

# Coalition For A Safe Environment

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Re: Berths 136-147 Container Terminal  
Draft Environmental Impact Report (DEIR)/  
Draft Environmental Impact Statement (DEIS)  
SCH No. 2003104005  
ADP No. 030127-020

Su: TraPac Container Terminal Expansion Project Public Comments

The Coalition For A Safe Environment wishes to submit the following Berths 136-147 TraPac Container Terminal Expansion Project Draft EIR/Draft EIS Public Comments:

1. The DEIR/DEIS Section 5.1 Environmental Justice Environmental Justice Analysis does not comply with Executive Order 12898, Council on Environmental Quality (CEQ) *Guidance for Environmental Justice Under NEPA* (CEQ, 1997), nor consistent with California law regarding Environmental Justice as claimed in the DEIR/DEIS Section 5.1. The DEIS/DEIR fails to include and identify all negative and cumulative environmental, public health, public safety, biological resources and traffic impacts, assess technologies, equipment and alternatives than can mitigate the numerous significant negative impacts that were identified in Public Comments during the NOP/NOI Public Comment Period and as identified in this written Public Comment.

It is an insult to Environmental Justice Communities and a violation of the U.S. Civil Rights Act, Clean Air Act, Clean Water Act, NEPA and CEQA that the USACOE and the POLA's have failed to mitigate all negative environmental, public health, public safety, biological resources and traffic impacts.

As a result of the USACOE and POLA being unable to mitigate the projects significant negative and cumulative impacts and the Port of Los Angeles's failure to invest in and incorporate existing, new and emerging technologies that would prevent the need for expansion, the Coalition For A Safe Environment requests that the Berths 137-147 TraPac Container Terminal Expansion Project DEIS/DEIR be denied and rescinded.

2. The DEIR/DEI Section 5.2 Environmental Justice fails to include, identify and assess all Environmental Justice "affected communities" and cities. The DEIR/DEIS must identify all port, bordering port, transportation corridors, intermodal facilities, railroad yard facilities, rail road tracks, distribution centers and off-port property communities and cities that are impacted by the Port of Los Angeles TraPac Container Terminal currently and in the future.

The DEIR/DEIS failed to include as a minimum: Wilmington-Watson Yard, Watson Railroad Tracks that travel north through the City of Carson, Wilmington-California Cotton Fumigation Facility, Wilmington-Valhalla Dredging Barge docked in Consolidation Slip/Leeward Bay Marina, Carson-Harbor Price Container Inspection Facility, Carson & Long Beach ICTF Facility, Alameda Transportation Corridor, I-710 Long Beach Freeway, I-110 Harbor Freeway, UP Railroad Yard and BNSF Railroad Yard in East Los Angeles & Commerce and including the Riverside/San Bernadino Distribution Centers.

3. The DEIS/DEIS Section 5.3 Environmental Justice fails to comply with Executive Order 12898, U.S. EPA, State of California, City of Los Angeles and South Coast Air Quality Management District in that it does not achieve environmental justice, does not adequately identify, address and mitigate disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations as claimed in the DEIR/DEIS Section 5.3.

The USACOE and POLA fail to disclose in the DEIR/DEIS that the current existing and operating TraPac Container Terminal was approved and built illegally. No EIR/EIS was ever prepared in violation of NEPA, CEQA and Executive Order 12898. No EIR/EIS can legally be approved for an expansion project, when no primary EIR/EIS was ever prepared and approved. The current DEIR/DEIS must be denied and rescinded until an EIR/EIS is prepared for the existing TraPac Container Terminal.

The USACOE's and POLA failed to conduct a public health survey of the "affected communities" and establish a public health baseline of impacted Environmental Justice Communities public health problems and premature deaths in order to establish a valid Health Risk Assessment (HRA) and as a result have significantly under-estimated public health impacts and premature deaths.

Wilmington and other Environmental Justice "affected communities" have not received a fair treatment or meaningful involvement with respect to the development, implementation and enforcement of environmental laws, regulations and policies. The USACOE and POLA in every instance has never found one adequate mitigation to significantly reduce its past, current and future environmental, public health, public safety, biological resources and traffic impacts.

The USACOE and POLA prevented "meaningful involvement" by notifying the EJ Communities of public hearings in English and Spanish on a small postcard. The USACOE and POLA failed to adequately describe the massive expansion of the Trapac Container Terminal and the extent of its environmental, public health, public safety, biological resources and traffic impacts on EJ Communities. They made no special effort to improving accessibility of public meetings, crucial documents and notices. Developed no effective public participation strategies and did not seek to overcome linguistic, cultural, institutional, geographic barriers to participation.

The USACOE and POLA released a 6,000+ page DEIR/DEIS which is impossible for the average EJ Community member and resident to interpret without significant technical and legal assistance. The allocated public comment period is inadequate time for the public to review and prepare meaningful public comment. A minimum six months public comment time should have been allocated and technical consultants should have been made available to attend community meetings and provide one-on-one assistance in English and Spanish.

Wilmington and other Environmental Justice "affected communities" have not had "fair treatment" and have borne a disproportionate share of the negative environmental consequences resulting from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies. EJ Communities have the highest cancer, non-cancer risks and public health impacts. The USACOE and POLA failed to disclose in the DEIR/DEIS that they knew and had possession of governmental, scientific and medical research studies that disclose the high cancer risk and numerous significant public health impacts of its business operations and the increased risk and significant impacts of expansion construction.

The USACOE and POLA failed to acknowledge and disclose its off-port and its tenants off-port significant negative impacts such: as an outdoor container fumigation facility that is fence-line to Wilmington residents that uses the internationally banned highly toxic methyl bromide, which also happens to be colorless and odorless, the operation of a container inspection facility in the City of Carson which borders Wilmington which has already had a bomb scare, the cancer clusters from Particulate Matter (PM) exhaust from port diesel trucks along the Long Beach I-710 Freeway Corridor, public exposure to lead, toxic chemicals, mosquito viruses etc. from container storage yards throughout the Harbor EJ Community and continuous exposure to noise from trucks, trains and ships.

The USACOE and POLA failed to allow "meaningful involvement" by limiting and with-holding significant environmental, public health, public safety, traffic impacts information, scope of project, off-port property impacts and establishing unreasonably limiting public comment time.

The USACOE and POLA failed to prepare an EIR/EIS for the current illegally operating TraPac Container Terminal as requested by the EJ Organizations and the EJ Community during the NOP/NOI Public Comment period.

The USACOE and POLA failed to include and adopt any mitigation that would significantly reduce negative environmental, public health, public safety, biological resources and traffic that were requested and recommend by EJ Organizations and the EJ Community.

The USACOE and POLA has ignored all EJ Community concerns, objections, requests, recommendations and failed to include mitigation to address and prevent significant negative "disproportionate high and adverse impacts" on EJ Communities.

The USACOE and POLA failed to identify and seek out EJ Community organizations to facilitate their involvement and made no special effort to consult with affected EJ Community organizations in order to discuss problematic issues, review proposed mitigation, discuss land use and technology alternative recommendations and resolve significant negative impacts.

The DEIR/DEIS does not comply with California Government Code Sections 65041-65049 and Public Resources Code Sections 71110-71116 for the reasons stated previously. The USACOE and POLA did not nor proposes the enforcement of all health and environmental statutes. They have in fact withheld public health data that identified significant public health risks and increasing public health problems.

The USACOE and POLA failed to request Public Health Agency, Public Health Organization, Medical Hospital/Center and Academic Institutions assistance and participation to prevent and mitigate significant public health issues. The USACOE and POLA failed to establish a Public Health Care Trust Fund as requested or allocate any funds for assisting EJ Community families and residents with past and current health problems and premature deaths. They failed to assist in medical care, medicines, medical equipment, special medical needs, retraining costs or burial expenses.

The USACOE and POLA in collusion with the City of Los Angeles, California State Lands Commission and other state and federal agencies intentionally withheld information, misrepresented information and failed to act upon issues that would have significant and long lasting impacts on EJ Communities and the public. The USACOE, POLA and the City of Los Angeles intentionally failed to comply with state and city planning, zoning and permitting requirements or request study or investigations of non-compliance.

The Ports and Goods Movement activities allowed significant increases in public health problems, the murder of innocent residents, increasing public exposure to toxic and hazardous chemicals & substances, an increase in public safety hazards, an increase in public insurance,

public health care, transportation infrastructure, emergency response & priority response, policing & enforcement, environmental mitigation costs, illegal transfer & use of public funds (Pier 400 change from Energy Island to a private Maersk Container Terminal), allowed an illegal Conflict of Interest in decision making by Port Board of Harbor Commissioners (hiring of an industry executive ie. Larry Keller who allowed the illegal transfer & use of public funds & illegal change in land use), various illegal land use changes, illegal land uses, failure to enforce safe distances from public exposure to toxic chemicals (ie. methyl bromide) and substances (ie. Particulate Matter, NOX, SOX and VOC's) eliminated on-port property fumigation facilities which forced tenants to seek & contract with a third party company located fence-line to Wilmington residents and children, allowed toxic & hazardous chemicals to be released into the air near residents, illegal transfer & storage of toxic and contaminated soils (Alameda Corridor soil & Port dredgings allowed to dry uncovered in open areas ), allowed blight to occur in EJ Communities (ie. failure to enforce policy & regulations & failure to impose requirements and restrictions on tenants & failure to notify City of Los Angeles & bordering Cities planning departments of toxic & hazardous activities) (almost every Port related activity in an EJ Community is a trash magnet, aesthetic eye sore & traffic congestion source) (port owned properties were allowed to deteriorate to keep nearby property values low in order to acquire adjacent properties at low cost), the Port of Los Angeles causes the loss of city land for future community economic development (the Port purchases off-port city property to expand its port related activities instead of modernizing & automating its business operations) and the Port fails to incorporate its off-port land purchase plans into the Port Master Plan and City of Los Angeles Master Plan and Community Plans in order to by-pass and circumvent public review, public notification, public comment and the NEPA/CEQA process (the Port owns hundreds of acres of off-port & off-tidelands properties in the City of Los Angeles) and the Port has intentionally failed to approve and allocate funds for Wilmington economic and community redevelopment (the current Wilmington Waterfront Development Project should be approved as a stand-alone mitigation project and not contingent upon the Berths 136-147 TraPac Container Terminal DEIR/DEIS being approved).

The South Coast Air Quality Management District (SCAQMD) has failed to enforce adopted Environmental Justice policies, recommend & require technologies and mitigation that would eliminate or minimize Environmental Justice Communities impacts. In fact, in one previous Port of Los Angeles EIR the SCAQMD dropped the ball and failed to assign someone to review the EIR. It was the Coalition For A Safe Environment inquiry that discovered this.

4. The DIER/DEIS in Section 7 SocioEconomic & Environmental Quality contains incomplete information and missing information that contribute to a total understanding of the negative SocioEconomic and Environmental Quality impacts on Environmental Justice Communities and the public.

The DEIR/DEIS fails to disclose that the Port of Los Angeles plans to invest over \$ 700 million in redevelopment projects in San Pedro and only \$ 120 million in the EJ Community of Wilmington. The Port has full authority to approve and begin construction of the Wilmington Waterfront Development Project without it being tied to the Berths 136 147 TraPac Expansion Project DEIR/DEIS.

The DEIR/DEIR discusses the SocioEconomic impacts and refers to the number of employment reaching 5,433 for the expansion, but fails to mention the thousands of jobs lost as a result of Port of Los Angeles management and the Board of Harbor Commissioners being politically influenced by container shipping companies to increase container storage backlands.

This has resulted in the Port eliminating and not investing in previous more diversified marine business activities such as fishing companies, canning companies, ship building, repair & maintenance companies etc., which created more than 100X more employment per acre than container storage space. This has caused a higher unemployment rate than in the past 20 years in Wilmington. We estimate that the Port is currently in a net deficit of employment of over 5,000 from the 1960's. Another point of information is that the California Employment Development Dept. changed the eligibility requirements formula about 5-7 years ago which eliminated prior eligible applications, the result being that the current method of reporting fails to include thousands of people who can no longer apply, yet are unemployed.

The Environmental Justice Communities and organizations during the NOP/NOI public comment period requested and recommended several other potential Port related business activities to diversify the Ports business activities and employment opportunities. Specific businesses recommended were the establishment of a salt water fishery, ocean water reclamation facility, seaside village with restaurants & tourist shops, recreational boat sales & repair etc.. This would create higher employment by including both high paying union jobs with lower paying positions requiring less technical skills.

The DEIR/DEIS discusses Environmental Quality impacts but fails to discuss the numerous quality of life issues identified during the NOP/NOI public comment period. The DEIR/DEIS discusses numerous redevelopment activities which have contributed to improvements in the quality of life, but the bottom line is that there has been very little improvement.

The DEIR/DEIS discusses blighted areas in a legal regulatory context and in an alleged non-regulatory context as a community perception, but fails to realize and identify that Port of Los Angeles and Goods Movement Transportation Corridor EJ Communities have been past, present and future victims of racial profiling, racial discrimination and racial classism in violation of Environmental Justice policies, NEPA, CEQA and the U.S. Civil Rights Act. This has been identified at past NOP/NOI public hearings and public comment periods, yet the USACOE and POLA failed to hire expert legal and cultural consultants to help identify, address and mitigate these issues.

Air quality in the Port of Los Angeles Harbor Community is the worst of any Port in the United States. Truck, train & ship traffic congestion is the worst of any Port in the United States. There are numerous container storage yards and diesel truck sales & repair lots located in residential areas.

There has been no significant community redevelopment in Wilmington in the last 50 years, outside of the new Wilmington Senior Citizens Center, replacement Library, Banning's Landing

and a recent gymnasium there has been no other major new public building, community center, commercial or retail redevelopment. The only major redevelopment that has occurred has been the Wilmington Industrial Park which has benefited Port tenants which use the services of California Cotton Company which fumigates containers outdoors and releases methyl bromide a highly toxic chemical.

The DEIR/DEIS fails to disclose that the 112+ acres located south of Consolidated Slip and owned by the Port of Long Beach in Wilmington was offered to the Port of Los Angeles and that it was recommended by the City of Los Angeles that they purchase the property for Wilmington waterfront recreational development and as part of the Wilmington-Harbor City Community Plan, but the Port of Los Angeles took a racist policy position and opinion and did not do so since Wilmington was Hispanic, low income and did not deserve any waterfront recreational use or investment. The DEIR/DEIS fails to disclose that the Wilmington EJ Community requested that the Port of Los Angeles purchase the 112 acres owned from the Port of Long Beach for Wetlands Restoration. This would be a quality of life and community improvement.

The Wilmington EJ Community further requested that the DAS import car parking lot which is located north of Consolidated Slip also be a Wetlands Restoration Project site and as an "Alternative Land Use," which was ignored and not considered by the Port of Los Angeles. The Port of Los Angeles did however, find another alternative land use for the import car parking lot by now declaring that it wants to build a rail road car staging area there. This would be a quality of life and community improvement.

The DEIR/DEIS discusses the Wilmington open storage interim control ordinance and the new cargo container and open storage regulations as if it had a participatory roll, when in fact it was Wilmington residents protesting the Port of Los Angeles container sprawl in Wilmington and demanding that the City of Los Angeles investigate and change existing regulations and zoning requirements. If Wilmington residents had not used its political power the Port would have supported more container storage yards to be opened and there would be more toxic exposure, more safety impacts, community blight, aesthetics loss, land loss and traffic congestion.

The emphasis on Port related businesses discourages other clean and varietal businesses from wanting to invest, relocate or open in Wilmington. Light commercial industries do not like being near heavy industries, heavy truck traffic congestion areas, dilapidated streets, close to toxic & hazardous chemical industries, working and living in air polluted communities.

5. The DEIR/DEIS in Section 3.3 Biological Resources contains incomplete and incorrect information and fails to include requested mitigation recommendations that would offset significant and negative Biological Resources impacts. The DEIR/DEIS fails to disclose that the USACOE and Port of Los Angeles have allowed the destruction and loss of over 95% of all natural wetlands. In Wilmington a waterfront community in San Pedro Bay, all wetlands have been destroyed and lost. The DEIR/DEIS fails to mention that at one time in the past

Berths 136 – 147 the TraPac Container Terminal was a pristine California coastal tidelands and wetlands area.

The DEIR/DEIS claims a CEQA Baseline of December 2003 which is a significant error, the Port should be using a Baseline of approximately 1985/1987 which is a year prior to the illegal construction of the existing TraPac Container Terminal. The USACOE and POLA failed to prepare an EIR/EIS as required by CEQA and NEPA law. State and Federal Endangered Species and their habitats could have and probably did exist and would have been identified if an EIR/EIS had been prepared. These Endangered Species and their habitats have now been lost, damaged and destroyed during construction and after operation of the TraPac Container Terminal.

The DEIR/DEIS discloses that 9.5 acres of the new Northwest Slip landfill would be created by permanently destroying existing Inner Harbor coastal water, biohabitats and residual San Pedro Bay natural geologic coastline. It further states that the loss would be significant but mitigable loss of marine habitat and essential fish habitat.

The DEIR/DEIS fails to disclose that currently the Machado Lake in Wilmington is connected to the West Basin where the Port wants to fill-in to create container storage backlands via an underground pipeline. It further fails to state that at one time in the past there was an above ground river stream connection that allowed coastal tides to rise and flow into Machado Lake. This also created a direct inland wetlands area that traveled as far as 5 miles inland into the City of Carson. This is evidenced by the wetlands area north of Machado Lake and north of Pacific Coast Highway and north along the Los Angeles Harbor Freeway I-110.

The DEIR/DEIS states that the “Mitigation of the filling of 9.5 acres of Inner harbor would require credit from either the Bolsa Chica Mitigation Agreement or the Outer Harbor Mitigation Bank.” This is unacceptable, Wilmington EJ Community residents and organizations have requested at numerous past and recent public hearings and meetings that all Port of Los Angeles Biological Resources Mitigation be performed and offset within the City of Los Angeles communities of Wilmington, San Pedro and the San Pedro Bay. It was stated by Board of Harbor Commission President David Freeman at a public board meeting that he supported funding Biological Resource Mitigation Projects within the Port of Los Angeles and Port of Long Beach Harbors.

The Wilmington EJ Community never agreed to the 100% elimination of all natural wetlands in Wilmington so that the Port of Los Angeles could expand its international trade activities. The USACOE and POLA never disclosed to the public that it was their intent to destroy all wetlands in Wilmington and the USACOE and POLA failed to disclose that “Alternative Land Use Projects” could be submitted, approved and constructed.

The USACOE prior to the construction of the TraPac Terminal illegally allowed construction to occur in the North Harbor without Mitigating the significant negative Biological Resources impacts, which resulted in the ultimate total destruction and loss of all existing natural California Coastline, Wetlands, wildlife, aquatic life and habitats in Wilmington.



The USACOE and Port of Los Angeles further failed to protect, preserve or restore Biological Resources when they colluded to allow the TraPac Container Terminal to be illegally constructed without an EIR/EIS. This prevented public participation and an opportunity to recommend and request Biological Resources Mitigation in Wilmington and San Pedro.

The Coalition For A Safe Environment since 2001 has requested that the Port of Los Angeles DAS import car parking lot which is located north of Consolidated Slip and adjacent to the Leeward Bay Marina be a comprehensive Wetlands Restoration Project mitigation site and an "Alternative Land Use." Although the import car parking lot is currently an asphalt/cement paved parking lot, it is our desire to remove the top surface until it reaches the water line and restore it to its original wetlands condition. The DEIR/DEIS fails to disclose this as Biological Resources Mitigation and as a CEQA/NEPA "Alternative Land Use." The Port of Los Angeles has now however, determined and presented that this land be used as new on-dock rail road staging area.

The Coalition has photographed the Consolidated Slip area birds, plant life and some water shell life. We have photographs of a peregrine falcon sitting on the fence and landing in the DAS import car parking lot across Leeward Bay Marina. Other birds photographed include: snowy white egret, a nesting tree area and blue egret. In past visits we have also seen the California Brown Pelican in the water and shoreline.

The DEIR/DEIS fails to disclose that the Coalition For A Safe Environment and Cal. Poly Pomona students have requested that the Port of Los Angeles purchase approximately 112+ acres located south of Consolidated Slip and owned by the Port of Long Beach in Wilmington for Wetlands Restoration. The property was offered to the Port of Los Angeles by the owner Union Pacific railroad and it was recommended by the City of Los Angeles that the port of Los Angeles purchase the property for Wilmington waterfront recreational development and as part of the Wilmington-Harbor City Community Plan, but the Port of Los Angeles took a racist policy position and opinion and did not do so since Wilmington was Hispanic, low income and did not deserve any waterfront recreational use or investment.

The DEIR/DEIS fails to consider and mitigate aerial deposition of air pollutants on the Inner Harbor Waters. The DEIR/DEIS fails to include tests and calculations of the amount of air pollutants from ship, train, truck, vehicle and equipment exhaust such as PM, NOX, SOX, VOC's and truck brake dust that will land on the water and the extent of its dispersion. The DEIR/DEIS fails to mitigate past, current and future aerial deposition on Inner Harbor waters.

The DEIR/DEIS states that there is no feasible mitigation currently available to deter non-native species being introduced into the Harbor that could disrupt local biological communities, is not true. The POLA can require that ships have mandatory periodic cleaning of their hulls, propellers and anchors. POLA can require that cleaning logs be maintained and presented upon demand when entering the San Pedro Bay and POLA. POLA can prohibit ships from dumping trash or ballast within the U.S. territorial waters. POLA can require that records be maintained and presented upon demand prior to entering San Pedro Bay and the POLA.

6. The DEIR/DEIS Section 3.9 Noise contains incomplete and incorrect information and fails to include requested mitigation recommendations that would offset significant and negative noise impacts. The first problem is in the definition of noise and existing noise standards. When viewed under an Environmental Justice and the U.S. Civil Rights Act perspective noise must be reevaluated and mitigated in all of its forms. Part of the noise impacts in EJ Communities is not just the loudness but the non-stop noise generation from numerous sources emanating from the Port of Los Angeles and along the Goods Movement Transportation Corridors.

Wilmington residents have no cessation of noise, it is continual 24hrs. 7 days a week. One cannot sit on their front porch, under a tree in the back yard, watch television, listen to a radio or children do their homework in peace.

Annoying and disturbing are sounds of train horns/whistles, wheels braking, wheels squealing around turns, engines idling, engines acceleration, gunning engines and interlocking locking train cars. Trains also cause the ground to vibrate and houses to shake, walls to shake and many things to rattle.

Annoying and disturbing truck sounds are engine ignition, acceleration, gunning, idling, street braking, frequent accidents, driving through residential neighborhoods and driving past residents homes on new truck routes to get to off-Port property related and indirect business activities.

Examples include the Price Harbor container inspection facility in the City of Carson. Trucks now drive down Figueroa Street, Lomita Blvd. and Wilmington Ave. to get there. Trucks drive down Broad Ave., Avalon Blvd. and Anaheim Street to get to the California Cotton Company in Wilmington in order to have Port containers fumigated outdoors with the highly toxic and world banned methyl bromide.

Annoying and disturbing are cranes loading and unloading containers and the occasional dropping of containers which resonates for miles.

Annoying and disturbing are ship and cruise ship horns.

Annoying and disturbing are the increasing police sirens and helicopters protecting the Port of Los Angeles and the number of dignitaries getting helicopter tours which pass through and over Wilmington.

Wilmington residents are tired of non-stop Port and Goods Movement noise.

The Pier Pass Program did not benefit Wilmington it only allowed noise and other environmental impacts to continue 24/7.

The DEIR/DEIS proposes construction work week hours that extend to 9:00pm at night and work on weekends, this is unacceptable. Residents come home from work and want to

relax, students need quite time to study and children need to go to sleep per their schedule not based when construction stops.

The construction and operation of the proposed off-dock train staging area adjacent to Leeward Bay Marina will emit additional noise that currently does not exist. Wilmington Leeward Bay Marina live-on-board boat residents do not want additional noise. Recently the POLA has provided docking space for dredging barges in Consolidated Slip. One named Valhalla obviously has a crew living on-board because they have the barges engines running 24/7 probably to provide electricity. The sound from the barge is loud, annoying and disturbing.

The DEIR/DEIS fails to include any scientific or medical studies that research continuous noise as described above. The USACOE and POLA have not sponsored any of these types of studies to determine their short and long term health impacts and quality of life impacts.

The DEIR/DEIS references a noise study performed in April 2002. This data is outdated and cannot be included in this DEIR/DEIS because Port of Los Angeles container handling and Goods Movement has grown over 45%.

The DEIR/DEIS mentions noise monitoring but fail to describe who will monitor, how many will be hired to monitor, what experience or training they must have, how they will monitor, what hours they will monitor, what criteria they will monitor, what authority do they have to stop noise & minimize noise, what penalties, sanctions and fines will be imposed and how can residents call & file a complaint, what type of incident reports will they prepare and how fast will someone get back to a residents complaint.

The DEIR/DEIS fails to provide adequate noise mitigation. The fact is that residents hear constant noise and we request that all resident homes, schools, convalescent care facilities, senior citizen centers, senior housing projects, public buildings etc. should all be sound proofed at the Port of Los Angeles expense.

The truth is that rarely is construction equipment and port equipment ever muffled. The DEIR/DEIS fails to make it mandatory the use of muffling methods, fails to identify what types of muffling technology is available and there appropriate application.

The DEIR/DEIS fail to state who will monitor the muffling installation, how they will monitor its proper use, what authority do they have to stop noise & minimize noise, what penalties, sanctions and fines will be imposed and how can residents call & file a complaint, what type of incident reports will they prepare and how fast will someone get back to a residents complaint.

Solid fences, block wall or brick fences provide little to no effective sound proofing.

The Port of Los Angeles shall establish a mitigation fund to pay for the temporary relocation and expenses of residents that border construction areas that request this option.

It is requested that the Port of Los Angeles establish an approved list of acceptable construction equipment and Port operating equipment that emit minimum noise.

The DEIR/DEIS fails to mitigate the increase in Goods Movement Railway Corridor and Alameda Corridor train noise due to the TraPac Container Terminal expansion. It has been requested at numerous Port and Goods Movement public hearings, public meetings, governmental agency taskforces and committees that the entire Alameda Corridor and Railway Corridors be converted to near noiseless Alternative Intermodal Transportation Technologies.

The DEIR/DEIS failed to research and assess Alternative Intermodal Transportation Technologies such as electric trains, electric rail, mag-lev, linear induction, gravitational and tunnel transportation technologies.

A above ground tunnel or underground gravitation transportation system could easily be Wilmington's and the public choice of intermodal systems because there would be no noise, no vibration, no aesthetic impact, no diesel fuel locomotive exhaust fumes to smell, no PM, SOX, NOX and VOC's released into the air and no future land use impacts. While the cost would be more, the benefits offset the costs. The key is let the public make the choice.

7. The DEIR/DEIS Section 3.8 Land Use contains incomplete and incorrect information and fails to include requested mitigation recommendations that would offset many additional significant and negative past, current and future land use impacts.

The Coalition For A Safe Environment (CFASE) would first like to acknowledge the POLA inclusion of the "Land Buffer" between Harry Ridges Road and " C " Street. CFASE endorses, supports and applauds the Port of Los Angeles for this excellent project mitigation measure. CFASE believes that this mitigation should be a stand-alone EIR and encourages POLA to vote and approve this project.

CFASE does not support or approve of any new TraPac Container Terminal On-Ramp or Off-Ramp to the Los Angeles Harbor I110 Freeway. CFASE believes that all intermodal cargo should use one of the requested and recommended Alternative Non-Fossil Fuel Intermodal Transportation Systems.

The USACOE and POLA have failed to follow the California Coastal Act of 1976 policies which include:

"Provide for maximum public access to and recreational use of the coast consistent with private rights and environmental protection."

Wilmington residents have been denied this benefit, due to the failure of USACOE and POLA to include projects and mitigation that would allow public access to beach front and coastal tidelands or restore beach front and coastal tidelands. POLA has also intentionally limited the size of Leeward Bay Marina which prevents current and future Wilmington resident generations which are now predominantly Hispanic and low income from having the

opportunity to purchase, rent, lease, use and live aboard recreational boats. There is also no boat ramp in Wilmington to provide access to San Pedro Bay.

“Protect marine and land resources-including wetlands, rare and endangered habitat areas, environmentally sensitive area, tide pools, and stream channels.”

The USACOE and POLA have intentionally destroyed all natural wetlands and habitats in Wilmington and none exist today. The current POLA DAS import car parking lot does not have to be located on what was once prime beach front, tidelands and wetlands property. The POLA could have easily purchased property north of Anaheim Street in the past and can do so at this present time.

The USACOE and POLA have had the option to propose projects, restore wetlands and habitats in Wilmington but have failed to do so. CFASE and Wilmington residents have requested at every past Port of Los Angeles public hearing, public meeting and at numerous Board of Harbor Commissioner meeting that the Port initiate a Wetlands Restoration Program. CFASE has requested and identified two potential areas for Wetlands Restoration Projects, the DAS import car parking lot which is empty over 50% of the time during the year and previously described in this public comment and the Port of Long Beach property owned in Wilmington.

The USACOE and POLA have a legal obligation to consider these “Alternative Land Uses” and they have the authority to approve Wetlands Restoration Projects in Wilmington. CFASE has attached a copy of the comprehensive Cal Poly Pomona Wetlands Restoration Plan Proposal for the Port of Long Beach owned property in Wilmington. A similar plan can also be designed for the DAS import car parking lot.

“protect the scenic beauty of the coastal landscape.”

The USACOE and POLA have never developed the Port Master Plan or allowed public participation in planning for the protection of the aesthetic and scenic beauty of the San Pedro Bay coastal landscape. Wilmington has no scenic views of the coastal landscape at all, all scenic views are obstructed by stacks of containers and towering cranes. Wetlands Restoration is the proper mitigation to begin this process for recreating a once natural coastal landscape and meet legal mandates.

8. The DEIR/DEIS fails to mitigate the past, current and proposed increasing public health impacts to Port of Los Angeles Wilmington, San Pedro, Harbor City residents, neighboring West Long Beach residents, Port goods movement transportation corridor residents and distribution center residents.

A recently completed UCLA Medical Center/Harbor General Hospital Wilmington Children's Asthma Study disclosed that 23.9% of all children in Wilmington have asthma and the current asthma rate of children in Long Beach is 19.3 %. CFASE based on the California Air Resources Board Emission Reduction Plan for Ports & International Goods Movement in California report estimates that a minimum of 3 Port of Los Angeles Harbor area residents die

every day due to Port toxic air pollution. The Port of Los Angeles contributes a minimum of 25% of all toxic air pollution in the Harbor area causing significant short term and long term public health problems to Port of Los Angeles Wilmington, San Pedro, Harbor City, City of Long Beach, transportation corridor and distribution center residents.

The Port of Los Angeles and its business tenants has deprived numerous residents and children the right to live a normal and healthy life. The Port contributes and causes a significant amount of toxic air, land and water pollution which is known to cause cancer and numerous other temporary and permanent public health problems and disabilities.

The Port failed to notify Harbor residents, dock workers and the public of the life and health threatening nature of its business activities. The Port failed to provide to the public governmental agency, medical and scientific public health study information that it knew existed that could assist the public in preventing & minimizing health impacts, seeking health care and assist the public in participating in the Port public hearing and meeting process where they could make public comments on the negative impacts of the ports business activities on public health and request mitigation.

The Port of Los Angeles has depended solely on the information obtained in the included Health Risk Assessment, which contains unverified and incomplete information. The Port has failed to conduct any public health survey studies of Harbor residents, transportation corridor and distribution center residents to determine its public health impacts and the number of residents impacted.

The Port has failed to provide any medical financial assistance to the public or impacted families who have identified themselves at previous Port of Los Angeles public hearings and meetings.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers sponsor and conduct a door-to-door Public Health Survey of all residents within a five radius of Berths 136 – 147 TraPac Terminal to establish a Public Health Baseline, determine an accurate Health Risk Assessment and appropriate Public Health mitigation.

CFASE has recently completed a door-to-door Public Health Survey of Wilmington residents who live with the first five blocks of the TraPac Terminal and 329 completed a survey questionnaire. The following is a brief summary of some of the findings:

- a. 47 or 14.3 % have Asthma
- b. 28 or 8.5 % have Bronchitis
- c. 42 or 12.7 % have Sinusitis
- d. 2 or .6 % have Emphysema
- e. 6 or 1.8 % have Hay Fever
- f. 4 or 1.2 % have COPD
- g. 16 or 4.8 % have Laryngitis
- h. 49 or 14.8 % use an Inhaler

transportation environmental, air pollution, noise, traffic congestion, community blight, land loss, economic development loss and aesthetic public impacts. The Trust Fund shall pay for the research & development, prototype building, design and construction of Alternative Non-Polluting Non-Fossil Fuel Intermodal Transportation Systems Technologies. The Mitigation Trust Fund shall pay for the immediate electric conversion of the Alameda Train Transportation Corridor as the first priority project until a new comprehensive regional non-fossil fuel system is adopted.

CFASE requests the adoption of the Port of Los Angeles proposed Clean Air Action Plan - Truck & Driver Employee Concessionaire Plan.

CFASE requests that the Port of Los Angeles Board of Harbor Commissioners approve a \$ 540 per container tariff/fee to mitigate Berths 136 - 147 TraPac Container Terminal environmental, public health, public safety, biological resources, community economic and transportation impacts. The \$ 540 is based on the Prof. John Husing, Economic Analysis that was presented to the Port of Los Angeles and the Port of Long Beach as part of the San Pedro Bay Clean Air Action Plan.

9. CFASE has attached the following documents as part of our Public Comment:
  - a. CFASE NOP/NOI Public Comment
  - b. Wilmington Air Tracer Study
  - c. Cal Poly Pomona Students Wilmington Habitat Restoration Proposal
  - d. Cal Poly Pomona Students Reconnecting Wilmington Supplemental Handout
  - e. USC Students Alternative POLA TraPac Marine Terminal Freeway Connection
  - f. USC Alternative Non-Polluting Intermodal Transportation Systems
  - g. CFASE Port Communities Bill of Rights
  - h. CFASE National Environmental Justice Advisory Committee Public Comment 3 pg.
  - i. CFASE National Environmental Justice Advisory Committee Public Comment 12 Pg.
  - j. 403 Signed Wilmington Resident Public Comment Letters

Environmental Justice For All,



Jesse N. Marquez

Executive Director

# COALITION FOR A SAFE ENVIRONMENT

140 West Lomita Blvd., Wilmington, California 90744-1223  
WilmingtonCoalition @ Prodigy.net 310-704-1265

May 5, 2006

U.S. Army Corps of Engineers (USACOE)  
Los Angeles District, Regulatory Branch  
C/O Dr. Joshua L. Burnam  
Attn: CESPL-CO-R-2003-0-1142-JLB  
P.O. Box 532711  
Los Angeles, California 90053-2325  
joshua.l.burnam@usace.army.mil  
213-452-3294

Port of Los Angeles  
Los Angeles, California 90053-2325  
213-452-3920 Dr. Ralph G. Appy, Ph.D.  
Director of Environmental Management  
425 S. Palos Verdes Street  
San Pedro, California 90731  
310-732-3497 Off.  
310-547-4643 Fax  
rappy@portla.org

**Re: Port of Los Angeles  
TraPac Berths 136-149 Container Terminal Expansion Project  
Supplemental Notice of Intent (NOI)/Notice of Preparation (NOP) For A  
Draft Environmental Impact Statement (DEIS)/  
Draft Environmental Impact Report (DEIR)**

**Su: Public Comments, Information, SNOI/NOP DEIS/DEIR & Mitigation Requests**

The Coalition For A Safe Environment (CFASE) wishes to state for the record that our organization requests that the US Army Corps of Engineers deny and not approve a Department of the Army permit under the Clean Water Act of 1972 Section 404 (33U.S.C. 403), the Rivers & Harbor Act of March 3, 1899 (33U.S.C. 403) Section 10 and National Environmental Protection Act (NEPA) for the Port of Los Angeles (POLA) TraPac Terminal Expansion Project. The Coalition For A Safe Environment is against any further growth and expansion of the Port of Los Angeles in the San Pedro Bay due to the numerous unmitigated environmental, public health, public safety and economic impacts. CFASE will only support proposals to mitigate past and current negative Environmental, Public Health, Public Safety, Community Blight, Esthetics and Community Waterfront Development impacts.

A. Legality of USACOE & POLA SNOI/SNOP DEIS/DEIR

CFASE challenges the legality of the USACOE SNOI/SNOP DEIS/DEIR actions for the following reasons:



1. The USACOE's has never prepared an EIS nor held public hearings per Federal NEPA requirements for the construction of the existing TraPac Terminal at the Port of Los Angeles.
2. The USACOE has never approved a permit for the existing TraPac Terminal at the Port of Los Angeles.
3. The USACOE has a legal obligation under federal NEPA law to bring an existing illegal POLA Terminal into compliance by first preparing an EIS for the existing TraPac Terminal before it can proceed with a proposed TraPac Terminal Expansion Project.
4. The Port of Los Angeles has never prepared an EIR nor held public hearings per California CEQA law requirements for the construction of the existing TraPac Terminal at the Port of Los Angeles. The USACOE has a legal fiduciary obligation to order the POLA to comply with CEQA.
5. The POLA Board of Harbor Commissioners have never approved a Coastal Permit for the existing TraPac Terminal at the Port of Los Angeles. The USACOE has a legal fiduciary obligation to advise the California Coastal Commission and the City of Los Angeles of the POLA Board of Harbor Commissioners failure to comply with CEQA and the California Coastal Commission Trustee Agreement with the City of Los Angeles.
6. The USACOE has no jurisdiction to issue a permit for expansion of the TraPac Terminal or Port of Los Angeles onto City of Los Angeles property, even though the POLA may own the off-Port non-tidelands property.

**B. USACOE & POLA SNOI/SNOP DEIS/DEIR**

However, in recognition that the USACOE may proceed with the Port of Los Angeles's permit application request and prepare a DEIS/DEIR we hereby submit this Public Comment document in the public's interest.

The Coalition believes that approval of the DEIS/DEIR should only be made when all NEQA, Clean Water Act, Clean Air Act, CEQA and Environmental Justice legal requirements have been fulfilled, when the project has been determined to have no significant environmental, safety or health impacts, when all alternative land uses have been considered and when a Mitigation Plan has been prepared that can correct, minimize or eliminate all past, all current and all projected negative environmental, public health and public safety impacts.

Further more, approval should only occur when all necessary, required and requested studies, tests, surveys, assessments and plans have been completed, validated and subject to public review. In addition, we believe that approval of a project should not be based solely on what we consider to be highly questionable, undocumented and unsubstantiated projected profits, projected space need, space availability, consumer demands, job employment, economic or public benefits.

In our review of past Port of Los Angeles DEIS/DEIR's, SEIS/SEIR's and Final EIS/EIR's we have discovered a historical pattern of significant omissions of required information, misrepresentations of facts, unsubstantiated information, unvalidated data, intentional limiting of impacted community boundaries, inadequate assessments of cumulative impacts, unacceptable assessment of environmental injustice and failure to mitigate negative environmental impacts.

We believe that the U.S. Army Corps of Engineers and the Port of Los Angeles should adopt the

Precautionary Principle which states that, "when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-effect relationships are not fully established scientifically."

The Coalition For A Safe Environment would like to request that the Port of Los Angeles be required to respond to the following Public Comments and incorporate our Information and Mitigation Requests into the DEIS/DEIR and Final EIS/EIR.

1. **Public Comment Period** - The Public Comment Period of 45 days is insufficient time for the public to review all past published related documentation and to consult with appropriate professionals and technical personnel in order to understand the significant environmental, public health, welfare, economic and safety impacts of this project.

There are thousands of pages of environmental, business, technical, medical, scientific and legal documentation which need to be reviewed. The public does not have unlimited legal and professional staff resources to adequately review the extensive documentation in a short period of time.

On behalf of the Public Interest we request that all Public Comment Periods be a minimum of 90 days and preferably 120 days. We request that all related documentation be made available on a public accessible website and that a CD/DVD version be made available.

2. **Inadequate Public Notice** - There was Inadequate Public Notice of the POLA Public Hearing/ Meeting. The long term environmental, public health, welfare, economic and safety impacts of the TraPac Terminal Project on the public and the Port of Los Angeles bordering communities of Wilmington, San Pedro, Long Beach, Carson, Compton etc. warrants that every resident within 10 miles should have been mailed a minimum of two detailed informational brochures and copies of the NOI/NOP and related documentation in English and Spanish.

We request that two detailed brochures be distributed to explain NEPA, CEQA, Environmental Justice requirements, the Public Hearing/Meeting process, the public's right to make public verbal and written comment & recommendations, examples of potential and certain negative environmental, public health, welfare, economic and safety impacts and a referral list of sources of assistance such as governmental agency, university, non-profit organizations and private consultants.

The 1<sup>st</sup> Brochure Notice should have been mailed 90 days in an advance to allow time to request and review all documentation and to seek assistance.

The 2<sup>nd</sup> Brochure Notice should have been mailed 2 weeks before the Public Hearing/ Meeting as a reminder. A representative of the Port of Los Angeles should have been required to visit various community organizations months in advance to advise the community of the upcoming Public Hearing/Meeting, the purpose of the Public Hearing/ meeting, explain and provide examples of what land use alternatives are, provide examples of what types of information the public can ask to be included in a Draft Environmental Impact Report, what the definition of mitigation is, provide examples of the types of mitigation the public can request and the proposed project proposal environmental and health impacts.

We request that Advertisements should be placed in every local newspaper within a 10 mile radius. All advertisements should appear in the front "A Section" of the newspaper to afford maximum visibility and awareness and not in the classified section which is little read.

We request that several Press Releases should be mailed to every local newspaper, public television station and radio station within a 10 mile radius. Every local newspaper, environmental & health organization publication, public television and radio station both free and paid publishes and broadcasts for free all governmental agency and major business project press release stories. We request that all brochures, advertisements, notices and press releases be posted on a public accessible website.

- 3. Request Port of Los Angeles TraPac Tenant & Cargo Information** - The Port of Los Angeles is public property, holds assets and funds in trust for California and the US. The public has a right to know information on a Port Tenant, the cargo country of origin, the manufacturer or supplier of products or raw materials and their compliance record to US and International treaties, business, environmental, health and human rights laws. Numerous information and data can be distributed in advance of the DEIR/DEIS.

Some US and foreign companies and countries for example condone or are complacent to human rights violations, the murder of political & public/community opposition, support of illegal right wing military groups, prohibit or lobby against Democratic candidates & public voting, prohibit or interfere with worker union organizing, are involved in illegal & immoral political legislative lobbying, illegally contribute substantial funds against the public interest to support private interests, support the removal of indigenous populations, support the destruction of archaeological & sacred historical sites, politically interfere with environmental & health laws enactment, mitigation & enforcement, deny or limit public education and the public right to know.

Many US citizens and current legal residents are here because they were granted political asylum from the threat of death and atrocities being committed in their country. China illegally invaded and currently controls the country of Tibet. Some unacceptable private company examples of Democracy rights violations, environmental, human and worker rights violators are China Shipping Company, WalMart, Disneyland, Levi's, Unocal, Shell and Occidental Oil. Documentation can be provided to this fact.

The American public has a right to know and to refuse to do business with a company and/or country in favor of another more moral, international human rights compliant, environmental friendly or Democratic country. We request complete advance public disclosure not an after the fact done deal press release.

- 4. Request For POLA TraPac Terminal Expansion Construction & Operation Cost Information** - We request that the DEIR/DEIR contain estimated or actual construction cost and the long term operations costs information. No mention is made that it is the City of Los Angeles, Los Angeles County, California, US residents and taxpayers who will pay for the construction and long term support of a private business terminal on public property. Revenues generated from the Port are public trust funds and the public has a right to know how its funds are being spent and invested.

We request that the DEIR/DEIS contain a Financial Cost-Benefit Analysis (CBA) and an Community Economic Impact Assessment (CEIS) for the TraPac Terminal.

An CBA and CEIA could reveal that the City of Los Angeles, the State of California and the American public are actually incurring a financial loss and that only the foreign terminal operators, foreign shipping companies and foreign manufacturers and suppliers are profiting. It is a fact that there are only a handful of American owned terminal operators and shipping companies left in the US.

The cost of public health care alone due to air pollution has now been estimated to be over a billion dollars. The cost of environmental clean-up is several billion to the taxpayers.

The cost of transportation infrastructure improvement in Los Angeles County for the Long Beach Freeway alone is estimated to be \$ 5 billion. The public also has a right to comment and approve the use of public funds prior to any final project approval and expenditure.

5. **Request For New Operation Technologies Information & Automated Intermodal Systems** - We request that the DEIR/DEIS contain information regarding any new technologies that will be used at the TraPac Terminal. The public has a right to know if the new proposed TraPac expansion will incorporate any new transportation, energy efficient, space saving or automated intermodal handling technologies that will decrease or eliminate any negative environmental and public health impacts.

Based on the information previously provided the new terminal will be using the same outdated handling and non-automated intermodal handling and transportation system technologies currently being used at the Port. The Port has provided no evidence of optimization, handling efficiency or maximization of existing space. The project primarily creates more container storage space.

Diesel trucks, ships and dockside operating equipment contributes to significant environmental pollution. Increased truck and train transportation contributes to significant local traffic congestion and public roadway disintegration. Port of Los Angeles trucks currently illegally drive through Wilmington and are involved in accidents in the Wilmington community.

POLA has provided no evidence or guarantee that TraPac Terminals will use the Alameda Transportation Corridor. Increased railway use contributes to more trains blocking Wilmington streets and more diesel train air pollution in Wilmington residential areas. Will TraPac Terminal be using electric trains, alternative fuel trucks and equipment? The failure of the Port to design or purchase an automated real time unloading and immediate delivery to train system will cause significant air quality and traffic problems. The terminal is primarily creating more container storage space and additional rail lines.

6. **Request For Public Transportation Infrastructure Improvements Information** - We request that the DEIR/DEIS contain all available POLA information and alternatives that have been proposed by the public on any transportation infrastructure improvement projects at the TraPac Terminal or other nearby POLA Terminals that will offset and mitigate the Port of Los Angeles's business operations existing impact in the adjacent

Los Angeles and Long Beach Harbor communities, the greater Los Angeles County and interstate public transportation systems.

The POLA has not provided any transportation study to show that TraPac Terminal Expansion Project will decrease current or future traffic and congestion.

The TraPac Terminal Expansion Project will not minimize surface transportation congestion or delays while providing conveyance to both local and distant cargo destinations but will in-fact increase traffic congestion in almost every public freeway, highway, street, bridge and railway within 50 miles. All Los Angeles County freeways connecting to the Port of Los Angeles are currently 100% congested and can not support any additional surface truck traffic.

The Port of Los Angeles, its Tenants or importing retail companies have made no public announcement or mention in any of their documentation of their intent to finance the construction of a new truck freeway or highway outside the Port. There is no current approved federal, state, county or city plan or funding to expand any connecting highway, freeway or bridge to support the Port of Los Angeles proposed growth.

7. **Request For Information Why The Wilmington Leeward Bay Promenade, Marina & Wetlands Project Proposed By The Wilmington Community is not being considered As An Alternate Land Use Vs Relocation of Pier A Rail Yard** - The Wilmington community has proposed to the Port that all Port property east of Avalon Blvd. to Henry Ford Ave. be designated for future Wilmington Waterfront Development. The public has the right to have its proposed land use projects added as one of the listed alternatives or part of the primary proposal.
8. **Request For No Action Alternative To Include Additional Information** - We request that the DEIR/DEIS state that the TraPac Terminal Expansion is not mandatory or necessary if the POLA establishes a maximum growth cap. The POLA studies and references to increased export and import business fail to mention that imports can be routed to numerous other Ports in the United States without causing any additional significant negative environmental and health impact on Los Angeles, Long Beach and the greater surrounding Los Angeles County region.

POLA information fails to mention that other US Ports that are currently underutilized can be upgraded and expanded. POLA information fails to state that the POLA is artificially creating an increased business opportunity to bring in more cargo by creating a larger TraPac Terminal.

The public has not been provided an opportunity to explore other business alternatives, other potential land uses or determine if it wants to establish a moratorium on Port growth. The Port has never sponsored a public forum or conference to allow public input into the Port Master Plan (PMP) and the impact of Port expansion in the City of Los Angeles and City of Long Beach communities.

9. **Request For POLA Sponsored Port Growth Moratorium Conference** - We request the POLA sponsor a public conference to discuss a Port Growth Moratorium and Capacity Limit and to include the conference information in the DEIR/DEIS. The Port has never sponsored one public meeting, forum or conference to solicit public opinion on

its Master Plan and POLA Growth Capacity Limits.

10. **Request For POLA Sponsored Alternative Land Use Conference** - We request that the POLA sponsor a public conference to discuss alternative uses for waterfront land. This information should be included in the DEIR/DEIS. The Port has never sponsored one public meeting, forum or conference to solicit public opinion and recommendations. All alternative land locations and land uses which have been previously identified have excluded the Wilmington community proposed Wilmington Leeward Bay Promenade, Marina & Wetlands Project submitted to the POLA various times since 2002.

Other Port land use alternatives which have been discussed at various Los Angeles Harbor environmental and community organization meetings have included: Restoring POLA Wilmington Tidelands back to a natural wetlands site, restoration of the San Pedro Bay Coastline, restoration of an onshore migratory bird sanctuary, creation of a new marine breeding habitat, creation of an offshore marine & migratory bird island sanctuary, building a new ocean water cleaning reclamation facility, building a new public leisure boat marina, a new charter high school and building a new university marine biology & environmental research center.

11. **Request To Include A Disclaimer Note To Indicate No Government Agency Approval** -

We request that the DEIR/DEIS include a disclaimer which states that the POLA application/information/studies/tables etc. which are included or referenced may not conform to, have not been reviewed, have not been validated or approved by any government agency and may not comply with NEPA, Clean Water Act, Clean Air Act, CEQA, California Health Codes, Environmental Justice legal requirements or other agency referenced.

The POLA in all previous DEIR's and Final EIR's routinely words its paragraphs to give the reader the impression that what it has done, written, included or is using has been approved, has met all requirements, is in compliance with, conforms to, has been validated, is correct or complete. Our organizations research has disclosed that past POLA's DEIR's and Final EIR's do not completely comply with NEPA, the Clean Water Act, Clean Air Act, CEQA, California Health Codes, Environmental Justice legal requirements in many requirements. The public is entitled to full, complete and factual disclosure of the information presented.

12. **Request To Include Public Comment Information** - We request that public comment information be included in the DEIR/DEIS in the various NEPA/CEQA EIR/EIS Sections. There has been significant public comments made during Public Haerings/Meetings and Public Comment Periods questioning, detailing discrepancies, providing information and in opposition to project information, land alternatives, project impact assessments, proposed mitigation and numerous other issues which deserve to be included in the DEIR/DEIS. Exclusion of this information gives the reviewing governmental agencies and readers the impression that there has been no significant opposition, information, recommendations or issues questioned.
13. **Request To Include Accurate Residential Communities Proximity Information** - We request that the DEIR/DEIS contain accurate residential community proximity information to the TraPac Terminal. The POLA in its past NOI/NOP's, all previous

DEIR's and EIR's intentionally uses the word adjacent to Wilmington. We request that the DEIR state in feet how close the TraPac Terminal is to Wilmington residents and a public park.

We request that the DEIR/DEIS use a minimum community impact area zone of a 10 mile radius of the TraPac Terminal. There is a population of more than 500,000 within a 10 mile radius of the project. The majority of the population are children under the age of 18.

At least 5 other cities are within 10 miles of the project and at least 10 cities are within 20 miles of the current DCP truck/train routes. All cities and communities will be impacted by the TraPac Terminal which will contribute to increased traffic congestion and advanced deterioration of all transportation infrastructures.

14. **Request To Include Site Specific Noise Test Information** - We request that the DEIR/DEIS contain accurate site specific noise test information and projected due to residential communities proximity to the TraPac Terminal DCP and future associated POLA Terminal use. Past POLA DEIR/DEIS's and Final EIR/EIS's fail to state that residents live near Port and its truck, train and vehicle routes. Exclusion of this information gives the reviewing governmental agencies and readers the impression that the public does not live close, hence they are not being impacted.
15. **Request To Include Accurate Related Projects & Cumulative Impact Information** - We request that the DEIR/DEIS contain an accurate, current and a comprehensive study of industrial and commercial business operations and future projects within a 20 mile radius of the TraPac Terminal use. The POLA traditionally leaves out numerous other existing and proposed future projects which will contribute to a significant cumulative impact.

Past POLA DEIS/DEIRs failed to conduct extensive research into other potential impacting construction projects and new business operations and their cumulative impact on the Harbor and Environmental Justice communities which are already disproportionately impacted.

Past DEIS/DEIR's omitted and failed to list over 25 additional construction projects that are proposed, approved or under construction. There is a new Dana Strand Housing Project currently under construction which will house 1200 families less than 100' to TraPac and the proposed I-110 Freeway On ramp. The POLA is also operating a subcontracted off-port property fumigation facility in Wilmington and container inspection facility in Carson.

The Los Angeles Unified School District has over 25 major projects over the next 7 years and an estimated equal amount over the next 10-15 years. The Los Angeles Community College District has identified over 5 major projects. The City and County of Los Angeles have major Sanitation Department Expansion. In addition, the City of Los Angeles and Long Beach have issued numerous business building construction permits to begin in the next 2 years.

Kinder Morgan has proposed to build 18 new 80,000 barrel capacity fuel storage tanks in Carson which will border Wilmington and Long Beach. Wal-Mart will be building 40 new super stores which will have huge grocery sections in the next 7 years in Southern

California. Warren E & P Inc. Plans to drill 540 new oil wells in Wilmington over the next 1-10 years.

We request that the study include all current and future proposed projects within in the next 15 years and air pollution sources within a 20 mile radius. It shall include as a minimum: all current & proposed future Port of LA projects, Port of Long Beach, all oil refineries, storage tank facilities, operating & non-operating oil wells, liquid bulk terminals, the Alameda Corridor, LB & LA Unified School District current & proposed construction projects, Long Beach City College, LA Harbor College new construction, current & proposed hospital, medical center, commercial center construction projects, LAX Airport expansion, new Long Beach-Wilmington-San Pedro bridge, LA City & LA County Sanitation Departments expansion projects and residential housing development projects.

In addition to the NEPA/CEQA Cumulative Impact definition, we define Cumulative Impact "as the increasing, compounding and disproportionate exposure to multiple sources and types of air pollution which can cause an adverse health affect or risk.

A Cumulative Impact can cause or contribute to temporary illness, inability to perform normal daily activities, cause temporary or permanent disability, cause inadequate body, organ or immune system growth, development and repair, can be acute, chronic, life threatening and cause unnatural death.

A Cumulative Impact can also cause temporary or irreparable harm, damage, degradation or loss to the environment, natural resources and wildlife. It can also negatively affect the economic welfare, safety and quality of life of the public or a protected class."

NEAP/CEQA Cumulative Impact definition: the incremental effects of an individual project are considerable when viewed in connection with the effects of other past, current and probable future projects.

17. **POLA Environmental Checklist Form Information** - The POLA should have provided an updated Environmental Checklist Form to reflect significant changes from the original.

As an example the POLA plans to fill in 10 acres of the North Channel which was not proposed in the original which will impact water, hydrology and habitat.

18. **POLA Air Quality Information & Mitigation Deficiencies** -

**Existing Ambient Air Quality:** Past POLA DEIR's and Final EIR's failed to include a comprehensive air quality at the Port of Los Angeles, bordering Los Angeles Harbor and Long Beach Bordering communities in order to determine if its construction or business operations are negatively impacting the local communities.

The size and amount of air pollution generated each year warrants that POLA conduct a 24hr - 7 day week continuous on-going monitoring and reporting of air pollution.

The information and data referenced in past DEIS/DEIR's has been primarily obtained from modeling, other source information and not actual on-site testing. Resources referenced such as the MATES II Study contains air quality data that is currently over 5 years old and in five years the POLA has grown an estimated 30% (6% x 5 years).



The POLA has also failed to mention that in the MATES II Study that Wilmington, San Pedro and West Long Beach which borders the POLA are listed as the highest risk to cancer from diesel fuel emissions.

Past POLA DEIR's and Final EIR's fail to state that South Coast Air Quality Management District air quality testing of PM10 disclosed that the Port of Los Angeles, Wilmington, San Pedro and west Long Beach have consistently higher PM10 levels that those measured at the AQMD's north Long Beach air quality monitoring network site. It failed to state that in one study 34 out of 60 PM10 samples collected exceeded the state health safety standard of 50 ug/mg.

The POLA in the past has failed to mention that the nearest SCAQMD air monitoring site in north Long Beach is over 10 miles away from the TraPac Terminal.

The POLA failed to mention and include that the California Air Resources Board conducted a one year air quality study in Wilmington in 2001 which found 26 carcinogenic chemicals and 39 toxic chemicals in the communities air.

The failure of the POLA to prepare an accurate environmental baseline in compliance to NEPA and CEQA for the achievement of a current and future attainment compliance status is sufficient grounds to deny the POLA a permit.

**Criteria Air Pollutants:** The Port of Los Angeles is currently located in the Los Angeles region which is designated as a non-attainment area, any new TraPac Terminal expansion will continue and further exceed the criteria of this classification. The POLA currently has no approved plan that will bring the POLA into legal compliance. No past or current proposed actions or mitigation of the POLA guarantees that the POLA will be compliance in the future. The failure of the POLA to contribute to the achievement of a current let alone future attainment compliance status is sufficient grounds to deny the POLA a permit.

**Toxic Air Pollutants:** The Port of Los Angeles and TraPac Terminal as proposed will continue to contribute to the failure to meet the established safe standards of several toxic air pollutants. The POLA currently has no plan that will bring them into legal compliance. No past or current proposed actions or mitigation of the POLA guarantees that they will be in compliance in the future. The failure of the POLA to contribute to the achievement of a current let alone future attainment compliance status is sufficient grounds to deny the POLA a permit.

19. **POLA Health Effects Form Air Pollution Information Deficiencies:** Past POLA DEIS/DEIR's and Final EIS/EIR's fail to disclose that medical and scientific research has identified over 30 different serious and life threatening health problems caused by air pollution. Past POLA DEIS/DEIR's and Final EIS/EIR's fail to disclose that there are hundreds of medical and scientific studies which have been completed confirming the public health dangers and death potential of air pollution and exposure to diesel fuel exhaust.

Past POLA DEIS/DEIR's and Final DEIS/EIR's fail to state that children and senior citizens are the most susceptible and impacted group to air pollution and exposure to diesel fuel exhaust. The DEIS/DEIR's and Final EIS/EIR's fail to state that short and

long term exposure to air pollution and diesel fuel exhaust will cause death, temporary and permanent illness and disabilities.

The DEIS/DEIR's and Final EIS/EIR's fail to state that every category of respiratory disease is now increasing every year and death related to air pollution is increasing every year. Past POLA DEIS/DEIR's and Final EIS/EIR's only provided symptomatic information. Past DEIS/DEIR's and Final EIS/EIR's fail to disclose that public health care costs now exceed over a billion dollars a year and that the Port of Los Angeles, the terminal operators, shipping companies and retailers do not contribute one penny to public health care.

Past POLA DEIS/DEIR's and Final EIS/EIR's fail to state that diesel fuel exhaust has been identified and officially listed by both the State of California and the US Federal Government as a cancer causing chemical substance. Past DEIS/DEIR's and Final EIS/EIR's fail to mention that 100% of container trucks diesel fuel, ships use bunker fuel and that over 75% of all Port, Supplier and Contractor construction owned, leased or rented vehicles and equipment use diesel fuel.

Past POLA DEIS/DEIR's and Final EIS/EIR's fail to disclose that the Port of Los Angeles is the # 1 largest source of air pollution in Southern California according to the South Coast Air Quality Management District. The failure of the POLA to clearly present the health dangers to the public is sufficient grounds to deny the POLA a permit.

## **20. Typical POLA DEIR/DEIR Mitigation Measures Deficiencies -**

### **Construction Impacts: .**

1. **Apply two-degree injection timing retard to inter-cooled diesel engines wherever possible** - We have interviewed numerous individuals who have worked in various capacities in construction and not one knew of one instance where this requirement was performed currently or in the past. The POLA has never made this a mandatory requirement in any of its contractor, subcontract or supplier contracts. Statements such as "feasible measures which could be implemented", "wherever possible" provide no guarantee of compliance.

Most heavy construction equipment is rented or leased and this requirement has never been mandated in any rental or lease agreement. This requirement is possible in every type of this equipment. Past DEIS/DEIR's have provided no implementation, monitoring, assessment or compliance program information for any type of mitigation proposal.

2. **Require contractors to use reformulated diesel fuel wherever possible** - This requirement has never been made a mandatory contractual requirement. This requirement is possible in every instance where diesel or bunker fuel is used. There are local suppliers of bio-diesel fuel (currently the Best Available Technology (BAT) diesel fuel), low sulfur diesel fuel, CNG, LPG and LNG who can meet this requirement. Past DEIS/DEIR's have provided no implementation, monitoring, assessment or compliance program for this type of mitigation proposal.

3. **Minimize concurrent use of equipment through equipment phasing** - The POLA and past DEIS/DEIR's have never considered this measure. All construction projects follow the exact same construction phases and equipment uses and rarely consider any other possibility. A project can identify specific instances of where and how this could be implemented. To be successful POLA would have to provide a monitoring, assessment or compliance program.
4. **Discontinue construction during Phase II smog alerts** - The POLA and past DEIS/DEIR's have not considered this measure. POLA would have to provide an implementation, monitoring, assessment and compliance program. POLA did not stop any business operation or construction during any of the past SCAQMD smog alerts.
5. **Require contractors to use electric-powered dredges for hydraulic dredging** - The POLA and past DEIS/DEIR's have stated that they would use electrical dredges yet they were recently using a diesel powered dredge at the China Shipping Terminal and the current Deep Channel Dredging Project. The POLA and past DEIS/DEIR's do not state that this will be a mandatory contractual requirement.

It is a fact that almost any type of existing petroleum based fuel motor can be replaced with an electric motor. One additional POLA mitigation measure could be to reimburse the cost to retrofit a dredge for this project and/or add a particulate trap. The POLA and past DEIS/DEIR's provide no implementation, monitoring, assessment or compliance program for this mitigation proposal.

6. **Require contractors to use turbo-charged and inter-cooled diesel engines wherever possible** - POLA make this a mandatory contractual requirement. This requirement is possible in many vehicle and equipment categories. The POLA provide an implementation, monitoring, assessment or compliance program for this type of mitigation proposal.
7. **Turn off engines when not in use** - POLA make this a mandatory requirement. The construction industry is notorious for leaving vehicles and equipment running when not in immediate use. The POLA provide an implementation, monitoring, assessment and compliance program for this type of mitigation proposal. Changing the bad work habits of construction workers will require the major re-training of all construction personnel and strict monitoring. This requirement would require a full time on-site compliance officer.
8. **Encourage ride sharing and mass transit among construction workers** - POLA make this a mandatory requirement. That POLA provide an implementation, monitoring, assessment and compliance program for type of mitigation proposal. Changing the travel habits of construction workers will require the major recruiting of volunteer construction personnel. POLA should create a reward incentives program for individuals who use public transportation or car pool.

The General Contractor may have to allow a later start time for those taking public transportation such as a bus or train which normally start their earliest run

at 5:00am.

Another major side benefit is that this measure would encourage the hiring of local residents which would help the local community economy. Wilmington has one of the highest unemployment rates in the city. This measure will require a significant incentive program commitment, bus/train token cost reimbursement, van or shuttle support program.

POLA should provide public comment in support of the Harbor area community supported extension of the Metro Blue Line to Wilmington and San Pedro via Harry Bridges Road. POLA as mitigation should finance a Metro Blue Line Harbor Extension Feasibility Study.

9. **Water surfaces before grading and drying dredged silt** - POLA provide an implementation, monitoring, assessment and compliance program information for this type of mitigation proposal. Although some projects are not near residential areas, the wind does carry dust particles.

POLA in the past has dumped wet dredged silt to dry near residents at the Leeward Bay Marina which is being blown onto residents boats and slips.

10. **Suspend grading, demolition, dredging and storage activities when wind speeds exceed 25 mph** - POLA provide an implementation, monitoring, assessment and compliance program for this type of mitigation proposal.
11. **Water exposed surfaces at least twice daily to maintain surface crust** - POLA provide an implementation, monitoring, assessment and compliance program information for this type of mitigation proposal.
12. **Treat unattended construction areas with soil stabilizers** - POLA provide an implementation, monitoring, assessment and compliance program information for this type of mitigation proposal.
13. **Restrict off-road vehicle use** - POLA provide an implementation, monitoring, assessment and compliance program information for this type of mitigation proposal.
14. **Reduce on-site vehicle speed to less than 15 mph** - POLA provide an implementation, monitoring, assessment and compliance program for this type of mitigation proposal.
15. **Restrict site obnoxious odors** - Restrict obnoxious odors from drying dredged silt material stored near Leeward Bay Marina where residents live on boats. Do not store or dry any materials within one mile of a marina.

#### **Operations Impacts:**

1. **The captive fleet of off-road diesel-powered terminal equipment must be composed only of equipment that meets the requirements of the EPA's control of Emissions of Air Pollution From Nonroad Diesel Engines & Fuels proposed Rule proposed Rule** - POLA provide an implementation, monitoring,

assessment and compliance program for this type of mitigation proposal. This paragraph should also state that the Port captive fleet only represents approximately 1%-3% of the diesel air pollution problem.

2. **Apply two-degree injection timing retard to inter-cooled diesel engines wherever possible** - We have interviewed numerous individuals who have worked in various capacities in construction and not one knew of one instance where this requirement was performed currently or in the past. The POLA has never made this a mandatory requirement in any of its contractor, subcontract or supplier contracts. Statements such as "feasible measures which could be implemented", "wherever possible" provide no guarantee of compliance.

Most heavy construction equipment is rented or leased and this requirement has never been mandated in any rental or lease agreement. This requirement is possible in every type of this equipment. Past DEIR's/EIR's have provided no implementation, monitoring, assessment or compliance program information for type of mitigation proposal.

