SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

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NO. 5
MEETING OF THE

GOODS MOVEMENT SUBCOMMITTEE

Monday, February 11, 2013
10:00 a.m. – 12:00 p.m.

SCAG Los Angeles Office
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017
(213) 236-1800
Room Policy B

Videoconference Available

Orange County Office
600 S. Main Street, Suite 906
Orange, CA 92863

San Bernardino County Office
1170 W. 3rd Street, Ste 140
San Bernardino, CA 92410

Ventura County Office
950 County Square Drive, Suite 101
Ventura, CA 93003

Imperial County Office
1405 N. Imperial Ave., Suite 1
El Centro, CA 92243

Riverside County Office
3403 10th Street, Suite 805
Riverside, CA 92501

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Ed Rodriguez at (213) 236-1863 or via email rodrigu@scag.ca.gov

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Goods Movement Subcommittee
Member List

Los Angeles County:	Hon. Barbara Messina, **Chair**/Member (LA)
	Hon. Paul Krekorian, 1st Alternate (LA)
	Hon. Jim Morton, 2nd Alternate (LA)
	Hon. Tim Spohn, 3rd Alternate (LA)
	Hon. Carol Herrera, 4th Alternate (LA)
Riverside County:	Hon. Russell Betts, **Vice Chair**/Member (Riv)
	Hon. Jim Hyatt, Member (Riv)
Orange County:	Hon. John Nielsen, Member (OC)
	Hon. Bert Hack, Alternate (OC)
San Bernardino County:	Hon. Ryan McEachron, Member (SB)
Imperial County:	Hon. Jack Terrazas, Member (Imp)

Ex-Officio Members
Paul Granillo, President & CEO, Inland Empire Economic Partnership
Wally Baker, President, Jobs 1st Alliance
Lupe Valdez, Director, Corporate Affairs, Union Pacific Railroad
Fran Inman, Majestic Realty
Michael A. Morris, Transportation Planner, Cal-South FHWA
Elhami Nasr, Caltrans District 7

GOODS MOVEMENT SUBCOMMITTEE
AGENDA
FEBRUARY 11, 2013

The Goods Movement Subcommittee may consider and act upon any of the items listed on the agenda regardless of whether they are listed as information or action items.

CALL TO ORDER & PLEDGE OF ALLEGIANCE
***(Hon. Barbara Messina, Chair*)**

PUBLIC COMMENT PERIOD – Members of the public desiring to speak on items on the agenda, or items not on the agenda, but within the purview of the Subcommittee, must fill out and present a speaker's card to the Assistant prior to speaking. Comments will be limited to three minutes. The Chair may limit the total time for all comments to twenty minutes.

REVIEW AND PRIORITIZE AGENDA ITEMS

CHAIR'S REPORT
***(Hon. Barbara Messina, Chair*)**

STAFF REPORT
(Annie Nam, SCAG Staff)

FUTURE AGENDA ITEMS
Any Subcommittee member or staff desiring to place items on a future agenda may make such a request.

ANNOUNCEMENTS

ADJOURNMENT
The next regular meeting of the Goods Movement Subcommittee meeting will be held on February 25, 2013 at the SCAG Los Angeles Office.

Joint Meeting of the Goods Movement Subcommittee
and Transportation Finance Subcommittee
of the
Southern California Association of Governments

January 28, 2013

Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF ACTIONS TAKEN BY THE JOINT MEETING OF THE GOODS MOVEMENT SUBCOMMITTEE AND THE TRANSPORTATION FINANCE SUBCOMMITTEE. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

A joint meeting of the Goods Movement Subcommittee and the Transportation Finance Subcommittee was held at SCAG's office in downtown Los Angeles. A quorum of the Goods Movement subcommittee was present. A quorum of the Transportation Finance subcommittee was present.

Members Present (Goods Movement):

Hon.	Barbara Messina ***(Chair)***	Alhambra
Hon.	Tim Spohn	City of Industry, SGVCOG
Hon.	Carol Herrera	City of Diamond Bar
Hon.	Jim Morton	City of Lynwood
Hon.	Russell Betts, ***(Vice-Chair)***	Desert Hot Springs, CVAG
Hon.	Jim Hyatt	Calimesa, District 3
Hon.	Ryan McEachron	City of Victorville, SANBAG
Hon.	Jack Terrazas	County of Imperial (via videoconference)
Hon.	Bert Hack	Laguna Woods, OCCOG
Mr.	Wally Baker	Jobs 1st Alliance
Mr.	Elhami Nasr	Caltrans District 7
Ms.	Lupe Valdez	Union Pacific
Ms.	Fran Inman	Majestic Realty
Mr.	Michael A. Morris	FHWA

Members Not Present (Goods Movement):

Hon.	Paul Krekorian	City of Los Angeles
Hon.	John Nielsen	City of Tustin

Members Present (Transportation Finance)

Hon.	Gary Ovitt ***(Chair)***	San Bernardino County
Hon.	Keith Hanks ***(Vice-Chair)***	Los Angeles County
Hon.	Bruce Barrows	Los Angeles County
Hon.	Brett Murdock	Orange County
Mr.	Denny Zane	Move LA
Ms.	Lucy Dunn	Orange County Business Council

CALL TO ORDER

Transportation Finance Chair Hon. Gary Ovitt called the meeting to order at 10:01 a.m. Hon. Brett Murdock, Transportation Finance Subcommittee Member, led the Subcommittees in the Pledge of Allegiance. Chair Ovitt provided an introduction to the meeting.

PUBLIC COMMENT PERIOD

No members of the public requested to make a comment.

CONSENT CALENDAR

Approval Items

1. Minutes of the December 10, 2012 Goods Movement Subcommittee Meeting

A MOTION was made (Betts) to approve the consent calendar. The MOTION was seconded (Hyatt) and UNANIMOUSLY APPROVED. Motion passed.

2. Minutes of the December 21, 2012 Transportation Finance Subcommittee Meeting

A MOTION was made (Murdock) to approve the consent calendar. The MOTION was seconded (Hanks) and UNANIMOUSLY APPROVED. Motion passed.

INFORMATION ITEMS

3. Background and Context for Funding & Financing Freight Transportation

Annie Nam, SCAG staff, presented an overview of strategies included in the 2012-2035 RTP/SCS to fund nearly $60 billion of goods movement projects identified in the plan. When thinking about how to fund freight projects moving forward, Ms. Nam suggested that 3 principles should act as guidelines: 1) there should be a nexus between the benefits and costs where the user pays for the cost of their use; 2) costs and risks should be shared between the public and private sector; and 3) costs could be shared across different levels of government. Ms. Nam concluded by noting that a wider array of funding mechanisms is needed to fund regional goods movement needs, which will be further refined in the 2016 RTP/SCS.

4. New Dedicated Revenue Mechanisms for Freight Transportation Investments – NCFRP 29 Report

Dan Smith, Tioga Group, reported on the National Cooperative Freight Research Project 29 Report which examined options for generating dedicated revenue for freight infrastructure investment without modifications to the Federal Highway Trust Fund. Revenue mechanisms were evaluated in multiple categories including: carbon taxes, waybill or value-added taxes, public-private partnerships, investment tax credits, fuel tax surcharge, vehicle miles travelled and excise taxes, (sales taxes and registration fees). Of the strategies evaluated, Mr. Smith stated three types of funding mechanisms appeared to be the most viable as dedicated funding sources for freight, each

with different pros and cons: fuel tax surcharge, vehicles miles traveled fees (VMT), and excise taxes or registration fees. Enacting a VMT fee only for freight involves a long implementation period as well as high administrative, collection, compliance and enforcement costs. Additionally, privacy concerns and low public acceptance of these types of fees have been noted. Fuel taxes are a viable means to fund freight infrastructure as the current collection system is highly efficient compared to other options and distributes costs based on vehicle weight, emissions and greenhouse gases (GHG). Registration fees are also efficient and have a low implementation cost. The research found that registration fees could be updated, indexed and expanded to cover medium-duty trucks. Mr. Smith concluded by suggesting that a long and short term approach is needed for funding freight. In the short term, it is more efficient to build on existing strategies where a collection mechanism is already in place. However, if other strategies are to be viable in a 10-20 year time frame, it is important to lay the groundwork for them now.

5. Overview of California's Cap-and-Trade programs & Auction Proceeds Process

Jack Kitowski, Chief, Freight Transport, California Air Resources Board, presented an overview of California's Cap-and-Trade process. Cap-and-Trade is a market mechanism designed to assist in meeting AB 32 goals of achieving 1990 levels of GHG emission by 2020. It covers major sources of GHG emissions such as oil refineries, power plants, industrial facilities and transportation fuels. "Allowances" are sold through an auction process. There will be four auctions per year and the next one is scheduled for February, 2013.

6. Discussion on making P3s, Tolling, and Innovative Financing Work for Transportation – Perspectives from the National Surface Transportation Infrastructure Financing Commission

Geoffrey Yarema, Nossaman LLP, discussed Public-Private Partnerships and transportation financing mechanisms. Mr. Yarema noted current funding options are limited as the fuel tax revenue will decline along with lower fuel consumption due to improved vehicle efficiency. On the other hand, a VMT fee would be an efficient option if we prepare for it over the next ten years. Mr. Yarema reviewed several P3 project delivery models including design build, availability payment, and concession agreements. The success of P3s depends on the quality of the contract, but they have great potential to reduce costs and bring in additional investment. Mr. Yarema indicated that the P3 provisions of Senate Bill 4 (SBX2 4) are due to expire in 2017 and continuing enabling provisions are required.

CHAIR'S REPORT

No chair's report was given.

