GATEWAY CITIES
FREIGHT/GOODS MOVEMENT TRANSPORTATION PROJECTS
WITH FOCUS ON THE FREIGHT CORRIDOR

Presentation by
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for SCAG Goods Movement Sub-Committee
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GATEWAY CITIES GOODS MOVEMENT
MAJOR TRANSPORTATION ROUTES
AND FACILITIES

Downtown Los Angeles

Off-Dock Intermodal Rail Yards

Alameda Rail Corridor

Near-Dock Intermodal Rail Yards

On-Dock Intermodal Rail Yards

Ports of Long Beach (POLB) and Los Angeles (POLA)

Off-Dock Intermodal Rail Yards

I-710 Freeway (Major Truck Route)

UP/BNSF Rail Lines

I-710 Freight Corridor

Freeways (Typical)

= Gateway Cities Council of Governments (GCCOG) Area

GATEWAY CITIES LOCATION IN REGIONAL CONTEXT
REGIONAL TRANSPORTATION PROJECTS THAT AFFECT GATEWAY CITIES

Legend
2013 Regional Transportation Projects

- I-710 EIR/EIS (with freight corridor)
- I-5 EIR/EIS (I-605 south to County Line) — Construction Project
- I-5 EIR/EIS (I-605 to I-710) EIR/EIS
- Orange and Los Angeles Intercounty Transportation Study
- SR-50 Car-Pool Lanes Additions
- East Side Light Rail Study (alignment not selected)
- Orangeline Transit Study PE/W Santa Ana Branch Study (approximate alignment)
- ITS Implementation Plan for Goods Movement
- SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy with East/West Freight Corridor (no alignment selected)
- Metrolink Expansion
- California High Speed Rail
- Amtrak
- Green Line
- Park-N-Ride Lots
- Telegraph Rd. Signal Synchronization Project; typical (other arterial high-way signal synchronization projects not shown)
- Local and Regional Transit (Bus) Service
- SR-91/I-605/I-405 Congestion Hot-Spot Projects
- SR-22/I-405/I-605 Car-Pool Connector Ramp Project (by OCTA)
- SR-91 Lane Additions (by OCTA)
- I-110 Toll Lane Addition
- BNSF or UP mainline track additions or changes for freight trains and grade separation projects
- I-405 Improvements (by OCTA)
- Truck Enforcement Network System
The GATEWAY CITIES TRANSPORTATION STRATEGIC PLAN is an evaluation of all current and planned transportation projects within the Gateway Cities sub-region and their interrelationships, impacts, and benefits. The various projects are grouped into categories and addressed individually and then collectively. The nexus between all the transportation projects, land use, mobility and air quality (including goods movement) is being determined and evaluated.

Projected completion: 2014

- TRANSPORTATION TECHNOLOGY
- AIR QUALITY INITIATIVES
- GOODS MOVEMENT
- I-710 TRANSPORTATION INITIATIVES
- OTHER MAJOR TRANSPORTATION INITIATIVES
- TRANSIT AND MULTI-MODAL INITIATIVES

### TRANSPORTATION STUDIES IN GATEWAY CITIES

- Developing numerous traffic models for study areas with various transportation options
- Developing geometric improvement plans for I-710, I-5, I-405, I-605 and SR-91
- Analysis of about 500+ major intersections
- Coordinating with other transportation studies
- Developing impacts of multi-modal projects on the study areas
- Developed a comprehensive site list of all other existing and proposed transportation projects that affect the study area
- Determining congestion Hot Spots / Early Action Projects / Proposed Freeway Improvements
- Analyzing potential funding sources

- PHASE I completed in 2012
- PHASE II to be completed in 2014
A Major Corridor Study (MCS) was completed in 2005 by the GCCOG, MTA, and Caltrans to improve the I-710 Freeway.

The I-710 Corridor Project comprises a range of mainline interchange freeway and arterial highways improvements, including construction of a separated four-lane Freight Corridor.

The I-710 EIR/EIS was started in 2008 (with the public agency partners of GCCOG, Metro, Caltrans, POLA, POLB, SCAG, and the I-5 JPA) and analyzes the environmental impacts of iterative operational and capacity improvements to the freeway arterial and rail system in the context of the I-710 communities.

It was recently decided to recirculate the I-710 Draft EIR/EIS based on two build alternatives:
- Full build out of General Purpose Lanes and a Zero Emission Freight Corridor; and,
- Building the Zero Emission Freight Corridor with some modernization of the General Purpose Lanes.

Completion of the I-710 Corridor Project EIR/EIS is anticipated as follows: DRAFT Winter 2013 and FINAL 2014.