3. **Require the use of reformulated diesel fuel & exhaust control technology for diesel-powered terminal equipment wherever possible** - This requirement has never been made a mandatory contractual requirement. This requirement is possible in every instance where diesel or bunker fuel is used. There are local suppliers of bio-diesel fuel (currently the Best Available Technology (BAT) diesel fuel), CNG, LPG and LNG who can meet this requirement. Past DEIR's/EIR's have provided no implementation, monitoring, assessment or compliance program for this type of mitigation proposal.

POLA finance the installation of oxidation catalyst and particulate traps all trucks, trains and vehicles and equipment.

4. **Schedule truck traffic for off-peak hours** - POLA provide an implementation, monitoring, assessment and compliance program information for this type of mitigation proposal.

5. **Encourage ride sharing and mass transit among operational personnel** - POLA make this a mandatory requirement. That POLA provide an implementation, monitoring, assessment and compliance program for type of mitigation proposal. Changing the travel habits of construction workers will require the major recruiting of volunteer construction personnel. POLA should create a reward incentives program for individuals who use public transportation or car pool.

The General Contractor may have to allow a later start time for those taking public transportation such as a bus or train which normally start their earliest run at 5:00am.

Another major side benefit is that this measure would encourage the hiring of local residents which would help the local community economy. Wilmington has one of the highest unemployment rates in the city. This measure will

require a significant incentive program commitment, bus/train token cost reimbursement, van or shuttle support program.

21. **POLA DEIR's Reference To Other Governmental Agencies** - Past DEIR's fail to state that the project being proposed has not been reviewed or approved by any of the required governmental reviewing agencies it may reference or reviewing government agency it may have sent a copy too for review. POLA also has intentionally not sent courtesy copies of the DEIR to government agencies which could provide significant input and recommendations such as the South Coast Air Quality Management District (SCAQMD) which specializes in air quality.

We have found instances where SCAQMD was sent a DEIS/DEIR for review and they submitted a letter with specific recommendations which the POLA completely ignored. We request that as mitigation POLA comply with all AQMD's recommendations. SCAQMD has not been sent all POLA DEIS/DEIR's or Final EIS/EIR's for review. We request that POLA send SCAQMD copies of all NOI/NOP's, DEIS/DEIR's and Final EIS/EIR's and any supplemental changes, additions or modifications.

Our review of past POLA DEIR's has disclosed that they do not comply with NEPA, the Clean Water Act, Clean Air Act, CEQA and Environmental Justice legal requirements laws.

22. **POLA DEIS/DEIR's Traffic Impact Deficiencies** - Past DEIS/DEIR's fail to include a Project Specific Traffic Study and a Traffic Management Plan. The DCP and associated future use will increase traffic. Recent DEIS/DEIR's and NOI/NOP information do not mention that based on a recent Port of Los Angeles Future Truck Traffic Forecast Study that they are now over 45,000 truck trips a day through the Port of Los Angeles and Long Beach and that this will be increasing to over 121,000 truck trips per day by the year 2025.

Past DEIS/DEIR's and NOI/NOP's fail to state that all public freeways, highways, streets, access roads and bridges servicing the Port of Los Angeles are deadlocked and currently at 100% capacity during main traffic hours.

Past DEIS/DEIR's fail to mention that there are 3-5 truck accidents per day on the I-710 Long Beach Freeway the primary freeway servicing the Port of Los Angeles. They also fail to mention that during the recent Longshoreman's Union Contract Dispute Lock-Out there was almost no traffic congestion on all freeways and that the percentage of accidents dropped over 90%. Past DEIS/DEIR's fail to state that trucks from the Port constitute a significantly high percentage of all Los Angeles County freeway accidents.

There are no approved plans or budget to expand or build any new freeway to service the Port of Los Angeles in the near future. All current freeways, highways, streets, access roads and bridges can not support another Port of Los Angeles expansion project. This fact alone is sufficient ground to deny the Port of Los Angeles its permit.

23. **POLA DEIS/DEIR/EIS/EIR Environmental Justice (EJ) & Civil Rights Violations & Deficiencies** - The POLA has failed to comply with Presidential Executive Order 12898 on Environmental Justice, the State of California five approved laws which

include environmental justice legal and mandatory compliance requirements, Title VI of the Civil Rights Act of 1964 and numerous other federal and state agency Environmental Justice policies.

The POLA in the past and present continues to engage in environmental injustice, environmental racism, environmental inequity and environmental classism against Wilmington a Hispanic, majority minority, low income, high unemployment and high poverty community in its policy making, public notification, public participation, public education, project site location, project cumulative environmental and health impacts, failure to mitigate all environmental & health impacts, failure to consider & include community proposed alternative land uses, failure to implement numerous possible air pollution, land & water controls, failure to allocate sufficient funds to prevent environmental pollution, failure to hire extra Port police to enforce illegal traffic in the community, failure to investigate & verify the legality of off-port container storage yards, failure to clean-up community blight, failure to investigate & conduct public health research, failure to conduct on-site air quality studies, failure to provide for public health care, failure to conduct a community negative economic impact study, failure to equally invest in community waterfront redevelopment and failure to select Hispanic and minority contractors. There are hundreds of blatant examples of POLA discrimination, negligence and obfuscation.

Past DEIS/DEIR's fail to clearly state that a proposed project will impact Environmental Justice and Civil Rights protected communities. Wilmington has a population of approximately 55,000, is approximately 95% ethnic minority, 85% Hispanic, 66% Spanish Speaking, 50% low income and 27% poverty community. San Pedro has a population of approximately 90,000, is approximately a 50% ethnic minority, 25% low income and 20% poverty community. Harbor City, Carson and West Long Beach which also have a close proximity to the POLA are also majority ethnic minority communities which also must be considered.

Past DEIS/DEIR's fail to investigate and include comprehensive Cumulative Impact information. Wilmington has more environmental polluting sources per square mile than any other city or community in the State of California and the highest number of sources within 20 miles.

- 24. Past DEIS/DEIR's Significant Unavoidable Adverse Impacts -** The TraPac Terminal will in fact cause a significant increase in negative environmental and health impacts on the entire surrounding Environmental Justice Community within a 10 mile radius, which is already designated a high cancer risk area by SCAQMD and other medical studies.

A No Action Alternative eliminates any future potential increase in risk or actual significant environmental or health impacts. The inclusion of other proposed alternative land uses stated in this document will also contribute to the improvement of the environment and health of EJ Communities and the public and contribute to a no net increase of existing air pollution and other identified impacts.

Past POLA DEIS/DEIR's conclusions blatantly infer that Environmental Justice protected minority communities, low income and poverty populations are expendable when it comes to Port growth and profit. This is totally unacceptable and violates

NEPA, CEQA, the Civil Rights Act Law and EJ laws. The failure of the POLA to properly address, research and include no or limited impact alternatives is sufficient grounds for the USACOE's to deny the POLA a permit.

25. **Past DEIS/DEIR's Long Term Implications of the Project Deficiencies - Past DEIS/DEIR's fail to adequately describe and mitigate the long term negative environmental and health impacts of projects.** The TraPac Terminal use will cause significant long term environmental and public health impacts which are in fact 100% avoidable if anyone of several non-Port proposed alternatives as mentioned in this document are selected. Long term impacts can also be avoided or lessened if proper mitigation measures were adopted as proposed in this document.

It is our opinion that it is irresponsible to come to a conclusion that criteria air pollutants and other negative impacts from the construction and operation of a proposed project would result in significant unavoidable adverse air quality or other negative impacts with no solutions.

Past DEIS/DEIR's state that project construction and operation will be unable to reduce air emissions to less than significance is sufficient grounds for the USACOE's to deny the POLA a permit and fail to comply with the Mayor of Los Angeles mandate of no net increase from the year 2002. All project alternatives which involve Port operations business expansion will cause significant unavoidable environmental and public health impacts is sufficient grounds for the USACOE's to deny the POLA a permit. The failure of the POLA to propose non-impact alternatives and to deny and discourage public participation in a public forum in recommending land use alternatives is sufficient grounds for the USACOE's to deny the POLA a permit.

Past DEIR's refer to long term benefits which are not true and have not been substantiated. Past references to economies of using larger deep-draft vessels neglects the fact that the DCP area is not currently being used by deep-draft vessels, so that any additional ship would cause automatically cause additional air pollution where currently none exists. Another fact is that the DCP is not replacing any other existing Pier and even if a tenant were to leave, a new replacement tenant would be found resulting in a no net decrease, but an actual increase in air pollution.

26. **Past DEIS/DEIR's Health Risk Assessment (HRA) Data & Conclusions Are Unvalidated** - We challenge the validity of the findings and conclusions which typically conclude and state that all alternatives would not cause a significant health impact to surrounding communities. Most study data used by POLA is based on outdated information, incomplete information and on computer models. Most HRA studies are based on cancer deaths and do not include non-cancer caused deaths, illnesses and disabilities. The POLA has never conducted one Port of LA or project site-specific scientific or medical public health study in the Los Angeles Harbor to determine its existing current negative health impact on any of the bordering community populations.

The HRA information typically does not reference or include all of the following medical or scientific studies and all the potential health impacted population groups which are necessary for a complete, accurate and valid HRA Study.

- I. Medical & Scientific Studies



- A. Mortality Study
- B. Morbidity Study
- C. Epidemiology Studies
- D. Public Health Surveys
- E. Air Quality Testing
- F. Water Quality Testing

II. Population Groups

- B. Residents Los Angeles Harbor & Long Beach Harbor & Marina
- C. Employees Los Angeles Harbor & Surrounding Business Owners &
- D. Port of Los Angeles Employees
- E. POLA Contractors, Subcontractors & Suppliers
- F. POLA Tenant Employees, Contractors, Subcontractors, Suppliers
- G. POLA Labor Unions Employees ie. ILWU, CTA, Teamsters
- H. Populations Bordering all truck & train transportation corridor routes
- I. Populations bordering the East Los Angeles Rail Yard

The above referenced studies are necessary to establish an accurate baseline of the current health status of populations bordering and near the POLA, the Project Site and Off-Port Site Transportation Corridor Routes prior to the establishment of estimates and conclusions. The estimates must also take into account predicted population growth and POLA growth

In the last 90 days the SCAQMD has released several reports and news releases stating that the air quality in the SCAQMD region is in fact getting worse and this year we have exceeded the number of days in non-attainment from last year. The American Lung Association has also released reports stating that Asthma in children is getting worse every year in Los Angeles County and the amount of children affected is doubling every 10 years.

The SCAQMD has identified the Port of Los Angeles as the # 1 largest stationary air pollution source in Southern California. The California Air Resources Board (CARB) last year completed a one-year air study at Wilmington Park Elementary School which borders the POLA. A preliminary review of the CARB Wilmington Study data revealed that 26 Carcinogenic Chemicals and 39 Toxic Chemicals were found in the Wilmington communities air.

Past POLA DEIS/DEIR's have not included or referenced AB 2588 facility data reporting. As we have stated earlier in this document a proper impact study zone should be a minimum 10 mile radius.

27. **Past POLA Off-Site Mitigation** - The POLA has in the past has given approximately \$ 30 million for Off-Site Mitigation. We request that the POLA be prohibited from

allocating any future funds for Off-Site Mitigation when there are On-Site proposals and alternative land uses that have been recommended by the Wilmington Community where funds can be used locally. We request that the POLA pursue and the USACOE only permit local mitigation projects.

The Wilmington Coalition For A Safe Environment has proposed to the POLA on numerous occasions the Wilmington Leeward Bay Promenade, Marina and Wetlands Project which involves several unique projects: The Dominguez Channel Wetlands & Wildlife Preserve to be located north of Consolidated Slip and adjacent to Leeward Bay Marina and the Dominguez Channel, the creation of a Ocean Water Reclamation Facility and creation of a Salt Water Fish Hatchery in Consolidated Slip/Leeward Bay Marina.

We additionally would request that the Ken Malloy Regional Park & Lake in Wilmington be eligible for POLA mitigation funding since in the past its run-off was once connected to the San Pedro Bay before the POLA stopped the water flow.

- 28. POLA Destruction of Coastal Wetlands & Migratory Bird Habitat** - While the Port is in compliance to its Port Master Plan which it has solely written and revised without public input, it has failed to establish a Wetlands & Bird Habitat Restoration Plan. It has failed to solicit and include numerous public recommendations and land use alternatives suggestions. This has resulted in the loss of approximately 99% of LA Harbors Coastal Wetlands & Migratory Bird Habitat. Wilmington currently has no natural coastal tidelands or wetlands remaining.

Although POLA is proposing several excellent alternative mitigation projects in San Pedro it has failed to include the recommendations and requests by the Wilmington community which is the most Environmental Justice impacted community.

The Wilmington community has however, proposed the destruction, removal or construction of a parking structure for the DAS import car parking lot to allow the creation and restoring of a coastal wetlands area. The Wilmington Leeward Bay Promenade, Marina & Wetlands Project and The Dominguez Channel Wetlands & Wildlife Preserve has been presented to POLA on numerous occasions and should be considered the # 1 alternative and mitigation.

- 29. POLA Degradation of Ocean Water Quality** - The POLA is one of the primary causes of the degradation of Ocean Water Quality in the Los Angeles Harbor and throughout the San Pedro Bay. The water color is typically a dark green to a brownish hue, when it should be a light green to blue. The water typically has an oily-fuel-decaying smell. The water clarity is typically murky and cloudy, when it should be crystal clear to a depth of ten feet or more. The Port has not established a comprehensive Ocean Water Restoration Plan. The POLA has been under construction for the past 20 years and plans to continue expansion over the next 15-20 years which will prevent any ocean water quality improvement, thus a long term study and plan to address this issue is needed.

Cabrillo Beach which borders the POLA receives an " F " Grade in water quality every month for many years. The degraded water quality is caused by thousand of tons of particulate matter & other chemicals settling in the waters, illegal bilge dumping, oil & fuel spills/leakage, terminal water run-off which contains asphalt, concrete, worn rubber

from tires from the over 20,000 diesel truck trips a day entering the Port, the 49 million containers per year which undergo continual paint deterioration and non-stop Port construction projects which will continue for the next 20 years.

It is also caused by the Port built breakwater which prohibits the tidal flow to enter the Harbor and remove contaminants. It is caused by the loss of water acreage due to backlands creation, land fills, island creation and dock building. It is also caused by the increases ship traffic and docking in a limited and decreasing area, in which estimates that the POLA will triple in size in the next 15-20 years.

The Wilmington community has proposed the building of an Ocean Water Reclamation Facility in the Consolidated Slip and in other Port locations to be determined.

30. **POLA Decimation of LA Harbor Fish, Sea Life, Breeding Habitats & Aquatic Eco-System** - The POLA is one of the primary causes of the decimation of the native fish population, the contamination and loss of local fish, shell fish, plant & plankton sea life, sea animal and bird breeding habitats and the coastal aquatic eco-system. The California Sea Lion, Harbor Seal, Least Tern and Brown Pelican are endangered species. The POLA has failed to establish an LA Harbor and San Pedro Bay Aquatic Eco-System Restoration Plan

Port construction and major changes to the San Pedro Bay have caused the loss of over 99% of coastal tidelands, wetlands, marine and wildlife habitat. The losses and causes include: elimination of coastal tidelands, elimination of shallow water foraging, loss of benthic fauna, the permanent alteration of the coastal bottom topography, loss of deep water habitat, thousand of tons of particulate matter & other chemicals settling in the waters, illegal bilge dumping, oil & fuel spills/leakage, terminal water run-off which contains asphalt, concrete, worn rubber from tires from the over 20,000 diesel truck trips a day entering the Port, the over 25 million containers per year which undergo continual rust & lead paint deterioration and non-stop Port construction projects which will continue for the next 20 years.

It is caused by the Port built breakwater which prohibits the tidal flow to enter the Harbor and remove contaminants. It is caused by the loss of water acreage due to backlands creation, land fills, island creation and dock building. It is also caused by the increases ship traffic and docking in a limited and decreasing area, in which estimates that the POLA will triple in size in the next 15-20 years.

The Wilmington community has proposed the building of an Ocean Water Reclamation Facility in the Consolidated Slip and in other Port locations to be determined to support the fish, sea life, breeding habitat and aquatic eco-system restoration, fish breeding habitat and The Dominguez Channel Wetlands & Wildlife Preserve.

31. **POLA Inadequate Assessment of Tsunami, Seismic Danger & Global Warming Impacts** - The POLA is not building to the best international standards which provide for higher construction safe-guards against liquefaction and ground failure due to seismic shaking. Tsunami assessments and construction have failed to consider worst case scenarios. In the last 2 years there was an earthquake near the POLA centered close to Catalina Island. The POLA must include relevant local scientific studies such as those published by USC.

The POLA has presented no information regarding potential impacts of rising waters and warmer waters due to global warming and global dimming. The POLA has sponsored no research study to determine its contributions to global warming and global dimming. The POLA must also prepare a Mitigation Plan to address these issues.

- 32. POLA Failure to Adequately Assess Public Utility Impacts** - The POLA has failed to adequately assess public utilities economic cost increases and shortages impacts. Past POLA DEIS/DEIR/EIS/EIR's documentation has identified potential increases in water demand and that current supplies are insufficient to meet the needs of the region. The POLA has additionally placed the burden of responsibility on the tenants to specify methods for obtaining water for their terminal facilities and/or the reduction of their water demands.

The POLA has failed to adequately assess future electrical and natural gas needs and public cost increases and shortage impacts. It is impossible for the tenant to comply without POLA and numerous other governmental agencies participation. It is the responsibility of the POLA to address this issue. The POLA has failed to establish an Energy Conservation Program and a Public Economic Impact Analysis. It is our opinion that 90% of the lights left on at night during none business operations can be turned off and alternate lighting such as LED lighting to replace other more expensive lights.

POLA should use sanitation department treated water for all its landscaping, specialty uses and require tenants to use recycled water as part of its contract or lease.

- 33. POLA Has Caused The Loss of an Aesthetic Coastline View of San Pedro Bay For the Wilmington and San Pedro Communities** - The POLA has caused the permanent and irreparable loss to Wilmington, San Pedro and the California Public of a San Pedro Bay coastline view and waterfront access. All of the Wilmington waterfront has been industrialized by the POLA with no community input, no consideration or planning for retaining, restoring or enhancing Wilmington, San Pedro Bay, California Coastal tidelands, wetlands, natural aquatic and wild life eco-systems.

Wilmington's view of the San Pedro Bay has been 100% blocked by the TraPac Terminal and the view from the I-110 Harbor Freeway is now more than 90% lost. POLA mus Mitigate this issue.

- 34. POLA has failed to Prepare a Public Emergency & Disaster Response Plan & to Assess Worst Case Disaster Scenarios** - The POLA has failed to prepare, implement and distribute to bordering LA Harbor communities a Public Emergency Evacuation & Disaster Response Plan. The POLA has failed to assess worst case scenarios for fires, explosions, tsunamis, earthquakes and terrorist attacks. The POLA has failed to assess the cumulative impact and risk of multiple source dangers. The POLA has the largest variety of public dangers in the west coast.

- 35. 2006 POLA TraPac Project Description Needs To Be Completely Rewritten** - The current POLA proposed NOI/NOP should not be allowed to proceed. A review of past EIS/EIR's by the Coalition For A Safe Environment and the POLA Community Advisory Committee has disclosed significant and gross negligence in the preparation of past NOI/NOP/SEI/SEIR/EIS/EIR's. Past SEIS/SEIR/DEIS/DEIR/EIS/EIR's would

not withstand today's scrutiny and meet NEPA and CEQA requirements.

We request that the NOI/NOP be cancelled and a new EIS/EIR be prepared for the proposed TraPac Terminal Expansion Project and for the existing illegal TraPac Terminal.

**36. Opposition To Filling in of the North Channel** - We are opposed to any more loss of the San Pedro Bay in order to create container storage back lands. POLA has a legal NEPA/CEQA responsibility to protect existing, restore and remediate the waters and tidelands which is part of the original San Pedro Bay.

**37. Opposition To Generic Reference To Various Industrial And Commercial Uses** - We are opposed to any generic description of the use of the surrounding land uses and setting and request that POLA disclose its full intended future use of all lands and settings.

Every potential use can have a different environmental and public health impact and NEPA/CEQA requires that POLA disclose those potential uses in the NOI/NOP/DEIS/DEIR/EIS/EIR/SEI/SIR.

**38. Mitigation - POLA to Prepare a Wilmington & San Pedro Waterfront Aesthetic Plan** - We request that the POLA establish a Wilmington & San Pedro Waterfront Aesthetic Plan. The Port hold public meetings for the identification of opportunities for restoration and enhancement for Wilmington, San Pedro and public access to a San Pedro Bay, California coastal tidelands, wetlands, natural aquatic and wild life ecosystems view.

**39. Mitigation - POLA to Prepare a Public Emergency Evacuation & Disaster Response Plan** - We request that the POLA establish a LA Harbor Public Emergency Evacuation & Disaster Response Plan. The Public and Dock Workers have a right to know the dangers that exist on the work site, community, the potential impact to their health & safety, what to do under various danger levels & scenarios, where emergency shelters are located, emergency exists routes out of the community and what governmental emergency assistance will be available.

**40. Mitigation - No POLA Off-Site Mitigation** - We request that Port Mitigation involving wetlands, fish, sea life, plant life, plankton, migratory bird habitat and Aquatic Eco-System restoration or enhancement be at the Port of Los Angeles, Consolidated Slip/Leeward Bay Marina, Dominguez Channel and the Ken Malloy Regional Park & Lake.

**41. Mitigation - POLA Wetlands & Migratory Bird Habitat Restoration** -We request that the POLA establish an annual \$10 million Wetlands & Migratory Bird Habitat Restoration Fund and Plan. We request that the Wilmington Leeward Bay Promenade, Marina and Wetlands proposal be incorporated into the POLA Master Plan and Mitigation Plan.

**42. Mitigation - POLA Ocean Water Quality Restoration Plan** - We request that the POLA establish an annual \$ 10 million Ocean Water Quality Restoration Plan and the building of an Ocean Water Reclamation Facility in the Consolidated Slip and in other

Port locations to be determined. The man made breakwater be removed or opened at various point to allow natural tide flow.

43. **Mitigation - POLA Fish, Sea life, Plant, Plankton, Sea Animal Breeding & Aquatic Eco-System Restoration Plan** - We request that the POLA establish an annual \$ 10 million Fish, Sea life, Plant, Plankton Sea Animal & Aquatic Eco-System Restoration Fund and Plan. We request that the Wilmington Leeward Bay Promenade, Marina and Wetlands proposal be incorporated into the POLA Master Plan and Mitigation Plan.
44. **Mitigation - POLA Tsunami, Seismic Danger, Global Warming & global Dimming Assessment Plan** - The POLA build according to the best international standards which provide for higher construction safe-guards against liquefaction and ground failure due to seismic shaking. The POLA to consider and include Tsunami worst case scenario precautions, warmer water impacts and rising ocean levels due to global warming.

The study shall also include impacts on the bordering Los Angeles harbor Communities and be included in the Public Emergency Evacuation & Disaster Response Plan.

45. **Mitigation - Port of Los Angeles Growth Moratorium Conference** - We request that the Port of Los Angeles sponsor a public conference to discuss and consider adopting a moratorium on Port growth. We additionally request that the Port hire an independent consultant group to assess the feasibility of the moratorium and local public opinion.

We believe that a significant amount of the Los Angeles and Long Beach Harbor residents and other impacted cities in the South Coast Air Quality Management District Region would support a moratorium on all Port growth or adoption of a limited slow growth policy if they new the truth of all the negative environmental, economic, health, welfare and safety impacts and that they are alternative land uses.

46. **Mitigation - San Pedro Bay Restoration Conference** - We request that the Port of Los Angeles sponsor a public conference to discuss and consider the possibility of developing a San Pedro Bay Restoration Plan. We additionally request that the Port hire an independent consultant group to assess the feasibility of the plan and local public opinion. We further believe that a significant amount of California's Historic San Pedro Bay and tidelands and wetlands can be restored close to its original former natural state.
47. **Mitigation - Lease/Contract Agreement Mitigation Inclusion** - We request that the Port of Los Angeles establish a plan to incorporate public and community proposed mitigation elements and requirements into all Port of Los Angeles Lease Agreements and Contracts. This shall include compliance to all of California's and the US 's environmental, health, safety, maritime requirements, rules, regulations, executive orders, ordinances and laws.

If a company refuses to comply the Port of Los Angeles can look for a new customer who is willing to comply. California is the 5<sup>th</sup> largest economy in the world, if a company wants to do business with California, they will have to do it on some of our terms. It is a fact that we do not need over 90% of what is imported. Most of what is imported are luxury items and cheap knock-offs that corporations and multi-national companies spend hundreds of millions of dollars to advertise and market to us. We in fact have a multi-billion dollar trade deficit which means that foreign countries

and companies are not purchasing their fair share of US made products.

48. **Mitigation - Shorter Term Lease Contracts For Terminals Near Communities** - We request that the Port of Los Angeles limit TraPac Terminal lease term to a maximum of 10 years with a clause to reassess new and emerging technologies to prevent environmental and public health impacts.
49. **Mitigation Request - Air, Water & Land Quality Baseline, Compliance & Monitoring Program** - We request that the Port of Los Angeles establish on-site and off-site air, water and land quality studies, pollution level inventory, environmental quality compliance program, monitoring program and a baseline prior to beginning construction of the TraPac Terminal. The local environment should be monitored daily during construction and during future daily business operations in order to establish a historical record.

The air quality monitoring program shall include Port of Los Angeles and TraPac Terminal, general contractor, subcontractor, independent contractor, supplier owned, leased, rented, borrowed, trucks, vehicles, construction equipment, non-road and stationary equipment.

The air quality program shall establish a plan to take action when the air quality exceeds local, regional, state or federal standards. The actions shall include but not be limited to halting part or all construction work, limiting truck/vehicle traffic, operating equipment, hours of work/operation and notification of the public.

The California Air Resources Board recently completed a one year study of air quality at Wilmington Park Elementary School which is only a few blocks from the Port of Los Angeles and the Alameda Corridor Project and the preliminary results have found that there were 26 Carcinogenic Chemicals and 39 Toxic Chemicals in the communities air. The South Coast Air Quality Management District has identified the Port of Los Angeles as the # 1 largest stationary source of air pollution in Southern California.

We request that the Port of Los Angeles publish a quarterly, annual and 10 year summary report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port post this information on a public accessible website in real time and to make a CD/DVD version available.

50. **Mitigation Request - Public Health Care Trust Fund** - We request that the Port of Los Angeles and the TraPac Terminal Tenant establish an annual \$ 50 million Public Health Care Trust Fund that the public and health care facilities can access for payment of non-prescription, prescription medicines, medical supplies, medical equipment, home air purifiers & ventilation systems, medical care transportation, short term and long term health care costs.

\$ 5 million will be allocated annually to purchase new Air Purification & Ventilation Systems for homeowners and residents which do not have them in order for families, children and senior citizens to breath healthier and cleaner air. The funds will first be used by the Los Angeles Harbor area communities which make up Los Angeles City Council District 15. The priorities will be for homeowners and residents living closest to

the Port of Los Angeles. When all homes have been retrofitted, the funds will then be allocated to non-profit organization offices or buildings which is serving the public ie. senior citizen centers, park recreation centers, museums etc.. Funds can come from Port profits, a new per truck, container or bulk product fee.

The public, non-profit public health organizations, community medical clinics, free clinics, county government public health agencies and hospitals should not be burdened with the financial responsibility to pay for health care costs caused by Port air pollution, other environmental causes and Port expansion. All Los Angeles County hospitals within 10 miles of the Port are having major staff and healthcare services cutbacks (Los Angeles Harbor General Hospital, Martin Luther King/henry Drew Medical Center and Long Beach Memorial Hospital).

Two county financially sponsored community clinics in Wilmington ( Wilmington Family Health Center, Wilmington Community Clinic) are also having major budget cutbacks which may cause them to close. San Pedro has the Harbor Free Clinic. These local medical facilities provide free or low cost health care services to the public of which the majority have no health care insurance. Never before has the cost of health insurance and prescriptions become unaffordable to the majority of the Los Angeles County Harbor poor and low income communities.

We request that the Port of Los Angeles and TraPac Terminal Tenants publish an annual and 10 year summary report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port post this information on a public accessible website in real time and to make a CD/DVD version available.

- 51. Mitigation Request - Public Environmental Care Trust Fund** - We request that the Port of Los Angeles and TraPac Terminal Tenant establish an annual \$ 25 million Public Environmental Mitigation Trust Fund, that the public, non-profit organizations and government agencies can access to address and correct any short term or long term negative environmental impacts the Port has caused to homes, property, vehicles, air, land, fresh water, ocean water, natural resources, wildlife or quality of life. Funds can come from Port profits, a new per truck, container, bulk or single item product fee.

We request that the Port and TraPac Terminal tenant publish an annual and 10 year summary report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

- 52. Mitigation Request - Harbor Community Health Survey** - We request that the Port of Los Angeles and TraPac Terminal Tenant immediately fund a \$ 2,000,000 two year Community Health Survey Project to be conducted with USC, California State University Long Beach and the Coalition For A Safe Environment to determine the community health impact of the Port's construction and business operations. We request that the same study be performed every five years to evaluate POLA's long term health impacts on the public. Funds can come from Port profits, a new per truck,



container, bulk or single item product fee.

The project will conduct a public health survey in Wilmington, San Pedro, Harbor City, Carson and West Long Beach to determine the number people afflicted with a health problem which may be attributed to the POLA business operations and construction activities.

The Port of Los Angeles has never sponsored or participated in one public health study to determine its potential negative health impact on bordering communities.

We request that the Port and TraPac Terminal Tenant publish this report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and DCP Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

- 53. Mitigation Request - Diesel Truck Alternative Fuel/Oxidation Catalyst/Particulate Trap & Electric Vehicle/Hybrid/Equipment Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenant establish a \$ 10 million fund and plan for the phase out of using diesel fuel trucks, vehicles, trains and yard equipment (road, non-road & stationary equipment) and retro-fitting with oxidation Catalyst/Particulate Traps. The Port can easily switch to non-polluting or less polluting fuels such as: bio-diesel fuel (the current Best Available Technology (BAT) fuel), low sulfur diesel fuel, CNG, LPG and LNG. The POLA investigate where automated and electric container transportation systems, vehicles, trains equipment can be incorporated.

We want the Port to incorporate in its leases that all terminal operators, shipping companies and all lease tenants require all their subcontracted or leased common carriers and owner operated diesel trucks use alternative fuels such as: bio-diesel fuel, low sulfur diesel fuel, CNG, LPG, LNG or electric energy etc..

To assist truck drivers we recommend that POLA establish a gas credit or debit card whereby a truck driver or motor carrier company can purchase a \$ 100 card for \$ 75.00 (example) with the POLA subsidizing the extra cost.

We request that the Port, its terminal operators and shipping companies fund and retrofit all subcontracted and leased motor carrier and owner operated diesel trucks with Oxidation Catalysts or Particulate Traps. Funds can come from Port profits or a new per truck, container, bulk or single item product fee.

We request that this requirement shall also apply to all construction subcontractors and suppliers. Most construction contractors and subcontractors rent or lease construction related equipment (trucks, tractors, backhoes, power generators, air compressors etc.) which use diesel fuel. (A common statement in DEIDS/DEIR/EIS/EIR's is that the project will require the retarding of engine timing. This is unacceptable because it is never performed or monitored)

- 54. Mitigation Request - New Truck Purchase Loan Program** - We request that the Port of Los Angeles and TraPac Terminal Tenant establish a \$ 10 million low interest (2%-

3%) new truck loan program for TraPac Terminal Tenant motor carriers and independent owner operator trucks. The purpose would be to eliminate older diesel polluting trucks. Loan payments would replace the Port and TraPac Terminal Tenant original fund.

We further request that the POLA investigate becoming a motor carrier and/or owner of the trucks in order to assure the cleanest trucking fleet is being used, maintained and operated.

- 55. Mitigation Request - Ship Bunker Fuel Alternative Fuel & Oxidation Catalyst/Particulate Trap/Stack Bag Technology Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenant incorporate in its lease/contract agreements with its Tenants and shipping companies that their ships transporting containers, bulk cargo or liquid products use alternative fuels which are non-polluting or less polluting such as Bio-Diesel Fuel, low sulfur distillate diesel fuel, marine gas, CNG, LPG or LPG.

We request that the Port, its terminal operators and shipping companies fund and retrofit all owned, leased or rented ships with Oxidation Catalysts, Particulate Traps or Stack Bag or Fume Hood Technology (Advanced Cleanup Technologies) which can reduce up to 80% of ship air pollutants. Funds can come from Port profits, a new per ship, truck, container, bulk or single item product fee.

To assist ship owners, leasers or renters we recommend that POLA establish a gas credit or debit card whereby a shipping company can purchase a \$ 1000 card for \$ 750.00 (example) with the POLA subsidizing the extra cost.

- 56. Mitigation Request - Ship New Engine Technology** - We request that the Port of Los Angeles and TraPac Terminal Tenant include in their lease and contract agreements that their shipping companies and clients use the Best Available Technology (BAT) Ships. There are new ships with new engine designs available that are 80% or more pollution free. POLA should request that new larger container ships which are currently be designed meet higher pollution control standards.

Goals and timetables should be established to replace all older ships entering California Ports with new non-polluting ships. LNG transport ships are pollution free and there are new cruise ships using new limited polluting engines. The Port can easily switch to non-polluting or less polluting fuels such as: Bio-diesel (Currently the Best Available Technology fuel), low sulfur diesel fuel, CNG, LPG or LNG.

- 57. Mitigation Request - Alternative Solar Energy Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenant establish an Alternative Solar Energy Plan. The plan shall include incorporate the usage of solar energy panels on all buildings, roof tops and open space to help reduce our dependency on fossil fuels.

The plan shall include the phase-in of DC electricity operated equipment such as HVAC air & heating, indoor/outdoor lighting, traffic signals, office equipment, appliances and hand tools etc. The plan shall also include a budget to pay for the cost of equipment conversion.

- 58. Mitigation Request - Truck, Train, Container, Ship, Rail & Bridge Traffic Study** - We request that the Port of Los Angeles and TraPac Terminal Tenant conduct a truck, train, container, ship, rail and bridge traffic Community Impact & Safety Assessment

Study prior to the release of an DEIS/DEIR. The study shall include both a local and regional impact analysis.

The study shall include intersection capacity utilization, accurate truck & rail distribution distances, routes and idling time. We want to know more specific details such as: how old, what is the maximum capacity, life use aging analysis, how many, how long, how many per hour, how many per route and a percentage by category breakdown. The study shall include the LA & LB City Congestion Management Program and the LA & LB City Thresholds Manual.

We want the average truck length and idling time to be based on known verified destination distances ie. East Los Angeles freight-rail yards & including the distribution centers in Riverside & San Bernadino).

The study shall include an analysis of existing traffic infrastructures to determine their current capacity and safety status. Many Port trucks are now use the bridge at Pacific Coast Highway in Wilmington which crosses the railway between Eubank Ave. on the west and Watson Ave. on the east. This bridge was not constructed to handle large weights and continuous diesel truck usage. A safety inspection should be immediately made to determine if it can handle the increasing truck traffic.

The study shall include truck impact on all local bridges. LA Port trucks have currently taken over the two public bridges going from Wilmington to San Pedro and Long Beach . It can take 30 - 45 minutes or longer to drive through the two bridges now due to the fact that LA Port trucks are now taking a short cut to the LA Harbor I 110 Freeway and are lined up back-to-back on the bridges and access roads. It used to take 10-15 minutes to cross both bridges when there was primarily only car traffic. There are also now numerous truck breakdowns on the bridges due to older trucks breaking down. It was the daily local Harbor worker and residents who financed the payment of the two bridges not the Port.

The study should consider the expansion of the Alameda Corridor to include truck lanes and construction of underground transportation tunnel corridors outside the local Port of Los Angeles boundaries. An underground transportation tunnel network could extend to north to Ventura County, east to Riverside County and south to San Diego County etc.. A fee per container/bulk product could pay for construction costs.

We further request that the Port and TraPac Terminal Tenant agree to utilize the Alameda Transportation Corridor for a minimum of 70% of all future container movement outside the Port. We request that the Port and TraPac Terminal Tenant contribute to the financing of the expansion of the Alameda Corridor to include truck lanes as originally proposed and requested by the public.

We request that the Port and TraPac Terminal Tenant contribute \$ 25 million annually to the financing the expansion of the Alameda Corridor to include four truck lanes and convert trains from diesel fuel to electric power as originally requested by the public.

We request that the Port of Los Angeles and TraPac Terminal Tenant be required to automate their operation and to utilize the Best Available Technology (BAT) for their container or liquid bulk unloading, loading, storage, transportation and distribution.

This to be determined by a Port sponsored study and the Port Community Advisory Committee..

- 59. Mitigation Request - Vehicle Traffic Routing Plan, Parking Plan & City Code Education** - We request that the Port of Los Angeles and Trapac Terminal Tenant establish a Port Vehicle Traffic Routing Plan, Parking Plan and City Code Compliance Education Class. This shall include Port vehicles, employee vehicles, contractor, subcontractor, suppliers and contracted labor.

The plans objective will be to have the least impact on the local residential communities, schools and businesses. The purpose of the class will be to inform all parties of the city codes regarding prohibited truck routes in residential communities, the prohibition of detaching & leaving chassis, trailers and equipment, public parking restrictions, illegal dumping of trash, oil & parts and failure to report damaging personal and public property (ie. hitting resident parked cars, resident fences, city trash barrels, running over and damaging street sidewalks/curves and public street signs etc.).

We request that the Port and TraPac Terminal Tenant publish a plan and annual report and distribute the plan and report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and Trapac Terminal Tenant post this information on a public accessible website in real time and to make a CD/DVD version available.

- 60. Mitigation Request - Accident, Injury, Death Reporting** - We request that the Port of Los Angeles and TraPac Terminal Tenants be required to report all Port on-the job and off-Port property site accidents, work related injuries, work related illnesses and deaths by both non-union and union workers.

We request that the Port and TraPac Terminal Tenants publish a quarterly report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

- 61. Mitigation Request - Container Storage Yards** - We request that the Port of Los Angeles and TraPac Terminal Tenants verify that off-Port property container storage yards provide evidence that the storage yard has a proper business permit or license. This requirement shall be included in all leases and contracts.

A recent 2003 City of Los Angeles investigation of container storage yards in Wilmington revealed that there were 16 illegal container storage yards in operation all bordering or near residential homes and schools. They store containers from both the Port of LA and Long Beach. All one has to do is drive by and read the name of company in huge bold letters.

We additionally request that the lease or rental agreement limit the time that an empty container can stay at one storage location to a maximum of 90 days. Computers can track storage time by container number. We also request that a fee be imposed of \$ 100

per day for every container stored over the 90 day limit and that containers be removed and destroyed after 120 days at the owners expense if they have not been moved.

We request that TraPac Terminal Tenants be required in their contracts to accept back all empty containers that they ship into the USA within 90 days. Wilmington, San Pedro and surrounding communities should not be burdened with container storage blight, traffic and roadway degradation caused by the Port of Los Angeles, terminal operators, shipping companies and foreign manufacturers.

62. **Mitigation Request - Container Maintenance & Inspection Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenants establish a Container Maintenance & Inspection Plan. Containers contain numerous types of products of which the public has no idea of their current or prior contents. We want the Port to conduct inspections of containers to verify that they are clean, meet all California and US public health and safety standards.

Many foreign countries do not have as stringent laws as the US and we would like to know if the containers being brought into the US have been painted using lead paint or other types of hazardous chemical coatings. Refrigeration units may also be insulated with asbestos and contain freon in their units. We want all containers to be inspected and those found to have lead paint, asbestos, freon or other hazardous chemicals should be immediately removed from storage yards in communities, returned and prohibited from entering or returning to the US.

Truck drivers are often held responsible for delivering a clean container. We have seen truck drivers sweeping and hosing down containers at their residence driveways, on city streets, at empty lots and truck car washes. They often park their truck and loads at their homes, retail stores and restaurants etc. prior to delivery (breakfast, lunch & dinner breaks, drop off wives to work or children to school etc.). Truck drivers have reported to us of feeling noxious, dizzy, getting headaches, getting sick often, having allergies and breaking out in rashes etc. as a result of their work.

63. **Mitigation Request - Hiring of Additional Port/City Police** - We request that the Port allocate \$ 1 million annually for additional Port Police and extra security to enforce our city laws and to protect the Harbor community. At present the Port does not have sufficient Port Police to enforce our laws which prohibit: trucks driving through residential areas, making illegal turns, making illegal U-turns in the middle of the street, blocking street intersection while trying to enter small gas station, driving over sidewalks, hitting parked cars, hitting/running over stop, speed limit & other signs, unhitching & leaving chassis with a container, parking & leaving refrigerated containers running, have proper licenses or insurance or meet safety standards.

Violations are witnessed on a daily basis which affect the safety of our lives, our homes, communities, our local environment and quality of life. We additionally request that Port Police, City Police and security be stationed at high traffic intersections and near schools to protect the public and our children.

64. **Mitigation Request - Construction & Traffic Management Plan Distribution** - We request that the Port of Los Angeles and TraPac Terminal Tenants prepare and distribute a Construction Plan Brochure and Traffic Management Plan to every resident within a

10 mile radius a copy. The Construction Plan Brochure shall include contact information, project construction information, environmental & health impact information, description & availability of various studies, plans and reports, availability of environmental & health trust funds, of construction milestone chart, emergency information, information on how to file a complaint, compliant process information and traffic routing information. The Traffic Management Plan will provide the public of information regarding construction and operation traffic routes, designated truck parking areas, hours of operation and where and how to file complaints regarding residential area restrictions violations.

- 65. Mitigation Request - Construction Project Fugitive Dust & Community Cleaning Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenants prepare a Construction Project Fugitive Dust, Trash & Compliance Plan.

The Construction Plan shall include the installation of fugitive dust barriers around the project site perimeter, large pollution sources, covers on open bed trucks or trailers that carry dirt and trash. It shall also identify truck routes, container storage yards, diesel truck repair, storage and sales yards in the community. It shall also provide for neighborhood street, vehicle, residential home or business cleaning as necessary.

- 66. Mitigation Request - Construction Hazardous Waste Management Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenants prepare a Construction & Operation Hazardous Waste Management Plan. The plan shall include the elimination or limiting of the use of high VOC and toxic chemical products. The plan shall establish an approved construction & office products, supplies and materials list. The study shall evaluate: paints, varnishes, stains, sealers, compounds, treated lumber, composite wood panels, packaging, plastics and fabrics.

We additionally request that the plan address the proper disposal of empty and used cans, buckets, containers, packaging, brushes, rags, gloves etc. which contaminate our land fills with hazardous chemicals which may also sink and contaminate our water wells, aquifers, lakes and rivers.

We additional want a plan for the proper washing of paint brushes, rollers, spray guns and their attachments. Most of the time workers clean them via a hose over the open ground.

- 67. Mitigation - Construction Contractor Penalty & Fine Program** - We request that the POLA establish construction contractor, subcontractor, supplier and employee penalty and fine program for violating POLA established public environmental and health protection programs.

- 68. Mitigation Request - Port of LA & TraPac Terminal Tenants Greening Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenants develop a Port and Tenant Property Greening Master Plan. The Port of Los Angeles is the # 1 largest air pollution source in Southern California and the Los Angeles Harbor communities face the largest environmental and health impacts. TraPac Terminal Tenants will contribute significantly to the local communities air pollution and health problems.

We propose to help beautify and re-oxygenate our communities air by maximizing

landscaping with the planting of trees, shrubs and flowers at every available location. Every building, roof, parking lot and empty space is a potential location. We request that the Port designate land for community parks and botanical gardens wherever possible throughout the Harbor communities. The Port and all terminals are literally a concrete and black top cemetery.

69. **Mitigation Request - Port Rain Water & Watershed Discharge Capture Plan** - We request that the Port of Los Angeles and TraPac Terminal Tenants establish a rain water and run off capture plan that can recycle water for landscaping watering and other potential uses. Roofs of building, storage facilities and rest shade areas can be designed to capture rain water and store it for future use. Every water run off and discharge water source should be assessed to determine if it can be captured, recycled or prevented from contaminating the ocean or watershed. Black asphalt paving, truck & vehicle tire shedding and worn pulverized tire dust are a major source of water pollution.
70. **Mitigation Request - Community Train & Port Noise Study & Sound Proofing Plan**- We request that the Port of Los Angeles conduct a Community Noise Study & Sound Proofing Plan. We request that the POLA fund the sound proofing of all residences, schools, businesses, park buildings, community public buildings, senior citizen centers, rest homes, child care centers, hospitals etc. in the Los Angeles Harbor area. At night noise from the POLA can be heard over 3 miles away in north Wilmington. Sound deadening barriers, noise suppression equipment can be installed on almost every type of facility, truck, train and operating equipment. Operating equipment should be placed as far away from residential areas and schools. Although the noise may not exceed any state or federal standard the public is subjected to non-stop 24hr. noise.

Trucks and trains pass through residential communities all hours of the day and night. The number of trucks and trains has been increasing every year with Port expansion. Currently over 42,000 trucks trips a day are passing through Harbor area communities transporting over 10 million containers a year. By the year 2025 this will be increasing to over 121,000 trucks and over 49 million containers per year.

There are thousands of train trips per year passing through the Wilmington, San Pedro and Carson residential communities. A typical train load carries 200 train cars. Trains leave almost every Port terminal. On Friday November 14, 2003 a train derailed in Wilmington in the residential community. Cranes were brought in to lift the train to put it back onto the track.

The railroad company did not report this to any newspaper, did not send a representative to any community organization or resident home and did not compensate the local residents for this disturbance of a peaceful and a safe sleep. The community has no idea if the train that derailed contained any hazardous chemicals or materials or posed any harm. It is even possible that they did not even report the incident to the City or Port police. Train horns should be limited at night when the public is sleeping and when passing by schools. At the present train horns can be heard after midnight regularly and honking repeatedly for over an hour at a time, this should be avoided whenever possible.

Trains idle for hours in and near residential and school areas which border the rail road

tracks. On Saturday afternoon October 11, 2003 two train engines not connected together and at different rail line ends were recently timed and photographed idling for over two hours at the Pacific Coast Highway Bridge near Banning Park and behind residential homes. Trains use diesel fuel and residents can smell diesel exhaust from trains idling, connecting, disconnecting, switching tracks, engine changing and while they are passing by.

Resident homes and small businesses shake and vibrate during the entire time a train is nearby from the seismic ground vibration caused by trains. Train tracks should have some type of ground vibration dampening materials and be constructed with continuous seamless welded tracks.

71. **Mitigation Request - Community Light Pollution & Public Health Study** - We request that the Port of Los Angeles and TraPac Terminal Tenants be required to conduct a Community Light Pollution & Public Health Study. The study shall as a minimum include: research on the impact of extended night light exposure, amount of light generation, short & long term public exposure effects, impact on children health and school study habits etc..

We request that the Port of Los Angeles and TraPac Terminal Tenants establish a plan to minimize the impact of the Ports light on the neighboring LA Harbor communities at night. There are significant amount of lights left on all night even when there is no work at a Port terminal or in other areas of the Port where no work is being performed. If a terminal is operating at night there are lines of diesel trucks leaving the Port in all directions.

At night Wilmington and San Pedro looks like a lighted football field miles away on the freeway. Wilmington and San Pedro are reaching the point that they will have no more beautiful starry nights. Aircraft and space shuttle pilots claim that they can also see the Port from hundreds of miles away.

We request that POLA research and purchase alternative types of lighting fixture designs, new lighting & low power technology such as LED technology, light fixture arrangements, light baffles etc.. Funds can come from Port profits, a new per truck, container, bulk or single item product fee.

72. **Mitigation Request - Ship & Berth Electrification** - We request that the Port of Los Angeles and TraPac Terminal tenant berths be converted to electrical power for hoteling (docking) of ships. We request that a minimum of 70% of TraPac Terminal Tenants ships be required to be retrofitted to use electrical power while docked in the Port of Los Angeles. Ships currently operate off bunker fuel the worst polluting fuel available in order to have electrical power while docked, unloading and loading. The Port can fund the costs of purchasing and installation the necessary equipment.

73. **Mitigation Request - Retrofit Diesel Power Dredges To Electric** - We request that the Port of Los Angeles contracts require the use of electric dredges. The POLA should pay for the retrofitting of a diesel fuel powered clam (grab) and hydraulic cutter head dredges to an electric motor if no electric are available. That the POLA provide dock electrical hookup facilities. We further request that POLA select a Hispanic and other minority dredging contractors so that they will be competitive for future business contract awards.



74. **Mitigation Request - Low Profile Cranes** - We request that the Port of Los Angeles and TraPac Terminal Tenants use low profile/collapsible cranes. The POLA should conduct annual reviews of new crane designs for incorporation into tenants. The picturesque view of San Pedro Bay and our historic bridges are being obscured by the immense size and quantity of cranes used and planned for the future.
75. **Mitigation Request - Financial Cost-Benefit Analysis** - We request that the Port of Los Angeles research and prepare a Financial Cost-Benefit Analysis for the TraPac Terminal Project. Past DEIS/DEIR's fail to assess the economic and social effects of the TraPac Terminal Project by not mentioning the estimated construction, the long term operations, environmental & public health care costs of the TraPac Terminals to the public.

The analysis as a minimum shall include: Construction Costs, Legal Costs, EIS/EIR Costs, Special Studies/Reports/Plans/Assessments/Research/Consultant Costs, Port Infrastructure/Vehicle/Equipment Replacement Costs, Port Business Marketing, Community Economic Impact Assessment Study, Public Utility Impact Study, Community & Dock Worker Emergency Evacuation & Preparedness Plan, Proposed Mitigation etc..

We request that the Port and TraPac Terminal Tenants publish the study and distribute the study to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

76. **Mitigation Request - Community Economic Impact Assessment** - We request that the Port of Los Angeles complete a Community Economic Impact Assessment prior to the release of the EIS/EIR. The DEIR fails to assess the economic and social effects of the TraPac Terminal Tenants by not mentioning the estimated construction, the long term operations, environmental & public health care costs of the TraPac Terminals to the public. We request that the study consider as a minimum:

public medical health care (due to short & long term impacts, increased insurance costs), police & public safety(extra security short & long term), installation of air purification & sound prevention systems in all local residences & public facilities, car, truck & train accidents (increase, cost to public, police, fire department & emergency response costs, repair costs, increased insurance costs, temporary & permanent disabilities), traffic-road, highway, freeway & bridge maintenance, repair, replacement & expansion, state public education funding losses (students missing school), worker time off (business losses due to worker absence, loss wages due to illness, accidents, lateness due to traffic) agricultural crop damage, landscaping damage (from foreign insects & diseases), property depreciation (due to blight and negligence), environmental damage (air, land & water), repair, restoration and mitigation costs, POLA on-site & off-site security, city/county/state/federal funds appropriations & expenditures for the POLA, public relations, NOP, NOI, DEIR, EIR & SEIR costs, special studies, reports, plans, assessments, research, consultant costs legal review, representation & litigation.

We request that the POLA and TraPac Terminal Tenants publish the study and distribute the study to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the POLA and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

77. **Mitigation Request - Public Utility Impact Study** - We request that the Port of Los Angeles complete a Public Utility Impact Study to assess the impact of potential increased utilities or expansion construction costs to the public prior to the release of the DEIS/DEIR. The entire Los Angeles County Region is subject to electrical blackouts due to power limitations and use. Why should the public bare the total financial responsibility and power loss when TraPac Terminal Tenants will consume significant power and not bear any extra cost of power plant facility construction, maintenance and security. Most Piers and cranes have light on all night, even when not in use.

The public is asked to conserve power, while big business is unrestricted. A common excuse is that it is part of international trade commerce and an economic necessity. Even now discussions are underway to reopen and build new nuclear power plants and coal burning facilities. Why should the public bear this extra cost, additional air pollution and nuclear waste disposal problem, when the Port of Los Angeles and its Tenants are creating the problem.

Los Angeles and California are additionally facing a waste disposal and water crisis. What amount will the Port and TraPac Terminal Tenants contribute to our waste disposal and water infrastructure construction, operation and acquisition costs.

We request that the Port and TraPac Terminal Tenants publish the study and distribute the study to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

78. **Mitigation Request - Public Mortality Study** - We request that the Port of Los Angeles be required to finance and release to the public a Public Mortality Study prior to the release of the DEIS/DEIR. The study shall include deaths caused by cancer and non-cancer causes such as acute asthma attacks, heart attacks, pneumonia, diabetes and other health problem deaths caused by or suspected to be caused by air pollution. The study shall include the Los Angeles Harbor communities of Wilmington, San Pedro and all cities and communities within a 10 mile radius of the Port of Los Angeles and TraPac Terminals.

We request that the Port and TraPac Terminal Tenants publish the study and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

79. **Mitigation Request - Public Health Survey** - We request that the Port of Los Angeles be required to finance and release to the public a Public Health Survey prior to the release of the DEIS/DEIR. The survey shall include the research and determine the types illnesses both cancer and non-cancer which may have been caused by air pollution and exposure to diesel exhaust due POLA business operations. Medical research has identified over 30 different health problems caused by air pollution and diesel exhaust.

The survey shall include the Los Angeles Harbor communities of Wilmington, San Pedro and all cities and communities within a 10 mile radius of the Port of Long Beach and TraPac Terminal.

We request that the Port and TraPac Terminal Tenant publish the survey and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenant post this information on a public accessible website in real time and to make a CD/DVD version available.

80. **Mitigation Request - Public Morbidity Study** - We request that the Port of Los Angeles be required to finance and release to the public a Public Morbidity Study prior to the release of the DEIS/DEIR. The study shall include the research of all cancer and non-cancer health problems which may be caused by air pollution due POLA business operations.

The study shall include the LA Harbor communities of Wilmington, San Pedro and all cities and communities within a 10 mile radius of the Port of Los Angeles and TraPac Terminals.

We request that the Port and TraPac Terminal Tenant publish the study and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenant post this information on a public accessible website in real time and to make a CD/DVD version available.

81. **Mitigation Request - Epidemiological Studies** - We request that the Port of Los Angeles be required to conduct, finance and release to the public Epidemiological Studies based on the Public Health Survey and Morbidity Study. The study shall include the research of all cancer and non-cancer health problems which may be caused by air pollution due POLA business operations. The study shall include the Los Angeles Harbor communities of Wilmington, San Pedro and all cities and communities within a 10 mile radius of the Port of Los Angeles and TraPac Terminal.

We request that the Port and TraPac Terminal Tenant publish the study and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenant post this information on a public accessible website in real time and to make a CD/DVD version available.

- 82. Mitigation Request - Site Location Usage Alternatives Assessment** - We request that the Port of Los Angeles conduct and release to the public a Site Location Usage Alternatives Assessment prior to the release of the DEIS/DEIR. We request that the Port issue domestically and internationally a Request Of Interest (ROI)/Request For Proposals (RFP) etc. to solicit potential alternatives for the use of an available site.

Some other alternative uses include: restoring the land to a natural wetlands site, restoration of San Pedro Bay, restoration of an onshore migratory bird sanctuary, creation of a new marine breeding habitat, creation of an offshore marine & migratory bird island sanctuary, building a new ocean water cleaning reclamation facility, building a new public leisure boat marina, a charter high school and building a new university marine biology & environmental research center.

- 83. Mitigation Request - New Alternative Fuel Public School Bus Purchase Donation** - We request that the Port of Los Angeles and TraPac Terminal Tenant establish an annual \$ 5 million fund to purchase new Alternative Fuel School Buses until all old air polluting diesel fuel school buses have been replaced. The LAUSD funds will be used exclusively for the Los Angeles Harbor public schools currently known as District K with priority for Wilmington and San Pedro schools. When all buses have been replaced, the funds will then be allocated to any Public Charter or Alternative Schools within the two designated school districts.

- 84. Mitigation Request - Public Schools Air Purification Systems Purchase Donation** - We request that the Port of Los Angeles and TraPac Terminal Tenants establish an annual \$ 5 million fund to purchase new Air Purification & Ventilation Systems for public schools which do not have them in order for students to breath healthier air. The LAUSD funds will be used exclusively for the Los Angeles Harbor public schools currently known as District K. When all district public schools have been retrofitted, the funds will then be allocated to any Public Charter or Alternative Schools within the school district.

- 85. Mitigation Request - Public Youth Sports Complexes & Athletic Buildings Air Purification Systems Purchase Donation** - We request that the Port of Los Angeles and TraPac Terminal Tenants establish an annual \$ 5 million fund to purchase new Air Purification Systems for Public Youth Sports Complexes and Athletic Buildings which do not have them in order for youth and students to breath healthier air.

The funds will be used exclusively for the Los Angeles Harbor area communities currently known as City Council District 15. The priorities will be for sports complexes and athletic building closest to the POLA. When all public sports complexes and athletic buildings have been retrofitted, the funds will then be allocated to non-profit organization sports complex or athletic buildings within the city.

- 86. Mitigation Request - Consolidated Slip, Long Beach & Los Angeles Rivers, Watersheds, Wetlands & Lakes Restoration** - We request that the Port of Los Angeles and TraPac Terminal Tenants establish an annual \$ 10 million fund for the restoration, development, environmental clean-up, expansion, creation and sustainability of local Los Angeles Harbor area rivers, lakes, watersheds and wetlands. These include: Los Angeles River, Cerritos Channel, Dominguez Watershed, Ken Malloy Harbor Regional Park/Machado Lake, Consolidated Slip and San Pedro Bay etc..

It is also a fact that the Port of Los Angeles is the second largest ocean water polluter in the San Pedro Bay where the Port is located. The POLA should set as a priority to clean the bay which is highly contaminated with carcinogenic and toxic chemicals.

Consolidated Slip should be restored and remediated not the contaminated sediments problem buried. We propose that all contaminated sediments be dredged and removed at what ever cost. We have been told that sediment removal can be completed within 30 days. We recognize that it would take some time for new settlement to take place and that residents living in the Leeward Bay Marina would have to be temporarily relocated at POLA cost.

We further proposed that an Ocean Water Restoration Facility be built at what ever cost necessary at or near the Consolidated Slip to restore ocean and tidelands water polluted daily by the POLA.

The Port of Los Angeles has given over \$ 30 million for wetlands restoration projects outside the City of Los Angeles when the priority should be local projects that benefit the negatively impacted local communities.

- 87. Mitigation Request - Community Blight Elimination** - We request that the Port of Los Angeles and TraPac Terminal Tenant conduct a comprehensive Community Blight Study of direct and indirect Port caused community blight. The study shall include the Los Angeles Harbor communities and all cities and communities within a 10 mile radius of the Port of Los Angeles and TraPac Terminal Tenants.

Containers are stored throughout the cities in community residential areas, many are rusting deteriorating, have paint peeling. Containers are stored as high as six high and can be seen from every where. Many neighborhoods look terrible surrounded by walls of thousands of containers. It is estimated that Wilmington has over 200,000 containers in the community off Port property. Wilmington has legal and 16 illegal container storage yards.

Many container storage yards also store used and new truck chasis for transporting containers and many do on-site repair. There are numerous legal and illegal diesel truck storage, repair, sales yards and most also store containers. Many have laid down steel plates over the curve to make a ramp and some have poured their own cement to make a driveway up the sidewalk into an illegal gateway. Every location has truck related trash, thrown truck parts, empty oil cans, old tires, water houses, fast food containers, empty cups, empty beer cans etc. disposed of on streets, curbs, empty lots and often in peoples yards. If there is a public park nearby you will also find trucks and their trash.

- 88. Mitigation Request - Community Seismic & Vibration Study** - We request that the Port of Los Angeles conduct a comprehensive Community Seismic Study of direct and indirect Port caused seismic and vibration in the community. The study shall also include the study of local highways, streets, roads and bridges which were constructed years ago and do not meet the seismic safety standards of today for continuous non-stop diesel truck use. The POLA has implemented the Pier Pass Program which now allows for 24hrs. a day POLA operation.

Currently diesel trucks have taken over the Long Beach Gerald Desmond and the Los Angeles Vincent Thomas bridges. These bridges were built by public tax dollars for the public use and not to be commandeered as an exclusive Port diesel truck route. There are numerous truck breakdowns on the bridges every week. The study shall include the Long Beach and Los Angeles Harbor communities and all cities and communities within a 10 mile radius of the Port of Los Angeles and TraPac Terminal.

Trucks and trains pass through residential communities all hours of the day and night. The number of trucks and trains has been increasing every year with Port expansion. Currently over 42,000 trucks trips a day are passing through Harbor area communities transporting over 10 million containers a year. This will be increasing to over 121,000 trucks and over 49 million containers and hundreds of more trains.

A typical train load carries 200 train cars. Trains service almost every Port terminal. Train operation should be limited to day light hours. At the present train horns can be heard all hours of the night and honking repeatedly for over an hour causing home windows to vibrate. Trains operate for hours in and near residential and school areas which border the rail road tracks. Trains idle, change loads, connect, disconnect, switching tracks and change engines. Resident homes and small businesses shake and vibrate during the entire time a train is nearby from the seismic ground vibration caused by trains. Train tracks should have some type of ground vibration dampening materials. In addition, trains often load and unload off-port property.

- 89. Mitigation Request - Cumulative Impact** - We request that the Port of Los Angeles and TraPac Terminal Tenants conduct a comprehensive study of the Cumulative Impact Analysis of the TraPac Terminal Tenants past & current POLA operations and proposed future expansion and operations. In the past POLA failed to conduct extensive research into other potential impacting construction projects and new business operations and their cumulative impact on the Harbor and Environmental Justice communities which are already disproportionately impacted. The study shall include all current and future proposed projects within in the next 15 years and air pollution sources within a 5, 10 and 20 mile radius.

Past DEIS/DEIR's omit and fail to list up to 50 additional construction projects that are proposed, approved or under construction.

The Los Angeles Unified School District has over 25 major projects over the next 7 years and an estimated equal amount over the next 10-15 years. The Los Angeles Community College District has identified over 5 major projects. In addition the City and County of Los Angeles have major Sanitation Department Projects within 5 miles of the POLB. In addition, the City of Long Beach and Los Angeles has issued numerous business building construction permits to begin in the next 2 years. Wal-Mart will be building 40 new super stores with grocery sections in the next 7 years. The new currently in construction Project will house 1200 new families and is located less than 500' to Trapac.

It shall include as a minimum: all current & proposed future Port of LA projects, Port of Long Beach, all oil refineries, oil & fuel tank storage facilities, liquid bulk terminals, the Alameda Corridor, LB & LA Unified School District current & proposed construction projects, Long Beach City College, LA Harbor-College new construction,

current & proposed hospital, medical center, commercial center construction projects, LAX Airport expansion, LA City & LA County Sanitation Departments expansion projects and the Wilmington Dana Strand Public Housing construction project.

In addition to the NEPA/CEQA Cumulative Impact definition, we define Cumulative Impact "as the increasing, compounding and disproportionate exposure to multiple sources and types of air pollution which can cause an adverse health affect or risk.

A Cumulative Impact can cause or contribute to temporary illness, inability to perform normal daily activities, cause temporary or permanent disability, cause inadequate body, organ or immune system growth, development and repair, can be acute, chronic, life threatening and cause unnatural death.

A Cumulative Impact can also cause temporary or irreparable harm, damage, degradation or loss to the environment, natural resources and wildlife. It can also negatively affect the economic welfare, safety and quality of life of the public or a protected class."

NEAP/CEQA Cumulative Impact definition: the incremental effects of an individual project are considerable when viewed in connection with the effects of other past, current and probable future projects.

90. **Mitigation Request - Creation of an Environmental Justice Task Force** - We request that the POLA establish and fund an independent \$ 1,000,000 Environmental Justice Taskforce to research, investigate, identify, recommend, implement, monitor and mitigate environmental and public health issues. The Task Force shall be composed of the Natural Resources Defense Council, Communities For A Better Environment, USC , California Environmental Rights Alliance, Coalition For A Safe Environment, South Coast Air Quality Management District, CAL/EPA and USEPA.
91. **Mitigation Request - Port Master Plan Public Hearing** - We request that the Port of Los Angeles adopt a CEQA/NEPA/EJ Compliance Mitigation Master Plan, Monthly & Annual Reporting Plan and Mitigation Monitoring Program that is designed to ensure compliance during and subsequent to the TraPac Container Terminal Project. We wish to state for the record the CEQA/NEPA definition of Mitigation:
1. Avoiding the impacts altogether by not taking a certain action or parts of an action.
  2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
  3. Rectifying the impact by repairing, rehabilitating or restoring the impacted environment.
  4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
  5. Compensating for the impact by replacing or providing substitute resources or environments.

We wish to clarify that Mitigation is a mandatory legal NEPA/CEQA/EJ offset and

recompense for past damage done, damage that is irreparable, damage that is currently occurring, damage that will occur or damage that will continue to occur into the future, separate from any other proposed, agreed upon or required action.

We request that the Port and TraPac Terminal Tenants publish a quarterly and annual report and distribute the report to every city and community household within a 10 mile radius, every governmental health agency, every governmental environmental agency and every elected official. We request that the Port and TraPac Terminal Tenants post this information on a public accessible website in real time and to make a CD/DVD version available.

92. **Mitigation Request - Port of Los Angeles Join The California Climate Action Registry** - We request that the Port of Los Angeles join the State of California sponsored California Climate Action Registry to increase energy efficiency and reduction of greenhouse gases.
93. **Mitigation Request - POLA Adopt The Precautionary Principle** - We request that the Port of Los Angeles and TraPac Terminal Tenants adopt the Precautionary Principle as a mission statement, goal and objective. The Precautionary Principle states that “ when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-effect relationships are not fully established scientifically.”
94. **Mitigation Request - Document References** - We request that the Port of Los Angeles and TraPac Terminal Tenants include in the DEIR/DEIS Appendix complete copies of all reference documents, studies, reports, model information and research in which data was obtained, referenced or used in the DEIR/DEIS to support any basis of decision making. The public has a right to have all information readily available and not have to request individual documents which will require additional time and costs to purchase. The Port of LA charges the public for copies of DEIS/DEIR/DEIS/EIR's and reference documentation. The POLA is a public entity and residents are taxpayers and should not be charged for documentation.

