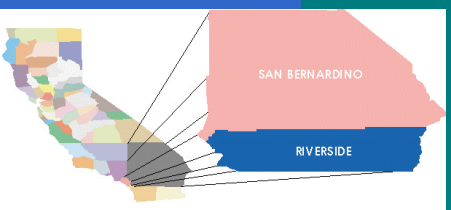
Workshop #3

Inland Empire Regional ITS Architecture Project

April 8, 2003



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Agenda

- Introductions
- Project Background
- Needs and Services
- Operational Concepts
- Functional Requirements
- System Interfaces
- Next Meeting/Calendar Review

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Project Background

What is ITS?

Roadway Mgmt

Traveler info

Rural Systems

Goods Movement

Vehicle Control

Electronic Tolls

Transit Systems

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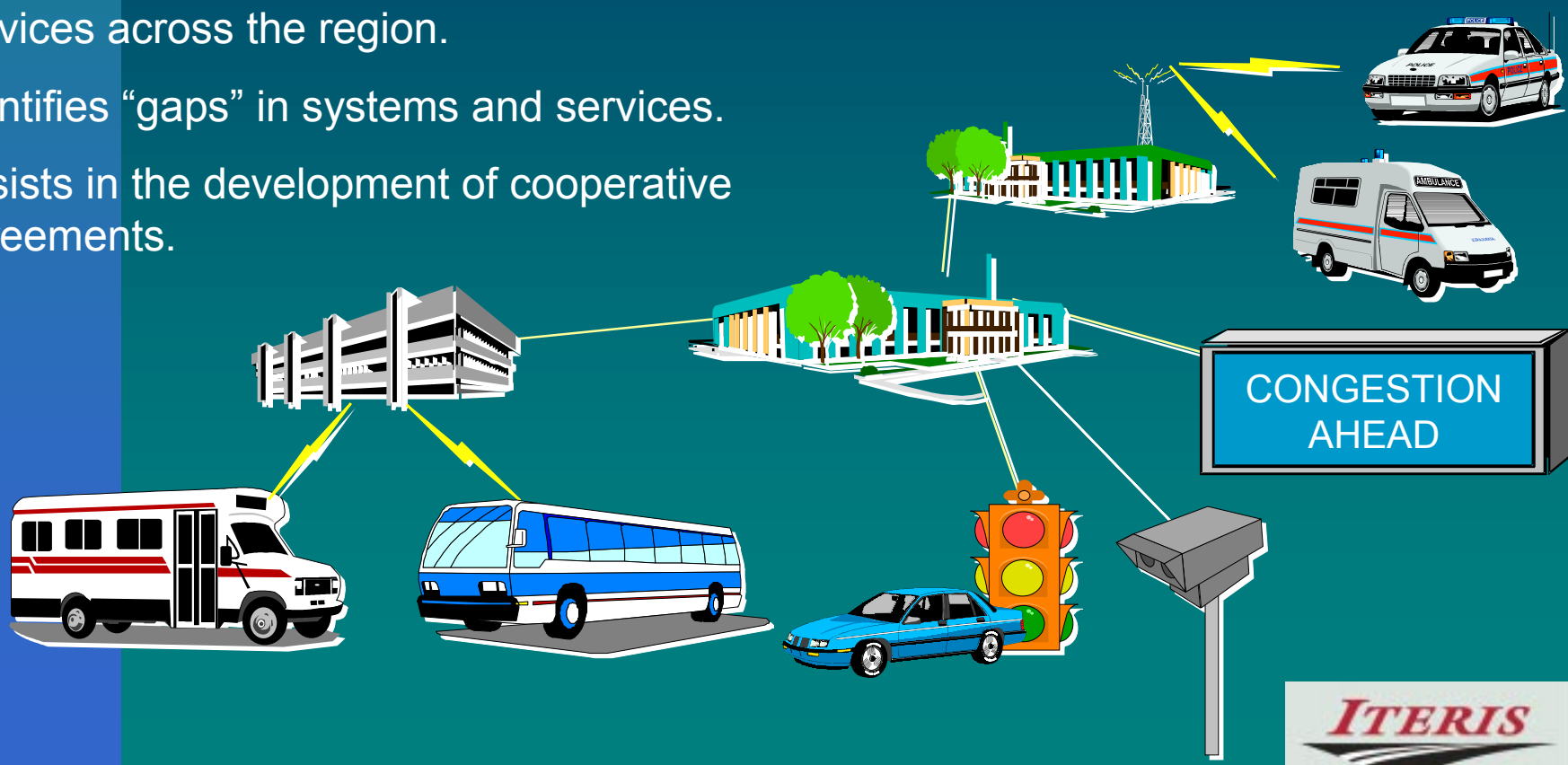
What is a Regional ITS Architecture?