ADJOURNMENT

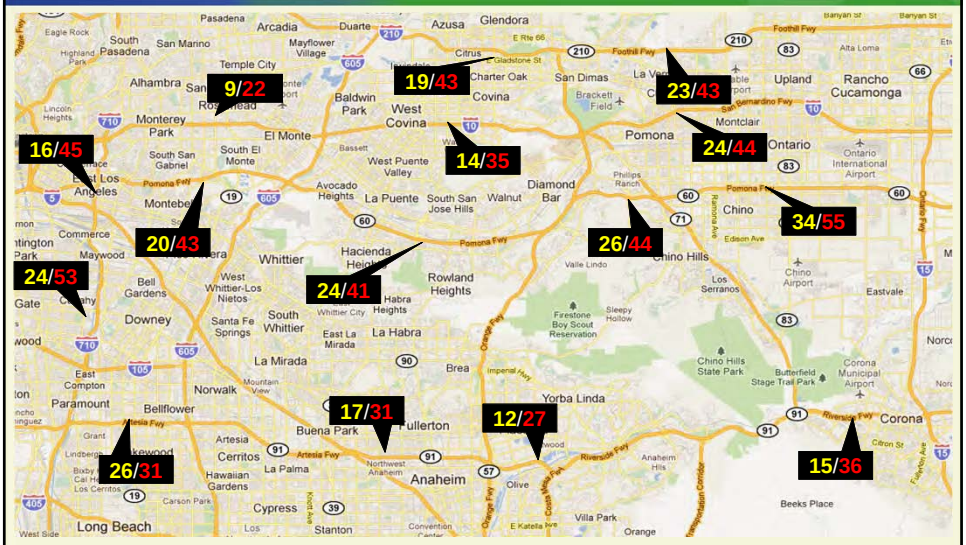
The meeting adjourned at 12:12 p.m. The next meeting of the Goods Movement Subcommittee will be February 11, 2013 at the SCAG Los Angeles office.

Alison Linder, Associate Regional Planner
Transportation Planning

Why Consider a Freight Corridor?

- Improve mobility for trucks and autos
- Serve local and regional economy
- Reduce truck/auto interactions to improve safety
- Reduce the amount of trucks using regional highways
- Incorporate new technology to reduce emissions and health impacts

Doing Nothing: Rising Truck Volumes



2008 Daily Trucks (bi-directional)/2035 Daily Trucks (bi-directional)

*** Numbers in thousands (rounded)**

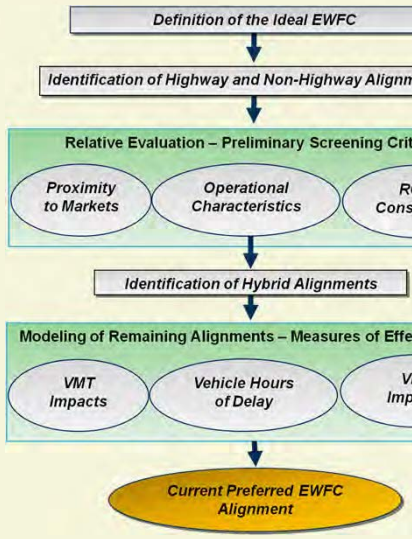
Improving Safety

Doing Nothing: Truck Involved Crashes

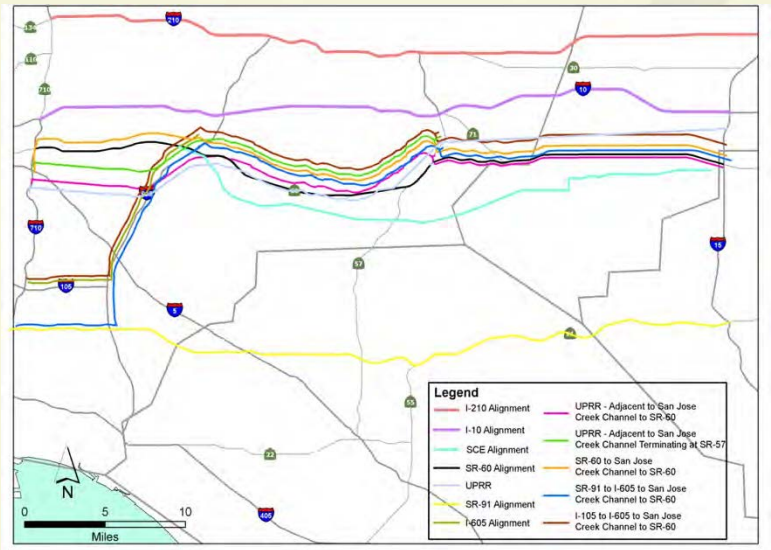
Impacts of Accidents:

- Congestion on highways
- Increased travel time and lost productivity
- Spillover effect on parallel roads

Methodology for Evaluating EWFC



Alignments Evaluated



Key Accomplishments and Lessons Learned

- We identified a promising alignment concept for the EWFC and alternative configurations
  - Poised for implementing agencies to move ahead with final engineering feasibility and EIR/EIS

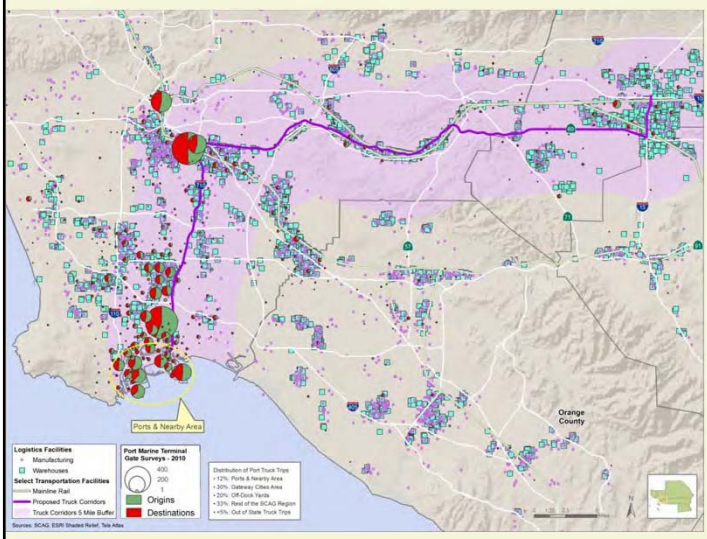
Regional Clean Freight Corridor System

Mobility	• Truck Delay reduction of approximately 11 percent • All traffic delay reduction of approximately 4.3 percent • Reduces truck volumes on general purpose lanes – up to 82 percent reduction on SR-60 • 50,000 – 70,000 trucks would use the corridor each day
Safety	• Reduced truck / automobile accidents (up to 20-30 per year on some segments
Environment	• 100 percent zero-emission truck utilization removes: 4.7 tons NO_X, 0.16 tons $PM_{2.5}$, and 2,401 tons CO_2 daily (2.7 percent to 6 percent of region's total)
Community	• Preferred alignment has least impact on communities • Reduces traffic on other freeways • Zero- and/or near-zero emission technology reduces localized health impacts

Truck Markets and the EWFC

- We now have an enhanced understanding of truck markets and user needs
  - Our strategies address needs beyond port-related goods movement
  - We have a refined East-West Freight Corridor alignment based on markets served
    - Distinctly different markets than I-710 Freight Corridor
  - Our understanding of markets informed our approach to zero emission technology
  - Our market knowledge can help guide how the system is financed
    - Strengthen nexus between costs and benefits

Regional Clean Freight Corridor System



- The mobility provided by trucks is required; fixed guideway is not an option.
- Infrastructure provides wayside power and can serve multiple truck types with potential to charge batteries.
- Facilities are within a 5 mile range of proposed corridor; advantageous with current battery range limitations.

Warehouse Square Footage within 5.0 Miles of Preliminary Alternative East-West Freight Corridors

(I-710: 153.5 mil square feet, 15% of regional total)

	Total Square Feet (mil)	Percent of Regional Total
SR-60	509.9	50%
UP Line	533.4	52%
SCE Line	291.5	29%
I-10	442.9	43%
SR-91	188.9	18%
I-605	106.2	10%
I-15	203.8	20%
I-105	78.4	8%

Manufacturing Employment within 5.0 Miles of Preliminary Alternative East-West Freight Corridors

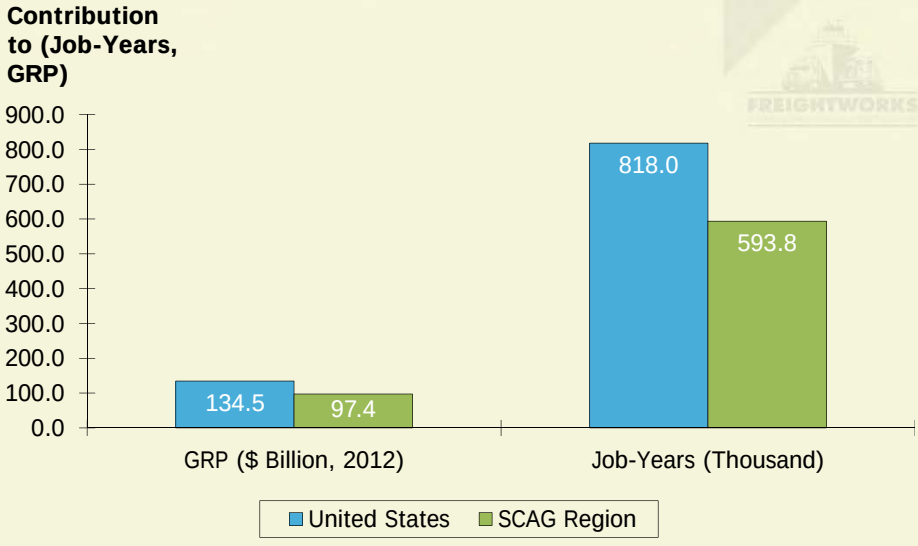
(I-710: 143,312, 17.0% of regional total)

	Total Manufacturing Employment	Percent of Regional Total
SR-60	226,886	26.9%
UP Line	237,756	28.2%
I-10	156,046	18.5%
SR-91	165,976	19.7%

Implications for Financing the EWFC

- Nexus of benefits and costs
  - There is significant demand even with tolling with potential for up to 30% of costs from tolls
  - Other ways to tap users with fees based on relative use
  - National benefits
  - Regional benefits

Economic Impacts of EWFC



Potential Funding Strategies

- Toll Revenue Bonds
- TIFIA Loans
- MAP-21 or Other Future Federal Programs
- Equity Investments

Potential Funding Strategies (Contd.)

