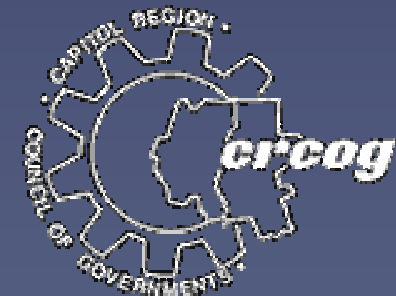


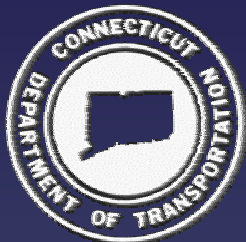
# Hartford Area ITS Architecture

Stakeholder Meetings

March 2004



# Project Team



- Project Leader:
  - Connecticut Department of Transportation



- Key Participants:
  - Capitol Region Council of Governments
  - Central Connecticut Regional Planning Agency
  - Midstate Regional Planning Agency
  - Federal Highway Administration
  - Federal Transit Authority

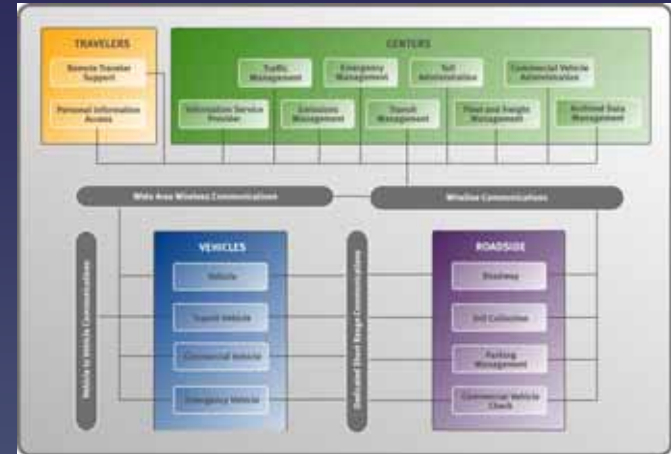


- Consultant Team:
  - IBI Group
  - ConSysTec Corporation
  - Howard/Stein-Hudson Associates



# Overall Project Goals

- Develop a Regional ITS Architecture for the Hartford Area
  - Conformance with the National ITS Architecture and Standards
  - Model for other Regional ITS Architectures in Connecticut
- Facilitate interagency coordination
  - Necessary for effective delivery of ITS services



# Presentation Outline

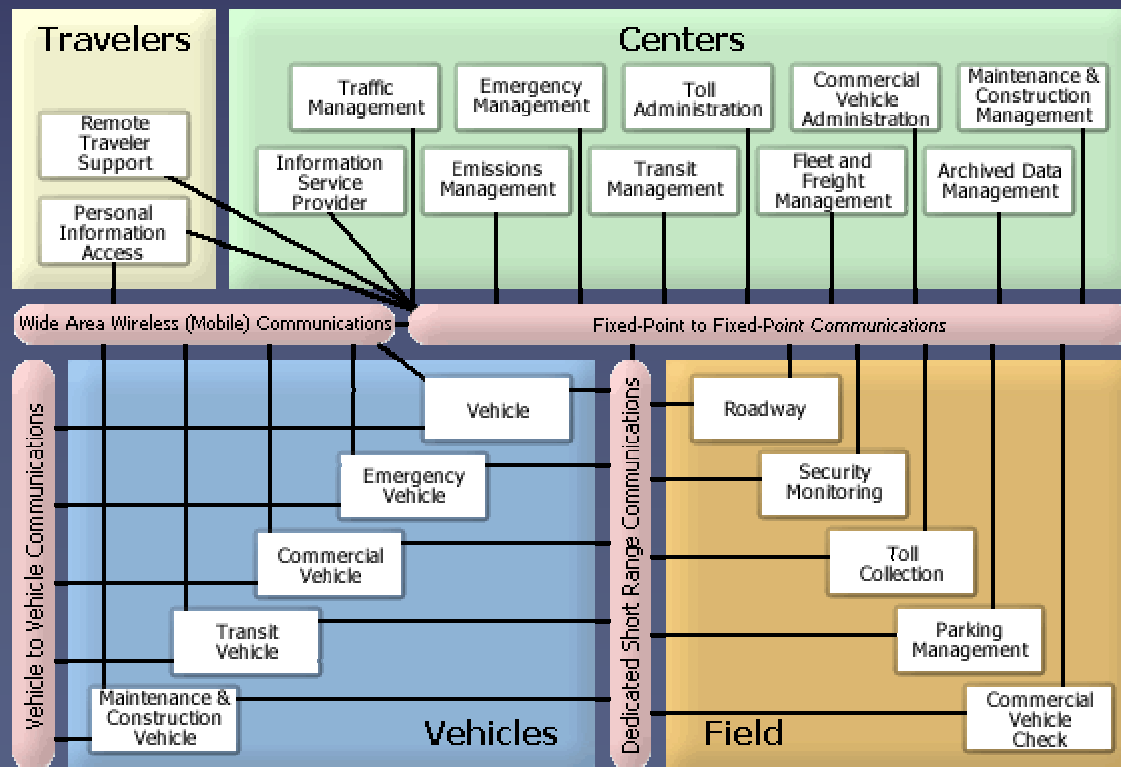
- Regional ITS Architecture Background
  - Federal Requirements
  - Relevance and Benefits
- Hartford Area Project
  - Previous Studies
  - Approach



