

# *Development of a Regional Intelligent Transportation System Architecture*

## **Stakeholder Meeting #2**

*In cooperation with:*

**Wichita-Sedgwick County Metropolitan Area Planning Department**

**City of Wichita**

**Sedgwick County**

**Kansas Department of Transportation**

**Federal Highway Administration**

*Presented by:*

***ITERIS***<sup>™</sup>



*In association with*

**RCC Consultants**

**March 8, 2005**

# **Wichita-Sedgwick County Regional ITS Architecture Workshop**

## **Introduction**



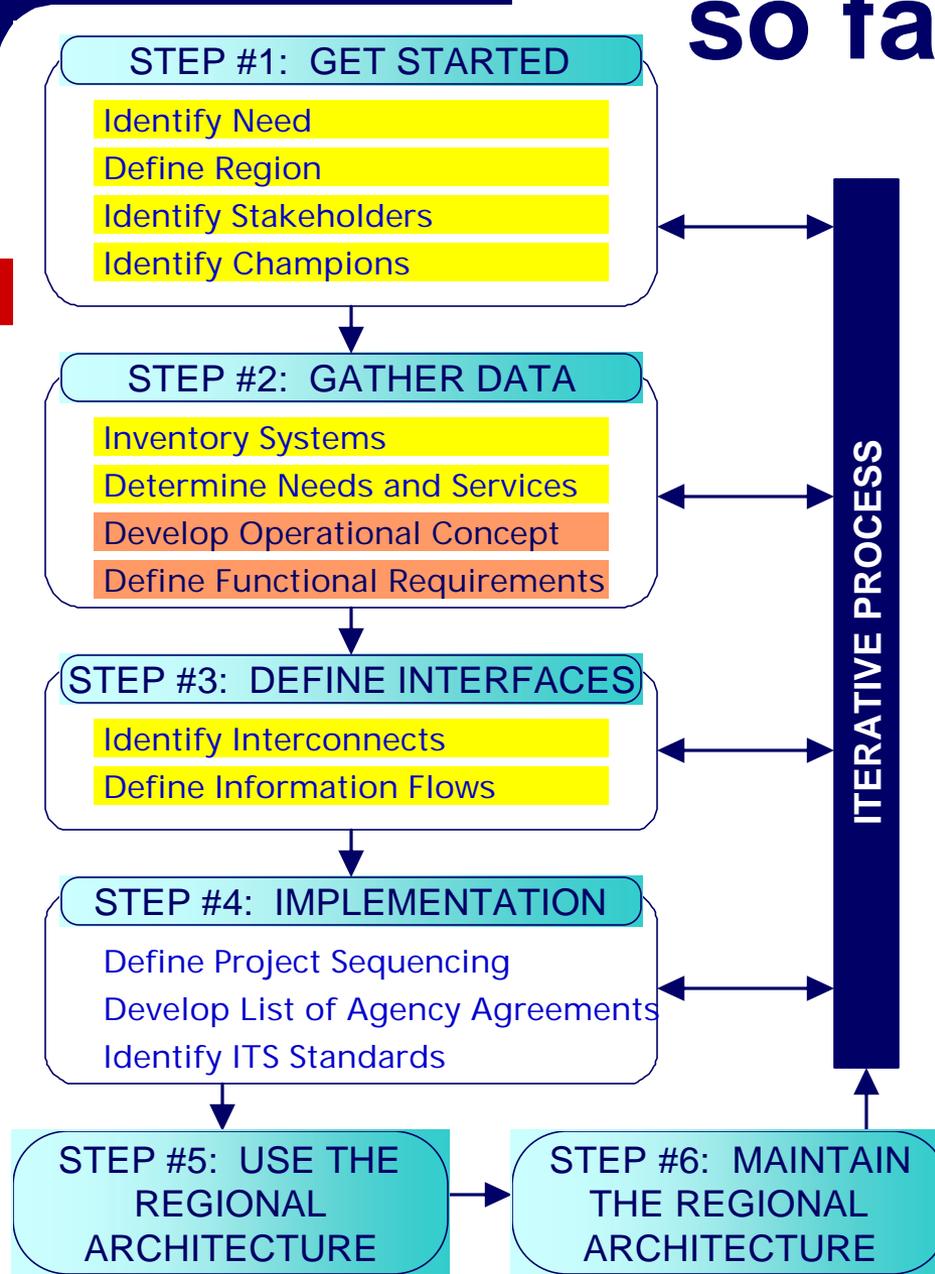
# Agenda – Day 1

- **Introduction**
- Review Comments
- Lunch on your own
- Communications Plan – Existing and Planned
- Communications Plan – Communications Needs
- Communications Plan – Network Architecture Options

# Agenda – Day 2

- Continental Breakfast
- Recap of Day 1
- Review KDOT Communications
- Implementation Plan – Projects Review
- Lunch on your own
- Implementation Plan – Project Sequencing
- Implementation Plan – ITS Standards
- Implementation Plan – Architecture Maintenance Plan
- Implementation Plan – Agency Agreements
- Wrap-Up Day 2 – Next Steps

# What has been done so far ?



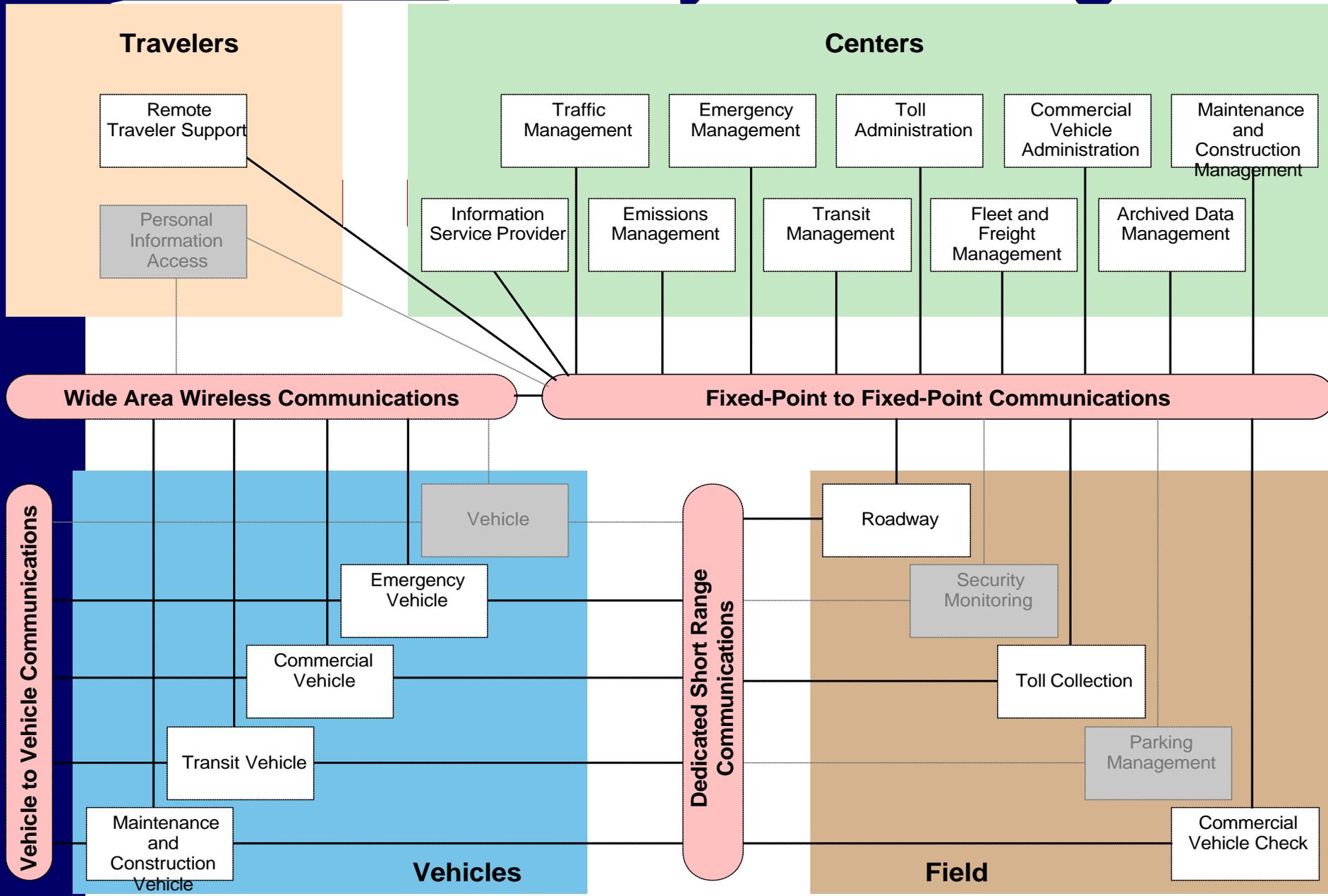
# Second Workshop – Implementation Plan

- Bring Region's Stakeholders Together
- Review draft Implementation Plan based on the Baselined Wichita – Sedgwick County Regional ITS Architecture
  - Project Definition
  - Sequencing of Projects
  - Agency Agreements
  - Standards
  - Estimated Project Costs
  - Maintaining the Architecture
- Result is an Implementation Plan that Leverages Your Architecture with Your Planning Processes