- State and Local Sources
  - State Transportation Programs
  - GARVEE Bond Proceeds
  - Mileage-Based User Fees
  - Warehouse Business Taxes
  - Infrastructure Financing Districts
  - E-Commerce Tax Revenues

An Illustrative Funding Strategy

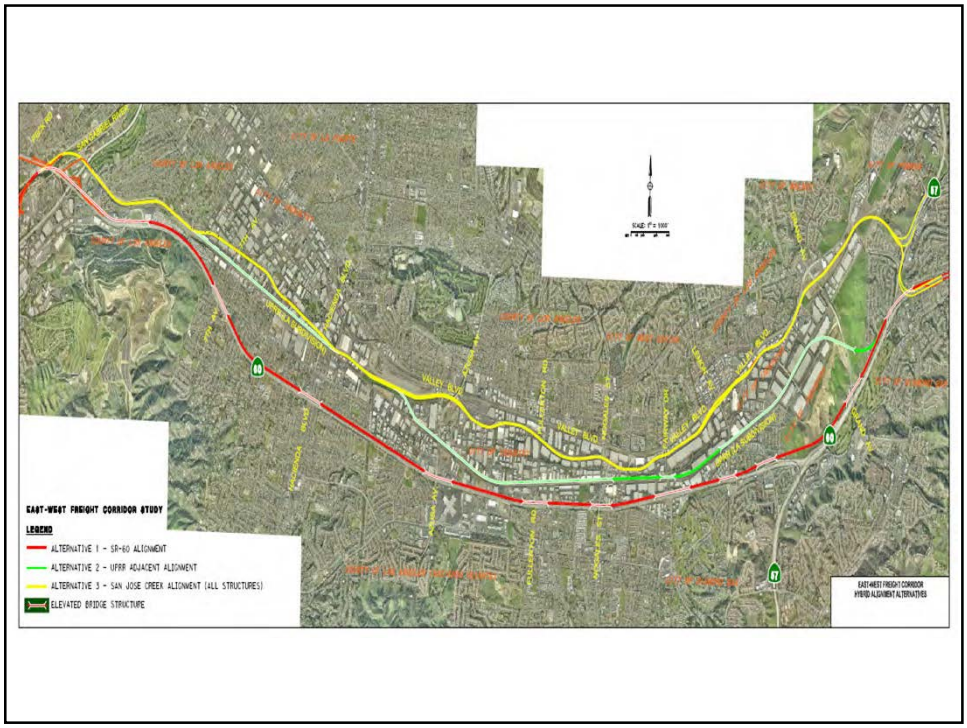
Funding Sources	Amount (Billions)	Share
Toll Revenue Bonds	$4.9	30.3%-39.5%
State and Local Sources	$1.3-$4.2	10.8%-26.3%
TIFIA Loan	$3.6-$4.2	22.3%-33.7%
Federal Transportation Funds	$1.4-$2.8	11.0%-17.3%
Equity Investments	$0.6	3.7%-5.1%
Total Capital Sources	**$12.4-$16.1**	**100%**

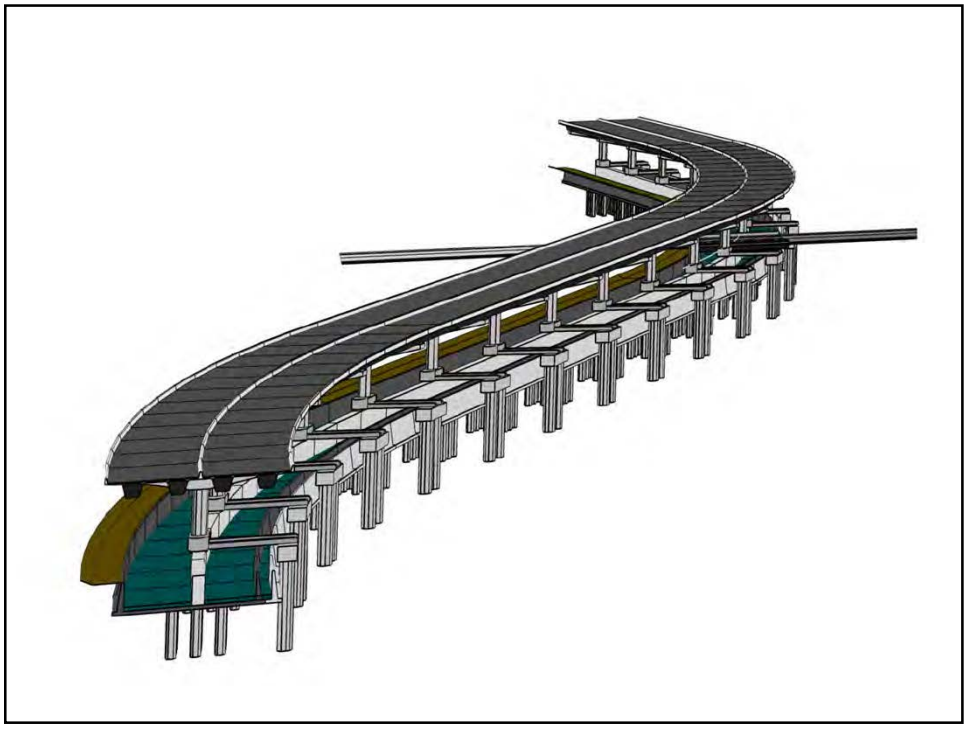
Next Steps

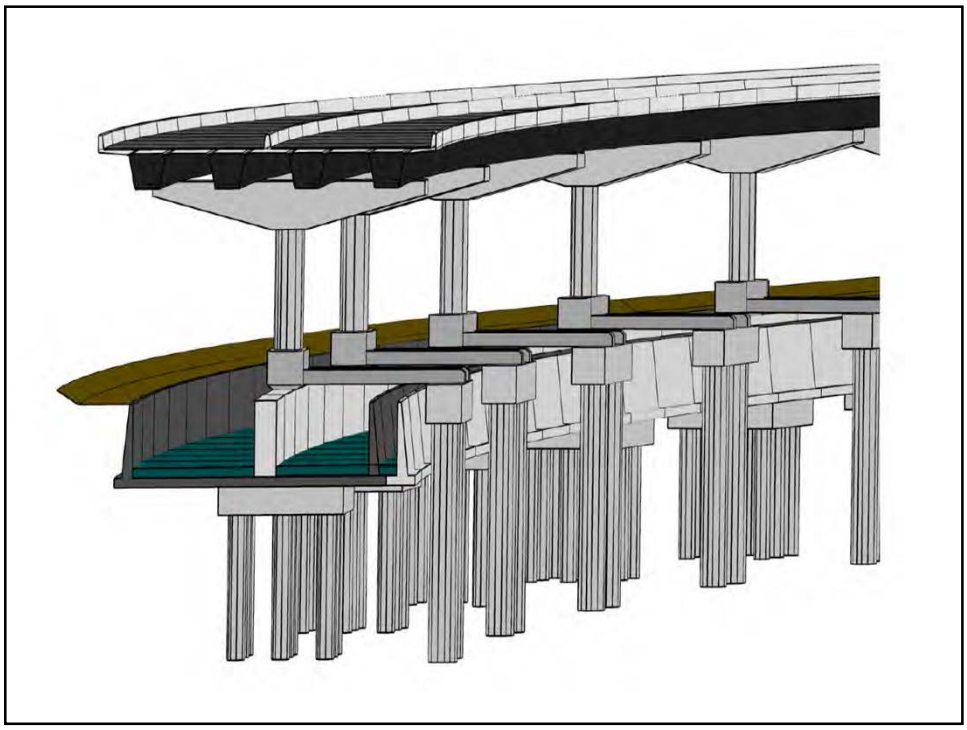
- Continued Engineering Feasibility Assessments and Preliminary Design – Targeted Engineering Studies
  - Connections to I-710 and conceptual layout for UP-Adjacent Alignment
  - Elevated structure above San Jose Creek – Cost Drivers
  - Connections between San Jose Creek and SR-60 through Diamond Bar
  - Alternative alignment evaluation East of SR-57
  - Overall Value Engineering to Identify Cost Reduction Opportunities
- EIR/EIS for Corridor
- Governance
  - Metro and SANBAG

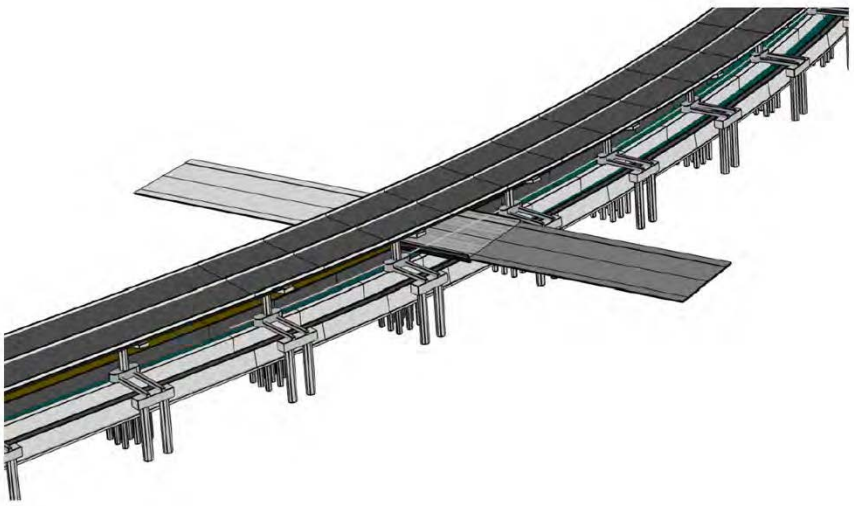
East West Freight Corridor

605 to 57 Freeway


EAST-WEST FREIGHT CORRIDOR STUDY
LEGEND
ALTERNATIVE 1 - SR-60 ALIGNMENT
ALTERNATIVE 2 - UPRR ADJACENT ALIGNMENT
ALTERNATIVE 3 - SAN JOSE CREEK ALIGNMENT (ALL STRUCTURES)
ELEVATED BRIDGE STRUCTURE
EAST-WEST FREIGHT CORRIDOR
HYBRID ALIGNMENT ALTERNATIVES







