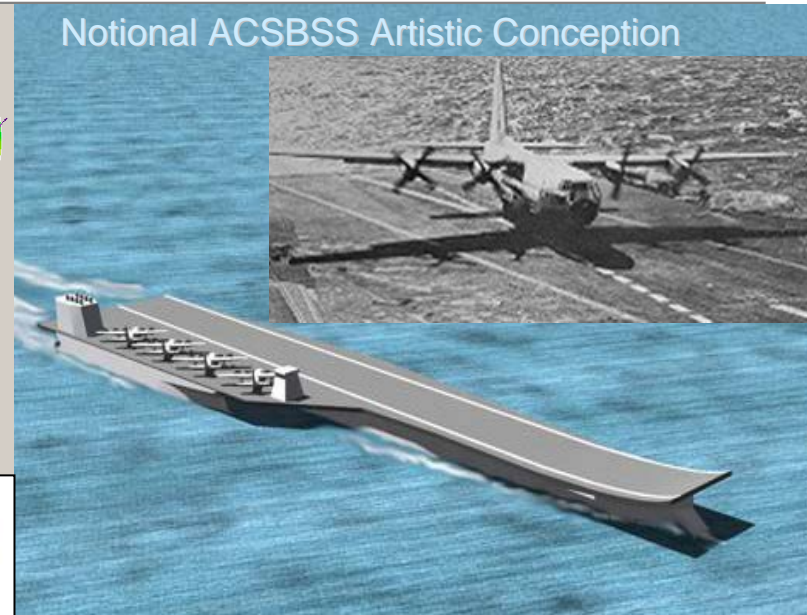
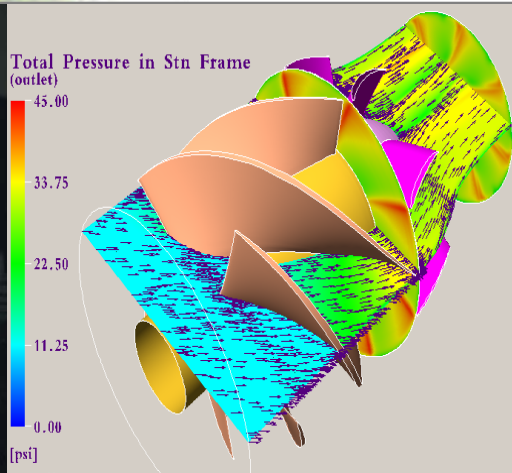




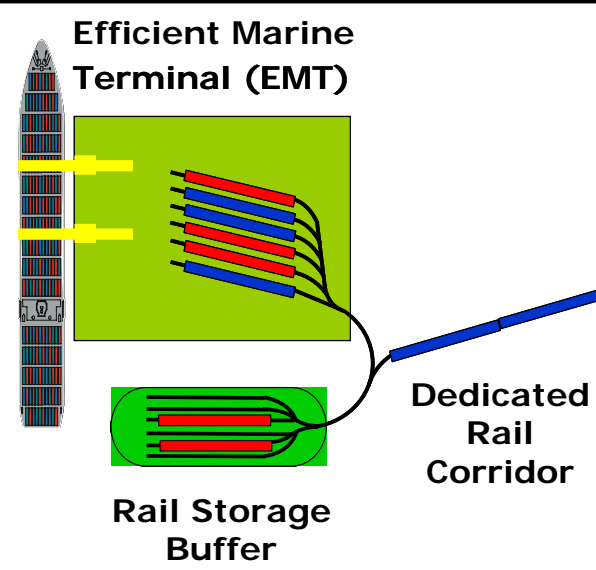
CCDoTT
ECCO-System



Axial Flow Waterjet
Pump for HSS



Notional ACSBSS Artistic Conception



High Speed Corridor for POLA/LB

Need to Maintain Economic Base by Increasing Port Capacity to Handle Projected Container Surge

- ✚ **Port Growth Provides Regional Economic Prosperity**
- ✚ **1 Out of 12 Local Jobs are Directly Related to the Port of LA/LB**
- ✚ **Over half-million jobs indirectly related to ports**
- ✚ **Port Growth Continues to Produce Good Paying Logistics Jobs While Supporting Southern California Manufacturing Base**
- ✚ **State and Regional Governments Derive Significant Income From Port Operations**
- ✚ **Supports National Defense Initiatives**
- ✚ **Near Half the Nation's Imports Pass Through the Ports of LA/LB**

**Port Growth is an Issue of Container Throughput
not Physical Size**

Proposed Solutions to Increase Container Throughput Using Existing Infrastructure

