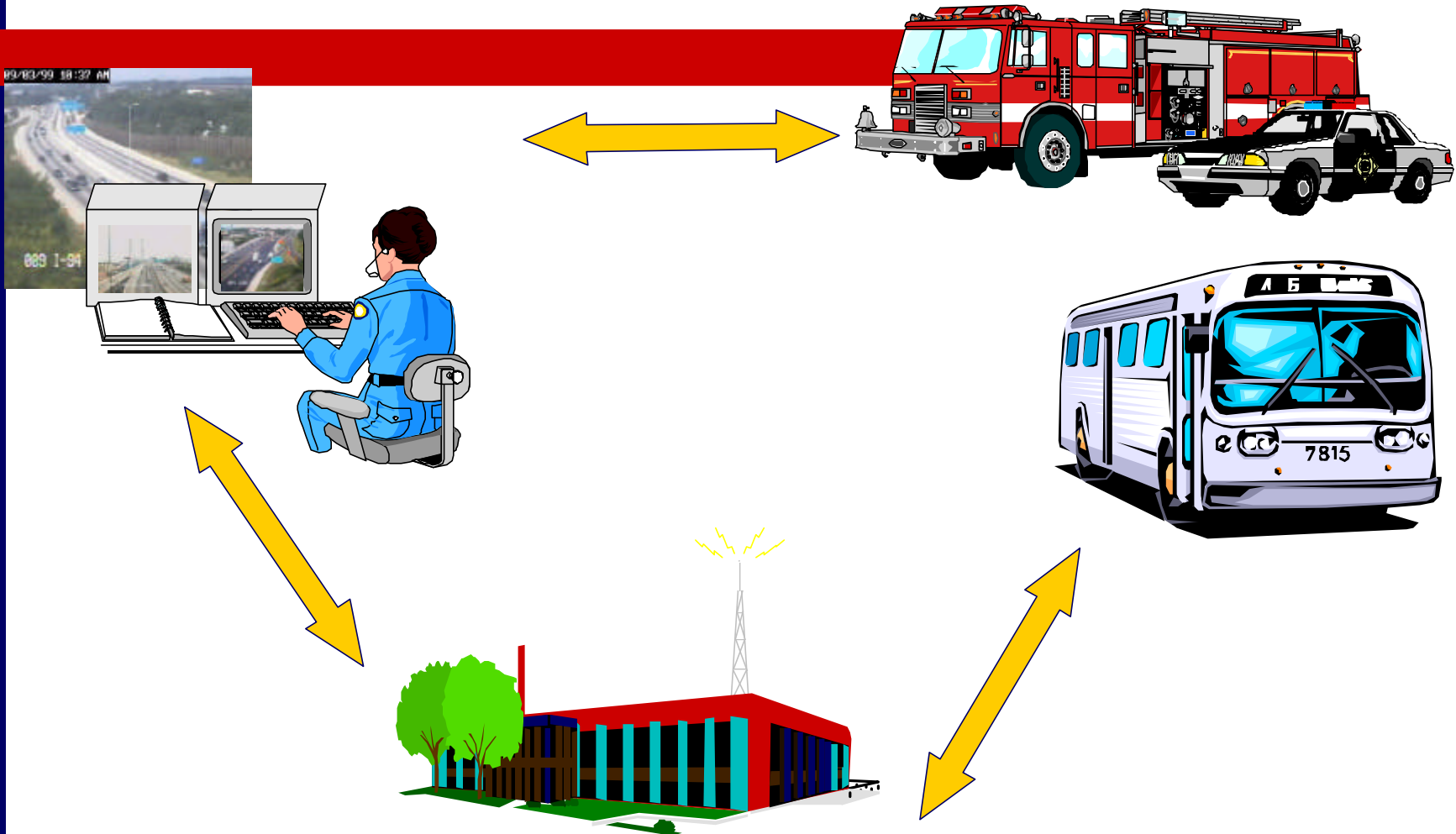


Projects

- Identified 30 Projects
 - 16 Near-Term
 - 11 Medium Term
 - 3 Long Term
- Examples
 - Winter Maintenance
 - Transit Vehicle Tracking
 - Regional 5-1-1 Traveler Information
 - Coordinated Emergency Call-Taking and Dispatch