# Second Workshop – Communications Plan

- Determine Communications Plan Approach based on the Baseline Wichita – Sedgwick County Regional ITS Architecture
  - Identify Available Communications Resources
  - Define and Analyze Communications Requirements
  - Analyze Communications Needs
  - Develop Network Architecture Options
- Result is a Communications Plan that Leverages Your Architecture with Your Overall Communications Planning

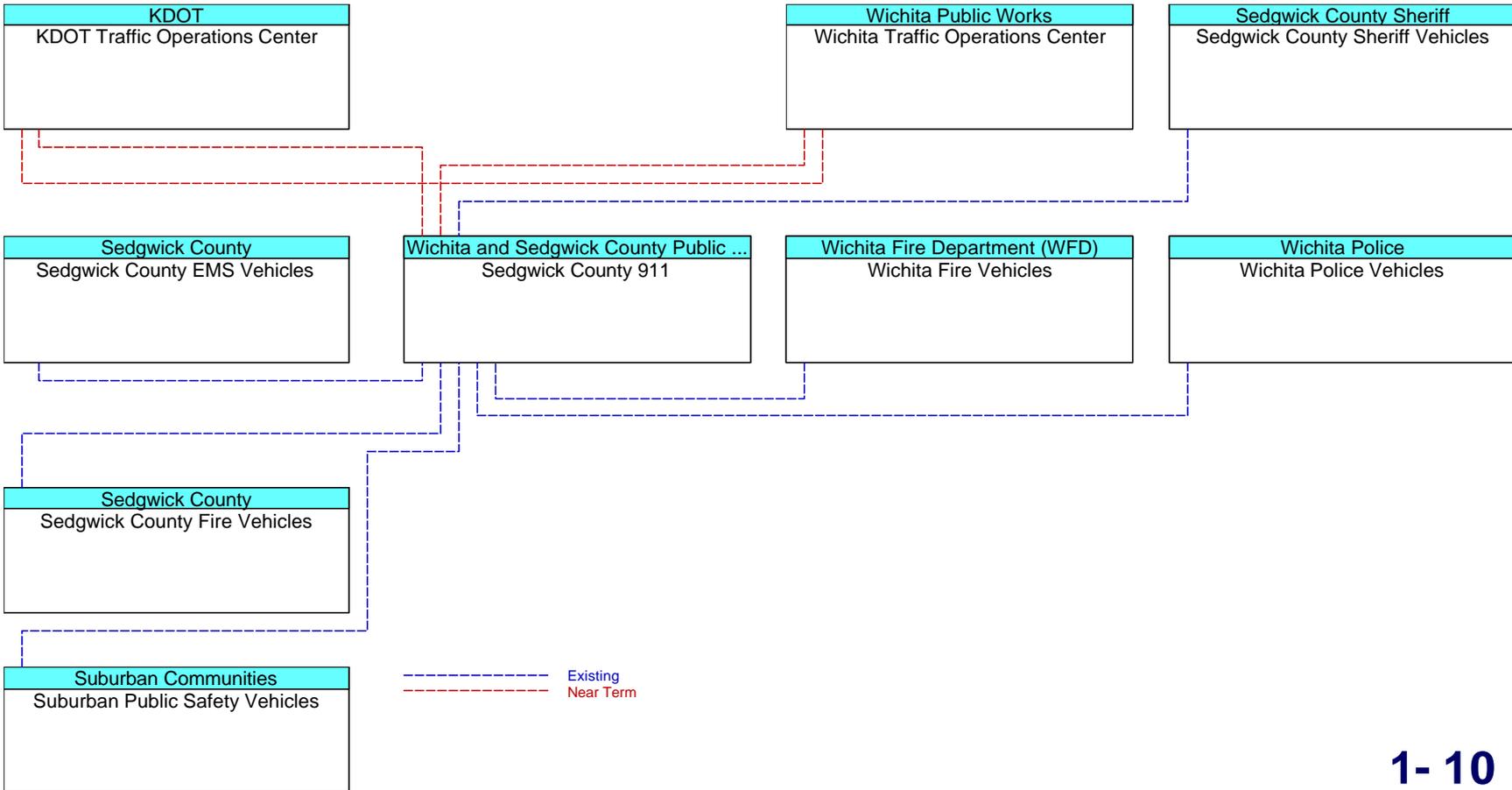
# Subsystem Diagram



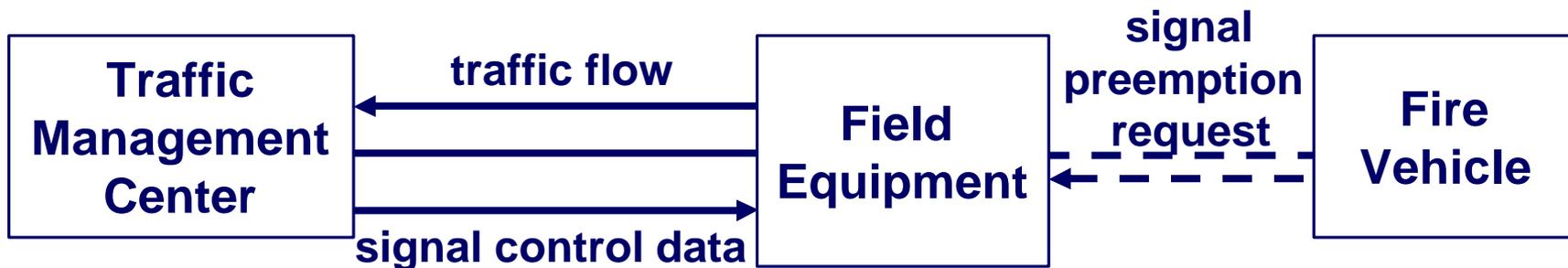
# “Interconnects” identify Connections between Systems



# Example of Interconnect Diagram

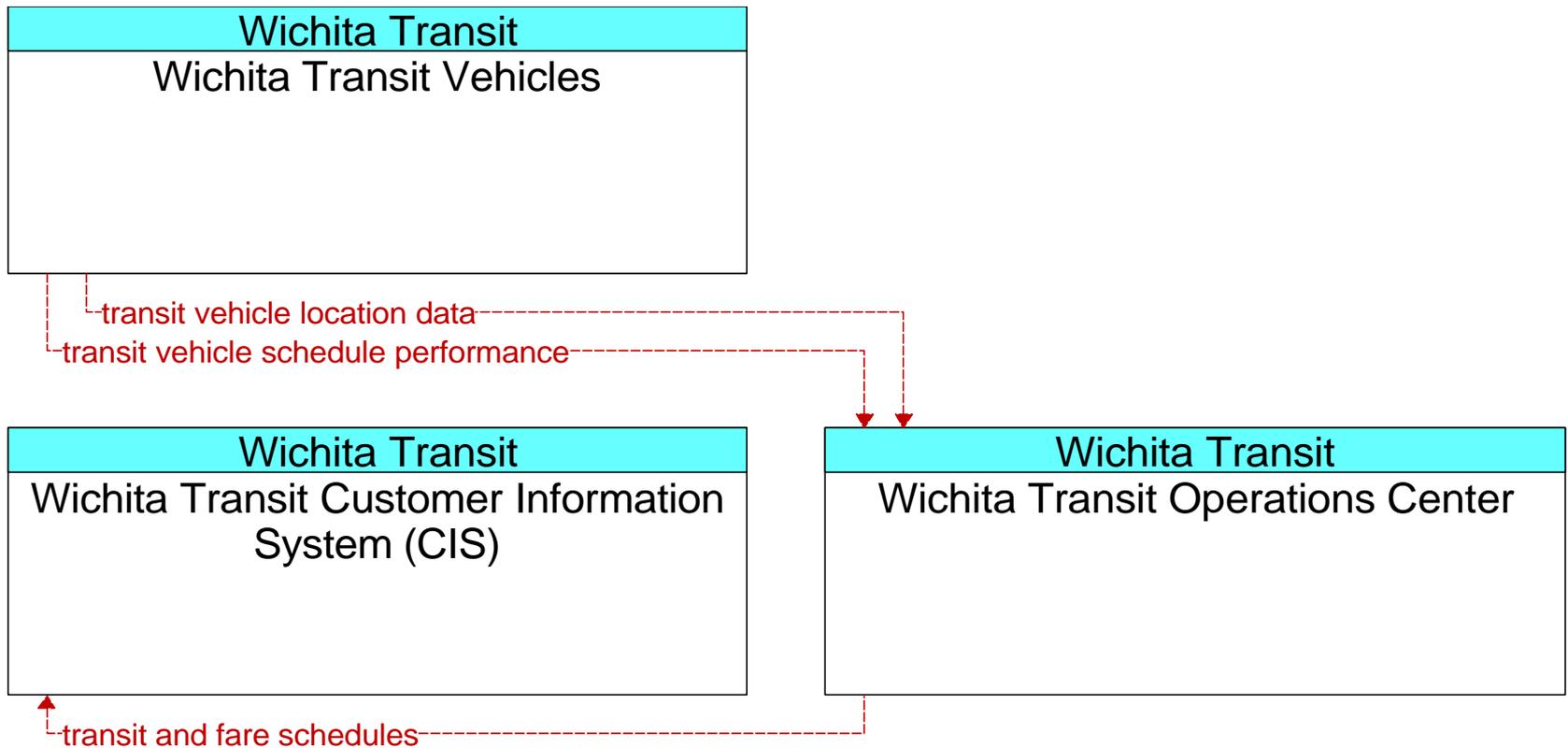


# “Architecture Flows” identify Information Transfers



An interconnects carries one or more architecture flows.