- ✚ **Present 14 Million TEU per Year Projected to Increase to 40+ Million TEU per Year by 2025**
- ✚ **Over Half the Growth is in Containers Passing Through the LA Basin and into the Rest of the U.S.**
- ✚ **Rail--New Intermodal Container Transfer Facility (ICTF) at Alameda Corridor Railhead and Addition of "Alameda Corridor, East"**
- ✚ **Road--Add Truck Lanes to I-710 and I-10 (Some Elevated), or Build New Truck Expressways**

**Cannot Solve Problems of Pollution and Congestion
with the Same Technologies that Caused Them**

Community Objections to Road and Rail Expansion

- ⊕ Health Issues, Noise, Traffic Congestion, Safety, and Security Concerns Stiffens Community Resolve Against Expansion of Road and Rail Infrastructure
- ⊕ Prompts Introduction of Alternative “Solutions”
 - ⊠ Cap Port Growth
 - ⊠ Divert Ships to Other Ports, Including Foreign Ports
 - ⊠ Expensive Pollution Mitigation of Existing Infrastructure

Need a New Solution, in Addition to Mitigating the Old Infrastructure

Realistic Requirements for a Solution to Port Throughput

- ✿ **Promotes Continued Expansion of the Southern California, State, and National Economies**
- ✿ **Also Compatible With Shippers and Shipping Line Commitments**
- ✿ **Promotes Quality of Life in Southern California**
- ✿ **Compatible with, and Even Complements Existing Goods Movement Infrastructure, and Ideally has:**
 - ✿ **Minimum Impact on Communities and Commerce—Clean, Quiet and Elevated**
 - ✿ **Low Maintenance Costs—Minimal Moving Parts**
 - ✿ **Low Cost of Operation to “Pay Its Own Way”—High Efficiency**
 - ✿ **Capital Costs Without Mitigation Expense—Use Stationary Electric Power**
 - ✿ **Fewer Environmental Reviews—Does not Require a Swath of Land**
 - ✿ **Homeland Security—No Operating Crew, Inline Security Features, Can Evacuate the Port Quickly**

The Electric Cargo Conveyor (ECCO) is a Solution

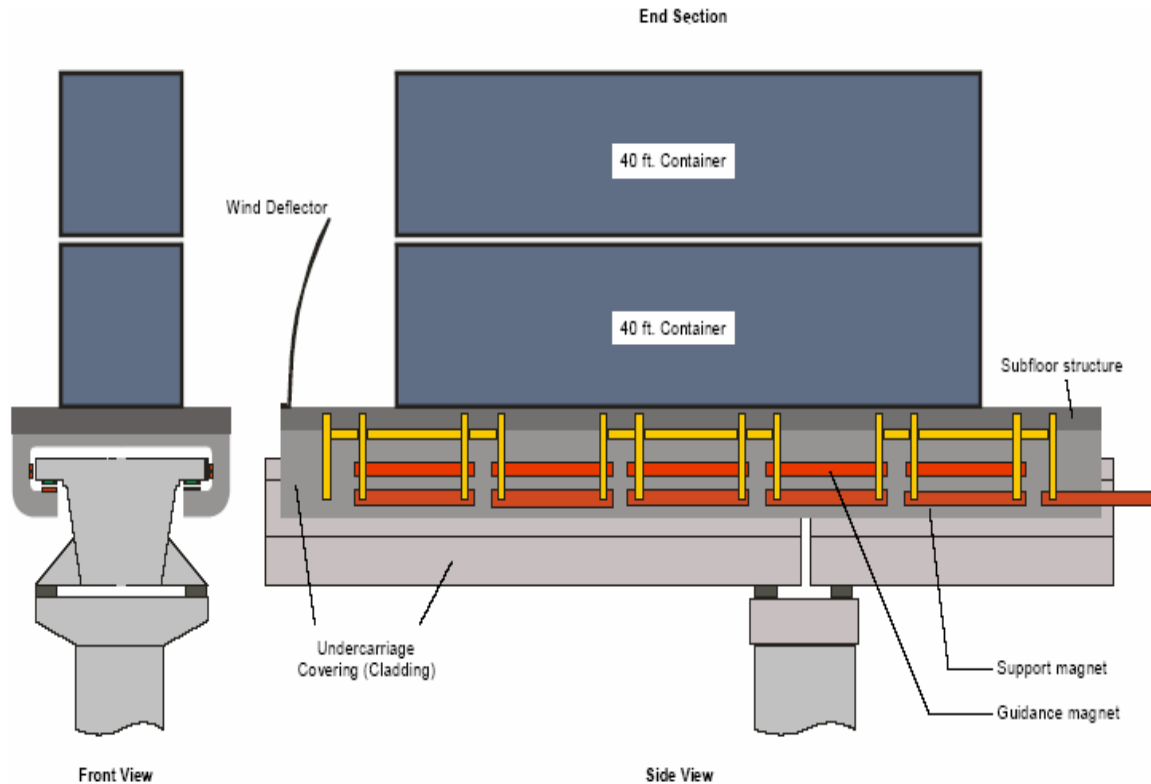
Maglev Technology is Here Now and Proven in Commercial Use