# Regional ITS Architecture Background

# ITS Architecture Definition

- National ITS Architecture
  - A general framework for planning, defining, and integrating ITS
  - Defines the component systems and their interconnections and information exchanges
- Regional ITS Architecture
  - A specific regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects in a particular region



# Federal Requirements

- All ITS projects funded through the Highway Trust Fund (in whole or in part) must conform with the National ITS Architecture and applicable standards.
- FHWA Rule and FTA Policy:
  - Conformance with the National ITS Architecture defined as the use of the National ITS Architecture to develop a Regional ITS Architecture.
  - Regions with ITS projects (as of 2001) must develop a Regional ITS Architecture by April 8, 2005.

# Benefits of a Regional ITS Architecture

- Access to Federal Funding
- Cost Savings
  - Coordination of capital investment among agencies leads to lower overall costs
  - Adherence to standards leads to long-term maintenance cost savings
  - Future system upgrades and expansion facilitated by use of standards





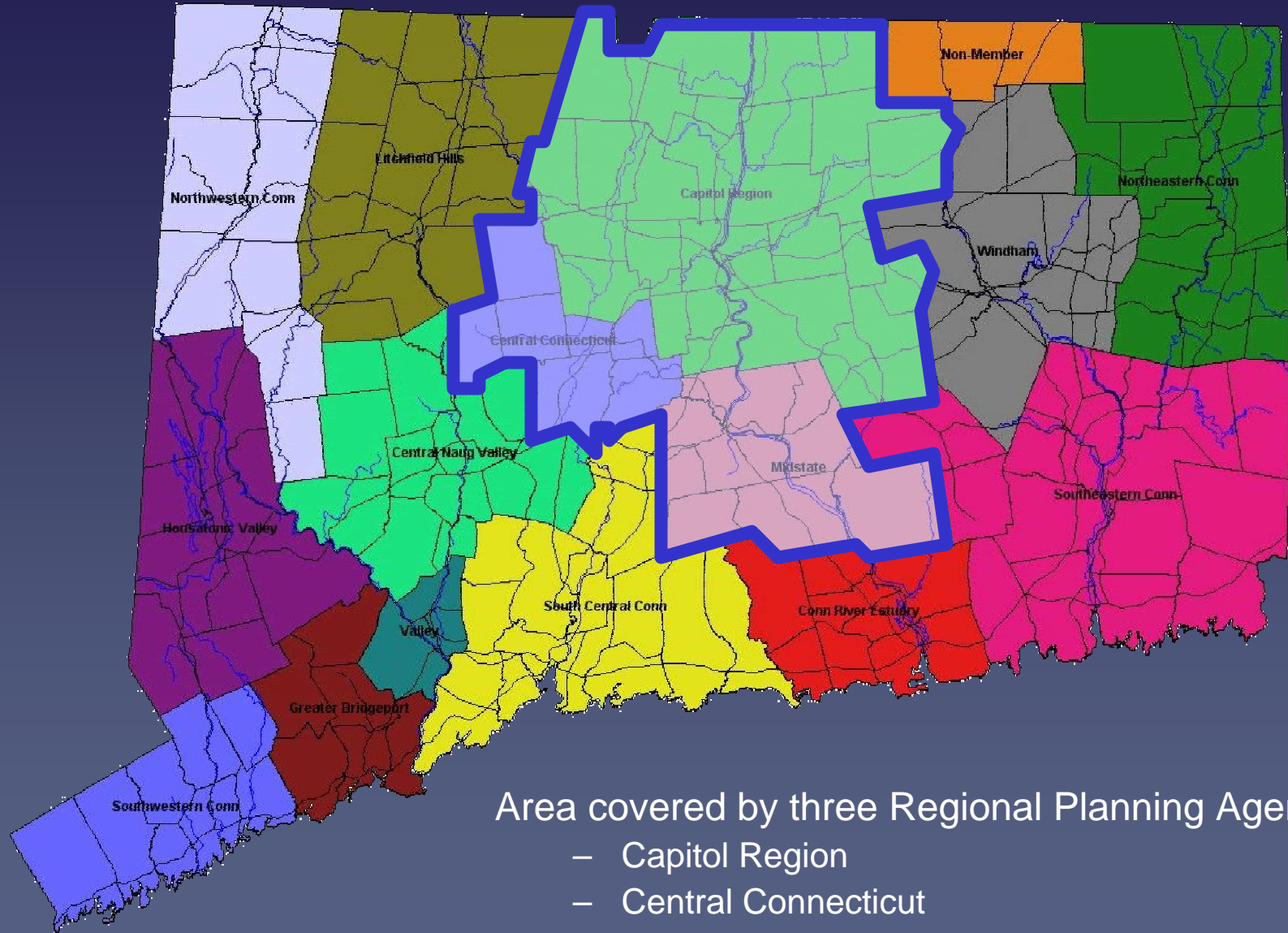
# Benefits of a Regional ITS Architecture (cont'd.)