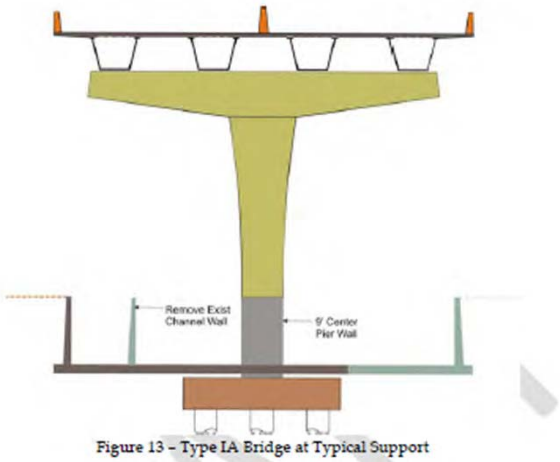
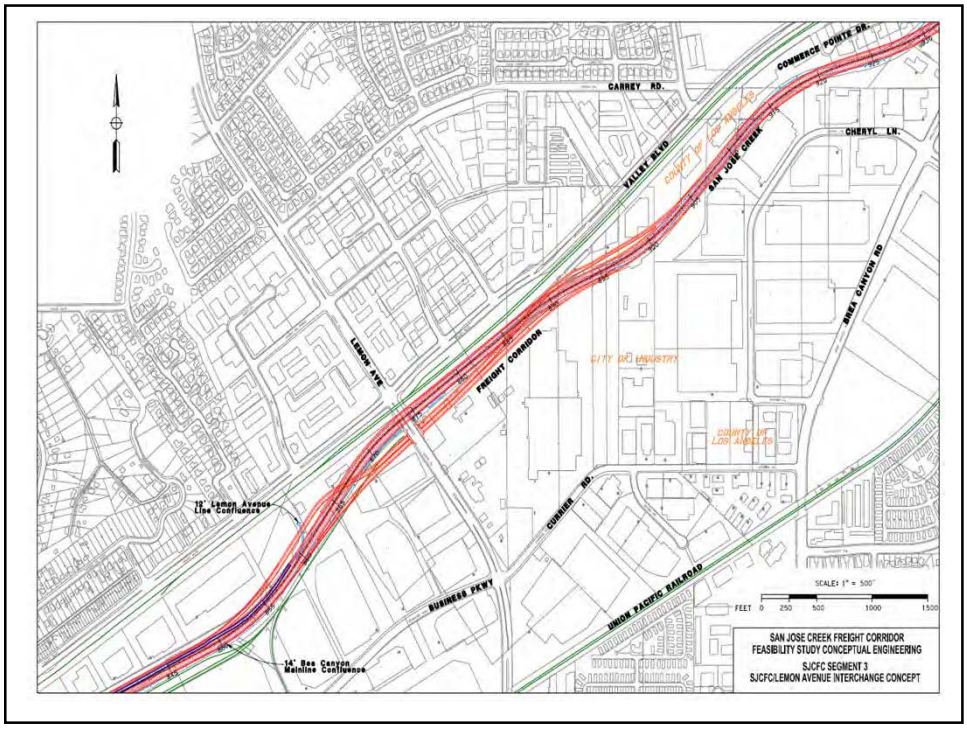
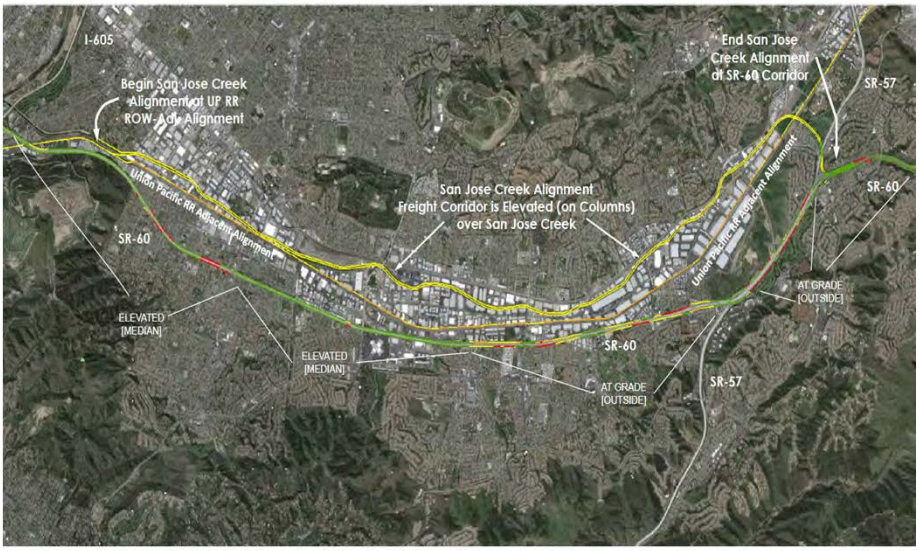


Figure 13 – Type IA Bridge at Typical Support


COMMERCE POINTE DR.
CARREY RD.
CHERYL LN.
VALLEY BLVD
SAN JOSE CREEK
AREA CANYON RD
LEMON AVE
FREIGHT CORRIDOR
CITY OF INDUSTRY
COUNTY OF LOS ANGELES
CURRIER RD.
BUSINESS PKWY
UNION PACIFIC RAILROAD
SCALE: 1" = 500'
FEET 0 250 500 1000 1500
SAN JOSE CREEK FREIGHT CORRIDOR
FEASIBILITY STUDY CONCEPTUAL ENGINEERING
SJCFC SEGMENT 3
SJCFC/LEMON AVENUE INTERCHANGE CONCEPT

ROW Impact Analysis – Compare SR-60, UP RR, and San Jose Creek Channel Alignments



SR-60 Corridor – At-Grade Sections
SR-60 is widened to provide two freight corridor lanes on each side, generally at grade.

SR-60 Corridor – Elevated Sections
Freight Corridor (four lanes) is elevated (on columns in the median of SR-60. SR-60 is widened somewhat to make space for columns.

San Jose Creek Alignment
Freight Corridor (four lanes) is elevated (on columns over San Jose Creek. Channel capacity is increased to accommodate columns.

UP RR ROW Adjacent Alignment
Freight Corridor (four lanes) is placed adjacent to UP RR ROW, generally at grade.

Table 1
EWFC Hybrid Alternatives
Right-of-Way Impact Assessments

Alignment Alternatives	Estimated No. of Affected Properties Requiring Relocations				
	Comm. Parcels	Residential Homes	Large Industrial (> 250k SF)	Medium Industrial (50k ~ 250k SF)	Small Industrial (< 50k SF)
Alternative 1- SR-60 Alignment (~ 14.9 miles)	>25	> 400	1	>5	>30
Alternative 2- UPRR Alignment (~ 11.5 miles)	>15	>160	7	>30	>40
Alternative 3- San Jose Creek Alignment (~19.6miles) (1)(2)(3)	>12	0	-	5	>12