**6 Million Passengers, 2.2 Million Miles,
99.9% on Time Service**

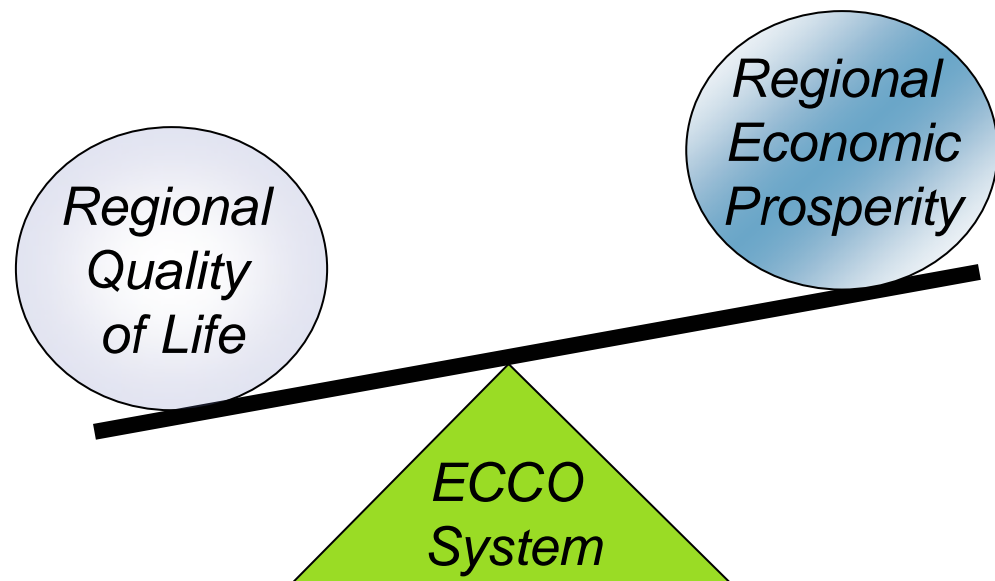
Cargo Maglev is a Totally New Concept that Successfully Adapts on to CA Infrastructure

- ✦ Known “24-7 Ridership” (Containers)
- ✦ “Riders” Coming From and Going to same “Stations”
 - ✦ Terminals
 - ✦ ICTFs
 - ✦ Railyards
 - ✦ Warehouse Concentrations
 - ✦ Inland Ports
- ✦ Compatible With, and Complements Existing Cargo Container Movement Infrastructure



Our Paradigm: No Reason California Cannot Have Economic Growth, Good Paying Jobs, and the Highest Quality of Life

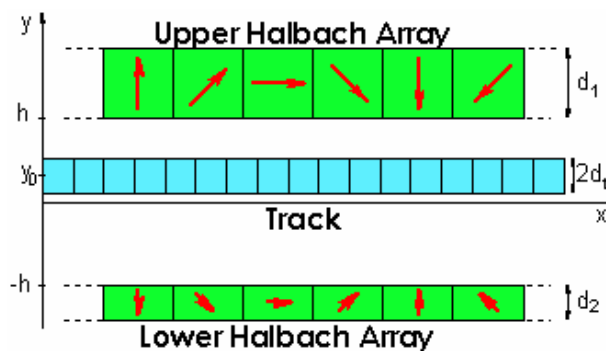
- One Double Line Maglev System can Accommodate All Projected Port Growth to 2025 and Beyond
- Maglev Technology can Handle the Projected Port Growth With No Added Air or Noise Pollution
- ECCO Gives Relief to Commuters and Goods Movement in the LA Basin