# Example of Architecture Flow Diagram



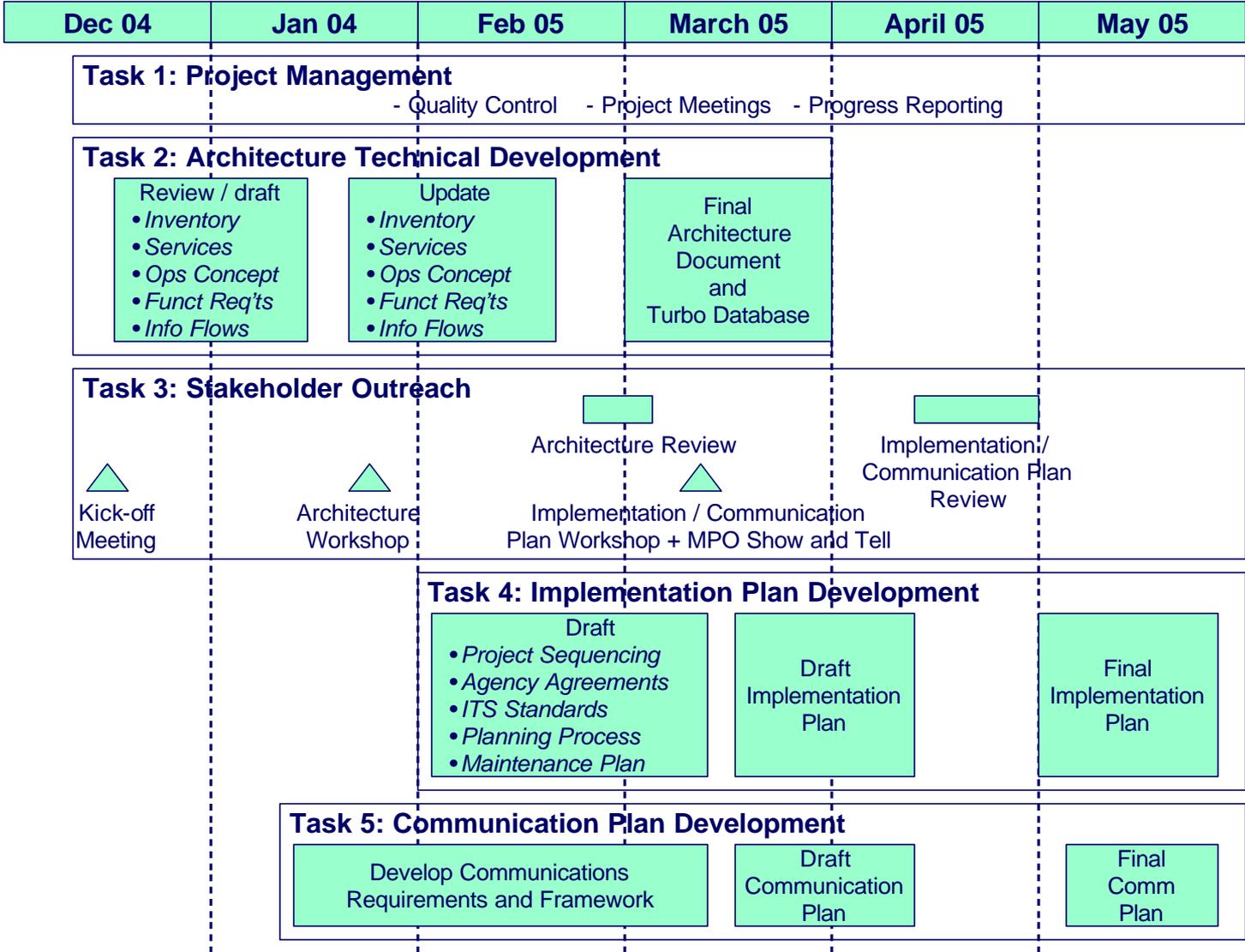
# Architecture Development

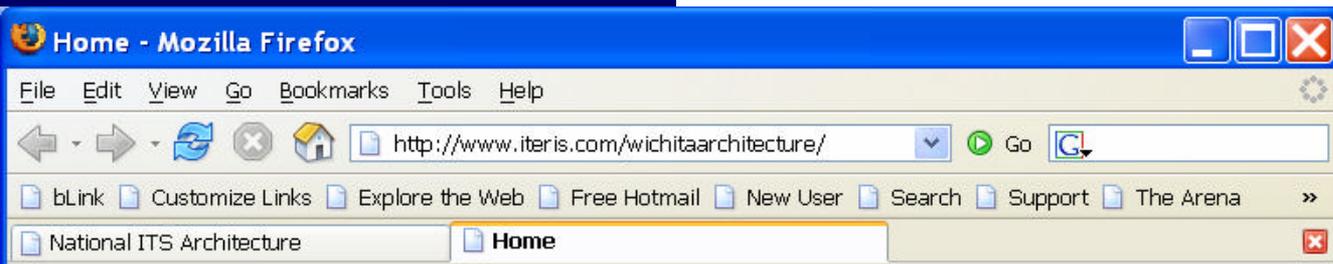
- January 18<sup>th</sup>–20<sup>th</sup> – Review and Feedback
  - Stakeholders
  - Inventory and
  - Services
- February 1<sup>st</sup> – Finish KDOT MCO and EM Services
- February 15<sup>th</sup> - Updated Architecture including Operational Concepts and High-Level Requirements
- February 15<sup>th</sup> to 28<sup>th</sup> - Stakeholder Review
- March 10<sup>th</sup> – MPO-sponsored Public Forum
- March 10<sup>th</sup> – 23<sup>rd</sup> – Public Comment Review Period
- March 24<sup>th</sup> – MPO Calendar Item
- April 14<sup>th</sup> – MPO Adopts Architecture

# Development of Implementation and Communications Plans

- March 8<sup>th</sup> -10<sup>th</sup> – Second Stakeholder Meeting to Review Preliminary Implementation Plan and Communications Plan fact-finding
- March 11<sup>th</sup> – April 20<sup>th</sup> – Develop Final Draft Plans
- April 20<sup>th</sup> – May 4<sup>th</sup> – Stakeholder Review
- May 20<sup>th</sup> – Final Implementation and Communications Plans

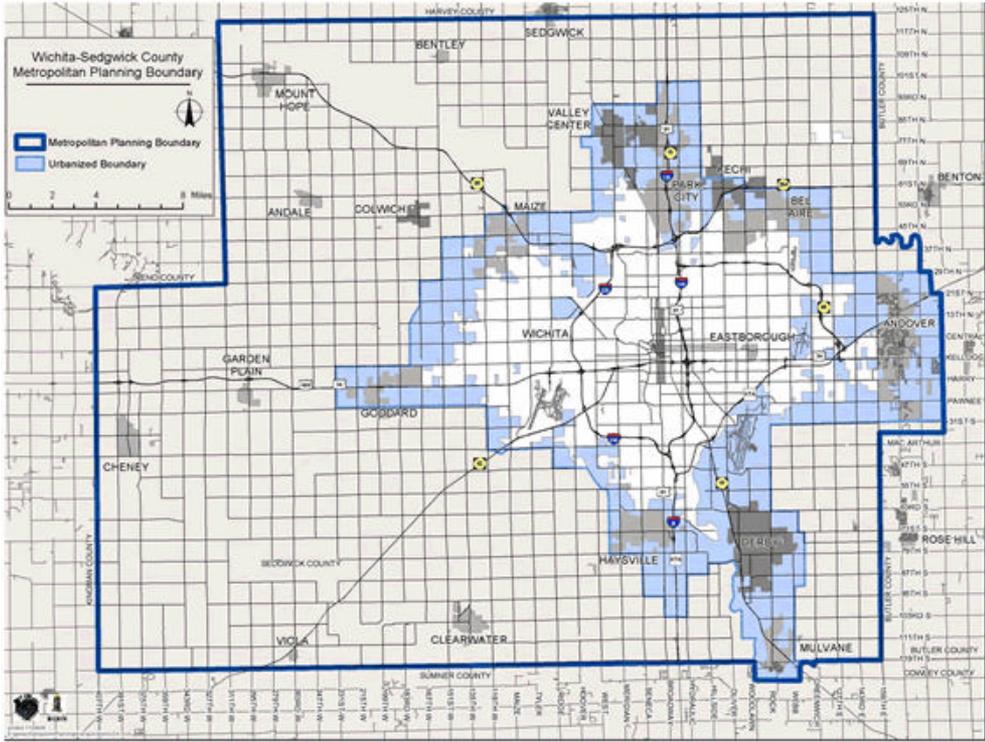
# Schedule





## 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..



# Website



- Home
- Workshops
- Architecture
- Documents
- Resources
- Comments

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# Entities

Entities - Mozilla Firefox

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

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National ITS Architecture Entities