The primary purpose for the I-710 Corridor Project is to reduce congestion and increase safety while improving air quality and public health.
A schematic cross section of the zero emission freight corridor proposed under Alternatives 6B and 6C.

The proposed freight corridor in Alternatives 6A, 6B, and 6C could include sound walls and visual screen walls similar to those walls in Bellinzona, Switzerland.

The I-710 Freight Corridor is planned to be built along I-710 to just south of I-5. Where the I-710 Freight Corridor ends, the current plan is to continue the catenary overhead system onto the GP lanes of I-710 to SR-60.

- **I-710 / FREIGHT CORRIDOR**
  (4 lanes for Zero Emission Trucks)
- **LIMITS** – Ocean Blvd. to SR-60 on I-710 (approx. 18 miles). The I-710 Freight Corridor is planned to be built along I-710 to just south of I-5.
- **8 to 10 associated I-710 General Purpose Lanes and local interchange improvements**
- **Zero Emission**
- **Automated**
- **Tolled**
- Estimated cost $2.5 - $3.5 B
For the I-710 Freight Corridor project, upcoming next steps, studies and demonstrations include:

- Siemens
- Commercialization Study
- I-710 Freight Corridor Automation
- Demonstration Projects

SIEMENS has deployed truck-catenary navigation systems internationally that can be scaled for the I-710 concept. Battery-operated trucks will be able to charge while they are on the Freight Corridor, thus extending their range to cover pick-ups and deliveries in the L.A. region.

A 2012 study by CALSTART indicated that development of a zero emission heavy duty vehicle or vehicle system for the I-710 freight corridor is feasible by 2035 with no major technological barriers if the project is recognized as a "commercialization process" that must go through a series of critical stages. Competing technologies must be evaluated, tested, proven and commercialized. Stakeholders in the Corridor must work through the steps of transitioning from their current business processes and approaches into a new structure that incorporates zero emissions as a critical component. A new set of market mechanisms must be developed and adopted in order to achieve a zero emission corridor.
Elevated in some locations, the Freight Corridor would be a prominent feature and could be enhanced by aesthetic and sound abatement treatments. The relationship of the Freight Corridor to the Los Angeles River and the I-710 freeway corridor varies, and various design concepts show sound walls facing the residential neighborhoods and screen walls to shield vehicles from view as potential enhancements. Aesthetic recommendations for the freight corridor such as railings, sound walls and structures will be designed to reduce apparent massing as viewed from the community. It is also recommended that it should be designed with graceful structural elements, LED and colored lighting accents at selected locations, integration with the Los Angeles River, and should incorporate energy generation.

Potential Freight Corridor aesthetic enhancements include:
• Sound Walls
• Screen Walls
• Structural Elements
• Landscape
• Lighting/Energy Generation
• Community Branding at Arterials
<table>
<thead>
<tr>
<th>Project Description</th>
<th>Year(s)</th>
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<tbody>
<tr>
<td>Recirculate <em>Draft</em> EIR/EIS – 2013/2014</td>
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<tr>
<td><em>Final</em> EIR/EIS – 2014</td>
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<tr>
<td>Power requirements determined to operate electrified Freight Corridor - 2012</td>
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<tr>
<td>Preliminary Design for Catenary System by Siemens – March/April 2013</td>
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<tr>
<td>Commercialization Study for Zero Emission Trucks by CALSTART – Summer 2013</td>
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<tr>
<td>SCE Coordination Study to provide power for the I-710 Freight Corridor – 2013</td>
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<tr>
<td>Potential Zero Emission Demonstration Project near Ports – 2013/2014</td>
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<tr>
<td>I-710 P3 Study for Freight Corridor completion – 2013</td>
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<tr>
<td>Automation Studies for Trucks – FHWA – 2013/2017</td>
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<tr>
<td>Preliminary Design for Freight Corridor (APS) – 2013</td>
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For the GCCOG area, the GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT has been developed as a template to determine how to implement a concept of operations into a solid business plan for the Intelligent Transportation Systems (ITS) projects that were identified by an ITS working group of public agencies and private companies.

The following is the list of freight/goods movement transportation projects sponsored by and within Gateway Cities of South East Los Angeles County, which will be covered in more depth on the following pages. This area extends from the twin ports of San Pedro Bay to SR-60 Freeway to the north and from I-710 freeway to the west to the Orange County Line to the east.