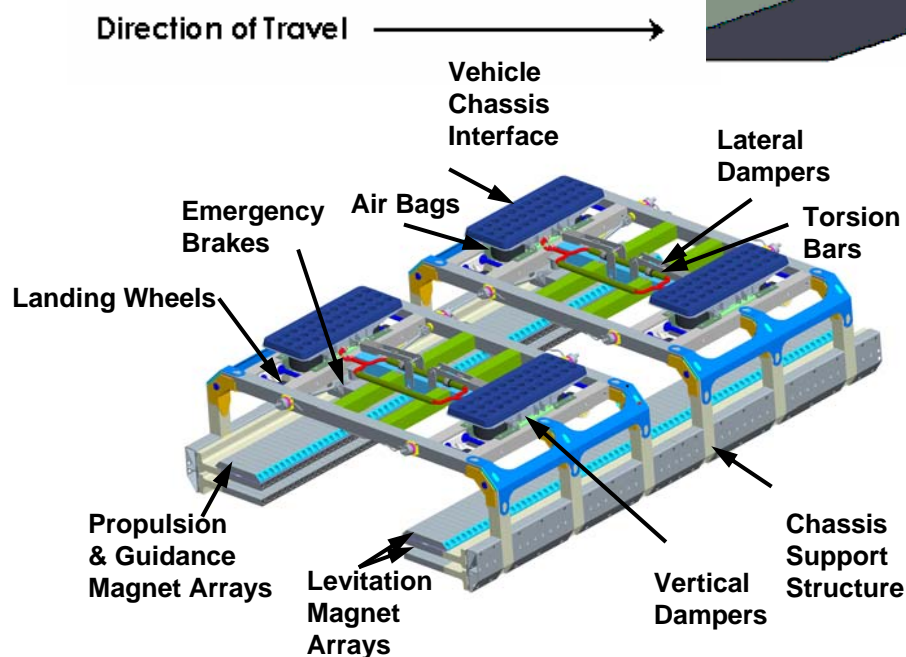
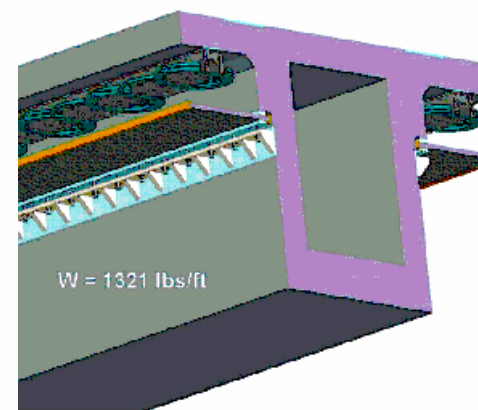
**Everybody Wins; Economy Thrives, Business Flourish and
We all Breathe Easier**

"Americanized" Maglev Technology an Entirely California Enterprise

- Halbach Arrays Developed at Lawrence Livermore Labs
- Livermore Scientists Use Halbach Arrays in Inductrack Technology
- General Atomics (GA) of San Diego Licenses Inductrack
- General Atomics Builds First, Full-Scale System of Electro-Dynamically Suspended Maglev
- GA Initiates New, Less Expensive Guideway Manufacturing Approaches



