GATEWAY CITIES TECHNOLOGY PLAN
FOR GOODS MOVEMENT

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HOW DOES GOODS MOVEMENT AFFECT GCCOG?  
(GATEWAY CITIES COUNCIL OF GOVERNMENTS)

- Gateway Cities Council of Governments (GCCOG)
  - Sub-regional association of public agencies
  - Serves more than 2.2 M residents in Southeast LA County
  - Represents 27 cities, LA County and Port of Long Beach

- GCCOG is anchored by **POLB and POLA, the largest container port complex in the U.S.** and the dominant port of entry for Pacific Rim trade with the U.S.

- The San Pedro Bay ports **handle about 45% of the nation’s imports** and the demand is expected to grow—recent forecasts project that by 2035 the volume potential will be constrained by capacity limitations

- With a 300% increase in container volumes projected by 2035, **traffic congestion and air quality issues are among the local impacts of goods movement.**
GOODS MOVEMENT
STARTS WITH THE I-710 CORRIDOR PROJECT

I-710 PROJECT ELEMENTS

I-710 CORRIDOR PROJECT
Over its 18-mile length, the I-710 Corridor Project comprises a range of mainline interchange freeway and arterial highways improvements, including construction of a separated four-lane Zero Emission Freight Corridor (ZE FC.)

I-710 ZERO EMISSION FREIGHT CORRIDOR
The I-710 ZE FC would extend 18 miles up the I-710 from the Port of Long Beach to SR-60. The ZE FC strategy will use ZE vehicles (and the needed supporting infrastructure) and will include automation and a possible toll.

I-710 EIR/EIS
The I-710 EIR/EIS analyzes the environmental impacts of operational and capacity improvements to the freeway, arterial systems, and the ZE FC in the context of the I-710 communities. In July/September 2012, the draft environmental document (DEIR/EIS) was circulated for public comment. It will be recirculated in 2013/14 based on the following alternatives:

- NO BUILD
- ALTERNATIVE 6C MODIFIED (widening and modernization of I-710 plus tolled, zero emission automated Freight Corridor)
- ALTERNATIVE 6D/COMMUNITY ALTERNATIVE (tolled zero emission, automated Freight Corridor with some modernization of I-710 and community arterials)

The I-710 Corridor Project’s primary purpose is to reduce congestion and increase safety while improving air quality and public health. It is the primary truck route for the ports and is projected to have upwards of 90,000 truck trips per day in the future.

Project EIR/EIS anticipated completion: DRAFT Winter 2013/14 and FINAL 2014/15
There is an opportunity to improve efficiency and reduce congestion with the implementation of a relatively low-cost technical program to improve freight-focused traffic information in the Gateway Cities sub-region.

The Gateway Cities Technology Plan for Goods Movement will fuse ITS and freight operations technologies by integrating freeway, arterial and traveler information technology with intermodal freight, port and truck technology.

The project benefits a wide variety of stakeholders, including: LA METRO (LA SAFE), GCCOG, POLA ad POLB, Caltrans, FHWA, LA County, Gateway Cities Municipalities, Marine Terminal Operators, Freight Operators, Beneficial Cargo owners, Third Party Providers, Truck Manufacturers and Equipment Suppliers, and Universities and Other Research Institutions.

A transportation technology project is currently underway and is studying the potential of providing an end-to-end information support system to improve the effectiveness of goods movement in Southern California.
The GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT was initiated in 2011 to develop several technology applications and operations improvements to move goods safety and efficiently in and out of the region. The projects were identified from the ITS Integration Plan for Goods Movement (completed in 2008) with the input and support of a Southern California ITS Working Group comprised of a wide range of stakeholders in the public and private sectors, including strong representation from the logistics industry.

**Purpose:**
Ensure the latest technology opportunities are identified and used.

**Key Products:**
- Project Needs
- Background Research Reports
- Survey Reports

**Purpose:**
Clearly define the technology needs of the region.

**Key Products:**
- User Needs Report
- User Needs Infographic

**Purpose:**
Define and develop project opportunities to meet the region’s needs.

**Key Products:**
- Conceptual Project Design Report

**Purpose:**
Demonstrate how the projects will work together in an overall operational program.

**Purpose:**
Identify best Smart Corridor candidates for preliminary design.

The Gateway Cities Technology Plan for Goods Movement is a way to address the growing demand for Southern California goods movements so that the region will see less congested roadways, cleaner air, and more capacity for economic growth.

