Northeastern Illinois ITS Architecture Update

Architecture Open House Web Cast

April 12th, 2007
Web Cast Participant Details

Audio Conference Details:
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To join the audio call dial: 1-800-839-9416
Passcode : 8812510

Web Conference Details:
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Passcode: 8812510
Welcome & Introduction

• You are participating in an Architecture Open House web cast for the Northeastern Illinois Regional ITS Architecture Update

• Presenting today is the Project Team of Trichord, Inc. with Edwards and Kelcey
  – Project Manager: Lee-Ann Seeling (Trichord)
  – Team Members: Matt Letourneau (EK), Mayank Goyal (EK), Craig Franklin (Trichord), & Gary Rylander (EK)
Project Overview

• **Contract signed Dec 2006**
  – Current plan is to complete all work by 3Q07 & on schedule

<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doo Review</td>
<td>36 days</td>
<td>Mon 1/28/07</td>
</tr>
<tr>
<td>9</td>
<td>Outreach</td>
<td>36 days</td>
<td>Mon 3/19/07</td>
</tr>
<tr>
<td>10</td>
<td>Architecture Update</td>
<td>98 days</td>
<td>Mon 6/7/07</td>
</tr>
<tr>
<td>23</td>
<td>Maintenance Plan Review</td>
<td>20 days</td>
<td>Thu 6/8/07</td>
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• **Four (4) major areas**
  – Review of existing documentation - *completed*
  – Outreach thru interviews & workshops - *underway*
  – Update Regional ITS Architecture - *preliminary mods begun*
  – Review of Maintenance Plan – *slated for summer ’07*
Why Have a Regional Architecture?

- FHWA Rule 940.11.c.1 and FTA National ITS Architecture Policy require federally funded ITS projects to conform to the National ITS Architecture and approved USDOT Standards

But it’s also just a good idea because...

- Provides both a common vocabulary & a framework for planning, defining, and integrating ITS in the Northeastern Illinois region
What is a Regional ITS Architecture?

• Shared vision of how transportation systems in a region may work to share information and resources to provide safer, more efficient transportation system
What’s in a Regional ITS Architecture?

• Contain details, including:
  - Stakeholders such as
    Public Officials, Transportation Planners, Law Enforcement, Emergency Management Personnel, Public/Private Transportation Providers, Civic Groups, Media & Information Providers
  - ITS systems (elements)
  - Transportation services (market packages)
  - Functional requirements
  - Information flows
  - ITS Standards
Uses of Regional ITS Architecture

• Using the regional ITS architecture as a basis for project implementation provides regional context

• It provides each project sponsor the opportunity to view their project in the context of surrounding systems.

* Ref: FHWA’s Regional ITS Architecture Guidance Document
Example #1: Used to Develop Concept of Operations

- **Provide starting point** for developing concept of operations for an ITS project

<table>
<thead>
<tr>
<th>Regional ITS Architecture</th>
<th>Concept of Operations *</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Region description</td>
<td>1. Scope</td>
</tr>
<tr>
<td>2. Stakeholder identification</td>
<td>2. Referenced Documents</td>
</tr>
<tr>
<td>3. Operational concept</td>
<td>3. User-Oriented Operational Description</td>
</tr>
<tr>
<td>4. Functional requirements</td>
<td>4. Operational Needs</td>
</tr>
<tr>
<td>5. Interfaces / Information flows</td>
<td>5. System Overview</td>
</tr>
<tr>
<td>6. Agreements</td>
<td>6. Operational Environment</td>
</tr>
<tr>
<td>7. Standards identification</td>
<td>7. Support Environment</td>
</tr>
<tr>
<td>8. Project sequencing</td>
<td>8. Operational Scenarios</td>
</tr>
<tr>
<td>9. Maintenance plan</td>
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</tbody>
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* Outline per ANSI/AIAA G-043-1992

* Ref: FHWA's Regional ITS Architecture Guidance Document
Example #2: Used to Develop System Requirements

- Used as input to system requirement definition

- Provided additional details not provided in high-level design (Regional Architecture)

* Ref: FHWA’s Regional ITS Architecture Guidance Document
Example #3: Used in Project Design

- Starting point for the project high-level design
  
  1. Region description
  2. Stakeholder identification
  3. Operational concept
  4. Functional requirements
  5. Interfaces / Information flows
  6. Agreements
  7. Standards identification
  8. Project sequencing
  9. Maintenance plan

- Identify the ITS standards that may be applicable

* Ref: FHWA’s Regional ITS Architecture Guidance Document
Review of Existing Regional ITS Architecture

• The existing Regional ITS Architecture can be viewed at
  www.catsmpo.com/itsarc/illinois-final-arch/neil/neilintro.htm
  - Effective timeframe: 15 years
  - Geographical area: CMAP planning boundaries
NE IL Regional ITS Architecture Update

• Research into the region has yielded modifications ahead of workshops

• Change Sources:
  – NE IL Regional ITS Deployment Plan Update document
  – DuPage County TCI Project
  – Kane County ITS/TMC Feasibility Project
  – Outreach Process
Sample Changes Made

Kane County Division of Transportation
Kane County TMC

- hri status
- intersection blockage notification
- request for right-of-way
- roadway information system status
- signal control status
- traffic flow
- traffic images
- hri control data
- hri request
- roadway information system data
- signal control data
- traffic sensor control
- video surveillance control

Pace
Pace Transit Bus Vehicles

Kane County Division of Transportation
Kane County Roadside Equipment

- local signal priority request

Existing
Planned
Sample Changes Made

Kane County Division of Transportation
Kane County Field Equipment

Additional Flow: Potential

Updated Data Flow Status

Renamed Element

Existing
Planned
Potential

bus priority request
local signal priority request

environmental conditions data
freeway control status
hov data
hri status
intersection blockage notification
request for right-of-way
roadway information system status
signal control status
speed monitoring information
traffic flow
traffic images
vehicle probe data
environmental sensors control
freeway control data
hri control data
hri request
roadway information system data
signal control data
speed monitoring control
traffic sensor control
video surveillance control
Sample Changes Made

- Municipalities
  - Municipal Field Equipment
- Kane County Division of Transportation
  - Kane County Field Equipment
- DuPage County Division of Transportation
  - DuPage County Field Equipment
- Municipal Public Safety Vehicles
- Cook County Highway Department
  - Cook County Highway Department Roadside Equipment

Existing
- Added

New Flow Added

New Element Added
Sample Changes Made

New element added to Market Package
Upcoming Workshops

• Currently scheduled at the CMAP offices downtown the week of May 7th
  – 1 session Tuesday & Thursday, 2 on Wednesday

• Proposed functional area workshops:
  – Arterial Operations
  – Emergency Management and Security
  – Expressway Operations
  – Transit Operations
  – Traveler Information, Construction, Maintenance and Data Archival would be addressed in each session
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