- Improved Interagency Coordination
  - Communication facilitated in architecture development process
  - Operational concept established
  - Necessary agreements identified
- Better Services to Public
  - Consistency across jurisdictional boundaries
  - Examples:
    - VMS messages
    - Travel information websites
    - Electronic fare collection



# Hartford Area Project

# Study Area



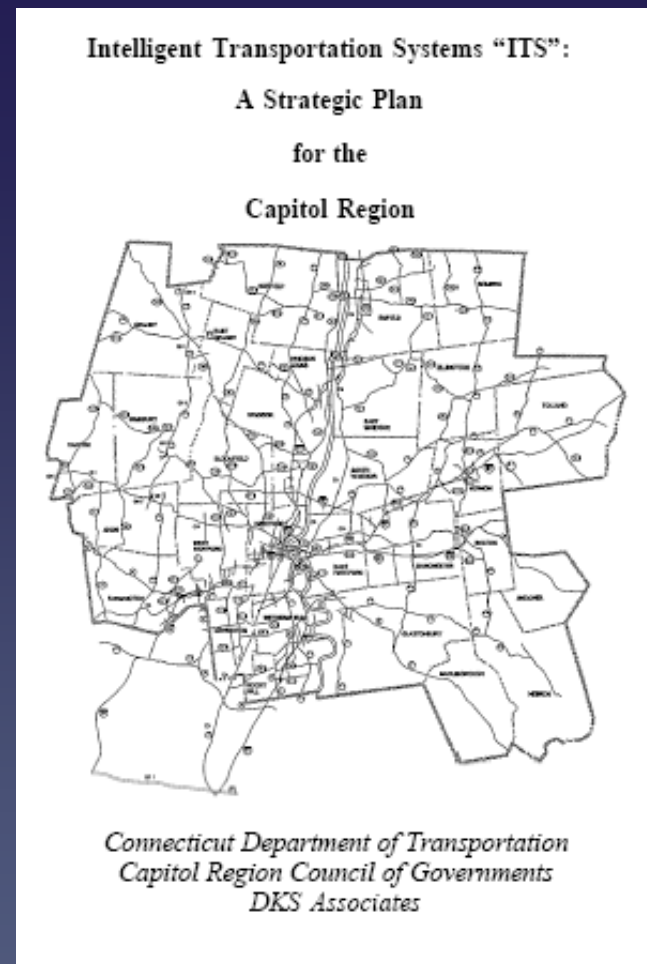
Area covered by three Regional Planning Agencies:

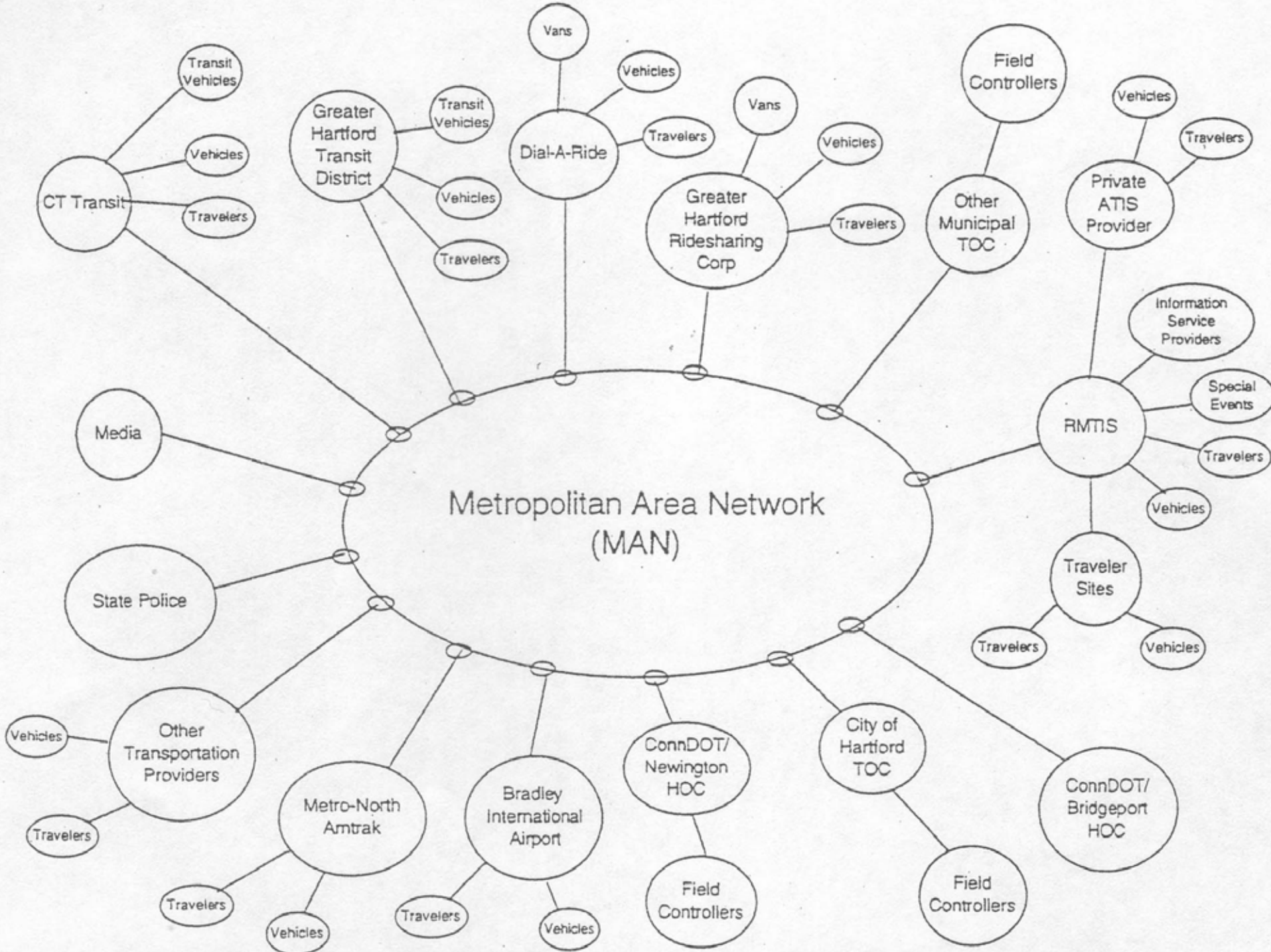
- Capitol Region
- Central Connecticut
- Midstate