"Hybrid Girder" Guideway



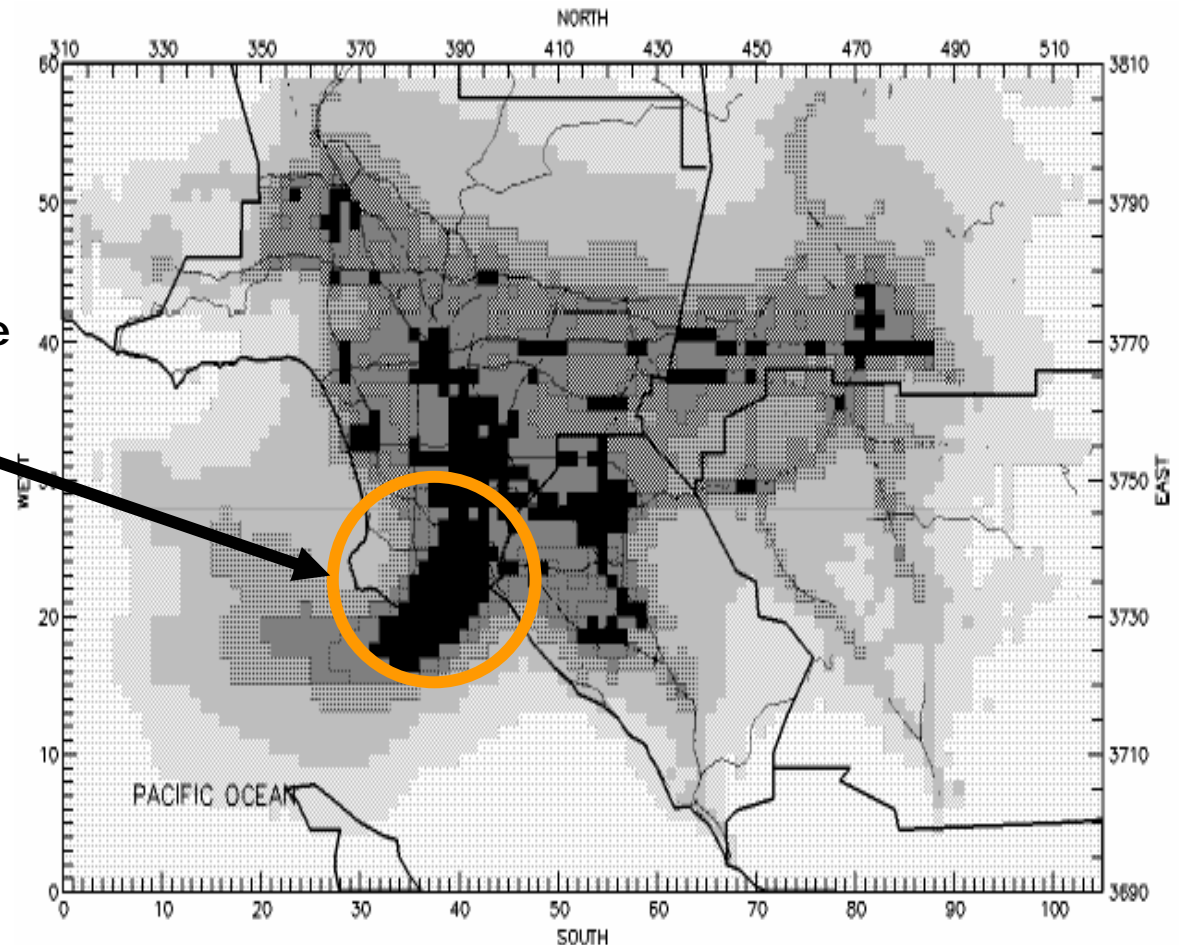
First Application of ECCO Conveyor Technology Connects the Port's Terminals to Present and Planned ICTFs*

- Due To Increased Attention to the Million+ Truck Trips Per Year Moving Containers From the Gates of the Terminals to the Proposed New BNSF ICTF Plus the Current Truck Traffic to the Existing UP ICTF, the Opportunity to Put the First Phase of the ECCO System Has Materialized.
- ECCO Eliminates Short Haul Trucking From Terminal to Alameda Corridor ICTF's and Railheads.
- Increases Utilization of Alameda Corridor
- Provides a Feeder System to Get Containers Out of the Port that Will Eventually be Part of Larger and More Comprehensive ECCO Freight System

***Contract with GA/Port Los Angeles**

ECCO Utilizes Clean Stationary Electrical Power Source Rather Than On-Board Polluting Diesels

According to Participants
of Town-Hall Meetings,
Diesel Particulate
Emissions (DPEs) Produce
a "Death Zone"



Children Should Not Have to Pay the Excessive Environmental Cost of Traditional Transportation



Besides Eliminating DPEs, Cargo Maglev brings Many Improvements Over Rail and Truck

- ✿ **Replaces Steel Wheels with Arrays of Magnets**
 - ✦ Frictionless, Contact Free, Eliminates Noise and Vibration
 - ✦ Reduced Container Impact Area (4 cm² for Rail vs. 40000 cm² for Maglev)
Reduces Maintenance Costs and Allows Guideway Elevation
- ✿ **Uses Levitation Magnets for Linear Synchronous Motor (LSM) Traction**
 - ✦ Allows for Many “Passive” Carriages on a “Active” Guideway
 - ✦ Guideway Activated Only When Carriage is Present
 - ✦ No Need for Dangerous “Third Rail” Power Pickup or Overhead Wires
- ✿ **Small Footprint Produces Many options for Rights of way in Congested Urban Areas. Able to Climb 10% Grades (Cajon Pass)**
- ✿ **Computer Controlled and Elevated for Container Security**
- ✿ **“Rolling Stock” Built into the System, No Shortages or Scheduling**
- ✿ **Utilizes Existing Rail Load/Off-Load Equipment, Processes, and Labor Crews**

ECCO is Compatible with Existing Terminal Processes and Compliments Rail and Truck Systems

