Connected Corridors
Face-to-Face Meeting

Tuesday, Dec 6th, 2016 – 1:30 – 3:30 pm
Caltrans D7 HQ
Agenda

- Introductions
- Schedule Update
- Outreach
- High Level Design and Implementation
  - Software
  - Hardware
- (AMS) – Analysis, Modeling and Simulation
- Call for Projects – Final Review
- Action Items and Closing
Our Corridor: The I-210
Systems Engineering Next Steps

- **Design Documents** – How will the requirements be met
- **Hardware and Software** – Building the system
5 Schedule Update
Schedule

1. Project Management
   10/1/13 - 12/31/19

2. Outreach & Communications
   10/1/13 - 12/26/14

3. Concept Exploration & User Needs
   11/1/13 - 12/26/14

4. Corridor Preparation
   12/2/13 - 9/30/16

5a. AMS - Phase 1
   1/6/14 - 5/29/15

5b. AMS - Phase 2
   6/1/15 - 6/30/19

5c. AMS - Phase 3
   7/01/18 - 7/31/19

5d. AMS - Phase 4
   6/30/15 - 6/28/16

6. SEMP
   12/29/14 - 6/26/15

7. ConOps
   9/12/14 - 5/20/15

8a. System Requirements
   4/23/15 - 7/31/16

8b. Validation Plan
   8/5/16 - 10/30/17

9. Organizational Design
   9/1/15 - 12/31/16

10. Technical Design
    7/1/15 – 7/01/17

11. Component Development
    8/15/16 - 4/30/18

12. System Integration
    7/01/17 – 7/01/18

13. Institutional Deployment & Operations
    1/1/17 - 12/31/19

14. Technical Deployment
    07/01/17 – 12/31/19

15. Training
    07/01/18 - 12/31/19

16. System Validation & Acceptance
    01/01/18 – 12/13/19

17. System Operations
    01/01/18 – 12/31/19

18. System Evaluation
    9/1/15 - 12/31/19

19. Lessons Learned
    9/1/19 – 12/31/19
Outreach and Communications
Outreach

- **Project Charter**
  - Caltrans approval this week
  - Approved by all other stakeholders
  - Signatures are next

- **Positive mention of Connected Corridors at the Focus on the Future Conference today**
  - Malcolm Dougherty – Caltrans
  - Susan Bransen – CTC

- **Next Connected Newsletter getting ready for release**
High Level Design
Validation Plan – Ready for Review

Connected Corridors: I-210 Pilot
Integrated Corridor Management System

System Validation Plan
December 2, 2016

Partners for Advanced Transportation Technology works with researchers, practitioners, and industry to implement transportation research and innovation, including products and services that improve the efficiency, safety, and security of the transportation system.
## Subcomponents - Schedule

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Job Descriptions and Duties/Tasks

- Corridor Champions
- Corridor Manager
- Corridor Technical Manager
- Corridor Data Analyst
- Traffic Engineers
- Data Analysts
- Software Engineers
- Electrical Engineers
- Database Administrators
- Stakeholders
- Maintenance Staff
- Information Technology Support
- Information Technology Security
- TMS/TCS Operators
- Transit Field Supervisors
- Public Information Officers
- First Responders
- Outreach and Communications Manager
# JOB DESCRIPTIONS AND DUTIES/TASKS BY AGENCY

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Software
Current Proposed ICM Architecture
LA County – IEN

- **County Response to CC Requirements:**
  - A number of requirements agree to
  - However: Update of signal plans and wayfinding signs to be discussed
    - please note that control of agency traffic control systems or field devices is not accounted for in the current IEN XML interface specification. Control aspects for the IEN will be developed after the existing interfaces are integrated into the new IEN (if the Connected Corridor or another project so desires). This effort will be included as a follow up phase of the IEN modernization upon completion of the work associated with migrating the existing IEN to the modernized IEN.

