

MAGLEV RAPID CONTAINER MOVER

Solution to Regional Cargo Growth and Congestion



**Center for the Commercial Deployment of Transportation Technologies
CCDoTT Presentations • March 15-16, 2005 • Washington, DC**

Challenge: Accommodate Container Traffic Growth Without Port/Regional Infrastructure Meltdown

- Local, state and national economies increasingly affected by operational constraints at LA ports and on regional transport infrastructure
 - Terminals - container storage and labor constraints
 - Trucking - driver shortage, road congestion and pollution
 - Rail - yard congestion, equipment and labor problems
- Container Traffic at LA/LB projected to grow from 13 million TEU in 2004 to 18+ million TEU in 2010, and further growth in the next decade
- Additional containers will strain region's road and rail network
 - Larger vessels (8,000+ TEU) create container surges onto road and rail
 - Trucks congest highways intended for commuters and local deliveries
 - Container trains compete with bulk cargo for rail space
 - Pollution jeopardizes quality of life at port and along transport corridors
- Recent initiatives (PierPass, etc.) and proposed investment in regional road/rail infrastructure mitigate **but do not fully address** the challenge

Barrage of Bills Aimed at the Port's Pollution

- SB 764 would put a **cap on air pollution** at the L.A.- Long Beach ports **no matter how much trade through the ports increases**. to establish an emission baseline for 2001.
- SB 760 would charge terminal operators a **\$30 per-TEU fee** ... the AQMD would spend its portion on projects to **mitigate pollution** caused by goods movement.
- AB 2650 required terminals to keep the **waiting time ... below 30 minutes** or face a **\$250-per-truck fine**.
- SB 761 requires that terminals keep their **turn-time below 60 minutes** or **face the fine**.
- AB 1101 would define “**diesel magnet**” areas calls for regional air quality management districts in the state to require those areas to **comply with the same standards imposed on traditional stationary sources**.
- AB 1276, would require the State Department of Transportation to identify intermodal corridors of economic significance and appoint a task force to develop a **strategy for avoiding congestion** on those corridors.
- AB 888 would authorize the South Coast Air Quality Management District to establish a rail yard **equipment emission-reduction program** replace the existing equipment with clean technologies.
- SB 459 would authorize the South Coast AQMD to adopt a locomotive emission impact mitigation fee to be imposed on railroads. **The fee would be used to mitigate air pollution.**
- AB 1222 would require the state Air Resources Board to encourage repair, maintenance or **replacement of “high-polluting locomotives”**....

Solution: Rapid Container Mover (RCM)

- ❑ State-of-the-Art **Dedicated Express Container Transport** from the Ports to an inland container terminal at Victorville
- ❑ Increased speed and capacity **accommodates** port growth and efficiency, with minimal impact on increased infrastructure cost and footprint
- ❑ **Separates** inland container flows from other transport users - commuters, local deliveries, bulk cargoes, etc.
 - Removes 70% of Today's Container Traffic from LA Freeway
 - Reduces Future Freeway Expansion Costs
 - Alleviates Commuter and Military Surge Congestion
- ❑ Potential processing location for **military movement**
- ❑ **Connects** to the national intermodal rail network at Victorville
- ❑ Container transfer/storage utilizing **lower cost land/facilities**
- ❑ Operates With **No Air or Noise Pollution**

What is the RCM?

- ❑ Utilizes Frictionless Magnetic Bearing Technology (MagLev)
- ❑ Off-the-shelf technology - TransRapid's MagLev technology already proven in Germany and China
- ❑ Incorporates CCDoTT's EMT (Efficient Marine Terminal) and IIC (Intermodal Interface Center) concepts
- ❑ Highest possible speed (up to 90 mph)
- ❑ Efficient use of power
- ❑ Non-Polluting (zero air and noise pollution)
- ❑ Raised track, small footprint
- ❑ Can climb 6 degree inclines (El Cajon pass) compared with traditional rail that can only climb 3 degrees

How Does RCM Work?