# Previous Studies

## ITS Strategic Plan for the Capitol Region (November 1997)

- Recommendations in four areas:
  - Travel Information Systems
  - Transit & Rideshare Systems
  - Highway Management Systems
  - Incident Management Systems
- Recommended Architecture configuration:
  - Peer-to-Peer for Traffic/Transit Management functions
  - Centralized Travel Information System





# Previous Studies (cont'd.)

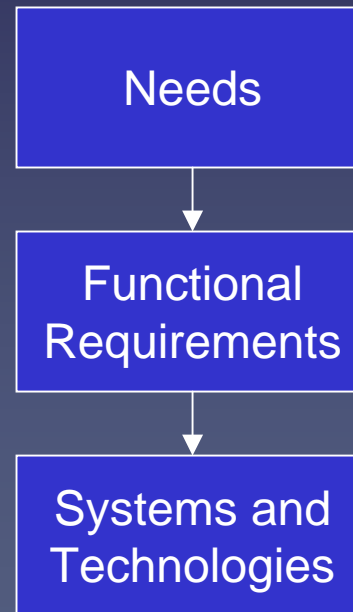
## ITS Implementation Plan (June 1999)

- Systems considered:
  - Bridgeport Operations Center
  - Newington Operations Center
  - Traffic Signal Systems (statewide)
- Includes project-level architectures



# Architecture Development Approach

- Previous studies to be used as starting point
  - Updating based on current deployment and needs assessment
  - Commercial Vehicle Operations (CVO) architecture to remain separate (interfaces to be noted)
- Top-down approach to development:
- Stakeholder participation essential for:
  - Identification of needs
  - Identification of existing systems to integrate
  - Interagency coordination
- The end result is only as good as the input received.



# Expected Outcome of Project

- ITS Architecture
  - Updated documentation
  - Interactive website
- Implementation Plan
  - Deployment-oriented approach
  - Recommendations for projects

The screenshot shows a Microsoft Internet Explorer browser window displaying the "Boston Regional ITS Architecture Home Page". The address bar shows the URL: <http://www.consyssec.com/mass/boston/bostonintro.htm>. The page features a navigation menu on the left with the following items: Home, Stakeholders, Inventory by Stakeholder, Inventory by Entity, Interconnects, Market Packages, Functions, Interfaces, and Standards. The main content area includes a header with the title "Regional ITS Architecture for Metropolitan Boston" and "Boston Regional ITS Architecture Home Page". A map of Boston is shown, along with a "DRAFT DRAFT" watermark. The text on the page describes the project's objectives and goals, including the elimination of duplication of services, reduction of design costs, and improvement of safety and security. It also mentions the time horizon and services covered by the architecture, and provides information about the web site's purpose.

**Regional ITS Architecture for Metropolitan Boston**

**Boston Regional ITS Architecture Home Page**

The Commonwealth of Massachusetts, through the Massachusetts Highway Department, is developing an ITS architecture for eastern Massachusetts. The project is a multi-agency regional planning effort with two primary objectives. First, the study will recommend processes for inter- and intra-agency coordination needed to deliver ITS services. Second, it will develop a regional ITS architecture for metropolitan Boston, a geographic area generally circumscribed by Interstate Route 495. The result will be an ITS architecture plan which conforms to the National ITS Architecture and Standards for the region that will help transportation agencies eliminate duplication of services; reduce design costs and project development time; facilitate orderly and efficient system expansion; improve safety and security; lower agency risk and aversion to deployment of new technologies; and lower system life cycle costs.

The draft architecture that is shown was developed based on input provided at the stakeholder workshop held December 12-13, 2002 in Boston.

**Time Horizon and Services**

This regional ITS architecture has a time horizon of up to fifteen years with particular focus on those systems and interfaces that are likely to be implemented in the next ten years. The architecture covers the broad spectrum of Intelligent Transportation Systems, including Traffic Management, Transit Management, Traveler Information, Maintenance and Construction, Emergency Management, and Archived Data Management over this time horizon.