**COMPLETED IN 2012**
**SELECTED GATEWAY CITIES TECHNOLOGY PROJECTS**

for further implementation:

- Autonomous Vehicles
- Freeway Smart Corridors
- Arterial Smart Corridors
- Traveler Information and Data Fusion System
- Freight Traveler Information Dissemination
- Container Moves Productivity Improvements
- Truck Enforcement Network System

The slides that follow will cover a basic description of the project organization, components, and next steps – as well as “Who Benefits?”
Drayage dispatchers will have access to freight focused traveler information resources.

Drayage drivers will know of traffic conditions at the port before they start their trip via 511 in both English and Spanish.

Radio traffic reporters will have access to more accurate information than ever before.

Third party vendors can use the data from the data warehouse to create Apps for their customers.

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Technology systems within the ports improve efficiency through the Gateway Cities region.

An enhanced enforcement network creates a safer environment.

Planners can use the data archived in the data warehouse to better plan for goods movement.

Navigation and traffic data vendors will have access to more accurate and timely information.

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**GC TECHNOLOGY PLAN**

**BACKGROUND**

The GC ITS Integration Plan for Goods Movement was completed in 2008 with a vision to “use technology to improve safety and maximize efficiency,” resulting in a recommended set of Feasibility Studies for analysis.

This was updated for 13 Feasibility Studies to leverage recent advances in technology including: Traveler Information (LA SAFE/511); Mobile Applications (smart phones); and Freight/Enforcement Technologies.

These studies, along with research about future I-710 automation needs, have provided a basis for the creation of a GC Technology Plan for Goods Movement with potential for near-term implementation.
This graphic summarizes the multiple, complex and challenging USER NEEDS identified for the Gateway Cities sub-region. They range from gaps in ITS infrastructure to complex public/private policy issues. These issues/needs helped drive the technology solutions/projects which will be developed and woven together with institutional partnerships and fiscal commitment as part of the Gateway Cities Technology Plan for Goods Movement.
KEY PROJECTS THAT WERE DEVELOPED:

- Establish a Goods Movement Efficiency Committee
- LA 511 in Spanish
- Purchase Arterial Data and Integrate with 511
- Advance Arterial Smart Corridor Project
- Freeway Smart Corridor Deployment Plan
- Freight Focused Traveler Information System-Requirements and Architecture
- Autonomous Truck Research
- I-710 Freight Corridor ConOps
- Truck Enforcement Network
2013 GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT

STRATEGIC LINKAGE WITH 511 including 511 in Spanish
2013 GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT
GOODS MOVEMENT DRAYAGE PROCESS MAP

Goods Movement/Drayage Process Map - How The Technology Projects Fit In With Drayage Operations

This graphic provides a high-level summary of the import drayage process. It is by no means inclusive. But it does include the major components of a shipment arriving at the port and then being delivered to its final destination. This graphic also illustrates where the various projects which are being developed as part of the effort overlap with various functional areas of this process.
TRUCK ENFORCEMENT NETWORK SYSTEM (TENS) MAP CONCEPT PLAN

BENEFITS OF TENS:

- EASE OF USE
- ON TIME DELIVERY
- MINIMIZED EXITING/ENTERING
- IMPROVED SAFETY
- LONGER PAVEMENT LIFE
- LONGER BRIDGE LIFE
- LESS ACCIDENTS
- LESS CONGESTION FROM ACCIDENTS

- SAFER DRIVERS
- LESS AIR POLLUTION
- HOMELAND SECURITY IMPROVED
- LESS WASTED TIME
- LESS WASTED FUEL
- LESS WASTED BREAKS

IMPROVED THROUGHPUT AT:
- PORTS
- RAILS
- TRANS-LOADING CENTERS
- CROSS DOCK CENTERS

Truck Origin/Destination Types:
* Long Haul Trucks  * Local Trucks  * Port Trucks

Legend:
- Commercial Vehicle Enforcement Facilities
- Virtual Mainline Screening/Enforcement
- Virtual Ramp Screening/Enforcement
- Pull Off for Enforcement

2013 GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT
TRUCK ENFORCEMENT NETWORK SYSTEM (TENS)
A CONCEPT OF OPERATIONS and a BUSINESS PLAN will demonstrate how the projects will work together in an overall operational program and provide a clear plan for implementation.
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Purpose:
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BUSINESS PLAN
Purpose:
Identify best Smart Corridor candidates for preliminary design.