We request that the Port of Los Angeles include a reader note and disclaimer when it references or includes non-project specific information, data not updated and data which has not been validated or has not been approved by any government agency.

The Port of Los Angeles historically includes and references outdated and non-project specific information which gives the reader the impression of accuracy, project relevance, contains current research, has third party independent validation, has a non-public impact or implies government or agency approval.

Many DEIR/DEIS/EIR/EIS's reference data from studies conducted years earlier which involved limited scope projects, limited research objectives, data obtained from computer modeling & not actual on-site test data, limited test data categories or projects that have changed significantly in size from the original proposal.

We request that the Port and TraPac Terminal Tenant post this information on a public accessible website in real time and to make a CD/DVD version available.



- 95. Mitigation Request - No Off Port Property Inspection Facilities** - We request that the POLA not contract, build, lease or operate any off-Port property container inspection or fumigation facilities. POLA is incapable of assuring bordering residential communities that they are 100% secure and safe from any and all potential dangers from off-Port container inspection facilities.

The POLA in an effort to hide its off-Port inspection facilities has contracted with private businesses ie. Price Transfer which has leased warehouse facilities in Carson to allow container inspection. A check with the City of Carson planning department and licencing & permitting departments revealed that there was no record of a permit being issued to the POLA, the Port of Long Beach or U.S. Customs to operate a potentially dangerous inspection facility off Port property.

POLA can not police illegal truck drivers in Wilmington and San Pedro.

In 2003 the POLA Price Transfer Inspection facility in Carson on Main Street had to be evacuated due to a bomb scare in a suitcase in a container. Every employee had to be evacuated, every neighboring business had to be evacuated. every neighboring street was blocked, employees reporting to work were turned away, every residents driving to their home or location could not drive down Main Street for over 5 hours. Carson Sheriffs, LAPD, LAPD Bomb Squad, the FBI, Port Police, Fire Department and City Officials were all present.

Yet we the public are told there is no potential danger and there is public cost.

- 96. Mitigation Request - Reconstituted And Contaminated Dredged Materials Plan** - We request that POLA establish a contaminated dredged material identification, handling, transportation, drying, remediation and disposal plan.

If dredged material which is typically silt is to be used as fill material it must be reconstituted so as not to allow easy seismic slippage or movement.

- 97. Incorporate Alternative Intermodal Container Transportation Systems Technology**

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We request that POLA research new and emerging automated Alternative Intermodal Container Transportation Systems Technology companies that are electric or use other clean alternative energy or power systems to replace diesel or petroleum fuel powered locomotive trains. We further request that POLA establish a R & D Technology Fund of \$ 25 million to help finance new technologies R & D and the building of prototypes. This could include sending out an RFP or other type of competition program.

Examples include Electric Rail Trains, Electric Wheeled Trains, MagLev, Gravitational Transportation Systems.

The Coalition For A Safe Environment is a non-profit community organization composed of residents, senior citizens, homeowners, students, non-profit organizations, community organizations, committees, business owners, harbor area employees and friends who are concerned with environmental, economic, health, safety and welfare issues affecting our communities.

In The Public's Interest,

Jesse N. Marquez  
Executive Director

Daniel Ruvalcaba  
Vice Executive Director

Dr. John G. Miller, MD  
Member Board of Directors

Gabrielle Weeks  
Member Board of Directors

Cecilia L. Ponce-Mora  
Secretary/Treasurer

Raul Orozco  
Member Board of Directors

# Coalition For A Safe Environment

P.O. Box 1918, Wilmington, California 90744  
wilmingtoncoalition@prodigy.net 310-704-1265

Port of Los Angeles (POLA), Los Angeles Harbor Department  
Dr. Ralph G. Appy, Director  
Environmental Management Division  
425 S. Palos Verde St., San Pedro, CA 90733-0151  
310-732-3497

July 31, 2007

U.S. Army Corps of Engineers (USACOE)  
Los Angeles District, Regulatory Division  
ATTN: Dr. Spencer D. MacNeil  
P.O. Box 532711, Los Angeles, CA 90053-2325  
805-585-2152

Re: Berths 136-147 Container Terminal  
Draft Environmental Impact Report/Environmental Impact Statement  
SCH No. 2003104005, ADP No. 030127-020

Su: TraPac Container Terminal Expansion Project Public Comments

The TraPac Terminal Draft Environmental Impact Report/EIS fails to address and mitigate the numerous negative environmental, public health, public safety, truck & train traffic, aesthetics, economic and community impacts of the Ports day-to-day business activities.

The Coalition For A Safe Environment (CFASE) has attended numerous Port of Los Angeles/U.S. Army Corps of Engineers public hearing and public meetings where numerous Port of Los Angeles and City of Long Beach Harbor residents and organizations have commented on the problems they are experiencing and what type of mitigation was needed.

The TraPac DEIR/EIS fails to include numerous problems identified and the recommended mitigation measures:

1. The DEIR/EIS fails to acknowledge that the existing Port of Los Angeles TraPac Container Terminal was built illegally and that the Port of Los Angeles and U.S. Army Corps of Engineers intentionally failed to prepare an EIR/EIS for the terminal per the California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA). The POLA, USACOE's and California Coastal Commission illegally approved this Port project in violation of CEQA, NEPA and the California Public Trust Doctrine.

The POLA/USACOE has failed to mitigate the past and current negative environmental, biological resources, public health, public safety, traffic congestion, aesthetic, community, economic and cumulative impacts that have been verbally stated and submitted in writing and the recommended mitigation verbally stated and submitted in writing at previous Port public hearings and public meetings. The proposed mitigation measures fail to completely address or include all recommendations and requests verbally stated and submitted in writing by our organization and the public.

The DEIR/EIS states that it uses a 2003 baseline when in fact it should be using a 1991 or earlier era baseline on the land area prior to the construction of the TraPac Container Terminal.

CFASE requested and requests that the POLA/USACOE's immediately prepare an EIR/EIS for the existing TraPac Container Terminal and mitigate all past and current TraPac Container Terminal negative impacts prior to requesting approval for the current proposed DEIR/EIS. CFASE recommends that POLA/USACOE immediately approve beginning construction of the Wilmington Waterfront Development Buffer Project both Phase I and Phase II as partial mitigation for the existing TraPac Container Terminal.

2. The TraPac DEIR/EIS fails to adequately mitigate the past, current and proposed increasing toxic air pollution impacts to Port of Los Angeles Wilmington, San Pedro, Harbor City residents, neighboring West Long Beach residents, Port goods movement transportation corridor residents and distribution center residents.

The Port of Los Angeles contributes a minimum of 25% of all toxic air pollution in the Harbor area causing significant short term and long term public health problems to Port of Los Angeles Harbor, City of Long Beach, transportation corridor and distribution center residents.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers purchase and install free air purification systems in every residential home, school, hospital, clinic, community center, daycare center, convalescent home, library, recreational facility, business and public use buildings.

3. The TraPac DEIR/EIS fails to mitigate the past, current and proposed increasing public health impacts to Port of Los Angeles Wilmington, San Pedro, Harbor City residents, neighboring West Long Beach residents, Port goods movement transportation corridor residents and distribution center residents.

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A recently completed UCLA Medical Center/Harbor General Hospital Wilmington Children's Asthma Study disclosed that 23.9% of all children in Wilmington have asthma and the current asthma rate of children in Long Beach is 19.3 %. CFASE based on the California Air Resources Board Emission Reduction Plan for Ports & International Goods Movement in California report estimates that a minimum of 3 Port of Los Angeles Harbor area residents die every day due to Port toxic air pollution. The Port of Los Angeles contributes a minimum of 25% of all toxic air pollution in the Harbor area causing significant short term and long term

public health problems to Port of Los Angeles Wilmington, San Pedro, Harbor City, City of Long Beach, transportation corridor and distribution center residents.

The Port of Los Angeles and its business tenants has deprived numerous residents and children the right to live a normal and healthy life. The Port contributes and causes a significant amount of toxic air, land and water pollution which is known to cause cancer and numerous other temporary and permanent public health problems and disabilities.

The Port failed to notify Harbor residents, dock workers and the public of the life and health threatening nature of its business activities. The Port failed to provide to the public governmental agency, medical and scientific public health study information that it knew existed that could assist the public in preventing & minimizing health impacts, seeking health care and assist the public in participating in the Port public hearing and meeting process where they could make public comments on the negative impacts of the ports business activities on public health and request mitigation.

The Port of Los Angeles has depended solely on the information obtained in the included Health Risk Assessment, which contains unverified and incomplete information. The Port has failed to conduct any public health survey studies of Harbor residents, transportation corridor and distribution center residents to determine its public health impacts and the number of residents impacted.

The Port has failed to provide any medical financial assistance to the public or impacted families who have identified themselves at previous Port of Los Angeles public hearings and meetings.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers conduct a door-to-door Public Health Survey of all residents within a five radius to determine a public health baseline.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers establish an annual \$ 50 million Public Health Care Trust Fund.

4. The TraPac DEIR/EIS fails to mitigate the past, current and proposed expansion increased noise impacts to Port of Los Angeles Wilmington, San Pedro, Harbor City residents, neighboring West Long Beach residents, Port goods movement transportation corridor residents and distribution center residents.

Port of Los Angeles trains blow their horns as they cross railroad and public street crossings. Port train noise has been increasing every year and the current DEIR/EIS proposes increases in container traffic significantly which will increase train noise. The issue is not only the ear piercing loudness of the train noise but the frequency and hours.

Since adopting the Pier Pass Program trains are now running almost 24hrs. a day. Local residents and children are having problems falling asleep and sleeping undisturbed with train whistles, wheels braking, train cars connecting and wheels squealing on tracks can be heard

almost every couple of hours and sometimes every hour. In addition, trains passing cause ground vibration which shakes houses, breaks house foundations, cracks patio floors, weakens house framing, doors and windows.

Port trains travel up the Watson rail yard in the middle of Wilmington residential areas and west between Lomita Blvd. in Wilmington and Sepulveda in Carson where they cross Avalon Blvd. near homes and apartments. They also stop traffic for 30 minutes or more while passing at grade level. Most trains tracks are old and do not have continuous smooth welding joints which cause a continuous noise. Older locomotives trains also cause more engine start-up and operation noise.

An increase in cruise ships voyages also contributes to more cruise ships horns blasting when they arrive and leave the Port which also impacts local residents rest and peaceful times.

Local Harbor residents bordering the Port terminals can hear the loading and unloading of containers. It was also reported this year not too long ago that at 10:00pm at night a container was dropped and the sound could be heard resonating throughout the community at night. Older Port equipment causes more noise.

Harbor residents, I-710 Long Beach Freeway and I-110 Harbor Freeway residents have had to endure increasing noise from passing trucks carrying port containers and cargo. Children attending classes during the day are disturbed by the truck noise. Older trucks also cause more noise.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers sound proof every residential home, school, hospital, clinic, daycare center, convalescent home, library, community center, recreational facility, business and public use building.

CFASE requested and requests that the Port of Los Angeles and U.S. Army Corps of Engineers replace the current Harbor fleet of diesel fuel locomotive engines, the Alameda Corridor BNSF & UP rail lines with a "O" or near "O" noise intermodal and cargo rail systems with alternative green technology. CFASE has specifically recommended Electric Trains, Electric Rail, Mag-Lev, Linear Induction and underground Gravitational Systems.

5. The TraPac DEIR/EIS fails to mitigate the past, current and proposed expansion increased Port of Los Angeles impacts on global warming and climate change. Port Harbor residents and south coast air quality management district residents are experiencing increased temperatures and heat exposure contributing to increased public respiratory health problems, cardio-pulmonary diseases, premature death, inability of our children to study in school & home comfortably, inability of our residents to work comfortably and deprivation of our quality of life.

CFASE requested and requests that the Port of Los Angeles and the U.S. Army Corps of Engineers to purchase and install free air conditioning & heating systems in every residential

home, school, hospital, clinic, daycare center, convalescent home, community center, library, business, recreational facility and public use building.

6. The TraPac DEIR/EIS fails to mitigate the past loss to Wilmington residents of their rights to have access and recreational use of a coastal beach, tidelands and wetlands. The Port has deprived Wilmington residents of any aesthetic coastal vistas, beach front homes, waterfront seashore restaurants & shops, resorts, golf courses or hotel construction on the beach. There is no place in Wilmington where residents can go fishing or catch uncontaminated fish.

TraPac Container Terminal tall cranes deprive Wilmington residents of their rights to have and view the natural beauty of San Pedro Bay. Wilmington residents live as close as 200' to the ocean yet have no coastal tidelands, wetlands or bay view. The Port has destroyed and eliminated 100% of all Wilmington's coastal tidelands, wetlands and biological habitats.

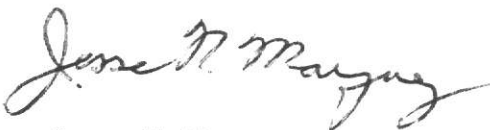
CFASE and Wilmington residents have identified the land that is north of the Consolidated Slip known as Leeward Bay as one wetlands restoration site. This would require the Port to remove the DAS import car parking lot. Why should prime coastal tidelands and wetlands property be used as a parking lot, when cars can be parked anywhere. Land north of the lot has been and is currently for sale. Port property is leased at below market rates.

CFASE, Wilmington residents and Cal Poly Pomona students have identified approximately 100+ acres of land owned by the Port of Long Beach in the City of Los Angeles/Port of Los Angeles area as a second wetlands restoration project area. This would require the Port of Los Angeles, U.S. Army Corps of Engineers and/or the City of Los Angeles to negotiate the purchase of this property.

CFASE requested and requests that the Port and the U.S. Army Corps of Engineers mitigate these losses by establishing a minimum annual \$ 25 million Environmental & Biological Restoration Trust Fund.

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Environmental Justice For All,



Jesse N. Marquez

Executive Director

# National Environmental Justice Advisory Committee

Public Comment

September 18, 2007

Jesse N. Marquez

Executive Director

## Coalition For A Safe Environment

A Port of Los Angeles & Port of Long Beach  
Environmental Justice Community Organization

Coalition For A Safe Environment

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## Environmental Justice Community Concerns

1. The Port of Los Angeles and its bordering neighbor the Port of Long Beach are the # 1 and # 2 largest air pollution sources in Southern California. They are also the two largest container Ports in the United States, receive 42% of all U.S. imports and are the 5<sup>th</sup> largest port complex in the world.
2. The six major oil refineries and two private fuel storage tank facilities in South Los Angeles County are the # 3 largest air pollution sources in Southern California. Oil Refineries - ConocoPhillips, Shell & Valero in Wilmington, BP/ARCO in Carson, ExxonMobile in Torrance & Chevron in El Segundo. Fuel Storage Tank Facilities - Kinder Morgan in Carson.
3. The Ports, Oil Refineries and Fuel Storage Tank Facilities are responsible for over 50% of all air pollution, public health problems and respiratory health related deaths in the Port Harbor and South Bay Environmental Justice Communities in South Los Angeles County.
4. A review of over 30 current and past EIS/EIR's by the Port of Los Angeles Port Community Advisory Committee, EJ Community, Environmental, Community, Homeowner, Faith Based, Public Health Advocacy Organizations and Academic Institutions has disclosed that not one EIS/EIR complied with NEPA or CEQA yet was approved by the Ports and rubber stamped by every Federal, State, Regional, County and City Regulatory Agency.
5. The Ports, Oil Refineries and Fuel Storage Tanks Facilities permits, licenses and public trust agreements allow them to continuously pollute the air, water and land with no mandate to reduce their emissions to no significant environmental or public health impact in any timeframe.
6. The U.S EPA has failed to enforce Environmental Justice Policies, the Clean Air Act, the Clean Water Act and the U.S. Civil Rights Act through its agency, delegated federal and state regulatory agencies.
7. The U.S. EPA violates the Clean Air Act by failing to review, assess and update NAAQS standards every 5 years.
8. The U.S. EPA violates the Clean Air Act by failing to enforce states issuing Title V Permits to major Oil Refineries. The California South Coast Air Quality Management District has issued no Title V Permit to any major Oil Refinery in noncompliance to federal law.
9. There is no leadership direction in mandating the establishment of Public Health Care Trust Funds to mitigate Public Health Impacts.

## Desired Outcomes

1. Reduce Port and Goods Movement air pollution to insignificant within 10 years.

2. Reduce Oil Refinery and Fuel Storage Tank Facilities air pollution to insignificant within 10 years.
3. Reduce Public Health Impacts by 80% within 10 years and 90% within 15 years.
4. 100% EIS/EIR compliance to NEPA/CEQA upon final EIS/EIR release and approval.
5. Mandate a plan to reduce air pollution by 50% within 5 years, 80% within 10 years and 90% within 15 years.
6. Mandate immediate compliance to all federal EJ Policies, Clean Air Act, Clean Water Act and the U.S. Civil Rights Act.
7. Mandate that the U.S. EPA comply with the Clean Air Act.
8. Mandate that the U.S. EPA enforce state compliance to issuing the Clean Air Act Title V Permits to major Oil Refineries.
9. Mandate that the U.S. EPA require all air polluters establish a Public Health Care Trust Fund.

## Recommendations

1. Require that all federal and state regulatory agencies mandate the establishment of a plan to reduce air pollution to insignificant in EIS/EIR's.
2. Require that all federal, state, regional, county and city regulatory agencies mandate the establishment of a plan to reduce air pollution to insignificant in EIS/EIR's.
3. Require that all federal and state agencies mandate the establishment of a plan to reduce public health impacts.
4. Require all lead agencies comply with NEPA/CEQA and utilize independent third party compliance review parties.
5. Require that lead governmental agencies mandate a time schedule for the reduction of air pollution to insignificant.
6. Require that all federal and state regulatory agencies comply with all applicable laws and that they utilize independent third party compliance parties.
7. Require that the U.S. EPA immediately mandate and enforce that all states comply with the Clean Air Act and issue Title V Permits to major Oil Refineries.
8. Require that the U.S. EPA comply with the Clean Air Act and review NAAQS standards every 5 years.
9. Require that all lead governmental agencies mandate the establishment of Public Health Care Trust Fund to mitigate air pollution impacts on public health.

# Coalition For A Safe Environment

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September 18, 2007

National Environmental Justice Advisory Committee

Ports & Goods Movement  
Public Comment

Federal Government Regulatory Agencies Failure  
To Protect Ports, Goods Movement Corridor & Distribution Center  
Environmental Justice Communities

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An Outline Of  
Ports, Goods Movement Transportation Corridor & Distribution Center  
Communities Environmental Injustices  
Violations of NEPA, Clean Air Act, Clean Water Act &  
U.S. Civil Rights Act

1. A review of over 30 current and past Port of Los Angeles and Port of Long Beach approved NEPA Environmental Impact Statements (EIS's) and California Environmental Quality Act (CEQA) Environmental Impact Reports (EIR's) by the Coalition For A Safe Environment and numerous other Environmental Justice, Environmental, Public Health, Community Organizations, Academic Institutions and Homeowners Associations has disclosed that not one complied with NEPA or CEQA yet was approved by the Port Board of Harbor Commissioners and every Federal and State Regulatory Agency.

The reason this was able to occur was because there was no federal governmental regulatory agency and public over-sight. Beginning in 2001 Port of Los Angeles and Port of Long Beach Harbor residents taught themselves how to read EIS/EIR's, understand NEPA & CEQA legal requirements and all related public health related documentation. Since 2001 environmental justice, environmental, community, homeowner, public health and academic universities have stopped and delayed 17 Port of Los Angeles and Port of Long Beach proposed expansion and new projects. Not one new project has been approved and built.

2. In every instance the U.S. Army Corps of Engineers failed to conduct its own comprehensive independent review to assure compliance to NEPA, the Civil Rights Act, the Clean Water Act and Environmental Justice Executive Orders and Policy. The U.S. Army Corps of Engineers has rubber stamped and approved every Port of Los Angeles and Port of Long Beach EIS/EIR.
3. In every instance the U.S. EPA Region 9 office failed to conduct its own comprehensive independent review to assure compliance to NEPA, the Civil Rights Act, the Clean Water Act and Environmental Justice Executive Orders and Policy. The U.S. EPA written public comments rubber stamped and supported the U.S. Army Corps of Engineers and Ports approved EIS/EIR.
4. In 1987 the Port of Los Angeles Board of Harbor Commissioners illegally approved the construction and continuous operation to this date of the TraPac Container Terminal (Trans-Pacific Container Service Corp.) without the preparation of and approval of a EIR. The U.S. Army Corps of Engineers illegally failed to require, prepare and approve an EIS. In July 2007 the Port of Los Angeles and the U.S. Army Corps of Engineers have illegally issued a 6000+ page EIR/EIS for the expansion of the TraPac Container Terminal. In our legal opinion the new EIR/EIS still fails to comply with CEQA/NEPA.

5. In 2001 Port of Los Angeles Board of Harbor Commissioners illegally approved the construction of the China Shipping Terminal without the preparation of and approval of a EIS/EIR. The U.S. Army Corps of Engineers illegally failed to require, prepare and approve an EIS/EIS. In 2001 the San Pedro & Peninsula Homeowners Coalition and the San Pedro & Peninsula Homeowners United filed a class action lawsuit against the City of Los Angeles, Port of Los Angeles and the U.S. Army Corps of Engineers. In 2003 the City of Los Angeles and Port of Los Angeles were found unanimously guilty of violating CEQA by failing to prepare and approve an EIR. The U.S. Army Corps of Engineers was also guilty of failing to require, prepare and approve an EIS.
6. The U.S. Army Corps of Engineers, U.S. EPA, Port of Los Angeles and Port of Long Beach have allowed Health Risk Assessments to be prepared and approved as part of the EIS/EIR which are not based on any Public Health Survey and Public Health Baseline of the impacted Environmental Justice Community in the proposed project area. This has resulted in underestimated significant public health impacts, the illegal murder & innocent death of ports, goods movement transportation corridor and distribution center children and residents, deprivation of quality of life, loss of economic income, loss of education benefits, temporary, permanent and lifetime infliction of public health problems, suffering and disabilities.

Federal, State and Regional Regulatory Agencies have failed to disclose to the public the significant health risks, actual public health impacts and public safety dangers of Ports and Goods Movement business operations. All regulatory agencies were aware of the release of the South Coast Air Quality Management District MATES II Study in March 2000 which disclosed that Wilmington, San Pedro and West Long Beach were at the "highest risk of cancer due to diesel fuel emissions from the Ports," yet failed to hold any public hearing, distribute any information, address or mitigate this public health issue. Wilmington residents found out about the study from its neighboring San Pedro residents in late 2001.

Our organization has requested that the Ports sponsor and fund a comprehensive door-to-door Public Health Survey of Port of Los Angeles and Port of Long Beach Harbor residents within a 10-mile radius of the Ports in order to establish a Public Health Baseline and they have refused.

Our organization has requested that the Ports sponsor and fund a comprehensive Port community Mortality Study, Morbidity Study and Epidemiology Study within a 10-mile radius of the Ports and they have refused.

Our organization is currently conducting a Community Based Public Health Survey of Wilmington residents that live along the Port of Los Angeles TraPac Container Terminal. A sample of three hundred Port borderline residents are being asked over 100 health questions. This is the first comprehensive public health survey of a port community in U.S. history.

When scientific and medical studies information were presented at Port public hearing and meeting they were ignored, not addressed or mitigated in the EIS/EIR's.

The public has asked as Public Health Mitigation that air purification systems, air conditioning & heating systems and sound proofing be installed in every residents home, public & private school, public building, senior care center, convalescent care facilities, child care center, clinic and hospital within 3 miles of the ports, goods movement transportation corridors and distribution centers and to-date all Federal, State, Regional Regulatory Agency has failed to require or even recommend this and every Port has failed to include this as mitigation.

The public has asked as Public Health Mitigation that the Ports establish a annual \$ 50 million "Public Health Care Trust Fund," to allocate funds to pay and/or reimburse residents, county hospitals, community clinics and insurers for health care, medical treatment, prescriptions and medical equipment expenses. In Wilmington over 25% of all families have members suffering from a respiratory health problem and over 50% have other health problems known to be caused

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The public has asked as Public Health Mitigation that the Ports establish a annual \$ 50 million "Public Health Care Trust Fund," to allocate funds to pay and/or reimburse residents, county hospitals, community clinics and insurers for health care, medical treatment, prescriptions and medical equipment expenses. In Wilmington over 25% of all families have members suffering from a respiratory health problem and over 50% have other health problems known to be caused by exposure to air pollution and toxic chemicals in the air.

As one example, Mr. Edward Mora a lifetime Wilmington resident and small owner is dying of Lung Disease. He never smoked, never worked in an industrial environment and his family has no prior history of respiratory health problems. He has been in Little Company of Mary Sub-Acute Hospital in Torrance 10 miles away from Wilmington for seven years and has never been well enough to return home one day. Yes he had private health insurance which expired after the first year. His current health care costs to-date exceed \$ 1.5 million which is being illegally borne by California residents via MediCal while the polluters the Port of Los Angeles and Port of Long Beach get away with making over a billion in profits each year and the Big Box Retailer Importers make their billions in profits each year at the publics expense.

7. The U.S. Army Corps of Engineers, U.S. EPA, Port of Los Angeles and Port of Long Beach allowed and approved EIS/EIR's that failed to determine, test, study, mitigate, reduce and eliminate the significant impacts on public health, air quality, water quality, land quality and biological habitats. Prior to 2003 no port project sites and adjacent communities air tests, air monitoring or scientific studies were conducted by the Port of Los Angeles and the Port of Long Beach to determine all of their negative impacts. The EIS's contained limited and incomplete computer model simulation data information. Since 2003 the Port of Los Angeles and Port of Long Beach have failed to mitigate the impacts of air pollution.

While new data has validated the air pollution, air pollution continues to increase every year and all the Ports air pollution reduction plans and actions have resulted in no net decrease. Even the current new historic San Pedro Bay Ports Clean Air Action Plan has resulted in no decrease in air pollution in its first year and will probably have none in the second year. To this date the Ports have failed to acknowledge, address and mitigate aerial atmospheric pollution of Port air pollution on water, land and biological habitats.

8. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to research, review and assess air pollution impacts on public health. There has been an extensive amount of published and non published scientific research, scientific peer reviewed research, local medical research and community based research which has identified numerous medical health problems caused by Ports & Goods Movement or suspected health problems which are developing

in Environmental Justice fence-line communities that have been ignored and not included in the review of Port EIS/EIR's.

Governmental Regulatory Agencies have failed to research and contact universities, medical centers, hospitals, clinics, health agencies, institutes and public health organizations for medical information. As one local Wilmington community public health example, the UCLA Medical Center at Harbor General Hospital located in neighboring City of Carson recently completed in 2007 a Children's Asthma Study in Wilmington which disclosed that 23.9% of all children have asthma, yet you see no reference to this data in the newly released July 2007 TraPac Container Terminal EIS/EIR. The most current Children's Asthma Study in bordering City of Long Beach Westside EJ Community adjacent to the Long Beach I-701 Freeway and Union Pacific Railroad ICTF Intermodal Container facility disclosed that 19.7% of children have asthma, yet the Agencies and Ports failed to research this data, consider this data and mitigate the Ports & Goods Movement impacts.

9. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to prevent Port sprawl and blight onto off-tidelands property in city communities.

Ports have failed to hold public hearings and meetings to advise the public of their intent to purchase 100's of acres of land in city boundaries off-tidelands property and prevent the land from being used for future local commercial uses, community parks and community residential development. Ports have failed to include this information in their Port Master Plans and EIS/EIR's which is subject to public disclosure, review, hearings and meetings

At a Port of Los Angeles August 2007 meeting of the Board of Harbor Commissioners were three agenda items, one was to approve the purchase off-tidelands property in Wilmington for the purposes to create a truck staging area for Port Container Terminals which was not identified in any EIS/EIR, the second to pass a resolution to allow the Port to resume purchasing off-tidelands property for Port uses which was undisclosed and not contained in any EIS/EIR and the third was a staff presentation regarding a Community Redevelopment Loan which was not placed in advance on the Ports website for public review, but upon its presentation it was disclosed that the Port would be involved in a \$ 25 million CRA loan to purchase off-tidelands property in Wilmington under the guise of redevelopment but in reality to support Port expansion in the city.

10. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to disapprove or mitigate the Port of Los Angeles decision to close and destroy on Port property methyl bromide fumigation facilities which resulted Port tenants contracting with third party companies off-port property. This resulted in California Dept. of Agriculture Commissioners intentionally violating public safety recommendations in issuing permits for outdoor fumigating of containers less than 100' from the nearest resident, when the pesticides manual recommended 1,000' safe distance, the California South Coast Air Quality Management District and the California Air Resources Board have failed to conduct periodic tests, monitor and enforce public safety standards.



This has also resulted in fence-line residents, children, local church members, hotel residents, city and federal government elected officials employees and small community businesses being exposed to unknown quantities of methyl bromide a known toxic chemical. This additionally has resulted in an unknown health status of children and adults for over five years. The residents and small community businesses were there before the fumigation company moved into the new industrial park that borders a residential area.

There are several alternative safe methods to methyl bromide such as heat treatment, freezing and atmospheric evacuation but none of these are being used and none have been considered. In addition, permits can be issued that prohibit outdoor fumigation of containers and requiring them to do them inside a warehouse but this is also not done. In Wilmington the fumigation facility California Cotton Company has a more than a 10,000 sq. ft. warehouse where it can fumigate indoors. Containers not cotton are the primary product fumigated. We have photos that show that the vapor recovery ventilation system is not even being connected to capture the methyl bromide. We even suspect that the City of Los Angeles licensing and permit department does not know that they are fumigation, since the property is a warehouse and large empty lot.

Methyl bromide is a green house gas and undocumented amounts of methyl bromide are being released into the atmosphere every week.

11. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to disapprove or mitigate the Port of Los Angeles decision to destroy natural wetlands, coastal tidelands and biological habitats in Wilmington and San Pedro. The result has been that 100% of all natural wetlands and tidelands have been destroyed and lost in Wilmington a California coastline community and over 95% destroyed and lost in neighboring San Pedro. Instead the Port of Los Angeles has built an import car parking lot on what was once over 75 acres of beautiful wetlands, tidelands and beach front property. The Ports "Alternative Land Use" consideration in past and current EIS's for this area should have been to purchase property across the street for the import car parking lot or designate non-tidelands areas and not destroy any wetlands and tidelands.

Since 2001 and every year thereafter the Coalition For A Safe Environment and the Sierra Club – Harbor Vision Task Force has at every Port of Los Angeles EIS public hearing and numerous Board of Harbor Commissioner meetings requested that this land area be designated a Wetlands Restoration Mitigation Project and Alternative Land Use and every year this request has been ignored and denied. However, in the current Draft EIS for the expansion of the TraPac Container Terminal it was deemed a good alternative land use to make this area a "railroad train & container staging area."

The Port of Los Angeles also had the option to purchase over 112 acres of property that was owned by Union Pacific railroad but sold to the Port of Long Beach that could have also been a wetlands restoration project and acceptable Port mitigation. The net result is that today the Port of Long Beach owning 112 acres in the Port of Los Angeles tidelands area of Wilmington a community of the City of Los Angeles. The City of Los Angeles also recommended that this

property be purchased by the Port of Los Angeles for Wilmington community development but was ignored.

In addition, in 2006 Cal Poly Pomona University students prepared a beautiful, breathtaking and comprehensive Wetlands Restoration Proposal for this area which was presented to the Port of Los Angeles Board of Harbor Commissioners, Port of Los Angeles staff and at public meetings which has been ignored and never included as an "Alternative Land Use" or "Mitigation in any EIS/EIR.

The Port of Los Angeles and Port of Long Beach has funded over \$ 60 million in Wetlands Restoration as mitigation in the last 10 years for the loss of water and biological habitats that were filled in for container backlands but not one dime in Wetlands Restoration in the EJ Communities of Wilmington, San Pedro or Long Beach. All monies went to restore wetlands in rich white coastal communities.

Our organization has requested that the Port of Los Angeles construct Ocean Water Reclamation Facilities to clean the polluted San Pedro Bay waters as mitigation and they have refused. It would create permanent local jobs and teach ocean water stewardship.

Our organization has requested that the Port of Los Angeles establish a salt water fishery to replenish the salt fish population that is almost non-existent locally as mitigation and they have refused. It would create permanent jobs, teach fish & habitat restoration and stewardship.

12. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the numerous negative goods movement transportation impacts on EJ Communities. The unmitigated impacts include the literal commandeering and take-over of public freeways, highways, bridges and streets to be used as private industry goods movement truck routes without public approval, which has resulted in unprecedented increase in traffic congestion, traffic accidents, increased car/truck insurance costs, loss of life, increased private health insurance, increased public health care costs, loss & destruction of personal and private property, increased public costs of public transportation infrastructure maintenance, repair and replacement, increased highway & city police services, increased public safety costs, increased freeway tow & clean-up services costs.

Many Trucks owners and operators drive without licenses, without insurance, illegally drive through residential neighborhoods, are cleaned in residential areas, illegally park in residential areas, often unhitch containers in the community, leave unhitched reefer containers running in the community, many are not legal residents in the U.S., truck drivers repair & maintain their trucks on public streets, empty lots, parks and residential areas, they dump their trash, used tires, engine belts, trucks parts, oil filters, oil and transmission fluids onto streets, sidewalks and empty lots. Numerous truck sales lots have opened in the community, most are a blight, cause blight because they are trash magnets, spill oil and fluids on the dirt lots which are than tracked onto the communities sidewalks, streets and eventually when it rains they contaminate the gutters, sewers, watersheds and ocean.

Trucks are poorly maintained resulting in oil, transmission fluid, anti-freeze being spilled on public freeways, highways, streets, bridges, public parks and everywhere they go.

The average trucks uses 18 pounds of Freon (or the equivalent) which are green houses gases which contribute to global warming and climate change. The average truck begins to leak Freon typically after two years and continually thereafter.

13. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the numerous negative impacts of off-port property container storage yards on EJ Communities. In the Port of Los Angeles and Port Of Long Beach Harbor area 31 off-port property container/chassis storage yards and container grave yards have been identified. A container grave yard is one that stores containers for life since they are never returned. For every 1 container that is returned to its country of origin there are 100 sent to a grave yard, as a result there are millions of containers abandoned in the U.S.. The Ports and regulatory agencies have not required that container be returned.

There are in addition other significant EJ Community impacts. Many of the container storage yards are located in residential areas since there are no city zoning laws prohibiting them. Trucks must drive through residential streets to get to them, local city and residential streets were not constructed to handle high volume truck traffic, truck weight and widths needed to make turns. You can sit on the front porch of a local resident home on the northeast corner of Pacific Coast Highway and Eubank Ave. in Wilmington watch trucks run-over the sidewalk all day and may even see a truck run over the street sign. You can also see the trucks making a right turn from the center lane and block all traffic because the street isn't wide enough for the truck to make a right turn from the right lane.

Container storage yards are a blight in every EJ Community, there is nothing aesthetically pleasing about a container storage yard. Most are old and deteriorating. Most are from Asian countries which have used lead paint and toxic coating. The lead paint is peeling and pulverizing and blow into residents homes and throughout the community. Container storage yards are havens for rodents, possums, raccoons which run rampant throughout the community carrying diseases. They are also homes for the homes for homeless and drug dealers.

The containers are never inspected, tested, decontaminated or sanitized. They are homes for bacteria, fungus, mold and insects. We have all heard of the West Nile Virus and the deaths and illnesses it has caused. We in EJ Communities know that it arrived on a container ship and hold all Ports and all Regulatory Agencies responsible for the many innocent deaths, suffering and financial hardships caused by this insect. A 12 year old Wilmington girl almost died from the West Nile Virus in 2006 and sadly may never have a normal life due to its permanent health impacts. Yet there have been a continuous cover-up and denial by all Ports, Governmental Regulatory Agencies, Shipping Companies, Importers, Big Box Retailers such as WalMart, Costco, Sam's Club, Kmart, Home Depot and manufacturers such as Levis etc. as to their responsibility or liability.

Containers are never inspected, tested, decontaminated or sanitized for toxic chemicals, substances and products that were shipped in them. Containers are never inspected and tested for radioactive substances, parts or products that were shipped in them.

14. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to disapprove or address and mitigate the negative impacts of off-port property container inspection facilities in EJ Communities. The Port of Los Angeles has contracted with a third party company Price Transfer to inspect containers. The Port of Los Angeles and the third party failed to advise the City of Carson business licensing department that containers may contain toxic, hazardous, infectious, flammable, radioactive and explosive cargo. The Port of Los Angeles has failed to advise Wilmington and Carson residents of their business activities or conduct a public informational meeting. The City of Carson is another EJ Community with a large population of Afro-American, Filipino, Samoan and Hispanic's which borders the community of Wilmington.

On one occasion there was a suspected bomb in a suitcase. Every main street was blocked for hours, residents had to take alternative routes home, employees at nearby businesses were evacuated, none were allowed to start their second shift, many lost wages and the public was not allowed to go the bordering neighborhood market. Carson sheriffs were on-sight, Port of Los Angeles police, City of Los Angeles police, the bomb squad, FBI and the Carson fire department.

There is now several new Port of Los Angeles truck routes through Wilmington to get to the Carson inspection facilities. This facility presents a new permanent public safety hazard. The Port of Los Angeles and the Port of Long Beach have failed to disclose all off-port inspection facilities. We now suspect that other inspection locations may exist in communities but have not been disclosed or discovered. We also suspect that toxic and hazardous cargo containers are also being inspected in the community and have not been disclosed to the public.

15. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the negative impacts of off-port property Port of Los Angeles train corridor noise impacts on EJ Communities. The issue is that the noise does exceed state or federal safety standards but the fact that it is constant and deprives the public of rest, peace and silence.

Wilmington public school children, residents, residents along the train route, Alameda Corridor, regional train routes and distribution centers must listen to numerous train engines start-ups & idling, whistles, container loading & unloading, train car interlocking, brakes screeching, wheels squealing around turns 24hrs a day 7 days a week.

Passing trains also cause the ground to shake, vibrate and break brick & block walls, house walls, cement & brick patios and house foundations. Residents and their children cannot sleep or rest peacefully without constantly being disturbed.

16. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the negative impacts of off-port property Port of Los Angeles truck corridor

noise impacts on EJ Communities. The issue is that the noise does exceed state or federal safety standards but the fact that it is constant and deprives the public of rest, peace and silence.

Wilmington public school children, residents, residents along designated and non-designated short cut trucks routes through residential areas, public freeways, highways & bridges, regional truck routes and distribution centers must listen to numerous truck engines start-ups, engine revving-up, transmission gear changing, idling, street intersection blocking and air-braking 24hrs a day 7 days a week.

17. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the negative impacts of off-port property Port of Los Angeles noise impacts on EJ Communities from increased security from port police car sirens, city police car sirens, swat teams & bomb squad vehicle sirens, fire department sirens, police helicopters, newspaper helicopters and visiting officials in helicopters on tours. The issue is that the noise does exceed state or federal safety standards but the fact that it is constant and deprives the public of rest, peace and silence.
18. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate Construction and Dredging air pollution impacts. Port EIS/EIR's have no mandatory requirements to use the lowest air polluting fuels available or non-polluting electric vehicles, construction equipment and dredging equipment which are also available.
19. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to address and mitigate the Cumulative Impacts of the Ports construction and business operations. Ports continually fail to conduct a comprehensive assessment and inventory listing of all nearby air pollution and toxic sources. They fail to do adequate research of all known and future sources of air pollution, toxic sources and construction projects by contacting all city and county planning departments and licensing departments.

Ports continually ignore the fact that there will be significant negative cumulative impacts on EJ Communities, they fail to acknowledge their responsibility to mitigate all their negative impacts and fail to reject approval of a Port expansion project proposal.

20. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that allowed Ports to claim Significant Unavoidable Adverse Impacts and Overriding Consideration in approving Port expansion projects. The Port of Los Angeles and Port of Long Beach have illegally made these claims in every EIS/EIR to avoid mitigating the projects impacts and have therefore significantly contributed to the current public health crisis, biological habitat devastation and global warming crisis.
21. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to require the Ports to incorporate the best available pollution control technologies and fuel technologies.

Ports choose to allow vehicles and equipment that use low sulfur polluting fuels over non-polluting electric and ports allow the use of the least costly lower emission control pollution control technologies vs the best and highest pollution control efficiency technologies.

22. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to require the Ports to incorporate the best available and new emerging alternative intermodal transportation and handling technologies.

There is current traditional electric train technology that can replace diesel fuel locomotive trains but the Port of Los Angeles and Port of Long Beach refuse to propose its use and request that the Alameda Corridor Authority change over. This has been proposed at every public hearing by numerous public advocacy groups. The Alameda Corridor is already designed and built to be converted to electric and has the height clearance for above electric wire cables like a cable car.

MegaRail is another new and emerging alternative electric truck and single electric rail guide intermodal system with public support. MegaRail has designed and submitted a proposal to build an all Electric Intermodal System from the Ports of Los Angeles and Long Beach to the downtown East Los Angeles/Hobart Union Pacific and BNSF Rail Yards.

SkyTech is a new emerging company using linear induction technology that is a combined intermodal track container transport system and conveyor rack and stacking system. This has been proposed at every public hearing.

General Atomics is a MagLev Technology that has built a prototype rail that has levitated a container and designed and submitted a proposal to build a MagLev System from the Ports of Los Angeles and Long Beach to the downtown East Los Angeles/Hobart Union Pacific and BNSF Rail Yards.

A neighboring San Pedro resident has brainstormed one of the most creative intermodal systems which utilizes an underground tunnel system based on gravity. A tunnel is built from the twin ports at angle facing down toward the downtown rail yards and the containers are elevated to the surface. A second tunnel is built facing down to the Ports and the empty containers are elevated to the surface. Also imagine changing the rails for rollers with guides that have electric generators connected on each end that turn when a container moves over it and it generates electricity.

The first thought typically would be that the cost would be prohibitive, however if the public was given the option of never having to smell a passing train, hear a passing train, see a passing train, have no fear of an above ground toxic spill, lose land for a community park, lose land for a real estate residential development or lose land that could be used for retail and commercial development they would gladly chose this option.

23. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to require the Ports to incorporate the best available green house gas emissions prevention

technologies which can prevent global warming and climate change. There are vapor recovery systems that can capture every type of VOC emissions.

Ports have allowed tenants to release green house gases into the atmosphere. Every Port has oil several refinery fuel storage tanks facilities that have floating roofs which release tons of VOC's yearly. Ports have eliminated on-port property methyl bromide fumigation facilities which have resulted in them being relocated in residential areas and further from port jurisdiction and control.

24. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to adequately assessment of Tsunami, Seismic Dangers and Earthquakes. Every EIS/EIR fails to acknowledge, address and mitigate scientific research that has determined and predicted that these natural disasters will occur. These natural disasters will cause the Ports to create significant destruction, damages and life threatening dangers to fence-line and nearby Wilmington residents, public schools and local businesses.

25. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to adequately assess Public Utility, Public Services and Public Emergency & Disaster Services Public Impacts. The public is being bombarded daily about electric power black outs and rolling brown outs, but are not being told that the biggest power users such as Ports and Oil Refineries are depriving the public of power. The general public is being told that they must invest in more power plants and transmission infrastructure. But bottom line the public and EJ Communities are being forced to subsidize the power costs of Ports, the Goods Movement Industry and Big Box Retailers which allows them to make billions of dollars in extra profits.

The Ports, Goods Movement Industry and Big Box Retailers are depriving the public and EJ Communities of funds and services that are being diverted to support extra regulatory agency supervision, city services, legal enforcement, provide city & county police services, fire department services, freeway tow truck services, freeway, highway, bridge, street repair, maintenance & replacement, emergency & disaster services. Federal funds are being diverted to provide homeland security for containers, assuring their safe transport over the public safety needs.

26. The U.S. Army Corps of Engineers and U.S. EPA allowed and approved EIS/EIR's that failed to require a Cost-Benefit Analysis or Assessment of its business operations, transportation technologies, intermodal technologies, air pollution control activities, public health impacts, expansion and new project proposals to validate EIS findings, decisions, conclusions, mitigation measures, project and EIS approvals.

The Port of Los Angeles and Port of Long Beach as part of the U.S.'s first Clean Air Action Plan recently contracted with a consultancy firm to evaluate the proposed Clean Truck Plan Proposal and include Public Health Costs. The firms principal economist Prof. John Husing concluded that to offset the externalized public subsidized costs a fee of \$ 540 per container would have to be charged to mitigate all impacts. This is the most comprehensive cost-benefit assessment that has ever been performed. It is this externalized public cost that has the greatest negative and disproportionate impacts on EJ Communities.

# PORT COMMUNITIES

## Bill of Rights

### Preamble

Whereas communities and cities that border international trade ports, goods movement transportation shipping corridors and distribution centers have inherent and inalienable rights to a quality of life standard equal to those enjoyed by other communities, cities and citizenry of a country:

Whereas international trade ports, goods movement transportation shipping corridors and distribution centers throughout the world contribute significantly to the world's air, land and water pollution, global warming, loss of sea life habitats and destruction of natural coastal tidelands:

Whereas communities and cities that border ports, goods movement transportation corridors and distribution centers are most often people of color, indigenous people, poor and the economically disadvantaged:

Whereas communities that border ports, transportation shipping corridors and distribution centers are subject to economic exploitation, discrimination, racial classism, neglect and are excluded from economic benefits of development:

Whereas communities and cities that border ports, transportation shipping corridors and distribution centers often bear the greatest exposures to carcinogens, respiratory reproductive and developmental toxicants and often suffer disproportionately from diseases associated with these exposures and do not have affordable and accessible health care:

Whereas the economic benefits of international trade are extensive they must be shared equitably by all residents and citizenry of a country:

Whereas the world's population human and natural resources are finite and our current practices are not sustainable, we have a public trust duty to take anticipatory action to protect and preserve human health, wildlife, seafood resources and the environment for present and future generations:

We therefore resolve and declare:

### Article 1 Right to Economic & Environmental Justice

All communities and cities that border international ports, goods movement transportation shipping corridors and distribution centers are entitled to economic justice, environmental justice and mitigation whereby they will be free from economic exploitation, discrimination, racial classism, neglect, deprivation of public services, disproportionate and negative cumulative environmental impacts.

### Article 2 Right to Good Health

Health care is a right, not a privilege. Every community is entitled to an environment that promotes a good healthy quality of life. Ports, shipping companies, distributors and retailers have the responsibility



to protect public health by utilizing integrated pest management and environmentally preferred sanitation methods to keep ships, containers and their properties clean.

### **Article 3 Right to Quality of Life**

Everyone living or working in a port community, transportation corridor and distribution center is entitled to a quality of life standard equal to other communities, cities, countries, nationalities, cultures or religions. Every resident is entitled to affordable, sustainable housing and every goods movement worker is entitled to a living wage.

### **Article 4 Right to Know & Public Safety**

Every community has the right to know about potential hazards and risks associated with ports, shipping and goods movement industry business operations. The public has a right to live in safety, work in safety and know about emergency and disaster preparedness plans.

### **Article 5 Right to Clean Air, Water & Land**

Every community is entitled to clean air, water and land free from pollution, contamination, degradation, loss and sprawl from ports, ships, shipping lane routes, intermodal facilities, transportation corridors, cargo handling equipment, inspection facilities, fumigation facilities, off-port site container & chassis facilities, distribution centers, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and trains business operations. Residents and workers in ports, transportation corridors and distribution centers shall not be exposed to toxic, carcinogenic or hazardous chemicals, compounds, substances or particulate matter.

### **Article 6 Natural Resources Rights**

Every community is entitled to have its natural resources, fauna, wildlife, habitats, agricultural food crops, domestic animal food sources, sea food, organic and non-organic traditional medicinal resources protected from pollution, contamination, infestation, destruction, over exploitation, degradation and loss due to ports, ships, shipping lane routes, intermodal facilities, transportation corridors, cargo handling equipment, inspection facilities, fumigation facilities, off-port site container & chassis storage facilities, distribution centers, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and train business operations. Every community is entitled to enjoy the natural beauty and wonder of its natural resources and its future sustainability.

### **Article 7 Right to Participate In Decision Making**

All communities and residents are entitled to participate in and vote on decisions, laws, rules, regulations, guidelines and projects that may negatively impact them. They are further entitled to have adequate advance notice, copies of all proposals and related and supplementary documents and a sufficient period of time to review all proposed laws, rules, regulations, guidelines and projects so as to ascertain their immediate and long term impacts. General master plans and zoning changes shall not occur without the vote of approval by the impacted community and residents.

### **Article 8 Right to be Free From Financial Burden Caused By The Goods Movement Industry**

All cities, communities and residents are entitled to be free from the financial burden of ports and goods movement transportation corridors operation, maintenance, replacement, construction, modernization and expansion. The public shall not financially subsidize private business operation, private business growth, private business cost-of-doing-business and transportation infrastructure for private business goods movement by being burdened with taxes, bonds, loan obligations and the majority of the costs. The public shall be entitled to have a full cost accounting, cost-benefit analysis study, best available alternative technology assessment study, environmental and public health cost impact studies performed.

## **Article 9 Right to Noise & Light Exposure Limitations**

Every community is entitled to be free from excessive noise or light exposure from ports, shipping lane routes, intermodal facilities, transportation corridors, cargo handling equipment, inspection facilities, fumigation facilities, off-port site container & chassis storage facilities, distribution centers, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and train business operations. Communities and residents are entitled to noise and light abatement, free medical diagnosis, medical health care and compensation for any personal health injuries.

## **Article 10 Right to Freedom from Community Blight**

Every community is entitled to be free from blight caused ports, ships, shipping lane routes, intermodal facilities, transportation corridors, cargo handling equipment, inspection facilities, fumigation facilities, off-port site container & chassis storage facilities, distribution centers, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and trains. Cities, communities, homeowners and residents are entitled to be compensated for decreased property values caused by goods movement related blight.

## **Article 11 Right to Traffic Congestion Limitations**

Every community, resident, worker and visitor is entitled to be free from traffic congestion, travel delays, loss work pay, increased child care costs, traffic accidents, medical care and increased insurance costs caused by ports, ships, shipping lane routes, intermodal facilities, transportation corridors, cargo handling equipment, inspection facilities, fumigation facilities, off-port site container & chassis storage facilities, distribution centers, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and train routes. Communities and residents are entitled to congestion relief plans, growth moratoriums, medical diagnosis, medical health care and compensation for any injuries.

## **Article 12 Right to Personal & Real Property Destruction, Degradation & Loss**

Every community, homeowner and resident is entitled to be free from personal and real property destruction, degradation, depreciation, loss or forced removal due to ports, ships, off-port site container & chassis storage facilities, intermodal facilities, inspection facilities, distribution centers, transportation corridors, shipping lane routes, diesel trucks, truck sales/maintenance/storage locations, railroad yards, train tracks and trains. Every homeowner and resident dislocated is entitled to just and fair compensation, relocation at no expense to an equal or better home with all relocation, down payments, security fees, taxes or increased insurance and utilities costs born by the governmental or private entity having caused the forced removal.

## **Article 13 Right to Limit Industrial Planning & Zoning Exploitation**

Every community is entitled to have city and community master plans that contribute to a high standard of living and quality of life. These include adequate open space parks, access to ocean beaches and coastal tidelands, freedom from traffic congestion and business sprawl. Governmental municipalities have a public trust duty to protect the rights and collective interests of bordering port, transportation corridor and distribution centers communities.

## **Article 14 Right to the Best Available Alternative Technologies**

Every community has the right to have all governmental agencies, ports, ships, off-port site container & chassis storage facilities, intermodal facilities, inspection facilities, cargo handling equipment, distribution centers ships, transportation corridors, shipping lane routes, diesel trucks, truck sales/maintenance/storage, railroad yards, train tracks and train business operations use the best available alternative and control technologies, clean fuels, safe energy sources, efficiency technologies, waste management and recycling programs.

July 12, 2005

## Port Communities Bill of Rights History

The idea of a Ports Communities Bill of Rights has probably existed in the minds of impacted Port communities for centuries. It was the environmental justice movement, environmental impact report challenges and recent court victory of the Wilmington, San Pedro and Long Beach communities against the Port of Los Angeles and Port of Long Beach which made the Port Communities Bill of Rights a reality.

It was the realization that the international trade and goods movement industry causes devastating environmental and public health impacts that helped guide the writing of this document. It was soon discovered that the goods movement industry could also have significantly regional impacts which resulted in the inclusion of our transportation corridor and distribution center community neighbors.

The environmental justice community organization Coalition For A Safe Environment initiated the writing of the Port Communities Bill of Rights in the year 2004. It is hoped that Port, Transportation Corridor and Distribution Center Communities throughout the world will benefit from its writing.

### Special Gratitude To The Following Contributors

Jesse N. Marquez - Coalition For A Safe Environment - Principle Author  
Dr. Joseph K. Lyou - California Environmental Rights Alliance  
Martha Dina Arguello - Physicians For Social Responsibility  
Andrea M. Hricko - USC Environmental Health Sciences Center  
Amy Vanderwarker - Environmental Justice Coalition For Water  
Y. Armando Nieto - Coalition For Clean Air  
Joshua Holst - California League of Conservation Voters  
Carl Farrington - South Coast Interfaith Council  
Bonnie Christensen - San Pedro Peninsula Homeowners United, INC.

### Contact Information

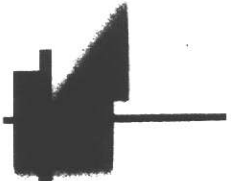
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Raul Orozco   Dr. John G. Miller   Gabrielle Weeks

# **Wilmington Air Pollution Tracer Study**



**Department of Mechanical Engineering  
Bourns College of Engineering  
University of California, Riverside**

**11/22/2004  
Wilmington Senior Citizen Center**

# Objective and Background

---

ARB and CEC are sponsoring Environmental Justice programs, whose objective is to develop and apply methods to estimate impacts of air pollutant emissions in neighborhoods

They have sponsored a series of urban air quality field experiments in California to understand how pollutants travel from source to surrounding communities

Wilmington Air Pollution Tracer Experiment is one of these studies.



# The Approach

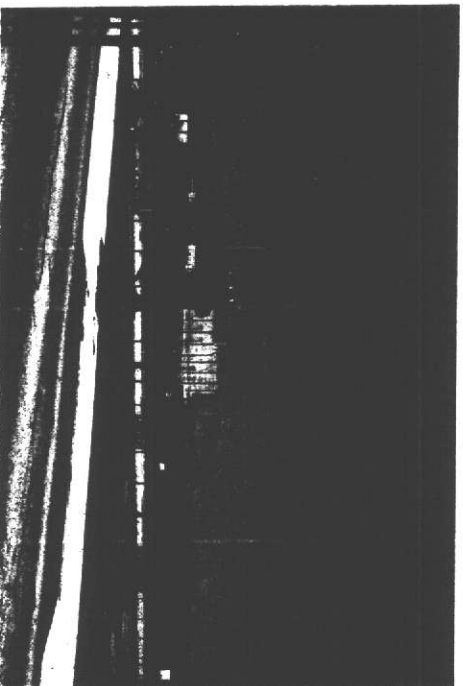
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Release a harmless tracer from source

Sample tracer at locations in the community

Figure out how material was transported

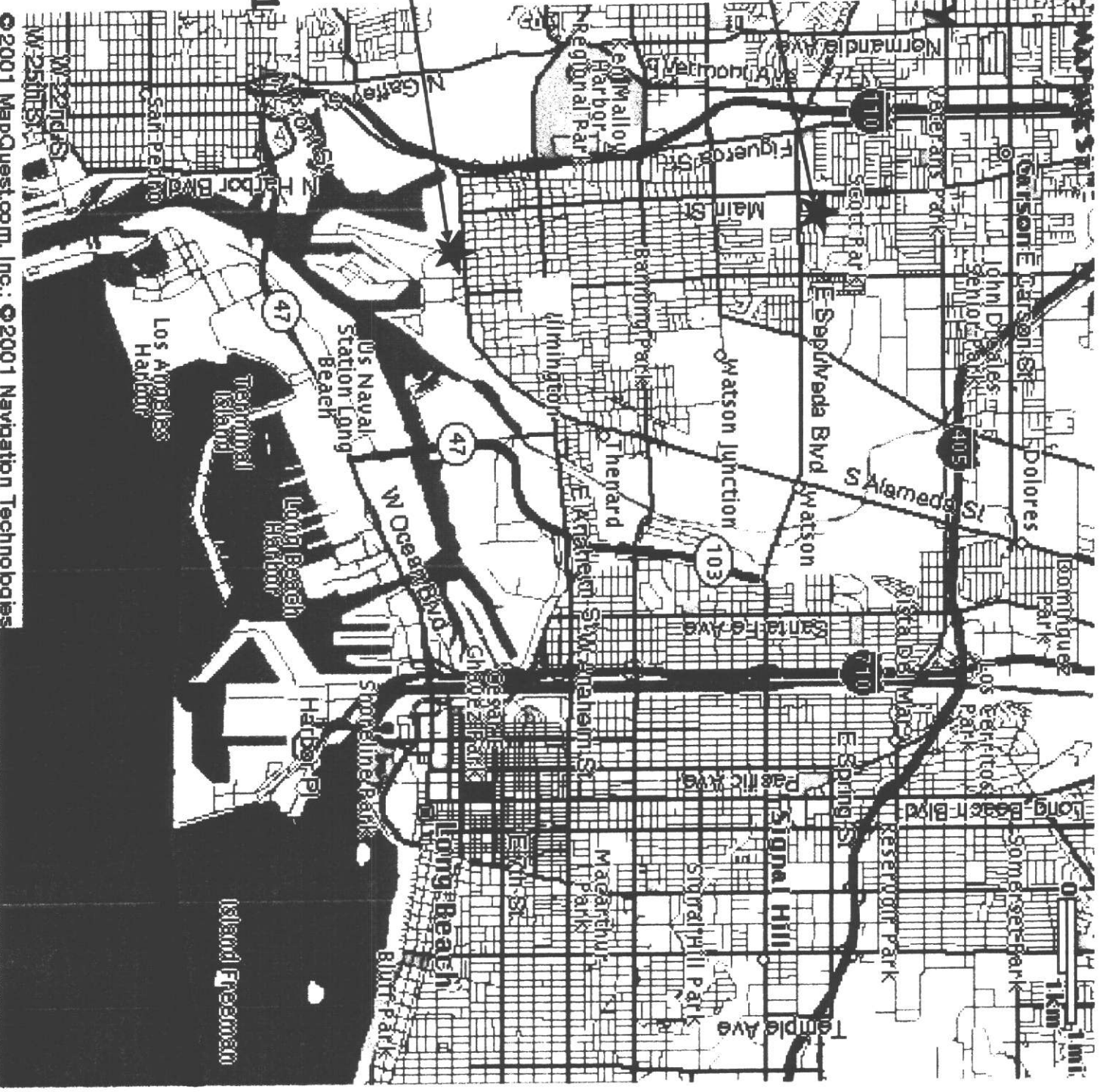
Apply this description to other pollutants released in the community



# Map of the study area: Wilmington/Carson/Harbor city

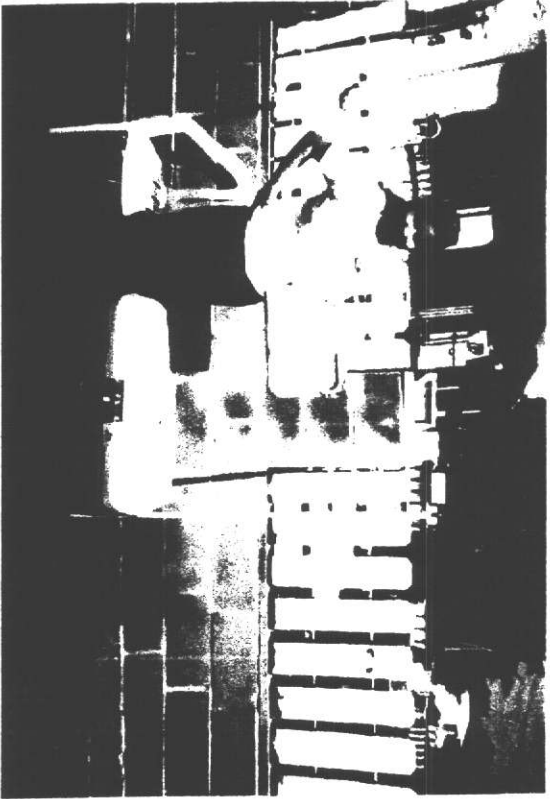
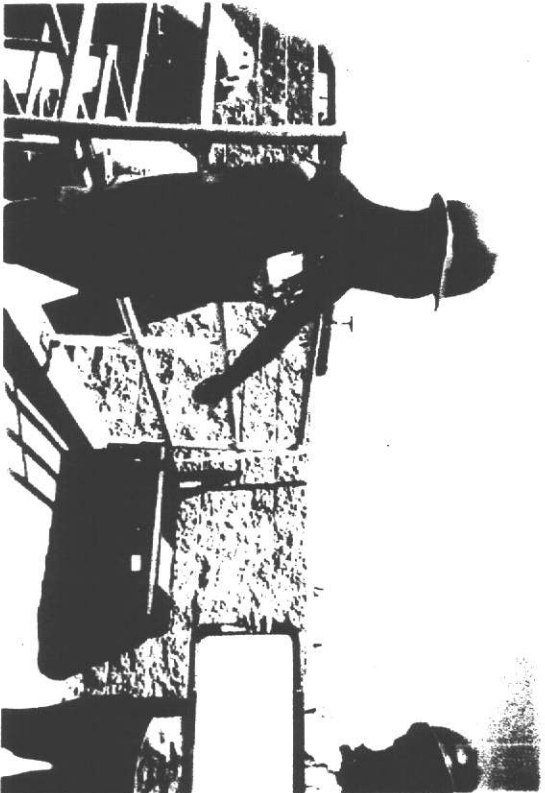
Locations of Meteorological site2

LADWP: Tracer Release Point and Meteorological site1



# 72 Sampler Locations Provided by Wilmington Residents and Businesses

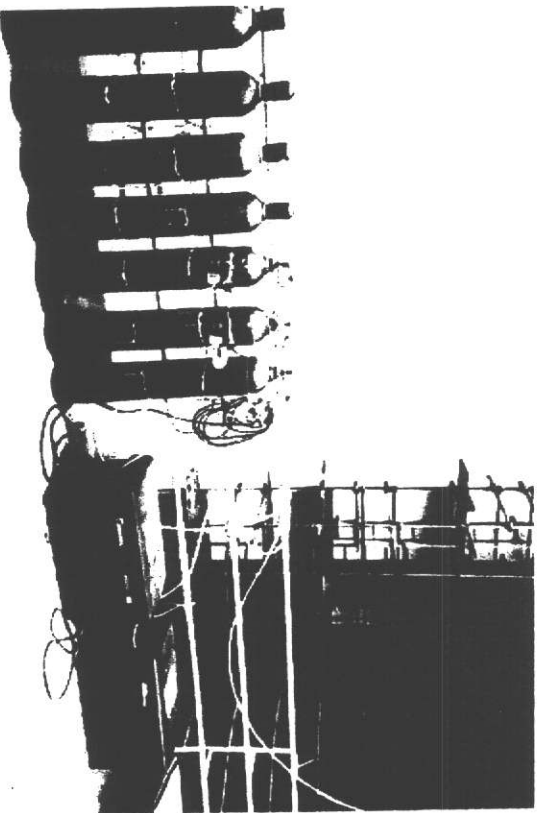
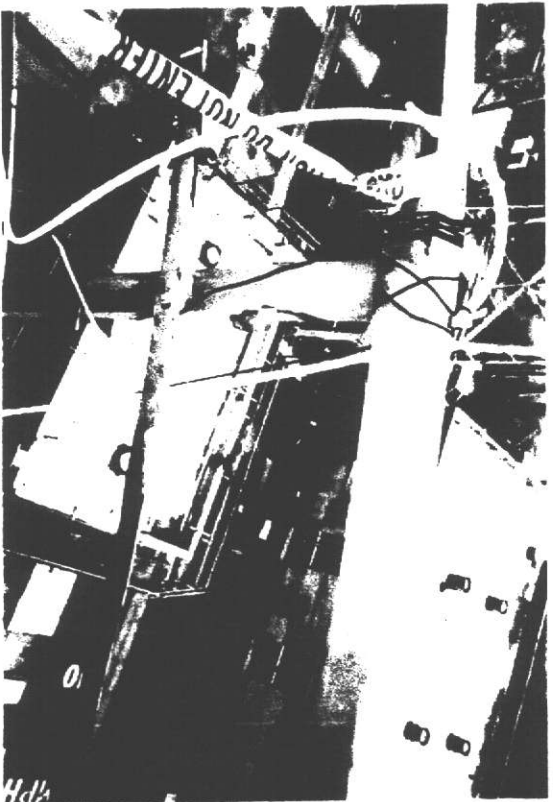
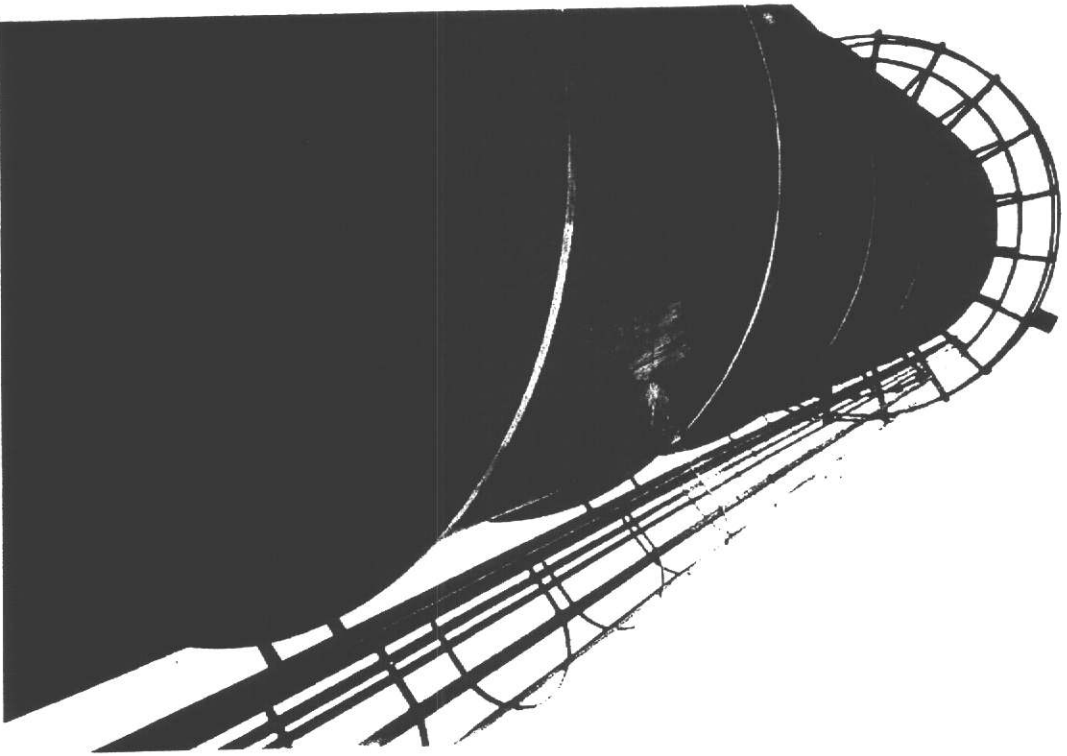
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# Tracer Release

