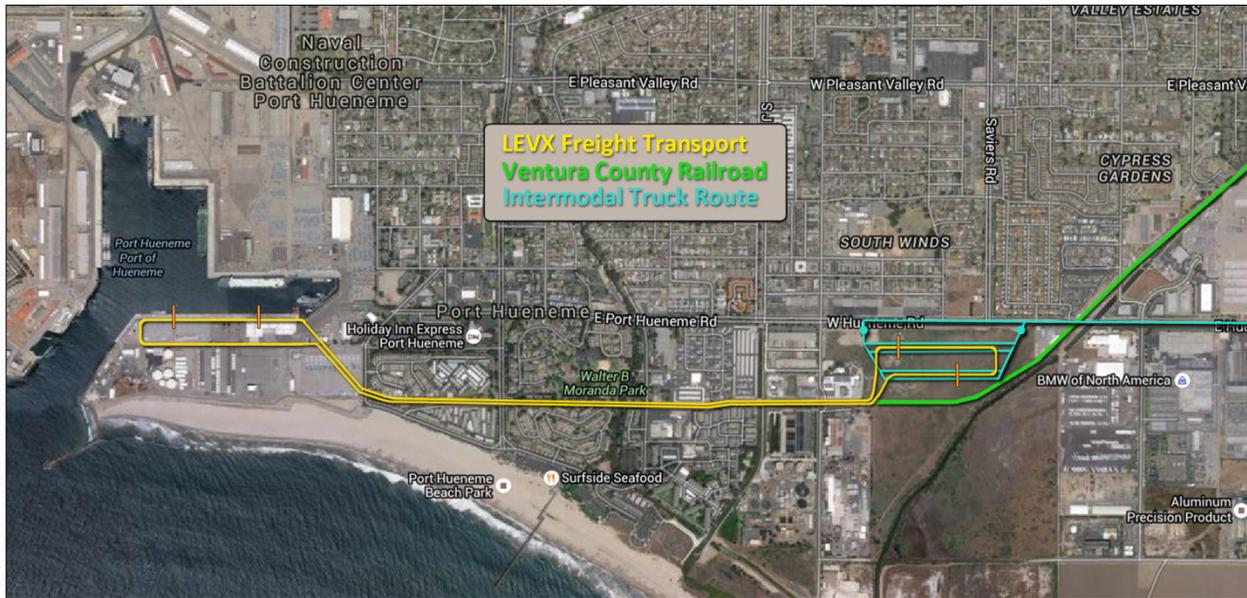


LEVX® Intermodal Freight Transport System: Port of Hueneme



Pilot Project Ideas
California Sustainable Freight Action Plan

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California Sustainable Freight Action Plan: Pilot Project Ideas

1. Contact Information

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2. Project Title

Zero Emission LEVX® Intermodal Freight Transport System: **Port of Hueneme**

3. Location of project

Port of Hueneme, California marine terminal extending along 1 mile of existing Ventura County Railroad right of way to a currently undeveloped, Port owned 32 acre distribution site on East Hueneme Road.

4. Executive Summary

The Port of Hueneme's 2020 Strategic Plan outlines a goal for growth by expanding its operations to include containerized freight within focused niche markets including fruit and vegetable imports and exports. Magna Force, Inc. proposes a pilot project that would include a LEVX® maglev freight transport system and the development of a new intermodal freight facility on vacant Port owned property approximately 1 mile from the existing marine terminal.

This pilot project site can showcase the integration of a full spectrum of advanced technologies demonstrating the evolution of a modernized intermodal port concept. The LEVX® Zero Emission Intermodal Freight Transport System (LIFT System) will provide the core technology linking the congestion free wharf and the proposed nearby intermodal freight facility.

5. Detailed description:

Advanced technologies: LEVX® advanced technologies combine time tested, passive, magnetic suspension with highly efficient LEVX® propulsion and braking. The LEVX® system will also take advantage of state of the art energy storage, electric motor, power management and renewable energy technologies.