<table>
<thead>
<tr>
<th>GCCOG’S FREIGHT/GOODS MOVEMENT TRANSPORTATION PROJECTS TO DATE:</th>
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<tr>
<td>▪ I-710/FREIGHT CORRIDOR (4 LANES FOR TRUCKS)</td>
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<tr>
<td>▪ GATEWAY CITIES FREIGHT/GOODS MOVEMENT TECHNOLOGY PROJECTS</td>
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<tr>
<td>▪ GATEWAY CITIES RAILROAD GRADE SEPARATION PROJECTS</td>
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<tr>
<td>▪ ARTERIAL HIGHWAY TRUCK ROUTE IMPROVEMENTS</td>
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<tr>
<td>▪ FREIGHT ADVANCED TRAVELER INFORMATION SYSTEM (FRATIS)</td>
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<tr>
<td>DEMONSTRATION PROJECT</td>
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WHERE DOES GOODS MOVEMENT / FREIGHT TRANSPORTATION TECHNOLOGY FIT WITH GATEWAY CITIES TRANSPORTATION PROJECTS?

TRANSPORTATION TECHNOLOGY

- ITS Implementation Plan projected completion/2012
- Zero Emission Vehicle Transportation planned project
- Transportation System Management/Transportation Demand Management Projects (TSM/TDM) projected completion/2012
- ITS Projects planned project

Where does Transportation Technology fit in?

- Grade Separations
- Main Line Track Additions
- Rail Yards
- SCAG Goods Movement Study
- I-710 Freight Corridor
- PierPASS

- Gateway Cities Air Quality Action Plan
- POLB and POLA Clean Air Action Plan (CAAP)
- Railroad Equipment Upgrades
- GCCOG as Sub-Regional Sustainable Communities Strategy SB375 (and All 32) Delegation
- I-710 Air Quality/Health Risk Assessment
- I-710 Freight Corridor with Zero-Emission Vehicles

Freight Movement or Transportation Technology is the primary method to transmit and receive useful transportation information for Goods Movement.
As part of the Gateway Cities Technology Plan for Goods Movement, the consultant team is actively tracking news and research developments related to autonomous vehicle technology in the following topical areas:

- Specific demonstration projects
- Legal issues
- Technology/design issues
- Safety
- Social/user acceptance

Gateway Cities is working toward a comprehensive performance monitoring system for commercial vehicle traffic in the region that can be shared by the various stakeholders and used for a variety of purposes including planning, operational analysis and communication of traffic conditions to decision makers and the general public.
Studies netted seven final conceptual projects identified as possible near-term solutions for immediate further action.
Vehicle platooning or autonomous vehicles fall under the category of “intelligent vehicles” (IV) or “IV systems,” terms that refer to trucks or other vehicles equipped with technology that gathers information from the driving environment to assist the driver in optimal vehicle operation. These IV systems are involved with the tactical part of driving (steering, throttle, brake) while navigation systems help with the strategic aspect (route choice) – both are relevant in vehicle platooning.

This project will test a flow efficiency system of trucks along the planned I-710 truck lanes to promote and enhance truck automated commercial vehicle research. It will provide for staged operational testing over time, potentially connecting to I-710 (s. of I-405) for major test events.
The need has been identified for an ongoing Change Management process to track autonomous vehicle developments and assure that the I-710 Freight Corridor is able to incorporate new technologies that are beneficial to the goals of the project. The challenge is to provide adequate infrastructure for the potential range of autonomous vehicle applications, while keeping within cost and schedule constraints.

OPERATIONAL CONSIDERATIONS FOR THE I-710 FREIGHT CORRIDOR

A focus on three major areas of effort is needed for the staged operational testing of autonomous vehicles:

1. **INSTITUTIONAL/PROMOTIONAL.** To realize the vision for a technology-based flow efficiency operation of trucks, it is necessary to establish institutional relationships and partnerships that are meant for the long-term.

2. **OPERATIONAL/DESIGN PATH DEVELOPMENT.** Technical analysis by an interdisciplinary team of vehicle technical experts, truck operations experts, experienced drivers, traffic engineers, and highway designs need to develop detailed operational concepts for the I-710 corridor.

3. **STAGED TESTING.** Finally, staged actual testing involving available technology and application of the proposed operational concepts is needed – including establishment and recurring use of a test facility.

For the advanced technology systems to operate effectively, the I-710 freight corridor will need the following core system components and potential associated impacts:

- Advanced Toll System
- Overhead Catenary System
- Traffic Management Systems
- Operations Command and Control System
No matter what technologies are ultimately implemented, a key next step is development of a full CONCEPT OF OPERATIONS to guide the systems design work that is currently underway.

- ConOps will be a critical document in tying together the Automated Truck Research project activities and the design of the I-710 Freight Corridor. It will bring stakeholders to a common understanding of what will be accomplished on the vehicle test bed and the corridor test bed. A ConOps summary has the potential to bring in funding and industry partners.