GATEWAY CITIES
COUNCIL OF GOVERNMENTS

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

Presentation by

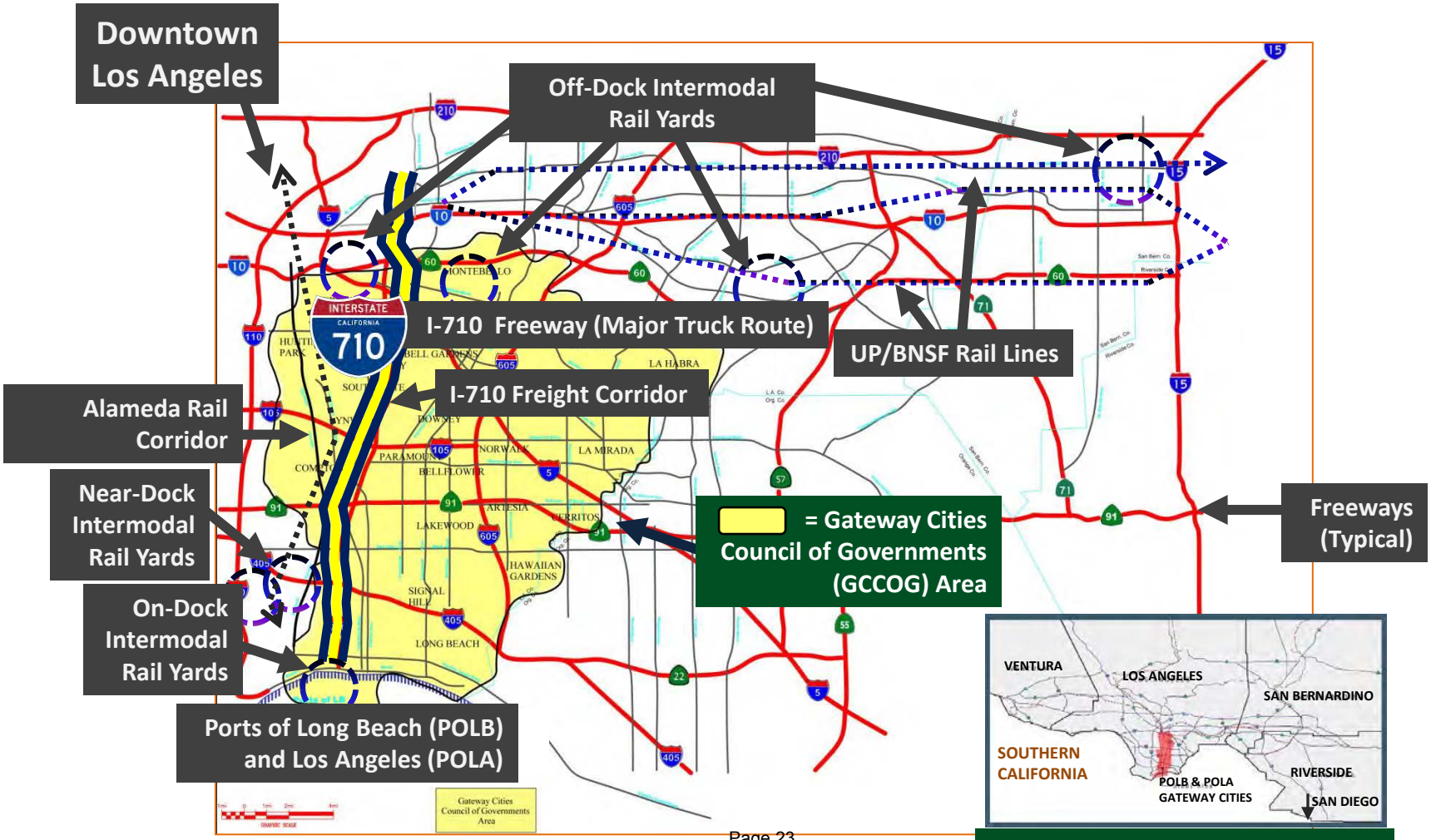
Jerry R. Wood

Director of Transportation and Engineering, GCCOG

for SCAG Goods Movement Sub-Committee
February 11, 2013

GATEWAY CITIES
COUNCIL OF GOVERNMENTS

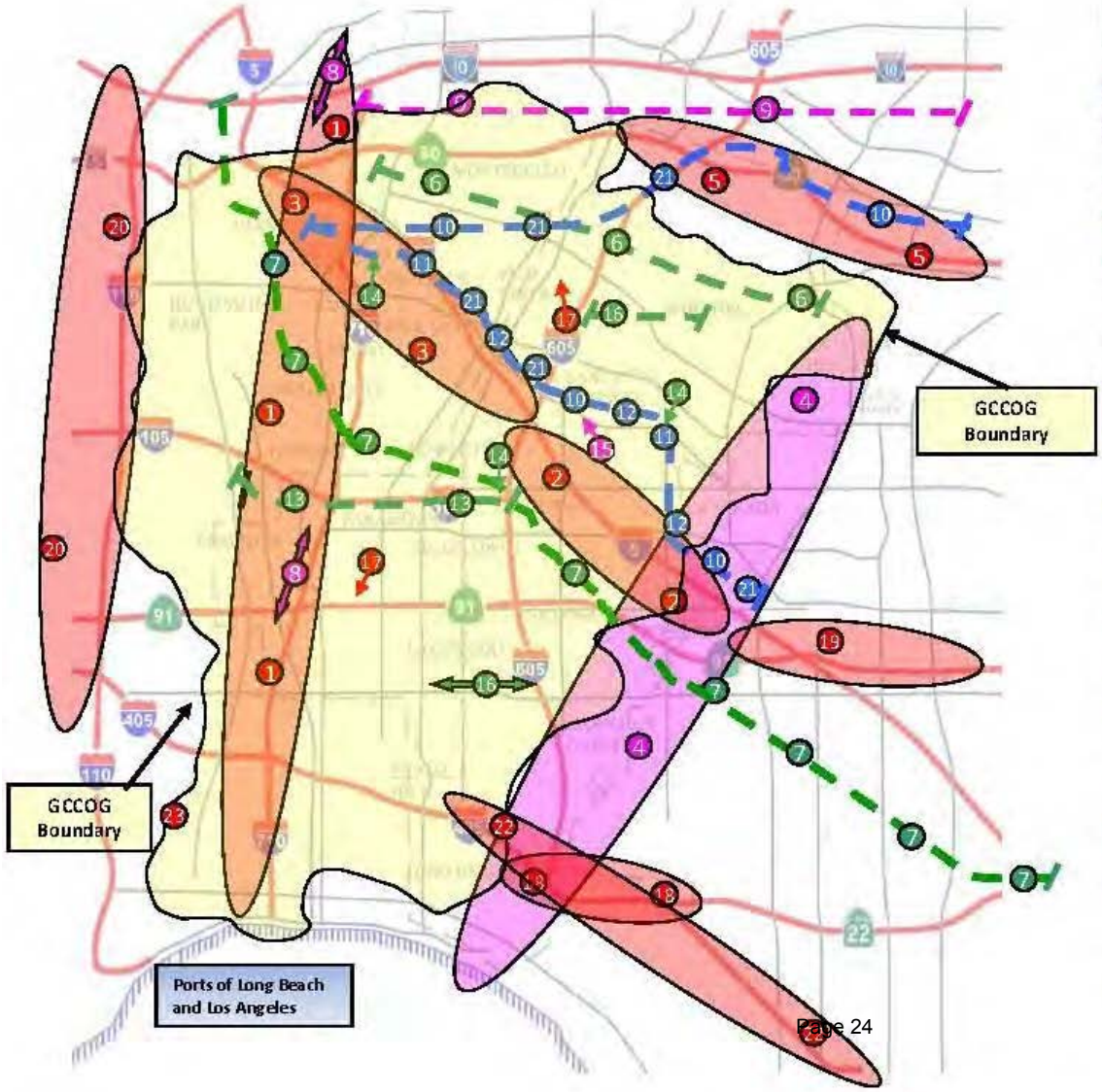
GATEWAY CITIES GOODS MOVEMENT MAJOR TRANSPORTATION ROUTES AND FACILITIES



GATEWAY CITIES LOCATION IN REGIONAL CONTEXT

GATEWAY CITIES
COUNCIL OF GOVERNMENTS

REGIONAL TRANSPORTATION PROJECTS THAT AFFECT GATEWAY CITIES



Legend
2013 Regional Transportation Projects

= Freight Related

1. I-710 EIR/EIS (with freight corridor)
2. I-5 EIR/EIS (I-605 south to County Line) – Construction Project
3. I-5 EIR/EIS (I-605 to I-710) EIR/EIS
4. Orange and Los Angeles Intercounty Transportation Study
5. SR-60 Car-Pool Lanes Additions
6. East Side Light Rail Study (alignment not selected)
7. Orangeline Transit Study PE/W Santa Ana Branch Study (approximate alignment)
8. ITS Implementation Plan for Goods Movement
9. SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy with East/West Freight Corridor (no alignment selected)
10. Metrolink Expansion
11. California High Speed Rail
12. Amtrak
13. Green Line
14. Park-N-Ride Lots
15. Telegraph Rd. Signal Synchronization Project, typical (other arterial highway signal synchronization projects not shown)
16. Local and Regional Transit (Bus) Service
17. SR-91/I-605/I-405 Congestion Hot-Spot Projects
18. SR-22/I-405/I-605 Car-Pool Connector Ramp Project (by OCTA)
19. SR-91 Lane Additions (by OCTA)
20. I-110 Toll Lane Addition
21. BNSF or UP mainline track additions or change for freight trains and grade separation projects
22. I-405 Improvements (by OCTA)
23. Truck Enforcement Network System

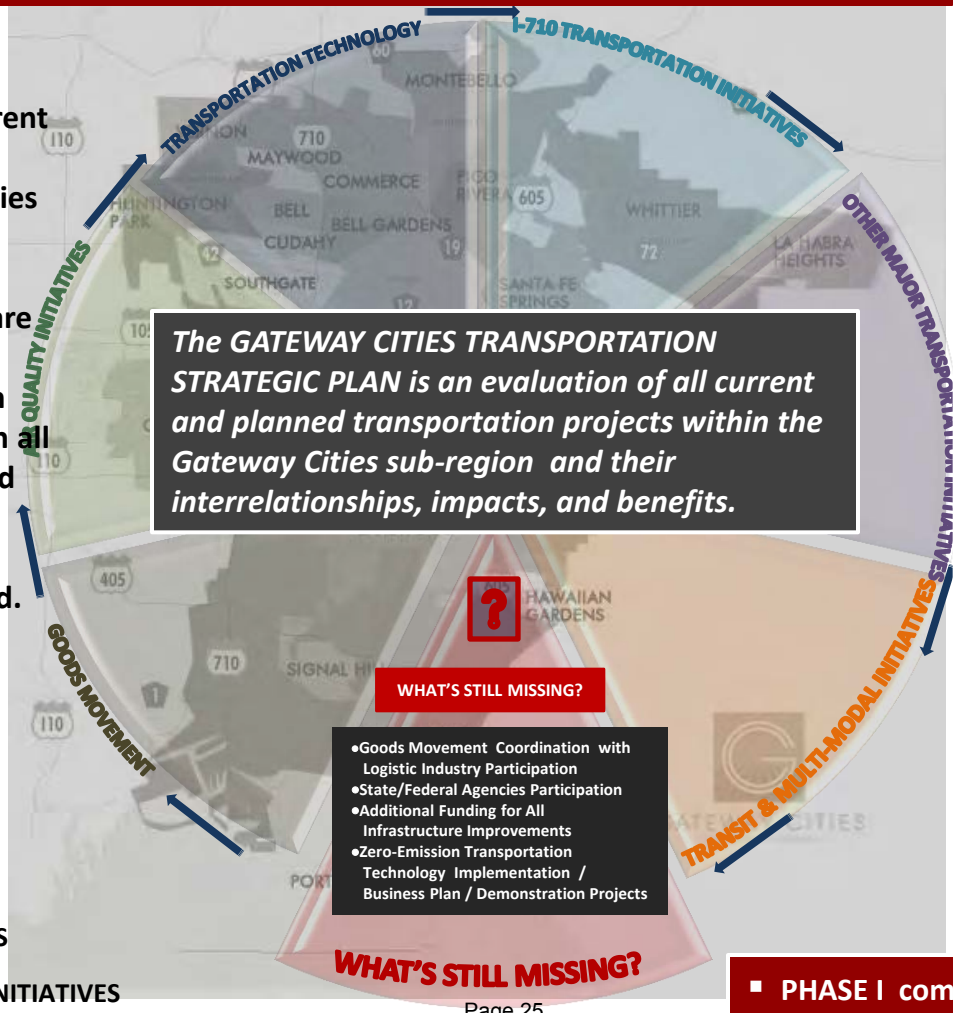
GATEWAY CITIES
COUNCIL OF GOVERNMENTS

HOW IS GATEWAY CITIES ADDRESSING SUB-REGIONAL TRANSPORTATION PROJECTS?