Alternative Fuels: LEVX® systems can be configured with any desired fuel source. Zero emission options include onboard battery, fuel cell and solar combinations. Near zero options include battery systems that are recharged in transit with onboard CNG micro turbine generators. Pilot project development could also include on site renewable energy supplies such as solar and wind power.

Freight and fuel infrastructure: Light weight, grade separated fixed guideway civil structure with LEVX® components installed and LEVX® freight carriages. Additionally:

- power supply for battery charging
- solar, wind or other infrastructure depending on the choices of the energy sources
- power supply for refrigerated containers
- new intermodal facility distribution yard development including gates and fencing
- electric gantry crane installation and power supply

Local economic development: Support Port of Hueneme's goals for growth implementing container freight movement through the port to support the future of Ventura County industries and agriculture. Focus on sea based transport of perishable goods and farm produce to further enhance the local economy.

New family wage job creation during construction and manufacturing activities for the pilot project followed by new ongoing jobs in the marine terminal, the new intermodal freight facility and for the operation of LEVX® zero emission LIFT System. While LEVX® transportation systems may be fully automated; phase 1 of this pilot project is planned to include individual carriage operators (drivers).

Advance goal of improving freight efficiency: Freight efficiency requires minimizing the handling, transferring and storage of freight containers. LEVX® zero emission LIFT System's bidirectional infrastructure is capable of transporting an initial 115,000 TEUs a year per port crane-shift. This pilot project is designed to:

- prevent drayage truck backups at the port's singular gate
- minimize container stacking at marine terminals
- transfer freight directly to and from the LIFT System without stacking whenever possible
- free up land uses to support the growth of other port business

- promote utilization of the nearby railroad connection

Transitioning to zero emission technology: Highly efficient LEVX® carriages allow for zero or near zero emission operation to extend the working range of current energy technologies.

Increase competitiveness of California freight system: A pilot project in a smaller new port market will showcase high capacity technology effectiveness and benefits to the wider California freight system. Increasing the velocity of freight movement through a port facility will attract freight owners who prefer to receive their shipments as quickly as possible. High velocity freight movement will also be essential to increasing the market for farm fresh produce. Highly efficient operations may also serve to lower the cost of freight.

6. Estimated cost for implementation and existing funding commitments:

Magna Force has received preliminary commitments to fund the 3.8 mile guideway and up to 12 freight carriages from LEVX® supporters. A share of the intermodal freight facility and gate development could also be potentially funded by LEVX® supporters with an expectation for a long term payback.

7. Timeline

Magna Force is ready to begin site engineering for the pilot project.

Site engineering, site preparedness and any required environmental studies must be completed early in the timeline.

Construction time for the guideway and manufacturing of carriages is estimated to span 1 year to 1.5 years with simultaneous efforts to develop the distribution yard.

Work additional pilot projects utilizing the same space will need to be coordinated and placed in a detailed timeline for the overall effort.