- ConOps will cover:
  - Goals and Objectives
  - Key Linkages to Other Projects
  - Implementation Steps
  - Scenarios
  - Test Plans
  - System Components
  - Schedule and Budget

The finalized detailed ConOps and Business Plan will help ensure that real-world project IMPLEMENTATION is the outcome of the GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT, with the goal of improving logistics efficiencies while minimizing impacts to local communities.
FREIGHT ADVANCED TRAVELER INFORMATION SYSTEM (FRATIS) DEMONSTRATION PROJECT

GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT has led to the LA-GATEWAY FRATIS Demonstration Project, with a plan to deploy technologies and collect test data by mid-2013.

- FRATIS development and small-scale testing in the LA-Gateway region is designed to:
  - Leverage and integrate public and private sector data sources, and add the missing pieces
  - Test the benefits of added functionality
  - Support regional efforts to build trust and establish a new paradigm for cooperation within the intermodal freight industry
  - Build support for freight-specific ITS applications
  - Serve as an incubator for private industry
- Lessons learned will support further testing initiatives
- This test can also serve as the first step in deploying elements of the Gateway Cities ITS Goods Movement System

FRATIS COMPONENTS AS APPLIED TO THE L.A./GATEWAY REGION:

- FREIGHT-SPECIFIC DYNAMIC TRAVEL PLANNING AND PERFORMANCE
  - Real-time information to support planning and operations of dray trucking movements in the region
  - Mobile and web-based delivery of push and pull alert and tailored information – to dray dispatchers and drivers
  - Reductions in fuel usage from applications use; corresponding improvements in air quality
  - Public sector performance monitoring

- DRAYAGE OPTIMIZATION
  - Real-time information on terminal queues, including predictive algorithms, to support planning and potential diversions/reassignment
  - Real-time information (and predictive algorithm) on number and types of trucks enroute to a terminal – to support terminal operations planning
  - Support appointment status information exchange between drayage dispatchers and MTO operators
GOODS MOVEMENT AND SOUTHERN CALIFORNIA
- A Vision for a World Class System

The Comprehensive Regional Goods Movement Plan and Implementation Strategy is designed to ensure that the region continues to play a vital role in the global supply chain while meeting regional economic goals, addressing critical mobility challenges, preserving the environment, and contributing to community livability and quality of life goals.

Quoted from SCAG/FREIGHTWORKS
ON THE MOVE Southern California Delivers The Goods
Gateway Cities and MTA recently completed a Feasibility Study to analyze options to improve the SR-91, I-605 and I-405 Freeways for the project study area shown here. As part of that study the traffic impacts of a possible East/West Freight Corridor were analyzed.
A comprehensive sub-regional traffic model was developed for the SR-91/I-605/I-405 study area. Some of the model runs analyzed the impacts of maximum multi-modal improvements as well as the impacts of the potential East/West Freight Corridor.
MODEL RUNS 19 AND 20 FROM SR-91/I-605/I-405 FEASIBILITY STUDY

- Runs 19 and 20 – two final model runs
- Test freeway concepts with other regional improvements
- **Run 19:**
  - Concept B Freeway Improvements, plus
  - Maximum investment in other modes and programs
- **Run 20:**
  - Run 19 plus SCIG and ICTF projects plus East/West Freight Corridor
  - Represents greatest potential benefits to study area

FREEWAY RESULTS

- Combined Benefit to Delay = 18% to 22% over 2035 baseline (No Build)
- Thus, up to 22% reduction in overall vehicle delay on freeways
- About half of reduction due to Freeway improvements, half due to other multi-modal improvements
- Serve 5% more Vehicle Miles Travelled

MULTI-MODAL STUDY CONCLUSIONS FOR GATEWAY CITIES

- N/S Freight Corridor could potentially reduce up to 10,000 trucks off of SR-91, up to 13,000 trucks off of I-605, and up to 5,000 trucks off of I-105.
- Transit station expansion will impact local streets while facilitating transit usage.
Gateway Cities and MTA are proceeding in 2013/2014 with the Phase II Strategic Transportation Plan for Gateway Cities. Regional goods movement elements include:

- **Zero Emission Truck Commercialization Study – 2013**

- **Collaborate with SCAG and others on preliminary ideas for E/W Freight Corridor concepts through Gateway Cities (Gateway Cities Transportation Committee voted to oppose using the UP R.R. alignment for the E/W FC) - 2013**

- **Begin design of Gateway Cities Goods Movement Technology Projects – 2013**

- **Coordination with MTA Zero Emission Truck Collaborative – 2013/2017**

- **Coordination for possible Zero Emission Freight Demonstration Project – 2013/2014**

- **MAP-21 Coordination - ongoing**

- **Complete I-710 EIR/EIS – 2014**
THANK YOU!

QUESTIONS?

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