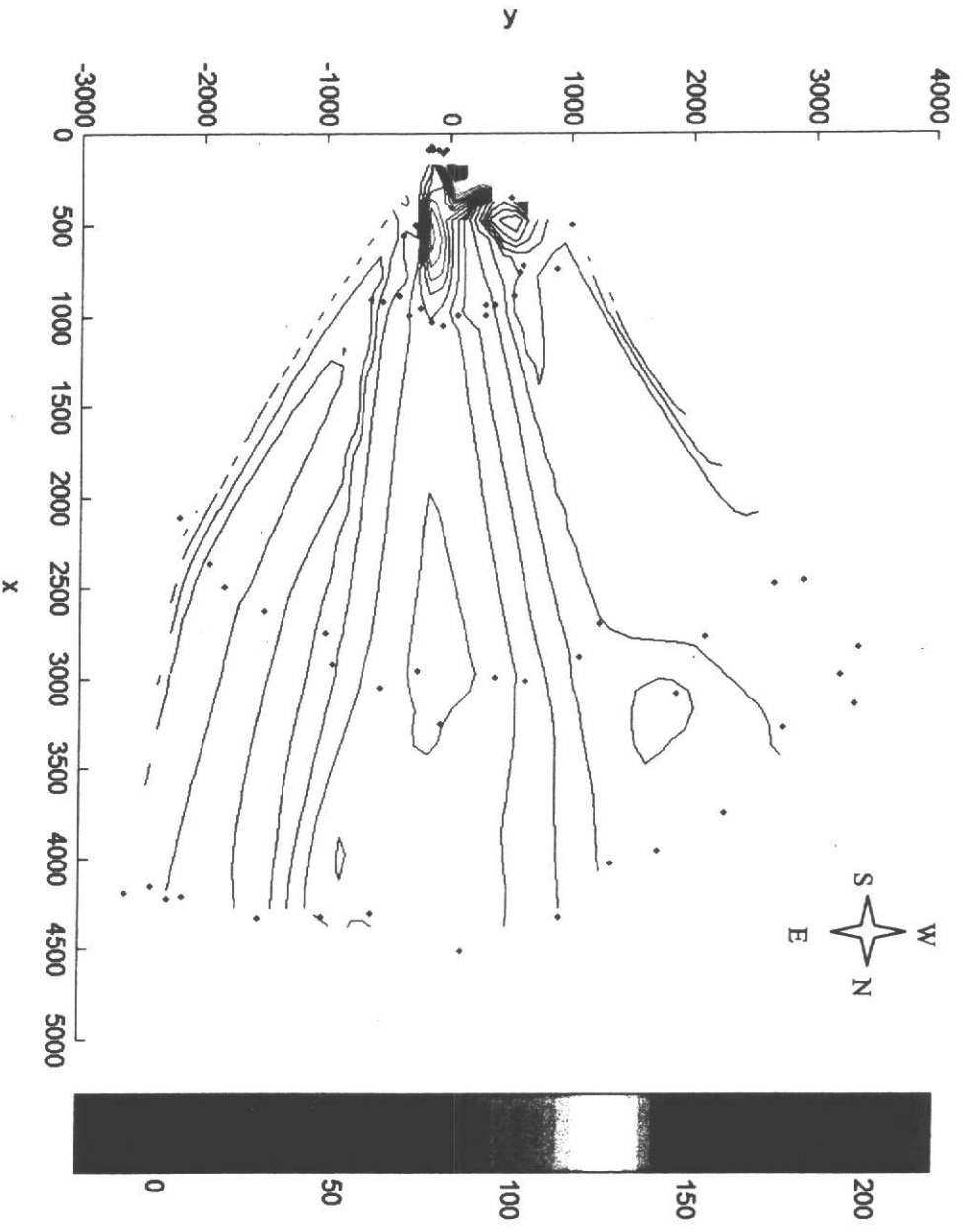
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# Preliminary Results On Tracer Concentration Distributions

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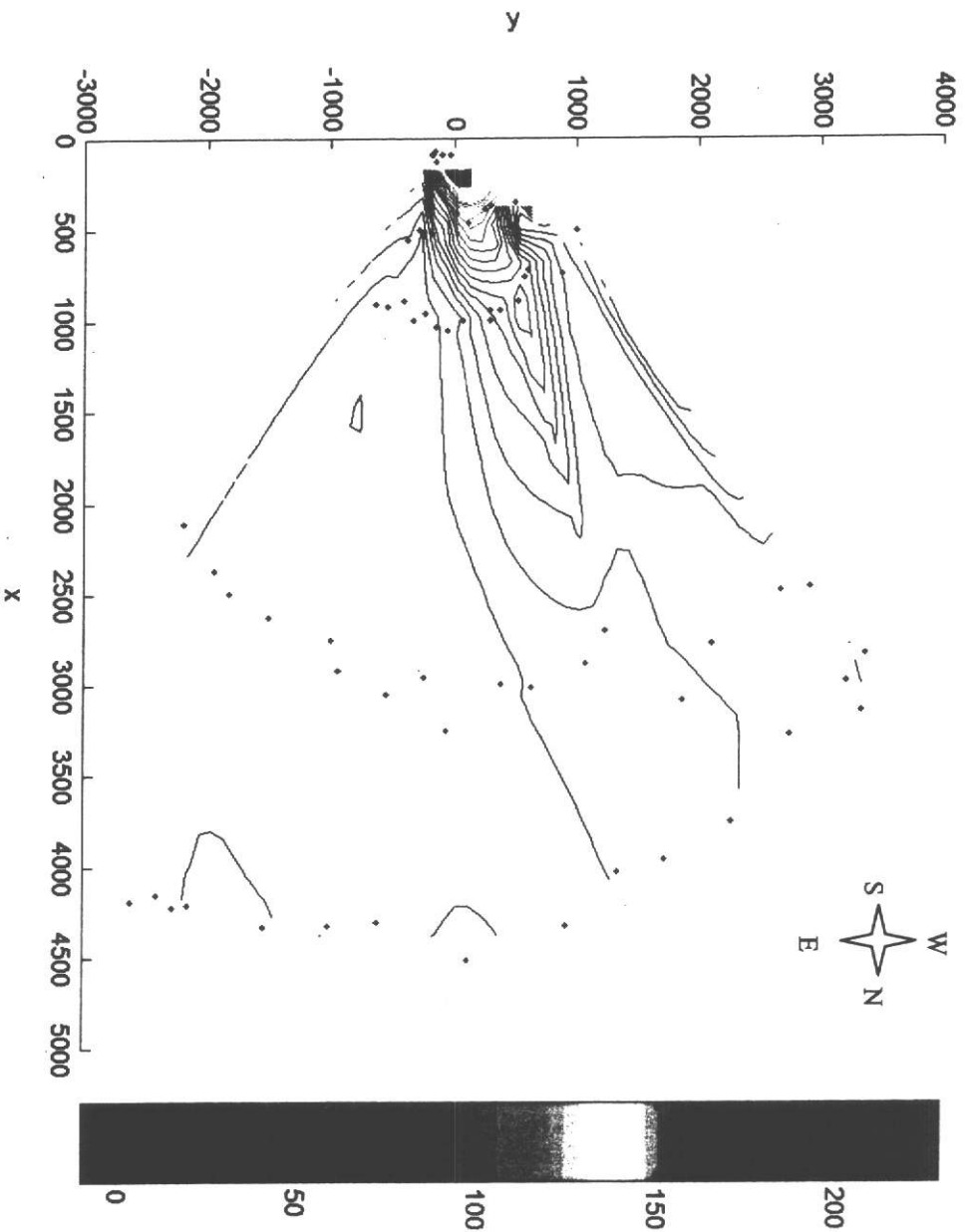
Ground level release



# Preliminary Results On Tracer Concentration Distributions

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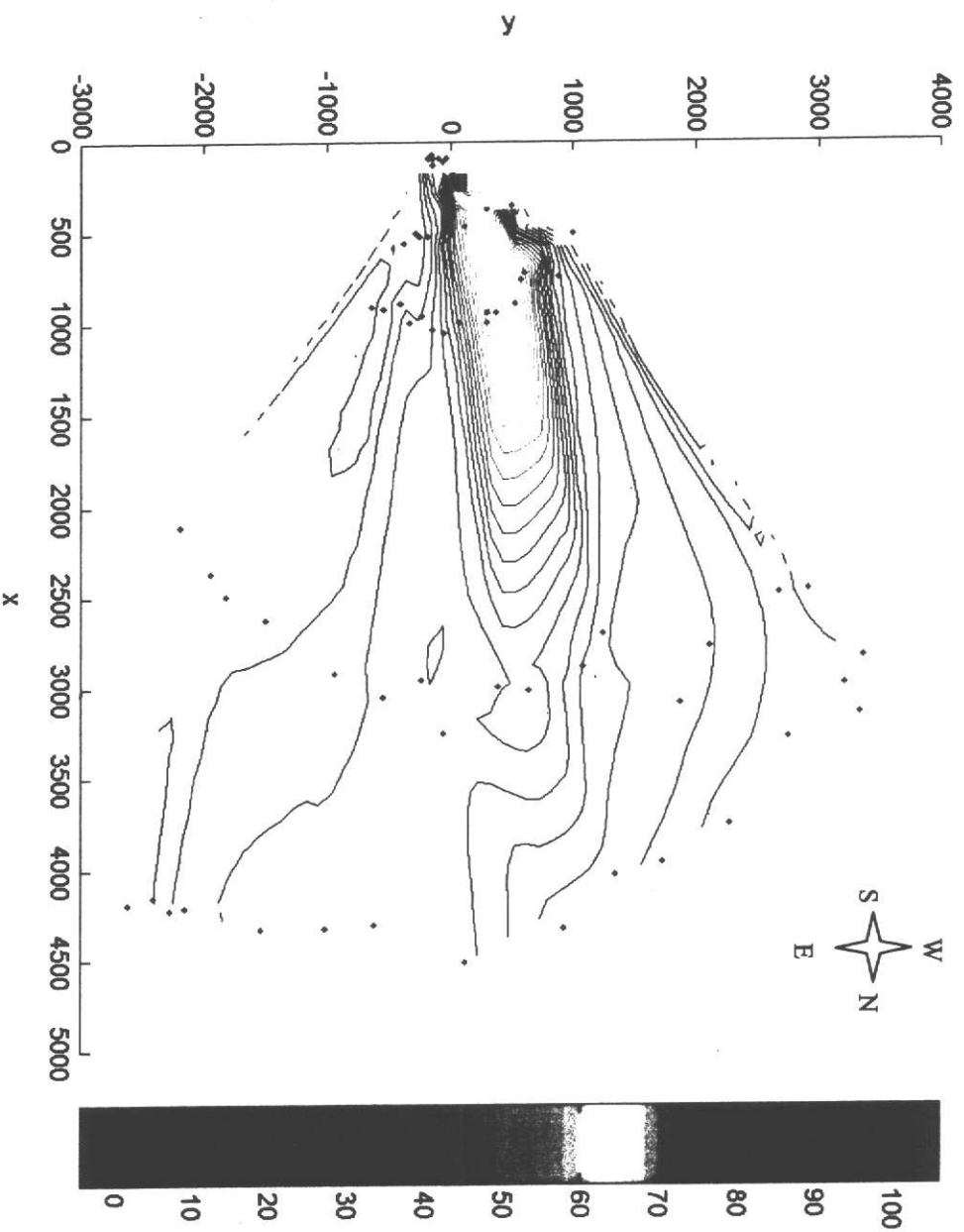
## Elevated release



# Preliminary Results On Tracer Concentration Distributions

---

## In-stack release





Team \_\_\_\_\_

**Michelle Landis**

**Joel Shafor**

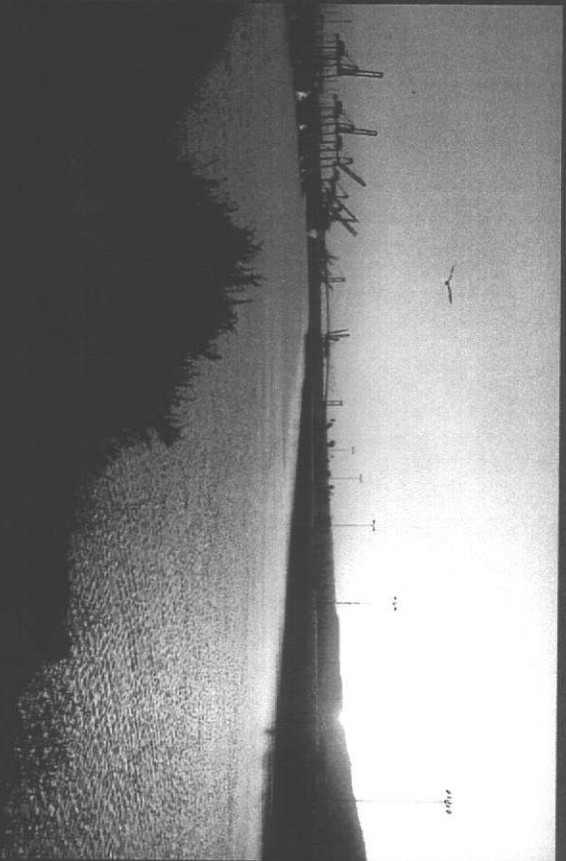
Instructor \_\_\_\_\_

**Gerald O. Taylor**

# Wilmington Habitat Restoration

*This presentation is intended for academic study. Where possible, sources have been cited for further reference.*

- **Historic Background**
- **The Port Area Today**
- **Why a Wetland in the Port?**
- **A Neighboring Model of Success**
- **Existing Policy Support for Wetlands**
- **Site Remediation**
- **Saving the Last Remnant**
- **A New Concept for the Site**



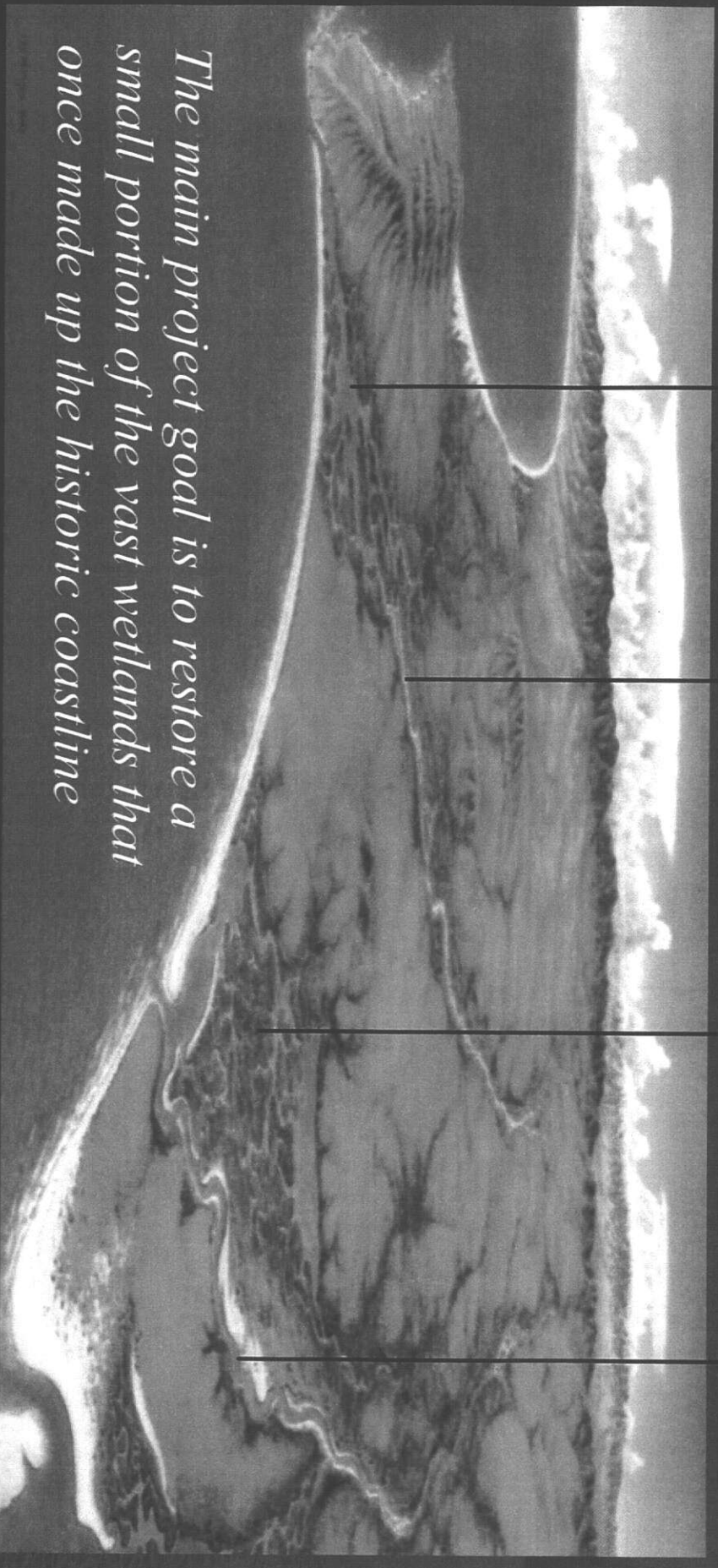
# Historic Background

San Pedro  
Wetlands

Los Angeles  
River

Los Cerritos  
Wetlands

San Gabriel  
River



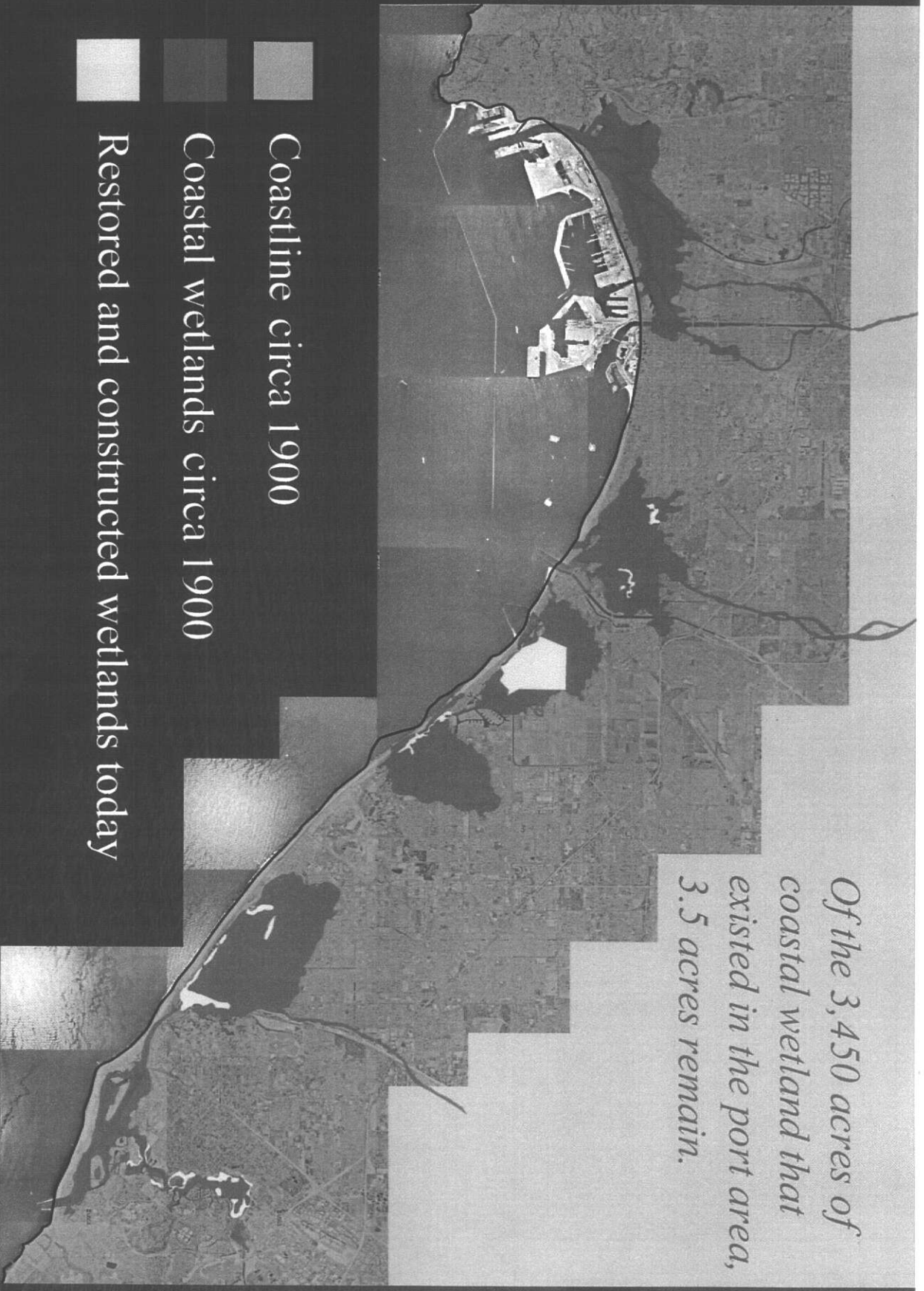
*The main project goal is to restore a small portion of the vast wetlands that once made up the historic coastline*

# Los Angeles Basin's Natural Coast

Artistic Rendering by Lee Mothes



*Of the 3,450 acres of coastal wetland that existed in the port area, 3.5 acres remain.*



Coastline circa 1900

Coastal wetlands circa 1900

Restored and constructed wetlands today

# Coastal Wetlands Past and Present

*Information from Cabrillo Museum exhibit.*

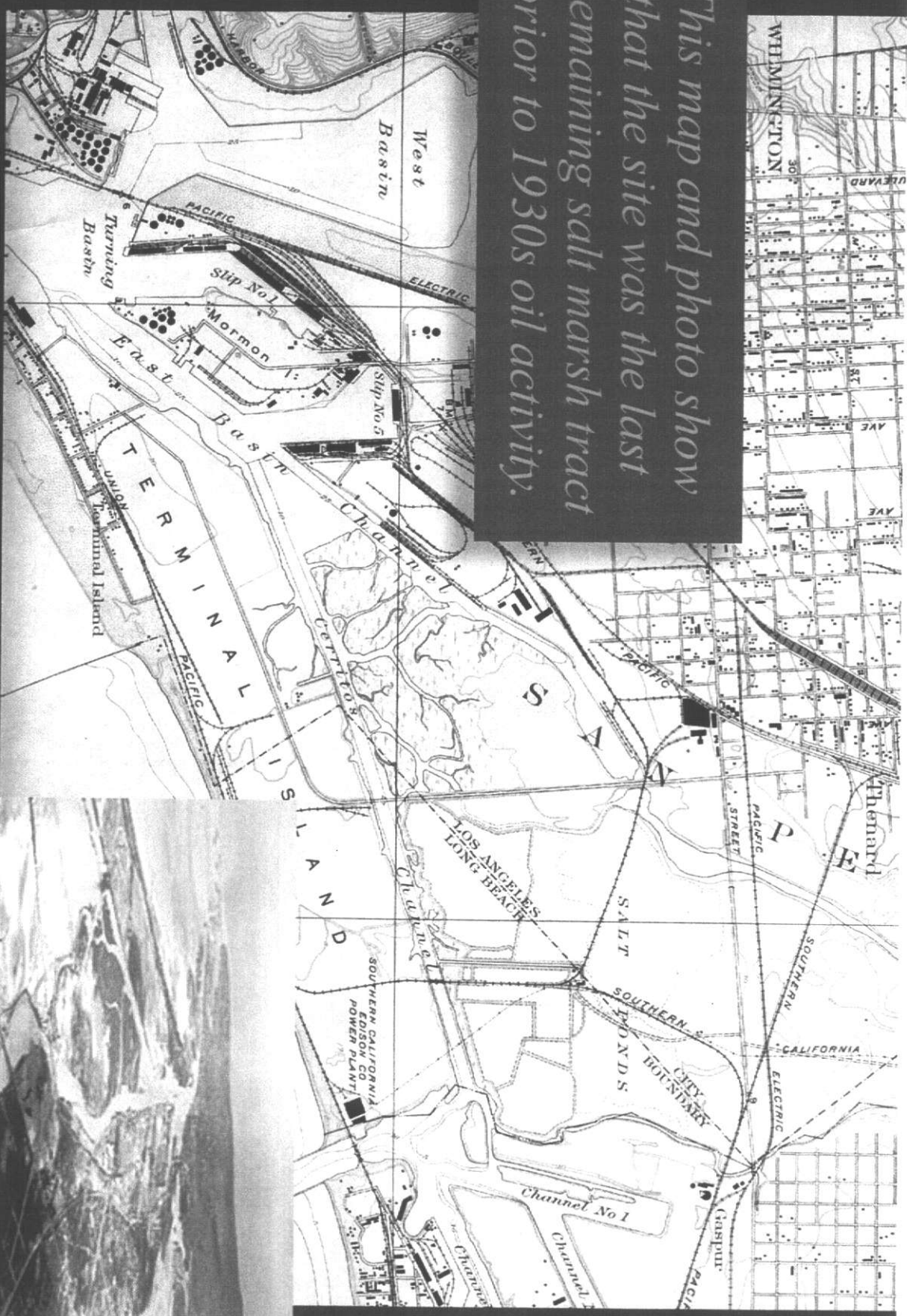
*This 1851 map shows how the LA River once flowed where the San Dominguez Channel flows currently.*



# Historical Extent of Harbor Wetlands

## 1851 U.S. Coast and Geodetic Survey

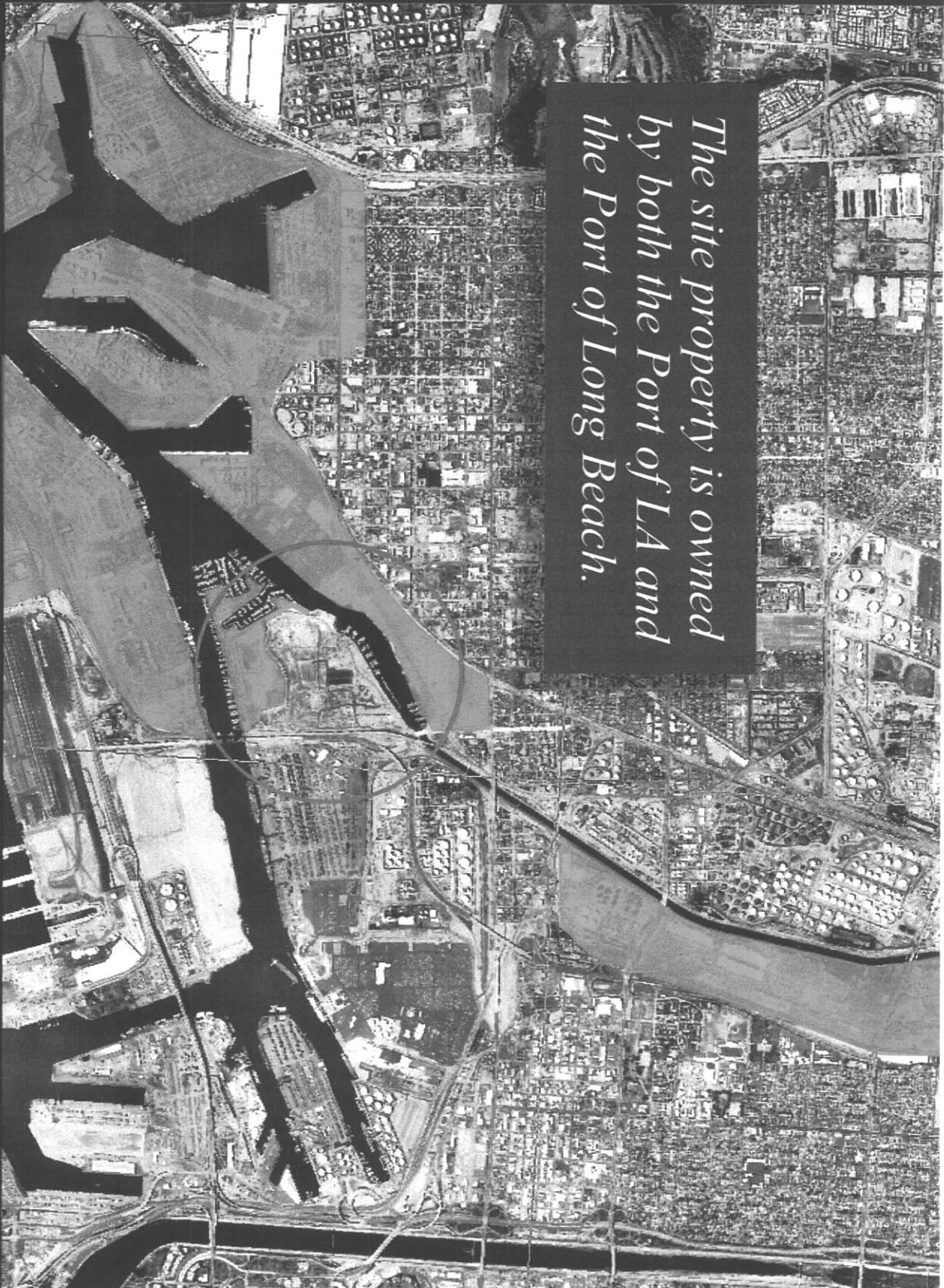
*This map and photo show that the site was the last remaining salt marsh tract prior to 1930s oil activity.*



# 1924 USGS Map of Site

*Photo from City of Long Beach website*

© USGS  
Map scale 1:50,000  
1923, 5ed. 21.



*The site property is owned  
by both the Port of LA and  
the Port of Long Beach.*

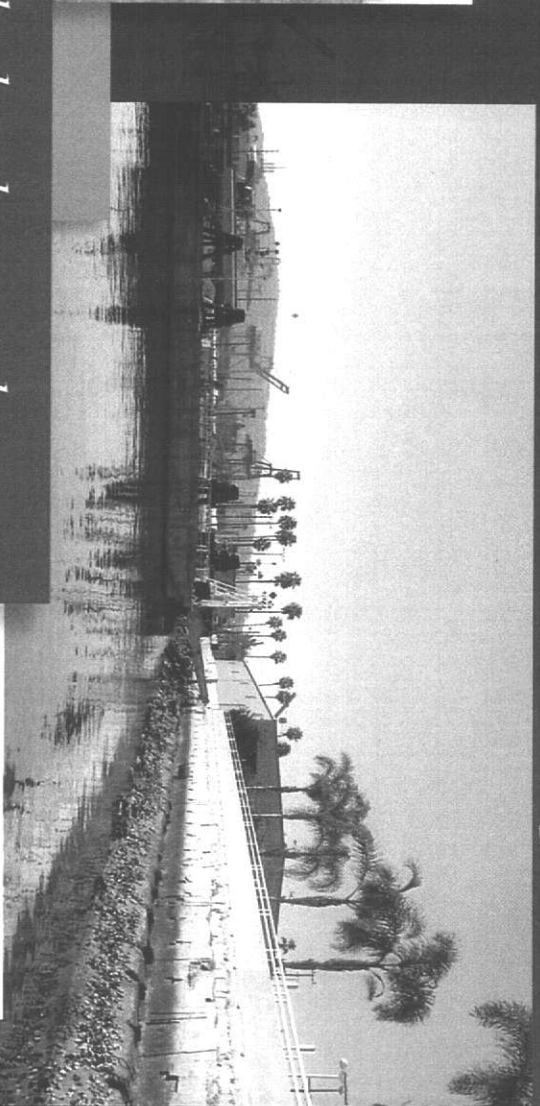
**Land Owned by the Port of LA**



Consolidated Slip

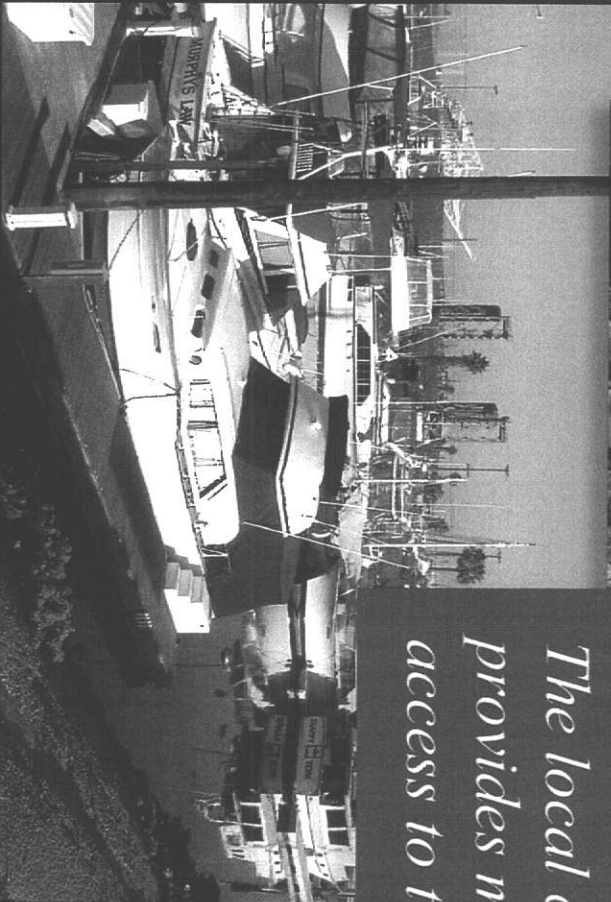


Wilmington Waterfront



*The local coastal area  
provides minimal public  
access to the harbor.*

Private Marinas



School of Oceanengineering



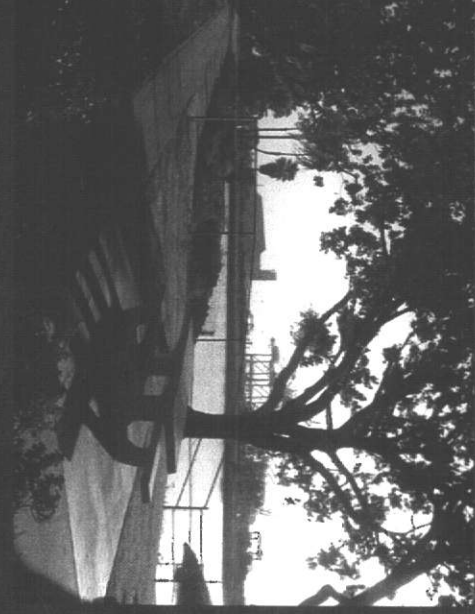
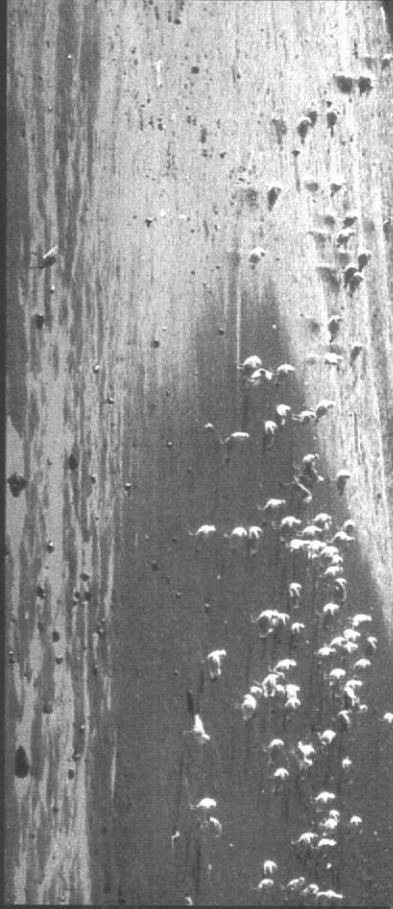
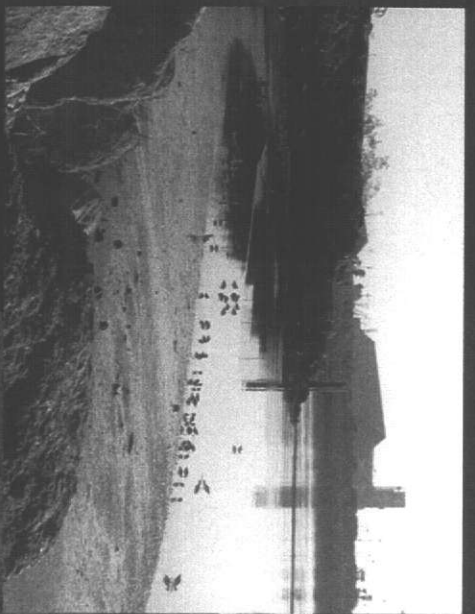
# Access to the Harbor

*A portion of the 3.5 acres of habitat  
within the Port of Los Angeles*



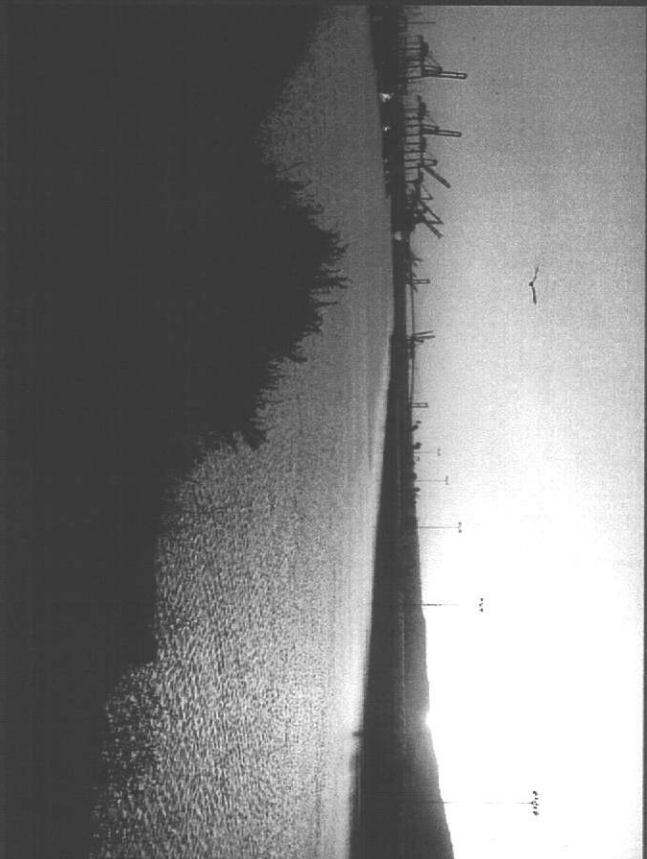
# Salinas de San Pedro

*A portion of the 3.5 acres of habitat  
at the mouth of the Los Angeles River*

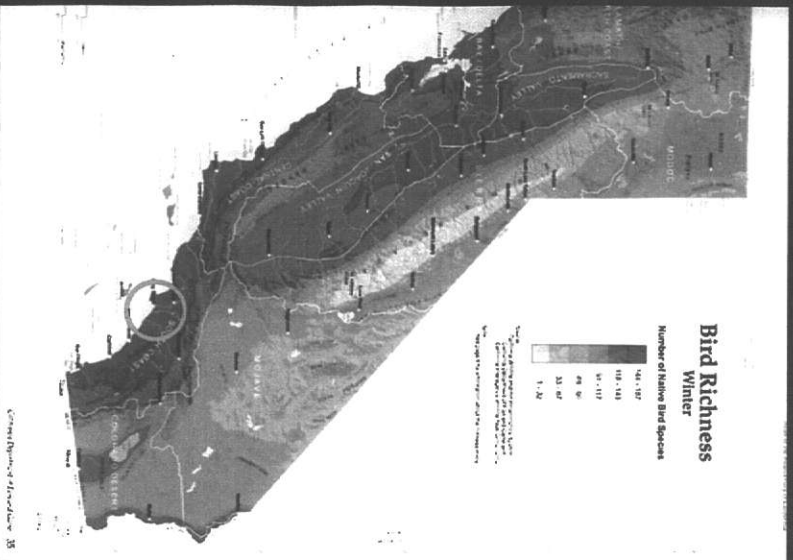


# Golden Shore Wildlife Preserve





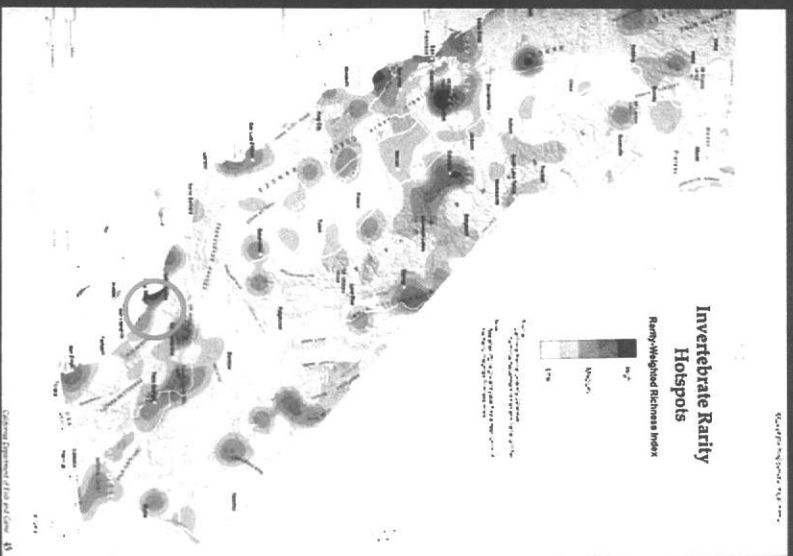
# Why a Wetland in the Port?



144-187 Species of  
native birds



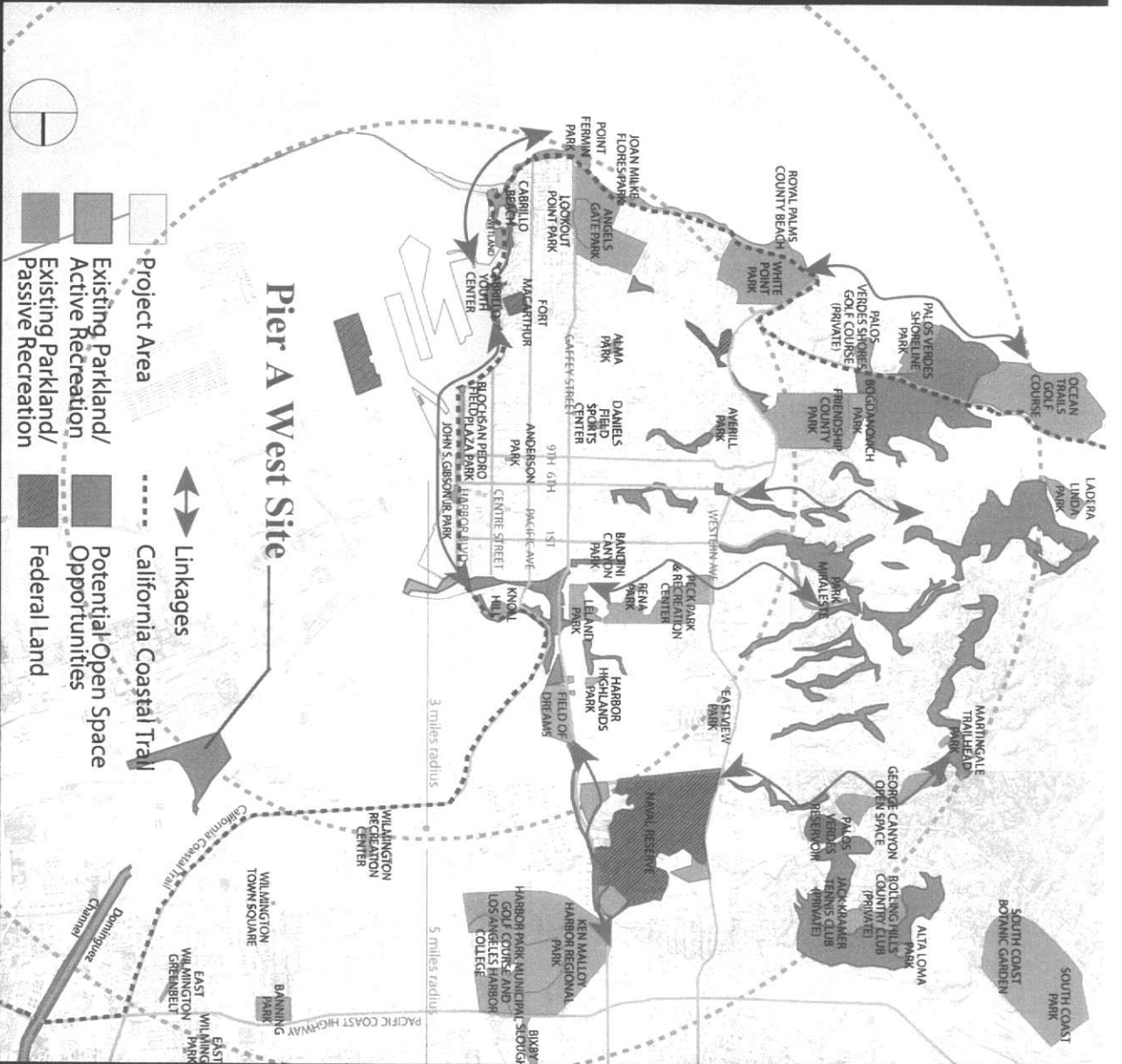
27-36 Species of  
native waterfowl



Hotspot for invertebrates

*The Port area's large biodiversity is a result of The Pacific Flyway bird migration route.*

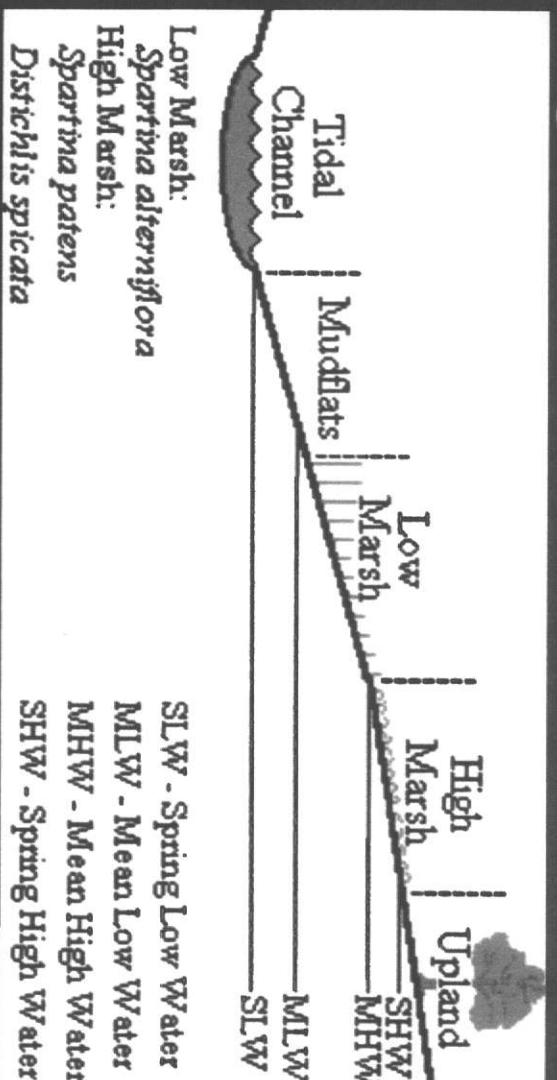
# Biodiversity



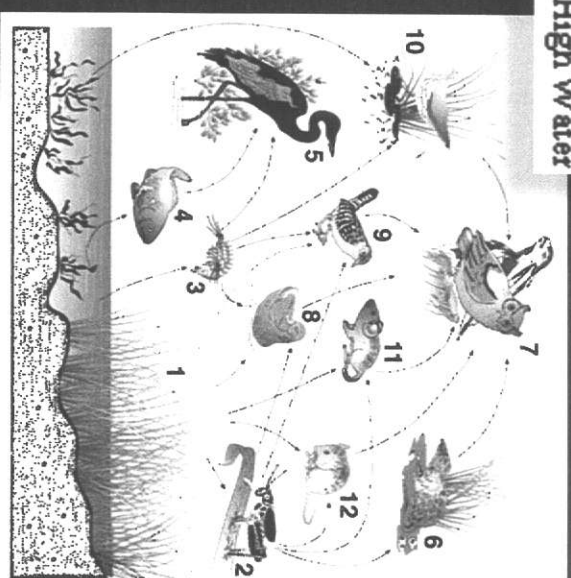
# Open Space Inventory

*Inventory from Mita Lehrer and Associates*

## Vegetational zonation in a Salt Marsh



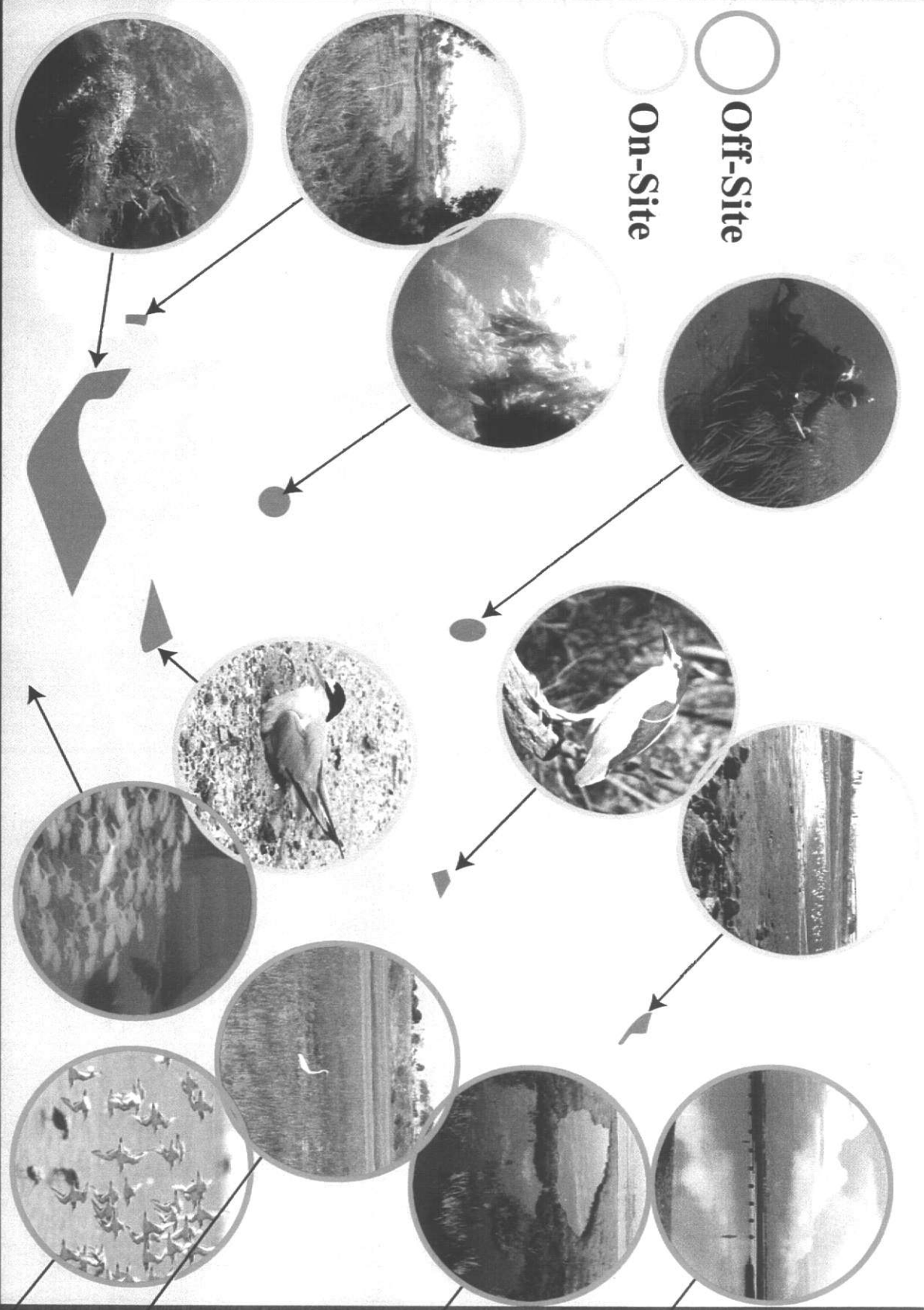
## Food Web in a Salt Marsh



## Wetlands . . .

- support great biodiversity
- provide filtration, volatilization, and flood control
- are where ecosystems converge
- support specially-adapted plants and animals

# Ecology



**Port Mitigation Projects**

*There is controversy over the off-site mitigation funded by the ports*

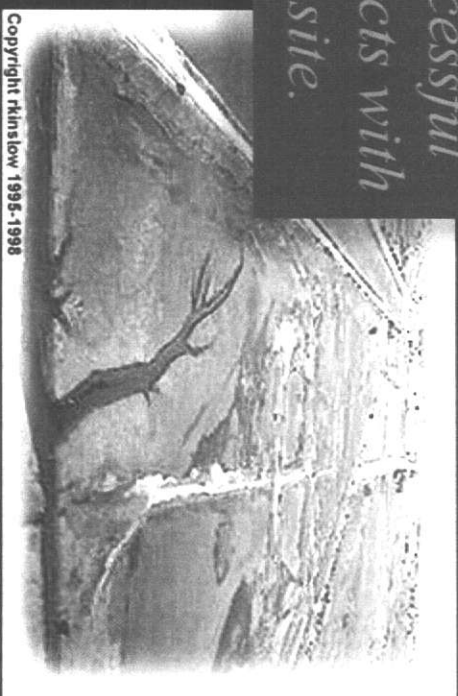
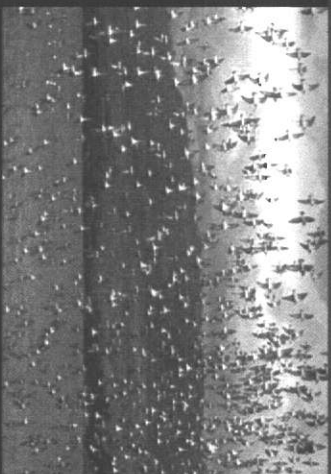
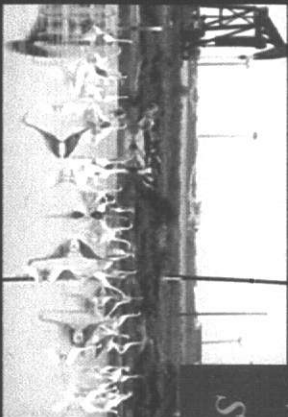
# Bolsa Chica Ecological Reserve



Pacific Flyway



*Two local and highly successful wetland restoration projects with similar constraints to the site.*



Copyright Rhinelow 1995-1998

# Ballona Wetlands

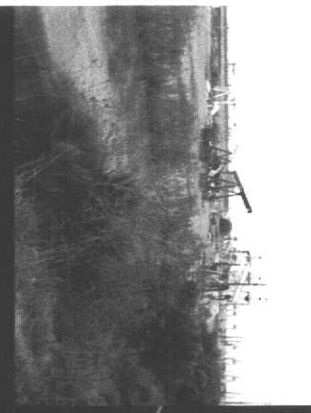
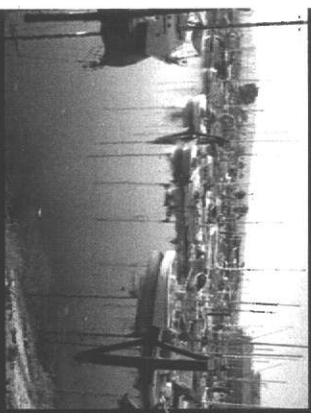
# Case Studies



*Both constraints and assets exist on the site.*

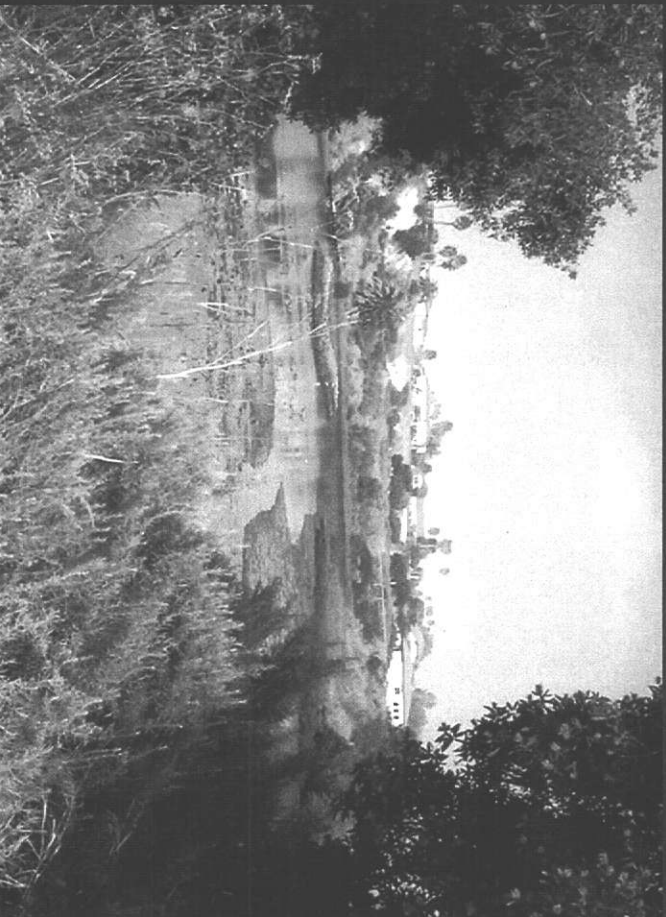


# Aerial Map of Project Site



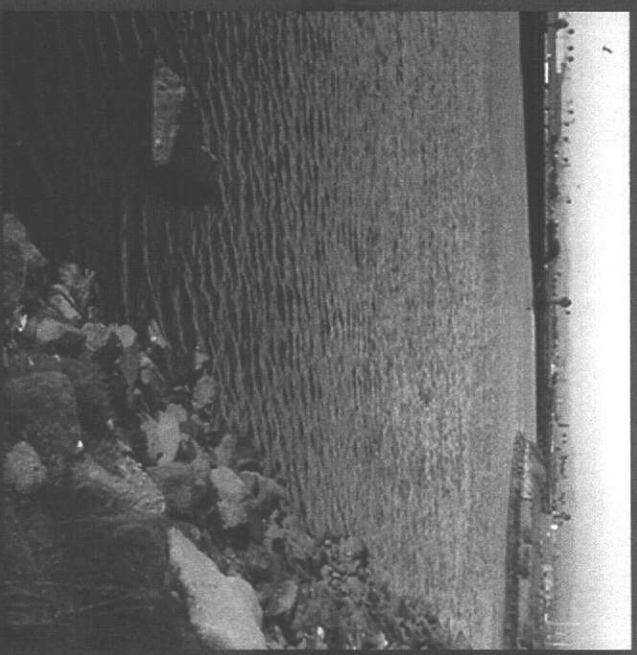
## Stream/Creek/River

- pH (Acidity)
- Metals
- Salinity
- Pesticides
- Habitat Alterations
- Nonpriority organics
- Pathogens
- Ammonia



## Bay/Estuary

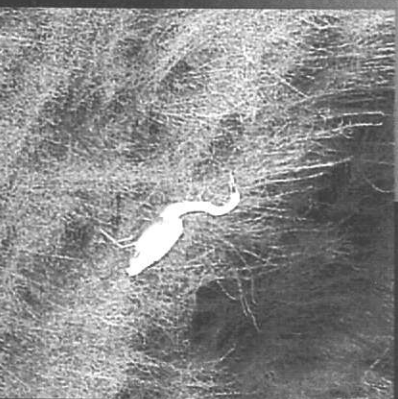
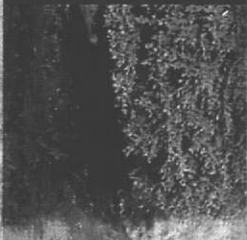
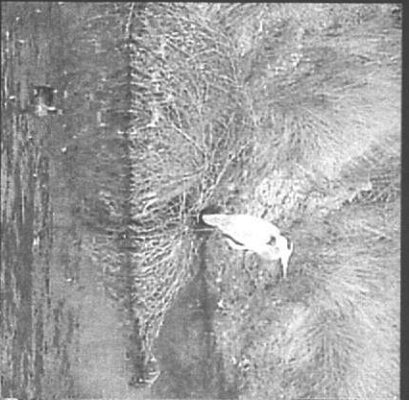
- Metals
- Arsenic
- Pesticides
- Habitat Alterations



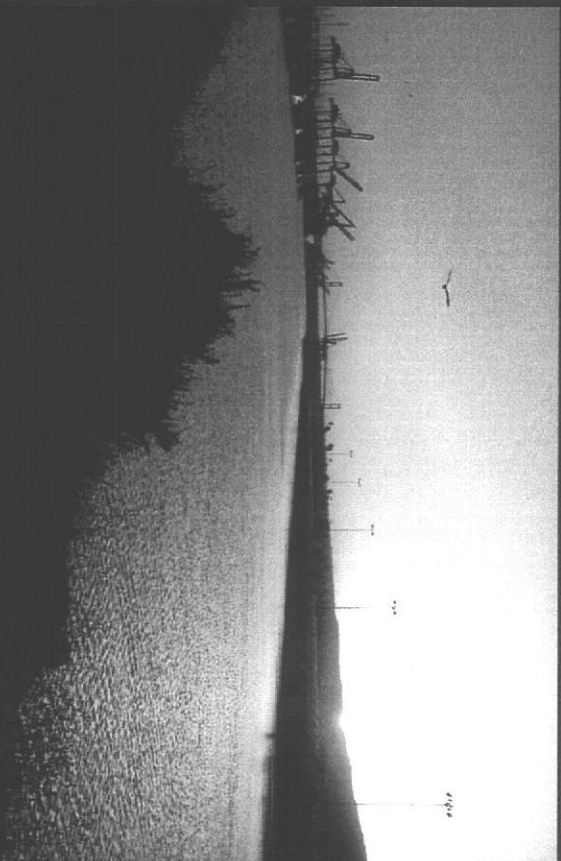
# Water Quality Impairment



*Habitat is a major asset that provides shelter, forage, and a water source for local birds.*



# Existing Habitat



# A Neighboring Model of Success



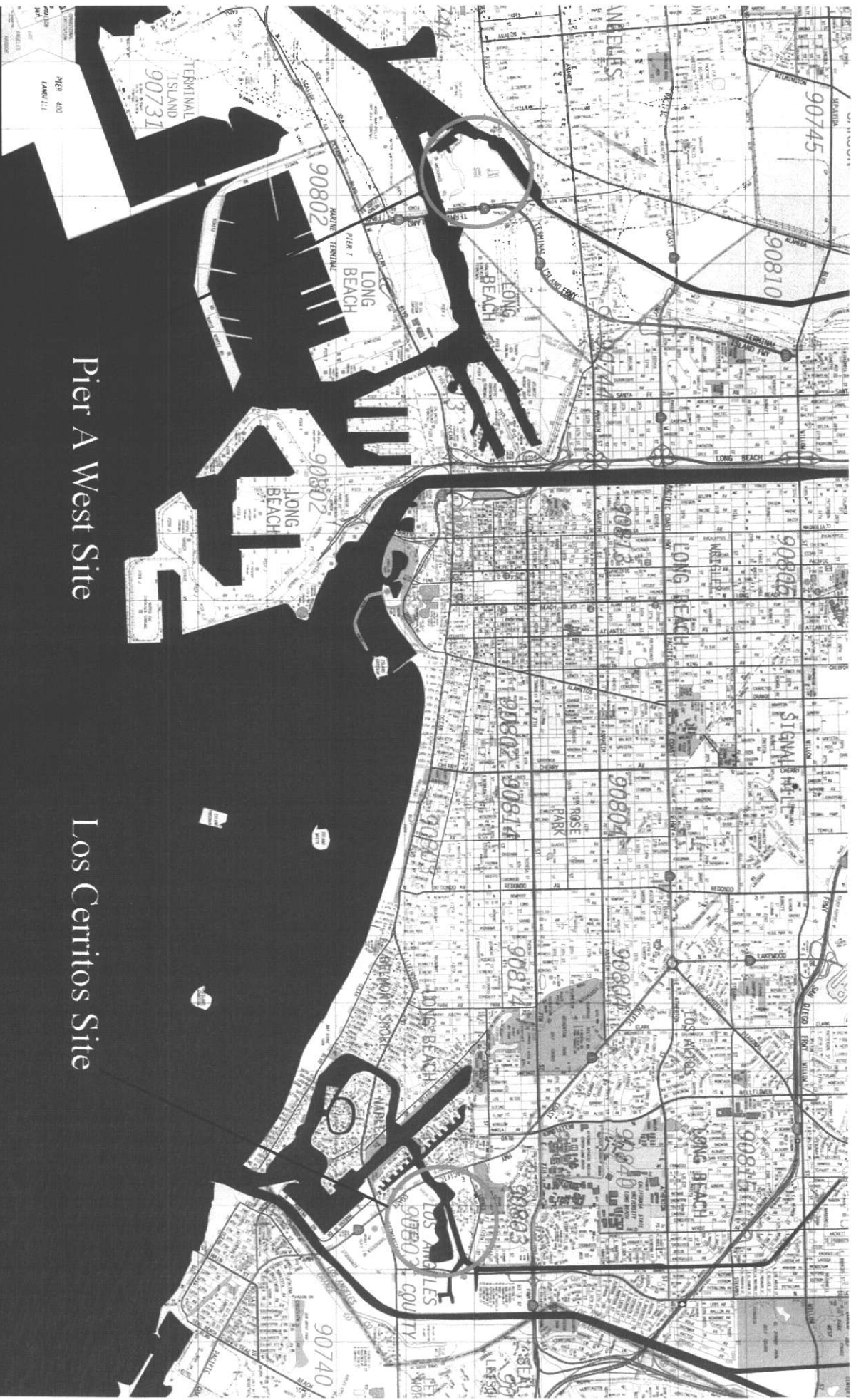
Los Angeles River

San Gabriel River

San Pedro Bay

# LA Basin Historic River Courses

*Information from Cabrillo Aquarium display.*



Pier A West Site

Los Cerritos Site

# Location of the Wetland Sites

*The Thomas Guide*

*Conditions at both sites are historically and contemporarily similar.*



**Los Cerritos Channel Site**



**San Dominguez Channel Site**

# **Wetland Restoration Comparison**



Los Cerritos Channel

Adjacent Industrial Use

Wetlands

Adjacent Marina

San Gabriel River Channel

Los Alamitos Bay

# Los Cerritos Channel Site



**San Dominguez Channel**

**Adjacent Industrial Use**

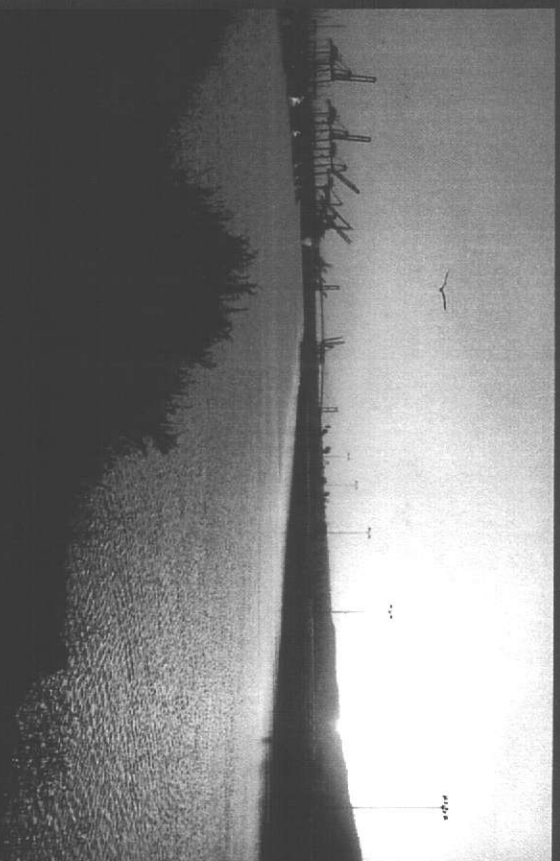
**Project Site**

**Adjacent Marina**

**Los Angeles River Channel**

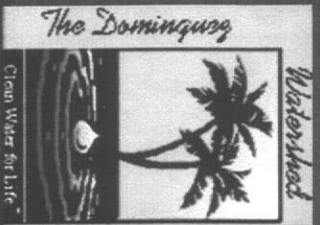
**Port of Long Beach**

# **San Dominguez Channel Site**



# Existing Policy Support for Wetlands





Los Angeles County includes identification, restoration, and management of natural resources in its watershed directives.