## Architecture Entities

([Subsystems](#) and [Terminators](#))

### ITS Architecture Subsystems

<b>Centers</b>	<ul style="list-style-type: none"><li>◆ <a href="#">Archived Data Management Subsystem</a> (ADMS)</li><li>◆ <a href="#">Commercial Vehicle Administration</a> (CVAS)</li><li>◆ <a href="#">Emergency Management</a> (EM)</li><li>◆ <a href="#">Emissions Management</a> (EMMS)</li><li>◆ <a href="#">Fleet and Freight Management</a> (FMS)</li><li>◆ <a href="#">Information Service Provider</a> (ISP)</li><li>◆ <a href="#">Maintenance and Construction Management</a> (MCMS)</li><li>◆ <a href="#">Toll Administration</a> (TAS)</li><li>◆ <a href="#">Traffic Management</a> (TMS)</li><li>◆ <a href="#">Transit Management</a> (TRMS)</li></ul>
<b>Roadside</b>	<ul style="list-style-type: none"><li>◆ <a href="#">Commercial Vehicle Check</a> (CVCS)</li><li>◆ <a href="#">Roadway Subsystem</a> (RS)</li><li>◆ <a href="#">Toll Collection</a> (TCS)</li></ul>
<b>Traveler</b>	<ul style="list-style-type: none"><li>◆ <a href="#">Remote Traveler Support</a> (RTS)</li></ul>
<b>Vehicle</b>	<ul style="list-style-type: none"><li>◆ <a href="#">Commercial Vehicle Subsystem</a> (CVS)</li><li>◆ <a href="#">Emergency Vehicle Subsystem</a> (EVS)</li><li>◆ <a href="#">Maintenance and Construction Vehicle</a> (MCVS)</li><li>◆ <a href="#">Transit Vehicle Subsystem</a> (TRVS)</li></ul>

### ITS Architecture Terminators

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# Elements

Inventory Elements - Mozilla Firefox

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National ITS Architecture Inventory Elements

## Elements

The following is a listing of elements (systems that are operated by stakeholders in the region). Clicking on a system inventory element will provide a description of the element, status (planned or existing), subsystem interconnects, information exchanges between the subsystem interconnects, and traceability to the National ITS Architecture.

### Elements

- \*47-KHP
- \*KTA
- [Air Quality Alert System](#)
- [Air Quality Sensors](#)
- [Commercial Vehicles](#)
- [Fleet and Freight Systems](#)
- [HAZMAT Response Vehicle](#)
- [Healthcare Facilities](#)
- [Kansas 511 System](#)
- [Kansas Bureau of Investigation \(KBI\) System](#)
- [Kansas Criminal Justice Information System \(KCJIS\)](#)
- [Kansas CVO Check Stations](#)
- [Kansas Highway Patrol Dispatch](#)
- [Kansas Trucking Connection](#)
- [Kansas Turnpike Authority Center](#)
- [Kansas Turnpike Authority Environmental Sensors Stations](#)
- [KDOT Maintenance Vehicle](#)
- [KDOT Planning Archive](#)
- [KDOT TOC Information System](#)
- [KDOT TOC Kiosks](#)
- [KDOT TOC Maintenance and Construction System](#)
- [KDOT TOC Roadside Equipment](#)
- [KDOT Traffic Operations Center](#)
- [KHP Turnpike Dispatch System](#)
- [KHP Turnpike Vehicles](#)
- [KHP Vehicles](#)
- [KTA Maintenance Vehicle](#)
- [KTA Motorist Assistance Patrol Vehicles](#)
- [KTA Toll Collection Equipment](#)
- [Media](#)

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# Stakeholders

Stakeholders - Mozilla Firefox

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Stakeholders

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Workshops  
Architecture  
Documents  
Resources  
Comments

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The table below lists the diverse set of stakeholders who participated and are represented in the architecture. For further information about a particular stakeholder, click on the appropriate stakeholder name.

 -- Designates a stakeholder group

### Stakeholders

- ◆ [511 Stakeholder Group](#) 
- ◆ [BNSF Railroad](#)
- ◆ [City of Andale](#)
- ◆ [City of Derby](#)
- ◆ [City of Andover](#)
- ◆ [City of Belaire](#)
- ◆ [City of Bentley](#)
- ◆ [City of Cheney](#)

Done

# Services

The screenshot shows a Mozilla Firefox browser window with the address bar displaying <http://www.iteris.com/wichitaarchitecture/html/arc>. The page title is "Services". The main content area lists several services:

- ATMS01 - Network Surveillance**
  - [City of Wichita Network Surveillance](#) -- (Graphic)
  - [KDOT Network Surveillance](#) -- (Graphic)
  - [Sedgwick County Network Surveillance](#) -- (Graphic)
- ATMS03 - Surface Street Control**
  - [City of Wichita Surface Street Control](#) -- (Graphic)
  - [Sedgwick County Surface Street Control](#) -- (Graphic)
- ATMS04 - Freeway Control**
  - [Freeway Control](#) -- (Graphic)
- ATMS06 - Traffic Information Dissemination**
  - [Traffic Information Dissemination](#) -- Graphic [1](#) [2](#) [3](#)
- ATMS07 - Regional Traffic Control**
  - [Regional Traffic Control](#) -- (Graphic)
- ATMS08 - Traffic Incident Management System**
  - [Traffic Incident Management System](#) -- Graphic [1](#) [2](#) [3](#) [4](#) [5](#)

The left sidebar contains navigation links: Home, Workshops, Architecture, Documents, Resources, and Comments. At the bottom left, it says "Version 1.0" and "Site updated: 03/04/05". The status bar at the bottom of the browser window shows "Done".

# Services Example

Service Graphic - Mozilla Firefox

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National ITS Architecture Service Graphic

## Service Graphic

### Freeway Control Service

The diagram illustrates the architecture of the Freeway Control Service. It features two main components: the KDOT Traffic Operations Center (top) and the KDOT TOC Roadside Equipment (bottom). Data flows are categorized by term: Near Term (red dashed lines) and Medium Term (green dashed lines). The legend at the bottom indicates: red dashed line for Near Term, green dashed line for Medium Term.

- Medium Term (Green dashed lines):**
  - freeway control status (upward arrow from Roadside Equipment to TOC)
  - freeway control data (downward arrow from TOC to Roadside Equipment)
- Near Term (Red dashed lines):**
  - traffic flow (upward arrow from Roadside Equipment to TOC)
  - traffic images (upward arrow from Roadside Equipment to TOC)
  - traffic sensor control (downward arrow from TOC to Roadside Equipment)
  - video surveillance control (downward arrow from TOC to Roadside Equipment)

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# Operational Concept

Operational Concept - Mozilla Firefox

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National ITS Architecture Operational Concept

## Operational Concept

The following is a listing of the roles and responsibility areas. For further information about a particular roles and responsibility area, click on the appropriate roles and responsibility area name.

### Roles and Responsibility Areas

- ◆ [Archived Data Systems for Wichita-Sedgwick County Regional Area](#)
- ◆ [Commercial Vehicle Operations for Wichita-Sedgwick County Regional Area](#)
- ◆ [Electronic Toll Collection for Wichita-Sedgwick County Regional Area](#)
- ◆ [Emergency Management for Wichita-Sedgwick County Regional Area](#)
- ◆ [Freeway Management for Wichita-Sedgwick County Regional Area](#)
- ◆ [Incident Management for Wichita-Sedgwick County Regional Area](#)
- ◆ [Maintenance and Construction for Wichita-Sedgwick County Regional Area](#)
- ◆ [Surface Street Management for Wichita-Sedgwick County Regional Area](#)
- ◆ [Transit Services for Wichita-Sedgwick County Regional Area](#)
- ◆ [Traveler Information for Wichita-Sedgwick County Regional Area](#)

Date modified: 3/4/2005

Done

# Roles and Responsibility

Roles and Responsibility Area - Mozilla Firefox

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http://www.iteris.com/wichitaarchitecture/html/architecture/opscon/rrarea9.html

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National ITS Architecture Roles and Responsibility Area

## Roles and Responsibility Area

### Emergency Management for Wichita-Sedgwick County Regional Area

The stakeholders in this regional area interface with each other to provide disaster emergency management for the Wichita-Sedgwick County Regional area.