BUSINESS AND IMPLEMENTATION PLAN:
- Objectives
- Implementation Roadmap
- Task Level Implementation Plan Summaries
  - Freight Traveler Information
  - Data Fusion and Dissemination
  - Arterial Smart Corridor
  - Freeway Smart Corridor
  - Container Moves Productivity Improvement
  - I-710 Automated Truck Research

MONTHS
5 12 15 24 30 35

5

I M P L E M E N T A T I O N R O A D M A P

Freight Focused Traveler Information

Arterial Smart Corridor for Freight

Freeway Smart Corridor for Freight

Container Moves Productivity Improvements

I-710 Automated Truck Research

Truck Enforcement Network System

System Level Needs and Requirements Study

Data Warehouse System Design and Deployment

Data Dissemination System Design and Deployment

Transportation Information System Operations Development

Probe Data Procurement and Integration

Establish Freight Focused/Regional Arterial Group

Freight Specific Arterial Assessment

Deployment Plan

Design

Deployment + Monitoring

Deployment + Integration + Maintenance

Gateway Cities Strategic Plan

Gateway Cities Strategic Plan

Integrated Development

Initial Demonstration Segment

Independent Evaluation

Ongoing Research + Strategic Planning + Implementation
U.S. FREIGHT ADVANCED TRAVELER INFORMATION SYSTEM (FRATIS) DEMONSTRATION PROJECT

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 will help to ensure that the goods movement community is receiving the most accurate, timely and useful travel advisory information possible, while enabling better freight traffic and incident management on arterials to mitigate the effect of freight traffic on local neighborhoods.

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
The Phase II STRATEGIC TRANSPORTATION PLAN for Gateway Cities is proceeding in 2013/14 with the following goods movement elements:

- Zero Emission Truck Commercialization Study – 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 – 2014/15

CATENARY DESIGN

Truck-catenary navigation systems that are now deployed internationally 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.

COMMERCIALIZATION STUDY

A 2012 study, currently being updated, 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 goes through a series of critical stages recognized as a “commercialization process.” Competing technologies must be evaluated, tested, proven and commercialized with stakeholders transitioning to a new structure with 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. The updated commercialization study will be completed in 2013.
## 2013 Gateway Cities Technology Plan for Goods Movement

### Quick Summary

### Who Benefits & How?

<table>
<thead>
<tr>
<th>Who Benefits?</th>
<th>Freight TIS &amp; Data Fusion</th>
<th>Freeways &amp; Arterial Smart Corridors</th>
<th>Container Moves Productivity Improvements</th>
<th>Automated Truck Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCCOG</td>
<td>Improved data for area planning work re: freight movement and support for freeway design efforts; and, potential to reduce projected truck trips and impacts to city streets pavement</td>
<td>Improved freeways and arterial operations for local communities</td>
<td>Reduced congestion from truck traffic with improved operation at Ports, rail yards, etc. (reduced idling and improved air quality)</td>
<td>Reduced truck impact and improved safety for local communities, and economic benefit from projects</td>
</tr>
<tr>
<td>Gateway Cities Municipalities</td>
<td>Real time info on traffic conditions; plus archived info on freight movement for traffic patterns and signal timings</td>
<td>Reduced impact of truck traffic on local communities with ITS and signal improvements on municipal arterials</td>
<td>Improved traffic flow with reduced impacts from truck traffic</td>
<td>Reduced truck traffic in the GC area with economic benefits from test facility and connected vehicle research</td>
</tr>
<tr>
<td>LA Metro (LA Safe)</td>
<td>Improved service level of incident management with freight-related data</td>
<td>Improved LA SAFE’s freeway operations when detours are required</td>
<td>Improved data on freight movements to integrate with port and terminal ops</td>
<td>Future improvements to freeway ops with improved safety and reduced incident management</td>
</tr>
<tr>
<td>LA County</td>
<td>Additional data provided for IEN, plus improved signal timing with freight info</td>
<td>Additional data for IEN, and improving regional arterial operations, as well as ITS and signal functions in GC area</td>
<td>Improved flow on county-owned arterials, as well as additional data for IEN and management of truck traffic on arterials</td>
<td></td>
</tr>
<tr>
<td>Caltrans</td>
<td>Improved freeway operations with fewer accidents and improved safety, with data available for use by Caltrans</td>
<td>Improved freeway operations during incidents or major construction, including upcoming I-710 construction</td>
<td>Better info on port traffic available for input to freeway management system will result in statewide economic benefits</td>
<td>Improved design for I-710 truck lanes for potential statewide use, and establishes CA as research leader</td>
</tr>
<tr>
<td>FHWA</td>
<td>Fuses freight operation data sources for improved system performance, and helps increase benefits from FRATIS</td>
<td>Demonstrates the ability to fully equip major arterial system with ITS capability and improved operations</td>
<td>Develops and demonstrates new technologies and techniques for use nationally</td>
<td>Advances research on connected vehicle technology and will leverage investments in regional projects</td>
</tr>
<tr>
<td>Universities &amp; Other Research Institutions</td>
<td>Access to additional archive data for research.</td>
<td></td>
<td></td>
<td>Economic benefits based on national leadership in connected vehicle operations</td>
</tr>
</tbody>
</table>