## Dominguez Watershed Master Plan Summary

“Watershed management is the integration and coordination of activities that affect the watershed’s natural resources and water quality. It brings together services like:

- Flood protection
- Water conservation
- Conscientious management of natural resources
- Preserving and creating open space for recreation and habitat
- Reducing pollution of water resources

in order to protect and enhance communities and the environment.”



# LA County Watershed Management

Information from the Los Angeles Department of Public Works website

*The Port of LA has set aside mitigation money specifically for community projects.*

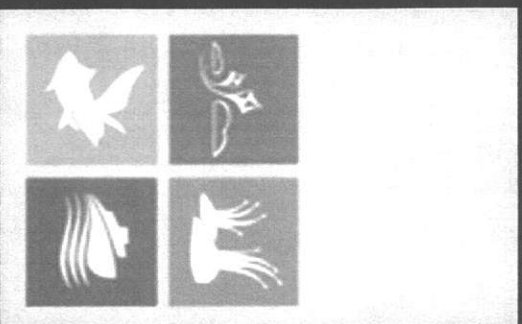
“The Port of Los Angeles implements environmental initiatives designed to reduce environmental impacts, as well as improving and preserving our precious natural resources.”

#### **Property Restoration**

The restoration of contaminated and encumbered property to a clean and usable condition by reducing or eliminating health and environmental risks allows properties to be reused for maritime purposes. As part of the restoration or remedial action process, the Port conducts site characterizations; human health and ecologically based risk assessments; reviews of site-specific applicable or relevant and appropriate requirements; fate and transport evaluations; and feasibility and treat-ability studies.

In 2003, the Port implemented an unprecedented environmental mitigation program and earmarked more than \$50 million from Port revenues to address significant impacts of port-related activities. The Port is now working with the PCAC to review various air quality and aesthetic mitigation programs to make best use of this funding:

~ \$23.5 million for community aesthetic mitigation programs”



# Environment and the Port of LA

*Information from the Port of Los Angeles website*



*The Port of Long Beach has implemented new environmental policy aimed at an overall goal of environmental protection.*

“In January 2005, the Long Beach Board of Harbor Commissioners adopted a historic Green Port Policy, making environmental protection a top priority. With this policy, the Port commits to:

- Protect the local community and environment from harmful Port impacts.
- Employ the best available technology to minimize Port impacts and explore advance technology solutions.
- Promote sustainability in terminal design, development operations.
- Distinguish the Port as a leader in environmental stewardship and regulatory compliance.
- Engage and educate the community about Port development and environmental efforts and is a further expansion of more than a decade of environmental programs developed and implemented by the Port to protect the harbor environment and enhance wildlife habitats.”

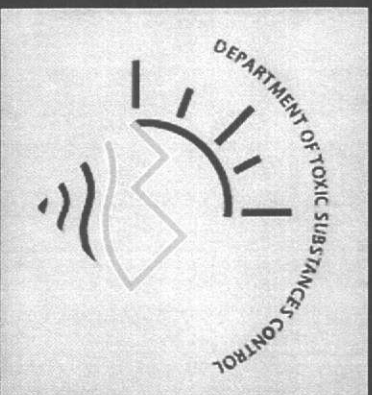
# Environment and the Port of Long Beach

*Information found on the Port of Long Beach website*

*The DTSC actively supports innovative remediation plans.*

## **Department of Toxic Substance Control (DTSC) Mission Statement**

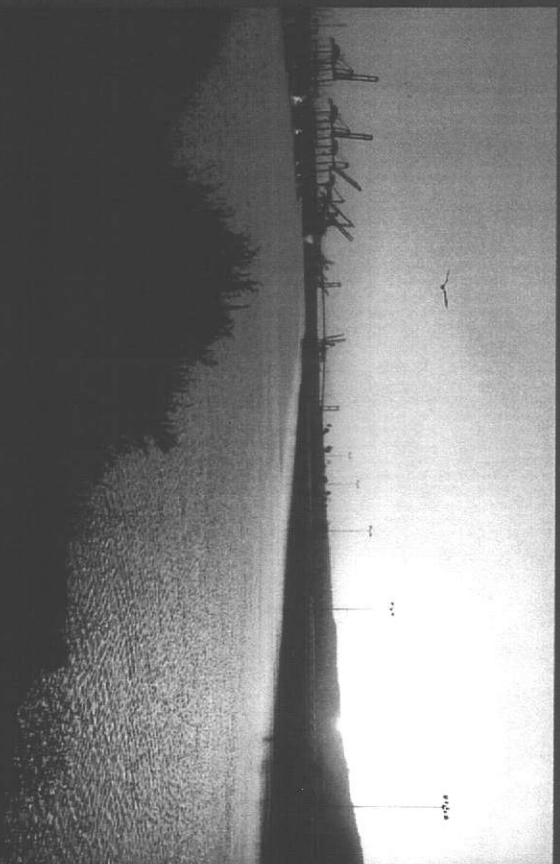
“The Department’s mission is to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.”



“DTSC’s Environmental Technology Certification Program, winner of the 1996 Innovations in Government Award, fosters development of emerging technologies to improve environmental quality. This unique program helps developers bring their ideas to market and eases the regulatory burden by taking advantage of DTSC’s tiered permitting system. Since the program began in 1994, DTSC has certified 25 hazardous waste environmental technologies.”

# **Department of Toxic Substance Control**

*Information from the DTSC website*



# Site Remediation



- Property Line
- Former Sump
- TOPKO Bug Farm
- Abandoned Well
- Proposed Well
- Steam Producer Well
- Steam Injector Well
- Waterflood Producer Well
- Unidentified Well
- Gas Well

# Site Context

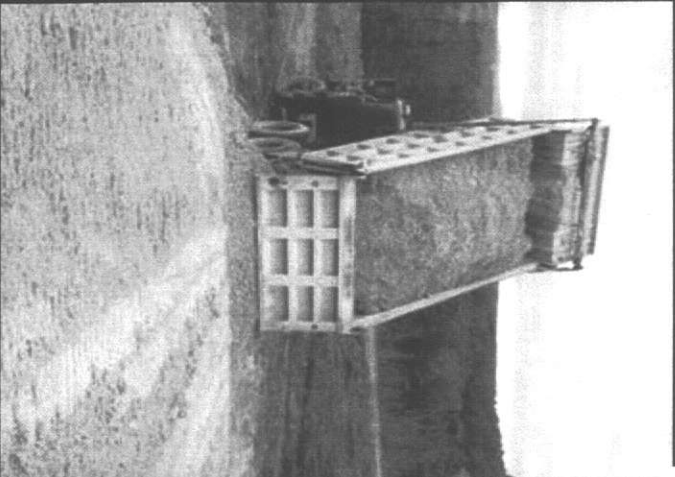
Information from DTSC Initial Study



#### Pier A West Remediation

Pier A West is the last remaining parcel of the property purchased from the Union Pacific Resources Corporation to require remediation. Remediation of contaminated soils at UPRC sites is being completed under the oversight of the Department of Toxic Substances Control (DTSC).

This program will ensure that contamination from past oil field and chemical disposal activities is managed in such a way as to protect on-workers and the environment, satisfy regulatory requirements, and enable the land to be converted to productive uses.

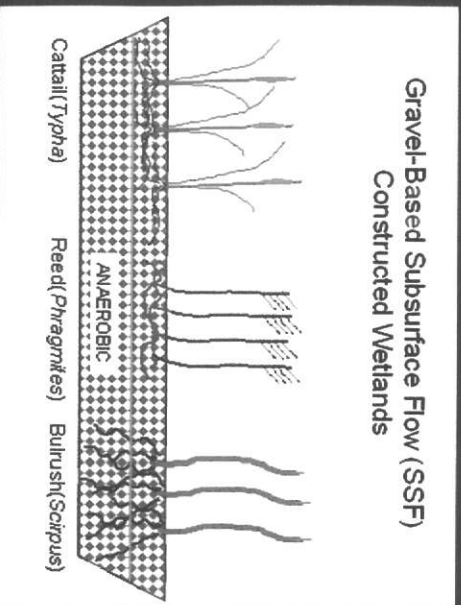


- Current plans include:
- Remediate contaminated areas
  - Fill 123 acres to a 16 foot depth
  - Cap with asphalt

*The Estimated Cost of clean, construction grade fill for the site of approximately 3,175,040 cubic yards at \$25.00/cubic yard is \$79,376,000*

## **Current Agency/ Port Plan**

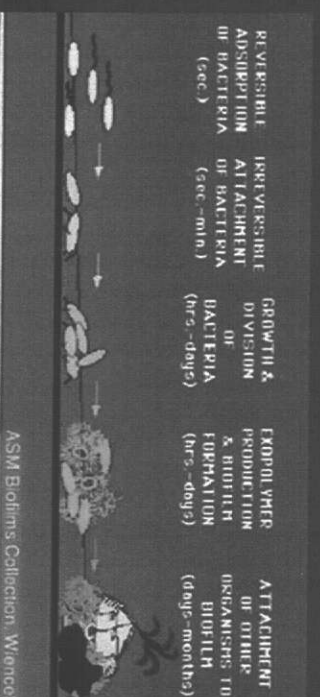
*Innovative technologies, such as gravel substrate wetland systems, are effective at the removal of a wide variety of site contaminants, including excess nitrates, oil industry products, and other persistent pollutants.*



An example of a Sub-Surface Wetland for a remediation study.



A gravel substrate Sub-Surface Flow (SSF) wetland allows more surface area for the build up of bacteria-based biofilm, which breaks down pollutants at a rapid rate.



# SSF Wetland Treatment Option

Information provided by Dr. Lyon, instructor at Cal-Poly Pomona, Stormwater Treatment



*A 1992 test of site  
contaminants included  
oil industry residuals:*

- Toluene
- Ethylbenzene
- m+p-xylenes
- o-xylene



“...the Casper project is impressive because it's an example of how a piece of land has come full circle: The refinery was built on the High Plains, grew into a major supplier of fuel at the expense of the environment, became obsolete and an environmental hazard and now is returning to a natural setting.

Midwest Refining Co. opened the refinery in 1913 to process petroleum produced from nearby oil fields. The first paved road in the county led from the oil field to the city. At the height of production, it employed 750 workers. Standard Oil took over the refinery in 1921 and expanded it. A year later the refinery was touted as the largest in the world for volume of gasoline produced.

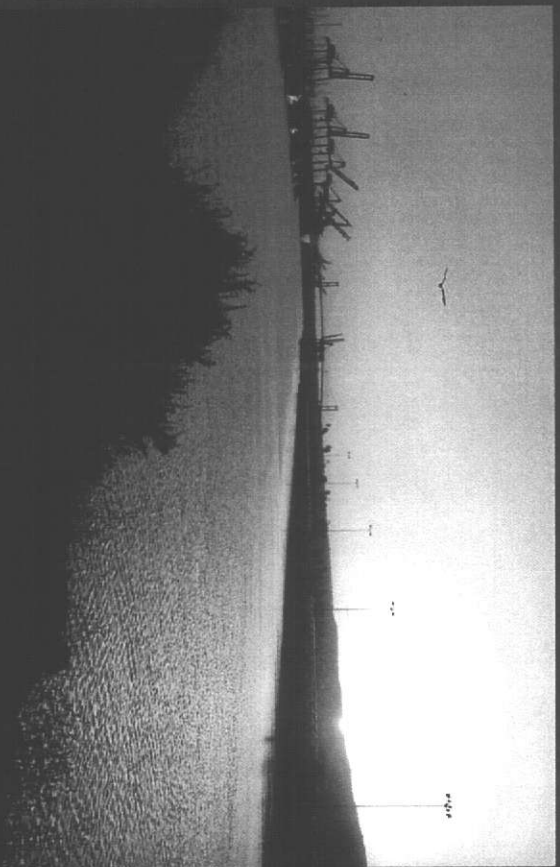
The closure also left behind a mess. Over its nearly 80 years of operation, the plant leaked millions of gallons of crude oil and refined hydrocarbons. An estimated 10 million to 20 million gallons of oil reached the groundwater beneath the refinery site. By comparison, the Exxon Valdez spilled 11 million gallons in 1989.

To keep the polluted groundwater from seeping into the river, a 35- to 40-foot-high steel wall was sunk into the bedrock along the Platte River. A system of pumps keeps the groundwater 6 inches below the river level.

The groundwater is pumped out at a rate of about 700 gallons a minute by nearly 100 wells, and the oil and other chemicals are separated through a series of filtering wetlands — which also serve as water hazards on the golf course.”

## Case Study: Amoco Park in Casper, WY

*“Former Wyoming refinery now a golf course and recreation area” 2005 Associated Press Article on NBC news website*



# Saving the Last Remnant



# 1994 Aerial Photo of Site

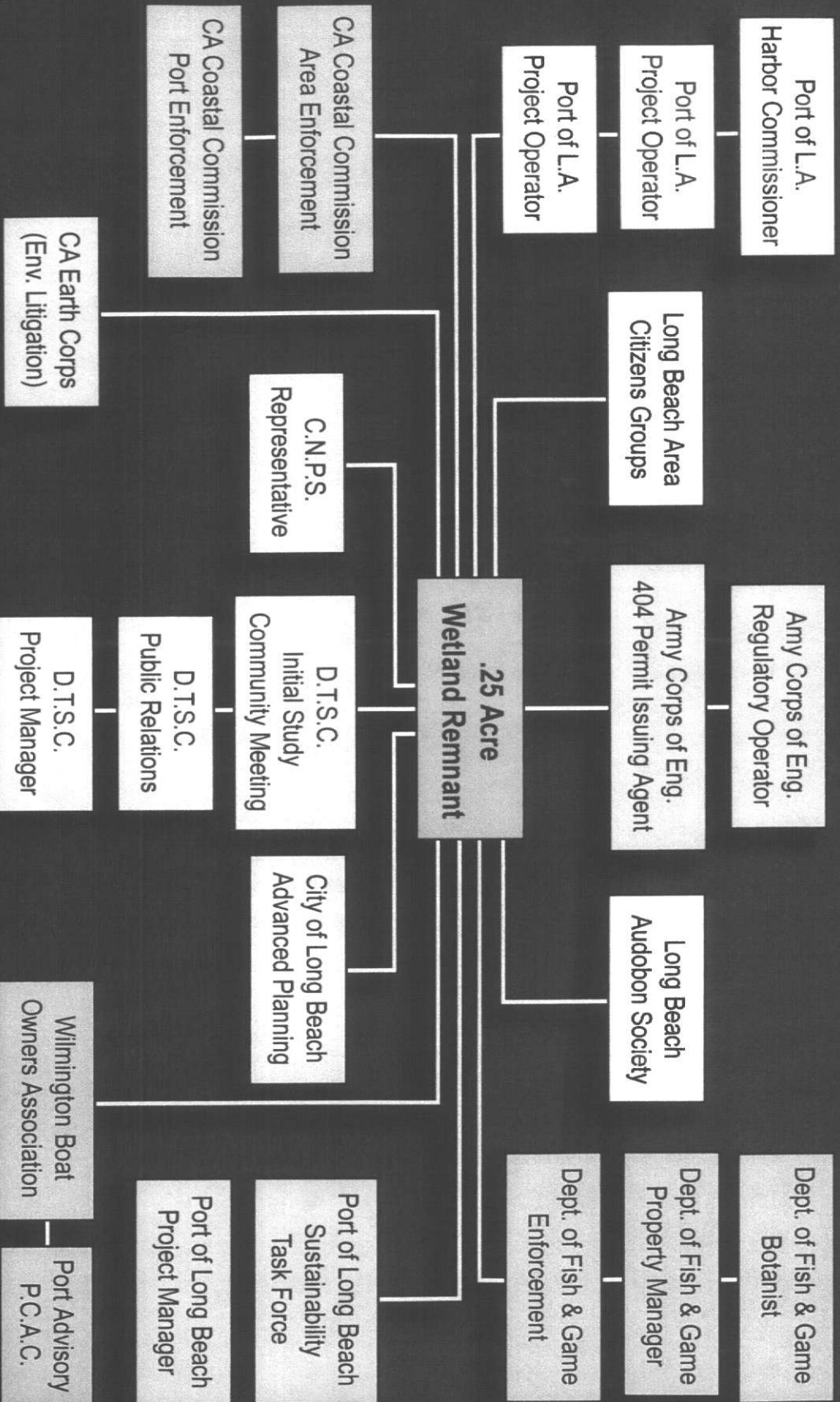
*Photo from Microsoft Terraserver website*



*.25 acres of  
wetland remain*

# 2004 Aerial Photo of Site

*Photo from Microsoft Terraserver website*



# Entities Contacted to Save the Wetland

### Special Status Plants

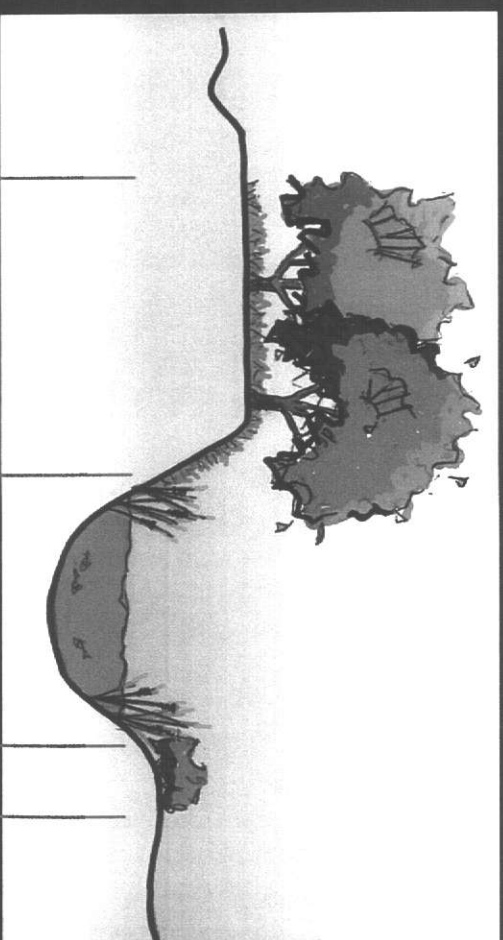
- California Environmental Quality Act (CEQA)
- State and Federal Endangered Species Acts (CESA and FESA)

### Wetlands and Waters

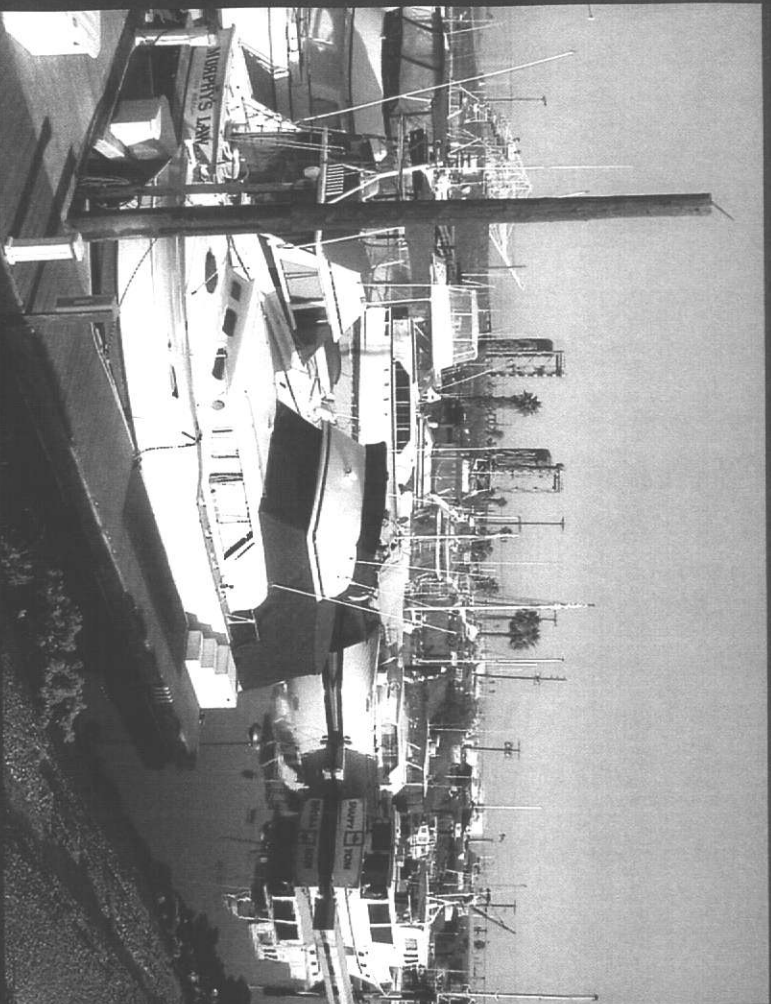
- California Environmental Quality Act (CEQA)
- California Fish and Game Code §1600
- Section 404 of Federal Clean Water Act
- Regional Water Quality Control Board (RWQRB)

### Special Status Wildlife

- California Environmental Quality Act (CEQA)
- State and Federal Endangered Species Acts (CESA and FESA)
- Federal Migratory Bird Treaty Act (MBTA)



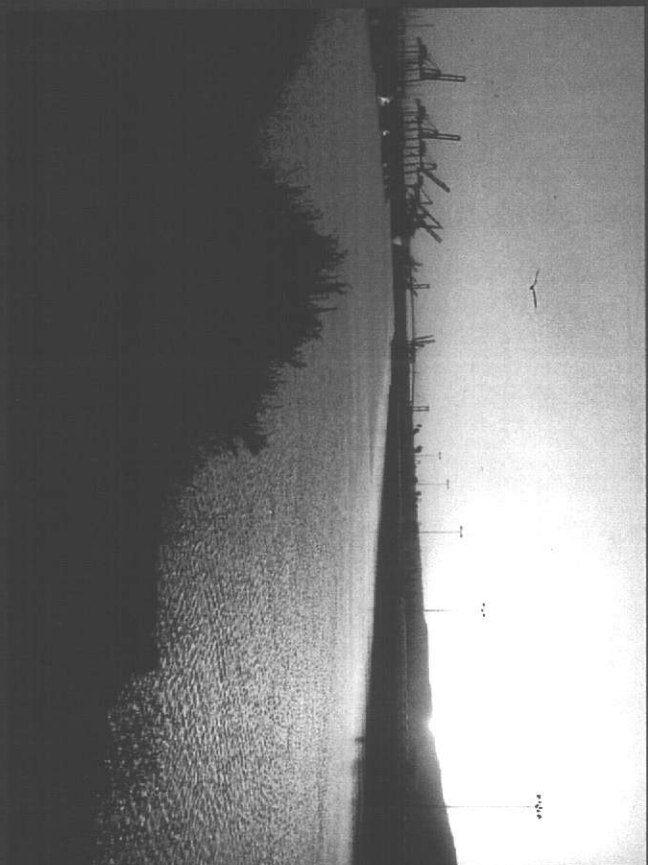
# Permitting Related to Biological Resources



At the Scoping Meeting for the initial study of the site, we met with members of the Wilmington Boater's Association who live on their boats in the adjacent marina. Their needs included more boat slips to reduce crowding, more recreation opportunities, habitat restoration, and a place

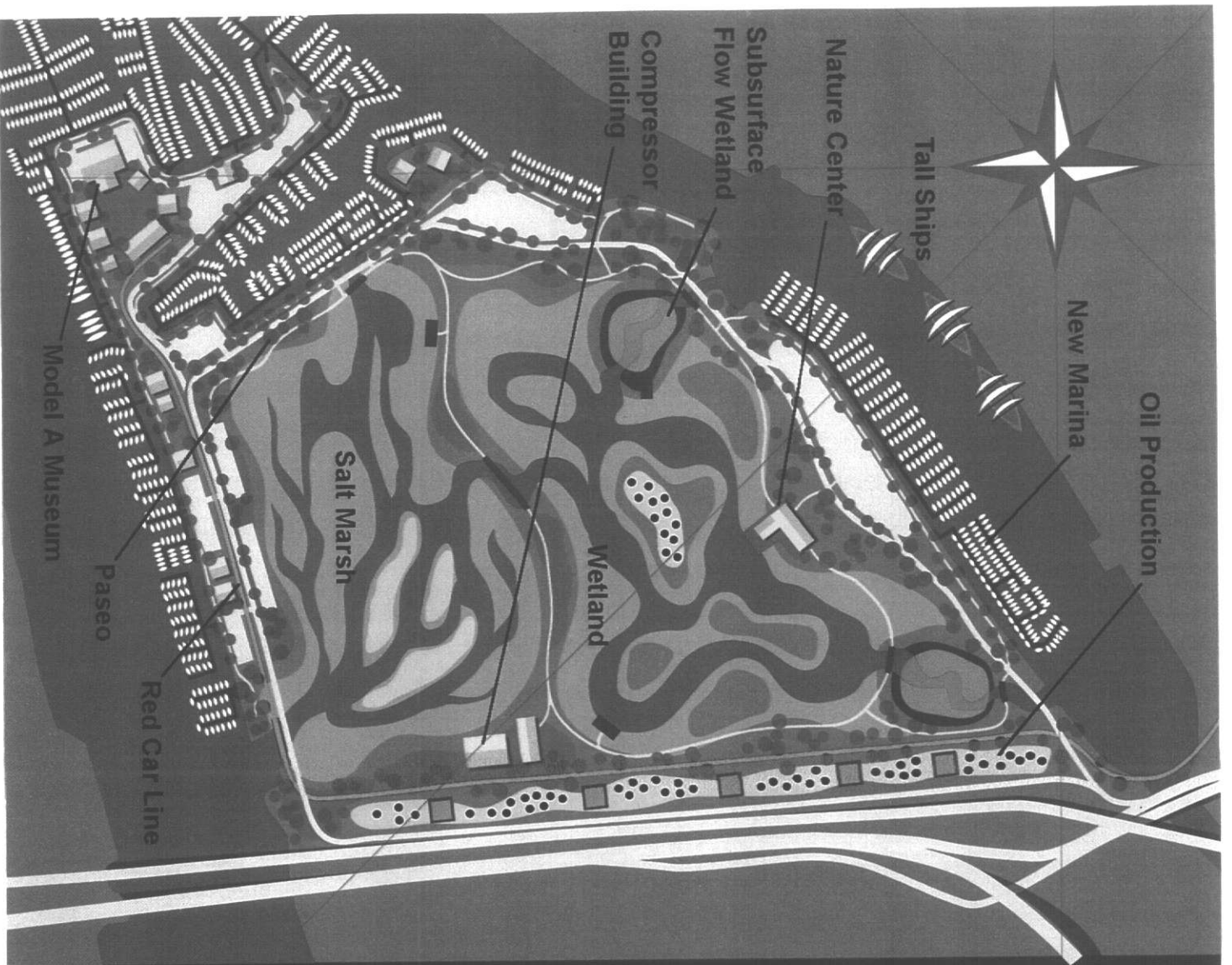
to commemorate the marina's history. Their passion to turn this banal track of land into a community asset is commendable. It is with no doubt that their input and influence will be a driving factor for the destiny of this property.

## The Community Speaks Out



# A New Concept for the Site

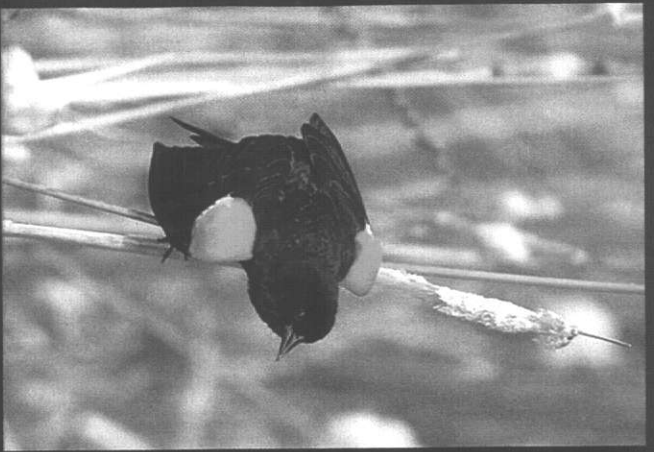




*Concept: A Return to 1920*

*The goal of this plan is to not only provide viable habitat for people and native species, but also to herald a return to a time where life's pace was slower, and optimism for the future prevailed.*

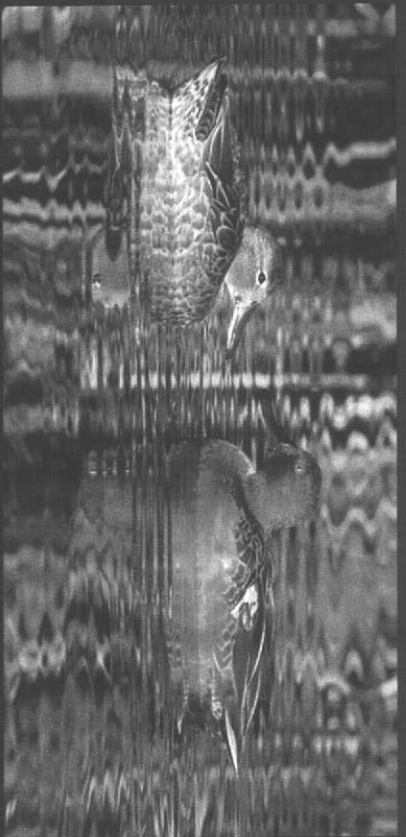
# Conceptual Plan



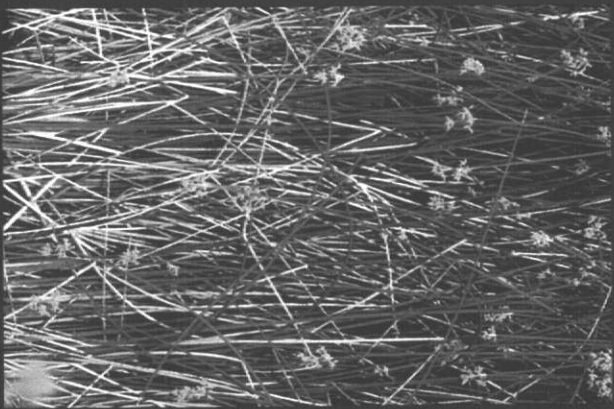
*Red Winged Blackbird*



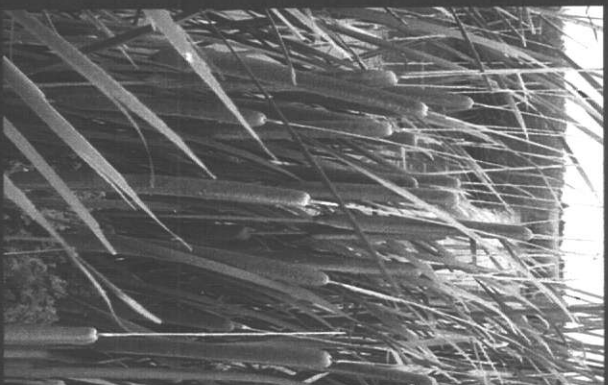
*Grebe*



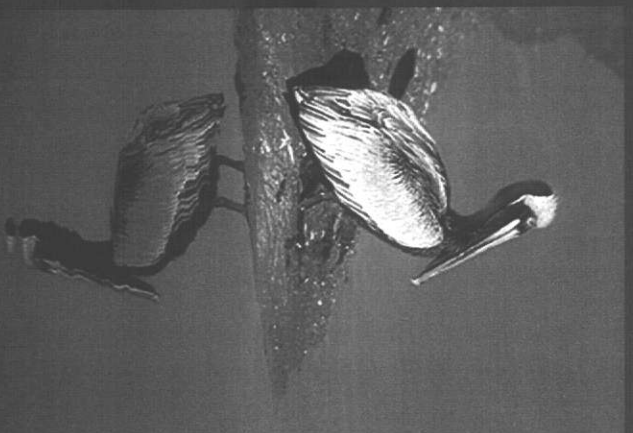
*Cinnamon Teal*



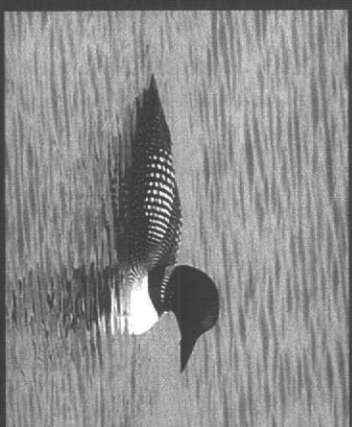
*Bullrush*



*Cattail*



*Pelican*

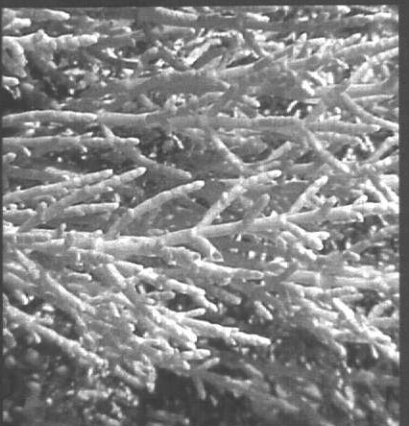


*Cormorant*

# Wetland Plants and Animals



*Sandpipers*



*Pickleweed*



*Clapper Rail*



*Black Crowned Night Heron*

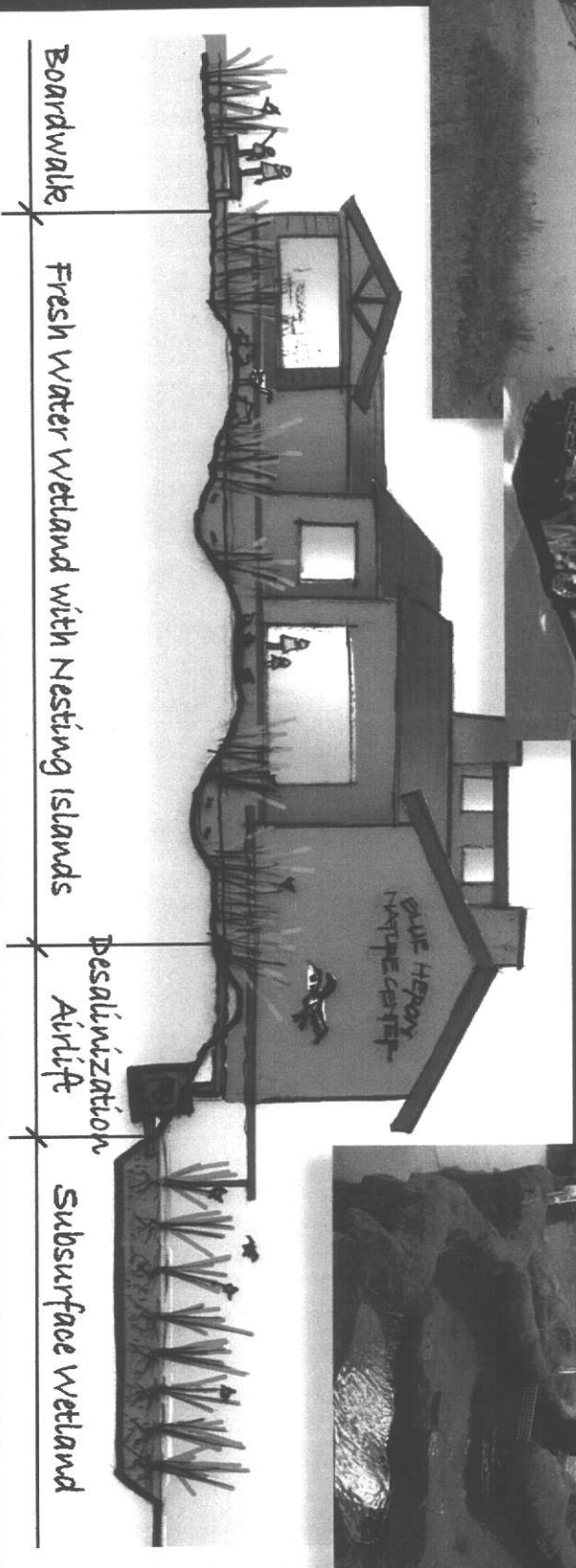
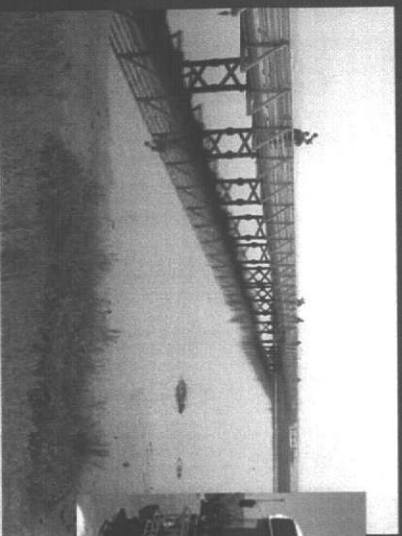


*Cord Grass*



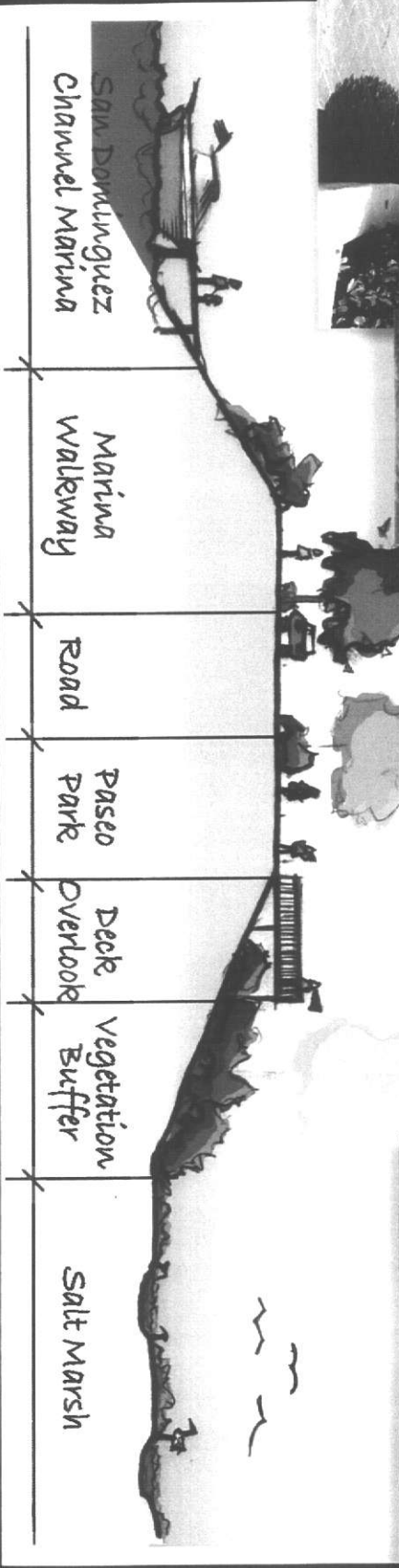
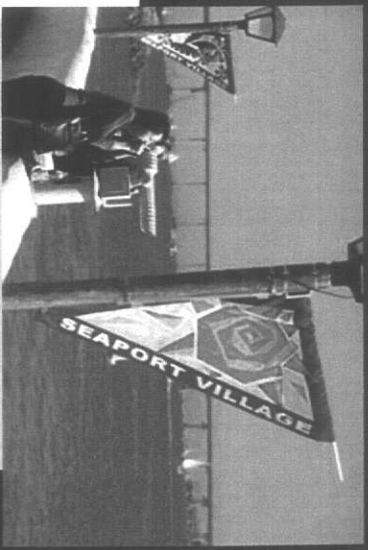
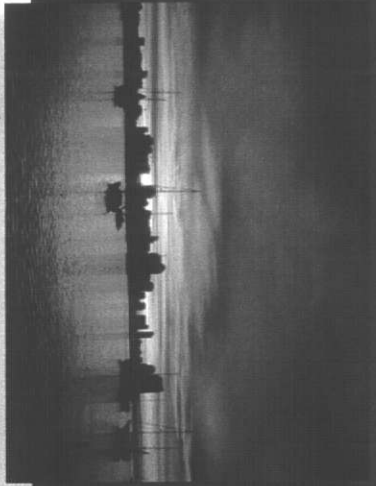
*Great Blue Heron*

# Salt Marsh Plants and Animals



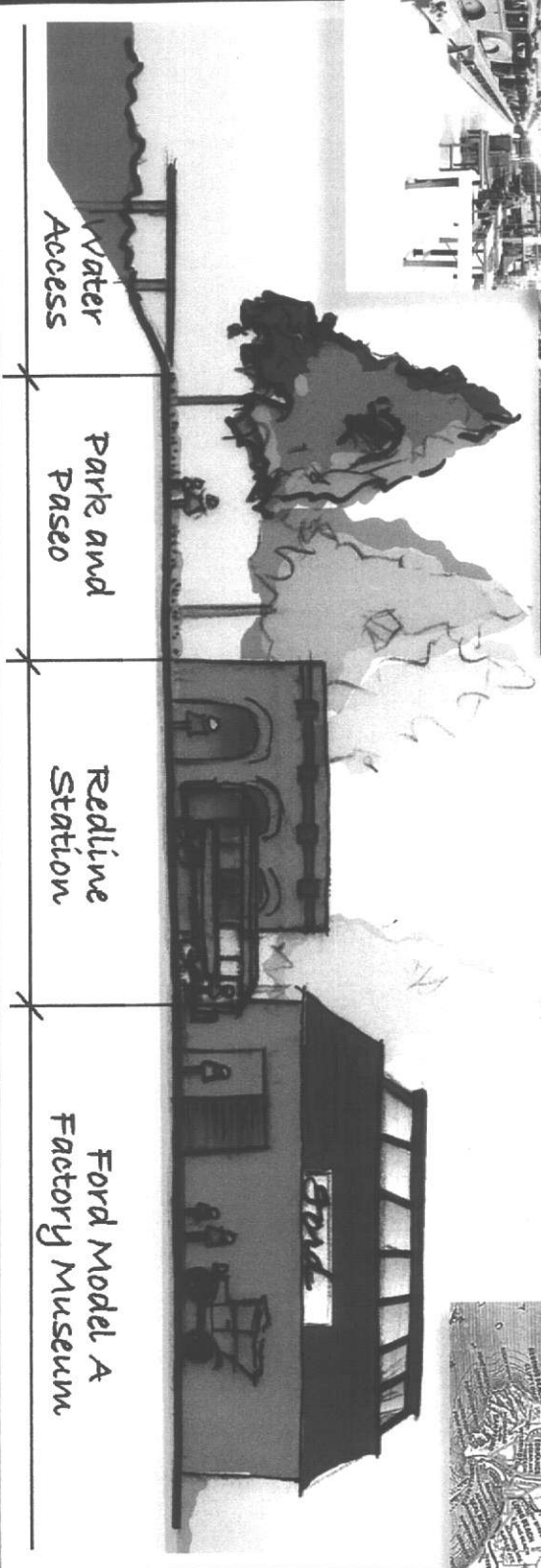
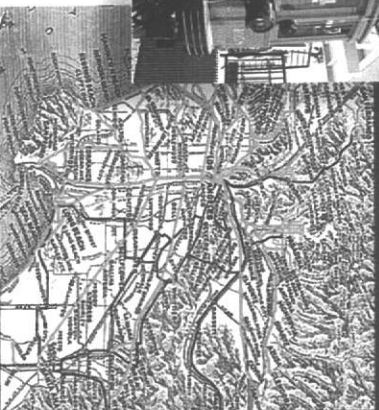
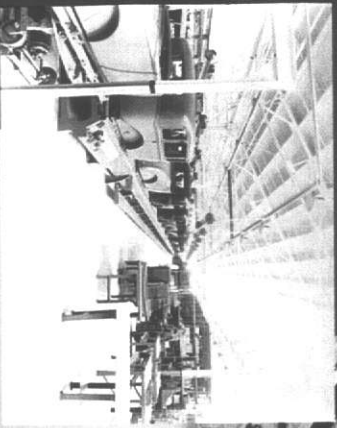
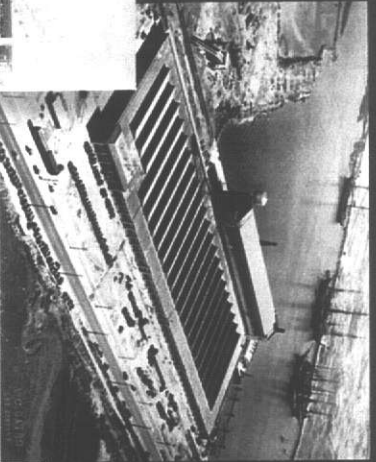
*The Nature Center and its related trail system allow visitors a close-up look of water habitats. By including both freshwater and salt marsh systems, a greater diversity of species can utilize the site. Educational opportunities can exist through school programs concerning local biodiversity, as well as opportunities to understand the innovative water remediation technologies that our found on site.*

# Nature Center and Trail System



*The Paseo Park rings a majority of the site and provides an area for leisurely walks or bike rides. The overlooks provide an opportunity to enjoy scenic vistas or activity in the adjacent habitat. Small businesses, restaurants and marinas link this walk to offer various services and amenities.*

# Paseo Park and Habitat Overlook



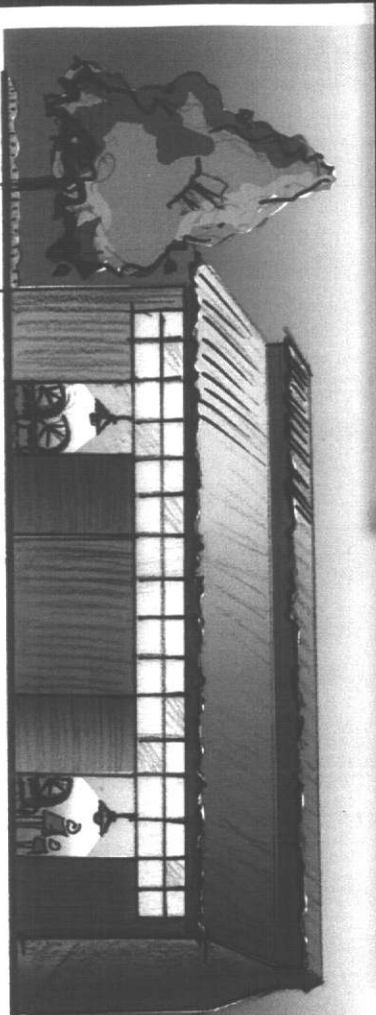
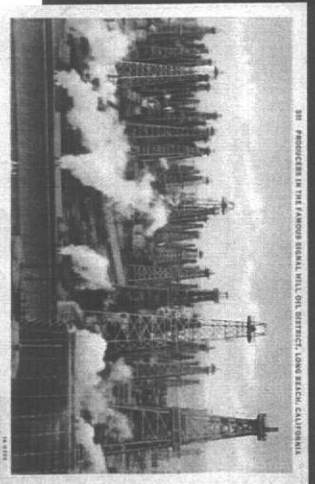
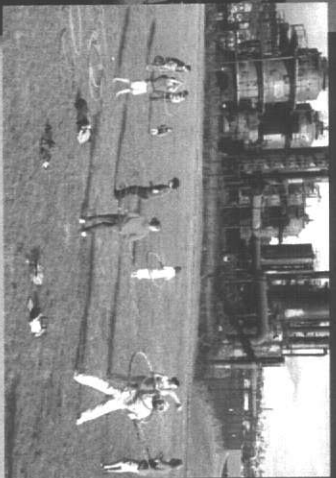
*The historic Red Line cars could be linked to the Wilmington Waterfront project. This portion of the route would include several stops at various amenities throughout the site. At the end of the line, a commemorative re-creation of the Ford Model A assembly line (formerly located at Pier A East) is found.*

# Historic Red Line and Ford Model A

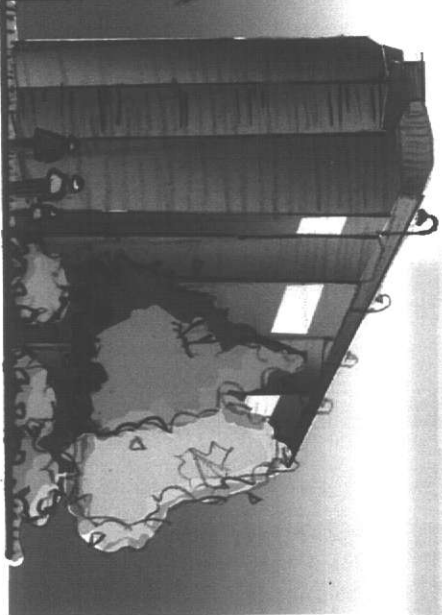


*The Museum of Port History is a showcase for the area's historic ties to the natural environment and to the driving industrial and economic force the modern ports have become. Tall ships on site provide an attractive and attention-getting element to the area.*

# Tall Ships & Port History Museum



Historic Gas Compressor Building



Cooling Towers

*Gas Works Park is modeled after the successful park in Seattle, Washington. Long Beach is currently planning to remove a similar historic 1920s era gas compressor building on the current Willow Springs ball field site. This building and some related structures would be relocated here to serve as an educational opportunity about the historic oil industry in the area.*

# Gas Works Park



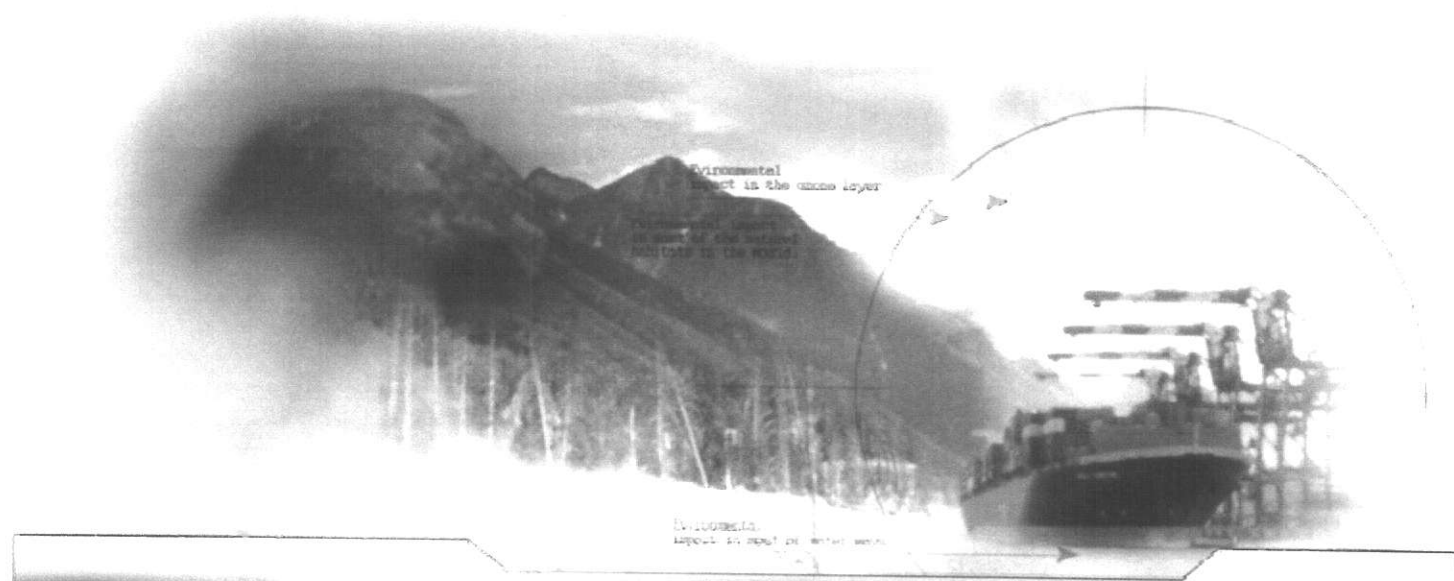


- **Improve Water Quality**
- **Provide Wildlife Habitat**
- **Protect Endangered Species**
- **Become Flyway Stopover**
- **Provide Public Education**
- **Provide School Programs**
- **Community Involvement**
- **Scientific Research**
- **Successful Case Study**

## **Some Long-Term Goals**

# Alternative Port of Los Angeles TraPac Marine Terminal Freeway Connection

*Request for Proposal*



**COALITION** *for a* **SAFE ENVIRONMENT**



# Alternative Port of Los Angeles TraPac Marine Terminal Freeway Connection

Written for:

Jesse N. Marquez  
Executive Director  
Coalition for a Safe Environment

December 1, 2006

Written by:

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Students

At

The University of Southern California

Writing 340  
Professor Bucher

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## Executive Summary

Our proposal gives background and strategies for tackling the problem of port expansion pertaining to the construction of a TraPac terminal over land earmarked for the Wilmington Waterfront Development Plan. This proposal aims to increase the quality of life and the environment for the city and its inhabitants all while maintaining the integrity of the development plan. Through a comprehensive analysis of the current situation and the Port Authority's plans for expansion, aided by the use of traffic patterns and the consequences of off-ramp design on air pollution, we have formulated two viable alternatives for the terminal.

To disentangle the given problem, we first needed to understand the motives of CFASE and the rationale behind the POLA new road proposal in relation to the Wilmington Waterfront Development Program. Next, using the Port's proposal as an anchor point, we have begun a series of investigation in feasible alternatives to resolve the conflict. We have identified four road conditions that can possibly happen at the site and numbered them as Scenario 1 to 4. The approach of analyzing four scenarios is intended to give a more objective and holistic view of the situation and possible solutions.

Scenario 1 is the situation in which the road condition is kept at its existing condition with the addition of the park as the only change. The analysis of this scenario is accompanied by a case study of the termination of 710 freeway extension project in South Pasadena. Scenario 2 is the POLA proposal with the park addition. Scenario 3 is our original proposal that is based upon the POLA plan adjusting it to the needs of CFASE in order to resolve the land use conflict. Scenario 4 is a suggestion made by CFASE and the community of Wilmington.

In each scenario we will describe the road and freeway ramp conditions and explain the traffic flow. Also we have investigated the advantages and disadvantages of each particular situation. Furthermore, a brief cost analysis for each scenario is carried out. Furthermore we address the possible community impacts for each scenario. The next step is comparing and contrasting the four scenarios. In our conclusion, Scenario 3 is decided to be the most feasible and desirable future development among the 4 situations. We have also included a community and environmental impact study for each scenario. They survey the opinions of people dwelling in the immediate neighborhood and the possible impacts of the new road conditions on their daily lives.

## **Background**

Triggered by the Port of Los Angeles' (POLA) plans to expand its trafficking activity in the Wilmington area and to redevelop the waterfront area, Mr. Jesse Marquez, President of the Coalition For A Safe Environment (CFASE), approached our group at the University of Southern California. Our group of five engineers comprised of a Civil Engineer, Architect, an Industrial and Systems Engineer, and two Computer Science majors took on the project of analyzing the situation at the I-110 and "C" Street interchange in the Wilmington harbor area.

The mission statement as taken from the CFASE website

<http://www.coalitionfase.org/missionstatement.html>:

“To protect, promote, preserve and restore our Mother Earth’s delicate ecology, environment, natural resources and wildlife. To mitigate, reduce and eliminate public exposure and public health impacts caused by air, land and water pollution generated by the Port of Los Angeles, Port of Long Beach, International Cargo & Cruise Ships, the Petroleum Industry, Energy Sources and the Goods Movement Transportation Industry.”

The following report entails the work and research that we have performed in order to assist Mr. Marquez in his fact finding and political action mission. We hope that our work here will be able to help him be successful in staying true to CFASE’s mission statement.

## Introduction

This report is prepared in response to a Request for Proposal (RFP) from the non-profit organization Coalition for a Safe Environment (CFASE) through the USC Engineering Writing Program. CFASE is calling for an alternative design to the Port of Los Angeles's proposal for a new road and ramp connecting the TraPac Terminal to the 110 Freeway in Wilmington, CA. CFASE disagrees with the POLA proposal, which would take away a portion of the land designated for a park in the Wilmington Waterfront Development Plan in order to accommodate the new terminal. Figure 1 shows the location of this conflict point in relation to the community and the terminal.



○ Point of conflict      ■ Land for Wilmington Waterfront Development program

Figure 1



## Research Model

When approached with the problem presented by Mr. Marquez and CFASE, our team of five undergraduate engineers assembled within our WRIT 340 class, each equipped with his/her own unique background and vantage point. Within our group, we employed firsthand knowledge and experience from the fields of Civil Engineering, Architecture, Industrial and Systems Engineering, as well as Computer Science.

First, we tried to understand the client's objectives and how it would fit into the project. After speaking with Mr. Marquez about CFASE's goals, we defined that we would work to retain usage of recreational land, decrease traffic congestion, and minimize noise and sound pollution.

Next, we moved to understand the situation at hand. By utilizing public records as well as former documentation by an independent consulting firm, we were able to thoroughly realize the multiple factors associated with the site.

By outlying multiple scenarios that could potentially come into fruition, we were able to discuss how different situations would or would not be advantageous to CFASE's aims. In order to bridge the gap between the POLA's intents for the project and CFASE's own hopes, we drew out possible alternative scenarios for the intersection dynamic.

Finally, we took an objective eye to each scenario outcome and represented one as what we thought would best fulfill both groups' goals. In doing so, we took under consideration other factors such as construction time, construction cost, and environmental impact as well.

## Scenario 1

### Description

The first alternative our group proposes is to stop the construction of the TraPac terminal and leave the situation as is. This scenario would entail preventing any construction of the TraPac terminal no matter where the location is, in order to maintain the integrity of the Wilmington Waterfront Development Plan through the use of court actions, administrative proceedings, and legislative initiatives. Scenario 1 is the best choice if any of the other alternative ramp placements are not feasible and the construction of the terminal goes through according to the plans of the Port Authority. It presents strategies that would enable the full use of the land for a park by delaying the actual construction the Port Authority proposes be appended to the current development plan.

In situations like this, it is often best to not reinvent the wheel and instead look at the successes of other groups in similar situations in order to apply it to our current thought methodology. The community of South Pasadena has been very successful in stopping the development of a 4.5-mile freeway connection between the Interstate 710 and Interstate 210. Scenario 1 presents a detailed analysis of South Pasadena's strategies, namely how they were able to stop this particular freeway expansion for so many years. Using this case study, our group will propose several recommendations and strategies for use in preventing the construction of the TraPac terminal through an elucidation of how these strategies helped South Pasadena achieve success and in turn show how they can benefit the citizens of Wilmington in their struggle.

## Background

An extension to the 210 freeway from the 710 freeway which would have cut through areas of the Los Angeles and Alhambra border all the way to the city of Pasadena was proposed over 70 years ago however, due to the diligence of the residents of South Pasadena this highway project was never completed. The proposed extension would have run through numerous homes and historic districts within the city and was thus adamantly opposed by its residents. Through the use of court actions, administrative proceedings, and legislative initiatives ordinary citizens were able to affect real change within their lives and the lives of people within their community.

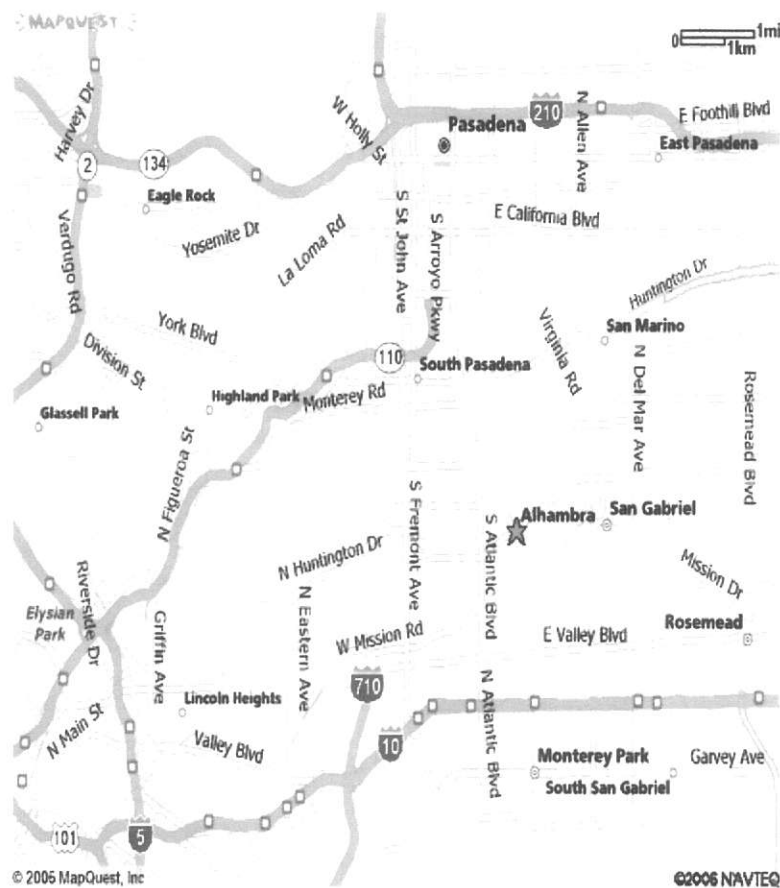


Figure 2

## **Results**

On July 19, 1999 Judge Pregerson issued a preliminary court decision that found the 710 extension would violate federal laws like the Clean Air Act and the National Environmental Policy Act. This decision basically in effect defeated the construction of the extension and maintained the integrity of the city. The results of this court decision were that in December of 2003 the Federal Highway Administration withdrew its funding commitment for the extension project and also in June of 2004 Caltrans withdrew its funding commitment. After the withdrawal of funding the end of the project for the most part was accomplished. Currently there is a new proposal for an underground tunnel which would connect the two freeways however this has been met with the same resistance as the original proposal and is going about being defeated through similar measures.

## **Strategy**

The first strategy must be to change the zoning from industrial to open space for the land currently earmarked for the Wilmington Waterfront Development Property. This is essential because if the land is zoned industrial the Port Authority, which currently owns the land, can at any point in time go ahead and not begin development of a park and continue construction of roads and terminals as they see fit. If the land was zoned open space the port would be limited in the construction it could do as it would no longer be able to build terminals or roads over the property. This would also prevent the Port Authority from later deciding on expanding the terminal for future building projects or expansion according to their whims.

An Environmental Impact Report must be completed and allowed to contain citizen proposed alternatives, which our group proposes later on in this document, if however these alternatives fail and the Port Authority decides to move on with construction that would go over the 0.89 acres of the development property legal and legislative action should take place.

Unlike the route in South Pasadena the land we are speaking of has no homes or historic districts within its path and thus cannot directly be correlated with South Pasadena's situation. However, if we look at how South Pasadena succeeded in the court process we find that it is imperative to change the zoning of the land from industrial to open space. This would enable an argument that the land must be protected and not destroyed for the purpose of a construction project just as South Pasadena argued the 710 freeway would destroy land that was labeled as a historical landmark.

Gathering public support within the community through the use of education about the issue and also speaking with the legislature in order to collect valid signatures to qualify a measure against the expansion of the terminal into the Waterfront Property would be appropriate. The use of polling within the community would be beneficial in solidifying the community's stand against the TraPac terminal. The next step would be to have the Los Angeles City Council place a citizen's initiative on the ballot which would lock in the city's affirmative position on the integrity of the Waterfront Property to be used exclusively for a park and not the TraPac terminal.