- Utilizes Existing TransRapid Inc. Technology Proven in Germany and China.
- Incorporates CCDoTT's EMT (Efficient Marine Terminal) and IIC (Intermodal Interface Center) Concepts



Click box to
download TRI
video

(2 minutes, 39
seconds running
time).

RCM Technical and Economic Feasibility

- **OrangeLine Authority with TransRapid (TRI) Have Provided:**
 - Projected Rights of Way for RCM
 - Preliminary Design and Costs of RCM from lessons learned from TRI's Shanghai System
 - Projected energy and operating costs

- **Automation Associates Has Provided:**
 - 1st Order Model of Port of LA/LB
 - 1st Order Model of Victorville Intermodal
 - Model of Existing and Projected Corridor (Road, Rail, and RCM) between Port and Intermodal
 - Integrated Model is being populated and calibrated by Manalytics and CSULB

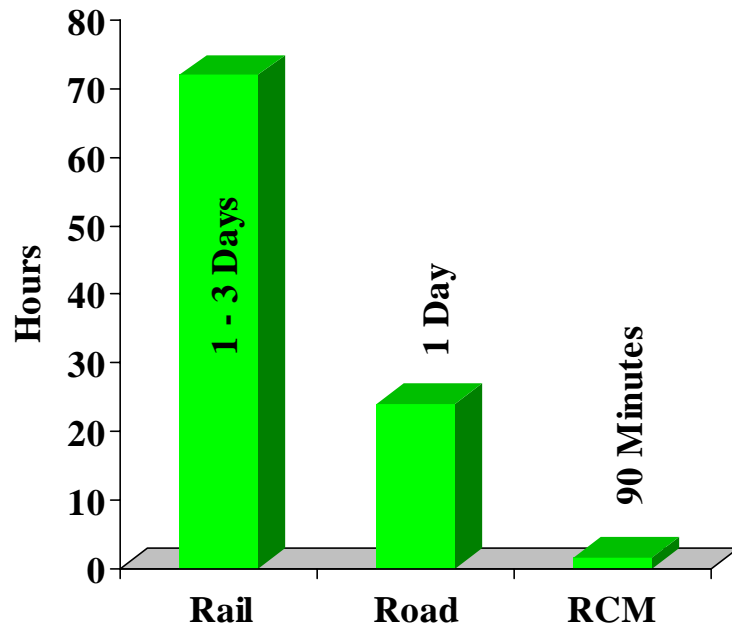
- **Manalytics Is Providing:**
 - Data on Existing and Projected Container Traffic into Port and on to Both Local and Inland Intermodal Destinations
 - Cost Comparison of Container Movement through Corridor by Various Means
 - Is Providing Capacity Information Relative to Southern California Infrastructure for Model Calibration

- **CSULB College of Engineering is Integrating the Information to Form Technical and Economic Assessments of RCM Solutions to Port Issues**

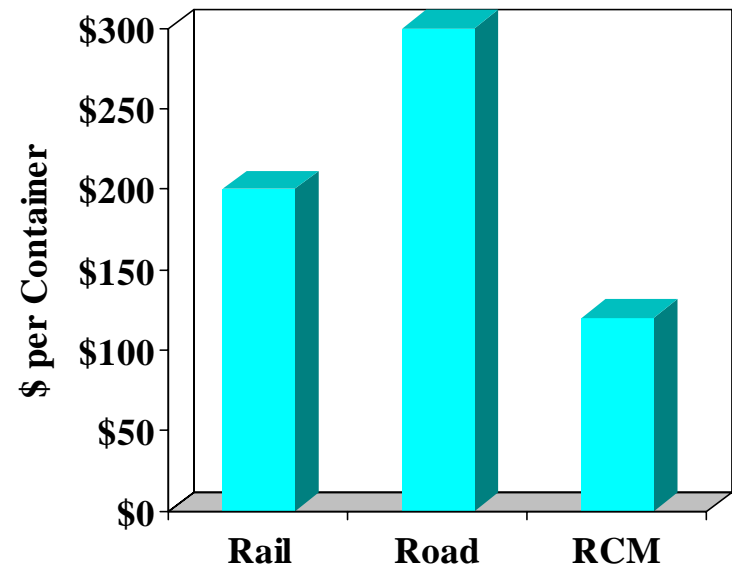
RCM Offers Exceptional 90 Minutes Transit And The Lowest Operating Costs