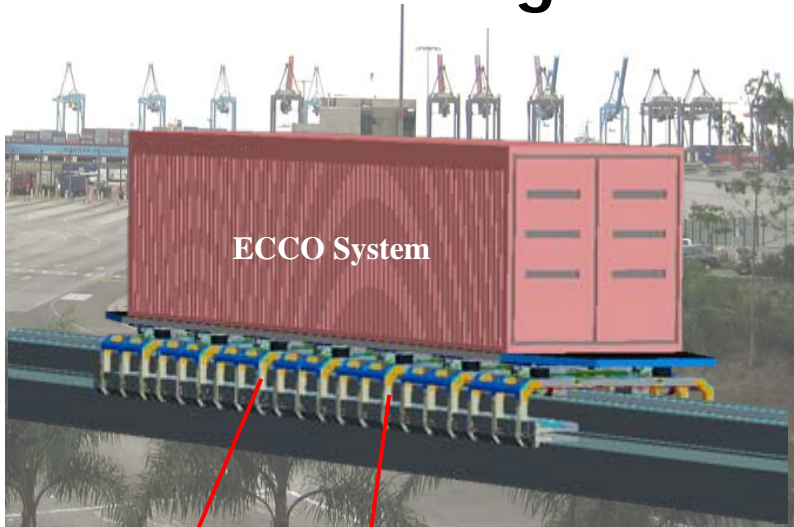


LA Port Electric Cargo Conveyor Project



- ✦ LA Port Contracted GA Teamed With CSULB to Evaluate a 5-mile Maglev Demonstration System Connecting Terminal Island With the ICTF:
 - ✦ Requirements
 - ✦ Conceptual Design
 - ✦ ROM Construction and O&M Cost
 - ✦ ROM Project Schedule
- ✦ Currently establishing system requirements

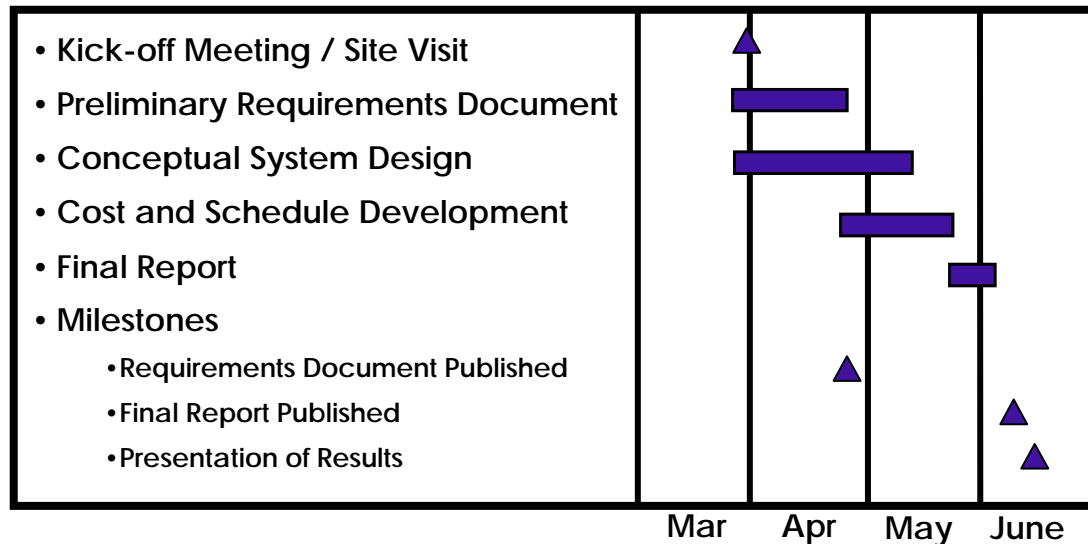
Electric Cargo Conveyor (ECCO) for Port of LA



- ✦ Quiet, all-electric system
- ✦ All-weather operation
- ✦ Steep-grade capability
- ✦ Tight turning radius
- ✦ Low O&M cost
- ✦ Safe, wrap-around design
- ✦ High capacity



Project Study Schedule



- The study will be completed in June 2006 with cost and schedule study results
- Costs are strongly dependent on route and capacity (FTA urban passenger maglev study showed range of \$20M/mile to \$88M/mile).

Over Half the Cargo Coming into Port of LA/LB Passes Through Southern CA for Rail Shipment to Rest of U.S.