**About this Web Site**

The purpose of this regional ITS architecture web site is to encourage use of the regional ITS architecture and gather feedback so that the architecture is used and continues to reflect the intelligent transportation system vision for the region. The menu bar at left provides access to the



Inventory by Stakeholder - Microsoft Internet Explorer

File Edit View Favorites Tools Help Address J:\B2-9972 Boston ITS Architecture\5.0 Work (Design) Phase\Task F - Regional ITS Architecture - Draft\Draft Regional ITS

Google



## Regional ITS Architecture for Metropolitan Boston

### Inventory by Stakeholder

Each stakeholder is associated with one or more systems or "elements" that make up the regional transportation system in the Boston region. This table sorts the inventory by stakeholder, so each stakeholder can easily identify and review all their relevant assets that are identified in the regional ITS architecture.

Stakeholder	Element
Amtrak	<a href="#">Amtrak Intercity Trains</a>
	<a href="#">Amtrak Operations</a>
Anderson Regional Transportation Center	<a href="#">Anderson RTC Parking Management System</a>
BEMA - Boston Emergency Management Agency	<a href="#">Boston Emergency Operations Center</a>
BPWD - Boston Public Works Department	<a href="#">BPWD Drawbridge Field Equipment</a>
	<a href="#">BPWD Drawbridges</a>
BTD - Boston Transportation Department	<a href="#">BTD Archive Users</a>
	<a href="#">BTD Archived Data System</a>
	<a href="#">BTD Cameras</a>
	<a href="#">BTD Detectors</a>
	<a href="#">BTD Employee Pagers</a>
	<a href="#">BTD Environmental Sensors</a>
	<a href="#">BTD OS/OW Permit Office</a>
	<a href="#">BTD Parking Management System</a>
	<a href="#">BTD Traffic Management Center</a>
	<a href="#">BTD Traffic Signals</a>
	<a href="#">BTD VMS</a>
	<a href="#">BTD Website</a>
	City of Boston
CSX Transportation	<a href="#">CSX Worcester Line Dispatch</a>
CTPS - Central Transportation Planning Staff	<a href="#">CTPS Archive</a>
	<a href="#">CTPS Archive Users</a>
Financial Institution	<a href="#">Financial Institution</a>
Hospital	<a href="#">Hospital</a>

Home  
Stakeholders  
Inventory by Stakeholder  
Inventory by Entity  
Interconnects  
Market Packages  
Functions  
Interfaces  
Standards

Send Your Comments 




US Department of Transportation  
Federal Highway Administration

Local intranet

Interfaces - Microsoft Internet Explorer

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Google



**Regional ITS Architecture for Metropolitan Boston** **DRAFT**

**Interfaces**



**Home**

**Stakeholders**

**Inventory by Stakeholder**

**Inventory by Entity**

**Interconnects**

**Market Packages**

**Functions**

**Interfaces**

**Standards**

Send Your Comments




US Department of Transportation  
Federal Highway Administration

A primary purpose of the architecture is to identify the connectivity between transportation systems in the Boston region. The following table identifies every interface defined for the region. Each entry in the "Interfacing Element" column is a link to more detailed information about the particular interface. This table is equivalent to the "Connect" view in Turbo Architecture.

Element	Interfacing Element
<b>Amtrak Intercity Trains</b>	<a href="#">Amtrak Operations</a>
	<a href="#">Amtrak Intercity Trains</a>
	<a href="#">Local DPW Offices</a>
	<a href="#">MassHighway Commuter Options Program</a>
	<a href="#">MBTA Bus Control Center</a>
	<a href="#">MBTA Commuter Rail Control Centers North and South</a>
	<a href="#">MBTA Subway Operations Control Center</a>
<b>Amtrak Operations</b>	<a href="#">Private Traveler Information Service Providers Operations Centers</a>
	<a href="#">Financial Institution</a>
	<a href="#">MassHighway Traffic Operations Center and TOC Backup</a>
	<a href="#">MassPike FAST LANE Tags</a>
	<a href="#">Massport Logan Parking Management System</a>
	<a href="#">MBTA Parking Facilities</a>
	<a href="#">Regional Fare Card</a>
<b>Anderson RTC Parking Management System</b>	<a href="#">Boston Event Promoters</a>
	<a href="#">BTD Traffic Management Center</a>
	<a href="#">Local Cities/Towns Traffic Management Center</a>
	<a href="#">Local Public Safety Dispatch</a>
	<a href="#">MassHighway Traffic Operations Center and TOC Backup</a>
	<a href="#">MassPike CA/T Operations Control Center and</a>
	<a href="#">Boston Emergency Operations Center</a>