#### [Kansas Bureau of Investigation](#)

- The Kansas Bureau of Investigation is responsible for using the KCJIS to alert public safety agencies in the in the Wichita area of extreme weather conditions (e.g., tornados).

#### [Kansas Turnpike Authority \(KTA\)](#)

- Kansas Turnpike Authority is responsible for providing public safety during disasters (manmade or natural diasters).
- Kansas Turnpike Authority is responsible for addressing incidents, disasters, security threats, or any event that will cause a disruption to traffic flow on the turnpike and requires their assistance.

#### [KDOT](#)

- KDOT is responsible for providing public safety during disasters (manmade or natural diasters).
- KDOT responsible for responding to incidents, disasters, security threats, or any event that will cause a disruption to traffic flow and requires their personnel to provide assistance.
- KDOT is responsible for sharing congestion related, work zone information, and other events that will cause disruption in traffic to other traffic management, emergency management, media, commercial vehicle organizations, and information service providers in the Wichita area.

#### [KHP-Turnpike](#)

- KHP-Turnpike is responsible for providing public safety during disasters (manmade or natural diasters).

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# Functional Areas

Functional Areas - Mozilla Firefox

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National ITS Architecture Functional Areas

## Functional Areas

The following is a listing of the functional areas. For further information about a particular functional area, click on the appropriate functional area name.

### Functional Areas

- ◆ [Basic Information Broadcast](#)
- ◆ [Citation and Accident Electronic Recording](#)
- ◆ [Collect Traffic Surveillance](#)
- ◆ [CV Information Exchange](#)
- ◆ [CV Safety Administration](#)
- ◆ [Emergency Call-Taking](#)
- ◆ [Emergency Dispatch](#)
- ◆ [Emergency Early Warning System](#)
- ◆ [Emergency Evacuation Support](#)
- ◆ [Emergency Response Management](#)
- ◆ [Emergency Routing](#)
- ◆ [Emissions Data Collection](#)
- ◆ [Emissions Data Management](#)
- ◆ [Fleet Administration](#)
- ◆ [Fleet HAZMAT Management](#)
- ◆ [Fleet Maintenance Management](#)
- ◆ [Government Reporting Systems Support](#)
- ◆ [HRI Traffic Management](#)
- ◆ [Incident Command](#)

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Done

# Requirements

The screenshot shows a Mozilla Firefox browser window with the title bar 'Functional Area - Mozilla Firefox'. The address bar contains the URL 'http://www.iteris.com/wichitaarchitecture/html/'. The browser's menu bar includes 'File', 'Edit', 'View', 'Go', 'Bookmarks', 'Tools', and 'Help'. The address bar also shows navigation icons (back, forward, refresh, stop, home) and a search engine icon. The browser's toolbar includes links for 'bLink', 'Customize Links', 'Explore the Web', 'Free Hotmail', 'New User', 'Search', 'Support', and 'The Arena'. The browser's tab bar shows two tabs: 'National ITS Architecture' and 'Functional Area'. The main content area displays a page titled 'Functional Area' with a section on 'Emergency Routing'. The 'Emergency Routing' section includes a paragraph describing the routing of emergency vehicles and a list of six requirements. The left sidebar contains a navigation menu with links for 'Home', 'Workshops', 'Architecture', 'Documents', 'Resources', and 'Comments'. The status bar at the bottom of the browser window shows 'Done'.

Functional Area - Mozilla Firefox

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

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National ITS Architecture Functional Area

## Functional Area

### Emergency Routing

Routing of emergency vehicles to facilitate the quickest/safest arrival. Routes may be determined based on real-time traffic information and road conditions or routes may be provided by Traffic Management on request.

1. The center shall collect current traffic and road condition information from traffic management centers for emergency vehicle route calculation.
2. The center shall receive inputs from traffic management and maintenance centers on the location and status of traffic control equipment and work zones along potential emergency routes.
3. The center shall calculate emergency vehicle routes based on information from traffic management and maintenance centers.
4. In special circumstances such as during disasters and evacuations when normal routes are not available, the center shall request a route from the traffic management center.
5. The center shall provide the capability to request special traffic control measures from the traffic management center to facilitate emergency vehicle progress along the suggested route.
6. Once the route is calculated the route shall be provided to the dispatch function.

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# Documents

The screenshot shows a Mozilla Firefox browser window. The address bar contains the URL <http://www.iteris.com/wichitaarchitecture/html/documei>. The page title is "Documents". A left sidebar contains navigation links: Home, Workshops, Architecture, Documents, Resources, and Comments. The main content area features a table with the following data:

Date	Document
March 2, 2005	<a href="#">Turbo Architecture database</a> ( <a href="#">Turbo Architecture™ 3.0 software</a> required)
March 3, 2005	<a href="#">Volume 1 Wichita Architecture</a>
March 3, 2005	<a href="#">Volume 2 Implementation Plan</a>

At the bottom left of the browser window, it says "Version 1.0" and "Site updated: 03/04/05". The status bar at the very bottom of the browser shows "Done".

# Comments

Comments - Mozilla Firefox

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National ITS Architecture Comments

## Comments

Name:

Email:  Phone:

Organization:  Architecture Version:

Comment:

Cancel Submit

Done

Home  
Workshops  
Architecture  
Documents  
Resources  
Comments

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# Agenda – Day 1

- Introduction
- **Review Comments**
- Lunch on your own
- Communications Plan – Existing and Planned
- Communications Plan – Communications Needs
- Communications Plan – Network Architecture Options

# Comments received to date

- 8 Comments Received by *2/28/2005*
- John Stark (Wichita Dept of Environmental Health (6)
- Alan Stoecklein (1)
- Julianne Kallman (1)

# Comment #1

- We have no vehicle emissions monitoring capability for roadways and do not anticipate installing any unless we become a nonattainment area for ozone or PM. So I would say that this type of monitoring is probably in the 10-15 year range at least unless we become a nonattainment area.
- Resolution: Changed Air Quality Alert System requirements involving vehicles to Long Term

# Comment #2

- Under Wichita Department of Environmental Health -  
Definition: I would like to add that we conduct air monitoring at a number of fixed sites throughout the City and MSA. For a complete description of our services, check our web site at -  
[www.wichita.gov/CityOffices/Environmental/AirQuality](http://www.wichita.gov/CityOffices/Environmental/AirQuality) -  
or for current air quality information check out -  
[www.wichita.gov/airquality/airquality\\_m.asp](http://www.wichita.gov/airquality/airquality_m.asp)
- Resolution: Updated Wichita Department of Environmental Health Stakeholder description

# Comment #3

- Under the "Elements" heading, I am wondering if we need to include Wichita Dept of Environmental Health HazMat response vehicles. Four of our staff do regularly respond to HazMat incidents throughout the county and we are on call ( carry a 911 pager) 24 hrs/day for this. We are secondary responders and do not run red lights or sirens. Fire HazMat responders rely on us to identify unknowns at HazMat scenes and assist in other HazMat duties as assigned. For a full description of our HazMat roles, visit our web site at - [www.wichita.gov/CityOffices/Environmental/AirQuality/Haz\\_mat.htm](http://www.wichita.gov/CityOffices/Environmental/AirQuality/Haz_mat.htm)
- Resolution: Added new HAZMAT Response Vehicle with Wichita Dept of Environmental Health as the stakeholder, attached to Emergency Vehicle Subsystem and linked vehicle to Sedgwick County 911 Cetner for dispatch and incident status.

# Comment #4

- In the Elements section, I think there should be a listing for City of Wichita - Environmental Health HazMat Response Vehicles. We respond (no red lights/sirens) with the Fire HazMat units to incidents regularly. We carry detection equipment to identify unknown chemicals at HazMat incidents and also have chemical and biological detectors for possible terrorist incidents (existing capability). The subsystem interconnects would be with 911 (dispatch), City & County Fire units (Co-responders). Information exchanges - We use the 800 radio system and have all local fire, police, and sheriff channels on our radios.
- Same as Comment #3, added more description to the HazMat Response Vehicle element

# Comment #5

- Under Functional Area - Emissions Data Collection. We do collect air quality data from a number of sites throughout the MSA, but we do not collect any roadway emissions data on vehicles, nor do we plan to do so in the next 10 or 15 years unless we become a nonattainment area.
- Resolution: Updated Functional Requirements to show that no vehicle emissions are collected, possibly Long-Term only

# Comment #6

- In Functional Area - Emissions Data Management - We only conduct air quality data as described in #2 and #7. We do not plan to conduct any roadside emissions monitoring
- Resolution: Corrected, only requirements #2 and #7 are existing

# Comment #7

- In most all of the Kansas Highway Patrol stakeholders (KHP, Turnpike, Dispatchers, etc.) under the Roles and Responsibilities in several places it mentions "Sedgwick County, and Wichita COUNTY". I believe this should be Sedwick County and City of Wichita. Wichita County is a small county in Western Kansas. Not a big deal but it probably needs to be changed so there is no confusion.
- Resolution: Changed "Wichita County" to "City of Wichita" under Roles and Responsibilities

# Comment #8

- The Stakeholder "Wichita" is a little vague. The other stakeholders that involve Wichita are more Department- or Division-specific. Perhaps this was just an extra that didn't get deleted - there's not much information under it, and what I do see appears to be Construction and Maintenance which is part of Public Works.
- Resolution: Agree, removed stakeholder "Wichita", tied the Wichita Public Works stakeholder to the Construction and Maintenance Vehicle

# Comment #9 (Last but not least)

- Section 3.14 (p. 19) I would suggest changing the last statement to read as follows: "This center will also provide Kansas 511 with roadway information for Turnpike routes."
- Sections 4.36 (p 84) and 4.38 (p 86)--need clarification on "KDOT TOC Kiosks"--not sure what this means in terms of the regional architecture.
- Overall comment regarding Kansas 511: Regardless of data (incident, weather, etc), what I envision is that Wichita metro data would be transmitted to the Wichita ATMS which would then be transmitted to the Statewide TOC which would then transmit to Kansas 511. In the event the Statewide TOC doesn't become reality, data may be transmitted directly to Kansas 511.