8. Measure of progress toward meeting goals over time

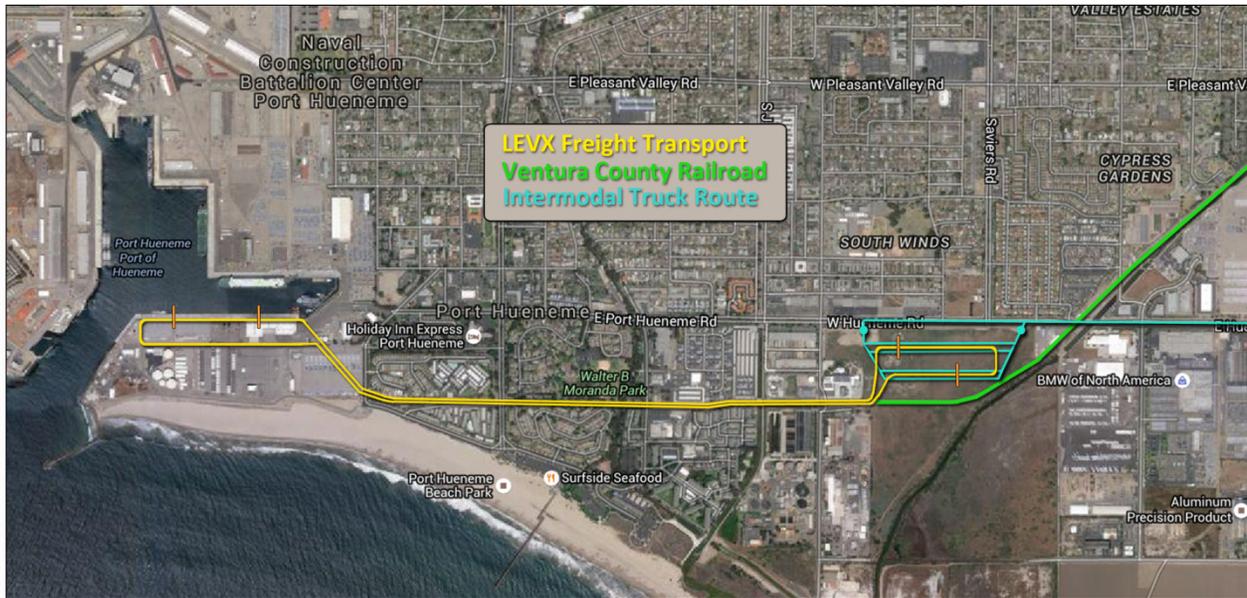
- Measure the environmental benefits of a zero emission transport system as compared to conventional truck transport.
- Measure container/freight throughput at the distribution yard, year over year as a measure of economic growth

- Track time required to handle and store container freight within the port and distribution yard
- Track new job creation within the port and distribution yard related to the pilot project
- Meter electrical usage transporting containers via LEVX® versus comparable diesel truck miles and idle time to measure the benefits of high efficiency zero emission technology in the environment
- comparative cost analysis of electrical versus fueled energy supplies
- Measure battery life and range
- Measure benefits of coexisting technology pilot projects for a total impact

9. Potential roles of interagency partners to support the projects implementation

- Assistance with permitting, regulatory issues, requirements for environmental studies
- Agency support with identifying funding programs/grant writing including federal dollars to supplement private investment in the overall effort
- Progress monitoring and study, promotion and report writing, marketing of pilot project
- Expertise and advisory services in multiple arenas for pilot project
- Support for solar or other renewable energy infrastructure at site
- Oversight and coordination of potentially multiple pilot projects at one location

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Sustainable Transportation Infrastructure for the Future

Sustainable development is a principal objective of all countries. Efficient transportation, industrial development and innovation are critical prerequisites to reducing poverty, creating decent jobs, ensuring food, energy and water security, delivering sustainable goods and services and raising living standards for all.

Transportation infrastructure is the foundation that connects a nation's businesses, communities, and people, driving its economy and improving quality of life of its citizen's. For an economy to be competitive in today's world it will need a first class transportation infrastructure system – one that will move people and goods efficiently and at reasonable cost, one that will conserve vital energy resources and one that can reverse the environmental and health impacts caused by today's transportation options.

Until now, our transportation systems have been unsustainable, adding to rapid global resource depletion, pollution, degradation of ecosystems and the threat of climate change, with potentially irreversible and disastrous consequences. To reduce exposure to the economic and environmental risks posed by the depletion of natural resources, all future industrial growth that developing countries are embarking upon needs to be accompanied by enhanced efforts to increase the productive use of natural resources and reduce wastes, pollution and emissions.

LEVX® freight and passenger transport systems have been designed using simplified, friction free, mechanical components that are both technologically and economically feasible to decouple the relationship between economic growth and resource use and support essential sustainability. LEVX® transport systems enable the efficient use of land and raw materials with ultra-lightweight overhead guideway infrastructure that engineers expect to last up to 50% longer than conventional civil structures. LEVX® carriages slash transport energy requirements by as much as 95% as well as reducing maintenance and waste by eliminating weight bearing wheels and replacing them with non-wearing, friction free suspension, propulsion and braking components.