## **Benefits**

This scenario presents a good opportunity to maintain the integrity of the park i.e. save the 0.89 acres from transformation into a TraPac terminal and reducing the negative effects of construction. Because no construction will take place under this scenario, the streets in the surrounding area would not be subject to the increased traffic congestion and noise pollution that naturally comes from large construction projects. Another aspect of benefit is the monetary savings that no construction would entail, which in turn would allow for more investment into the actual development of the Waterfront Property into a park and recreation center.

## **Difficulties**

This scenarios main drawback is the lack of solution for the problem of truck traffic congestion originating from the port. In addition, a lengthy legal proceeding could waste money whose investment in the development of public facilities for the Waterfront Development Plan would better serve the community. The increase in truck traffic means an increase in air pollution, as trucks would not be able to make a direct connection with the freeway and have to wait at intersections. Because trucks have to travel a longer distance to leave the freeway the amount of pollutants that enter the air from their exhaust as well as an increase in fuel consumption, which naturally leads to a depletion of the Earth's resources and environment. Another drawback is the lengthy legal process that could result from fighting the expansion of the port could which would waste city money that city planners could otherwise invest in the development of facilities for the citizens.

## **Cost Analysis**

By leaving the situation as it is, the Wilmington district would avoid several costly problems. In this scenario, the motto that one must adopt is the idea that the system is not broken so why fix it. By stopping the construction of the TraPac terminal and continuing its use as it is today, the district can essentially can keep the money that it would have spend on the construction of a new street configuration and put it towards the maintenance of the existing freeway accesses and surface streets.

In addition, if you believe in the philosophy that “time is money”, Caltrans would not have to use their resources to find the appropriate construction companies. Obviously, this would save time and essentially money as well.

Because of our inability to view the existing budget for the Wilmington district an in-depth analysis of the current financial situation for this scenario can not accurately be addressed. However based on the information that we have been given, we can estimate that by allowing the current situation to be uninterrupted, the Wilmington District and the city of Los Angeles could save millions of dollars in construction costs, construction delays, labor, maintenance, etc. All of which can be kept in the budget to be used for the development of the Wilmington Waterfront Development Plan and address issues of more immediate concern.

While it is this group’s intention to base our analysis on the facts, we believe that by leaving the current situation as it is more costly problems would arise in the future. By ignoring an issue such as this for to long, it can evolve into a situation that may be more costly and complicated that it already is. Even though scenario one would be significantly

less expensive, one can not help but notice that the current traffic situation must be address.



## **Community Impact**

This scenario allows for the land to be allocated for a park and causes no need for any new construction. The lack of a major construction project in the neighborhood will prevent new traffic jams brought upon by road closures. On the other hand this scenario goes directly against the Port Authority's desire for easier movement of trucks onto and off of the Interstate 110 and in the end the community will suffer as the ever expanding port and increased truck traffic will emit more air pollution and cause even more congestion. However, because the integrity of the park will be maintained an increase of 0.89 acres of land will be available for the community to develop as they see fit.

## **Environmental Impact**

The status quo presents a problem from an environmental perspective as trucks will continue to have to wait at two different intersections on their travels back and forth from the port authority's storage yard. While the large diesel trucks sit idle at the stop lights they emit numerous greenhouse gases and pollution that will lessen the quality of life for the inhabitants of the surrounding community. If there was a direct terminal connection between the storage lot and the freeway the trucks would be able to travel back and forth without stopping, thereby decreasing the amount of exhaust fumes they release into the environment. In addition the increase in traffic congestion caused by the truck traffic will increase stop times for ordinary cars, albeit small in number compared to trucks in that region, which will also increase the amount of pollution in the surrounding community.

## Traffic Patterns

Figure 3 shows the truck traffic leaving the port terminal, depicted by green arrows, and the truck traffic leaving the Interstate 110 depicted by red arrows. As we can see the two intersections cause the trucks to have to stop and wait increasing the amount traffic in the area, especially during peak hours of port activity, which causes more exhaust fumes to be released into the air. The problem with leaving the situation as is is that the issue of traffic and the resulting pollution are not addressed.



Figure 3

## Scenario 2

### Description

The redesign of the 110 Freeway and “C” Street Interchange are part of a plan within the POLA’s Wilmington Waterfront Development Program, as mentioned previously. The plan is designed to increase movement of truck goods by minimizing congestion, and reduce noise and sound pollution as well. This effort is part of a larger plan to modernize the waterfront, as well as to respond to public citizenry comment regarding overabundant port activity.



Figure 4

The plan calls for replacing two intersections: (“C” Street and Figueroa Street) and (Gibson Boulevard and Harry Bridges Boulevard) with one larger trisection, with access to both the I-110 North and South. This involves extending both Gibson and Bridges Boulevards, closing off C-street into a cul-de-sac, and constructing a flyover offramp from the I-110 North. In effect, 0.89 acres of recreational land space from the Harry Bridges buffer zone is cut away from the southeast corner of the earmarked land, and Harry Bridges Boulevard is extended by 50 feet to the north across the buffer area as shown in figure 4.

Most changes are made to accommodate truck traffic in the area. The new design allows for increased and more efficient traffic activity by extending turn lanes, providing more direct access to the TraPac terminal via the off ramp, and also wider driving lanes, in the extended Harry Bridges Boulevard section. The plan eliminates the chokepoints found at (“C” Street and Figueroa Street) and (Gibson Boulevard and Harry Bridges Boulevard) by promoting flow through traffic, most probably with yield signs rather than traffic lights.

## **Benefits**

Primary benefits of the plan involve ease of use of the interchange for port truck shipments. The smooth flow of the traffic design reduces stop-and-go traffic, mitigating noise and sound pollution from the large tonnage vehicles. The plan provides multiple “free” turns (without traffic lights):

Right turn from the I-110 SB off-ramp onto southbound Gibson Boulevard

Right turn from the I-110 NB off-ramp onto eastbound Harry Bridges Boulevard

Left turn from westbound Harry Bridges Boulevard onto southbound Gibson Boulevard


Direct access to northbound Figueroa Street from fly-over I-110 NB off-ramp

The plan also provides this public access off-ramp onto Figueroa to accommodate vehicles uninvolved in port activity. Furthermore, “C” Street cul-de-sac eliminates a large portion of traffic directly south adjacent to residential areas, increasing the effectiveness of the Harry Bridges buffer zone.

## **Difficulties**

Concerns which are brought up in the possible execution of this plan primarily involve the loss of 0.89 acres of southeast buffer zone land. Furthermore, north side extension of Harry Bridges Boulevard further cuts 50 feet into the allocated land.

The construction of the flyover may prove to be difficult in its very nature. Cost of mid-air ramp extensions are magnitudes higher than normal sloped off-ramp structures. The construction site lies very close to an existing southern Californian fault



line as well, and may require additional support to ensure stability of the structure. The flyover location over the park area represents a potential danger to those visiting the area. A flyover situation can cause rubble or debris from traffic lanes to fall into the area underneath.

In this scenario, several road closures and phasing pieces are necessary, as it requires the most construction out of out multi-scenario analysis.

## Cost Analysis

While scenario two will be very effective in alleviating the problems associated with traffic congestion, it will fail to address the most important issue, money. In all of the material we have received, an estimate for the cost of this new proposal has not been addressed. Because of our inability to view the existing budget for the Wilmington district an in-depth analysis of the current financial situation for this scenario can not accurately be measured. However, based on our experience and our research that we have accumulated, it is our belief that the new freeway access proposal will cost tens of millions of dollars.

While an accurate number cannot be calculated because of our inability to estimate the fluctuation of labor costs, construction costs, etc. But for a ball park estimate we believe that it will be between \$20,000,000 and \$40,000,000<sup>1</sup>. The reason for such a varied estimate is directly related to our belief that the “worst probably case scenario” should always be assumed. Because of our lack of factual data from CalTrans, our prepared estimate may vary. “Costs of mitigating hazardous waste and other environmental impacts, utility relocation, noise barriers, retaining walls, major storm drains, transportation management plan, traffic handling, etc”<sup>2</sup>, are all factors that we assumed to make our estimate as accurate as possible. In addition, the cost of constructing an off-ramp flyover that connects with Figueroa and W Harry Bridges Blvd will most likely be the most expensive construction cost. As a side note, the construction

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<sup>1</sup> In order to understand how we calculated our estimates please refer to the Appendix.

<sup>2</sup> [www.dot.ca.gov/hq/oppd/pdpm/chap\\_pdf/chapt20.pdf](http://www.dot.ca.gov/hq/oppd/pdpm/chap_pdf/chapt20.pdf) - Similar pages

estimate for a project like this should be continually re-evaluated in order to ensure the most accurate estimate possible.

It is this group's opinion that scenario two is a step in the right direction. It address the problems with the current traffic situation in the area but unfortunately because of the high costs associated with the construction of the flyover and freeway assesses that you consider our other proposed alternatives.



## **Community Impact**

This scenario causes primary concern to the community, as it actually increases port activity in the area (although mitigating awareness), as well as taking a significant land area away from the Harry Bridges buffer zone. Some problems may be foreseen involving increased residential expansion in the area conflicting with commercial activity (see **Future Events**). There is also some concern regarding safety of the flyover ramp in the vicinity of the buffer zone, which is to be landscaped into a recreational area.

## **Environmental Impact**

The main issue that we are concerned with in terms of environmental impact of this scenario involves the amount of particulate matter released into the air. Compared to scenario one, in which two traffic signals are utilized in the interchange, this plan alleviates the congestion at either point by providing flow through traffic. By eliminating stop-and-go traffic, we can roughly estimate that thousands of pounds of particulate matter are prevented from being released into the air.

## Construction Phasing

As an engineering team without access or knowledge of CalTrans procedures, our group can only give a general idea of the construction phasing regarding this interchange. Street names and terms are not labeled because each piece may be started/ended subject to the discretion of the CalTrans authority's own construction plan. Since the plan is also still in conceptual design, the following gives a generic timeline for the intended project.

1. Hold pre-construction meeting
2. Perform necessary road closures
3. Clear land area of debris and obstructions
4. Perform environmental, soil, and contamination testing
5. Construct storm water management measures
6. Grade construction sites
7. Start construction of off-ramp flyover
8. Construct utilities on surface roads
9. Grade construction site
10. Pour the foundations of new surface streets
11. Apply asphalt to new surface streets
12. Install traffic signals, lanes, etc.
13. Connect the street with the flyover
14. Clean-up the site
15. Open surface streets, on-ramps and off-ramps

## Traffic Patterns

As indicated in figure 5, this scenario facilitates traffic in all directions in the interchange. Outbound traffic here is designated by yellow arrows, while inbound traffic is designated by black arrows. As mentioned previously, in addition to original intersections at (“C” street and Figueroa Street) and (Gibson Boulevard and Harry Bridges Boulevard), access to the I-110 is available from either street, and turn lanes are provided to those accessing Gibson Boulevard and Harry Bridges Boulevard. I-110 NB off-ramp is directly accessible to the truck terminal, allowing for more direct access for port goods. These improvements increase movement efficiency of vehicles, and decreasing noise and sound pollution in the area.



Figure 5

### Scenario 3

#### Description



Figure 6

Based on the Port of Los Angeles (POLA) proposal for the new freeway connection at Harry Bridges Boulevard, a variation is designed to accommodate the interest of CFASE. The major goal is to retrieve the corner 0.89 acre of land to the Wilmington Community Waterfront Development Master Plan that is cut away under the POLA proposal. In addition, an alternative freeway off-ramp is suggested to replace the POLA proposed flyover off-ramps. As shown in Figure 6, the boundary of the land to preserve

for the Waterfront project is highlighted in red. Any modifications to surface streets and freeway ramps should not intersect with this boundary.

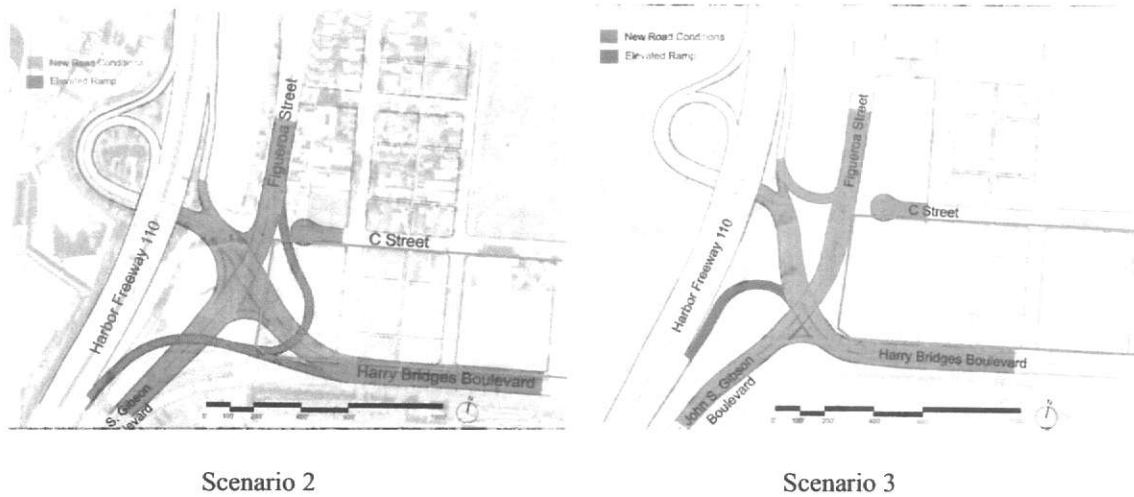
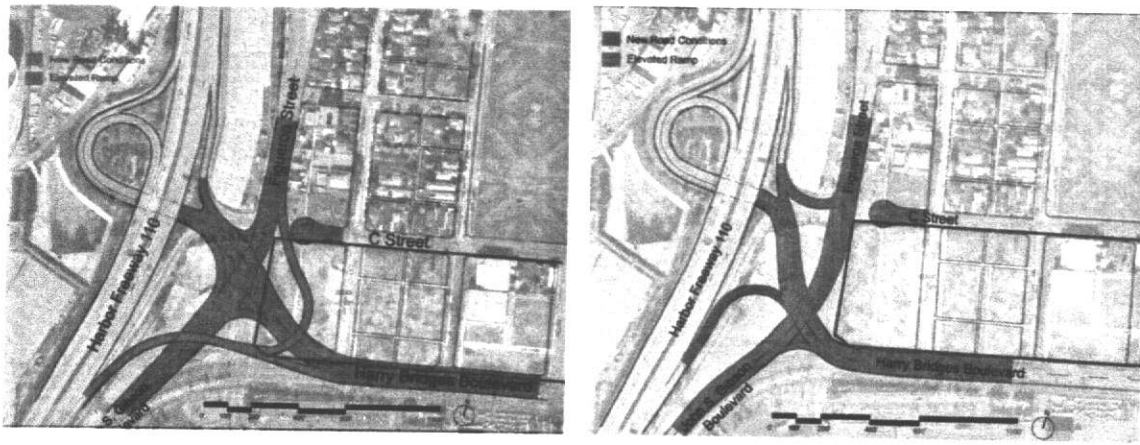


Figure 7

In Scenario 3, Harry Bridged Boulevard is re-profiled to avoid interrupting the park land. Figure 7 shows a comparison between Scenario 2 and 3. Vehicles moving on the westbound section leading to the freeway on-ramp are required to make a more severe turn than in Scenario 2. . Due to the new S-shape, the new intersection of Harry Bridges Boulevard and Figueroa Street is moved further south. C street remains closed on the Figueroa Street end as in Scenario 2. In the replacement of the two fly-over (elevated) off-ramps in the POLA proposal, we suggest that part of the existing off-ramp be retained in order to meet the new intersection at the meeting point of the two off-ramps (110 southbound and northbound). Widening of Harry Bridges Boulevard is carried out on the southern (TraPac Terminal) side in order to maximize the land use for a future park addition.

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Scenario 2

Scenario 3

Figure 7

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## **Benefits**

This scenario preserves 100% of the land for future park use without traffic interruption. Furthermore, this plan allows for a continual flow of traffic on Figueroa Street and John S. Gibson Boulevard. Also the need for costly fly-over off-ramps is eliminated and because the site lies close to a major fault line, the risk of bridge collapse is further reduced. Construction time is shortened in comparison with Scenario 2 which means less interference to the daily road usage of the community. This plan also uses existing roads efficiently. Also because less construction is needed a significant amount of construction waste is avoided. Furthermore the speed of vehicles is kept low due to the more tortuous profile of the road which thereby reduces the chance of accidents.

## **Difficulties**

In Scenario 3, vehicles are required to make an inconvenient amount of turns in order to get on or off the freeway. Besides, a good amount of construction is still needed even if the flyover ramps in Scenario 2 are taken out, and the construction costs are incurred. Road closures are expected at certain construction phases and this interferes with the daily routine and road usage of the neighborhood. Further traffic congestions are induced during the road closures. While a section of the existing off-ramp can be re-used, an adjustment to its slope may be required due to the shortening and changing of its course. Further accurate drawings and engineering is required to study the condition of this new ramp meeting the ground. The entire ramp may as well be rebuilt, which will incur additional road closure time and construction cost.

## Cost Analysis

In this scenario, we plan to modify the proposal listed in scenario two. By doing so we hope to address some of the concerns of the Wilmington community and lower the cost associated with the construction of scenario two.

By eliminated the cost coupled with the use of an off-ramp flyover we how to save approximately \$10,000,000 to \$20,000,000 in construction and engineering related expenditures. We believe that this can be achieved by altering the existing off-ramp to accommodate the changes in the street configuration. In addition, by using the existing off-ramp, we can eliminate the risks associated with a fly-over such as seismic activity, debris, traffic collisions, etc. Therefore, it is reasonable to believe that by lower the risks associated with the flyover's construction it should lower the project cost significantly.

In this proposal we tried to maximizing the use of existing roads to minimize land usage, and lessen the amount of construction needed to complete the project, which in turn should decrease the time needed to construct the project.

Furthermore, by removing a single traffic signal, a significant amount of fuel will be saved and a large amount of particular matter will be prevented from contaminating the air. Based on the amount of traffic passing through this area and the amount of fuel consumption and exhaust expelled during acceleration, a reasonable estimate of 2000 lbs. of particulate matter can be prevented and approximately 200,000 gallons of gas can be saved. Although, this estimate is small compared to the amount of fuel and particulate matter produced nationally, it will help propel California in to becoming a cleaner and more energy efficient state.



Based on our research, we feel that the initial cost estimate for this project is between \$15,000,000 and \$25,000,000<sup>3</sup>. We feel that this proposal is effective in alleviating both the traffic problems associated with this area and minimizing the overall cost of the project.

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<sup>3</sup> In order to understand how we calculated our estimates please refer to the Appendix.

## **Community Impact**

This scenario is a mixture of keeping the community's land and still making it easier for trucks to get on and off the 110 Interstate. Though this plan the community would benefit because the park land is larger than the plan proposed in Scenario 2, it still would meet some resistance as it uses up a corner of land for the intersection. This lacks the overpass offered in scenario 2, and leaves no off-ramp going over the parks land.

## **Environmental Impact**

The poor air quality and the depletion in the water quality in Los Angeles harbors has been an area of concern for many years. Until recently the impact of pollution on the environment and on the health of Los Angeles citizens, was not fully realized.

Being inspired by information, we wanted to perform our part in keeping the environment a little cleaner. By modifying scenario #2 we hope to limit the amount of impact these changes will have on the environment.

First of all, by decreasing the land usage for this new construction we hope to increase the area of the park associated with the Wilmington Waterfront Development Plan. In addition, by eliminating a single traffic signal we hope to lower the amount of particulate matter that is released in the air. By researching the amount of exhaust that a diesel engine expels while waiting at a traffic signal and the amount of exhaust released during acceleration, we were able to estimate the amount of exhaust caused by one. Based on our calculations, we discovered that approximately 2000 lbs. of particulate matter per year could be prevented from contaminating the air we breathe.

In addition, we were also able to estimate the amount of fuel consumed at a traffic signal in a high traffic and heavily populated area. We found that over 400,000 gallons of fuel could be saved per year by removing one of the traffic signals in this area. At current fuel prices, this estimate comes out to over a million dollars that could be saved per year.

While these numbers may be insignificant when compared to the amount of particulate matter produced nationally and the amount of fuel consumed nationally, it is still a step in the right direction no matter how small a step it may be.

## Additional Recommendation

In order to further enhance traffic flow and reduce the pollution at the intersection, we propose that the section of Figueroa Street crossing Harry Bridges Boulevard can be elevated. As a result, the vehicles going to the 110 freeway on-ramp from Harry Bridges Boulevard do not have to stop at the intersection.

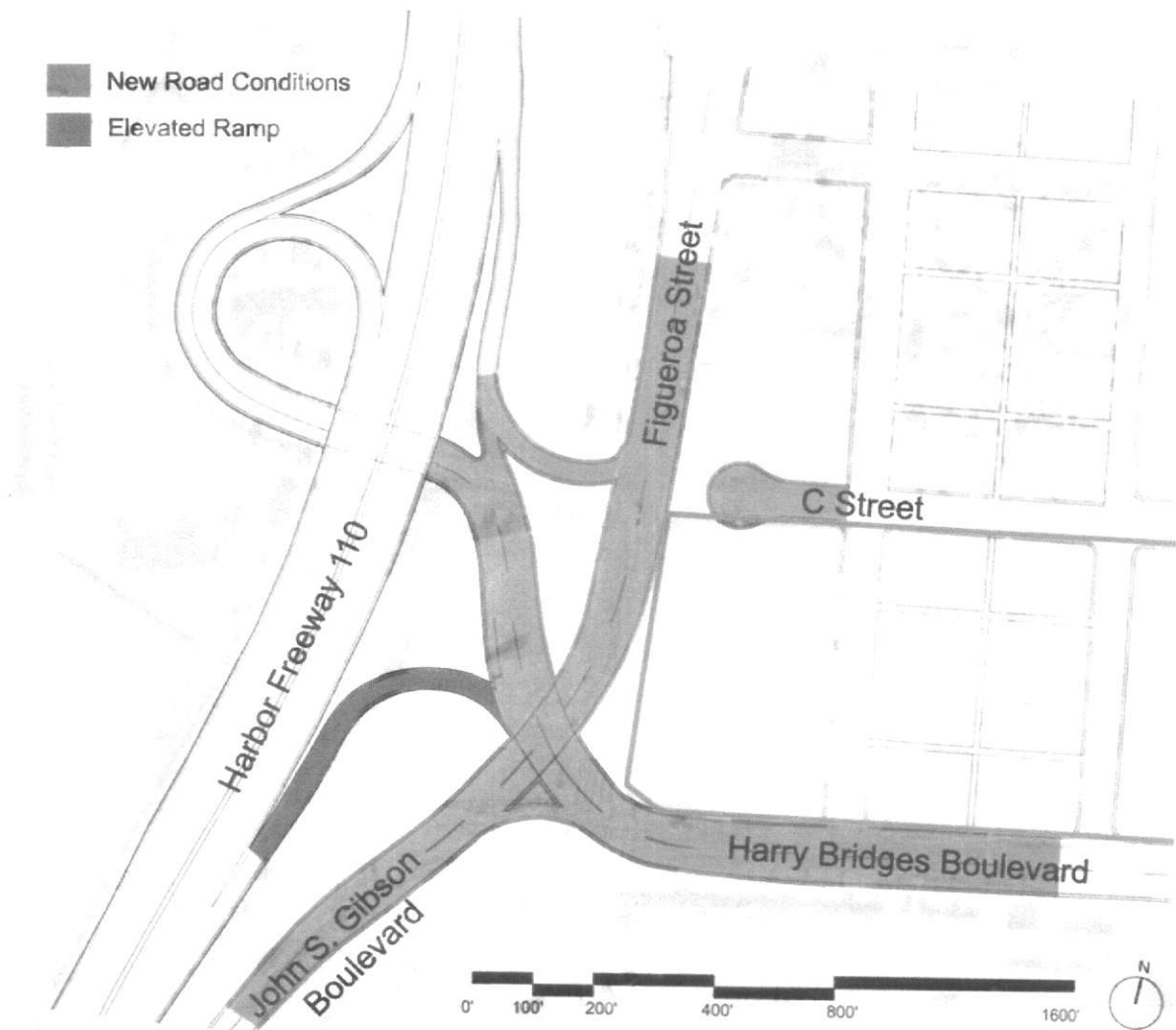
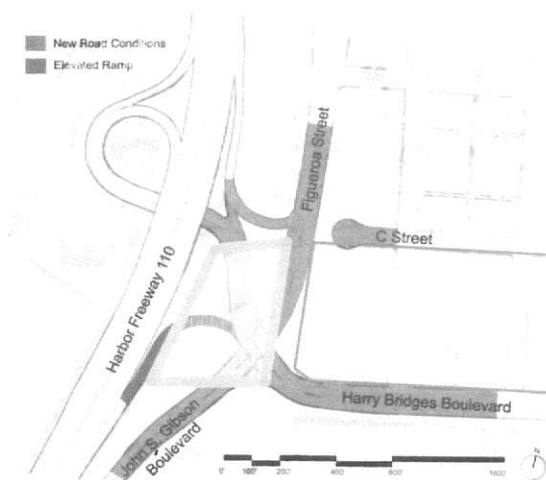


Figure 8

## Construction Phasing

1. Site clearing for new road and ramp sections
2. Building new ramp and road sections
3. Widening of Harry Bridges Blvd
4. Temporary closure of 110 northbound off - ramp for connection to new ramp
5. Temp. closure of 110 southbound ramps to connect to new road
6. Closure of C Street
7. Removal of old roads and ramp section
8. Treatment of soil



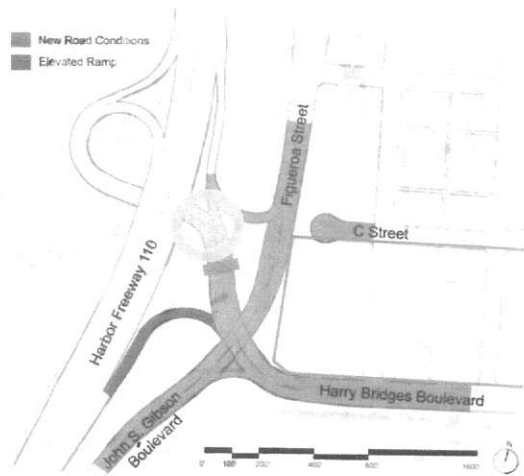
Stage 1 & 2



Stage 3



Stage 4



Stage 5



Stage 6



Stage 7 & 8

## Traffic Patterns

In this scenario the outbound traffic is depicted with yellow arrows and the inbound traffic is depicted with orange arrows. This model allows for easy access of eastbound traffic by removing the intersection and having one street raised over the other. This allows for maximum time efficiency as it adds lanes rather than causes a merge for lanes as it allows for Northbound and Southbound 110 Interstate exits to Harry Bridges Blvd. One problem however is that those heading northbound after leaving the 110 or those attempting to get onto the 110 freeway from the southern area will have to go to the ramps that join the two streets.

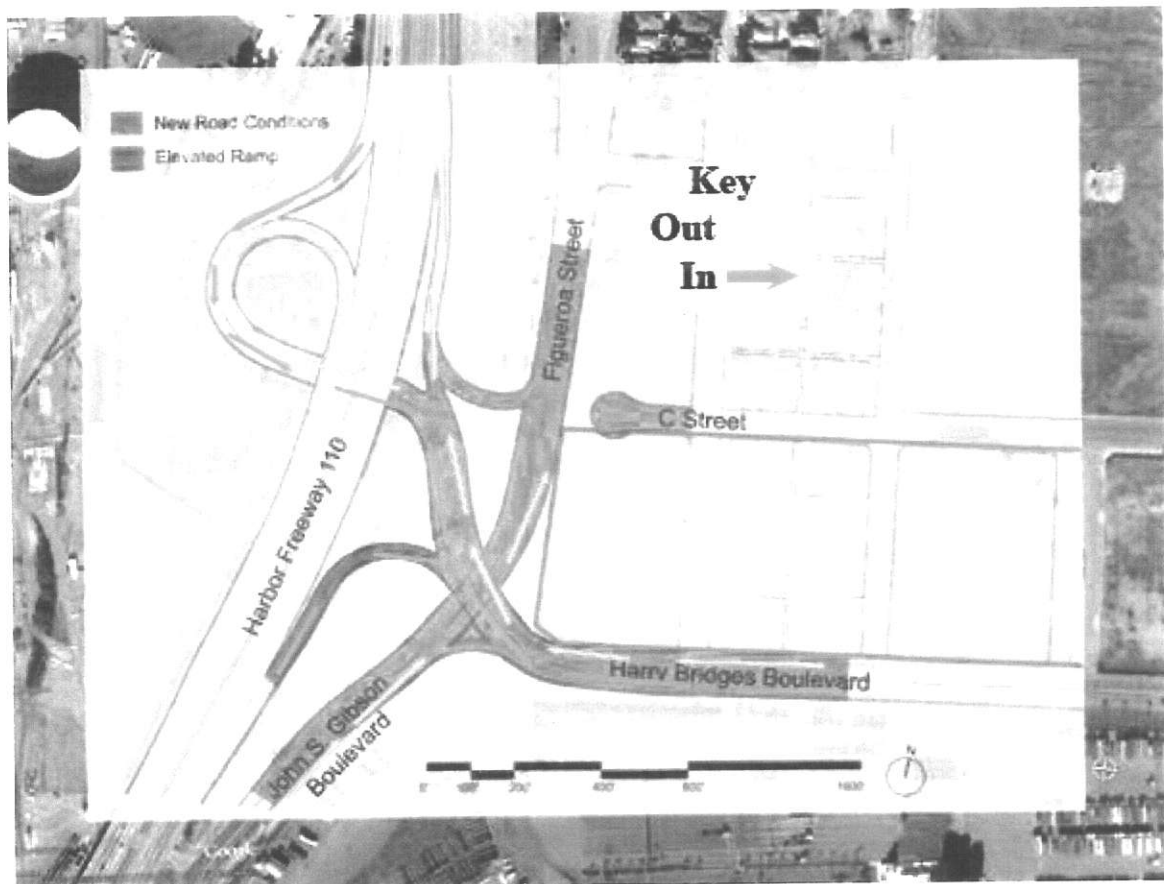


Figure 9

## Scenario 4

### Description

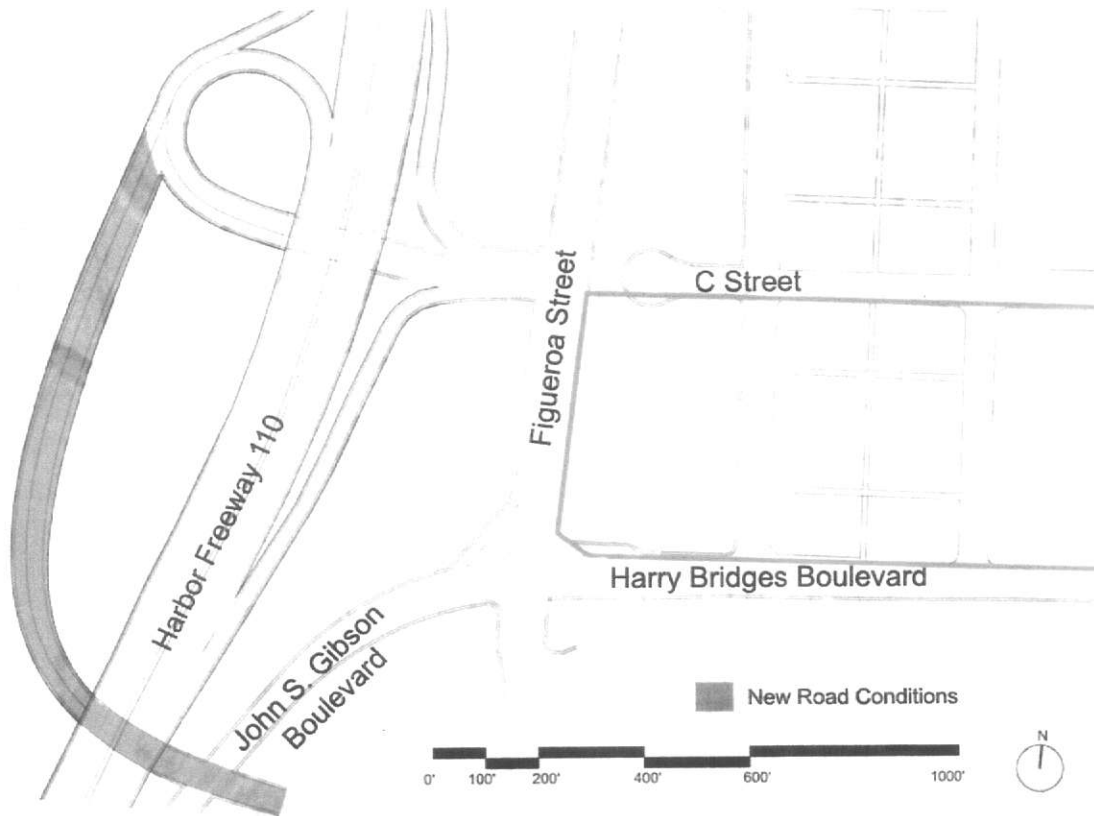


Figure 10

As illustrated in Figure 10, the key feature of this proposal is creating a new passage that leads vehicles from the TraPac Terminal directly to the 110 Freeway southbound on and off ramps. The new road crosses the freeway and therefore an underpass or a fly-over (elevated road) is required. In the underpass situation, trucks going between the TraPac Terminal and freeway will need to stop once at the intersection with John S Gibson Boulevard. A tunnel underneath the freeway is cut out perpendicularly in order to minimize the crossing distance and the need for extra supporting piles. In the overpass situation, Port trucks and vehicles can go directly to the



110 Freeway southbound on/off ramps without stopping. To the east of the freeway, the flyover will start sloping up within the Port of LA property, bridging over the freeway and then slope down again to meet the ramp which loops to the west of the freeway. Vehicles intending to get on or off the 110 Freeway northbound will still use the existing roads and ramps.

## **Benefits**

One major advantage of this proposal is the maximization of land for park use. The open space next to the freeway ramp can be claimed for the Waterfront Development Project. Another benefit of this scenario is that it takes the trucks directly from the Port terminal to the freeway ramp without stopping. Container trucks save time in goods delivery which allows the Port of LA to move more containers off the lot increasing commerce. In addition the truck traffic is kept out of sight and relegated to the shipping yard. This scenario also relieves the traffic congestions on Figueroa Street and Harry Bridges Boulevard. Furthermore, as the trucks make fewer stops, the volume of exhaust particulates entering the environment are greatly reduced.

## **Difficulties**

The major drawback of this proposal is the massive construction work to build the flyover connection to the freeway because the 110 is an elevated structure which makes it more costly to build a connection to it. Elevating a road capable of carrying the load of numerous trucks requires gigantic pylons to support it. Constructing a bridge over the freeway will require a clearance of 14-15 feet from below in order for large vehicles to pass underneath. On the other hand, cutting underneath the freeway involves removal of a tremendous amount of earth. Restructuring the freeway supports is another major task requiring lots of engineering and construction work. In either case, partial closure of freeway lanes at each phase of construction is anticipated. This will also place an extra burden on the already congested traffic situation.

## **Cost Analysis**

While this proposal is rather unusual, it prevents the need to modify the existing land plan. By keeping the land plan primarily the same, the cost associated with the project is solely based on the cost of the flyover.

Other benefits include a smaller impact on the environment and the elimination of traffic problems associated with freeway and surface road construction. Essentially, it does not require the closure of surface streets and freeway connections during its construction.

All of these things will help limit the amount of cost associated with the project. However, because this proposal is so unique it is not as cost effective as the previous three proposals. A flyover of this magnitude will have a rather large price tag and the risk associated with it is significantly large as well. In addition, this type of fly-over would require the design, structural analysis and construction capabilities of several highly qualified engineers and construction workers. With this understanding, your labor costs would be significantly higher than the previous proposals.

With all of these things taken into consideration, our initial cost estimation would be between \$30,000,000 and \$50,000,000 without addressing the risks associated with the proposal. With this being said, we believe that this proposal should be considered as an alternative solution but based on our cost analysis proposal three is the best resolution.

## **Community Impact**

This scenario is beneficial as it allows for maximum allocation of land for park usage and keeps all further expansions on either existing roads or on the land being used for the container storage. By having it built on the container lot the community would not view the changing of the intersections, or the construction as an expansion of the Port, but more of a modification of Port land. This scenario will have the least amount of impact on the surrounding community but have the largest amount of impact on the Port Authority.

## **Environmental Impact**

In order to address the growing concerns for the environment in the city of Los Angeles, the Wilmington community and representatives from the CFASE propose and interesting solution.

By adding an on-ramp/off-ramp flyover connecting the port of Los Angeles to the 110-freeway, a significant amount of environmentally concerns are address. As we had mentioned in scenario three, by decreasing the land usage for this new construction we hope to increase the area of the park associated with the Wilmington Waterfront Development Plan and lessen the impact that new construction would have on the environment. In addition, by diverting a majority of the trucks routes from surface streets to the flyover we hope to lower the amount of particulate matter that is released in the air each year. Furthermore, we estimated that thousands of gallons of fuel could be saved each year. At current fuel prices, this estimate comes out to over a million dollars saved

per year. While these numbers may be insignificant when compared to the amount of should be considered. Based on the information we have received, we feel that scenario four will has the smallest impact on the environment.

## **Construction Phasing**

1. Hold pre-construction meeting
2. Clear land area of debris and obstructions
3. Perform environmental, soil, and contamination testing
4. Construct storm water management measures
5. Grade construction sites
6. Pour the foundations for on-ramp/ off-ramp flyover
7. Start construction of on-ramp/ off-ramp flyover
8. Construct necessary utilities
9. Final grading of the construction site
10. Connect the street with the flyover
11. Install traffic signals, lane lines, etc.
12. Clean-up the site
13. Open the roads

## Traffic Patterns

Illustrated in Figure 11, the fourth scenario has traffic flowing directly from the storage yard onto the freeway. The outbound traffic is illustrated with green arrows and the inbound traffic is shown with black arrows. In this scenario the southbound traffic is able to get off directly from the freeway and drive straight into the container yard avoiding the two intersections. The public traffic can travel from the exit into the original traffic pattern of the first scenario. This scenario also differs from the other schemes in that it allows a direct route onto the freeway heading south.

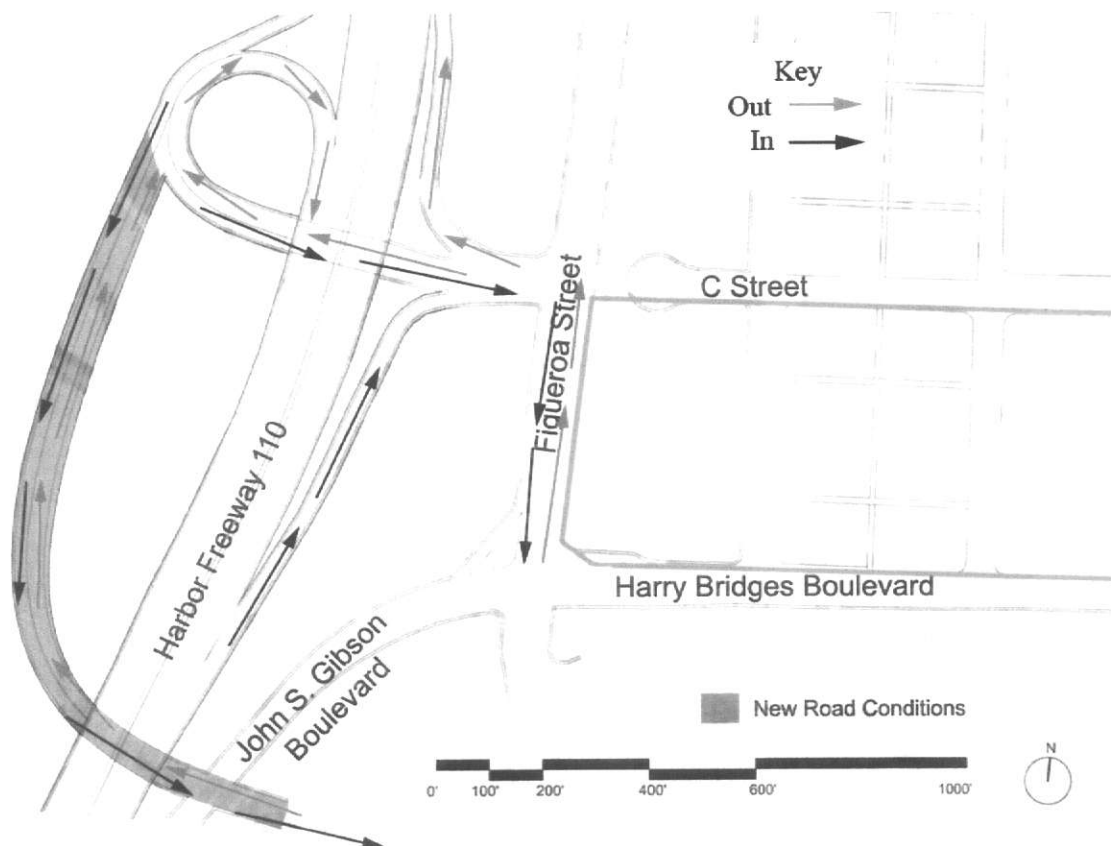


Figure 11

## Comparison of Each Scenario

	Scenario #1	Scenario #2	Scenario #3	Scenario #4
<b>Cost</b>	<b>LOW</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>
<b>Environmental Impact</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>
<b>Positive Community Impact</b>	<b>NONE</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>
<b>Completion Time</b>	<b>NONE</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>
<b>Overall Score</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>

Figure 12



## Conclusion

Throughout this entire report, we have expressed the facts about the current situation and we have provided numerous scenarios in order to deal with this dilemma.. The pros and cons of each situation have led us to several interesting conclusions. Even though scenario one may be the most cost effective solution its failure to attend to both the traffic problems and the environment issues leaves much to be desired. Furthermore, scenario two's street configuration effectively addresses the problems with traffic congestion and freeway access but it's mismanagement of land usage and its costly off-ramp undermines its positives. Although scenario four accomplishes every objective, its unique design and its requirement for extreme engineering carries with it a hefty price tag. Finally, we feel that scenario three addresses everyone's concerns. It's minimal impact on the community, it's alleviation of traffic congestion, and its lower cost makes scenario three the most advantageous proposal. With this being said, it is our conclusion that scenario three and four are the most realistic solutions to the problem at hand.

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1. King, Amy. "Estimated Costs Per Mile." July 2005. 1 Dec. 2006  
<[www.arkansashighways.com/Roadway/Costs%20per%20Mile.pdf?Record\\_Number=8](http://www.arkansashighways.com/Roadway/Costs%20per%20Mile.pdf?Record_Number=8) ->.
2. "Project Development Cost Estimates." Project Development Procedures Manual. 1 Dec. 2006 <[www.dot.ca.gov/hq/oppd/pdpm/chap\\_pdf/chapt20.pdf](http://www.dot.ca.gov/hq/oppd/pdpm/chap_pdf/chapt20.pdf) - Similar pages>.

# Appendix

## ESTIMATED COSTS PER MILE

NOTES: CHECK THE LABEL ON THE FIGURE YOU ARE USING. SOME ARE "PER LANE MILE."  
ESTIMATES ARE "CONSTRUCTION COST" ONLY. ADD 15% FOR ENGINEERING & OTHER COSTS  
TO ESTIMATE THE "TOTAL" COST OF A PROJECT.

<u>NEW ROADS</u> (TURNKEY PROJECTS ON NEW LOCATION WITH "AVERAGE" DRAINAGE AND BRIDGE QUANTITIES)			
<u>ROAD TYPE</u>	<u>URBAN AREAS</u>	<u>RURAL-MOUNTAINS</u>	<u>RURAL-OTHER</u>
6 LANE FREEWAY	\$ 8,800,000	N/A	N/A
4 LANE FREEWAY	\$ 7,150,000	\$ 8,500,000	\$ 5,500,000
4 LANE ARTERIAL	\$ 4,400,000	\$ 5,000,000	\$ 3,500,000
2 LANE ARTERIAL	\$ 2,475,000	\$ 2,250,000	\$ 2,100,000
2 LANE COLLECTOR	\$ 1,375,000	\$ 1,000,000	\$ 1,000,000

BRIDGES AND BOX CULVERTS (DOES NOT INCLUDE APPROACH ROADS. USE SQ. FT. OF FINAL STRUCTURE.)

HEAVY BRIDGES (NEW)	\$ 90 PER SQ. FT. DECK AREA
NORMAL BRIDGES (NEW)	\$ 76 PER SQ. FT. DECK AREA
WIDEN EXISTING BRIDGE	\$ 55 PER SQ. FT. DECK AREA (OLD DECK REMOVED & REPLACED)
REPLACE EXIST. DECK	\$ 52 PER SQ. FT. DECK AREA (NO NEW SUBSTRUCTURE)
REMOVAL OF BRIDGE	\$ 10 PER SQ. FT. DECK AREA
BOX CULVERT	\$ 52 PER SQ. FT. BOX TOP AREA
DETOUR BRIDGES	\$ 50 PER SQ. FT. (MORE IN SEISMIC AREAS)

WIDENING EXISTING ROADWAY

	<u>URBAN</u>	<u>RURAL</u>
2 LANES TO 3 LANES (PASSING LANES-RURAL)	\$ 2,800,000 PER MILE	\$ 1,400,000 PER MILE
2 LANES TO 4 LANES	\$ 3,200,000 PER MILE	\$ 2,000,000 PER MILE
2 LANES TO 5 LANES	\$ 3,750,000 PER MILE	\$ 2,300,000 PER MILE
3 LANES TO 5 LANES	\$ 3,500,000 PER MILE	N/A
4 LANES TO 5 LANES	\$ 2,200,000 PER MILE	N/A

RECONSTRUCTION (NEW DRAINAGE, BASE, SURFACING, MINOR WIDENING)

NON-FREEWAY	\$ 800,000 PER LANE MILE	\$ 500,000 PER LANE MILE
FREEWAY (BOND ISSUE JOBS)	\$ 1,000,000 PER LANE MILE (INCLUDES NEW SUPERSTRUCTURES ON BRIDGES)	
	\$ 600,000 PER LANE MILE (RUBBLIZE & OVERLAY OR COLD MILL & OVERLAY-NO BRIDGES)	

FREEWAY PATCHING & REHABILITATION (FULL DEPTH PATCHING, MINOR DRAINAGE & BASE REPAIRS, SHOULDER REPAIR, CLEAN & FILL JOINTS, ETC.)

\$ 650,000 PER LANE MILE

OVERLAYS (11 - 12 FOOT LANES, AVERAGE ACHM DEPTH = 2")

	<u>PG 64-22</u>	<u>PG 70-22</u>
PERFORMANCE GRADE ACHM	\$ 63,000 PER LANE MILE	\$ 71,000 PER LANE MILE
	<u>SINGLE</u>	<u>DOUBLE</u>
ASPHALT SURFACE TREATMENT	\$ 9,000 PER LANE MILE	\$ 12,000 PER LANE MILE

PHASE WORK BREAKOUTS (USE WHEN PROJECTS WILL BE DONE IN PHASES OR PARTS OF A PROJECT ARE COMPLETE AND ADDITIONAL WORK IS BEING PROGRAMMED: PAVE GRAVEL ROAD, PLACE BASE & SURFACING, ETC.)

GRADING AND DRAINAGE (NO STRUCTURES, BASE OR SURFACING - NEW LOCATIONS)

	<u>MOUNTAINOUS AREAS</u>	<u>OTHER AREAS</u>
FREEWAY & PRIMARY	\$ 1,000,000 PER LANE MILE	\$ 850,000 PER LANE MILE
OTHER ROADS	\$ 750,000 PER LANE MILE	\$ 640,000 PER LANE MILE

SURFACING (INCLUDES BASE & SHOULDERS ON NEW LOCATION, INCLUDES BASE PREPARATION, DRAINAGE & MINOR WIDENING ON EXISTING GRAVEL ROADS)

	<u>PG 64-22</u>	<u>PG 70-22 &amp; PG 76-22</u>
FREEWAY & PRIMARY	\$ 500,000 PER LANE MILE	\$ 700,000 PER LANE MILE
	<u>PG 64-22</u>	<u>DOUBLE A.S.T.</u>
OTHER ROADS	\$ 450,000 PER LANE MILE	\$ 350,000 PER LANE MILE

INTERCHANGES (TRUMPET OR DIAMOND LAYOUT)

ADDED TO EXISTING	\$ 6,200,000 EACH
NEW ROUTE	\$ 4,500,000 EACH

SIGNALS

\$ 115,000 PER INTERSECTION
\$ 500,000 WITH INTERSECTION IMPROVEMENTS

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# Cynthia Hok-Yin Kwan

## EDUCATION

---

- University of Southern California (USC). Los Angeles, USA.  
Bachelor of Architecture, 5<sup>th</sup> year student  
Expected graduation date: May 2007  
Cumulative GPA: 3.61
- St. Paul's Co-educational College (Secondary 1-7), 1995-2002. Hong Kong.

## ACHIEVEMENTS

---

- USC School of Architecture Student Commendations in:  
Spring 2005 for Architectural Technology (Arch 411)  
Spring 2005 for Design Studio (Arch 302bL)  
Spring 2004 for Structure & Seismic Design (Arch 213b)  
Fall 2003 for Design Studio (Arch 202aL)  
Spring 2003 for Design Studio (Arch 102bL)  
Fall 2002 for Design Studio (Arch 102aL)
- The National Dean's List 2005-2006
- St. Paul's College Scholarship 2005 and 2006

## WORK EXPERIENCE

---

- Summer Intern, Aedas (Hong Kong) Limited, June – July 2004  
Preparation of presentation drawings and images in Adobe Photoshop  
Production of architectural drawings in AutoCAD  
Some architectural design work by means of sketches and models

## SKILLS

---

- Computer: AutoCAD, Form Z, 3D Studio Max (Workable knowledge in Rhinoceros and Revit)  
Adobe Photoshop, PageMaker, Acrobat (Standard)  
Microsoft Words, Excel, Power Point  
Macromedia Dreamweaver MX
- Physical model building and pencil hand drafting / rendering
  - Fluent in English and Cantonese, proficient in Mandarin

## ORGANIZATIONS AND ACTIVITIES

---

- Alpha Lambda Delta Academic Honor Society, 2002-Present
- American Institute of Architecture Students, 2002-2003, 2006-Present
- USC Archery Club, 2003-2005
- USC Hong Kong Student Association, 2002-Present
- Voluntary work at the Chinese Christian Herald Crusades, Los Angeles Branch Community Center
- St. Paul's Church Choir 1997- Present
- Hong Kong Young People's Chorus, August 2006 - Present

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**OBJECTIVE** Creative entrepreneurship and efforts to make the world a more livable place

**EDUCATION**

- University of Southern California Los Angeles, CA  
B.S. Industrial and Systems Engineering (WIP) / Business Minor GPA: 3.2
- San Marino High School San Marino, CA

**EMPLOYMENT / EXPERIENCE** **Essembly LLC, developer** December 2005–February 2006  
**Los Angeles, CA**

- Developed dialogue interface for user discussions on political social networking site
- Helped increase user base by 50%

**Ars Scientifica, developer, market analyst** Winter 2002 – Summer 2005  
**Pasadena, CA**

- Co-founded software startup for online open access of scientific literature
- Developed database interface and management system
- Developed webcrawler and file repository structure
- Conducted market research and analysis for open access publishing model

**Jisan Research Institute, research head** Fall 2001 – Spring 2004  
**Pasadena, CA**

- Researched computational biology & applied mathematics
- Led team of peers to produce paper on artificial hardware evolution
- Created training program for entry level research assistants

**Titan Shield, editor-in-chief** Winter 2000 – Spring 2004

- Coordinated and managed group of 50 subordinates to produce biweekly publication
- Gathered and analyzed data for research, editorial, expository articles
- Served as liason to faculty/administration
- Previously worked as staff writer, section editor

**SKILLS**

**Languages:** Mandarin, Spanish

**Computer Applications:** Scilab, Matlab, emacs, CVS, subversion, Adobe Pagemaker, Adobe Photoshop, Adobe Acrobat

**Computer Programming:** C, C++, Java, PHP, HTML, XML, Pascal

**INTERESTS** Bowling, basketball, physical fitness, golf, collecting business cards

**Honors & Awards:** *Pasadena Star News* Journalist of the Year, *Titan Shield* Advisor's Award, National Merit Semifinalist, Boys State Delegate, AP Scholar with honors, SMHS Student of the Month, SMHS Football Coaches' Award

References Available Upon Request

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**Goals:**

Obtain work experience that will expand my exposure in the industry as a programmer and/or designer of programs.

**Education:**

University of Southern California  
Intended Graduation: Spring 2008

Cumulative GPA: 3.03  
Major: Computer Science

**College Course Work:**

Fundamentals of Programming C  
Principles of Software Development  
Data Structures using C++  
Digital Game Survey

Calculus II&III  
Object Oriented Programming- Java  
Japanese 1 - 3  
Discrete Methods in Computer Science

**Work Experience:**

Residential Computer Technology Assistant Aug 05- May 06  
- Provided on-site hands-on computer support for students

USC Bookstore Computer Sales Representative Jan 05 - Present  
-Data Entry, Shipping, Sales, Inventory

Hollywood Video - Guest Service Representative Jan 04 - Aug 04

Crenshaw Christian Center: Media Crew Technician (Volunteer) Jan '02 -Nov '04  
-Set up & operated audio & video consoles  
-Audio wiring configurations  
-Microphone placement & setup  
-TV/monitor placement & setup

**Skills:**

Experience in Programming in Java, C and C++;  
Knowledge of computer management - Microsoft Word, Excel, and PowerPoint;  
Beta tester for Shattered Galaxy, World of Warcraft and Dransik ( All are PC games.)

**Extra-Curricular activities:**

Fluor Tower Treasurer 04-05: Building Government:

-Player's Ball and Battle of the Cans

Rocket Team: 02-04: Built rockets and competed in National Rocketry Challenge

Key Club: Club focused on group service projects to help the Community

# Garrett S. Whitfield

---

## CAMPUS ADDRESS

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## EDUCATION

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, CA.  
Major: Civil Engineering with an emphasis in Building Science  
Graduation: May 2007

UNIVERSITY OF COLORADO, BOULDER, CO.  
Major: Civil Engineering with an emphasis in Building Science  
Attended: Freshman year – Transferred May 2004

OXFORD UNIVERSITY, OXFORD, ENGLAND –2003 SUMMER SESSION  
Focus: Film and International Relations

## COURSE WORK

Architectural Design  
Design of Steel Structures  
Theory of Structures  
Mechanics of Materials

Fluid Mechanics  
Engineering Geology  
Risk Analysis  
Advanced Writing

## AWARDS

Newport Harbor High School Mock Trial – Best Prosecuting Attorney in Orange County (2003)  
Associated Student Body- “Best Commission Award” (2002)  
“Best Literary Piece” in the International Relations course at Oxford University (2002)

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## WORK EXPERIENCE

06/05 – 08/05

**THE MIGNATTI COMPANIES**, Huntingdon Valley, PA.  
*Assistant Pre-Title Supervisor and Finish Supervisor -  
Breyer Court Townhomes - Philadelphia, PA.*

Assisted the project manager with overall job site safety, cost analysis, quality control, plan reviews, scheduling, excavations, framing, mechanical inspections, insulation and concrete inspections. Was responsible for the quality control of home construction prior to Notice of Completion which included drywall, millwork, paint, flooring, punch outs and final inspections.

06/04 – 08/04

**THE MIGNATTI COMPANIES**, Huntingdon Valley, PA.

*Land Acquisition/ Development Intern*

Reviewed and summarized various construction contracts and legal documents for in-house corporate council. Performed market research, due diligence investigations, and analysis of various zoning restrictions. Assisted in preparing reports to acquire federal and state funding for the remediation of contaminated properties on existing and future development projects.

06/97 – 08/97

**STERLING ASSOCIATION MANAGEMENT**, Cathedral City, CA.

*Office Assistant*

Organized and updated existing client database. Prepared mass mailers. Answered phone calls and helped conduct property inspections.

## ACTIVITIES

08/05 – present

**INTER-FRATERNITY COUNCIL**, Los Angeles, CA.

*Director for Sigma Alpha Epsilon Fraternity*

Served as the liaison between the inter-fraternity council and the SAE fraternity. Helped organize and manage recruitment events for the entire Greek community. Participated in informational meetings and house tours for interested students.

01/04 – 05/04

**JOINT EDUCATION PROJECT – UNIVERSITY OF SOUTHERN CALIFORNIA**

Manual Arts High School, Los Angeles, CA. - Taught Physics II Electricity and Magnetism for two hours a week as part of a student teacher program sponsored by the University of Southern California.

08/04 – present

**SIGMA ALPHA EPSILON FRATERNITY**, Los Angeles, CA.

*House Manager (08/06 – present)*

Organized a meal program for Sigma Alpha Epsilon on a very limited budget. Performed household repairs and initiated major physical improvements to ensure compliance with all California building codes.

*Alumni Chair (01/05 – 05/05)*

Served as the alumni representative of a chapter of over 100 active members. Maintained relations with the SAE alumni, the university, and the Greek community. Organized the annual SAE Fraternity golf tournament which raised in excess of \$15,000, a 150% increase over the prior years.

---

## SKILLS

Leadership, Writing, Organization, Marketing, Public Speaking, Risk Management, Computer Proficiency (Word, Excel, Publisher, Photoshop, PowerPoint, C, Fortran, AutoCAD).

## INTERESTS

Golfing, Fishing, Skiing, Hunting, Snowboarding, Sky Diving, Backpacking, Free Boarding, Surfing, Auto Repair, Home Repair and Construction, Football, Baseball, Basketball, Biking, Diving, Playing Bass Guitar, Fitness.



# Jonathan T. Shintaku

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---

## **EDUCATION**

**University of Southern California**  
**Bachelors of Science – Computer Science**

**December 2006**

## **PROJECT EXPERIENCE**

- *Team Leader:* Lead a group project that developed the goals, capabilities, system requirements, and the design of an online banking system for the Dept. of Neighborhood Empowerment within the City of LA.
- *Programmer:* Coded Java Servlets for a group project involving the African Millennium Foundation, which would allow online donations as well as the creation of projects for Grassroots activists. This project was featured on both the USC and Viterbi School of Engineering homepages.
- *Programmer:* Coded in Java, as well as developed tests using JUnit, a multithreaded agent application that created a simulation of a restaurant.
- *Programmer:* Coded in C++, as well as developed test code for a multithreaded distributed computing application that created a simulation of a restaurant.

## **Relevant Coursework**

Operating Systems, Object Oriented Programming in C++ & Java, Data Structures Using C++, Principles of Software Development, Design and Analysis of Algorithms, Discrete Mathematics, Probability Theory, Software Engineering, Assembly Language- Motorola 68000, Construction of Large Software Systems, Computer Systems Organization.  
Computer Networking, Programming and Multimedia on the World Wide Web (Fall 2006)

## **Software:**

Security Tools:	Nmap, Netcat, Ethereal, Kismet, OllyDbg
Operating Systems:	Linux, Solaris, Windows 95,98, 2000, XP
Application Programming:	Java, JUnit, C, C++, MIPS, m68000, Bash
Web Programming:	Java, JavaScript, PHP/Perl, MySQL, HTML, CSS, and XML
Protocols:	HTTP, TCP/IP, and UDP

## **Work Experience:**

**University of California, Los Angeles**

**Summer 2004**

### **Laboratory Assistant**

- Worked with a team of students researching and documenting the various phenotypes of the genetic mutants of the organism *Neurospora Crassa*.

### **Mathematics Engineering and Science Achievement (MESA)**

**Oct 2003-June 2004**

### **Mathematics and Physics Tutor**

- Worked with a team of tutors, assistants, and program director to create a quality program that facilitated the educational development of underrepresented and educationally disadvantaged students in the field of mathematics and science.
- Provided academic enrichment and career advisement along with assistance in course selection.

## **Extracurricular Activities:**

### **Society of Hispanic Professional Engineers**

- Worked with a group of students in a design competition that encompassed the development, marketing, and presentation of a voice recognition lighting system.

**ALTERNATIVE NON-POLLUTING INTERMODAL TRANSPORTATION SYSTEMS:  
REDUCING POLLUTION ALONG THE ALAMEDA CORRIDOR  
AND THE GREATER LOS ANGELES METROPOLITAN AREA**



PREPARED FOR:

COALITION FOR A SAFE ENVIRONMENT  
WILMINGTON & HARBOR COMMUNITY RESEARCH PROJECTS

RESPONSE TO REQUEST FOR PROPOSAL  
USC ENGINEERING WRITING PROGRAM  
FALL SEMESTER 2006

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DECEMBER 1, 2006

## **Preface**

This report is an analysis of various alternative technologies for transportation of cargo from the Port of Los Angeles/Long Beach to the Downtown Los Angeles Railroad Yard Center to reduce negative environmental and community impacts as well as to increase freight capacity to accommodate future need. This report is by a group of students from a University of Southern California Writing for Engineers course. It is written in response to a request for proposals from the Coalition for a Safe Environment.

The Coalition For A Safe Environment is a community non-profit environmental justice, public health and public safety advocacy organization involved in reducing, eliminating and mitigating air, land, water pollution and global warming caused by international trade, ports, international cargo, cruise ships, intermodal facilities, goods movement transportation corridors and distribution centers. The Coalition For A Safe Environment (CFASE) was established in April 2001 in Wilmington, California, USA.

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## Executive Summary

The Port of Los Angeles/Long Beach is the fifth busiest container port in the world. Containers arriving at the ports need to be taken to the Downtown Los Angeles Railroad Yard Center twenty miles to the north. At the time of this publication, this is accomplished by trains along the Burlington Northern and Santa Fe Railway (BNSF), the Union Pacific/Southern Pacific Railway (UP/SP), and the Alameda Corridor, as well as heavy trucks along the I-710 and I-110 freeways and surface streets. The trains and trucks all currently run on diesel fuel, which releases large amounts of harmful particulate matter (PM) and nitrogen oxides (NO<sub>x</sub>). Particulate matter has been shown to cause asthma and is also carcinogenic. Nitrogen oxides can cause damage to the ozone layer, increasing the risk of skin cancer. The truck and train traffic also causes problems in terms of noise and visual pollution, wear and tear on surface streets, and traffic congestion.

The Alameda Corridor was completed in 2002 with the intent of relieving these problems, but it is not a permanent or complete solution as it has limited capacity and still relies on diesel fuel. Even though these problems are not immediately pressing, the nature of projects on this scale mean that plans must be made now for the problems that will arise twenty years from now. In the short term, this means switching to alternative fuels such as ethanol or electrifying the existing tracks; in the long term, technologies like magnetic levitation or linear induction motors can be prepared for implementation while investing in the development and prototyping of other technologies.

The Alameda Corridor was constructed with the intent of being electrified at some point; however, electric freight engines have never been used in the U.S. even though they are very popular in Europe. Traditional diesel train engines are actually diesel-electric, using a diesel engine to generate electricity then using this electricity to drive the electric motors which

actually propel the train. Given that these engines are already “electric” it may be possible to modify them to run on external power which can be generated much more efficiently at a large power station. Electric trains are actually a simplification of diesel-electric trains making them lighter, more efficient, and easier to maintain. The corridor could be electrified very rapidly; the main delay in the implementation of this technology would be the importation, manufacture, or retrofitting of trains to take advantage of this infrastructure.

Magnetic levitation may well be the future of the Alameda corridor. There are currently two companies developing maglev technology for freight transportation: General Atomics and Transrapid. General Atomics (GA) uses a method called Inductrack licensed from Lawrence Livermore National Laboratory. GA has constructed a working prototype of their freight system. Maglev has the advantages of being fast, non-polluting, and very safe. Maglev tracks can also be elevated more easily than traditional train tracks as their weight is distributed more evenly and vibration is reduced. This means that the footprint of a maglev system can be tremendously less than that of an expanded rail or highway route as less land would need to be purchased to make room. This actually makes maglev a cost effective solution.

Transrapid’s maglev system has been employed extensively around the world for high-speed passenger trains, but no prototype has ever been constructed for freight transportation. Even though Transrapid is a more established and proven name in maglev technology, they are not as developed as General Atomics in terms of freight technology.

The Skytech Transportation Framework is another proposed technology to transport containers from the port. The Skytech system transports entire tractor trailers on top of shuttles propelled by linear induction motors. Linear induction motors are basically standard AC motors unrolled to generate linear rather than rotational force. Unfortunately the Skytech system is untested, prohibitively expensive, has an insignificant capacity, and would require decades to

implement. Therefore, it is not a practical solution for freight transportation from the port.

The Tube Freight transportation system is a technology proposed to reduce truck trips, but not train traffic. It uses a linear induction motor to propel a cylindrical vehicle down a two meter wide underground tube roughly the size of a sewer pipe. These vehicles could each hold about five pallet loads of cargo, but could not accommodate an intermodal container. This means that loading and unloading of these vehicles would be a major bottleneck in the system. The costs of underground tunneling, the untested nature of the technology, and the fact that it cannot accommodate intermodal containers prevent this technology from being an effective option for cargo transportation from the ports.

The Cargorail transportation system uses electrically powered rubber tire vehicles to transport containers along an elevated guideway. Since there is no large scale implementation of this system, nor any independent study of its feasibility, the only figures available are from the Cargorail company itself. That being said it appears to be a technology with a lot of potential meriting further study and external review.

It has also been proposed that an underground inclined track be constructed to use the force of gravity to transport containers from the ports to the rail yards, with elevators to return containers to the surface. There are several problems with this proposal. In order to transport the containers at an effective speed the incline of the track would have to be fairly steep, meaning that the tunnel would end up being farther underground than has been excavated in Los Angeles. Given the costs and engineering challenges associated with such excavation, the costs run into hundreds of millions of dollars per mile. Also, the amount of energy required to lift the containers from this depth would defeat any energy savings from the gravity slide.

An immediate reduction in pollution could be achieved by switching from diesel to E95 ethanol as a fuel source for both trains and trucks. This could be accomplished with minimal

modification to existing engines and would greatly reduce emissions of particulate matter and nitrogen oxides as well as reducing dependence on non-renewable fossil fuels.