# Other Changes

- Added City of Viola
- Removed Kansas Highway Patrol as an element, part of Kansas Highway Patrol Dispatcher
- Added Jabara Airport to Wichita Airport Authority description
- Remove Town of Sedgwick?
- Others?

# 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		

# Agenda – Day 1

- Introduction
- Review Comments
- Lunch on your own
- **Communications Plan – Existing and Planned**
- Communications Plan – Communications Needs
- Communications Plan – Network Architecture Options

# Communications Plan Approach

- Identify Available Communications Resources
- Define and Analyze Comm Requirements
- Analyze Communication Needs
- Develop Network Architecture Options

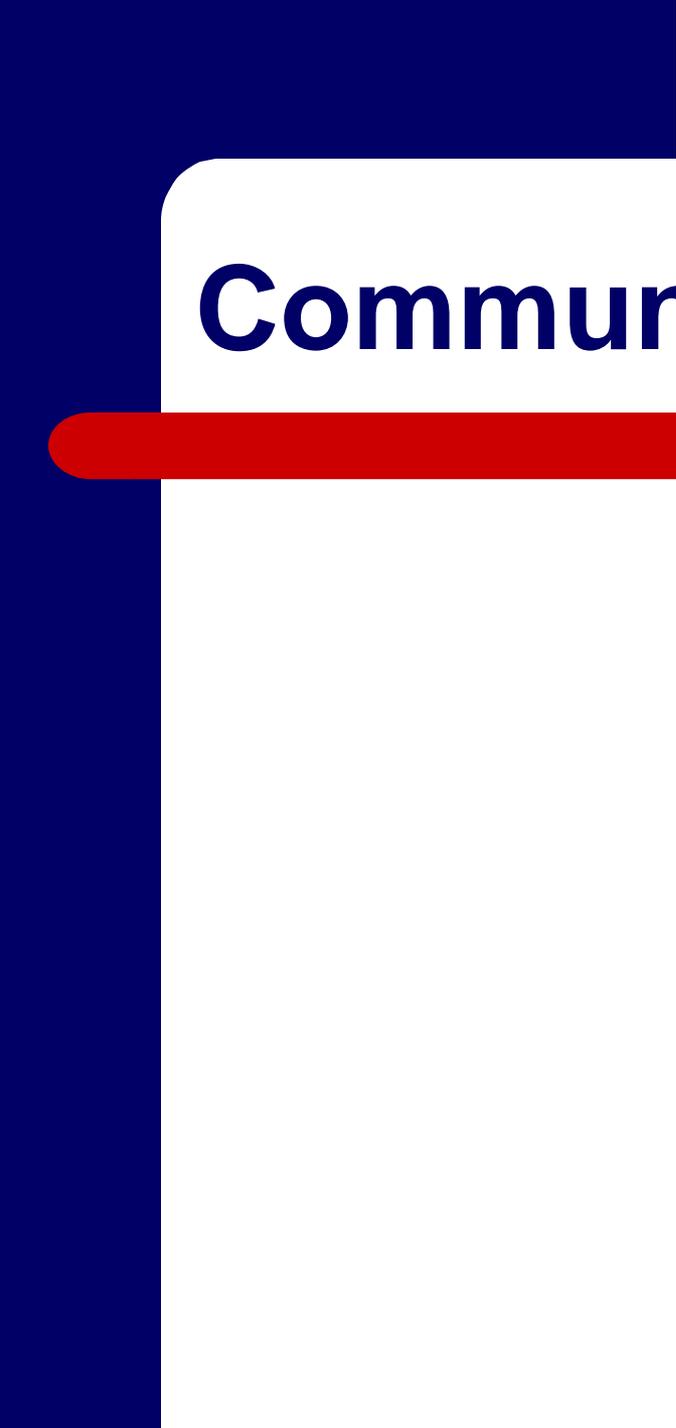
# **RCC Mobile Data and AVL Report**



# Agenda – Day 1

- Introduction
- Review Comments
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- Communications Plan – Existing and Planned
- **Communications Plan – Communications Needs**
- Communications Plan – Network Architecture Options

# Communications Needs



# Agenda – Day 1

- Introduction
- Review Comments
- Lunch on your own
- Communications Plan – Existing and Planned
- Communications Plan – Communications Needs
- **Communications Plan – Network Architecture Options**

# Network Architecture Options



# Agenda – Day 2

- Continental Breakfast
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- Wrap-Up Day 2 – Next Steps