GATEWAY CITIES TRANSPORTATION STRATEGIC PLAN

The GATEWAY CITIES TRANSPORTATION STRATEGIC PLAN is an evaluation of <u>all</u> 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 include:

- 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**

GATEWAY CITIES
COUNCIL OF GOVERNMENTS

I-710 CORRIDOR *SUMMARY*

MAJOR CORRIDOR STUDY

A **MAJOR CORRIDOR STUDY (MCS)** was completed in 2005 by the GCCOG, MTA, and Caltrans to improve the I-710 Freeway.

I-710 CORRIDOR PROJECT

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.

I-710 EIR/EIS

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.

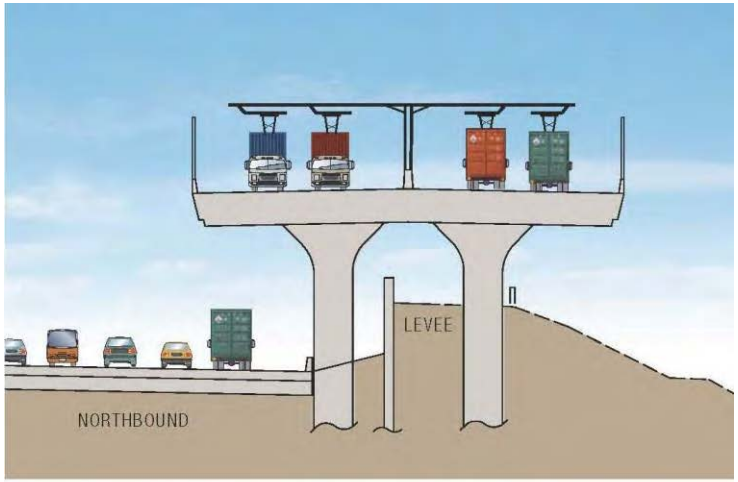
I-710 FREIGHT CORRIDOR

The I-710 FREIGHT CORRIDOR would include I-710 General Purpose Lane improvements next to a *separated four lane freight movement facility*. It would extend 18 miles up the I-710 from the Port of Long Beach (Ocean Blvd.) to SR-60. The Freight Corridor strategy will use zero emission trucks (with the needed supporting infrastructure) and include automation and a possible toll. It has been identified as a potential Public Private Partnership (P3) candidate, to be developed with the potential for partnership with the private sector.

The primary purpose for the I-710 Corridor Project is to reduce congestion and increase safety while improving air quality and public health.

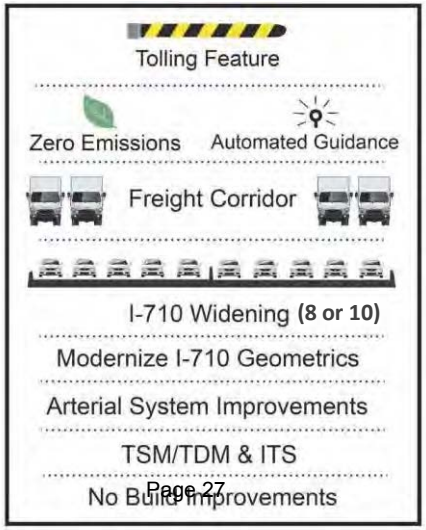
GATEWAY CITIES
COUNCIL OF GOVERNMENTS

I-710 / FREIGHT CORRIDOR
(4 LANES FOR ZERO EMISSION TRUCKS)



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 these walls in Bellinzona Switzerland.



I-710 FREIGHT CORRIDOR

- **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. 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.**
  - **Zero Emission**
  - **Automated**
  - **Tolled**
  - **8 to 10 associated I-710 General Purpose Lanes and local interchange improvements**
  - **Estimated cost $2.5 - $3.5 B**

I-710 FREIGHT CORRIDOR
NEXT STEPS, STUDIES AND DEMONSTRATIONS

- **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.

I-710 Freight Corridor Automation Connected Vehicle Technologies *Example*

Commercialization Study

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 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.

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I-710 FREIGHT CORRIDOR AESTHETICS

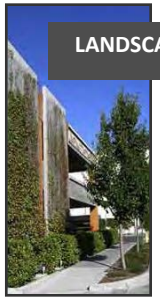
I-710 FREIGHT CORRIDOR AESTHETICS

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.

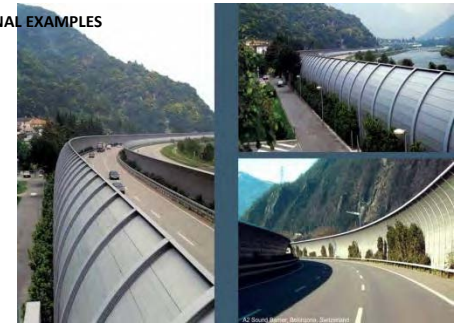
Potential Freight Corridor aesthetic enhancements include:

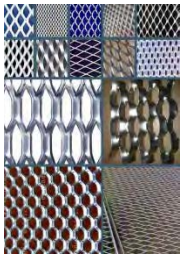
- **Sound Walls •Screen Walls**
- **Structural Elements • Landscape**
- **Lighting/Energy Generation**
- **Community Branding at Arterials**

LANDSCAPING CONCEPTS

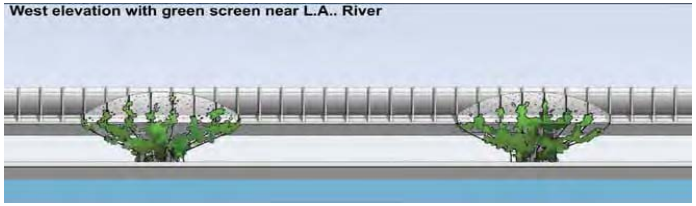


INTERNATIONAL EXAMPLES

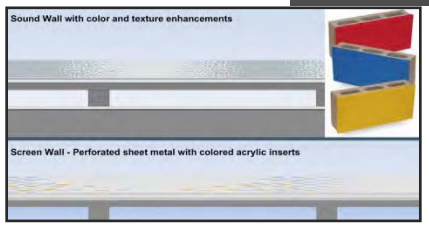


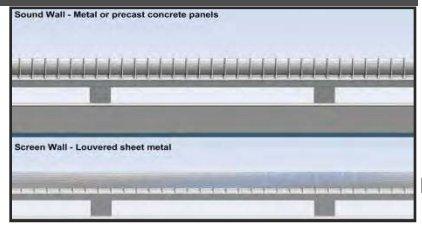


SCREEN WALL MATERIALS

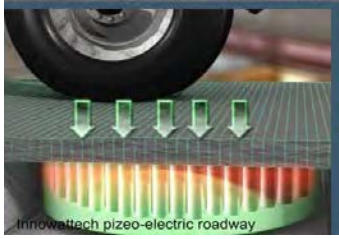


MASONRY OR CURVED HIGH TECH WALL CONCEPTS





LIGHTING AND ENERGY GENERATION CONCEPTS



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I-710 STATUS

- Recirculate *Draft* EIR/EIS – 2013/2014
- *Final* EIR/EIS – 2014
- Power requirements determined to operate electrified Freight Corridor - 2012
- Preliminary Design for Catenary System by Siemens – March/April 2013
- Commercialization Study for Zero Emission Trucks by CALSTART – Summer 2013
- SCE Coordination Study to provide power for the I-710 Freight Corridor – 2013
- Potential Zero Emission Demonstration Project near Ports – 2013/2014
- I-710 P3 Study for Freight Corridor completion – 2013
- Automation Studies for Trucks – FHWA – 2013/2017
- Preliminary Design for Freight Corridor (APS) – 2013

GATEWAY CITIES TECHNOLOGY PLAN FOR GOODS MOVEMENT

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 identiied 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.

GCCOG'S FREIGHT/GOODS MOVEMENT TRANSPORTATION PROJECTS TO DATE:

- I-710/FREIGHT CORRIDOR (4 LANES FOR TRUCKS)
- GATEWAY CITIES FREIGHT/GOODS MOVEMENT TECHNOLOGY PROJECTS
- GATEWAY CITIES RAILROAD GRADE SEPARATION PROJECTS
- ARTERIAL HIGHWAY TRUCK ROUTE IMPROVEMENTS
- FREIGHT ADVANCED TRAVELER INFORMATION SYSTEM (FRATIS) DEMONSTRATION PROJECT

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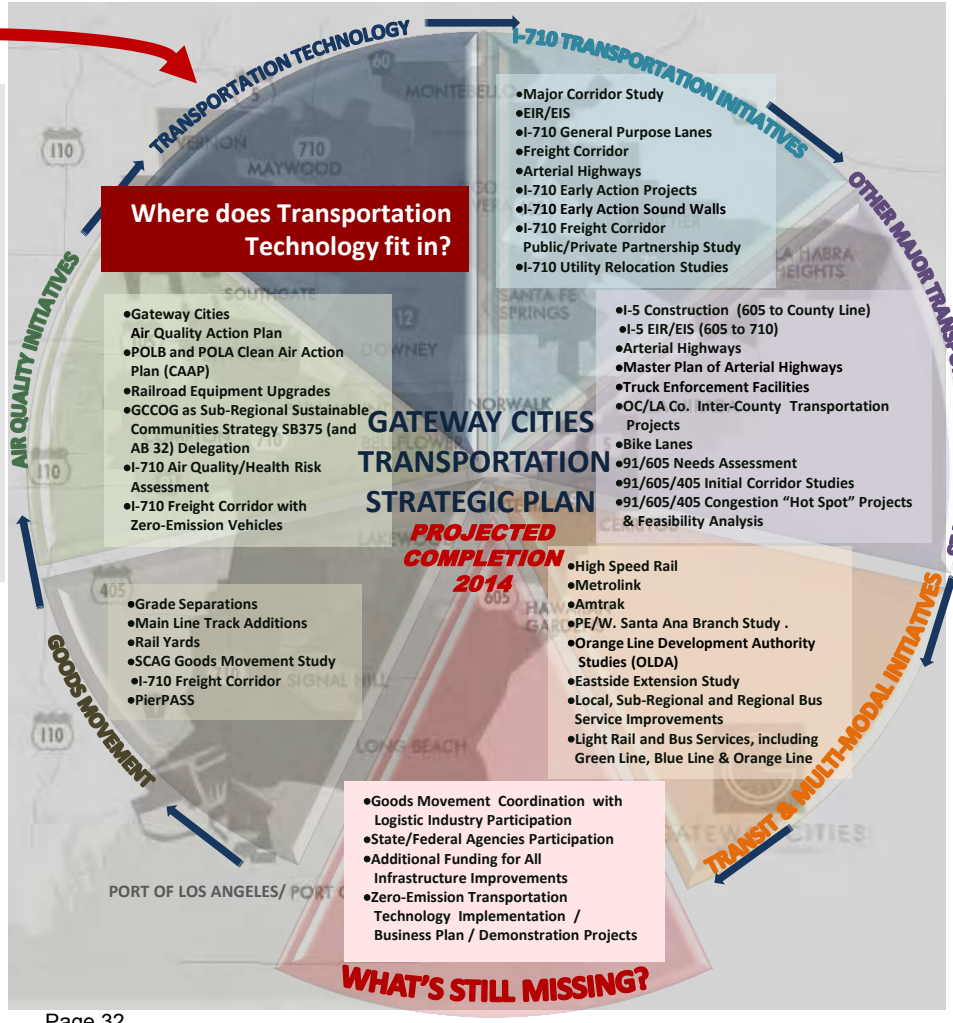
WHERE DOES GOODS MOVEMENT TRANSPORTATION TECHNOLOGY FIT?