The Port of Hueneme, California

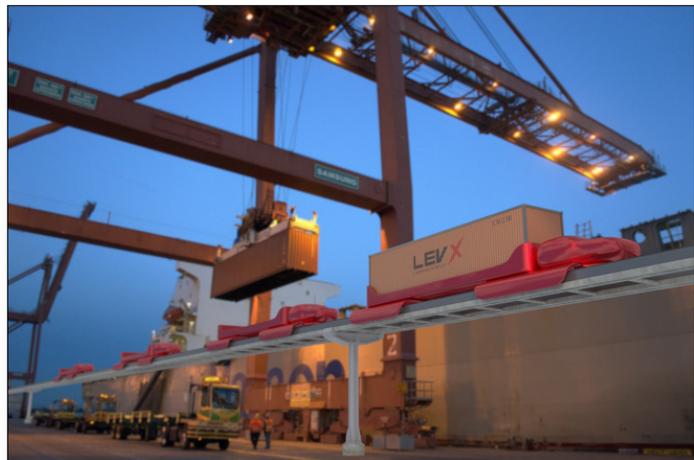
The Port of Hueneme is limited to a 120 acre marine terminal owned and operated by the Oxnard Harbor District. The Port is also working to expand the flexibility of agreements with Naval Base Ventura County (NBVC) regarding the use of a 24 acre Joint Use Terminal adjacent to the marine terminal and 130 acres within the naval base under an out-lease agreement. However, operational risks to both the naval base and port customers must be mitigated.

Working with a fixed terminal and wharf area as well as limited adjacent expansion opportunities, the Port of Hueneme is focused on the strategic integration of on-terminal infrastructure with off-terminal support facilities. These facilities aspire to minimize the impacts to the adjacent community while supporting high-velocity operations that will be essential for sustaining Port growth.

A LEVX® Intermodal Freight Transport System (LIFT System) could further the Port's key objectives and support ongoing growth in the region by freeing up the port's land use and extending connectivity to a new, near port, intermodal transfer facility. Routing the LEVX® zero emission LIFT System along an existing railroad right of way will relieve surface street and port gate congestion as the volume of freight passing through the seaport continues to grow.

Pilot Project Phase 1 – Establishing Zero Emission Circulating Intermodal Service

Phase 1 of the LEVX® zero emission LIFT System development would provide a volume efficient, circulating traffic pattern between the marine terminal and a near port intermodal transfer facility to be proposed for vacant port owned land just one mile from the ports current gate. The LEVX® zero emission LIFT System could support the growth of containerized freight movement at the Port of Hueneme by moving containerized and palletized freight immediately away from the wharf to the remote staging area. Future expansion will not require additional guideway infrastructure to be built, rather capacity may be increased by providing additional freight carriages and cranes to the LEVX® zero emission LIFT System.



The LEVX® zero emission LIFT System would be designed to initially handle up to 20 LEVX® carriages between the marine terminal and the nearby intermodal freight facility per hour with a single crane located at each site. The Phase 1 of the LEVX® zero emission LIFT System would include approximately 3.8 lane miles of grade separated guideway and the number of carriages in circulation will depend on the demand for freight movement between sites.

The proposed initial operating capacity for the Port of Hueneme can be estimated using 40 TEUs per hour, an 8 hour shift daily, and 360 days per year or 115,000 TEUs annually. Later phases of the Pilot Project could increase the number of shifts of operation and/or the number of cranes in use as needed.





Hueneme LEVX® Zero Emission LIFT System Estimated Design Capacity

Design capacity for the proposed Hueneme LEVX® zero emission LIFT System operating 3 shifts per day and 360 days per year would yield the transport of over 345,000 TEU's per year. Additionally adding cranes at the wharf and intermodal freight facility would allow for continued unfettered growth of the Port's business within their limited footprint by expanding the estimated annual freight throughput to over 1 million TEU's.