Local intranet



# Regional ITS Architecture for Metropolitan Boston



## Interface: Boston Emergency Operations Center To MassHighway Traffic Operations Center and TOC Backup

- Home
- Stakeholders
- Inventory by Stakeholder
- Inventory by Entity
- Interconnects
- Market Packages
- Functions
- Interfaces
- Standards

Send Your Comments

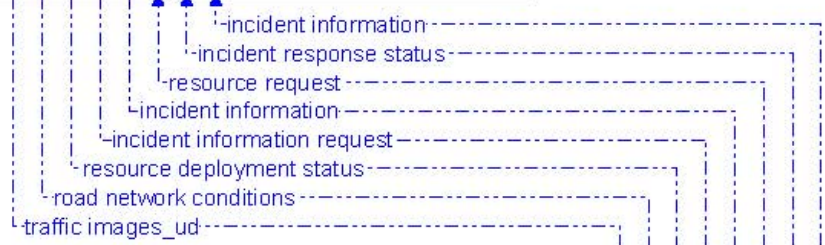


MassHighway - Massachusetts High...

MassHighway Traffic Operations Center and TOC Backup

BEMA - Boston Emergency Manage...

Boston Emergency Operations Center



———— Existing  
 - - - - - Planned

# Project Tasks

## 1. Data Collection & Stakeholder Identification

- Stakeholder Involvement Plan
- ITS Inventory
- Compilation of Needs/Functional Requirements

## 2. Definition of ITS Interfaces

- Architecture Development Workshop
- Regional ITS Architecture Website

## 3. Implementation of ITS Projects

- Operational Concept
- Implementation Plan

## 4. Development of ITS Architecture Document

# Involvement Plan

# Core Project Team

- Connecticut Department of Transportation
- Capitol Region Council of Governments
- Central Connecticut RPA
- Midstate RPA
- Federal Highway Administration / Federal Transit Authority

## Roles:

- Project management
- Project oversight and direction
- Review and approval of deliverables

# Other Participants and Stakeholders

- Hartford Area Incident Management Steering Committee
- Department of Public Safety
- Transit Operators
  - Greater Hartford Transit District
  - CT Transit
  - The Rideshare Company
- Department of Motor Vehicles
- Municipalities
- Special Events Coordinator (Rentschler Field)