- Container owners will choose the RCM due to time and cost savings

Transit Time from Port to Victorville

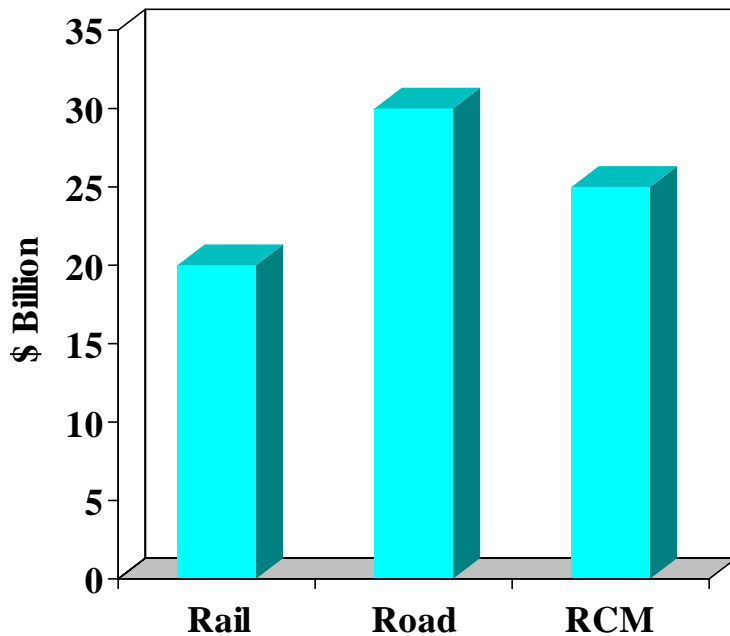


Estimated Operating Costs Port to Victorville



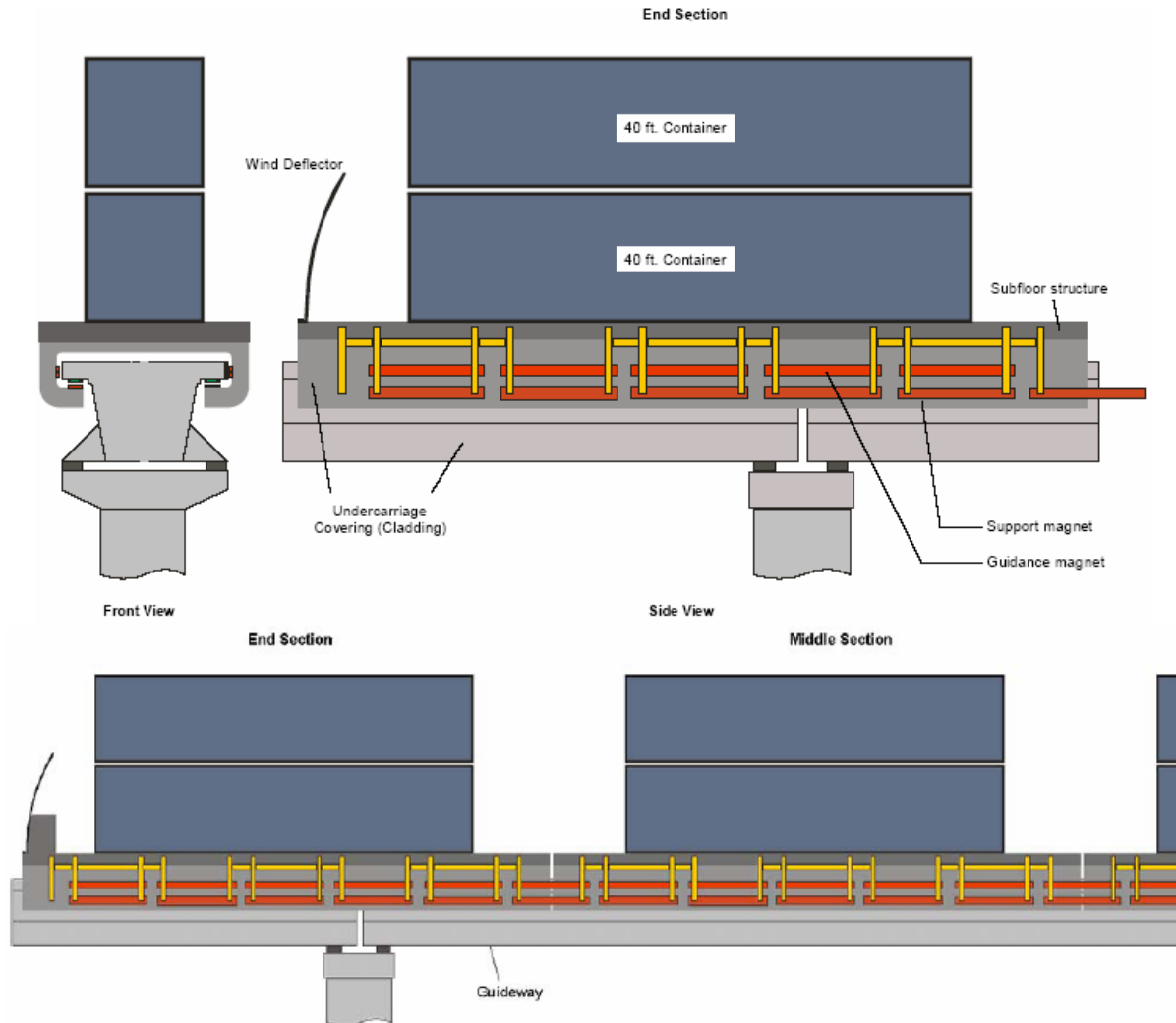
RCM Capital Costs Are Competitive With Other Modes