Partnering Projects

Sedgwick County AVL System



Partnering Projects

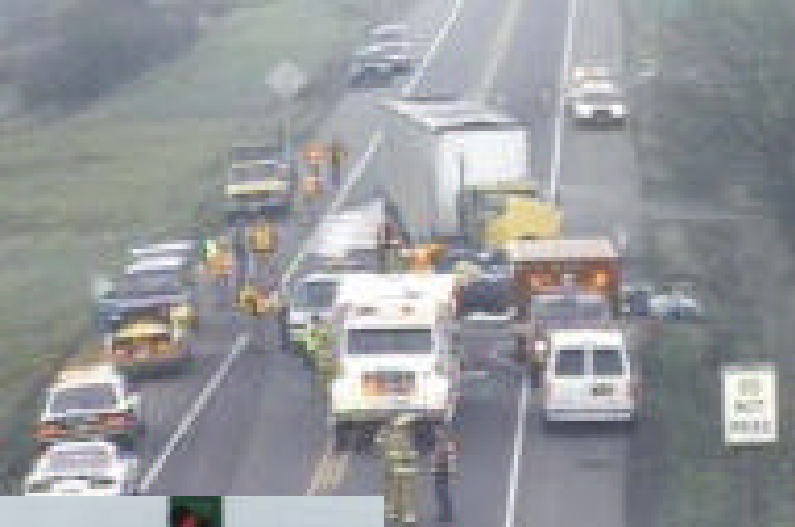
Traffic Signal System Upgrade



- Coordinated signals
 - City Wichita: 380 intersections
 - Sedgwick County: 35 intersections



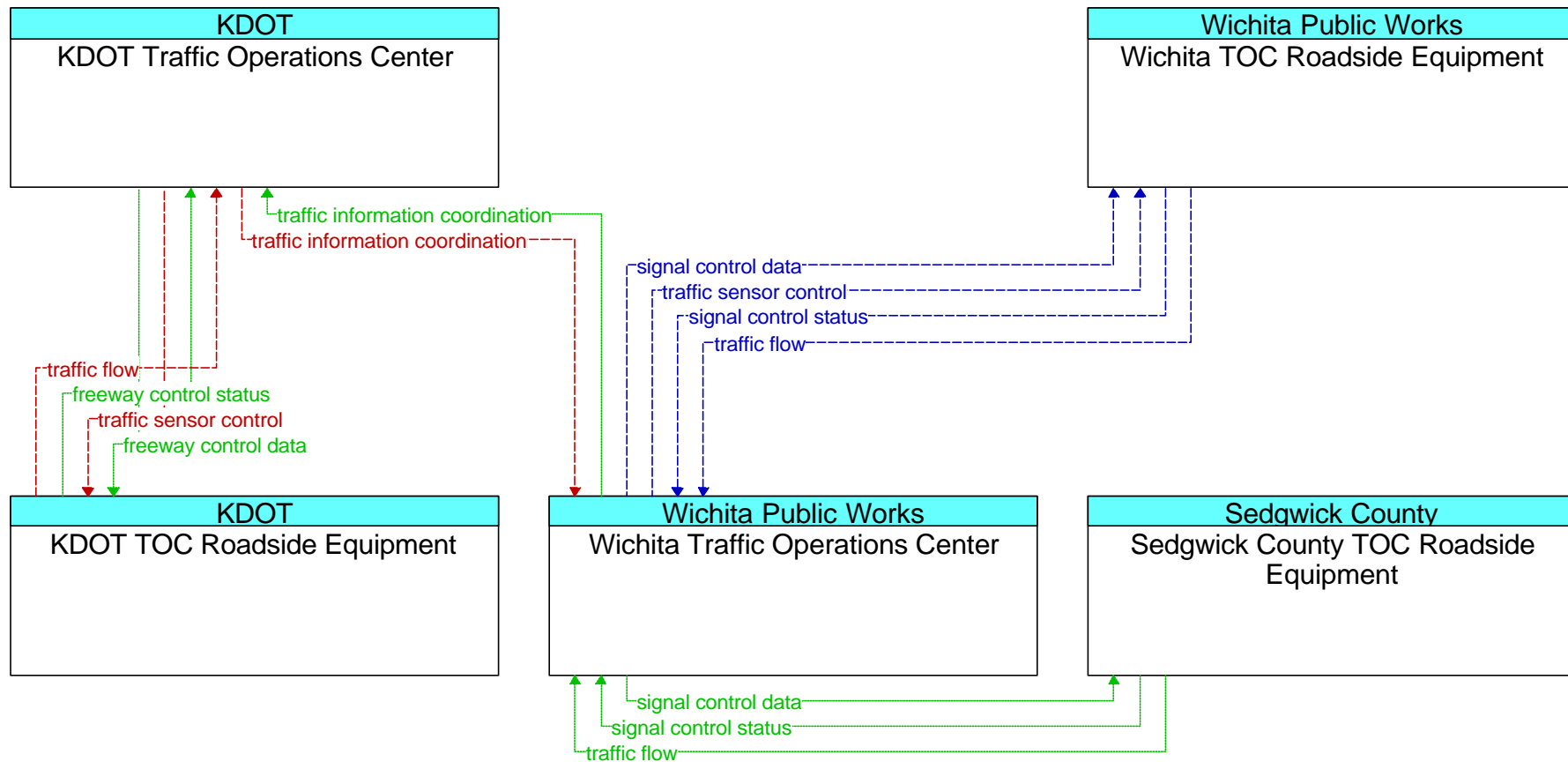
Partnering Projects KDOT Advanced Traffic Management System (ATMS)