Provides a structured framework for deployment and integration.

Helps to introduce and interconnect ITS services across the region.

Identifies “gaps” in systems and services.

Assists in the development of cooperative agreements.



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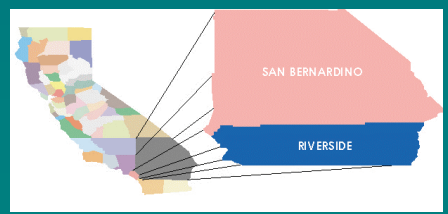
What does a Regional ITS Architecture include?

- Description of the Region
- List of Stakeholders
- Current and Future ITS Elements
- Information Exchange between the ITS Elements
- Operational Concept for the ITS Services
- Functions of each of the ITS Elements
- Applicable ITS Standards
- Project Sequencing
- List of Agreements



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Project Work Scope

Task 1	Project Management
Task 2	Develop Steering Committee and Identify Stakeholders
Task 3	Define Region and Update ITS Inventory
Task 4	Determine Needs, Services, and Operational Concepts
Task 5	Analyze Functional Requirements and Define Interfaces
Task 6	Develop Project Sequencing
Task 7	Develop List of Agency Agreements
Task 8	Develop Maintenance Plan
Task 9	Produce Final Report

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Architecture Terms

- Stakeholders
- Inventory
- Needs
- Services
- Operational Concepts
- Functional Requirements
- System Interfaces and Flows

Entities that own/operate transportation systems or have an interest in regional transportation issues

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Architecture Terms

- Stakeholders
- Inventory
- Needs
- Services
- Operational Concepts
- Functional Requirements
- System Interfaces and Flows

Collection of transportation systems for which there is an opportunity for integration

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Architecture Terms

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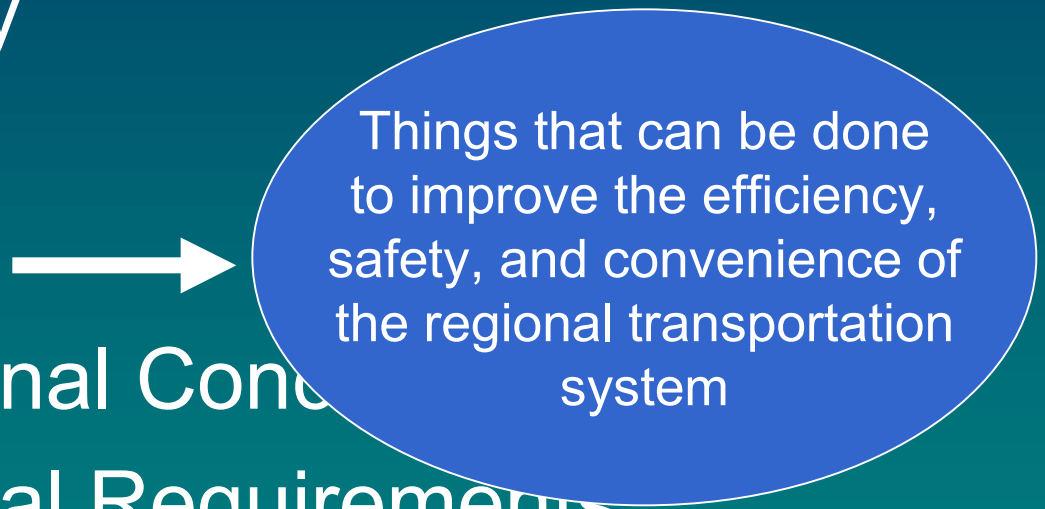