*Continued...*
### 2013 Gateway Cities Technology Plan for Goods Movement

**Quick Summary: Who Benefits & How?**

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<td>POLA and POLB</td>
<td>Consolidated source for freight-related traveler info, and improved reliability of truck traffic to and from ports</td>
<td>More efficient movement of goods thru ports and better traffic management for incidents, construction, etc.</td>
<td>Improved efficiency and air quality with reduced congestion and idly time and more details on port traffic</td>
<td>Accommodates projected growth in port traffic to keep market share, and improved reliability and efficiency</td>
</tr>
<tr>
<td>Marine Terminal Operators</td>
<td>Receipt of real time area traffic conditions for increased terminal throughput and ability to staff appropriately</td>
<td>Improved ability to move traffic thru ports during incidents and construction and to staff appropriately</td>
<td>Receipt of real-time info and near-term predictions re: approaching trucks plus data for gate staffing and terminal ops</td>
<td>Increased reliability, accommodation of projected growth in traffic, and potential improvement in technologies</td>
</tr>
<tr>
<td>Drayage Companies</td>
<td>Better ability to deploy resources more cost-effectively; potential for more turns and less time at MTOs</td>
<td>Higher quality and more specific information on arterial conditions and freeways in GC for improved travel times and increased revenues</td>
<td>Real-time data on traffic and terminal queues and appointments will provide efficiency-boosting info to truck drivers</td>
<td>Efficient goods movement thru ports via I-710 as well as improved safety and potential benefits in fuel reduction from automated operation</td>
</tr>
<tr>
<td>Beneficial Cargo Owners</td>
<td>Improved info on shipment status and more efficient deliveries could reduce costs</td>
<td>Improved efficiency and reliability of deliveries with potential cost reduction</td>
<td>Better reliability on container deliveries</td>
<td>For BCO’s who operate their own fleets, benefits are similar to those for freight operators</td>
</tr>
<tr>
<td>Third Party Data Providers</td>
<td>Additional business opportunities in providing and processing data</td>
<td>Additional business ops in providing and processing data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Truck Manufacturers &amp; Equipment Suppliers</td>
<td></td>
<td></td>
<td>Economic benefits and reduced cost (no need to do your own tests)</td>
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</tbody>
</table>

Throughout the Gateway Cities area, the public, the Ports, and the goods movement industry all benefit. Local residents will enjoy less truck traffic and updated infrastructure for their communities – resulting in potential jobs and better mobility, safety and air quality.
The Gateway Cities Technology Plan for Goods Movement has created a wide ranging program to apply technologies to improve goods movement in the Gateway Cities and the larger Los Angeles region.

The Plan was developed by the GCCOG, and the LA Metro in partnership with POLB and POLA, Caltrans, the drayage industry, and many other key stakeholders.
2013 GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT

NEXT STEPS

- Maintain Stakeholder momentum with ITS Working Group and continue to hold meetings
- Zero-Emissions Truck Commercialization Study
- Continue Autonomous Truck research and development
- Concept of Operations for I-710 Freight Corridor technology applications preliminary design of initial technology project
- Continue TENS development and initial design
- Preliminary system requirements, architecture development and initial design for Freight-Focused Traveler Information System
- Analyze, prioritize, preliminary design and coordinate deployment of Arterial Smart Corridors technology applications
- Freeway Smart Corridor preliminary design deployment plan technology applications

Establish Goods Movement Efficiency Committee
Expanding System within LA 511 Structure / including 511 in Spanish
Advance Arterial Smart Corridor Project
Freeway Smart Corridor Deployment Plan
Autonomous Truck Research
Truck Enforcement Network
THANK YOU!
QUESTIONs?

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