- Incident Response
- Ramp Metering
- Work Zone Management
- Archiving



Coordinated Regional Traffic Control



Example of Project Sequencing

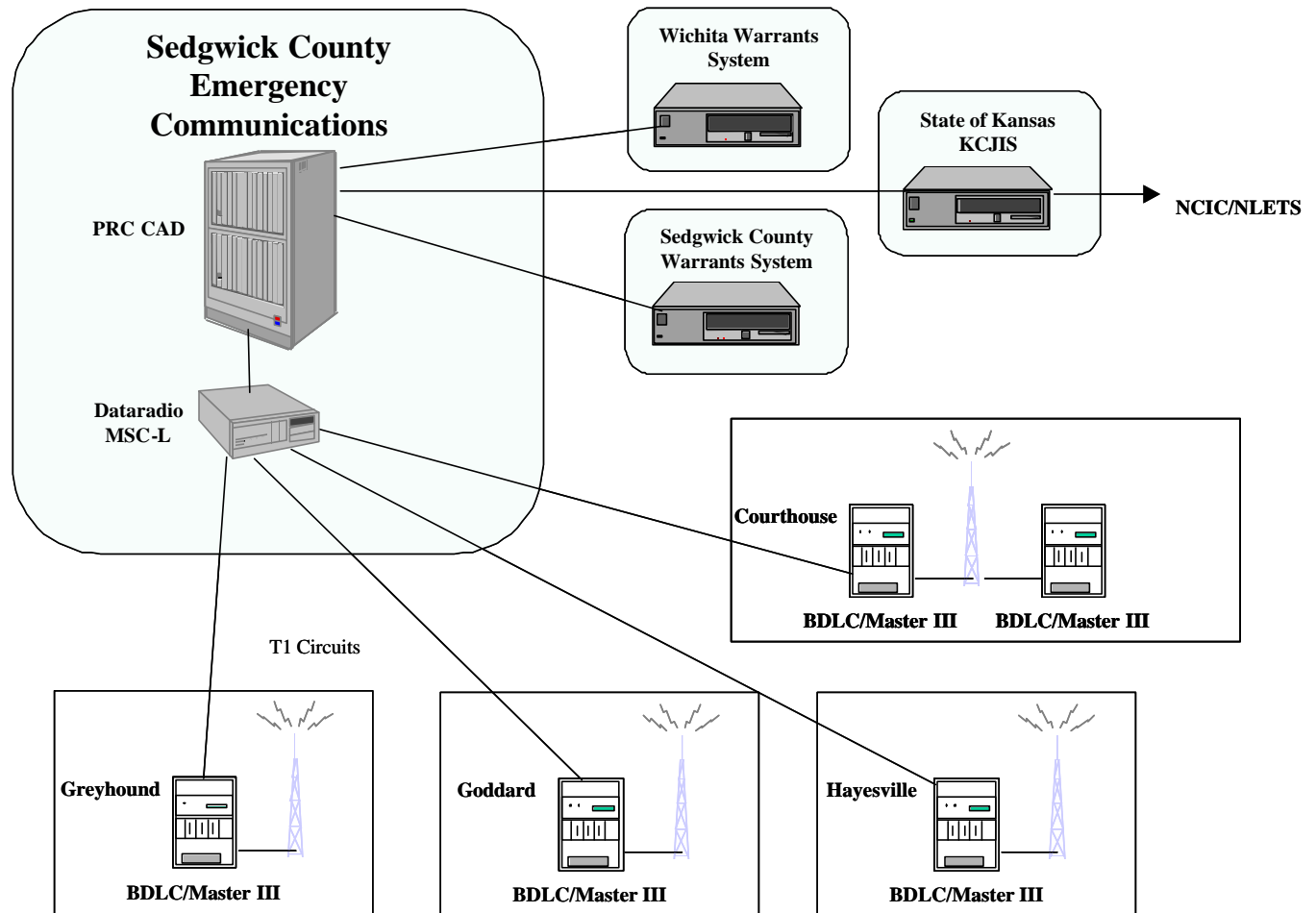
Project Names	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
SHORT TERM DEPLOYMENT PROJECTS (Projects starting in Years 1 – 3)												
Statewide ITS Architecture	<div></div>											
Traffic Operation Center Development		<div></div>										
Critical Infrastructure Monitoring Systems	<div></div>											
Arterial Traffic Management System	<div></div>											
Traffic Incident Management	<div></div>											