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Architecture Terms

- Stakeholders
- Inventory
- Needs
- Services
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Definition of each stakeholder's role in providing ITS services

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Architecture Terms

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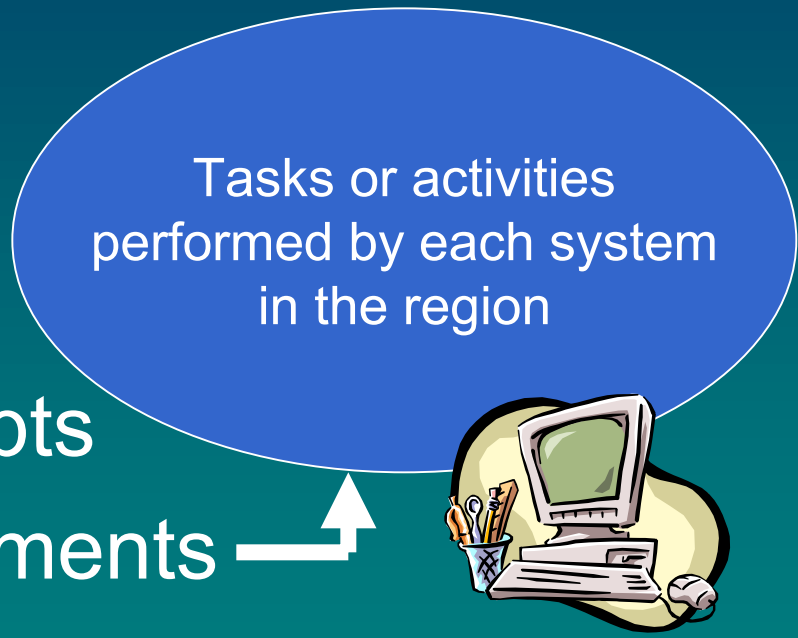

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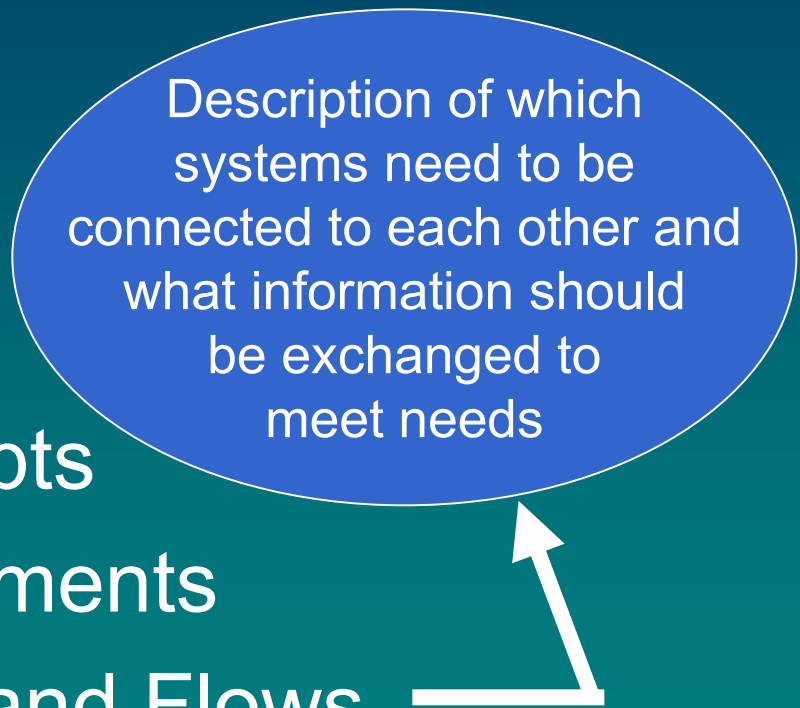

