

Zero Emissions Container Mover System Evaluation *Status Update*

presented to

The Port of Los Angeles Public Meeting

September 6, 2007



Project Goals

- **Evaluate Zero-Emission Cargo Conveyance Technologies for Possible Applications at the Ports of Los Angeles and Long Beach**
 - Analyze systems for short-haul applicability (Ports to ICTF / proposed SCIG)
 - Capacity of $\geq 5,000$ containers per day
- **Identify Technologies That Are Market Ready and Technically Appropriate for Fully-Functioning Service Demonstration**



Project Scope of Work

- **Task 1: Conduct Technology Overview**
- **Task 2: Establish Detailed Scenarios**
- **Task 3: Define Performance Specifications and Evaluate Systems in Comparison to Baseline Technologies**
- **Task 4: Evaluate Implementation Tools and Issues**
- **Task 5: *Optional* - Development of RFP for Demonstration**



Baseline Technologies

- Conventional drayage with cleaner 2007 Diesel Emissions Trucks
- Conventional drayage with LNG trucks
- Conventional drayage with electric trucks



Task 1: Conduct Technology Overview

Candidate Technologies

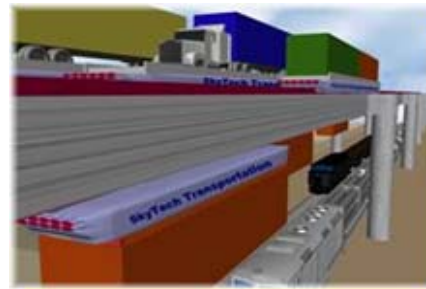
- **Identify available Technologies**
 - **Industry Knowledge**
 - **Vendors Identifying Themselves to Ports or Consultants.**
- **Information Compiled via Research and Interviews**



Task 1: Conduct Technology Overview

14 Alternative Technology Proponents

- **Electric Cargo Conveyor System-** *General Atomics*
- **Environmental Mitigation & Mobility Initiative-** *American Maglev Technology*
- **Magnetic Levitation-** *Transrapid*
- **Safe Freight Shuttle-** *Freight Shuttle Dev. Corp.*
- **Air Rail-** *SkyTech Corporation*
- **Southern California Guideway-** *Whelan & Assoc.*
- **Cargo Rail-** *MegaRail Transportation Systems*
- **Rail Motor-** *Launch Point Technologies*
- **LIM-Rail and MagRail-** *Innovative Transportation Systems*
- **Automated Shuttle Car System-** *Automated Shuttle Car System*
- **Container Port Skid-** *Tubular Rail*
- **Container-Express-** *CitiCar*
- **AirHeLo-** *Teeco International*
- **Aeroscraft-** *Worldwide Aeros Corporation*



Task 1: Conduct Technology Overview

Two Categories of Criteria

Firm Capabilities

- **Has developed a marine container transportation system that can reach prototype in 5 years**
- **Proponent has built “proof of concept” prototype**
- **Proponent has identified strategic partners**
- **Has developed other commercially viable transportation products**
- **Has a marine terminal transportation business plan**
- **Can provide at least 2 years of financial statements**