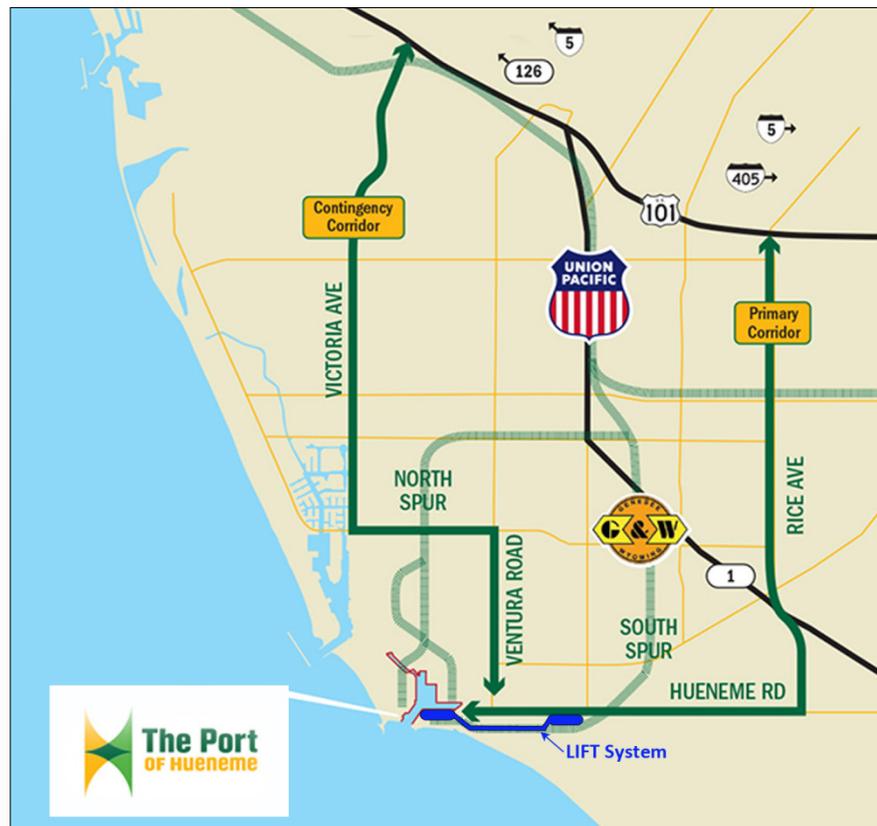
Carriage Trips per Hour Outbound / Inbound	Maximum TEU's Hour	Estimated Annual TEU's 1 shift / 2 shifts / 3 shifts
20 leaving the port Or 10 outbound and 10 inbound	40	115,000 / 230,000 / 345,000
40 leaving the port Or 20 outbound and 20 inbound	80	230,000 / 460,000 / 690,000
60 leaving the port Or 30 outbound and 30 inbound	120	345,000 / 690,000 / 1,035,000

Ideal Location for an Intermodal Freight Facility

The Port of Hueneme is the only commercial deep-water port located between Los Angeles and San Francisco and is protected from severe weather systems by the Channel Islands. The Port's convenient location is ideal for serving California's agricultural heartland and is in the process of reconfiguring and growing its supportive refrigerated warehouse inventory.

Access to the Union Pacific Railroad is provided by Ventura County Railway, a Class III short-line railroad with a 12-mile track operated by Genesee & Wyoming Railroad. However, the current 8 acre switch yard is located north of NBVC. The Port's 2020 Strategic Plan mentions the possible future extension of rail service to its South Terminal in what will become a highly congested area without mitigation.

The Port is also investing in improvements for its designated intermodal trucking routes to support an uncongested connection with Highway 101 and then on to Interstate 5.



The addition of a LEVX® zero emission LIFT System to the Port of Hueneme's transportation plan would serve to:

- Increase the productivity of the Port's land use
- Increase the velocity of the regions freight throughput
- Better manage the flow of freight traffic to and from the Port
- Increase security for both commercial and military operations
- Increase overall capacity and competitiveness
- Support the environmental and energy conservation goals of the Port, region and the State of California

A Constantly Circulating Flow for Maximum Throughput

Preferred LEVX® guideway designs create an efficient grade separated, dedicated and secure closed loop transportation circuit with carriages flowing in a designated direction without interruption or intersections with other traffic or pedestrians.

