Connected Corridors Program

Collaborating to improve mobility and sustainability in California’s transportation corridors
Mobility Management – A few variables

• ITS, ICM, ATM, ATDM.....
• Delay, Reliability, Safety, Air Quality, Cost, Equity.....
• Caltrans, Districts, CMA, AQB, Local Jurisdictions.....
• Pedestrians, Bicycles, Autos, Trucks, Buses, Light Rail ...
• Freeways, arterials, local roads, tracks......
• Multiple languages, cultures, driving habits, laws ....
New Technologies, New Possibilities

• The intelligent Connected World
  – The Social Internet: A connected world where travelers participate in real time demand management and crowd sourcing of information
  – Smart Devices: Automobiles and Infrastructure capable of making decisions, improving safety and reducing environmental impacts

• Imagine:
  – A mobility management center facilitating active cooperation between travelers, vehicles, infrastructure and organizations
  – We could reach 30% of the users of a corridor, 50% of the vehicles, and most of the infrastructure management in real time.
  – 40% of the people and organizations who use a corridor helped plan out the commute each day in concert with the corridor managers
California Connected Corridors
Vehicles, Information & People (CC-VIP) Pilot

- Enable existing transportation infrastructure and vehicles to work together in a highly coordinated manner
- Deliver improved corridor performance (safety and mobility)
- Improve accountability
- Evolve Caltrans to Real-Time operations and management
- Enhance regional, local, and private sector partnerships
Connected Corridors Ecosystem

UC System/PATH

Regional Orgs
- MPO
- Toll Authorities
- Local Jurisdictions
- CHP
- CMA
- Governors Associations
- Air Quality Districts
- County Transportation Commission

Caltrans
- Headquarters
- Districts
- Nokia (Navteq)
- Telenav
- Inrix
- Automobile Manufacturers
- Google
- Facebook
- Waze
- Roadify

Connected Corridors

Consultants
- Cambridge Systematics
- Iteris (BTS)
- System Metrics
- TSS
- Delcan
- Novavia
- Others

Travelers

Employers

Industry
- FHWA
- RITA
- Others
- Roadify

USDOT
Connected Corridors Schedule

Connected Corridors SEMP Implementation Timeline

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- **Highway and Arterial Management Pilot** (includes site selection, instrumentation, decision support and evaluation)
- **Route Management Pilot** (adds route, mode split, setting, first and last mile, parking, decision support, expansion, etc.)
- **Integrated Traveler Management Pilot** (adds social networking, business involvement, decision support expanded to include corridor portal)

- **Feasibility/Concept Exploration**
- **Concept of Operation**
- **System Requirements**
- **High Level Design**
- **Detailed Design**
- **Software/Hardware Development Field Installation**
- **Unit/Device Testing**
- **Operation and Performance Analysis**
- **System Validation**
- **System Deployment**
- **Subsystem Verification**
- **System Verification & Deployment**
- **Subsystem Verification**
Connected Corridors – Synergy and Integration

• Intelligent Infrastructure
  – Management Mechanisms (Freeway and Arterial Coordination)
  – Highway Estimation – Fusion of loop and probe data
  – Arterial Estimation – Flow and Machine learning algorithms

• Intelligent Vehicles
  – Probe Data from moving vehicles
  – Vehicle to server to vehicle
  – Automated Vehicle Control

• Intelligent Travelers
  – Collaborative Commuting
  – Transit Work in LA
  – Sentiment Analysis of text messages
  – Incentivization Studies
  – First and last mile mode shift studies

• Intelligent Systems
  – Decision Support for whole corridors over multiple metrics
  – Real Time Play Books
  – Corridor level management strategies (supply and demand)

• Corridor Management Implementation
  – Support for numerous CSMP initiatives
  – 680 Planning Studies
  – Simulation support and quality assurance

• Safety
  – Decision Support to provide safety metrics

• Data
  – Quality Metrics for Probe Data
  – Business Case for State Data Purchase

• Education, Outreach, Regulations and Policy Issues
  – Monthly newsletter on Corridor Mgmt in Ca
  – Sponsoring visiting practioners

Air Quality Decision Support Map (880/980)
Agenda

• 9:30 Welcome
  – Introductions (Tom) 10 Minutes
  – PATH Overview (Tom and Roberto) - 15 mins
  – LAMTA Overview (Frank Quon) - 30 mins

• 10:30 Connected Corridors – Integrated Corridor Management (ICM)
  – Vision, Components, & Timeline – 15 mins (Joe Butler)
  – Planning, Decision Support, Prediction and control (TOPL) – 15 mins (Gabriel Gomes)
  – Real-time decision support, Travel Info: Mobile Millennium.– 15 mins (Alex Bayen)
  – Break - 10 Minutes
  – Traffic Management Strategies – 15 mins (Roberto Horowitz)
  – Data fusion – Anthony Patire (15 mins)
  – Transit – 15 mins (Wei-Bin Zhang)
  – Collaborative commuting – 15 mins (Alex Bayen/Joan Walker )

• 12:30 Working lunch
  – Corridor Management in LA - Policy and Organizational Items

• 1:10 Other PATH Research Projects
  – Safety – 15 mins (Ching-Yao)
  – EAR - 15 mins (Alex Skabardonis)
  – Truck platooning/Cooperative adaptive cruise control – 15 mins (Steve, Xiao-Yun)
  – Demo overviews (VAA, others) - 5 Minutes (Wei-Bin)

• 2:00 Discussion
  – Opportunities for Collaboration
  – Next Steps

• 2:30 Relocate to RFS

• 3:00 Demonstrations/Show and Tell
  – Transit VAA
  – PATH Intelligent intersection
  – Traffic lab