Considering all available information, electrification of the Alameda Corridor and modification of engines to run on E95 ethanol would provide an immediate reduction in pollution throughout the greater Los Angeles area as well as setting a shining example of eco-friendly transportation planning to the rest of the country. In the long term, adoption of an elevated maglev system, either a Transrapid or General Atomics version, would greatly increase the efficiency and capacity of cargo transportation from the ports to the rail yards with minimal environmental impact.



## Section 1

### The Currently Operating Transportation System

#### 1.1. Overview

The Ports of Los Angeles and Long Beach together make up the fifth largest port in the world. Located about 20 miles south of downtown Los Angeles in San Pedro, the Ports handle over 100 million tons of cargo per year. Diesel powered trucks and trains carry cargo between the downtown L.A. Railroad Yard Center, L.A. warehouses, and the ports. The three train tracks leading to the ports include the Union Pacific/Southern Pacific (UP/SP), Burlington Northern Santa Fe (BNSF), and the newly constructed Alameda Corridor. The trucks use the 110 and 710 Interstates and surface streets. There are approximately 300 tons of particulate matter and 14,000 tons of Nitrogen Oxide (NOx) gases released into the atmosphere yearly from the diesel powered engines. These numbers will soon skyrocket if the system remains in place because the ports and goods movement industry plan to triple in size over the next 20 years.

#### 1.2. History

For over 100 years, the Ports of Los Angeles and Long Beach have been a gateway for international trade. Together they make up the largest, busiest port in the United States. In 1986 the Port of Los Angeles broke ground on its Intermodal Container Transfer Facility which helped transfer containers to trains quicker. They do an excellent job of managing their own societal impact, especially pollution. The Ports played a key role in providing funding for the Alameda Corridor.

The Alameda Corridor has only been operating since 2002. The project was first conceived in October 1981 when the Southern California Association of Governments created

the Ports Advisory Committee (PAC). The PAC was created because of a growing concern about the current system's ability to accommodate increasing levels of traffic in the port areas. Years of analysis led to the creation of the Alameda Corridor Transportation Authority (ACTA) in August 1989. The cities of Los Angeles and Long Beach collaborated with the UP/SP and BNSF railroads and the ACTA to fund the corridor. The Alameda Corridor was created to help relieve the UP/SP and BNSF railroads, and also to help traffic flow and pollution. The corridor took approximately 5 years to build, breaking ground in April 1997 and beginning operation in April of 2002.

### **1.3. Technical Description**

The 20 mile long Alameda Corridor runs parallel to Alameda Street from the Port of Los Angeles to the Downtown Railroad Yard Center. The track runs through a network of bridges, underpasses, and overpasses to separate the trains from street traffic and passenger lines. At the center of the corridor is the Mid-Corridor Trench. The trench is a 10 mile long open portion of the track, running between State Route 91 in Carson and 25<sup>th</sup> Street in the heart of Los Angeles, that is 33 feet deep and 50 feet wide with 25 feet of vertical clearance for containers. Two rails run parallel with a roadway section between for maintenance that is wide enough to convert to a third rail (Figure 1.1). The rail has potential to be electrified, but there currently are no plans to move in that direction.



*Figure 1.1: Mid-Corridor Trench with third rail.*

The engines pulling cargo on the rail are Dash-9 locomotives. The Dash-9 is a powerful model for pulling heavy cargo loads from the ports to the rail yards at maximum speeds of about 22 mph. Current limiting factors of the Alameda Corridor's efficiency include its maximum train speed and cargo loading/unloading time. The Alameda Corridor Transportation Authority is working to increase the efficiency of the Alameda Corridor by increasing train speeds safely to 60 mph over the next 20 years. Table 1.1 shows that the Alameda Corridor has steadily increased its traffic to an average 55 trains per day (1,650 per month) in 2006. This amounts to approximately 250,000 containers per month. Improved speeds would hopefully get the Alameda Corridor handling 100 trains per day by 2020. The Alameda Corridor was designed to help relieve some of the traffic congestion caused by the high traffic flow between the ports and rail yards and has made a significant difference. However, there is still room for improvement.

Number of Trains Running on the Alameda Corridor						
	2002	2003	2004	2005	2006	2006 Daily Average per Month
Jan		1,192	1,251	1,344	1,537	50
Feb		1,097	1,070	1,322	1,367	49
Mar		1,130	1,242	1,373	1,562	50
Apr	642	1,214	1,201	1,395	1,636	55
May	1,196	1,273	1,312	1,442	1,736	56
Jun	1,211	1,170	1,266	1,396 **	1,648	53
Jul	1,331	1,256	1,403	1,417	1,810	58
Aug	1,367	1,282	1,437	1,578	1,823	59
Sep	1,298	1,263	1,494	1,476	1,804	60
Oct	1,047	1,253	1,499	1,561	1,842	59
Nov	1,079	1,243	1,460	1,513		
Dec	1,088	1,185	1,337	1,489		
Total	10,259 *	14,558	15,972	17,306	16,765	
Average # per day	39	40	44	47	55	

\* 2002 daily train moves data was revised.

\*\* June 2005 daily train moves data was revised.

*Table 1.1: Number of Trains Running on the Alameda Corridor.*

In addition to the Alameda Corridor, the UP/SP and BNSF tracks connect the ports to the rail yard. Their operational systems are similar to the Alameda Corridor; however, their paths are much longer as shown in Figure 1.2. They run an additional 1,000 trains per month between the yard and port destinations. Privately owned, unionized tractor trailers haul the rest of the container load in addition to taking containers to their destinations in the city. There are an estimated 125,000 containers per month transported between the port and rail yards with another 391,000 containers per month heading out to warehouses in the greater Los Angeles area. The three rails and trucks are currently adequate, but increased volume in the near future will put a strain on traffic and increase air pollution tremendously.

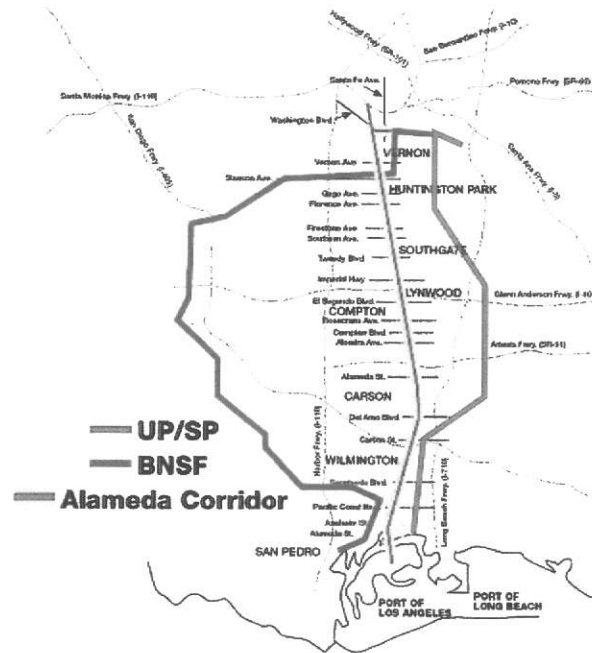


Figure 1.2: Interstate and Rail Routes from Ports to Rail Yard

#### 1.4. Costs

The Alameda Corridor project cost \$2.4 billion to implement. The money was fronted by a blend of public and private sources that include Los Angeles and Long Beach tax payers, the UP/SP and BNSF rail roads, and the Ports of Los Angeles and Long Beach. Operating costs for the current system include salaries for truck drivers, train operators, dock workers and railroad workers who load/unload the trucks and trains; diesel fuel; and truck and train purchase costs. Maintenance costs include maintenance worker salaries and spare parts. Numerical figures and estimates for these costs were not provided by the UP/SP, BNSF, ACTA, or California Trucking Association.

### **1.5. Jobs and Safety Concerns**

The California Trucking Association claims a membership of over 2,300 members and is the nation's largest state trucking association. In San Pedro Bay, the longshoreman's union has over 16,000 regular and casual workers who work at the container and break bulk terminals. Railroad employment statistics were not provided by the ACTA, UP/SP, or BNSF. New transportation technologies would most likely displace trucker jobs to another city, state, or interstate route. Safety concerns are minimal. Truckers are only at risk from common traffic accidents and are very well protected being the drivers of extremely large, heavy vehicles. Railroad maintenance workers assume some risk by working between the two functional tracks while trains are passing. Longshoremen are at risk of personal injury, most notably to the lower back from heavy lifting. The increasing air pollution is a safety concern to all workers and nearby residents. The particulate matter emitted from trucks and trains causes smog and can lead to a host of health issues such as asthma. NOx gases released into the atmosphere put holes in the ozone layer and increase citizens' likelihood of developing skin cancer.

### **1.6. Pollution**

Creation of the Alameda Corridor has done a lot to reduce air pollution. The UP/SP and BNSF train routes are longer, less direct paths to the rail yard and as a result the trains on them emit more particulate matter and NOx gases. In addition, it takes trucks off the roads, decreasing traffic jams, thus reducing the emissions caused by idling vehicles. The Ports of Los Angeles and Long Beach report that port trucks produce about 188 tons of particulate matter (PM) per year and 9,264 tons of nitrogen oxide (NOx) gases. The trains contribute an additional 111 tons of PM and 4,533 tons of NOx. Older trucks and trains tend to contribute more pollution so they must receive periodic maintenance to keep them operating at the lowest emission levels possible. The

longer a truck stays idle, the more it releases PM and NOx gases, so truck routes play a huge role in their pollution contribution. Relieving traffic congestion on the California interstates would greatly reduce pollution by getting vehicles to their destinations quicker, and thus shutting off their engines sooner. Traveling at higher speeds does cause a greater rate of fuel consumption, but a train traveling at high speed still pollutes less than the trucks it would take to haul the same cargo.

### **1.7. Conclusion**

The existing system is obviously already in place. This report outlines its current production, efficiency, and outlook for the future. The technology systems that follow are all meant to serve as alternatives to the existing system to reduce pollution and improve traffic flow. It is highly recommended that actions be taken to improve transportation efficiency soon because of the expected increase in traffic volume in the near future.

## Section 2

### Electrification of Existing Rail Lines

#### 2.1. Description

Electrifying the rail system is a simple solution that would remove a large quantity of the pollution produced along the Alameda Corridor. The idea of using this technology in the Corridor is not a new one: the corridor was built with the idea that it would eventually be electrified. By replacing the current locomotives with purely electric locomotives, the Alameda Corridor would be cleaner, quieter, and operate more efficiently than present.

#### 2.2. Origins

Electric locomotives that rely on an external power source were first built by Siemens for use in the 1879 Berlin Trade Fair. In its modern implementation, the electric locomotive has been used for passenger service around the world. It has also been used for freight traffic throughout much of the world, but not in the US.

#### 2.3. Technical Description

The basic operating principles behind an electric locomotive are much the same as any other locomotive: use a motor to turn the axle and roll the locomotive forward. In modern locomotives, it is most common to see electric motors powering the axles that drive the train forward. This is true in both purely electric locomotives and in diesel-electrics. The main difference between these two types of locomotives is where the electricity comes from to power their motors.



2.3.1. Current System: Diesel-Electric Locomotives

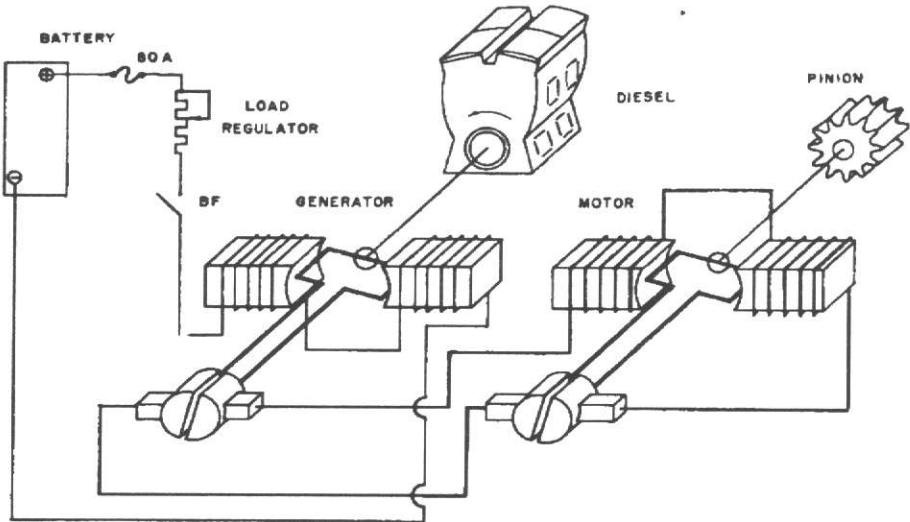


Figure 2.1: Diesel Electric System Diagram c/o <http://www.sdrm.org/>

As can be seen in Figure 2.1, in a diesel-electric system a diesel engine is used to generate the electricity to run an electric motor. Using a diesel engine directly connected to the drive shaft of the train would be impractical for two primary reasons: the number of gears required to keep the engine operating optimally, and the complexity of connecting the engine to as many as six axles at once. Decoupling the engine from the axles solves both of these problems, and using a diesel-electric system does just that.

Diesel-electric trains have been the mainstay of the American freight rail system for decades, but they are not nearly as common outside of the US. One of their primary drawbacks is that they produce a large quantity of pollution. Another problem is that the efficiency of their generator is not as high as in the larger generators used in power stations.

### **2.3.2. Clean and Efficient: Purely Electric Locomotives**

Purely electric locomotives are more efficient in their operation than their diesel-electric counterparts in part because they do not need to create their own power on-board. Also, because they run on electricity that is generated externally, they can make use of clean energy technologies like solar collectors and wind turbines, just like anything else that plugs into the power grid.

There are two steps to electrify any rail system that currently uses diesel-electric locomotives: install purely electric locomotives, and supply these locomotives with electricity.

In regard to the Alameda corridor, the first problem is more difficult to overcome than the second. Simply put, there are no electric freight locomotives in the US. Converting the current diesel electric locomotives to use an overhead or a third rail source of electricity could be done, in theory, but the practicality of this is unknown.

The second problem is much simpler: the Alameda Corridor construction plans incorporated the idea of future electrification, so the necessary infrastructure is already partially in place. According to information provided by CFASE, the corridor already has in place the necessary power junctions. The corridor itself is also very well suited for the implementation of overhead catenary wires (flexible but non-elastic wires that hang between two points), given that its depth of 30 feet would allow the lines to be placed below the surface traffic moving the potential threat of electrocution away from outside traffic, both pedestrian and vehicular.

### **2.4. Misconceptions**

One of the primary misconceptions about using a purely electric locomotive for freight hauling is that it is not powerful enough to handle the load. The following is a chart that compares some different aspects of a modern purely electric locomotive from Bombardier

Transportation (Model TRAXX F140AC) and the most fuel efficient diesel electric made by GE (Model ES44AC). Note that the GE Evolution series locomotives are replacing the Dash 9 series across the country due to stricter EPA regulations introduced in 2005.



Figure 2.2: TRAXX F140AC2



Figure 2.3: GE ES44AC

	Purely Electric TRAXX F140AC	Diesel Electric GE ES44AC
Weight (tons)	95.2*	207.5
Horsepower	7510	4400
Horsepower/Weight Ratio	78.9	21.2
Starting Tractive Effort (kN)	300	880
Max Speed (mph)	87	75
Length (feet)	62	73
Height (feet)	12.6	15.4

Table 2.1: Locomotive Comparison

*\* This weight is from a chart found on Wikipedia. Its veracity is unknown.  
All other information is published in official documentation by GE and Bombardier.*

Overall, the electric locomotive is smaller, faster, and more powerful than its diesel-electric counterpart. The one area in which the diesel-electric surpasses the purely electric locomotive is in starting tractive effort (pulling force exerted from a standstill), meaning that the diesel-electric can haul heavier and longer trains. This may well be because the diesel-electric in question was designed to be used in the US on the typical long and heavy hauls that make the

industry profitable. The purely electric locomotive was instead designed for use in Europe, in this case primarily within Germany, where the cargo hauling needs are not the same as in the US.

## **2.5. Costs**

### **2.5.1 Infrastructure**

The infrastructure costs associated with electrifying the Alameda Corridor are considerably smaller than those associated with electrifying a standard section of track elsewhere in the country. Because the Mid-Corridor Trench was designed to be electrified, many of the costs have already been covered. There are already locations set up for power junctions to provide electricity to overhead catenary power lines that would easily fit in the trench.

A common estimate for the cost of electrifying a mile of track is on the order of \$2 million. This cost for the Alameda Corridor should be lower because the trench already affords the clearance necessary for electrification. Assuming that it costs \$2 million per mile, then the infrastructure for electrifying the Alameda corridor would cost about \$40 million.

Aside from installing the catenary wires and the electrical junctions, the other cost for electrifying the line would be purchasing electric freight locomotives. One feasible plan that has been mentioned involves phasing electric locomotives into the fleets of both the Union Pacific and BNSF railways. If old locomotives that are scheduled to be replaced with new diesel-electrics are instead replaced by diesel-electrics that are currently running in the Alameda Corridor—which would in turn be replaced by purely electric locomotives—the cost could be minimized. The main obstacle to even this simple idea is that there simply are no electric freight locomotives being produced in the US.

### **2.5.2 Other Costs**

Electric locomotives have fewer parts—and are lighter and more efficient—than their diesel-electric counterparts, meaning that both operating and maintenance costs should decrease after electrification. With lower maintenance and operating costs, more revenue can be generated without increasing transportation rates.

### **2.6. Jobs and Safety**

Initial construction work involved with the installation of the catenary power lines and the power junctions would generate short-term construction jobs in the LA area. Production of electric locomotives at a company such as GE could also produce jobs, as it is a product that is currently not produced within the US.

The primary safety concern for an electrified rail system is electrocution. The Alameda Corridor is ideally suited to ease this safety concern because it would place all wires below grade, removing them from the path of pedestrians and other traffic. Another safety concern with electric rail systems is that it is more difficult to hear an oncoming electric train than a diesel-electric. This safety concern is also handled by the fact that the Mid-Corridor Trench is below grade, so trains pass underneath pedestrian traffic and street crossings.

### **2.7. Pollution**

There is no pollution produced on-site by an electric rail system. By utilizing the power grid, there would be no need for inefficient diesel generators on-board the trains. Combining this implementation with clean air technology in power production (using alternative energy sources like solar and wind for grid production) would dramatically reduce both local and net pollution caused by the transportation of cargo along the Alameda Corridor. Noise pollution along the

corridor would also be reduced due to the inherently quieter operation of electric locomotives.

## **2.8. Implementation Time Frame**

The time frame for implementation of an electric rail system is unknown. Unless electric locomotives are imported from Europe (either in design or finished product) this proposal cannot move forward. If the locomotive question were resolved, only the necessary infrastructure additions would be needed. Once the trains are available, the process should not take more than a few years.

## **2.9. Assessment**

Electrifying the Alameda Corridor is one of the simplest and most effective ways to dramatically reduce pollution in the LA metropolitan area. The primary downfall of this concept is the absence of an electric freight locomotive from the US market. If this project is completed, it would serve as an example for other rail lines across the country to follow.

## Section 3

### General Atomics Maglev

#### 3.1. Overview

Magnetic levitation, or maglev, technology was first envisioned as the future in mass transit systems, but the same technology can, with minor modifications, be used to transport standard cargo containers. The basic idea behind maglev is to use magnets to create an air gap between the vehicle and the track. This removes the need for wheels and the energy loss associated with rolling friction.

Though maglev technology has been around for more than half a century, it still has not become commonplace. This is because the original designs required things such as cryogenically cooled superconducting coils and, as a result, were extremely expensive to construct and operate. Recent developments in technology have removed this requirement for exotic materials, however, bringing down costs substantially.

There are two companies that are working on goods movement systems utilizing these developments. The first is General Atomics (GA), which is licensing the InducTrack technology from the Lawrence Livermore National Laboratory. The second is Transrapid, which has been developing its own maglev technology for decades. Both of these companies have worked with or are working with the Center for the Commercial Deployment of Transportation Technologies (CCDoTT), which is part of CSULB, to produce feasibility reports for routes originating at the Ports of Los Angeles and Long Beach.

### 3.2. History of General Atomics

The InducTrack technology that GA uses was invented by a team of scientists at the Lawrence Livermore National Laboratory in the late 90s. This team, headed by physicist Richard F. Post, found that a Halbach array of permanent magnets could replace superconducting coils on the maglev vehicle. Using this Halbach array, which was originally designed for use in particle accelerators, provided several advantages over superconducting coils. These advantages include a substantially weaker magnetic field in and around the vehicle and significant reduction in vehicle weight and cost, associated with the removal of the superconducting coils and supporting equipment.

GA originally licensed this technology from the Lawrence Livermore National Laboratory to work on a maglev equivalent to light rail, but began working with CCDoTT on a container transport system in early 2006. In June 2006, GA and CCDoTT configured a working prototype of their Electric Cargo Conveyor (ECCO)



*Figure 3.1 ECCO Prototype*

system at GA's San Diego facility (see Figure 3.1). They also generated a report that explores the feasibility of three different routes from the ports with detailed cost estimates and submitted it to the Port of LA in June 2006 for review.

### 3.3. Technical Description

#### 3.3.1 Basic Technology

The InducTrack technology that GA uses is a variation of electrodynamic suspension (EDS). In an EDS system, magnets on the vehicle induce currents in unpowered coils or plates on the track. The magnetic field that those induced currents create then repels the magnets on the



vehicle, causing it to levitate. The InducTrack technology differs from previously designed EDS systems in that it uses Halbach arrays of permanent magnets on the vehicle rather than superconducting coils to induce currents in the track. The Halbach array is a configuration of magnets, developed for particle accelerators, that strengthens the magnetic field on one side of the array and nearly cancels it on the other side.

In order for an EDS vehicle to levitate, it must be in motion. This means that the vehicle must have auxiliary skids or wheels that allow it to reach levitating speeds. For an InducTrack system, the transition speed is relatively low: only one or two miles an hour. A possible alternative to skids or wheels would be to use a moving section of track at stations to keep the vehicle levitating.

The InducTrack technology keeps the vehicle levitating while it is in motion, but does not provide any propulsion. Consequently, some other equipment is required to provide propulsion to the vehicle. The most logical form of propulsion to use is the linear synchronous motor (LSM), which is an implementation of the linear induction motor. Linear induction motors are discussed in section 4 of this report. LSMs allow the vehicles to negotiate both tight radius turns and inclines of up to 10%. The motors also provide superior acceleration. To use linear induction motors, no additional equipment is required on the vehicle. The only additional requirement is that powered coils be embedded along the length of the track. The alternating magnetic fields of the LSM coils then act on the Halbach arrays to propel the vehicle.

What does this all mean? It means that an InducTrack vehicle is passive. In other words, no power source to or on the vehicle is required for basic operation. The only component that requires power for operation is the LSM coils in the track. In the context of goods movement, this means InducTrack vehicles can be of very simple construction and can be made very small and light compared to the containers they carry. Since the vehicles do not contact the track while

they are moving, except briefly before and after loading, InducTrack vehicles would be both inexpensive to manufacture and long lasting.

Another advantage that the InducTrack system has is that the weight of the cargo is evenly distributed through the Halbach arrays to the track. In contrast, trucks and trains transfer the weight of their cargo through the small contact area between their wheels to multiple pressure points. The even distribution of weight and lack of major pressure points provided by the InducTrack system allows its track to be much more easily elevated than a conventional train's track. Elevating the track greatly reduces its footprint. This, when combined with the superior grade climbing and small radius curves, creates a great deal of flexibility in where the track can be put, making it an excellent choice for a congested urban environment.

### **3.3.2 Proposed Routes**

The ECCO system route that GA and CCDoTT studied which is the most like the Alameda Corridor would run down the 710 freeway from the port to the east LA rail yard. No new right of way would need to be created. This route would have two tracks. GA and CCDoTT also studied two other routes: a 4.7 mile port gateway route from the ports to the intermodal container transfer facility (ICTF) just north of the port and a 100 mile route from the ports to rail yards in Beaumont and Victorville.

### **3.3.3 Capacity**

Since InducTrack vehicles accelerate quickly and travel at speeds of up to 90 miles per hour, loading and unloading speed has the potential to create bottlenecks. The GA system uses single container vehicles to reduce those delays. An estimate of the capacity of the 710 route given by CCDoTT was 5000+ containers per day. That works out to around 1.3 million

containers per year if operating only on weekdays. The capacity estimates for the port gateway route and the Victorville/ Beaumont route are 5000+ and 10000+ containers per day, respectively.

### **3.4. Costs**

#### **3.4.1 Infrastructure Costs**

The construction cost estimate CCDoTT gave for the 710 route was \$2.4 billion. This happens to be roughly the same cost as for the Alameda Corridor. The cost per mile works out to \$120 million per mile.

#### **3.4.2 Operating and Maintenance Costs**

The operating and maintenance costs for the 710 route were estimated to be \$35.6 million annually. Again, the estimate is roughly the same as the Alameda Corridor's annual expenses. This works out to about \$29 per container based on the capacity estimates.

The estimates given by CCDoTT also included capitol amortization per container, based on 6% interest over 25 years. The per container estimate was \$104.

#### **3.4.3 Revenue Generation**

Based on the above numbers, the total cost per container is \$133. For comparison, truck transport of a container from the port to the east LA rail yard costs around \$200. From these estimates, it is evident that the GA system can compete with conventional transport methods while still generating enough revenue to pay for itself.

### **3.5. Safety and Job Concerns**

#### **3.5.1 Safety**

Overall, the GA system is very safe. First, vehicles are unmanned and controlled from a central location. This means that isolated operator errors would not likely cause safety issues. Those errors also would not be able to cause two vehicles to collide because each track section determines the speed and direction of all vehicles on it.

If there were an accident that caused the track to be blocked, there are automated pattern recognition systems designed to watch the tracks that would catch the problem and take appropriate action. If the pattern recognition systems were to miss a blockage and a loaded vehicle managed to hit something, the vehicle would likely not derail because it is partially wrapped around the track. On top of that, if the blockage happened to be ablaze, the vehicle would not provide any fuel for the fire to burn.

#### **3.5.2 Jobs**

General Atomics is a San Diego based company, so any jobs created for the construction of the system would likely be in California. Furthermore, since transportation of track sections would be a large logistics issue, any jobs associated with the prefabrication of track sections would likely be created locally.

### **3.6. Pollution**

There are absolutely no emissions directly caused by the vehicles. Since only electricity is required for operation, the opportunity exists to utilize renewable energy sources in the form of wind or solar power, as well as operating using currently available sources. This system has great potential to help LA reduce its air pollution or at least bring it under control.

Also of concern is noise pollution. Though there are no objective studies of how much

noise the GA system generates, the system has great potential to reduce noise pollution by removing the need for short haul trucks traveling from the ports to the ICTF just north of the ports. This also would eliminate the road wear that those trucks cause.

### **3.7. Implementation Timeframe**

CCDoTT estimated that the port gateway route could be completed in 4 years. Based on the 710 route's additional length, it would probably require slightly more time for planning and construction. The 710 route would, as a result, likely take somewhere from 4 to 6 years to complete.

## Section 4

### Transrapid Maglev

#### 4.1. Overview

Transrapid is another type of maglev system that uses a slightly different levitation method than the General Atomics version. The Center for Commercial Deployment of Transportation Technologies (CCDoTT) and Transrapid engineers have prepared a few studies exploring the technical, economical, and institutional feasibility of a cargo maglev system. Transrapid has only made and tested passenger maglev systems, so the costs are only estimates. However, these are reliable estimates based on “off-the-shelf” technology that has already been implemented commercially in Shanghai, China. It is important to keep in mind that Transrapid technology is untested for this application and based on estimates while the General Atomics maglev system has been tested with a fully loaded container and is further developed for this application.

Preliminary analysis by Transrapid engineers shows that each car can carry one or two standard forty foot containers weighing a maximum of 67,200 lbs. The cars can be attached together to form small trains which can leave a station as quickly as one every three minutes. The yearly capacity is estimated to be around 5.8 million containers per year. The infrastructure cost is about the same as building roads at a per mile cost of around \$120 million dollars. The largest benefit of this system is in the operating cost which the CCDoTT estimates to be less than half of the operating cost of transporting a container by truck and a third of the cost of a train at \$150 per container. Maglev also looks very attractive because it is pollution free along its route and only requires electricity to operate.

### 4.3. Technical description

The Transrapid maglev system operates using two sets of magnets to levitate the vehicle off of the track. As shown in Figure 4.1, there are guidance magnets on each side which keep the vehicle stable along the track. The main support magnets are standard electromagnets mounted on the bottom of the car. These support magnets levitate the car  $\frac{3}{8}$  of an inch above the track. This maglev system can remain levitating at any speed, even while stopped.

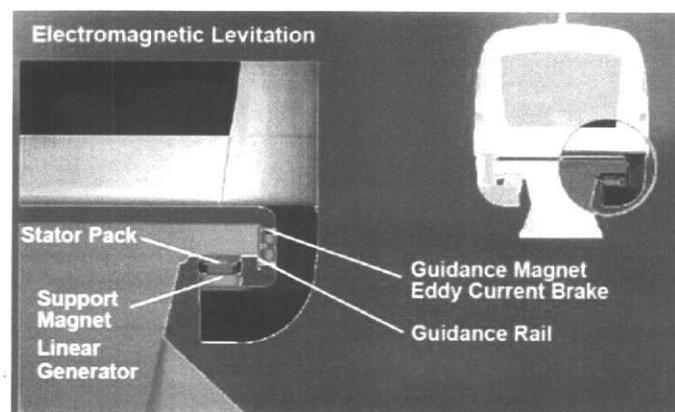
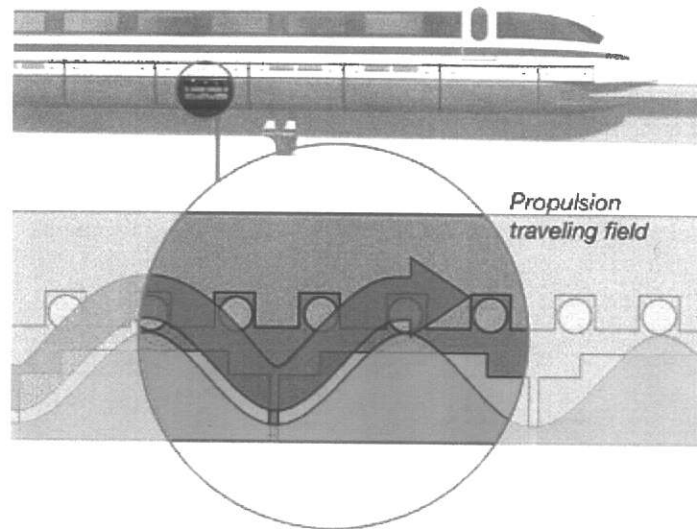


Figure 4.1: Depiction of the magnet placement on the Transrapid system (CCDoTT)

The support magnets also propel the system forward through the use of a linear induction motor. A linear induction motor is basically a typical rotating motor cut, unrolled, and mounted on a track. When alternating current is put through the coils, a horizontal magnetic force is produced which pushes against the support magnets and propels the vehicle forward as shown in Figure 4.2 on the following page.



*Figure 4.2: The propulsion field created by an alternating current along a stretched out motor (CCDoTT)*

Only the electromagnets reside in each car. The coils are mounted in the guide way. This serves two purposes: cutting down on weight and cost of each vehicle as half of the motor is mounted on the guide way, not on the vehicle and keeping the high current along the guide way and not going through each car. Keeping the current flowing along the guide way does not mean that the entire guide way is electrically charged all the time. As depicted in Figure 4.3 on the following page, only the section of the track on which the vehicle is traveling is switched on. This saves on electricity costs and is also less dangerous. Since propulsion is controlled by the track, more power can be added when the track is going up a grade or when it detects extra weight on the vehicle. A fully loaded cargo vehicle is estimated to move at speeds around 90 mph (CCDoTT).



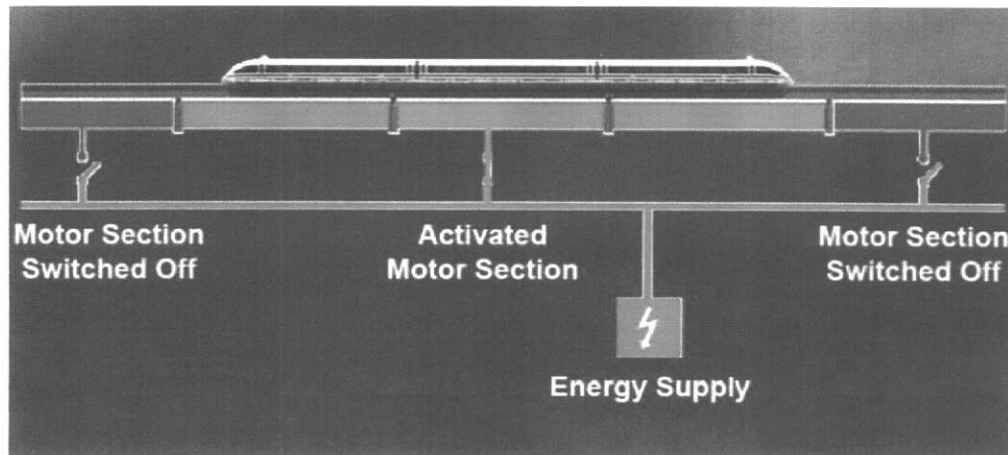


Figure 4.3: The activated and switched motor portions (CCDoTT)

The vehicles are composed of cars that can be attached in lengths ranging from two sections to ten sections. A longer vehicle can obviously carry more containers per trip. Because each car is levitating, the increased length of the train should not impede the overall speed.

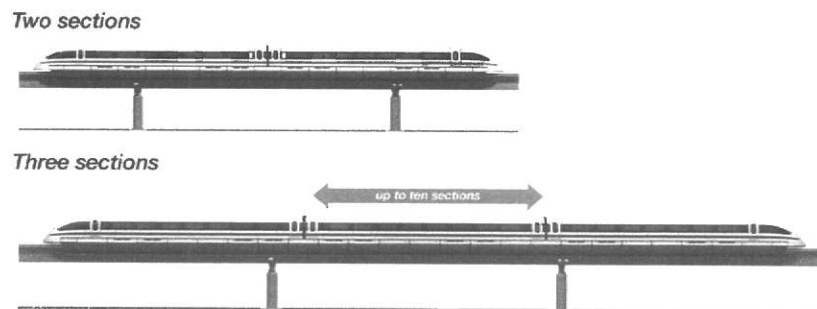


Figure 4.4: The arrangement of cars is shown. Up to eight sections can be added between each end car ([www.transrapid.de](http://www.transrapid.de))

Each car can carry one 40 foot container or two 20 foot containers in either a single-stack or double-stack configuration. The limiting factor is weight, as the cars can support a maximum weight of 67,200 lbs. The capacity of a maglev system is shown in the table below:

Operating Configuration	Length	Containers	
		Per Day	Per Year
Single-stack	20 sections	8,000	2,920,000
Double-stack	20 sections	16,000	5,840,000

Table 4.1: Capacity of Transrapid system assuming the system is running every 3 minutes for 20 hours a day with a max weight of 67,200lbs

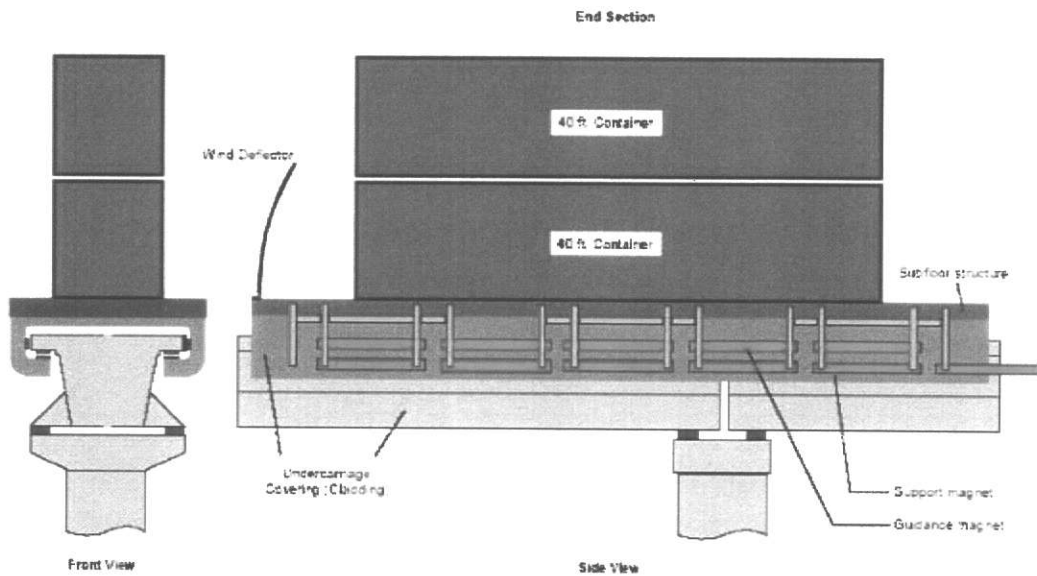


Figure 4.5: Showing a double stack configuration (CCDoTT)

The guide-way for the maglev system is made out of concrete and steel and can be on the ground or elevated for optimal placement. The three types of guide-ways are shown in Figure 4.6. Type I is useful for extremely low impact placement across roads, farmland, and the like because it requires only enough space for the supports which are a little over 100 feet apart. Type II and type III are used mainly for at-grade applications or when the track needs to go up a hill.

The Transrapid maglev can handle grades of up to 10% which is more than a diesel train can handle. Track switching is done with a flexible metal beam. This provides a semi-continuous guide way for the vehicle so it can switch tracks at high speeds and allows the motor to be mounted on the guide-way more easily.

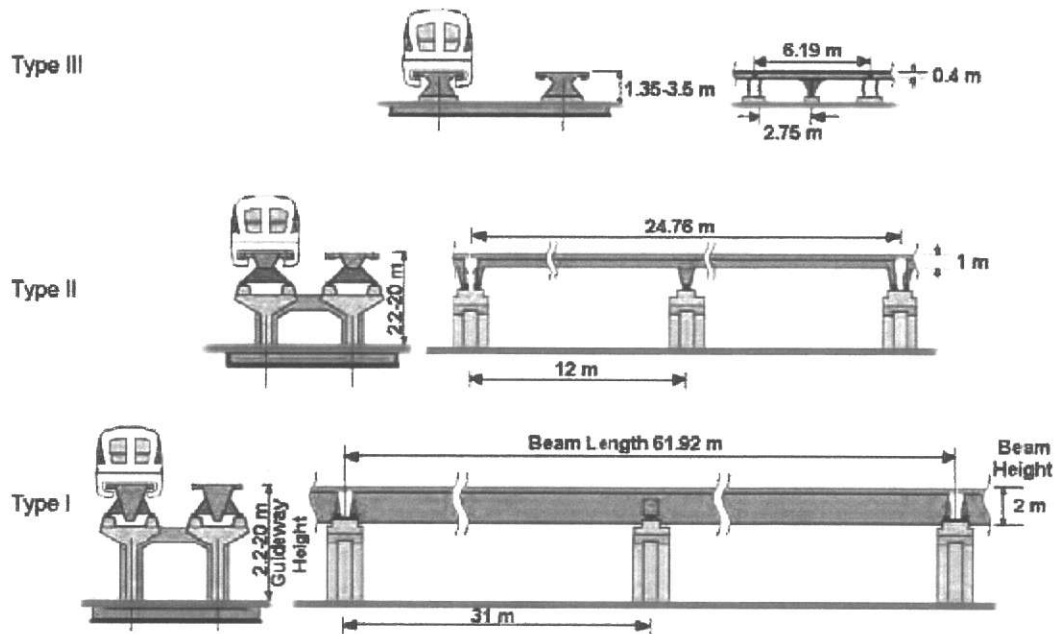


Figure 4.6: Three types of maglev tracks ([www.transrapid.de](http://www.transrapid.de))

The maglev system is controlled by a central operational control system. This system automatically controls the location and speed of each vehicle on the track. The vehicles communicate with the control system via radio waves. Thus antenna masts need to be placed along the guide way at regular intervals. Operators can monitor the vehicles location through the computer system or with video cameras placed along the track. In case of an emergency, operators will know about it and be able to take necessary safety measures. The benefit of having a centralized control system is that each vehicle does not need an operator, meaning less money is spent on personnel, and the chance of human error is reduced.

CCDoTT and Transrapid have developed a preliminary plan for a terminal for each end of the maglev track. With this plan, vehicles would arrive at the terminal and be unloaded into a container storage and retrieval system. This system would route the containers to a conveyor system which runs along the waterfront to allow cranes to load the ships in the traditional fashion. Containers can also be stored in the central area or off to the side. The maglev trains would come in on one side to unload and then loop around to the other side to be loaded with new containers. This provides a fast and efficient way to unload the entire train at once, speeding up the arrival and departure of containers. A drawing of this concept is shown below:

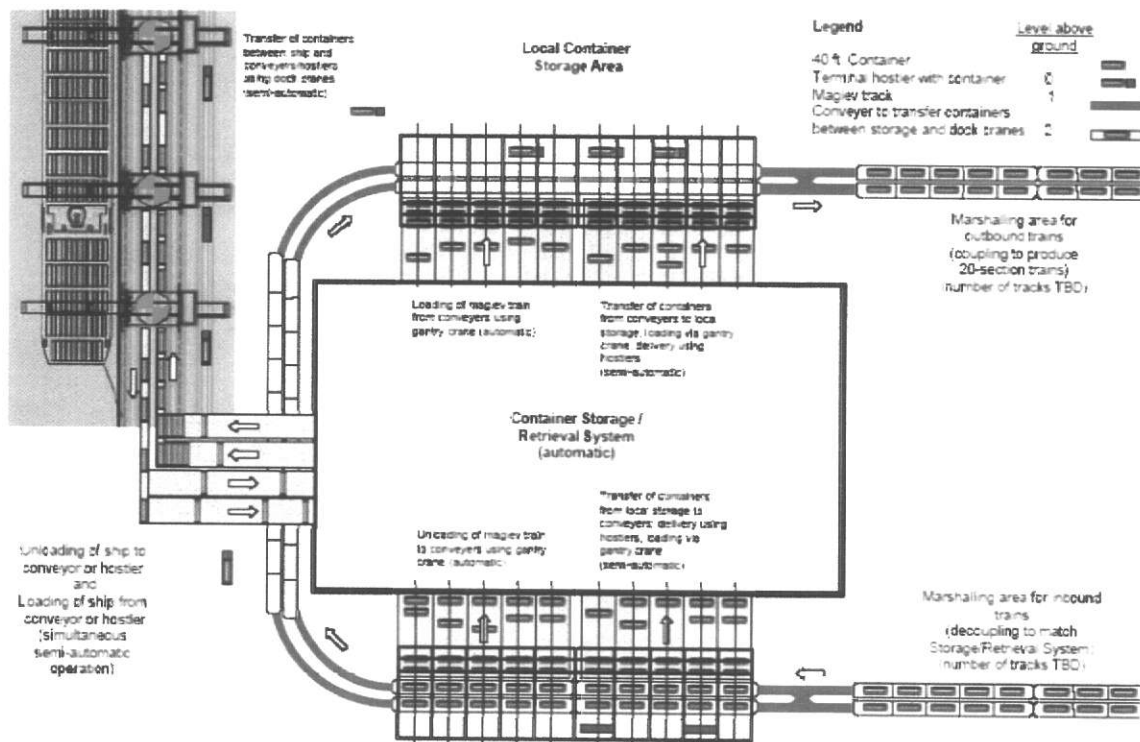


Figure 4.7: Preliminary concept for a port terminal (CCDoTT)

#### 4.4. Costs

The cost of maglev technology has decreased as the technology has become more developed. A Transrapid freight system is estimated to cost no more than traditional methods of transporting containers i.e. trucks and trains. The costs are broken up in to the following categories: infrastructure, operations, and maintenance.

##### 4.4.1 Infrastructure

Infrastructure costs involve building the guide way, switching stations, and the installation of antenna masts for communication (Figure 4.8). The guide way for a theoretical freight train would need to be slightly wider and thicker to handle the large weight of the containers. However, this is offset by the ability to simplify the design of the guide way because the freight train will be traveling at a third the speed of a passenger train.

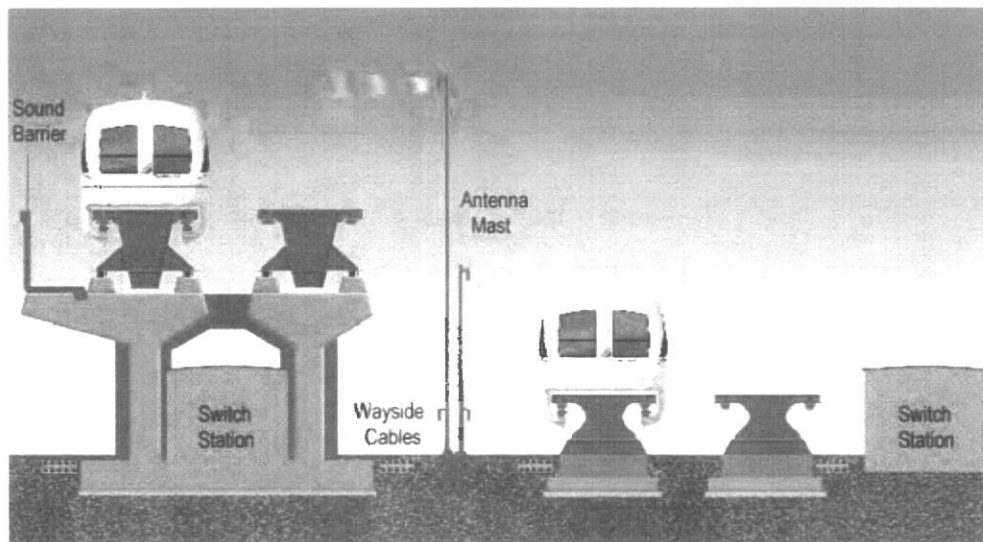


Figure 4.8: View of necessary infrastructure for a Transrapid maglev system ([www.transrapid.de](http://www.transrapid.de))

The following graph shows the costs of expanding existing train tracks and truck roads compared to building a new maglev infrastructure. The rail cost is based on laying another rail line that would require an Alameda Corridor like structure with over-crossings as well as an elevated track to go above existing infrastructure. The truck cost is estimated from an elevated truck-only expressway above the 710 freeway. All of these numbers are comparable; however, the relative capacities of each system are unknown. The \$120 million per mile for a maglev system does not include the freight carriage cost. Freight carriages would be slightly larger to accommodate a full size container but would also be shorter. Human amenities such as seats and lights and other comforts would not be installed on freight carriages, further reducing costs. This cost would be less than the cost of passenger carriages due to the simplicity of the design and would amount to \$5 million per carriage. The additional expense for enough freight carriages to transport a volume of 5 million containers per year is \$5 billion (CCDoTT).

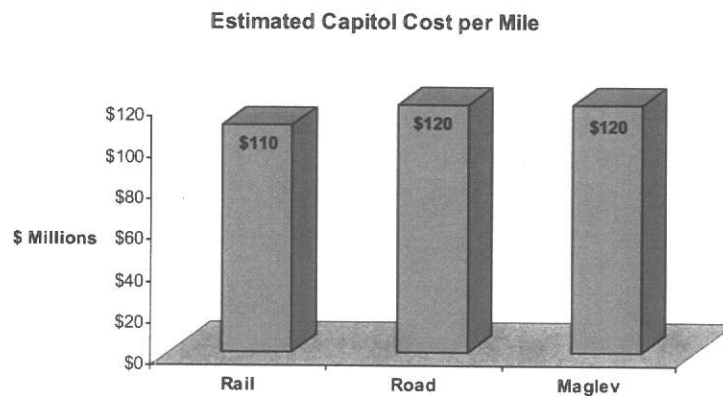


Figure 4.9: Estimate infrastructure cost comparison between trains, trucks, and maglev (CCDoTT)

## 4.2 Operations

The operating cost of a maglev system is primarily the cost of electricity to move the containers and the cost of personnel. The Transrapid maglev system requires very few personnel to operate. The system is entirely automated and personnel would only be needed for the operational control center. The total cost per container, assuming a double-stack configuration, is around \$150 which is less than costs quoted by commercial carriers for trucks and trains. This is shown in Figure 4.10 below.

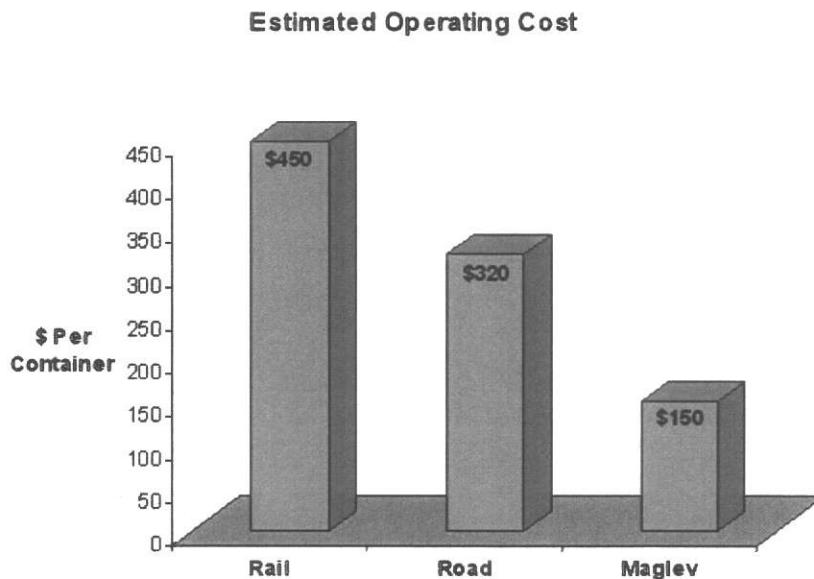


Figure 4.10: Estimate operating cost per container for rail, road, and maglev

## 4.3 Maintenance

The maintenance costs of a freight maglev system are comparable to the maintenance costs of a passenger system. There are no major differences in duties of the maintenance personnel, only the need for more of them to handle more vehicles. Additional maintenance tracks would be necessary because the maintenance vehicles use the same track as the train. A comparison of the cost of a passenger maglev system versus a high speed electric train is

presented in Figure 4.11. Maintenance costs of conventional trains and trucks are unavailable for comparison.

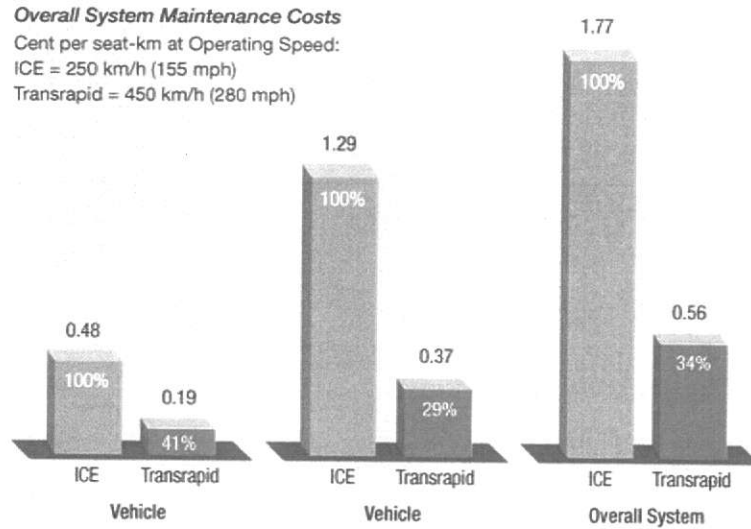


Figure 4.11: Overall system maintenance costs of a passenger maglev system versus a high speed electric train per seat

An important cost to consider when planning infrastructure is land use. A maglev system has an extremely low land use when it is elevated above the ground. Compared to a German ICE high speed train this land use is very small (Figure 4.12). Also shown on the following page is a picture of the Transrapid maglev system in China running between the two sides of a freeway (Figure 4.13).

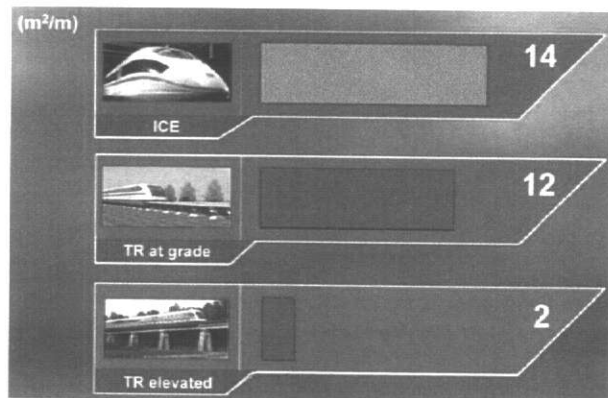
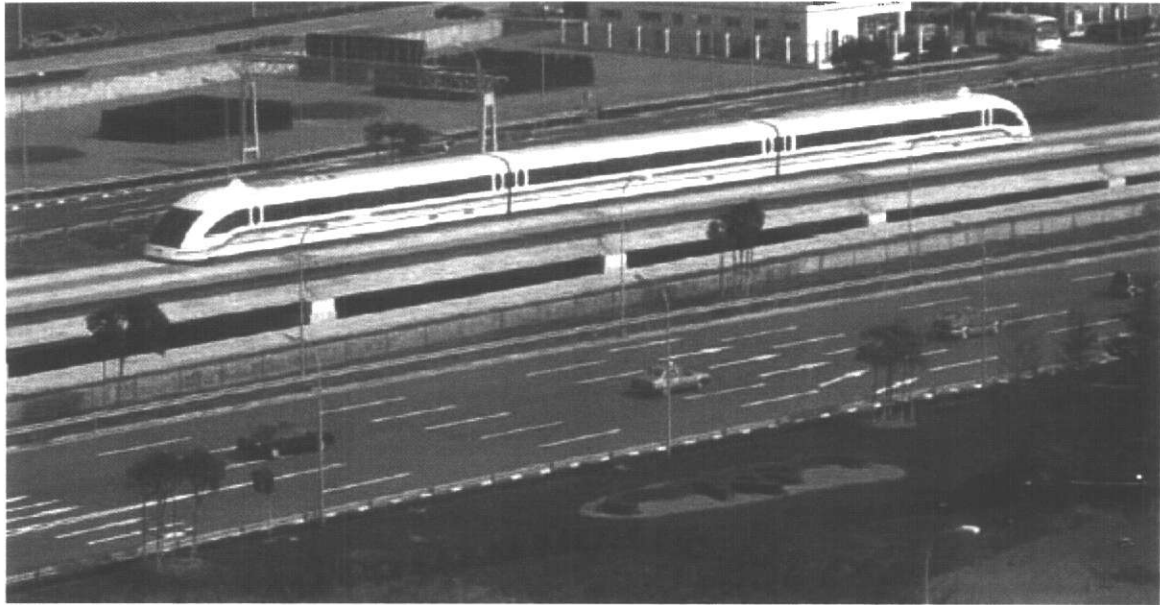


Figure 4.12: Land use comparison between a high speed train and the two guide way configurations of maglev trains





*Figure 4.13: A Transrapid maglev vehicle in China on an elevated guide way in the median of a freeway, showing that land use is very small.*

#### **4.5. Safety concerns**

The Transrapid maglev system is very safe. It is almost impossible to derail a Transrapid vehicle because the vehicle is wrapped around the track. Crashes are also unlikely because the proposed freight maglev track is a one way track and the vehicles are computer controlled. For a crash to occur a vehicle would have to come to a complete stop and reverse direction. This scenario is highly unlikely. Another safety feature is that the vehicles are propelled forward by track sections that are switched on one at a time. If two vehicles are on the same track section then they have to be going the same direction. If power fails and the backup batteries fail as well, the maglev car will touch down on rails on the underside of the carriage and coast to a stop. Without power the maglev cannot move forward and cannot lose control and crash.

Electricity for the maglev system is carried in heavily shielded and grounded cables which run along the guide way and are not out in the open like electric train wires, so there is no danger of electrocution. Since a maglev system operates using magnets, the magnetic field strength might be a concern. However, even though the magnetic field produced by a maglev is

strong enough to propel the vehicles, it is weak compared to many other common methods of transportation as shown below.

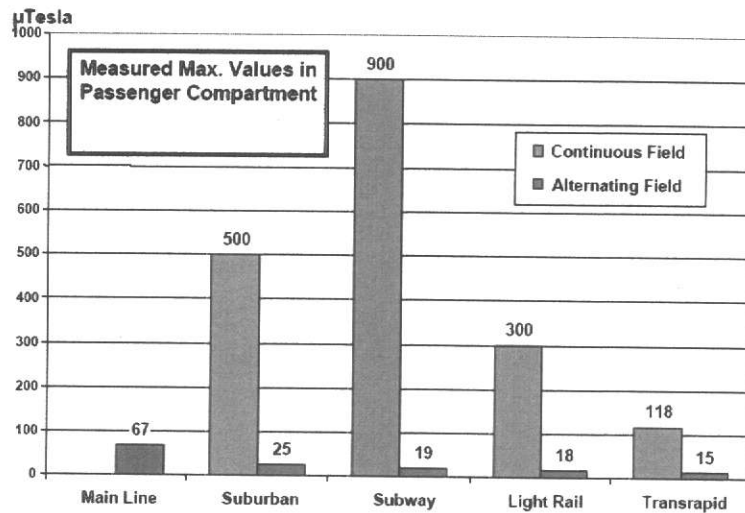


Figure 4.14: Comparable magnetic field strengths

Throughout the few years that the Transrapid maglev has been operational, both commercially in China and on the test track in Germany, there have been two reported accidents. In China there was an electrical malfunction on board one of the maglev vehicles. This was a small matter and since maglevs do not run on combustible fuel there was no danger of an explosion. The second accident involving maglevs was entirely caused by human error and took place on the test track in Germany when a train hit a maintenance vehicle. The maintenance vehicle was left on the track by maintenance personnel. Maintenance vehicles are not tracked by the operations computer, so it was essentially invisible to the computer. However, by looking out the window, the operator should have seen the maintenance vehicle on the track and stopped the vehicle. Unfortunately, this did not happen. While the maglev vehicle was damaged, it was not derailed, proving that derailment is virtually impossible on the Transrapid track.

As of June of 2006 the Transrapid maglev in China has served over 7 million passengers. The system is extremely reliable and has an availability rating of 99.92% (www.transrapid.de). A freight maglev system would have a similar reliability as a passenger system and the China maglev have proven the reliability of Transrapid's design.

#### 4.6. Pollution

The largest benefit of a maglev system is that there is no air pollution along its route. The maglev is powered entirely by electricity which is generated efficiently at a power plant. There is, however, noise pollution. As shown in the tables below, the noise pollution is comparable to a gas lawn mower from 50 feet away.

Vehicle Speed	Distance from Track Centerline
	100 feet
60 mph	72 dB(A)
90 mph	72 dB(A)
125 mph	77 dB(A)

Source: FRA Noise Characteristics of the Transrapid TR08 Maglev System, July 2002

Table 4.2: Noise pollution for a maglev 100 feet away

Source	Noise Level
Commercial Jet Takeoff (near runway)	120 dB(A)
Ambulance Siren (100 feet)	95 dB(A)
Construction Dump Truck (at sidewalk)	95 dB(A)
Diesel City Bus (at sidewalk)	92 dB(A)
Gas Lawn Mower (100 feet)	79 dB(A)
Inside Sports Car, 50 mph	74 dB(A)
Car Pass-by (50 feet)	65 dB(A)

Table 4.3: Common urban noise for comparison to maglevs

This noise can be reduce by about 10dBA (halving the perceived noise) by installing noise barriers on either side of the track. This might be necessary because according to a study published in the Journal of the Acoustical Society of America, maglevs make a more annoying

noise than trains or trucks regardless of the volume of the noise. Figure 4.15 contains the study's conclusion that maglevs are more annoying. These ratings were given by a group of test subjects exposed to the respective noises. However, the study did say that this may be due to the fact that people are not familiar with the noise of maglevs and that over time people may get used to maglev noise and rate it as less annoying.

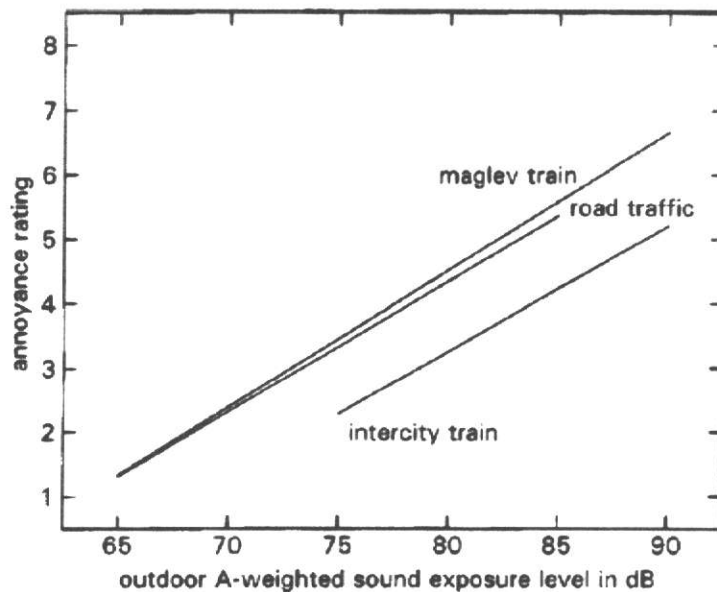


Figure 4.15: Annoyance ratings of a maglev train, road traffic, and intercity train heard behind a close window

#### 4.7. Timeframe

Transrapid has the technology to build a passenger maglev system, however, a freight maglev system is only theoretical. Transrapid does not currently have any freight-carrying test vehicles. More research needs to be done on the challenges of modifying the passenger system for freight. A ballpark number for the time frame is 5-10 years.

A Transrapid freight maglev system is a pollution free transportation system that is close to reality. Although a freight system has yet to be built and tested, the passenger version in China

has proven itself as a reliable, economical technology. Studies done by the CCDoTT and Transrapid estimated costs and effects of a freight maglev system. They showed that this system would be the cost the same or less in terms of infrastructure, operating cost, and land use compared to transportation systems used today. They also show that pollution would be lessened and capacity would be increased. Transrapid maglev technology seems to be a great alternative technology despite the annoying noise and high infrastructure cost.

A summary of Transrapid freight system capabilities, provided in the appendix as Table 4.2, was prepared by CCDoTT and Transrapid. It is important to note that the trip times are for routes that are five times longer than the proposed route of 20 miles along the Alameda corridor.

## Section 5

### Skytech Transportation Framework

#### 5.1. Overview

Skytech Transportation Framework (STF) is a new technology which decreases cost and transit time dramatically. It also decreases security vulnerabilities and pollution problems associated with intermodal freight shipments. It also provides many job opportunities. Nevertheless, this technology is not recommended because the capacity per day is very low. Also, the fact that in this system tractor-trailers are transported with the containers is redundant and cumbersome. This is not the most effective way to transport containers.

#### 5.2. History

The Skytech Transportation Framework uses linear induction motor technology (LIM) to move containers and even whole tractor-trailers down monorail like tracks.

The history of LIM can be traced back to 1840. It was invented by Charles Wheatstone at King's College in London, but it was too inefficient to be used until the late 1940s when Professor Eric Laithwaite of Imperial College in London developed the first efficient working model. In later decades, this technology was been developed into many applications such as maglev propulsion and roller coasters. Now, Skytech Transportation Framework is the latest application of LIM.

#### 5.3. Technical Description

A LIM (Fig.5.2) is basically a traditional AC induction motor (Fig.5.1) laid out flat. Instead of producing rotary force like a traditional AC motor, it produces linear force along its length. Although only the shape and the method it uses to produce force is changed, there are

several advantages over traditional AC motors: no moving parts, silent operation, reduced maintenance, compact size, and ease of control and installation. (Force Engineering Ltd 1997)

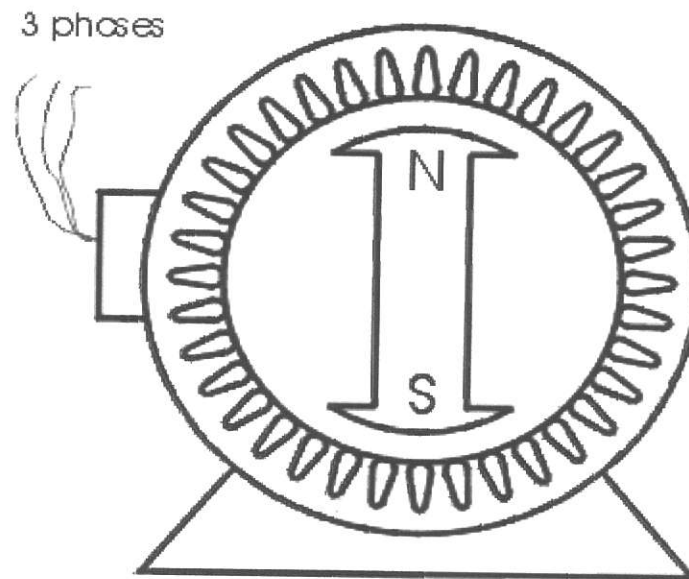


Figure 5.1: Traditional AC motor with a magnet rotating around inside the motor.

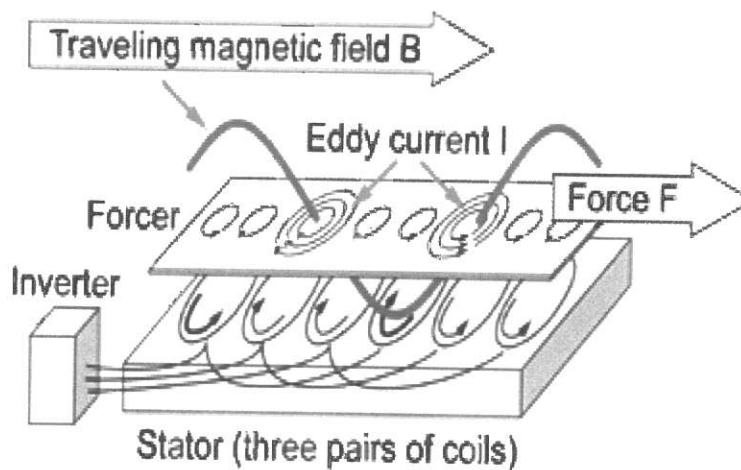


Figure 5.2: In a linear induction motor force is produced along the length and there are no moving parts.