For example, design capacity for a bidirectional guideway system with LEVX® carriages carrying containerized cargo and traveling ganged together in groups of 4 can convey up to 240 carriages to and from a facility per hour offering a design capacity of 960 TEUs per hour (480 TEUs per direction) or a total of over 8.4 million TEUs annually.



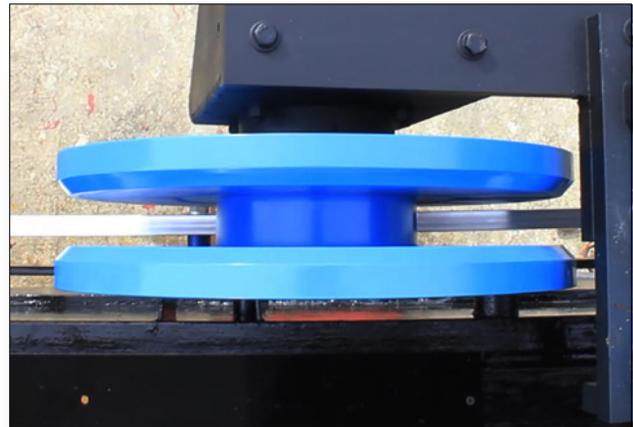
Core Technical Advancements

LEVX® systems have been designed to transform a complex and expensive electricity based concept (maglev) into an elegantly simple mechanically functional design. Looking at it another way, the LEVX design team very purposely converted the educational requirement for building and operating the system from a PhD level to high school education level.



Container transport carriages are held in continuous energy free magnetic suspension above a truly passive guideway (*no electrified third rails, overhead wires or wayside power stations*) utilizing the patented LEVX® magnetic suspension system eliminating the need for heavy wheel and axle components. No energy, linear velocity, sensors or air gap (*the vertical space between levitated carriages and guideway components*) management controls are required for LEVX® carriages to perpetually hover above the guideway. Perpetual defiance of gravity is achieved through the simple magnetic repulsion that naturally occurs between like poles of permanent magnets and provides superior efficiency and lift potential compared to all other maglev configurations.

The frictionless, magnetic suspension distributes the vehicles weight over the length of the LEVX® carriage eliminating the static drag and point contact loading that occurs between weight bearing wheels and rails or road surfaces. No point along the interface between the suspended vehicle and the guideway bears more than 20 pounds per square inch no matter how heavy the load as opposed to the thousands of pounds per square inch transferred to infrastructure through the wheels of conventional rail cars or trucks.



The LEVX® frictionless, non-contact, non-wearing propulsion and dynamic braking system is taken directly from the core technologies utilized in Magna Force's proven industrial power transmission products. Carriage mounted magnetic discs rotate near but not touching an aluminum linear reaction rail mounted in the guideway. The rotation of the magnetic discs produces a powerful forward or backward force against the aluminum reaction rail moving the carriage along the passive guideway. These highly efficient magnetic forces are safely created by eddy currents rather than electromagnetic currents. Carriage speed and directions are controlled by simply adjusting the speed and



direction of rotation of the magnetic discs.



Lowering Costs with Technology

The patented LEVX® technology replaces complex, energy intensive systems with simple mechanical devices. LEVX® freight transport systems are comprised of several core technical advancements that when combined offer achievable and sustainable options for mobility and the environment. LEVX® works to support sustainability by providing significant environmental benefits coupled with low cost implementation and minimized operational and maintenance costs.

Construction costs are lowered:

- Light gauge construction materials
- Longer spans between vertical supports
- Minimal loading spur requirements
- No costly electrified components in the guideway
- No substations, wayside power conditioning equipment, third rails, overhead wires
- Resilient infrastructure with an extended useful life of up to 50% longer than conventional civil structures

Operating costs are lowered:

- Slashed energy requirements
- Optional automated operations
- Localized control systems

Maintenance costs are lowered:

- Non-contact, friction free suspension replaces weight bearing wheels/tires
- Non-contact, friction free propulsion, primary and secondary braking systems
- Fewer moving/wearing parts

Environmental costs are lowered:

- 95% less energy/emissions when compared to diesel trucks
- Reduced surface street congestion and road maintenance
- Quiet operations