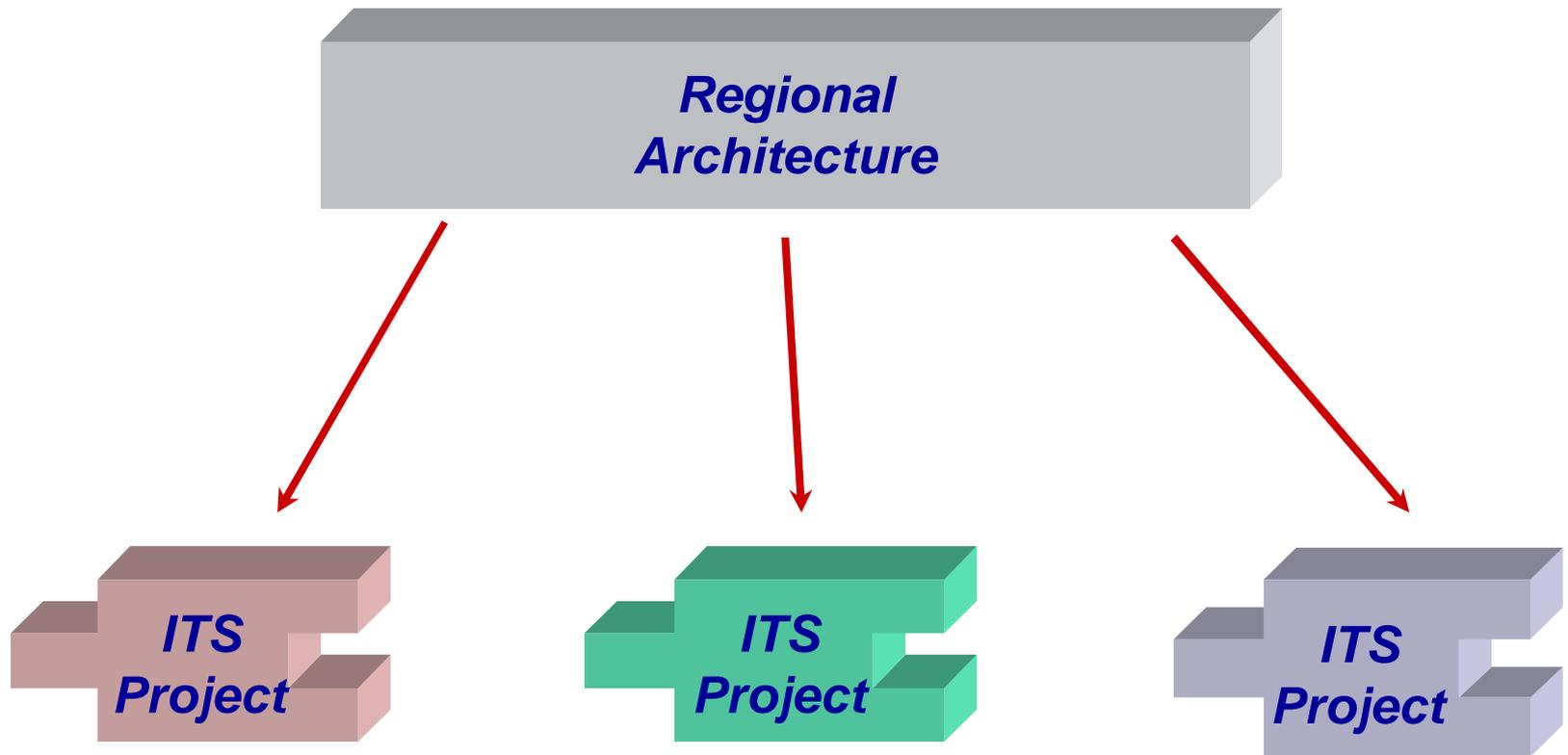
# Review KDOT Communications



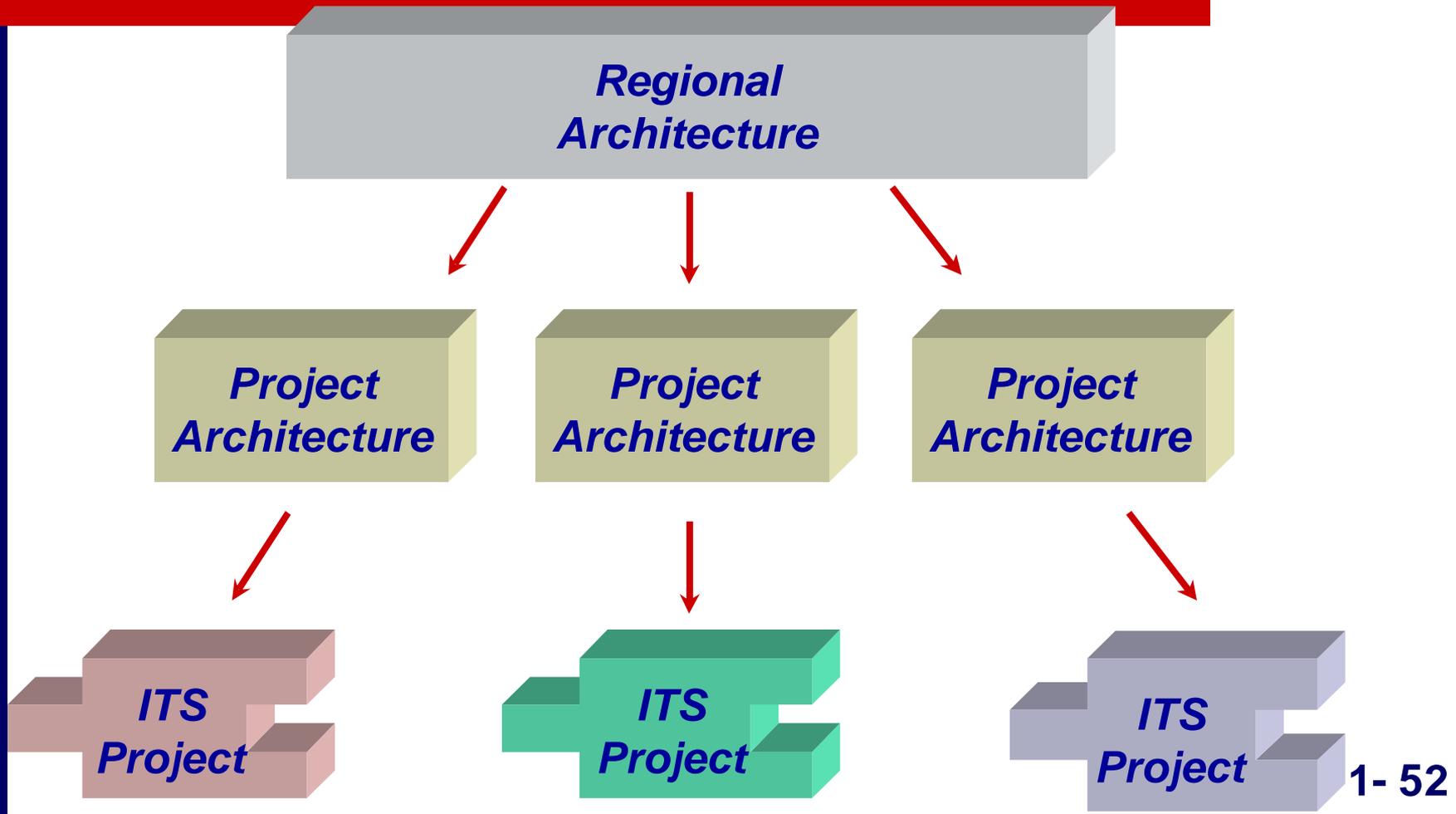
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# Project Deployment Using an Architecture



# Project Deployment Using an Architecture



# Project Architecture

Framework for ensuring institutional agreement and technical integration necessary to interface a major ITS project with other ITS projects and systems.

- Deployment oriented
- Focused on specific service(s)

# Review of Wichita – Sedgwick County Region's Projects

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

# Seven Categories of Projects

- Travel and Traffic Management
- Maintenance and Construction Management
- Public Transportation Management
- Commercial Vehicle Operations
- Emergency Management
- Information Management
- Communications

# Travel and Traffic Management

- City of Wichita Traffic Operations Center (S)
- City of Wichita Arterial Traffic Management Center (S-L)
- Regional Traffic Management (M)
- KDOT Freeway Management System (S-L)
- Traffic Information Dissemination Management (M)

# Travel and Traffic Management

- Toll Collection System (S)
- Emissions Monitoring and Management System (M)
- Railroad Grade Crossing System (L)

# Maintenance and Construction Management

- Roadway Closure System (M)
- Maintenance and Construction Vehicle and Equipment Tracking System (L)
- Road Weather Data Collection System (S)
- Roadway Automated Treatment System (M)
- Winter Maintenance System (S)

# Maintenance and Construction Management

- Roadway Maintenance and Construction System (S)
- KDOT Work Zone Management System (M)
- Maintenance and Construction Activity Coordination System (M)

# Public Transportation Management

- Transit Vehicle Tracking System (L)
- Demand Response Transit System (S)
- Transit Passenger and Fare Management System (L)
- Transit Security System (L)
- Transit Traveler Information System (L)

# Commercial Vehicle Operations

- Electronic Clearance System (L)
- Roadside CVO Safety System (M)
- On-board CVO and Freight Safety and Security System (M)
- HAZMAT Management System (M)

# Emergency Management

- Emergency Call-Taking and Dispatch System (M)
- Emergency Routing System (M)
- Roadway Service Patrols System (S)
- Wide Area Alert (M)
- Early Warning System (L)

# Emergency Management

- Disaster Response and Recovery (M)
- Evacuation and Reentry Management System (M)
- Disaster Traveler Information (L)

# Information Management

- ITS Data Mart System (M)

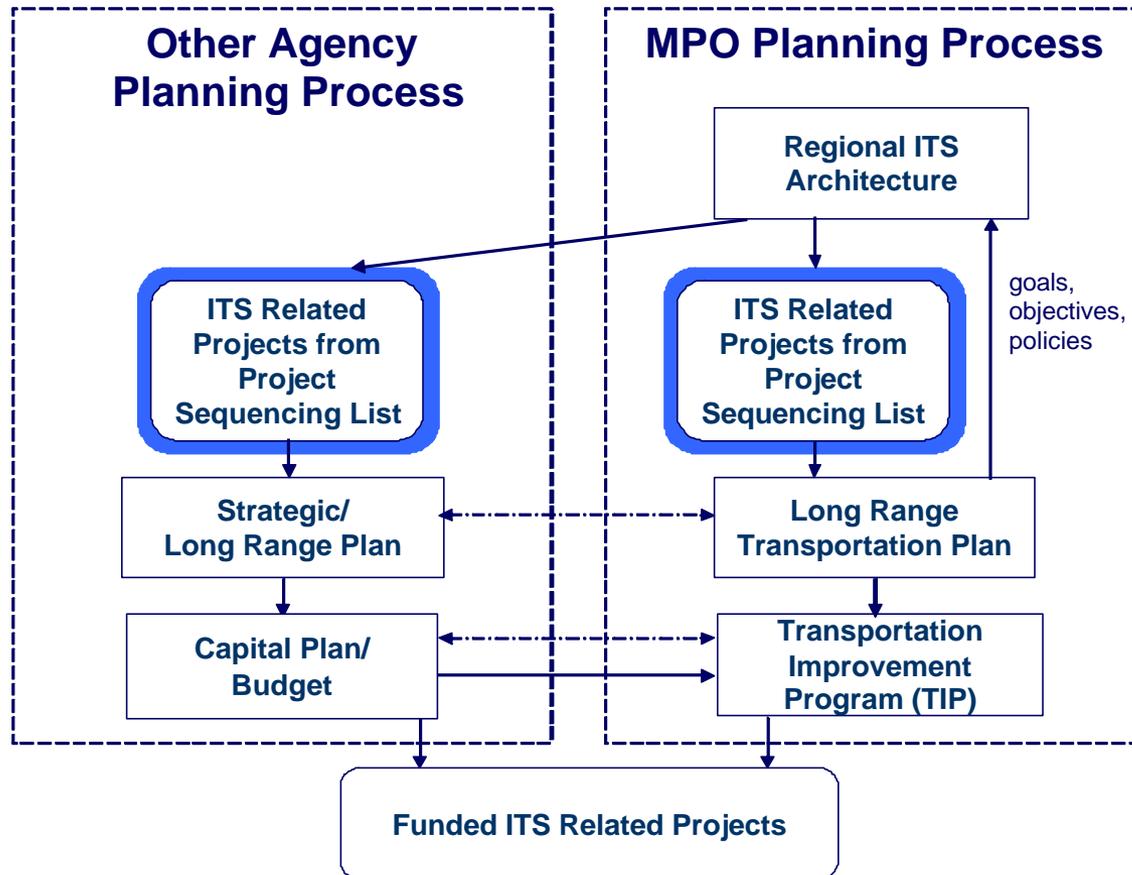
# Communications

- Broadcast Traveler Information System (L)
- Interactive Traveler Information System (L)