Feasibility of Technology

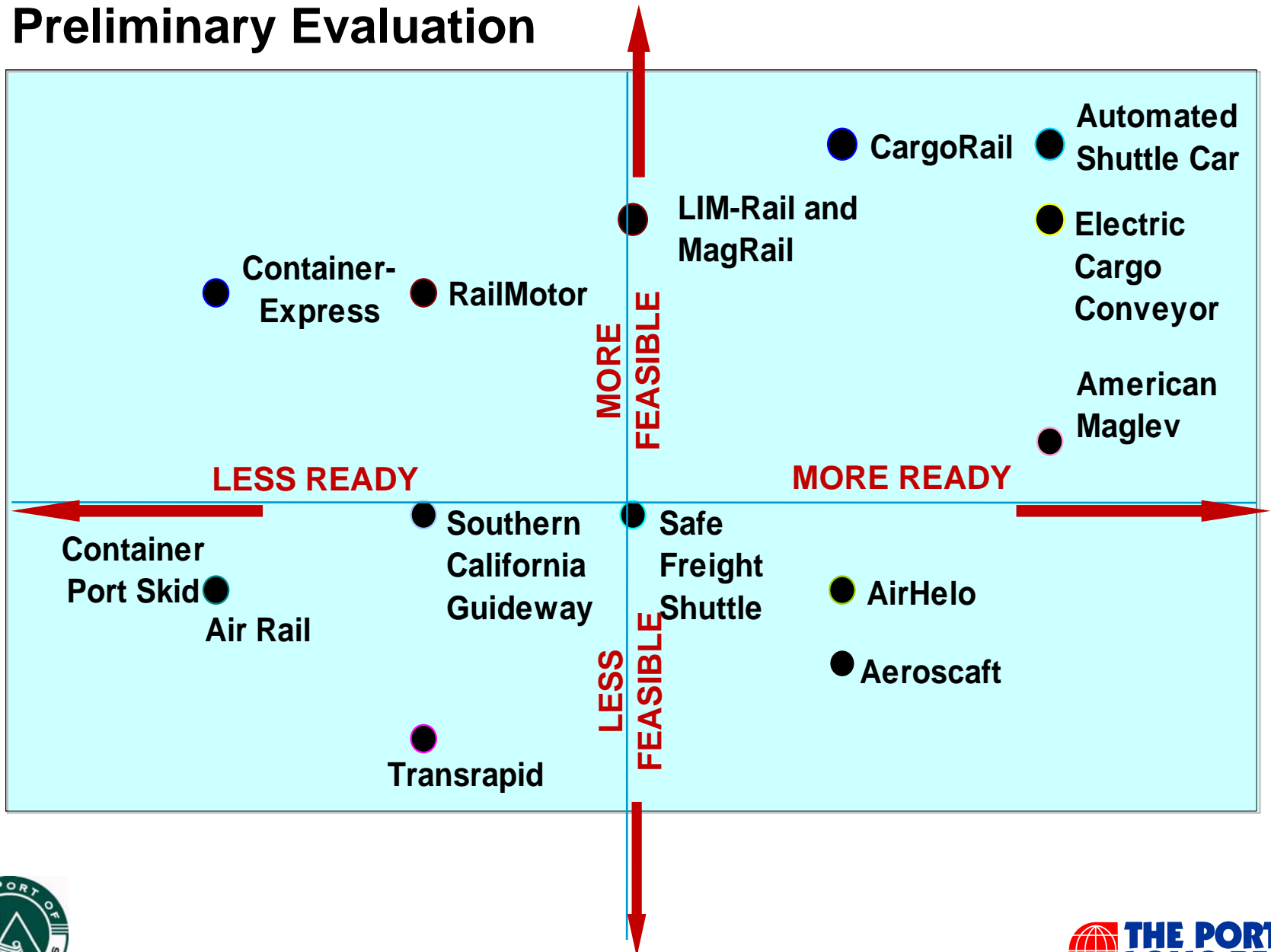
- **Using commercially proven systems or components**
- **Status of technology concept:**
 - (a) conceptual idea or**
 - (b) conceptual design, existing design, existing components and/or existing system:**
 - **Propulsion system**
 - **Command and control**
 - **Loading and unloading**
 - **Vehicles**
 - **Guideway switching**
 - **Sorting and storage**
- **Operating plan**
- **Zero emission technology**



Task 1: Conduct Technology Overview

Preliminary Evaluation

Feasibility of Technology



Market Readiness

Next Steps

- **Develop Performance Specification to Guide Detailed Analysis and Comparison of Technologies to Baseline Technologies**
- **Further Task 1 Analysis to Assess Application-Specific Engineering and Costs**
- **Compare Alternative Technologies with Conventional / Clean Truck Drayage Technologies**
 - **Costs**
 - **Emissions**
 - **Congestion**