Funding Required	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
	\$1,493,571	\$3,657,321	\$4,561,321	\$4,561,321	\$3,056,821	\$2,314,571	\$2,067,071	\$1,079,000	\$1,733,000	\$1,889,500	\$1,316,500	\$400,000

Communications Plan Approach

- Communications Alternatives
 - WiMax
 - Fiber
 - 800 MHz Voice / Data Radios
- Communications Needs / Requirements by Stakeholder
- Project Dependencies on Communications
- Network Architecture Options

MCT System

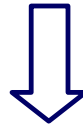


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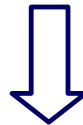


Using a Regional Architecture: ITS Standards

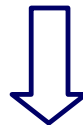
Regional ITS Architecture



Architecture Flows



ITS Standards



**Draft System/Communication
Specification**

ITS Standards on the CD-ROM

National ITS Architecture - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <D:\html\af\af106.htm> Go Google

National ITS Architecture

Version 5.0

U.S. Department of Transportation

Home Search What's New Hypertext View Document View Database View User Services Logical Architecture Physical Architecture Market Packages Standards Security Training Turbo Architecture

Traffic Management → **Emergency Management**

This Architecture Flow is in the following Market Packages:

- [Traffic Incident Management System](#)
- [Early Warning System](#)

This Architecture Flow is in the following Equipment Packages:

- [Emergency Early Warn](#)
- [Emergency Response](#)
- [Incident Command](#)
- [TMC Incident Dispatch](#)

Data Flows*:

- [wrong way vehicle de](#)
- [incident response cle](#)
- [incident alert](#)

Security Considerations:

- [Emergency](#)

Standard* Activities:

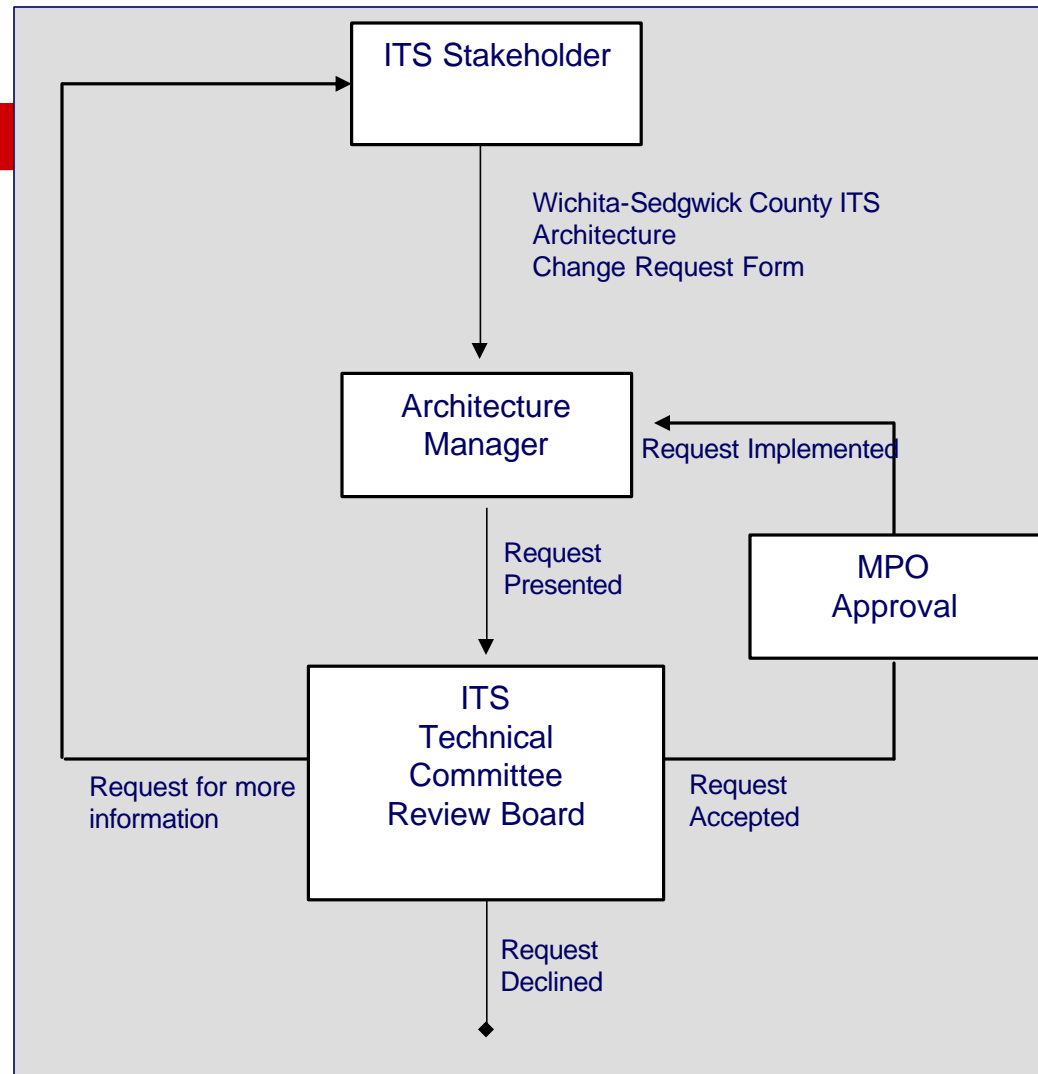
- [IEEE IM: Incident Management Standards Group](#)
- [NTCIP C2C: NTCIP Center-to-Center Standards Group](#)
- [ITE TM 1.03: Standard for Functional Level Traffic Management Data Dictionary \(TMDD\)](#)
- [ITE TM 2.01: Message Sets for External TMC Communication \(MS/ETMCC\)](#)

These are the ITS standards that address this architecture flow

Periodic Architecture Maintenance

- The Wichita – Sedgwick County Architecture is a Living Document held by the MAPD
 - New Projects
 - New Stakeholders
 - Changing Priorities
 - Reorganizations
 - New ITS-related services
- Maintenance Process is addressed in the Implementation Plan