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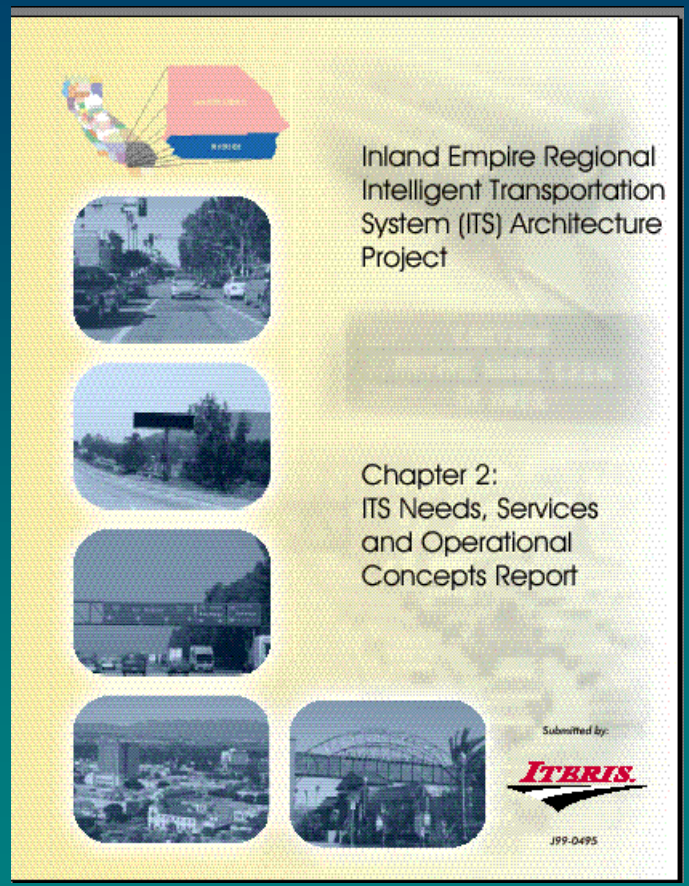
ITS Needs & Services

ITS Needs, Services, and Operational Concepts Report

- Comments were due April 2
- Received just a few comments from a couple of stakeholders
- Still accepting input



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ITS Needs

- Refer to handout

ITS Services

- Refer to handout

Needs & Services

- Compare List of Services (i.e. Market Packages) to Inland Empire (IE) Needs
  - Existing or Planned in the IE
  - Identified IE Need
  - No IE Need
  - IE Need Indeterminate

Needs & Services

- Refer to handout

Operational Concepts

Operational Concepts

- By Inland Empire Agency:
  - California Highway Patrol
  - Local Police, Fire, Ambulance
  - Caltrans D8
  - County Emergency Agencies
  - Local City and County Traffic Ops
  - Transit Operators
  - Commercial Vehicle Operators

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Example Operational Concept – Caltrans D8

- Manage traffic on freeway on-ramps and Caltrans controlled highways using traffic signals including preemption for emergency
- Monitor traffic on freeway on-ramps and Caltrans controlled highways
- Provide traffic and incident information to drivers
- Implement traffic control response to incidents
- Coordinate traffic control response to incidents with emergency and traffic agencies
- Share traffic information with other emergency and transportation agencies
- Share control of field equipment with other transportation and emergency agencies
- Maintain field equipment
- Provide resources when requested by emergency management agencies
- Coordinate road closures with other agencies
- Maintain centralized emergency management systems software and systems
- Maintain centralized signal systems and software
- Receive signal priority requests from transit operators (where applicable)
- Provide transit signal priority requests (where applicable)
- Determine maintenance vehicle locations
- Send location information to agency center
- Maintain vehicle status for deployment
- Send status information to agency center
- Maintain AVI/AVL systems for maintenance vehicles
- Monitor weather conditions with available CCTV and RWIS sensors and provide road weather conditions to other agencies
- Provide snowplow operations support and availability information for other agencies (CHP, county sheriff, etc.)
- Update Information to ISP and Media Outlets (web sites, TV, etc.) and issue alerts on CMS and HAR equipment
- Install CCTV cameras, CMS and HAR along the freeways
- Share freeway CCTV, CMS and HAR equipment and its control with partner agencies
- Maintain systems
- Maintain resource database updated for others to monitor