-  **Extend ECCO Freight System to Inland Empire Warehouses and Trans-shippers, and on to Railheads at Victorville (BNSF) and Beaumont (UP)**
-  **Opens Southern California Infrastructure for Commuters, and Local Deliveries for Local Manufacturing Base and Commercial Centers**
 -  **Significant Reduction in DPEs due to Reduced Container Traffic and Less Truck Idling**
 -  **Slows Required, Expensive Freeway Expansion**
 -  **Improves Commute Times to Reduce Productivity Losses in the Billions of Dollars per Year**
-  **One ECCO Bidirectional Guideway is Capable of Handling 10 Year's Growth in Container Traffic**

Proposed Freight Maglev Routes

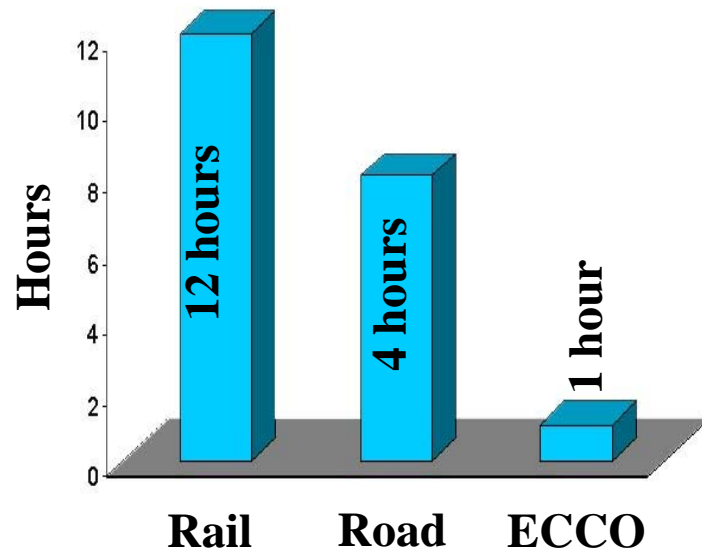


El Cajon Pass



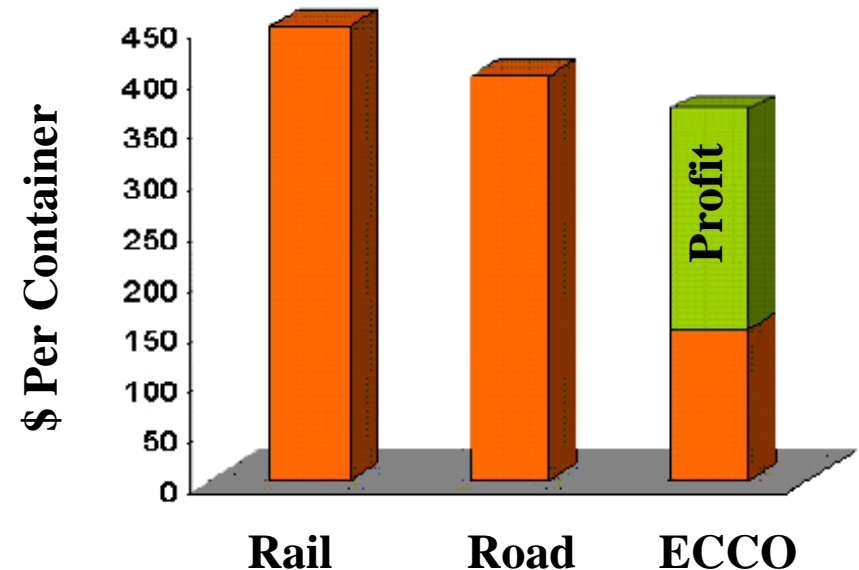
ECCO Offers Exceptional Transit Times and The Lowest Operating Costs

