CALTRANS REGIONAL OPERATIONS FORUMS

Freight and Goods Movement
Freight and the 101 Corridor

- US 101 Central Coast Freight Strategy (completed April 2016)

- Vision and Goals
  - Support economic development in the region
  - Provide an efficient, reliable, well-maintained and safe goods movement facility along the US 101 Corridor
  - Reduce and mitigate environmental, social, health and economic impacts from goods movement operations
What are Freight Operations?
What are Freight Operations?

- Long Haul
- Last Mile
- Long Haul
## Who Makes Decisions About Where Goods Move?

<table>
<thead>
<tr>
<th>Decision Maker</th>
<th>Type of Decision</th>
<th>What Governs the Decisions?</th>
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</table>
| Shipper        | • Pick-up location  
                 • Drop-off location  
                 • Mode(s)  
                 • Gateways and transfers (ports, terminals)  
                 • routes and corridors  
                 • schedule                                                                 | • Total Logistics Costs  
                                                                         • Regulatory Compliance |
| Broker         |                                                                                  |                                                   |
| Consignee      |                                                                                  |                                                   |
| Trucker        | • Some routing decisions  
                 • Where to park                                                                 | • Bottom line costs  
                                                                         • Compliance (i.e. HOS)  
                                                                         • Information on travel and routes |
Why Do We Care About Freight?

Figure ES.1  Freight-Related Statistics, U.S. 101 Central Coast California

- 270 Center-Line Miles
- 822,602 Total Employees
- 271,994 Freight Industry Employees
- 33,856 Total Businesses
- 12,505 Freight Industry Businesses
- $36.8 billion Annual Total Gross Regional Product
- $101.9 billion Value of Cargo in 2012
- $15.5 billion Annual Freight Industry Gross Regional Product
- 128.7 million Tons of Cargo in 2012
Freight and the US 101

- What are some of the biggest issues for freight and the US 101 corridor?
- How are key outcomes from the Freight Strategy being implemented?
- Is there continued momentum to address freight issues? If so, what?
Central Coast Priority Freight-Related Projects

- Interchange and intersection improvements (8)
- Capacity expansion/new roads (7)
- Rail focused projects – realignment and upgrades (5)
- Operational improvements (4)
  - Ramp modifications and ramp meters
  - Climbing lanes
  - Others?
- Transload
What Can Agencies Do to Improve Freight Operations?

- Identify and mitigate operations issues
  - Recurring bottlenecks
  - Maintain fluidity
  - Safety hotspots
- Disseminate / integrate information
  - Road conditions
  - Truck parking
  - Truck routing
- Collaborate with the private sector
Truck Bottlenecks
Potential Mitigating Actions

**Correct Capacity Deficiencies**
- Low capacity left exits
- More through lanes

**Shift or Reduce Facility Demand**
- Managed lanes
- Multimodal investments

**Implement Aggressive Incident Management**
- Traveler information systems
- Queue warning system
- Quick clearance

**Deploy Portfolio Approaches**
- Multimodal strategies (combination of strategies)
Freight Fluidity
Maintaining Reliable Access

- Traffic operations works with freight planners & carriers to:
  - Identify the truck routes
  - Identify the major generators (e.g. airports, seaports, distribution centers)
  - Assess performance

- Implement measures to improve performance (e.g. signal timing, traveler information, etc.)
Incident Management
Aggressive Quick Clearance

• Contracts with heavy duty wreckers
  • Access to specialized equipment
    (e.g. air cushions for overturned trucks)

• Monetary incentives for rapid response
  • Georgia TRIP (Towing and Recovery Incentive Program)
  • Florida RISC (Rapid Incident Scene Clearance)

• Quick clearance laws and procedures
Incident Management
Florida Rapid Incident Scene Clearance (RISC)

- Started on Florida Turnpike in 2004, since expanded throughout Florida and to several states
- RISC Contractor operating parameters
  a) 60 minutes to arrive at scene with required equipment
  b) 90 minutes to clear the travel lanes and clear debris
- Contractor received $2,500 bonus if a) and b) accomplished
- After 90 minutes, the contractor loses the incentive
- After 180 minutes, the contractor may be assessed liquidated damages
Incident Management
Oversize / Overweight

- Contingency planning for OS/OW
  - Knowledge of OS/OW routes and shipment types
  - Best practices for clearance
  - Detour planning
  - Notification procedures

- Contracts with heavy duty wreckers
  - Access to specialized equipment (e.g. cranes)
Safety Hotspots
Oregon Downhill Speed Information System

- 6% Grade
- 2,000’ elevation change (9 miles)
- Double hairpin turn
- 51 truck accidents from 2003 to 2007 (31 truck at fault)
- 78% are out of state motor carriers

Emigrant (Cabbage) Hill I-84
Northeast Oregon
Safety Hotspots
Oregon Downhill Speed Information System

- Upstream WIM relates weight to transponder in truck to issue advisory
- Public information campaign
- 13 percent reduction in crashes
Keeping Freight Informed
WSDOT Real Time Restrictions

WSDOT Commercial Vehicle Website
• Highlights most recent restrictions (bridge and road)
Truck Parking
National Shortage

- Severe shortage of safe, legal parking options
- Nearly half of trucker search an hour daily
- 2.2 million registered long-haul trucks in U.S.
- US DOT, state DOTs, and private sector working to improve information and allocation of spots
Truck Parking
State Initiatives: UDOT Truck Parking Program
Truck Parking
Crowdsourced Information

- **Trucker Path**
  - Allows users to input truck parking availability at truck stops and other locations across U.S.
  - Detects when trucks are at a stop
  - 200,000 users

- **Telogis Route Planning App**
  - Crowd sources parking information
  - Integration of route planning / HOS
  - 140,000 users
Maryland State Highway Administration’

- Allows for emergency truck parking in select Park and Ride lots if more than 6” of snow falls
Truck Parking
Emergency Truck Parking: Regional Cooperation

- Weather events require regional cooperation
  - Truckers need to know where to part and wait during an extreme event (e.g. highway closed in Montana).