*Estimated Capital Cost For
Corridors to Victorville*



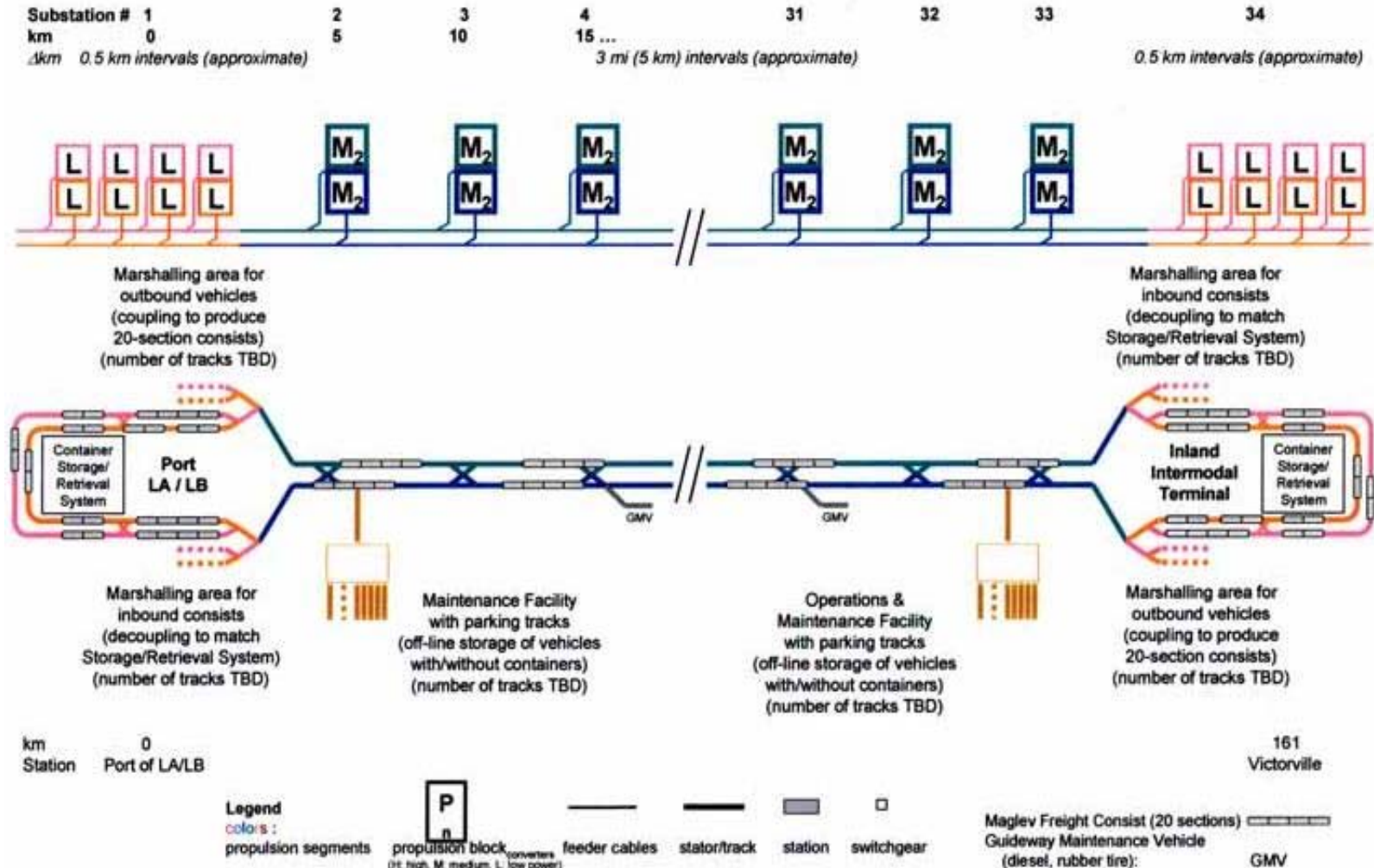
- Initial estimates are that RCM capital cost is within range of other modal upgrades, while offering better transit time, lower operating costs, zero pollution and other benefits
- Capital cost estimates:
 - RCM - data from TransRapid
 - Rail - Alameda like corridor based on construction cost of Alameda Corridor
 - Road - truck expressway/lanes based on cost of proposed I-710 truck expressway

TransRapid Freight Vehicle Concept (Double-Stacked Configuration)



CCDoTT Southern California Freight initiative: TransRapid RCM System

Inland Empire Route: Track Scheme / Propulsion Layout (schematic layout, not to scale)



RCM Compliments Existing Port Infrastructure

- Assessing RCM Compatibility with Existing and Planned Infrastructure Upgrades
- Use AAI model to assess traffic flow and how changes in Pier hours of operation will impact traffic congestion.
 - Extended Gate Hours
 - Appointments
 - Dedicated Truck Lanes
 - Shuttle Trains

CSULB President Maxson's Support of RCM

- Approval to Publicize RCM off campus
- In future we would like to have a High Speed Container Corridor Symposium at CSULB
- Introduction to
 - Long Beach Mayor Beverly O'Neill
 - Los Angeles Councilwoman Janis Hahn
 - California State Senator Alan Lowenthal
 - California Assemblywoman Jennifer Oropeza *
 - Congresswoman Juanita Millender-McDonald

* Chairman California State Assembly Transportation Chair

The Way Ahead

- University Support
- Determine Key Support Required
- Brief Key Individuals
- 2004 Study Supports Feasibility, Define Detailed Phase of Study
 - Potential Funding Structures (e.g., Alameda Corridor Model ...) and Propose Construction Teams (e.g., TRI and Parsons-Brinkerhoff...)
 - Maglev Projection onto Existing on Port Infrastructure
 - Run AAI Port Model to Answer Potential Economic Issues
- Obtain Local, State and Federal Government Backing and Support