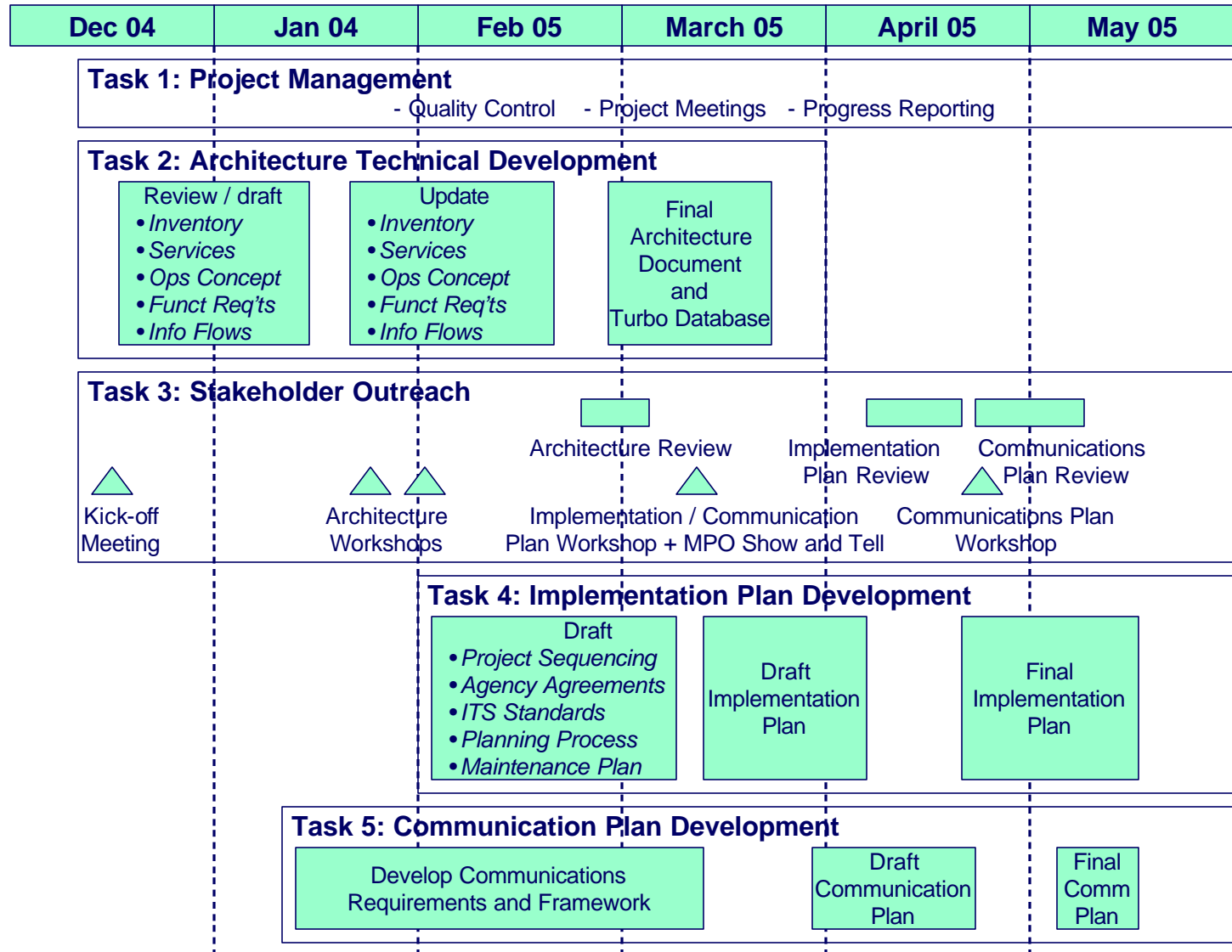
Architecture Change Process



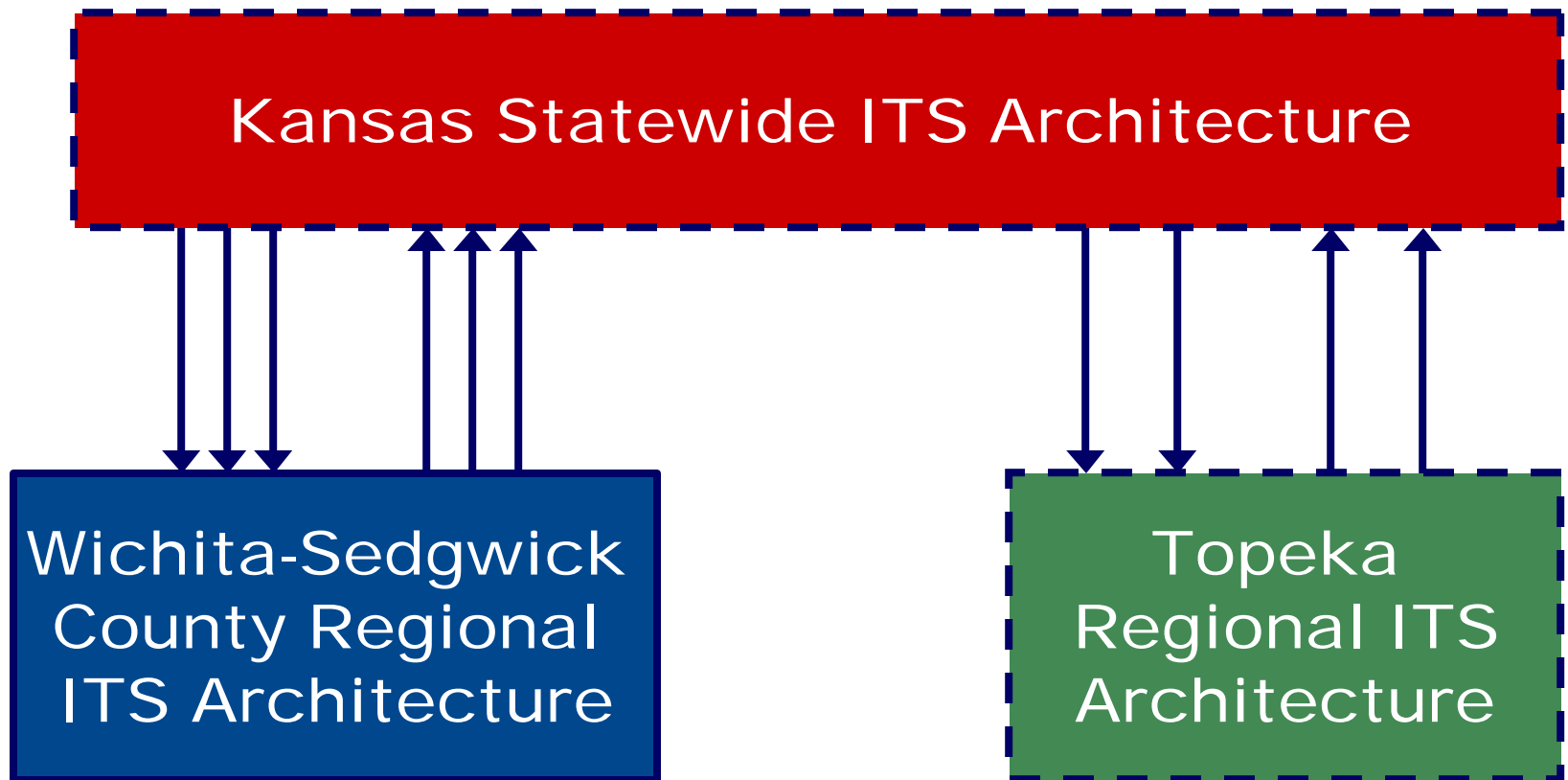
Change Control

Change Request #:	Change Request Description:	
Architecture Component	Impact(s) of Change	Resolution(s)
Wichita-Sedgwick County ITS Architecture Executive Summary		
Wichita-Sedgwick County ITS Architecture Document		
Wichita-Sedgwick County ITS Architecture Implementation Plan		
Wichita-Sedgwick County ITS Architecture Communications Plan		
Wichita-Sedgwick County ITS Architecture Maintenance Plan		
Wichita-Sedgwick County ITS Architecture Database		

Schedule



Scope (Future)



Next Steps

- Architecture Adoption
- Finalize Project Definitions
- Finalize Project Sequencing
- Identify ITS Standards
- List of Agency Agreements
- Architecture Maintenance Process
- Communications Plan

Wichita – Sedgwick County Regional ITS Architecture Information

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