## Roles:

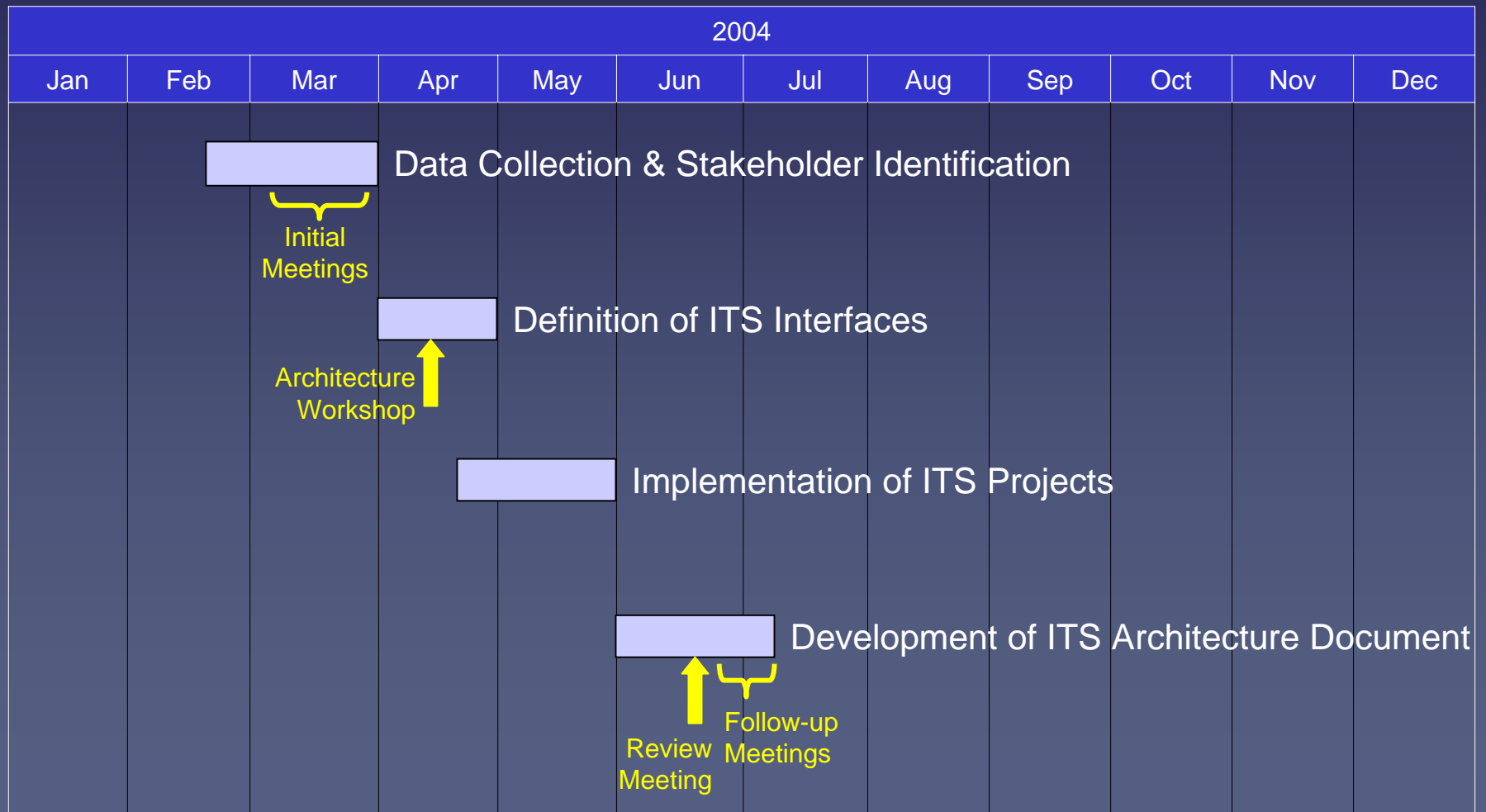
- Input and Review

# Stakeholder Involvement

- Initial Individual Meetings
  - Provide background on project
  - Confirm and supplement ITS inventory
  - Obtain information on needs, current activities, and planned projects
- Review of Needs Assessment document (including ITS inventory)
- Architecture Development Workshop
  - Obtain input on architecture elements and interfaces
  - Includes follow-up review of Draft Architecture Website
- Review Meeting for Draft Architecture
  - Presentation of draft Final Report
- Follow-up Meetings as needed



# Schedule



# Preliminary ITS Inventory

- ConnDOT:
  - Newington Highway Operations Center
  - Traffic detectors
  - CCTV cameras
  - Variable Message Signs
  - Portable Variable Message Signs
  - Highway Advisory Radio
  - HOV lanes
  - Park & Ride lots
  - Urban Traffic Control System (UTCS)
  - Closed-loop traffic signal systems
  - ConnDOT website
  - Bradley International Airport website
- City of Hartford:
  - Traffic Operations Center
  - Urban Traffic Control System (UTCS)
  - Vehicle detectors
  - CCTV cameras
- I-95 Corridor Coalition:
  - Information Exchange Network

# Preliminary Inventory (cont'd.)

- CT Transit:
  - Local bus service
  - Express commuter service
  - Express commuter service (private operators)
- Greater Hartford Transit District:
  - Paratransit service
  - Employer shuttles
- Local Cities/Towns:
  - Paratransit service
- Rideshare:
  - Carpool matching service
  - Vanpools (managed by Rideshare)
  - Vanpools (private)
  - Rideshare website
- Amtrak:
  - Vermonter rail service
- Intercity Buses:
  - Bonanza
  - Peter Pan
  - Greyhound
- Private Taxis

# Preliminary Needs Assessment

- Freeway
  - Expansion of Traffic Management Systems
  - Operational improvements (addressing problem locations)
  - Capacity improvements
- Arterial
  - Operational improvements (addressing problem locations)
  - Expansion of Computerized Traffic Signal Control
  - Bicycle & pedestrian safety
- Transit
  - Improved bus levels of service
  - Maintenance of Jobs Access program (improve access)
  - Improved operational efficiency
  - Rapid transit service
  - Facilities improvements
  - Transit-oriented development