Transit Time From Port to Inland Trans-Loader Facilities



One way Trip

Estimated Transport Cost Port to Inland Trans-Loader Facilities



All include one lift on and one lift off

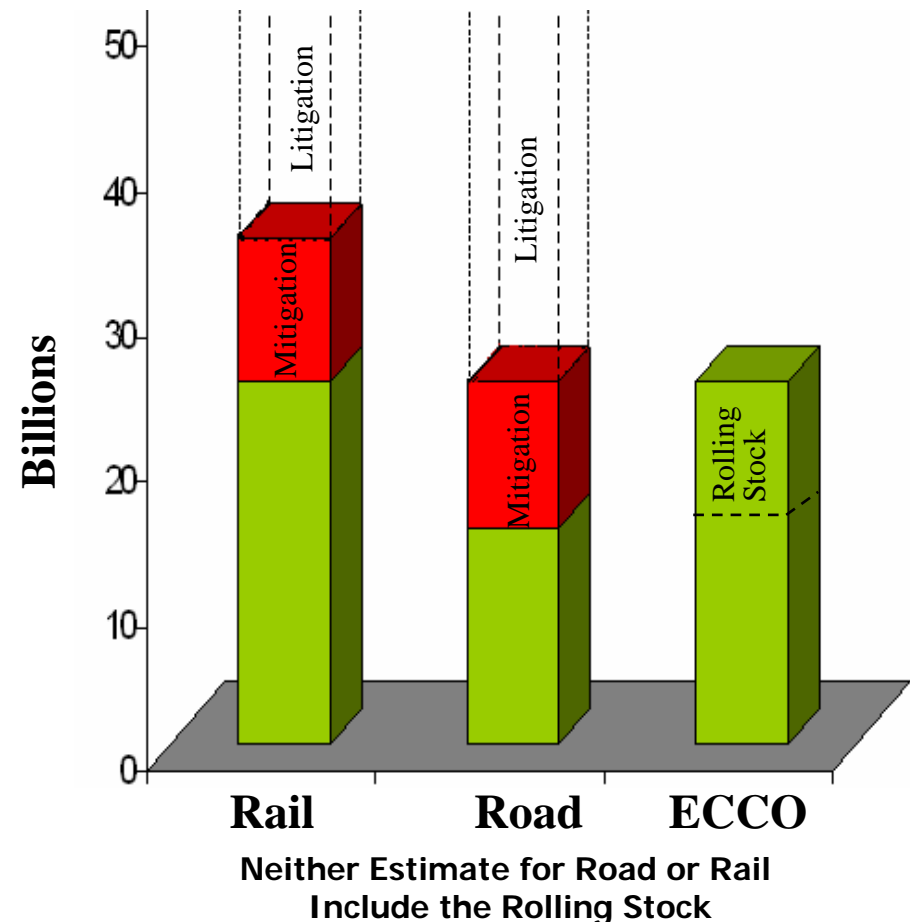
ECCO Capital Costs are Competitive with Expansions of Other Modes of Goods Movement

- Initial Estimates are that ECCO Capital Cost is Within Range of Other Modal Upgrades, While Offering Better Transit Time, Lower Operating Costs, no Pollution and Other Benefits

Capital Cost Estimates:

- ECCO (Freight Maglev) - Data from TRI
- Rail - Alameda Like Corridor Based On Construction Cost of Alameda Corridor- Data from Alameda Corridor/SCAG
- Road - Truck Expressway/Lanes Based on Cost of Proposed I-710 Truck Expressway

Estimated Capital Cost for Corridors to Inland Transshipment Facilities





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EDITORIAL

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Let us have MagLev

A little psychology gets us on board for this port pollution solution.

State Sen. Alan Lowenthal, who in the real world once was a professor of psychology, knows how to psych out members of an editorial board. In legislative matters we are a hard sell, but when it comes to trains, we are suckers.

Especially trains that would run on magnetic levitation and whisk away port cargo without clatter or exhaust fumes, and without crowding us off the freeways. That's Lowenthal's latest pitch, and we are just about ready to sign up.

First, of course, we should try to figure out how to pay for it. The price, roughly, is \$25 billion, which is a chunk, even in a big state like California. But the concept's originators, at Cal State Long Beach's Center for the Commercial Deployment of Transportation Technologies, say it may not be as bad as it seems.

The idea would be to build a dedicated freight corridor between the twin ports of L.A. and Long Beach and a transfer facility inland, at Victorville, for containerized cargo bound for other parts of the country.

The construction costs of a high-speed magnetic-levitation (MagLev) system would be not much more than expanded conventional rail, and substantially less

than adding truck expressway lanes to the 710 freeway. Operating costs would be two-thirds less than trucks, and nearly 40 percent less than conventional rail. The trip to Victorville would take a day by truck, 1 to 3 days by train, or 90 minutes by MagLev.

The sleek-looking MagLev cargo trains would ride a "cushion" of magnetic levitation at up to 90 miles an hour, almost without sound, with zero emissions, on an elevated guideway with a small footprint. Envious commuters should have it so good.

Lowenthal concedes there are many questions and obstacles before assuming that the vision of MagLev would become reality in the cargo-clogged harbor area. Yes, but we can hardly suppress our enthusiasm, and the alternative of dirty diesel trains and trucks is a recurring nightmare. Lowenthal's psychology is working well.

By the way, he also is pitching three pieces of legislation that would regulate port-area truck emissions; put a cap on total port emissions; and slap a fee on cargo containers to help pay for better air quality, security and infrastructure.

Maybe we'll feel like confronting those realities later. First, we'll indulge ourselves in a little fantasizing about MagLev.