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Functional Requirements

Functional Requirements

- Steps:
  - Identify the systems, existing or planned.
  - Use the regional needs and operational concepts to determine what the systems need to do.
- Refer to handout

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Example Functional Requirements – The Caltrans D8 TMC shall:

- collect, store, and provide electronic access to traffic surveillance data.
- control systems for efficient freeway management including integration of surveillance information with freeway geometry, vehicle control such as ramp metering, DMS, and HAR.
- interface to coordinated traffic systems for information dissemination to the public.
- detect and verify incidents.
- analyze and reduce collected data from traffic surveillance equipment, including planned incidents and hazardous conditions.
- formulate an incident response minimizing the incident potential, incident impacts, and/or resources required for incident management.
- facilitate the dispatch of emergency response and service vehicles as well as coordinate response with all appropriate agencies.
- analyze, control, and optimize area-wide traffic flow.
- perform wide area optimization integrating control of a network signal system with control of freeway
- communicate with other TMCs to receive and transmit traffic information to other jurisdictions within the region.
- collect and store traffic information that is collected in the course of traffic operations.
- provide traffic data to operations personnel or other data users and archives in the region.
- monitor and diagnosis field equipment remotely to detect failures, issue problem reports, and track the repair or replacement of the failed equipment.

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Architecture Process

Inventory

Needs

Stakeholder Input

Services Provided by ITS to Address Needs

Roles & Responsibilities

Functions

System Interfaces and Info Flow

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System Interfaces

TurboArchitecture

- Software tool that supports development of regional and project ITS architectures using the National ITS Architecture as a starting point.
- Uses ITS inventory as input; output includes reports, diagrams, and preliminary architecture.

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Interconnect vs. Flow Diagrams

- Interconnects = physical or logical connections between systems
- Information Flows = content of data exchanged over the interconnect