- I-80 Winter Operations Coalition
  - California and Nevada (and the other states of the I-80 Winter Weather Corridor) coordinate closures.
  - Nevada is working with municipalities to identify truck parking when roads are closed in California (Sierra Nevada passes).
Connected Trucks

- U.S. DOT Safety Pilot Model Deployment includes trucks (Fall 2012 to Fall 2013)
- 3 trucks integrated with wireless crash warning devices
- Driver clinics with a cross section of commercial drivers. That will be part of separate truck driver clinics.
- Closed-course environment
Objective: Reduce the number of weather related incidents (including secondary incidents) in the corridor

- High elevation corridor
- Oct-May blowing snow and poor visibility
- 3,470 high wind crashes from 2002 to 2010
Vehicle to infrastructure (V2I) and vehicle to vehicle (V2V) connectivity to connect:
  - snow plows
  - trucks
  - fleet management centers
  - roadside equipment

- Provide real-time advisories both to trucks and personal vehicles en-route as well before entering the I-80 corridor.
- Applications will support roadside alerts, parking notifications, dynamic routing guidance, weather responsive variable speeds
Autonomous Trucks
Nevada Pilot

- Daimler Freightliner “Inspiration” to test on Nevada state highway and interstates
- “Highway Pilot” intelligent system functions like auto pilot in an airplane
- The technology is ahead of the legal framework
  - How is accident liability established?
- Financially viable when a corridor of states allows the vehicle
  - The potential for platooning is a huge incentive
# Freight Advanced Traveler Information System (FRATIS)

| 1. Freight Real-Time Traveler Information with Performance Measures | Provides traveler information to freight operators and drivers:  
- real-time travel estimates with route guidance to freight facilities,  
- basic incident alert, road closure and work zone information.  
- Could include oversize/overweight route restrictions with associated time periods  
- tailored weather information,  
- intermodal connection information,  
- container disposition / shipment schedule updates.  
- Uses archived information for performance monitoring. |
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<tr>
<td>2. Freight Dynamic Route Guidance</td>
<td>Determine, in real-time, and potentially while a truck is already on a route, the best route (or re-routing, if applicable) between freight facilities for each carrier that subscribes to the service.</td>
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<tr>
<td>3. Drayage Optimization</td>
<td>Coordinate load movements between freight facilities. Trucks assigned time windows for pickup or drop-off Web-based forum for load matching to reduce empty or unproductive moves</td>
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FRATIS
Freight Advanced Traveler Information System

<table>
<thead>
<tr>
<th>Pilot Region</th>
<th>Objectives</th>
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<tr>
<td>Los Angeles-Gateway</td>
<td>Addressing dynamic travel planning around the marine terminals and queues to move cargo out of the ports more efficiently with the use of an optimization algorithm</td>
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<tr>
<td>Dallas-Fort Worth</td>
<td>Optimize drayage opportunities in coordination with rail and local truck drayage companies.</td>
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<tr>
<td>South Florida</td>
<td>Similar focus as the other two sites, but includes emergency response capability to FRATIS that would integrate FRATIS functionality into Emergency Operations Center activity during an emergency such as a hurricane.</td>
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</tbody>
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- Awaiting results from pilots
- Eventual OEM and private sector applications
The Next Big Thing
Big Data in Freight Operations

• Private sector is just getting started
  • 8% of shippers and 5% of 3PLs surveyed have implemented “Big Data” supply chain initiatives*

• Public sector utilizing big data (truck GPS) for performance, exploring other applications (e.g. regional operations).

“The major benefits from data come from answering unanticipated questions.”
- Peter Kivestu, Teradata

Stakeholder Outreach

How to integrate freight considerations into operations?

- MAP-21 Freight Advisory Groups (recommended)
  - Membership includes carriers, shippers, logistics providers
  - Involve ITS / operations staff
- Focus other efforts on matching the issue to the audience
- Is there a freight group here for the 101?

Virginia Freight Transportation Technical Advisory Committee (VFTTC)
Stakeholder Outreach
Goods Movement Task Force

- Goods Movement Task Force meets quarterly
- Inform members of upcoming topics and high-interest issues
- Make it the “place to be” for networking and information
- Formal process to shape the planning and programming process (e.g. freight projects in the regional plan)
Public Agency Role
How can you facilitate goods movement?

- Know what truckers and shippers think about operations.
- Know the key industries of your state and corridor and their needs (and supply chains).
- Understand what kinds of information freight needs.
- Maintaining momentum following the freight plan.
Questions and Discussion