- **Are actively working to city data from IEN**
  - Should be able to, but we are working through some technical issues
General Updates

- **Good meeting with IT**
  - Began discussions on details of involvement and work to be done
  - Joint training to occur next week

- **Continued engagement with possible “purple box” partners**
  - Met with Parsons
  - Met with Telegra
  - Met with Kapsch
  - All have indicated interest in working with us and all have lots of questions

- **Began researching how to officially advertise for “purple box” partners**
  - Received proof of concept documents from HQ
  - Have been discussing with other contractors
  - Began writing offering
POC

- Vendors agree
  - There will be no charge by the vendors for the proof of concept
  - Their software will run in the Amazon cloud
  - Their software will be able to be purchased by acquiring a license and not a full scale purchase. This will permit easy scalability of the system.
  - They will interface their system and make necessary adjustments to meet as many requirements as they wish. There will be a subset of requirements that must be met in order to participate in the POC
  - Vendors will agree to let their products run for 1 year once the pilot is launched
  - Vendors may withdraw any time prior to six months before launch

- Caltrans agrees to:
  - Utilize the software
  - Not share any product details that are not available through normal use of the system with other vendors
  - Enter into a procurement process starting 6 months after launch and resulting in an RFP 1 year after launch
  - To the extent possible utilize the selected software package for other corridors statewide
Data Hub Components

- **Data Quality**
  - Debugging PEMS filter

- **Streaming Data**
  - Began implementing a Cassandra cluster

- **Document Data Store**
  - Accomplished loading of the Kafka data store with signal data

- **Hierarchical/SQL Based**
  - Continued refining the Postgis schemas
Data Hub and DSS

- **Rules Engine**
  - Met with Parsons, further discussions planned for next week

- **Response plan generation**
  - Solidifying interface and data element specs for event characterization and response plan components

- **Modeling – (Software not AMS)**
  - Freeway Estimation up and running for East Bound 210 – Calibration in process
  - Freeway estimation calibration interface nearing release
  - Working with TSS – Aimsun now able to run in cloud environment
Caltrans Systems

- **ATMS**
  - Met with Caltrans and Parsons to better understand next steps
  - No major roadblocks identified
  - PATH to generate lower level requirements

- **TSMSS**
  - Initial interface for testing (though HQ) to be available by end of year
  - Interface through D7 to be designed

- **Lane Closure System**
  - Proof of Concept to be setup in corridor by end of January

- **PEMS**
  - Decision made to use PEMS
  - Requirements being generated for upgrades to Corridor PEMS
RIITS and 511

**RIITS:**
- Transit information from Metro, Foothill and Pasadena Transit should be available
- Waze information – CC will not use at this point, is event data
- Here information – Not currently available
- INRIX data – Historical data available
- Video sharing – We will begin design with RITTS as hub
- PATH logins to RIITS and thus to 511 to be provided
- Kali is main point of contact, he will request resources to assist the CC project

**511:**
- We will send information to 511 describing our reroutes. This will include a general message and a specific message for I-210 commuters.
- We will use RIITS APIs to send an update at least once every 15 minutes.
- We should be able to test this out beginning in 2017
Data
Eastbound for PM 25 to PM 43.25 has now exceeded 91% for the first time since we started keeping track. Yes!

Most configuration changes for basic corridor are now completed

Starting on flow validations

It seems we may want to start looking into why certain problems occur and why they have such broad impacts.
Analysis, Modeling and Simulation
Progress on Corridor Model

- Updating trip costs
- SCAG mapped data to 2016
- Have imported AM and PM data into corridor model
- Arterial Estimation technique has been being tested, awaiting further validation before moving to pilot system
- Internal demo of using arterial estimation to set Aimsun model initial state scheduled for next week.
Response Plans / Rules
Response Plans / Rules

- Returning to work on response plan definition and response plan rules engine implementation
- Defining the variables that will go into the decision making process that results in a response plan
Call for Projects
Call for Projects

- Controller firmware upgrades
- Arterial traffic detection improvements
- Bluetooth devices for arterial travel time measurements
- An upgraded (Metro funded) and a new signal (Caltrans funded)
- Environmental stations to measure air quality
- 60 arterial ATIS changeable wayfinding sign installations
- Software improvements and communications upgrades to connect corridor infrastructure elements
Infrastructure Upgrades
Bluetooth travel time detectors
ATIS Wayfinding, I-210E
ATIS Wayfinding, I-210W
Action Items and Next Meeting Time
Thank You