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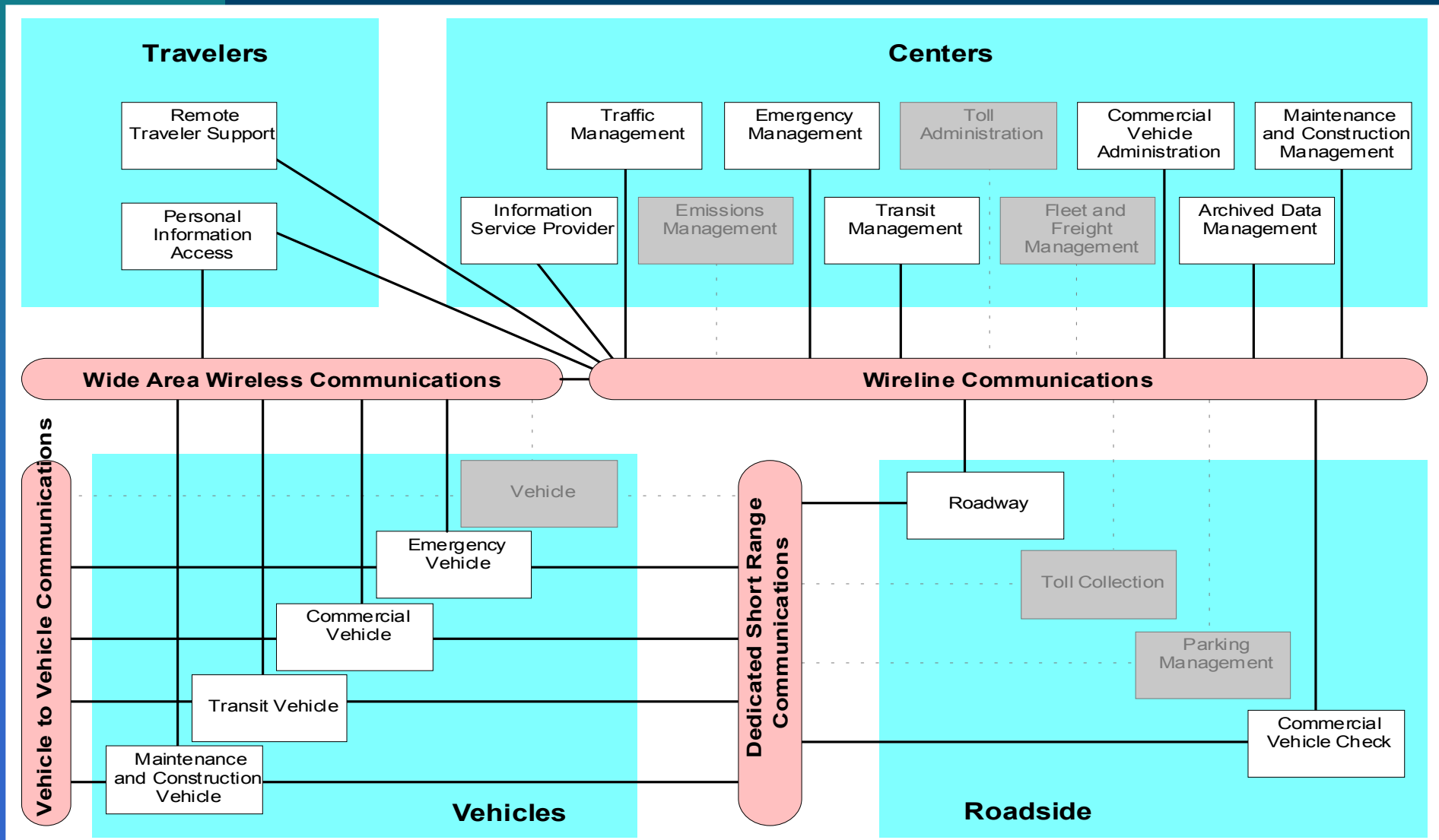
"Sausage" Diagram

- A diagram which depicts all subsystems in the National ITS Architecture and the basic communication channels between these subsystems.
- The sausage diagram is a top-level architecture interconnect diagram.

Preliminary "Sausage" Diagram for Inland Empire



Interconnections and Information Flows

- Examples:
  - City of Coachella
  - Caltrans D8
  - Omnitrans Fixed Route
- Refer to handout

Web Site Reminder

Web Site Contents

site last updated: 04/01/03
04:01 PM

Inland Empire Intelligent Transportation Systems (ITS) Architecture Project

- Home
- Background
- Deliverables
- Meetings
- Miscellaneous
- Contacts
- Links

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Purpose

The Inland Empire Intelligent Transportation Systems (ITS) Architecture Project website has been established to encourage easy access, timely review and use of the documents and materials by the wide audience of project stakeholders. Project stakeholder feedback will be invaluable in developing an ITS Architecture that reflects the transportation system vision for the Inland Empire. This effort is being funded through a Federal Highway Administration (FHWA) grant to the City of Fontana, and the primary work effort is being carried out through a contract with Iteris, Inc.

What's New?