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# Project Sequencing



# 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
<b>SHORT TERM DEPLOYMENT PROJECTS (Projects starting in Years 1 – 3)</b>												
Statewide ITS Architecture												
Traffic Operation Center Development												
Critical Infrastructure Monitoring Systems												
Arterial Traffic Management System												
Traffic Incident Management												

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

# For each Project

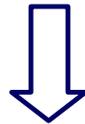
- Need Year start date
- Need duration in years
- Need approximate cost

# Agenda – Day 2

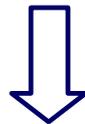
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# Using a Regional Architecture: System/ Comm. Specifications

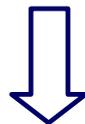
**Regional ITS Architecture**



**Architecture Flows**



**ITS Standards**



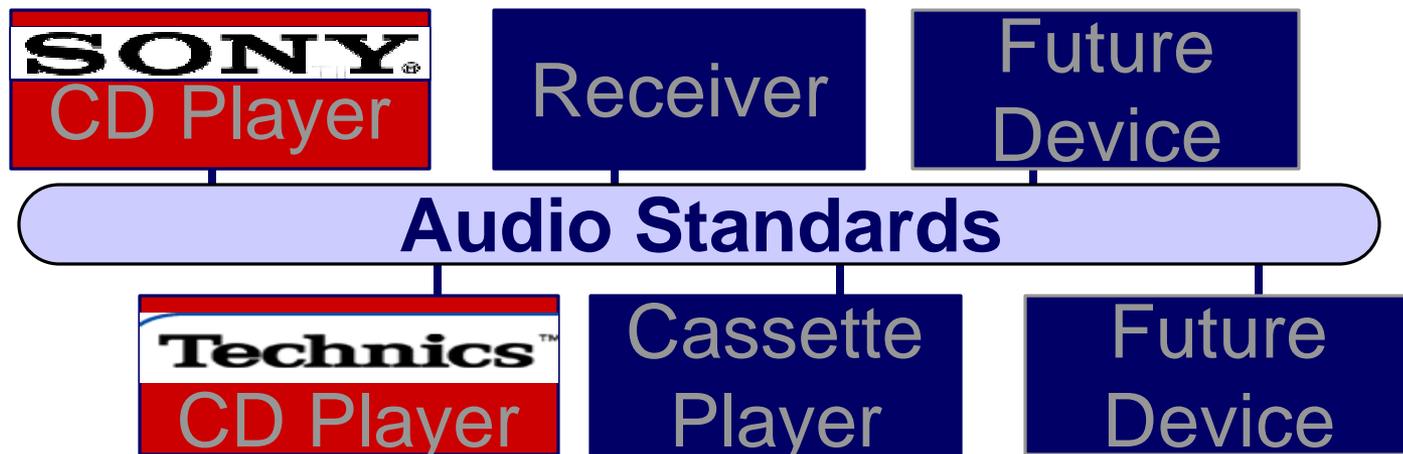
**Draft System/Communication  
Specification**

# Open Standards Lead to...

Interchangeability - multiple brands of a device on the same communications channel

Interoperability - different types of devices on the same communications channel

Expandability - add future devices



# ITS Standards & the National ITS Architecture

- ITS Standards define Interfaces between Physical Architecture Entities
  - Subsystem to Subsystem
  - Subsystem to Terminator



ITS Standards are mapped to Architecture Flows

# Types of ITS Standards

- Data Elements  “words”
- Message Set  “sentences”
- Communications Profile  “rules for sending sentences across an interface”

<b>Incident location</b>	<b>Incident severity</b>	<b>Incident type</b>
--------------------------	--------------------------	----------------------

*Incident message*

# 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 \(MS/ETMCC\)](#)

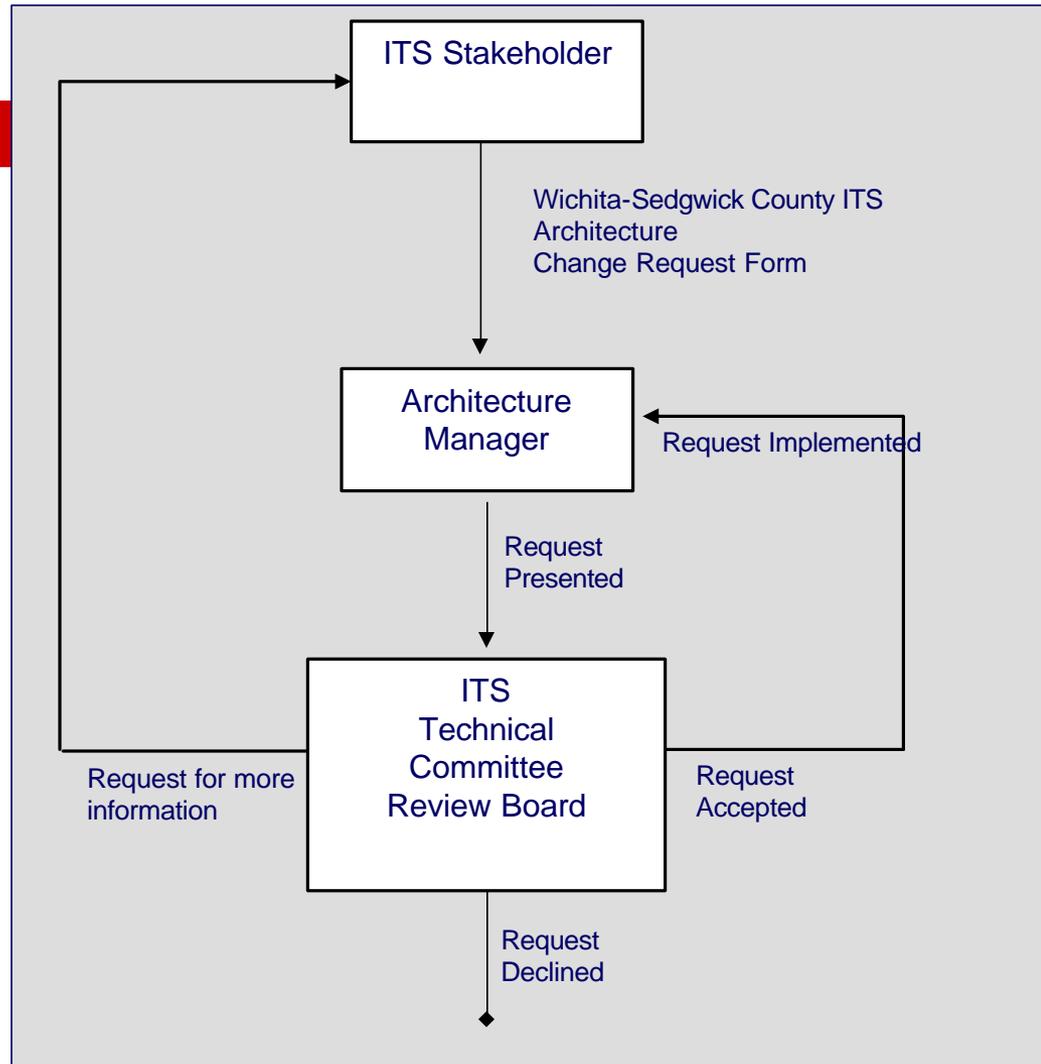
***These are the ITS standards that address this architecture flow***

My Computer

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# Architecture Change Process



# File to Configuration Control

Architecture Component	File
Wichita-Sedgwick County ITS Architecture Executive Summary	Wichita-Sedgwick County ITS Architecture Executive Summary
Wichita-Sedgwick County ITS Architecture Document	Wichita-Sedgwick County ITS Architecture Document (Volume 1)
Wichita-Sedgwick County ITS Architecture Implementation Plan	Wichita-Sedgwick County ITS Architecture Implementation (Volume 2)
Wichita-Sedgwick County ITS Architecture Maintenance Plan	Wichita-Sedgwick County ITS Architecture Maintenance Plan (Volume 2)
Wichita-Sedgwick County ITS Architecture Communications Plan	Wichita-Sedgwick County ITS Architecture Communications Plan (Volume 3)
Wichita-Sedgwick County ITS Architecture Database	Wichita-Sedgwick County ITS Architecture V1.0 (date).tbo

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# Agency Agreements

- Joint Funding Agreement

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# Next Steps

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