WHERE DOES GOODS MOVEMENT /FREIGHT TRANSPORTATION TECHNOLOGY FIT WITH GATEWAY CITIES TRANSPORTATION PROJECTS?

TRANSPORTATION TECHNOLOGY

- Intelligent Transportation Systems (ITS) Integration Plan for Goods Movement *completed/2008*
- 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*

Freight Movement or Transportation Technology is the primary method to transmit and receive useful transportation information for Goods Movement.



GATEWAY CITIES FREIGHT / GOODS MOVEMENT TECHNOLOGY PROJECTS

- GATEWAY CITIES FREIGHT / GOODS MOVEMENT TECHNOLOGY PROJECTS

♦ FREIGHT TRAVELER INFORMATION SYSTEMS (FRATIS)
- Includes TIS
- Includes Data Warehouse
- Includes Integration/Dissemination of Traveler Information
- Capital Cost - $8.0 M

♦ ARTERIAL SMART CORRIDORS
- Capital Cost - $20 M

♦ FREEWAY SMART CORRIDORS
- Capital Cost - $40 M

♦ AUTOMATED TRUCK RESEARCH and STUDIES for EFFICIENT FREIGHT MOVEMENT
- Demonstration Project - $15 M
- Research - $8.0 M

♦ FREIGHT PERFORMANCE MONITORING SYSTEM
- Project Development and Implementation - $2.5 M

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.

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GOODS MOVEMENT TECHNOLOGY PROJECTS CONCEPTUAL DIAGRAM

HOW TRANSPORTATION INFORMATION FITS TOGETHER

Studies netted seven final conceptual projects identified as possible near-term solutions for immediate further action.

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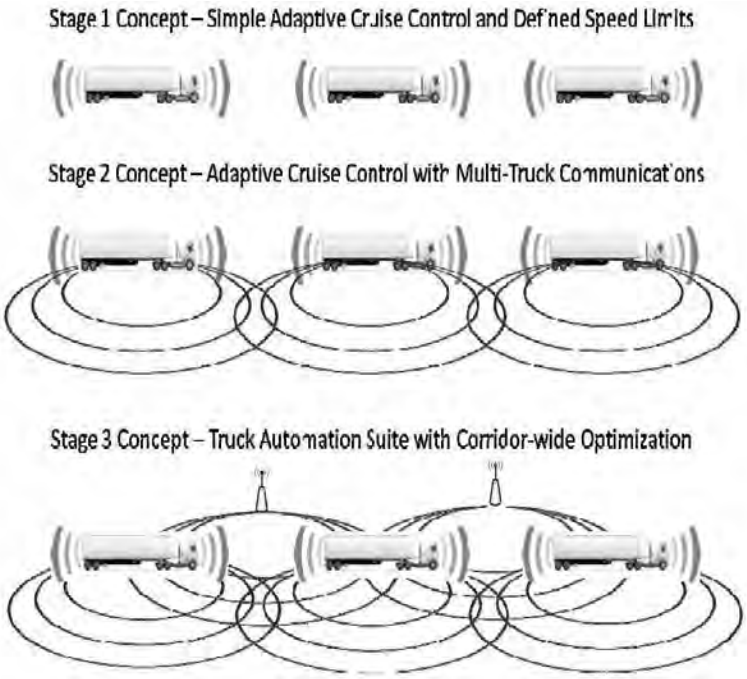
AUTOMATED TRUCK RESEARCH PROJECT WITH TRUCK FLOW TECHNOLOGY

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.

TRUCK FLOW CONCEPTUAL DIAGRAM *EXAMPLE*



TRUCK FLOW EFFICIENCY TEST CORRIDOR

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.

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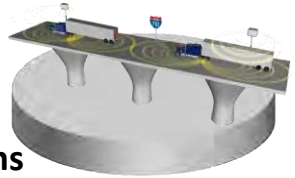
OPERATIONAL CONSIDERATIONS FOR THE I-710 FREIGHT CORRIDOR

- 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

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.

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.

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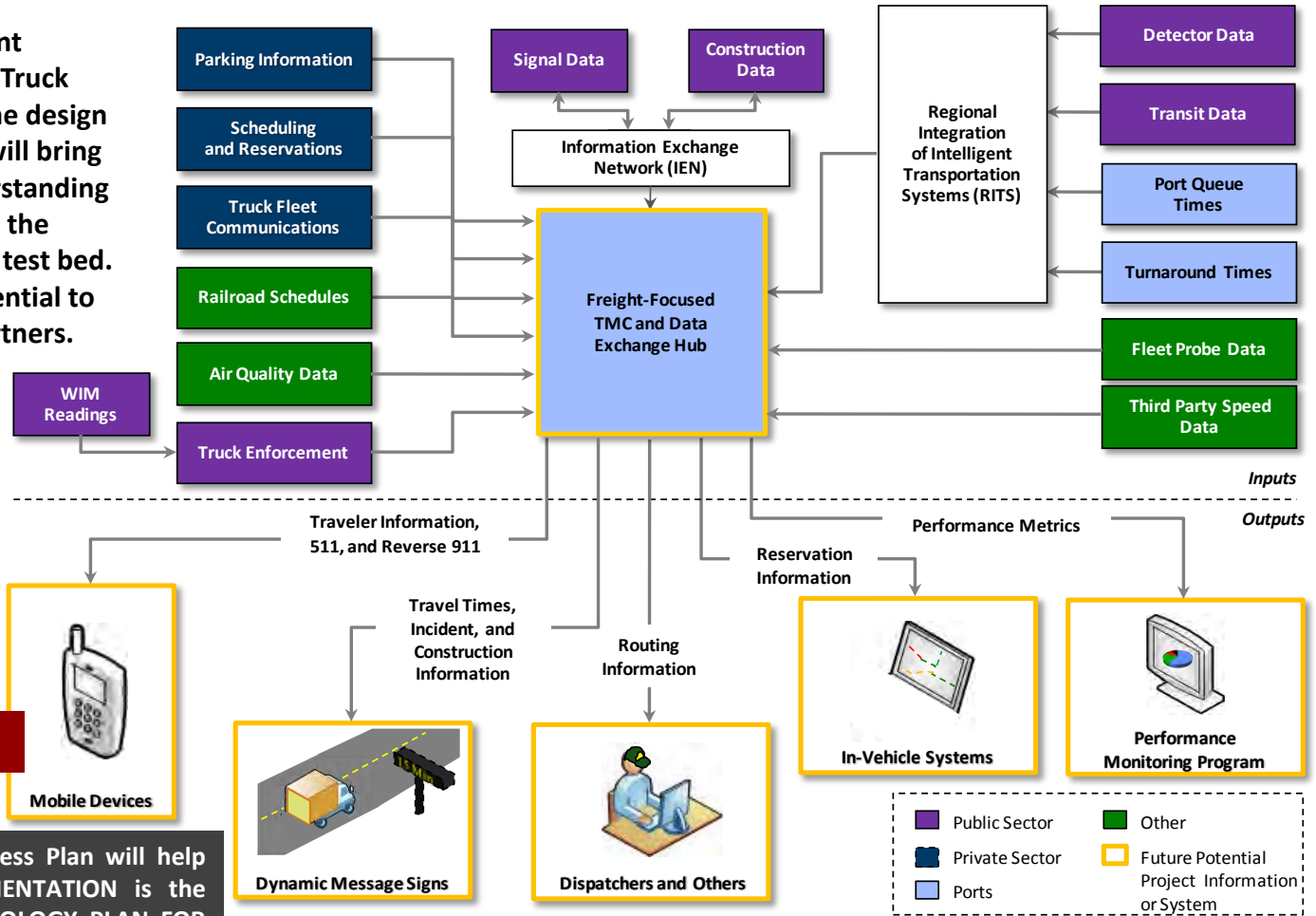
CONCEPT OF OPERATIONS FOR THE I-710 FREIGHT CORRIDOR

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**

CON OPS EXAMPLE



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.