- The Draft ITS Needs, Services and Operational Concepts Report is now available. Please click here to view / download it.
- Please use the comment form to submit your written comments on the Draft ITS Needs, Services and Operational Concepts Report. We are asking the stakeholder group to please review and comment on the Report by close of business Wednesday, April 2, 2003

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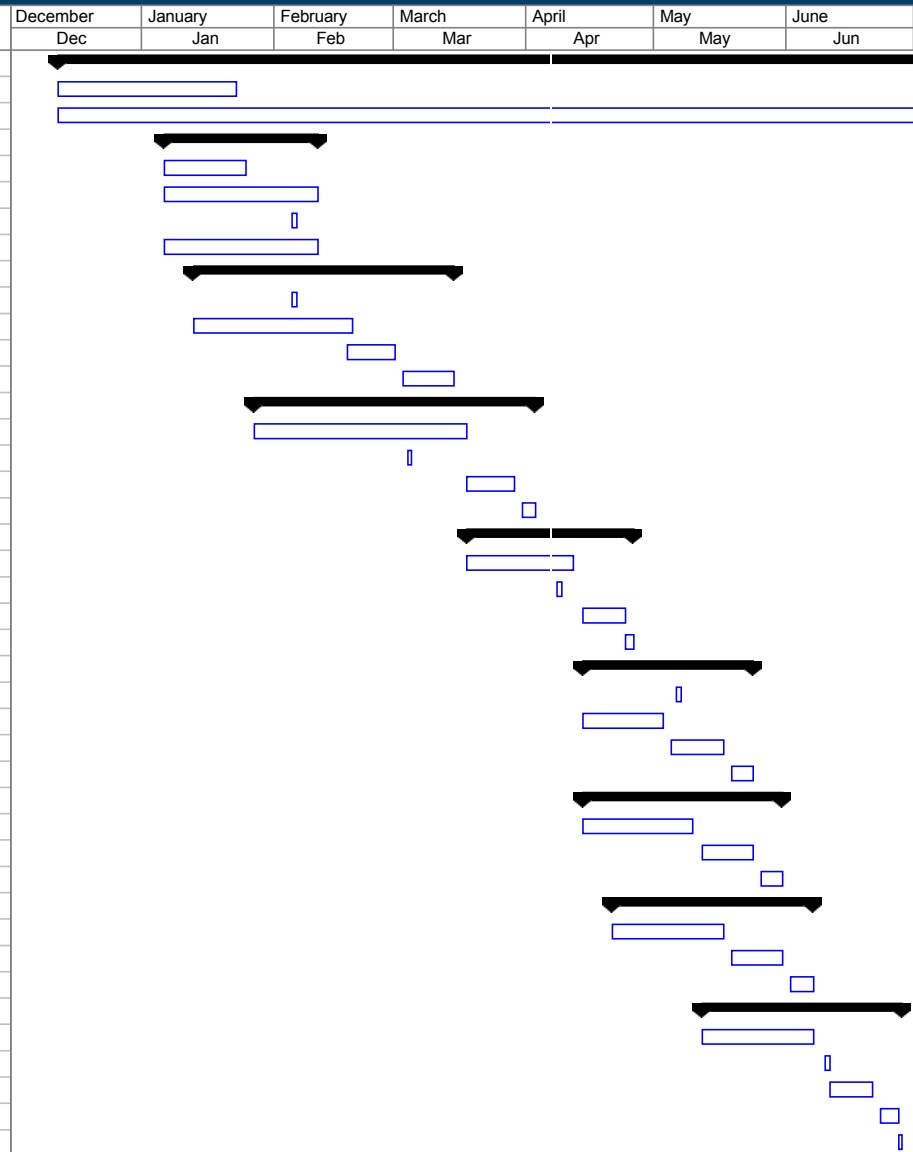
Web Site URL

www.iteris.com/inlandempire-its

Next Meeting/Calendar Review

Project Schedule

ID	Task Name	Start	Finish
1	**Project Management**	**Thu 12/12/02**	**Mon 06/30/03**
2	Project Management Plan	Thu 12/12/02	Wed 01/22/03
3	Monthly Status Meetings (1/22, 2/18, 3/18, 4/15, 5/20, 6/17)	Thu 12/12/02	Mon 06/30/03
4	**Develop Steering Committee and Identify Stakeholders**	**Mon 01/06/03**	**Mon 02/10/03**
5	Informational Flyer	Mon 01/06/03	Fri 01/24/03
6	Project Web Site	Mon 01/06/03	Mon 02/10/03
7	Task Workshop #1	Wed 02/05/03	Wed 02/05/03
8	Stakeholder List	Mon 01/06/03	Mon 02/10/03
9	**Define Region and Update ITS Inventory**	**Mon 01/13/03**	**Fri 03/14/03**
10	Task Workshop #1	Wed 02/05/03	Wed 02/05/03
11	Draft ITS Inventory Report	Mon 01/13/03	Tue 02/18/03
12	Stakeholder Review	Tue 02/18/03	Fri 02/28/03
13	Comment Disposition	Mon 03/03/03	Fri 03/14/03
14	**Determine Needs, Services, and Operational Concepts**	**Mon 01/27/03**	**Wed 04/02/03**
15	Draft Needs, Services, and Operational Concepts Report	Mon 01/27/03	Mon 03/17/03
16	Task Workshop #2	Tue 03/04/03	Tue 03/04/03
17	Stakeholder Review	Tue 03/18/03	Fri 03/28/03
18	Comment Disposition	Mon 03/31/03	Wed 04/02/03
19	**Analyze Functional Requirements and Define Interfaces**	**Tue 03/18/03**	**Fri 04/25/03**
20	Draft Functional Requirements and Interface Report	Tue 03/18/03	Fri 04/11/03
21	Task Workshop #3	Tue 04/08/03	Tue 04/08/03
22	Stakeholder Review	Mon 04/14/03	Wed 04/23/03
23	Comment Disposition	Thu 04/24/03	Fri 04/25/03
24	**Develop Project Sequencing**	**Mon 04/14/03**	**Fri 05/23/03**
25	Task Workshop #4	Tue 05/06/03	Tue 05/06/03
26	Draft Project Sequencing Report	Mon 04/14/03	Fri 05/02/03
27	Stakeholder Review	Mon 05/05/03	Fri 05/16/03
28	Comment Disposition	Mon 05/19/03	Fri 05/23/03
29	**Develop List of Agency Agreements**	**Mon 04/14/03**	**Fri 05/30/03**
30	Draft List of Agency Agreements	Mon 04/14/03	Fri 05/09/03
31	Stakeholder Review	Mon 05/12/03	Fri 05/23/03
32	Comment Disposition	Mon 05/26/03	Fri 05/30/03
33	**Develop Maintenance Plan**	**Mon 04/21/03**	**Fri 06/06/03**
34	Draft Maintenance Plan	Mon 04/21/03	Fri 05/16/03
35	Stakeholder Review	Mon 05/19/03	Fri 05/30/03
36	Comment Disposition	Mon 06/02/03	Fri 06/06/03
37	**Produce Final Report**	**Mon 05/12/03**	**Fri 06/27/03**
38	Draft Final Project Report	Mon 05/12/03	Fri 06/06/03
39	Task Workshop #5	Tue 06/10/03	Tue 06/10/03
40	Staekholder Review	Wed 06/11/03	Fri 06/20/03
41	Comment Disposition	Mon 06/23/03	Thu 06/26/03
42	Final Project Report	Fri 06/27/03	Fri 06/27/03



Upcoming Deliverables

- Draft Needs, Services, and Operational Concepts Report Comment Disposition
- Draft Functional Requirements and Interfaces Report
- Draft Project Sequencing Report
- Draft List of Agency Agreements

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Workshop Calendar

Workshop #1: Stakeholders/Inventory	February 5
Workshop #2: Needs/Services	March 4
Workshop #3: Interfaces	April 8
Workshop #4: Project Sequencing	**May 6**
Workshop #5: Project Results	**June 10**

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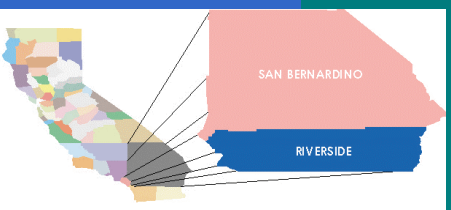
Workshop #3

Inland Empire Regional ITS Architecture Project

April 8, 2003



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