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FREIGHT ADVANCED TRAVELER INFORMATON 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

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GOODS MOVEMENT DRAYAGE PROCESS MAP

KEY PARTICIPANTS	IN THE TERMINAL	ON THE ROAD	TERMINAL APPROACH	IN THE TERMINAL	ON THE ROAD	TERMINAL APPROACH	IN THE TERMINAL
SHIPPING LINE	Manifest				Supported by :		
DRAYAGE FIRM	Receives Manifest → Creates Pickup Order	Dispatch Driver → Driver on Road to Terminal	Driver Accesses Terminal	Driver Process at Entry Gate → Driver Drops Off Empty (if carrying) → Driver Pickup → Driver Process at End Gate	Driver on Road to Delivery → Driver on Road with Empty	Driver Accesses Terminal	Driver Processes at Entry Gate → Driver Drops Off Empty → Driver Picks Up New Load or Leaves Terminal
MARINE TERMINAL	Receives Manifest			Terminal Process at Entry Gate → Terminal Delivers Load → Terminal Process at End Gate			Terminal Assigns Empty to Parking
CONSIGNEE	Supported by:	Supported by:	Supported by:	Supported by:	Unload Container (Rail Terminal, Transloader, Local Client)	Supported by:	Supported by:

KEY

Information Flow

Action

Project Impact Areas

List of Projects

- Freight TMC and Data Fusion
- Arterial Smart Corridors
- Goods Movement Efficiency
- Autonomous Commercial Vehicles
- Freight Traveler Information Dissemination
- Freeway Smart Corridors
- Truck Enforcement Network System

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FREIGHT REGIONAL CONTEXT

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

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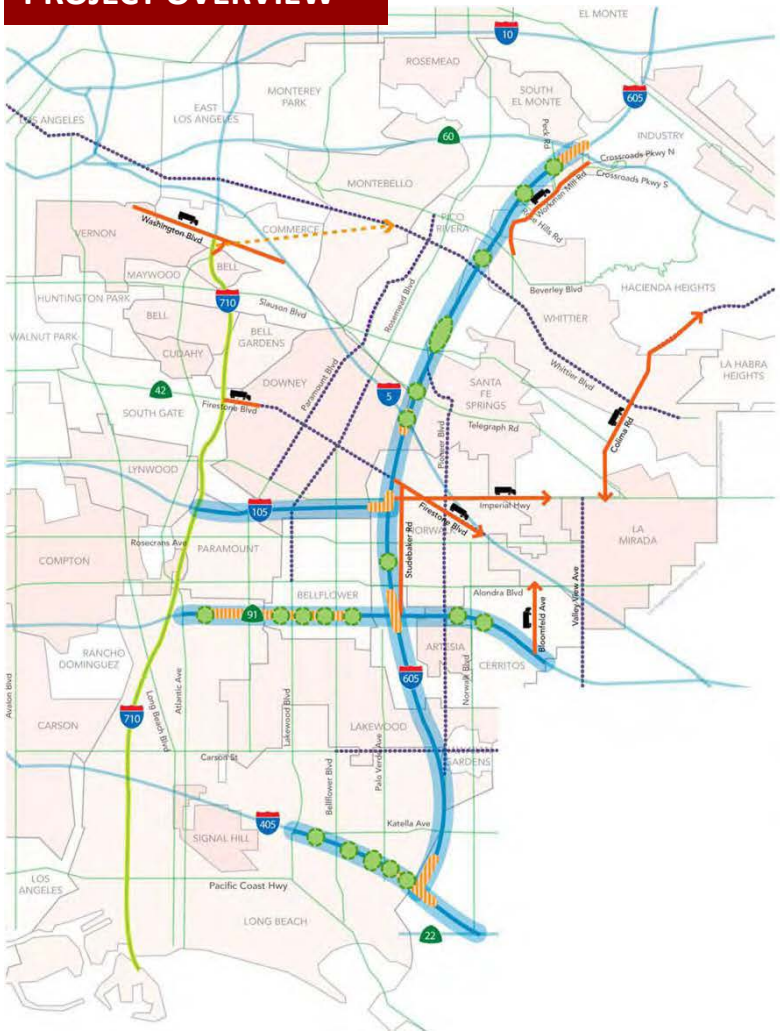
SR-91/I-605/I-405 FEASIBILITY STUDY

PROJECT OVERVIEW



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.

Legend

- Freeway
- I-605 Congestion "Hot Spots" Corridor Study Area
- Freight Movement Corridor Currently Being Studied by Others
- Major Arterial
- City Boundaries
- Unincorporated Area
- Potentially Impacted Streets
- Truck Congestion
- Freeway Right-of-Way Constraint Areas
- Congestion Hot Spot
- Potential Non-Freeway Freight Movement Corridor to be Studied by Others

Summary Map

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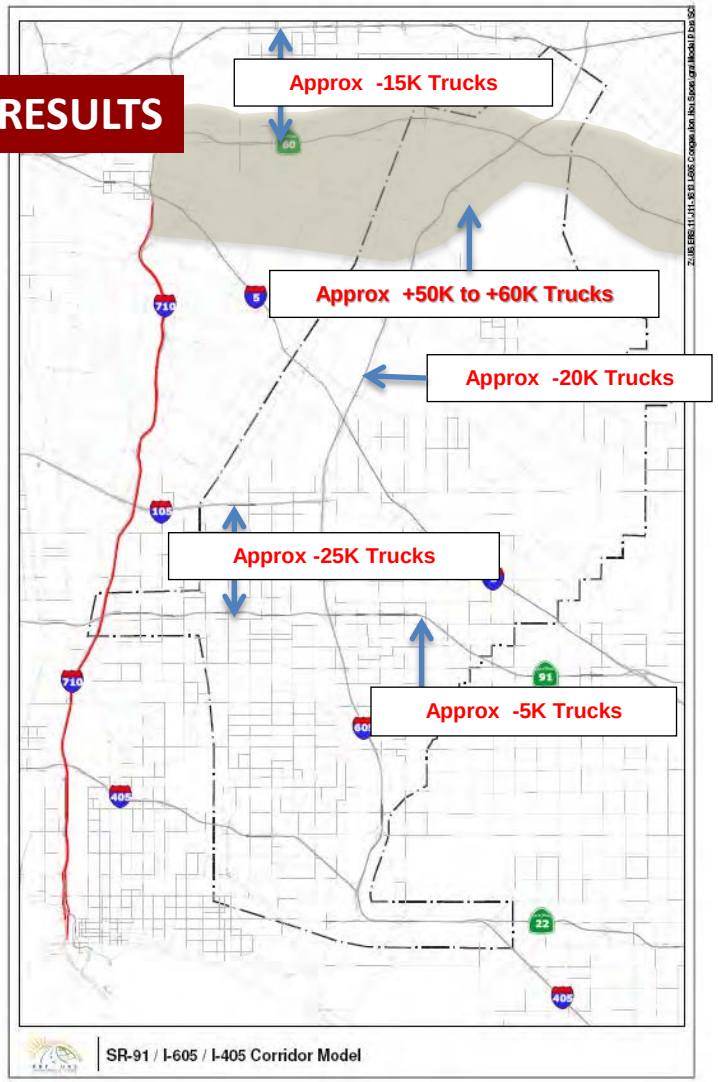
I-710 NORTH/SOUTH AND EAST/WEST FREIGHT CORRIDOR MODEL RESULTS

PRELIMINARY N/S AND E/W FREIGHT CORRIDOR RESULTS

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.



I-710 NORTH/SOUTH AND EAST/WEST FREIGHT CORRIDOR MODEL CONCLUSIONS

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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

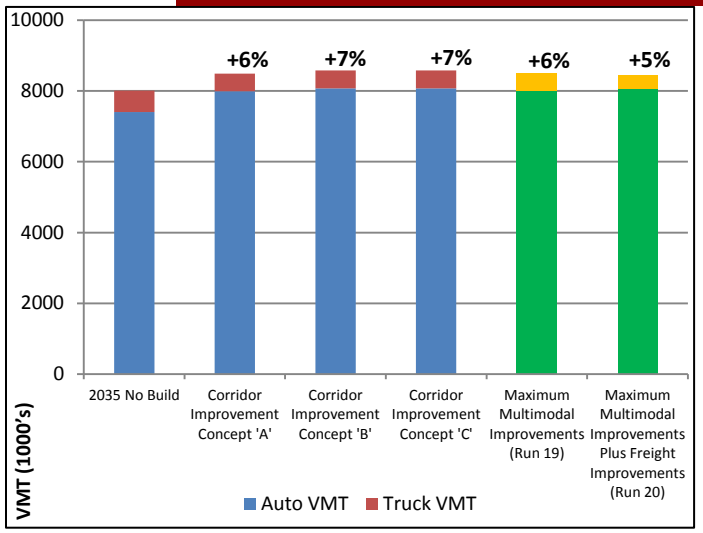
FREEWAY RESULTS

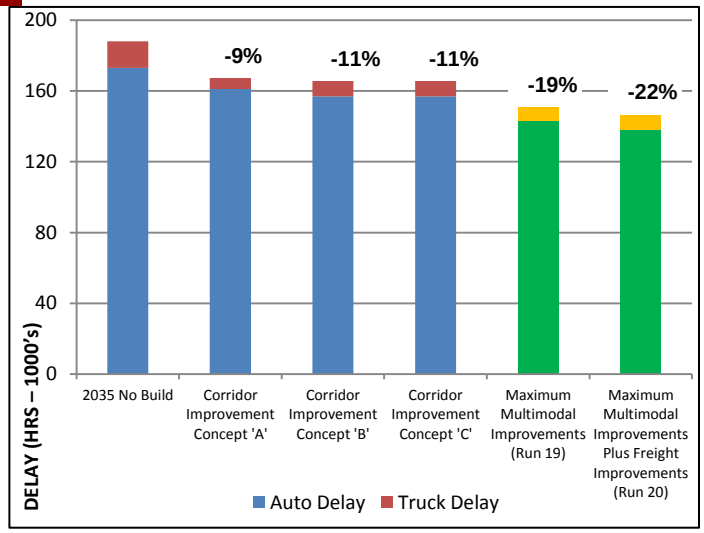
- Combined Benefit to Delay = 18% to 22% over 2035 baseline (No Build)
- Thus, up to 22% reduction in overall vehicle delay on freeways
- About half of reduction due to Freeway improvements, half due to other multi-modal improvements
- Serve 5% more Vehicle Miles Travelled

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.

MODEL RUNS 19 AND 20 RESULTS





VMT

FREEWAY

DELAY

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NEXT STEPS FOR GOODS MOVEMENT IN GATEWAY CITIES

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

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THANK YOU!

QUESTIONS?

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