STF is a 50-foot high structure using LIM to pull containers and tractor-trailers both above and below its elevated tracks. On the bottom the containers levitate reducing the energy

required to move them. The containers move on shuttles that are propelled by LIM. Skytech calculates that it can get a 90,000 pound container moving at a speed of 70 miles per hour.

### **5.3.1 Efficiency**

Skytech Transportation Framework's capacity is 1000 containers per day. This technology allows at least a 50% reduction in container transfer times and costs. There is also a 25% to 60% reduction in congestion and pollution. Freight handling will be improved by 60%-80%; safety and security will be improved by 25%-40%; there will be a reduction in equipment maintenance costs of 25%-35%; and last but not least, there is 10%-15% increase in carrier margins. (Skytech Transportation)

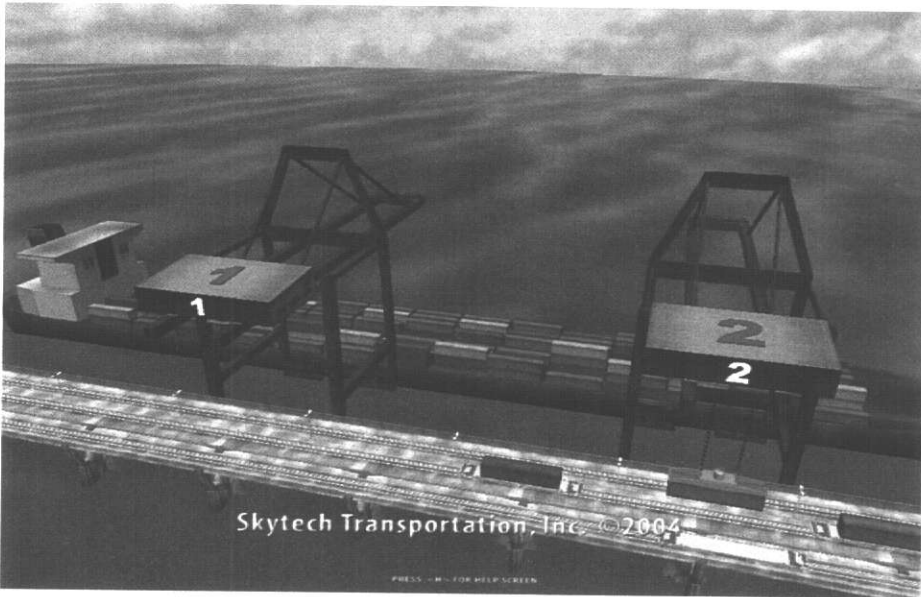
### **5.3.2 Pros and Cons**

The advantages of Skytech Transportation are lowering operation costs, reducing pollution, increasing efficiency, and saving energy. On the other hand, the disadvantages are long implement time-frame, small capacity, high construction cost, and the unproven nature of the technology.



**5.4.1 Operating Procedure**

First Containers will be unloaded by elevator from the ship and placed on the shuttle.



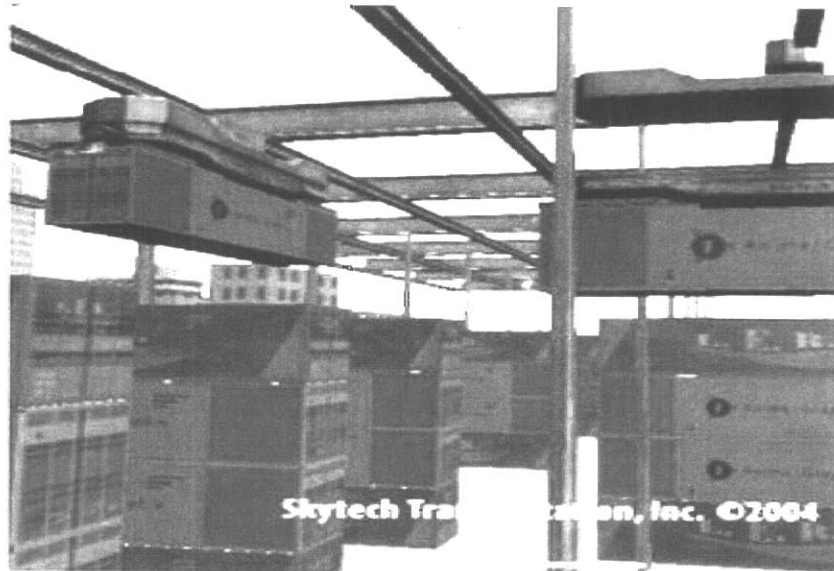
*Figure 5.3: Elevator unloading ship.*

Then containers would be transferred by the shuttle to outside of the structure and later picked up by another over-hang shuttle and moved inside.



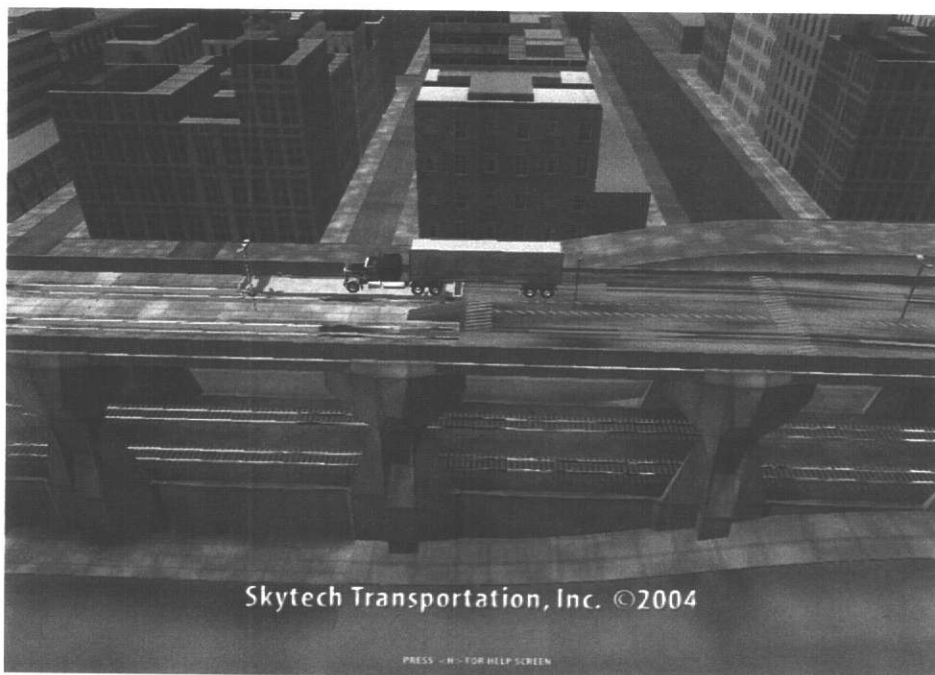
*Figure 5.4: Transfer from loading shuttle to over-hang shuttle.*

Containers inside the structure would then be unloaded and wait to be transported by tractor-trailers.



*Figure 5.5: Container storage.*

Then tractor-trailers with containers will be transported by the LIM powered shuttle on the track.



*Figure 5.6: Tractor-trailer on LIM-powered shuttle.*

### **5.4.2 Construction Cost**

The Skytech Transportation Project is divided into three phases: Phase 1: Proof-of-Technology Demonstration, Phase 2: Prototype Project, and Phase 3: Full Project Operation.

Phase 1 is the proof-of-technology demonstration. This phase demonstrates how the shuttle is propelled by LIM over 4000 feet of reactive plates equipped on the track. The cost of this phase \$1 million.

Phase 2 is the prototype project. This phase builds a one mile long and 51 foot high framework to operate LIM powered shuttle. It also demonstrates the under-hung and over-hang modes of shuttle. The cost of this phase is \$22 million.

The last phase is full project operation. This extends the one mile framework from Phase 2 and completes the junction between the Port of Long Beach/LA and Downtown Railroad Yard Center. The cost of this is \$800 million-\$1 billion. (Skytech 2004)

### **5.4.3 Operation Cost**

The Skytech Transportation Framework costs \$0.47 per mile per container whereas the existing operation costs \$1.15 per mile per container. This is a 59% reduction in cost.

### **5.5. Jobs and safety**

The Skytech Transportation Framework would not affect job opportunities for workers. On top of that, it is estimated to generate 500 jobs. This system is safely isolated from the public. There would be no public exposure that could lead to safety problems. On the other hand, STF is, like maglev systems, virtually it is impossible to derail because it is wrapped around the track.

## **5.6. Pollution**

Skytech Transportation is nearly pollution free. There is no noise pollution because of the silent operation of LIM. There is also no air pollution because of no emission of exhausts like CO<sub>2</sub> and NO<sub>x</sub>.

## **5.7. Implementation Time-frame**

The Skytech Transportation Project is divided into three phases of implementation. They are Phase 1: Proof-of-Technology Demonstration, Phase 2: Prototype Project, and Phase 3: Full Project Operation.

Phase 1 is the proof-of-technology demonstration. This phase demonstrates how the shuttles are propelled by LIM over 4000 feet of reactive plates mounted on the track. The construction time is one year.

Phase 2 is the prototype project. This phase builds a one mile long and 51 foot high framework to operate LIM powered shuttles. It also demonstrates the under-hung and over-hang modes of shuttle. The construction time is two years.

The last phase is full project operation. This extends the one mile framework from Phase 2 and completes the junction between Port of Long Beach/LA and Downtown Railroad Yard Center. The construction time is 25 years.

## **5.8. Benefit Summary Table**

For example, while it would take a truck two hours to transport a container across town, it would only take a Skytech shuttle twenty minutes, and it would cost one third as much.

	Transfer Time	Cost per Container	Cross-town Trucks per Year
Existing Condition	2 hours	\$200	1,500,000
STS Framework	20 mins	\$70	0

	Tons Year Co	Tons Year NOX
Existing Condition	1,000	5380
STS Framework	0	0

*Table 5.1*

	Yard Movement Time
Existing Condition	15-90mins
STS Framework	1-3mins

*Table 5.2: Yard movement time is the time required to locate, lift, stack, and position containers.*

## Section 6

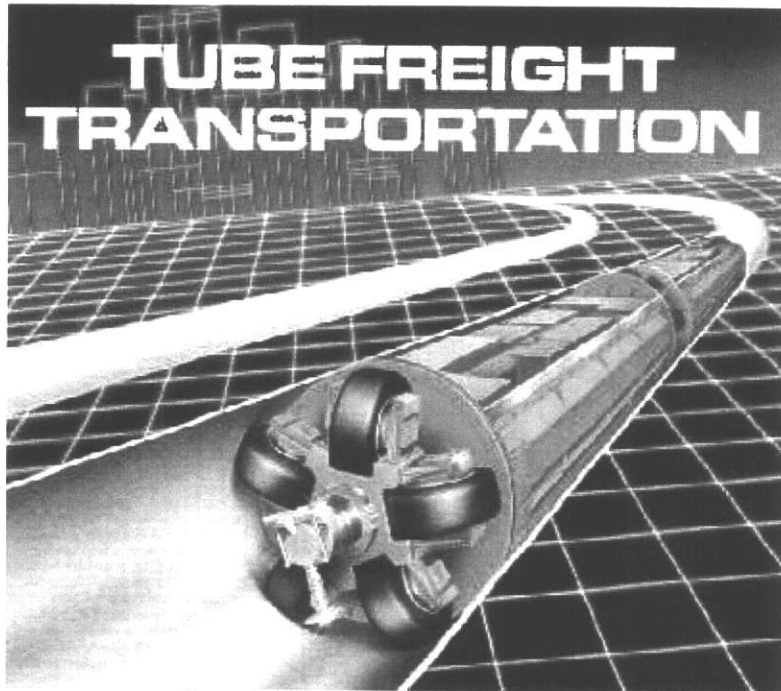


Image courtesy of William Vandersteel

### 6.1. Overview

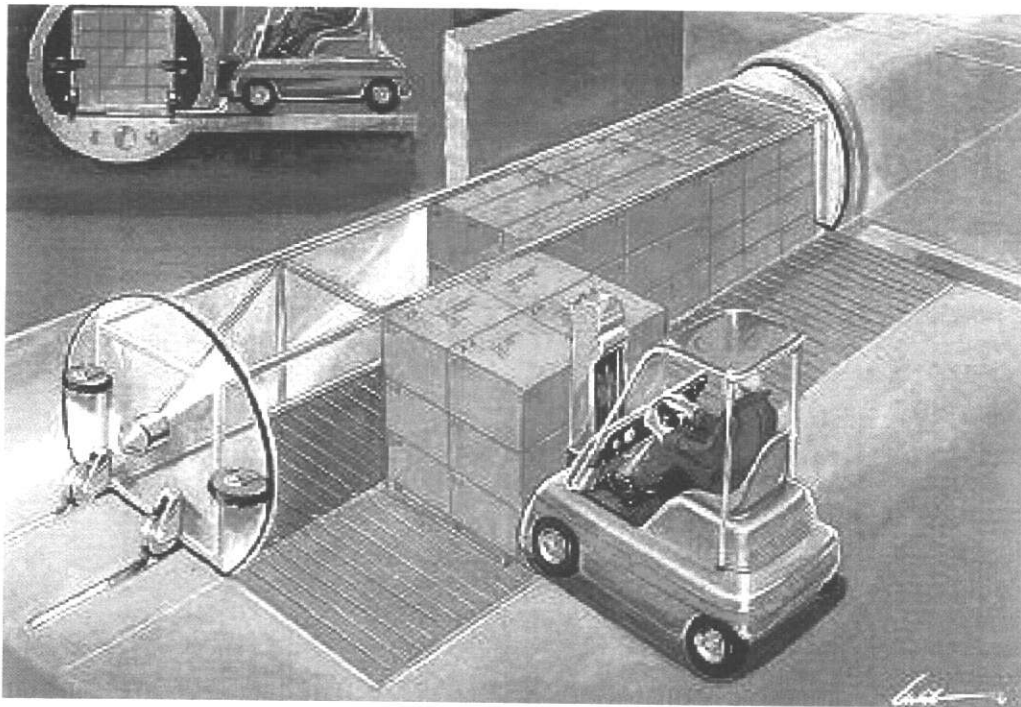
The tube freight transportation system is designed to be an automated, subterranean transport system that uses linear induction technology to move cargo through tubes. At this point, the untested nature, along with the scale of the container movement make it an unfeasible mode of transportation for the Ports of Los Angeles and Long Beach.

### 6.2. History

The specific use of linear induction technology to propel capsules through a pipeline is a completely new and untested idea. The general idea of using pipelines to move freight is nothing new, however, as tunnel transportation has been extensively used in the past, particularly in coal mines. There have also been smaller scale tube transportation systems built such as the systems built during World War II to carry sensitive documents, but these were mere inches in diameter (Vandersteel).

## 6.2. Technical description

The tube freight system is designed to transport cargo in a subterranean tube. As outlined in a report by Lawrence Vance and Milton K. Mills, the tubes are made of concrete and are 2 meters in diameter, very much like common sewage or water pipes. Within these pipes are steel rails, similar to those used in railroad construction, which contact the rubber tires of the capsules carrying the cargo. The capsules are cylindrical tubes that can carry about 11.3 cubic meters of cargo, with a maximum load weight of eight metric tons. They are also specially fitted to accommodate palette freight, with each capsule capable of carrying up to five palette loads. Forklifts would do the loading and unloading initially, but there are currently plans to develop an automated system, which would increase the efficiency of the system.



*Figure 6.1 The manual loading and unloading of the Tube Freight (Vance).*

While the size of the capsules is ideal for transportation of freight through tubes, a number of problems arise from the scale of the vessels. The design of the tube freight system would allow for the replacement of the trucks, but not the trains. From the perspective of the Port, the trucks only account for 33% of the cargo transported from the Port to the rail yard and account for only 23% of the total traffic leaving the port. This system would thus be an effective supplement for the trafficking of the cargo leaving the port, but would fail to improve upon the current system that accounts for the majority of cargo transport from the port, the trains. However, the replacement of the trucks does provide for a number of safety improvements, which will be discussed later in the report.

The size of the capsules also eliminates the possibility of a smooth transfer of freight from ships or trains to the tubes. The twenty and forty foot intermodal containers that are used at the port are far too large to be transported through the tubes, and would subsequently need to be unpacked and moved into the tube capsules one palette-load at a time. The fact that the cargo would need to be unpacked at the port, placed into tube capsules and then unpacked and placed into a container again at the rail yards makes this system unfeasible. In a joint study conducted by the Texas Transportation Institute and Texas A&M University, the extra handling made necessary by the relatively small size of the tubes and capsules was described as a “significant barrier to project feasibility” (Roop). A seemingly simple solution would be to increase the size of the tubes and capsules in order to make the intermodal transfer of cargo more feasible. However, in doing this, the construction cost of the tube construction would rise exponentially, making the infrastructure costs unfeasible.



#### **6.4. Efficiency**

The efficiency of the freight tube system cannot be adapted to the 20 and 40-foot containers that are used to transport cargo from the Port to the rail yards, as the capsules are on a completely different scale from the standard containers. Additionally, the theoretical nature of the system makes estimating the maximum carrying capacity very difficult.

There are a number of variables that are difficult to estimate, and the estimates that are provided differ a great deal. The matter is further complicated by the fact that many of the prospective numbers are provided by people with a vested interest in the implementation of tube freight. One of the variables unknown about the theoretical system is the speed with which the capsules will travel. In two separate reports on the feasibility of the tube freight system, the speed is projected at around 27 mph in one report and 60 mph in another (Vandersteel, Vance). Clearly, this difference represents a substantial discrepancy in the total productivity of the system.

The rate at which the capsules can be processed is another limiting factor in the efficiency of the system. Increasing the speed that the capsules are traveling will not increase the efficiency if the freight cannot be unloaded in a timely manner. There will simply be a logjam of filled containers arriving from the Port that have to wait to be unloaded. Obviously, the theoretical automated capsule loading and unloading mechanism would further increase the efficiency of the system.

#### **6.5. Costs**

The theoretical tube freight system is a high infrastructure cost, low operating and maintenance cost mode of transportation. However, the numbers proposed for the costs are ballpark estimates, as there has never been a functional linear induction tube transportation

system built. Many of the estimated costs are provided by companies or groups that have a vested interest in the implementation of the systems, which further calls into question the validity of the numbers. A couple of different independent studies have been done to investigate the feasibility of implementing such a system on a large scale, namely a study conducted at MIT in 1994 and the aforementioned study conducted by the Texas Transportation Institute and Texas A&M University done in 1998. Because the Texas study is more recent, their numbers will be used in this report.

### **6.5.1 Infrastructure**

The first step in creating the tube freight system is the creation of the tube itself. There are two different methods that can be used to create a tube: tunneling and “cut and cover”. Tunneling is the more expensive of the two and involves boring out the tunnel by working at a subterranean level, without affecting the ground above. “Cut and cover” is the process of digging the tube from ground level and then covering it up once constructed. Assuming the tube would run along the corridor, the method used would be dependent on whether the train rails could still operate during the surface construction of the tube using the “cut and cover” method. If this were impossible, it would be necessary to use the tunneling method to build the tube, because any rail interference would be disastrous to the cargo transport traffic that the system is attempting to alleviate. The only other option would be to use the “cut and cover” method adjacent to the corridor where the rails would not be affected. However, this would involve the acquisition of the land adjacent to the corridor, which would not be economically feasible when considering the difference between the costs of tunneling and “cut and cover”. With the tunneling costs estimated at \$770 per foot and the cost of the “cut and cover” estimated at \$350 per foot, the projected cost of the construction using the two methods are 81.3 million and 37 million,

respectively. The 44.3 million dollar difference is most likely a bargain when considering the cost of acquiring and the daunting task of getting right of way permission for the land adjacent to the Corridor.

The cost of the track structure within the tube was estimated using the similarities between the steel rails used to guide the tube capsules and those used in railroad construction. The estimated cost for this was set at \$100 per foot.

The cost of the linear induction motors was derived using estimates from numerous sources. The different cost estimates were normalized to a consensus average by weighting the numbers differently based on whether the source presenting the estimate would stand to benefit from the implication of a tube freight system. The final consensus was that it would cost around \$750,000 per mile of track.

Loading and unloading stations cost around 25 million dollars. This estimate includes all of the machinery needed to transport and unload the capsules at the facility, as well as provide space for the storage of cargo and capsules. This price does not reflect the implementation of the theoretical automated tube loading and unloading machinery, however.

<b>Component</b>	<b>Cost per mile</b>
Tunneling/tube	4 million
Track	500 K
Linear Induction Motors	750 K
Loading Stations	2.5 million
<b>TOTAL</b>	<b>7.75 million</b>

*Table 6.1 Estimating the construction costs of the Tube Freight. (Goff)*

As indicated by the table, the Texas study has provided an estimated cost of 7.75 million dollars per mile of tube. Again it must be stressed that the reliability of these numbers is low, as

there has never been a large scale implementation of this technology.

Finally, capsules are relatively inexpensive, costing around \$10,000 per unit. The total cost associated with capsules depends upon how many are needed to utilize the system to its maximum potential. This is perhaps the most difficult estimate to substantiate, as numerous factors need to be considered, as discussed while contemplating the efficiency of the tube system. For this report, the average of 3.1 capsules per mile will be used, as gathered from the Texas study.

### **6.5.2 Operations**

One of the benefits of the tube freight system is its low operating cost. The system is proposed as an automated system, meaning that there would be no staff required to transport the cargo or direct the capsules. Thus, operating costs would essentially be the cost of electricity required to power the linear induction motors, along with the handlers that load and unload the capsules. This cost, however, should not differ greatly from the current cost of loading and unloading containers from ships and trucks.

### **6.5.3 Maintenance**

Similar to operating costs, the tube freight system requires relatively low maintenance costs. The current estimates for maintenance place the costs at between \$20,000 and \$40,000 per mile per year (Vandersteel, Goff). In addition to the low maintenance costs annually, the infrastructure of the system has been determined to be very long-lasting, with infrequent need for replacement:

<b>Infrastructure Component</b>	<b>Average Years to Failure</b>
Propulsion and Controls	80
Tube	60
Track	55

*Table 6.2 Estimating the durability of the components of the Tube Freight. (Goff)*

#### **6.5.4 Revenue generation**

While the tube freight system would not directly generate revenue, it would effectively save money in a number of different areas. By removing trucks from the road, the system would eliminate the wear and tear on public roads caused by large trucks. It is estimated that 97% of road damage is caused by heavy trucks. In addition, the system saves money for the transportation companies by eliminating the truck driver.

#### **6.6. Jobs, safety concerns, and pollution**

As previously stated, the implementation of the tube freight system would have a negative impact on the jobs of the truckers that transport containers from the Ports to the rail yards. By eliminating the trucks, the truck drivers are simultaneously eliminated in the process.

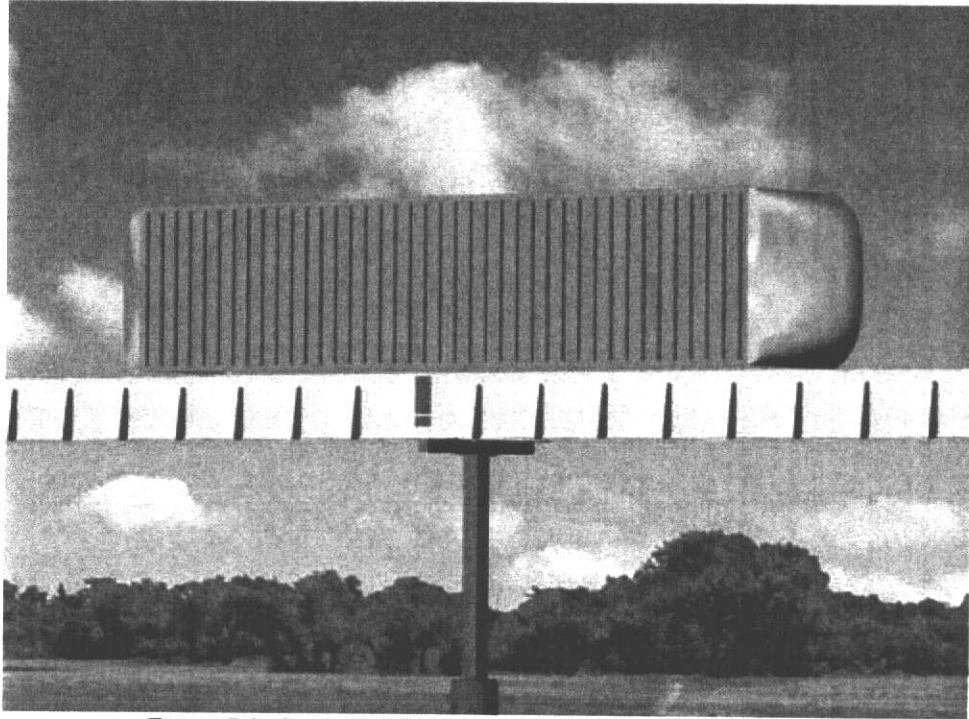
While the system poses threats to many local jobs, there are numerous benefits that go along with it, as well. By trading the trucks for the tubes, the pollution caused by the oil burning trucks along the corridor would be effectively removed. The local emission of the tube freight system is essentially zero, as it runs off of electricity. Removing the trucks from the highway would also act to reduce the traffic accidents that occur on the road between cars and large trucks. The fact that the tubes would be underground and completely removed from the public promotes an extremely safe system, in regards to the general population.

## 6.7. Timeframe

The nature of the numerous variables of the tube freight system, along with its currently unproven large-scale status, makes estimating the timeframe of implementation very difficult. Many components of the system such as the pipeline and the long track of linear induction motors have been constructed numerous times. Other parts of the system are less predictable, however. Tunneling time frames, by the very nature of tunneling, are difficult to assess, as problems can arise with unforeseen geological variations in the local terrain. Since the system has never been implemented on a large scale, it is also very difficult to estimate when all of the necessary components could be ready. How long does it take to construct all of the necessary capsules for use in the system? Could the system be economically feasible without an automated capsule loading and unloading mechanism? If not, how long would it take to engineer/construct such a mechanism? There are still far too many questions surrounding the system to be able to create an estimated time frame.

## Section 7

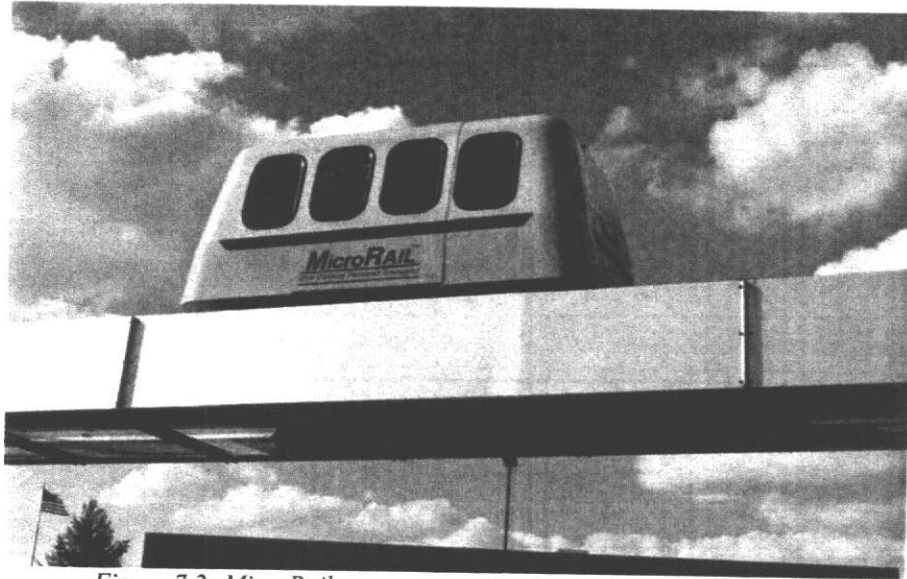
### The CargoRail System



*Figure 7.1: CargoRail flatbed loaded with a land/sea container*

#### 7.1. Overview

The CargoRail System is comprised of a set of electrically powered trams on rubber wheels that tow cargo containers along lightweight elevated rails. The trams receive power from the rails they run on, and have the capability to use battery power to drive on roads or dockside, giving them the capability to completely replace heavy trucks. The weather-proof railing system enables the trams to operate at their full speed of 75 mph regardless of conditions, twenty-four hours a day. This inexpensive system is a promising one in regard to replacing the current truck and rail system as it has a high efficiency and a relatively small timeframe for implementation, in addition to the fact that it produces no pollution.



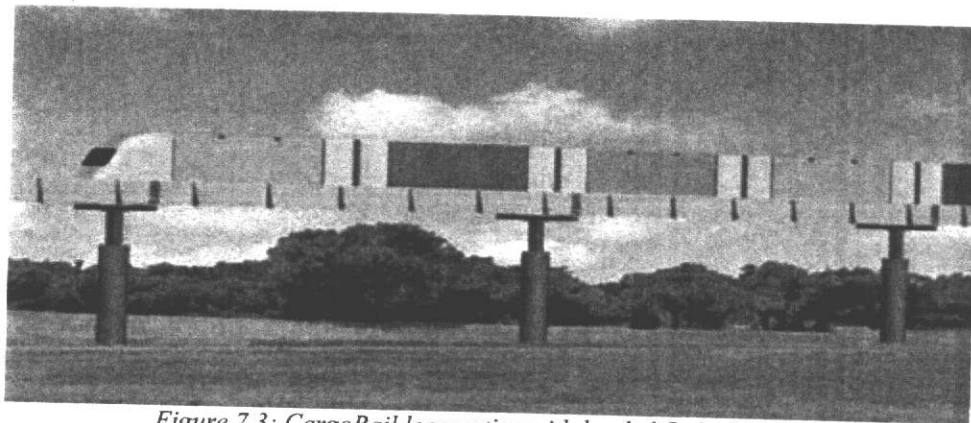
*Figure 7.2: MicroRail passenger car prototype at Forth Worth, TX*

## **7.2. Brief History**

The CargoRail system was developed by MegaRail Transportation Systems, based out of Fort Worth, Texas. MegaRail is a privately held company that was founded in 1997 with the purpose of developing and marketing advanced transportation systems using existing technology. The company has formed an industrial team with Micrin Technologies, Austin Bridge, and Clark's Precision Machines, each of which have established records and high Dun and Bradstreet ratings.

MegaRail has produced two prototypes of their passenger style tram, MicroRail, complete with a vehicle and a segment of electric guideway. The first is located at the company's home office in Forth Worth, and the second is dockside in Long Beach. The CargoRail system is simply a larger, heavier version of the MicroRail, built for cargo instead of passengers. Tests run on the prototype have confirmed that the passenger access, seating, controls and emergency exit features of the car are workable. MegaRail is in the process of acquiring funding to build a full scale test track with three vehicles.





*Figure 7.3: CargoRail locomotive with loaded flatbeds in tow*

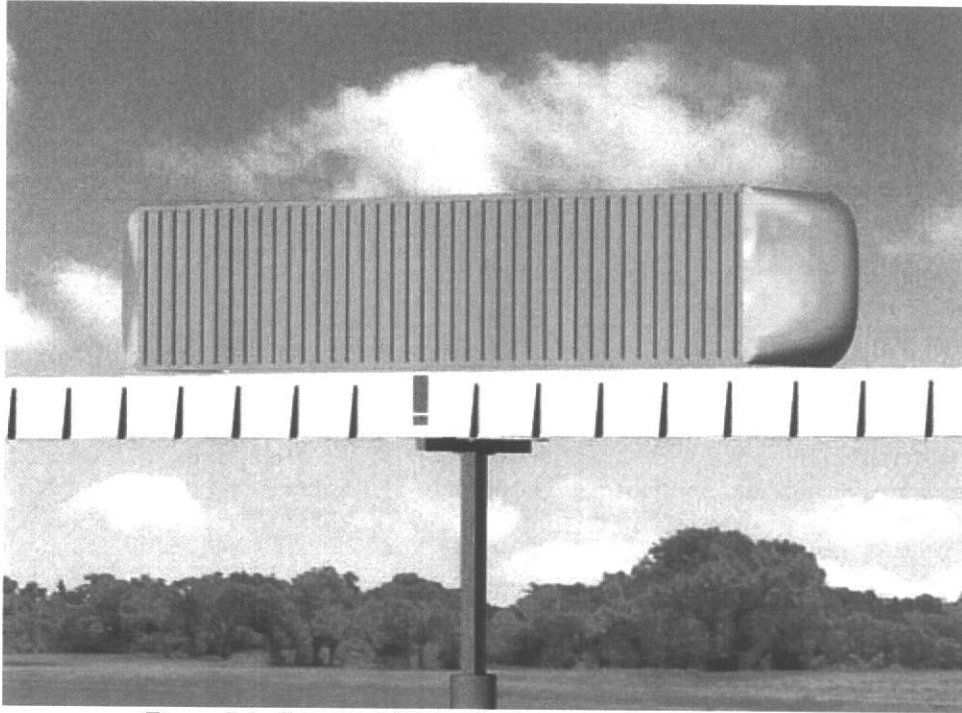
### **7.3. Technical Description**

The Cargo Rail System is an electrically powered tram line which is designed to haul cargo quickly along an elevated railway. The system has two major parts, the trams and the rails they run on. The trams are comprised of a triangular shaped locomotive with a set of flatbeds behind it, each of which are capable of holding standard land/sea cargo containers, truck trailers, or entire over-the-road truck tractors. The elevated rails that the trams run on are comprised of box structures, similar in appearance to a pair of small monorail beams, on top of support beams with concrete piers. They can be placed along either side of a highway, or to conserve space can be placed along the median of the highway, above traffic. When installed either over existent highway or railroad rights of way, the overhead structure presents minimal visual obstruction.

The trams are made largely of stainless steel, and are designed to be the size of the standard 20 to 40 foot land/sea cargo containers they haul. The trams have conventional carbon power wheels, each of which uses a spring loaded power collector to gain electrical contact with the guideway. This type of side rail power delivery is a proven technology used with electric trains. The tram's permanent magnet electric motors are also a proven technology, as they are the same brushless type motors used on electric buses. These motors have direct drive to allow free wheeling in the event of a failure, which means that failure of a single motor does not affect

## Section 7

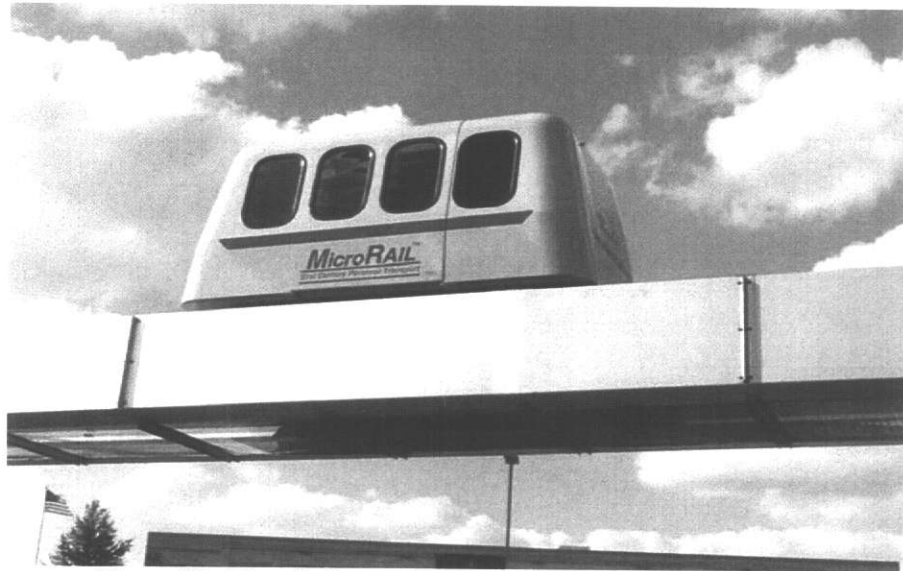
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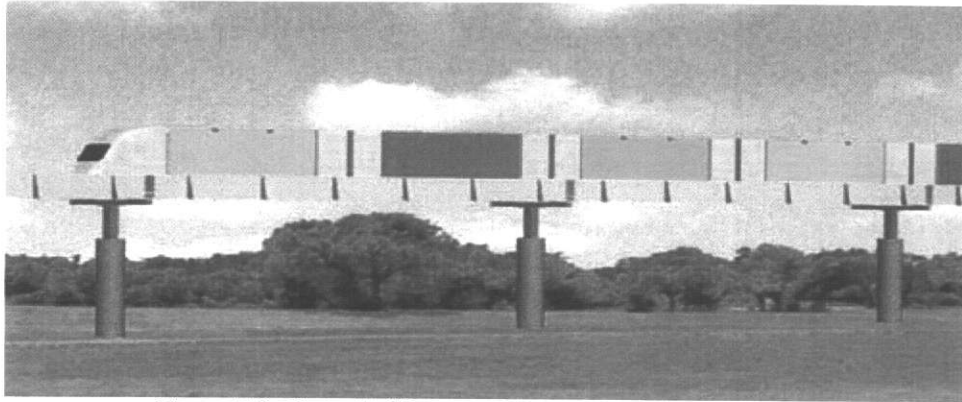


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*Figure 7.3: CargoRail locomotive with loaded flatbeds in tow*

### **7.3. Technical Description**

The Cargo Rail System is an electrically powered tram line which is designed to haul cargo quickly along an elevated railway. The system has two major parts, the trams and the rails they run on. The trams are comprised of a triangular shaped locomotive with a set of flatbeds behind it, each of which are capable of holding standard land/sea cargo containers, truck trailers, or entire over-the-road truck tractors. The elevated rails that the trams run on are comprised of box structures, similar in appearance to a pair of small monorail beams, on top of support beams with concrete piers. They can be placed along either side of a highway, or to conserve space can be placed along the median of the highway, above traffic. When installed either over existent highway or railroad rights of way, the overhead structure presents minimal visual obstruction.

The trams are made largely of stainless steel, and are designed to be the size of the standard 20 to 40 foot land/sea cargo containers they haul. The trams have conventional carbon power wheels, each of which uses a spring loaded power collector to gain electrical contact with the guideway. This type of side rail power delivery is a proven technology used with electric trains. The tram's permanent magnet electric motors are also a proven technology, as they are the same brushless type motors used on electric buses. These motors have direct drive to allow free wheeling in the event of a failure, which means that failure of a single motor does not affect

the normal operation of the CargoRail system. Heavy-duty electric power steering actuators are built inside each flat-free tram wheel, enabling vehicle-based steering and switching on the guideways and truck-type steering with electronic control on the road or dockside. While on the guideways, the tram is driven by a central computer control system which also has multiple redundancies along with highly reliable processing microchips. The control and communication centers are widely distributed and are simple enough to have aircraft-type failure tolerance and recovery.

The stainless steel guideways comprise of rails and cross-members that form a self-supporting structure. The guideways are made from a pair of standard factory fabricated electric power rails, cut from flat steel to form 18-inch wide by 42-inch high enclosed rail boxes. These boxes are supported by T-columns spaced at 48-foot intervals. Overall railway width is eight and one-half feet and an open space of five and one-half feet separates the two rail boxes. The simple design results in a low-mass guideway that is cheap to construct yet durable enough to resist earthquakes.

The CargoRail rail structure has a smaller footprint than a regular elevated railway or highway lane. The low profile of the guideways means there is a minimum amount of sky blockage. In addition, the structure design allows automated production, quick on-site construction and operation in all weather conditions.

In switch areas where trams can move to different rail track, the entire guideway area is covered with a transparent weather roof and sides as weather guards on the rail in a switch area would interfere with the vehicles. Switch areas are static and have no moving parts.

The individual parts and trams in the CargoRail system are all pre-built by machines in automated factories owned by the industrial team that MegaRail has put together. MegaRail Systems handles the system design and integration, in addition to being the prime contractor.

Austin Bridge is in charge of site engineering design, on-site guideway assembly, and pier/guideway installation. Clark's Precision Machine is responsible for vehicle, guideway, and station production, while Micrin Technologies does electronics, electrical harness and sheet metal parts production.

In terms on on-site construction, most of the work involves installing concrete piers for the support beams and bolting the railway in place, with a limited amount of welding done by robotic equipment. The parts for the guideways are trucked to site and bolted easily together. Installation requires no land grading or drainage changes and minimal traffic disruption.

The uniquely designed weather protected rails of the CargoRail system enable it to operate under any weather conditions including rain, ice and snow. Enclosure of the track around the tram wheels and power collectors means that the trams have a dry and ice-free traction surface to work on and enable CargoRail to operate continuously at full speed on typical highway grades. Automated operation by computer reduces human error and means that trams also avoid visibility problems such as heavy fog that affects truck movement on roads. The CargoRail trams can use backup electric battery power to operate when dockside or on a street, disengaging from the rails for maneuverability. Once the tram has been loaded or unloaded, it can then be driven onto a ramp and reconnected to the elevated rails, where electric power is provided continuously to the vehicle through the power hookups in its wheels.

Each tram travels at 75 miles per hour with up to 60,000 pounds of container weight. CargoRail trams hold three times as many containers per load than regular trucks while requiring 60% fewer drivers. Acting as low-pollution tandem trucks, the cargo trams can exit the elevated guideways at ramps along the line to reach warehouse districts on city streets. For this reason, the CargoRail trams would replace all of the current container trucks which service the port.

The result is a system that can transport 120,000 containers a day, and 31 million

containers per year. In comparison, the current system in the Alameda Corridor is only capable of transporting 9,600 containers a day and 3.5 million containers a year. Even though this is 40% of the capacity the Alameda Corridor project will have when it is completed, it would still be less than a third as productive as the CargoRail system. The Port of Los Angeles is expected to be handling over 30 million containers a year by 2020, and it is clear that the current system is insufficient to fill this need. The CargoRail system one of the fastest and most efficient options available, and could ensure that the Port of Los Angeles has a cargo system that could sustain future expansions and growth.

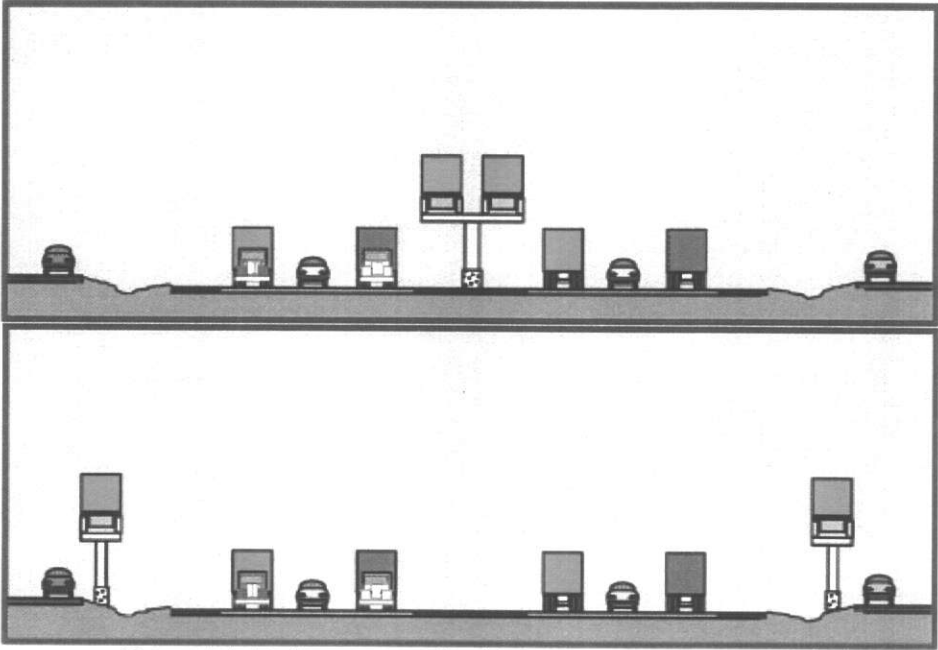


Figure 7.4: Median versus side-of-highway guideway installation

**7.4. Costs**

**7.4.1 Infrastructure**

The cost of building and implementing the CargoRail system along the twenty mile Alameda Corridor would be an estimated \$540 million, a fraction of the current system’s \$2.4

billion dollar price tag. This price is comparable to building new or double-tracking rail lines. About \$240 million would be need for the guideways, which are \$6 million per lane mile with one lane per direction required. An additional \$300 million would be needed for cargo trams, at \$120,000 a piece. CargoRail infrastructure can be installed over existent rail right of ways without negative impact on existing rail operations, in fact increasing the capacity of the rail rights of way. The system does not require any earthmoving or dockside transfer terminal installation, and requires only ramps to be built at the port and railroad terminal entrances. The trams are easily loaded with the current standard dockside and transfer area equipment. Because the system does not have many incidental costs and fits neatly into the existing infrastructure, CargoRail is a relatively cheap and affordable solution.

#### **7.4.2 Operating**

CargoRail operational costs for power and operation are comparable to the cost of cargo trucking. The low cost is partially a result of having computer controlled trams which require fewer operators than the current system.

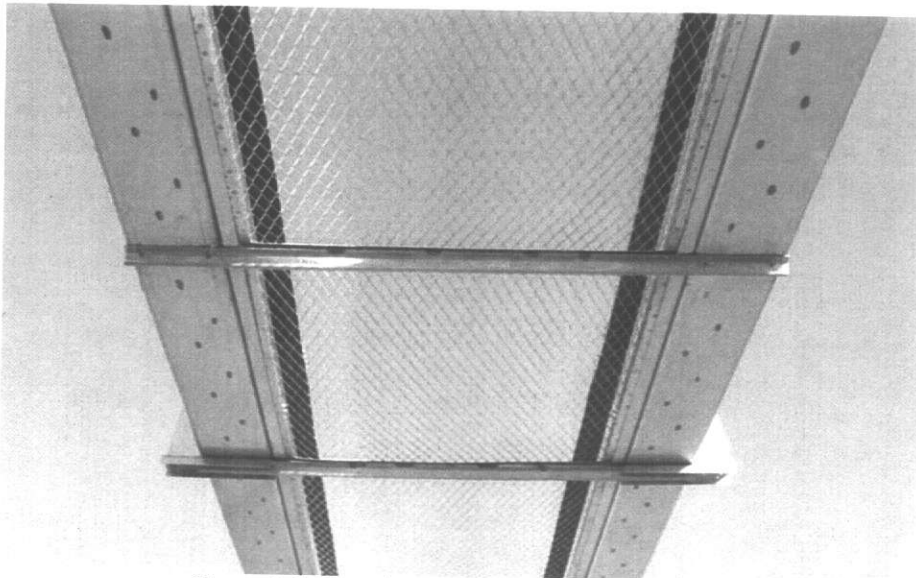
#### **7.4.3 Maintenance**

The CargoRail system is expected to have lower maintenance costs than the current truck and rail system, in addition to reducing the wear, traffic congestion, and maintenance costs on the highway by replacing heavy cargo trucks. The trams have highly redundant and durable parts and are not expected to break down often.



#### 7.4.4 Revenue generation

CargoRail offers railroad companies a low-cost means of increasing capacity of rail rights of way and increasing their income. Railroad companies can use CargoRail to increase their transportation speed and capacity while reducing the cost of shipping. The improvements in service would allow these companies to gain additional cargo shipping business. The increased speed of cargo transportation means that the port capacity would also be increased, without a costly expansion. As there would be fewer trucks on the road, highway capacity would increase along with a decrease in traffic and delays. The project also has the potential to be self funded, as construction could be funded by state or local revenue bonds, meaning there would be no cost to taxpayers.



*Figure 7.5: View from below an electric guideway*

## **7.5. Jobs and Safety Concerns**

### **7.5.1. Jobs**

The building of the CargoRail system would create some short term construction jobs in Los Angeles. If the technology became popular, it could also create long term factory jobs wherever MegaRail decides to build their facilities. Though the CargoRail system does not compete with the low speed rail business, some of the truck drivers who work the Alameda corridor would be out of work, as the electric trams are computer controlled and require few operators.

### **7.5.2. Safety**

The CargoRail system has a number of safety features which make concerns unlikely, including grade-separation on guideways which prevents collisions with other traffic and enclosed, weather-proof rails which eliminate dangerous skids. It has wheels that are in enclosed rails, prohibiting derailing and cars blowing off rails, flat-proof tires which prevent accidents and flat tires, and low-mass steel guideways that resist earthquake damage. The vandal resistant guideways are difficult to climb or place objects on. Failure-tolerant controls assure safe operation with failures and safe emergency shutdown, and computer-controlled operation eliminates human errors. Multiple motor systems provide back-up for continued operation, and standby power protects operators from getting stranded if power fails. Regardless, redundant power pick-ups which assure continuous power to cars.

## **7.6. Pollution**

The CargoRail system runs on electric power, resulting in very minimal air and noise pollution. The system has practically zero emissions, and is similar to an electric train in this

area. In addition, the trams run “whisper-quiet” on their guideways, resulting in no noise pollution. The frame of the guideways themselves is small and they do not have an extraordinarily obtrusive footprint.

### **7.7. Timeframe**

In terms of timeframe, the CargoRail system has fast availability of its factory-built parts and fits over existing rights of way, with only an estimated 3 years needed for implementation. If local and state funding were acquired, there would be no federal funding delays. There would also be no highway traffic disruption for side of the road guideway installation, and minimal disruption for median guideway installation.

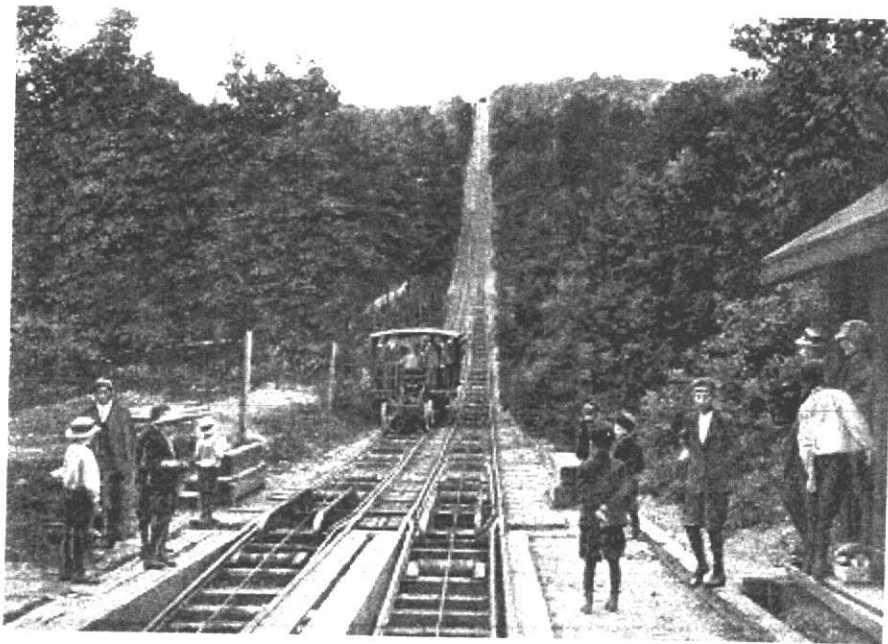
## Section 8

### Gravitational Transportation System

#### 8.1. Overview

A gravitational transportation system would use gravity as its main source of energy. The principle behind using gravity as a means of energy efficiency has been put into practice in the past, but never on the scale of cargo freight transport. The original proposal calls for cargo containers to be set on rollers in guides along an inclined plane. Design configuration would determine the efficiency of this system, as well as the overall cost. Basic budget and time analyses suggest that this mode of transportation is costly and inefficient, factors that fail to be outweighed by zero emissions, low operating cost, and safety features. Various design features are also discussed.

#### 8.2. History



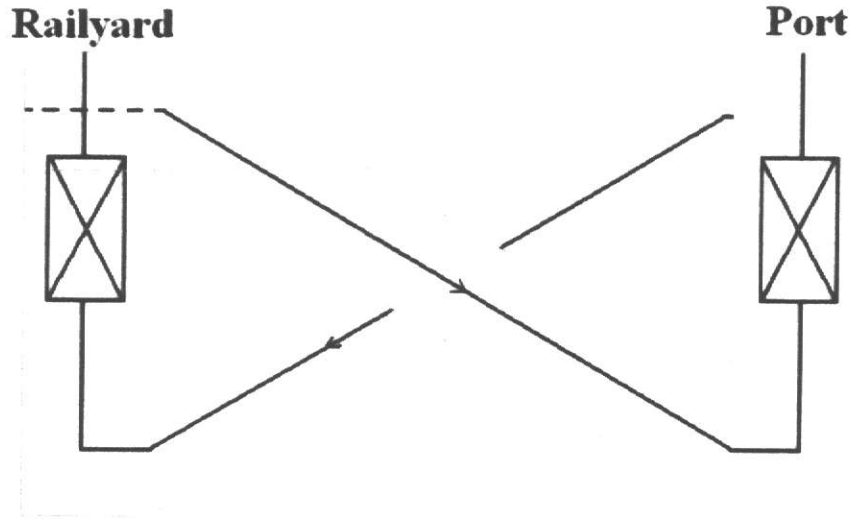
*Figure 8.1: This funicular from the early 1900s has a level portion of its track to decelerate as it approaches a station. The central cable serves as a guide to help the cart stay on the rails, and as a braking system to assist deceleration. Image c/o Alfred Wimmer.*

Gravity-based propulsion system has been utilized to varying dependencies before in the forms of gravity railroads that served as coal cart rails, and funiculars for light passenger transport. Funiculars are inclined railways, from which designers adapted to develop our modern-day roller-coasters. These methods were geared for light material or passenger transportation, the latter of which was replaced by locomotive steam power. The Switchback Railroad in Pennsylvania used a figure-8 track along two inclined planes to move coal continuously from the mine to the river. Coal carts are still used today in mining, and on larger scales. Conceptual architect Alfred Wimmer of the Wilmington port community has proposed an expansion of this basic idea for use with cargo freight.



*Figure 8.2. These coal carts from the late 1800s ran from mine to delivery station using gravitational forces. The central cable is wrapped around a two-pulley system to guide the cart along the tracks, and so empty carts can be manually hauled back up the hill.*

### 8.3. Technical Description



*Figure 8.3. Basic implementation for an underground gravitational system.*

The milestones of preliminary design are discussed as follows. Figure 3 shows a system utilizing dual single-direction tracks with an elevator system at each end. This design requires two excavation planes. Figure 4 combines the tunnels into one significant excavation plane with a level version of a circuitous track that makes it space and cost efficient, but fails to use gravity-based propulsion. The two elevators still serve as separate limiting factors.

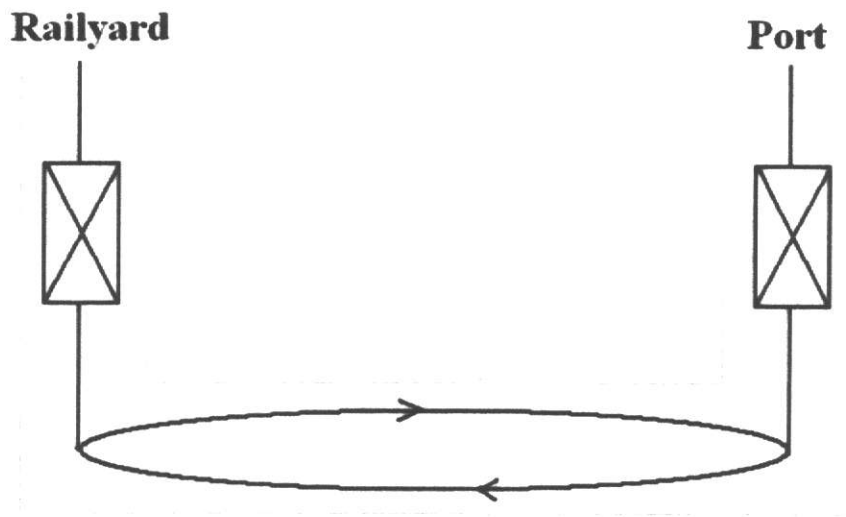


Figure 8.4. Basic implementation for an underground transportation circuit.

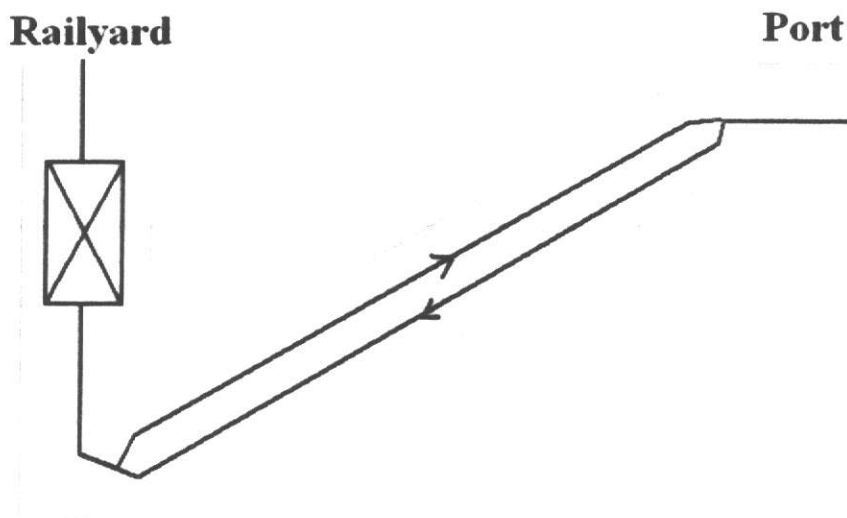


Figure 8.5. Basic maximization of efficient gravity forces.

Setting the track at an angle to eliminate the need for two elevators yields Figure 5, a two-directional track system in a single tunnel with one elevator system. If a significant amount of containers will be moved to the port from the rail yards, the design can be paired with Figure 3 to allow efficient cargo transport in both directions so that each loading direction can be served.

Figure 6 modifies the slope to level off at the foot of the incline so that natural deceleration can be used to relieve stresses from any overhead ratcheting systems to control the container movement.

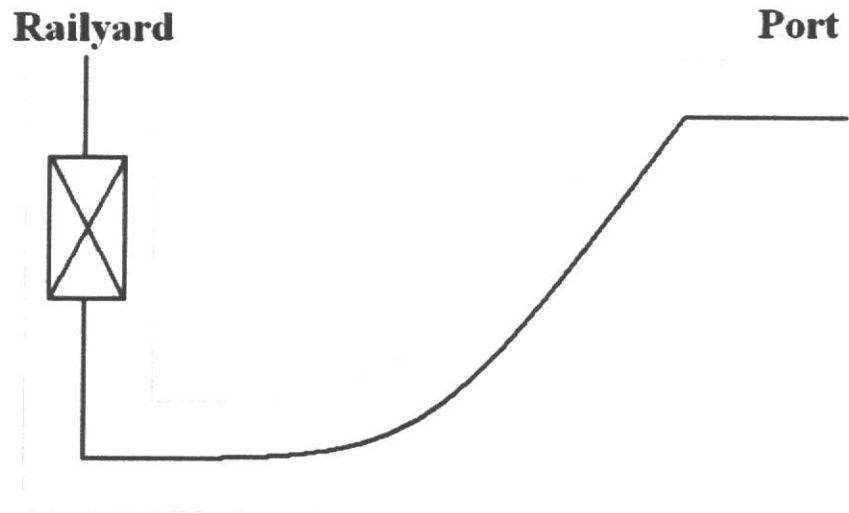


Figure 8.6. Adjustment of slope based from concept illustrated in Figure 7.

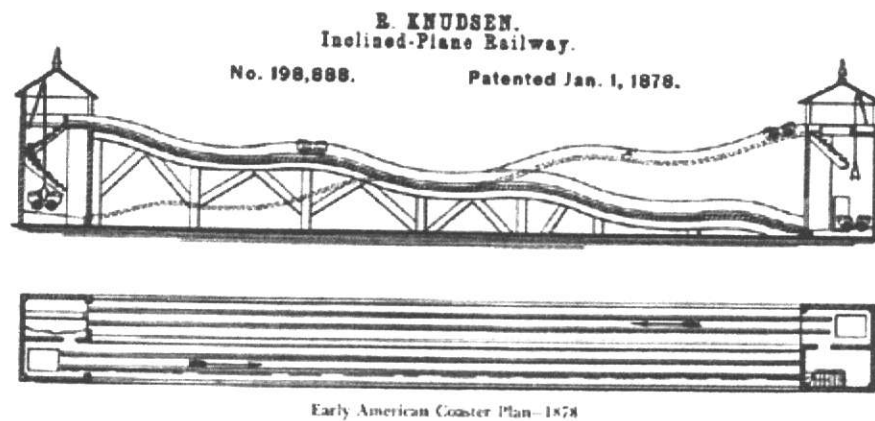



Figure 8.7. Schematic of the first plan for an inclined-plane railway. Multiple plateaus ensure controllable maximum speed for passenger comfort. A crane is used for vertical displacement. Image c/o Alfred Wimmer.

Typically, operating procedures call for the containers to be loaded onto the track system with an overhead power/guidance/control system, whether wheels or rollers are used. The





containers then roll to the destination by accelerating forces of gravity, then must come to a stop at the destination to be unloaded. Empty or light containers can be sent up in the opposite vein. Defining the separation between containers would be safer than sending each container independently; if a lighter container were pushed into motion before a heavier container, the accelerating, non-frictional forces may cause it to catch up and collide. Controlled ratcheting will also allow for loading and unloading time; such a unit is illustrated in Figure 8. The overhead system can draw from augmented power as needed if the mass exceeds or does not meet expected design calculations and needs to brake or accelerate more than usual. This power can be taken from electric power grids, or a solar station could be installed to augment the system as well.

Wimmer's revised proposal likens the system to a cable car, where one container rolls to the port at the same time that one container rolls from the port. While a single-container cycle is extremely inefficient, it demonstrates the basic concept that the containers can be on a linked system where this as one mass is rolling down, the same energy can be used to pull a lighter mass upwards elsewhere. Gravity allows it to accelerate based on its downward forces and reduces need for outside energy use, and natural deceleration as it leaves an inclined plane would also save energy.

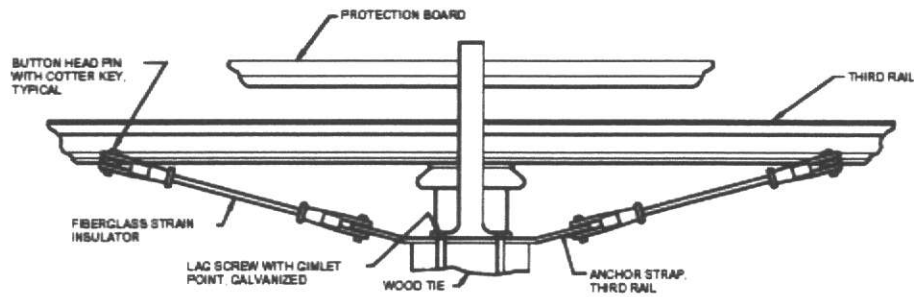


Figure 8.8. A typical third rail arm in a catenary system. Image c/o Federal Highway Administration.

Due to bidirectional container traffic, a minimum of two tracks would be needed. At the time of writing, typical container size is 8 ft wide, 9.5 ft tall, and 40 ft long. The U.S. Government is currently investigation alternate, more economical specifications, since only 5% of imported containers make it back to the manufacturer. These specifications were used to sketch estimated dimensions of the tunnel, and later estimate the cost of materials with 30-cm thick concrete walls for earthquake resistance. These walls can be further reinforced like the oil pipelines in Alaska. Any lighting gear needed by maintenance personnel could be compacted to fit on a unit to travel with them. Since the operators do not travel with the cargo being transported, no lighting system would be necessary along the track's length. The nature of the system lends itself to no concentration of contaminants, so natural ventilation from the piston-like movement of the containers would be sufficient. An emergency mechanical ventilation can also be installed in case of a fire.

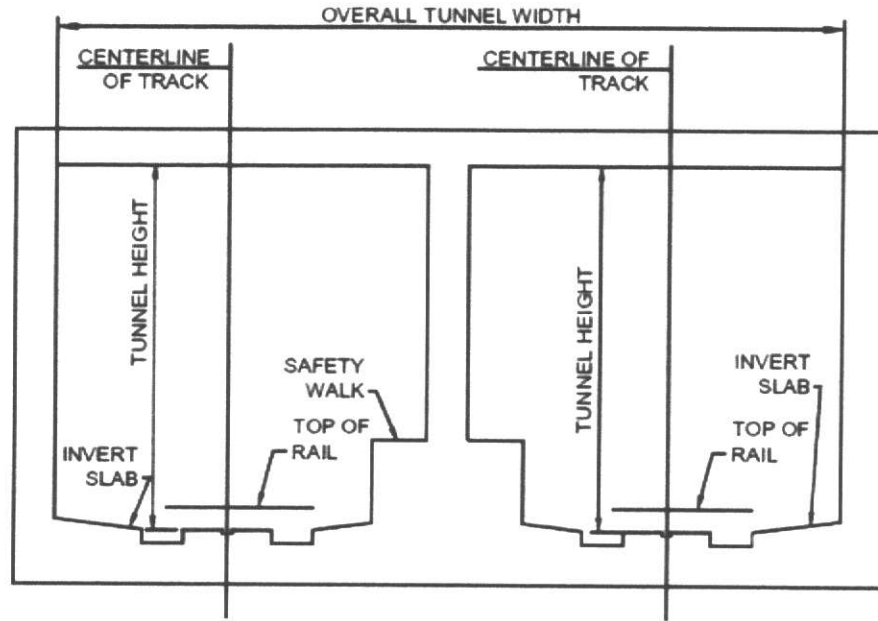


Figure 9. A possible tunnel configuration style, shown with rectangular cross-section.  
Image c/o Federal Highway Administration.

The type of tunneling method used is determined by analysis of factors like geology, proposed depth of the rail line, and surface features. Contrary to common sense, stability is not a factor of depth but of design to withstand the forces to which the structure is subjected at existing conditions (Thomas). The resulting tunnel is also defined by their outside shape, tunnel liner, and finishes. In this case, an interior finishing will be unnecessary as it is typically in place for occupational comfort. The single-tunnel designs are best suited for a round, rectangular, or horseshoe shape. These cross-sections can be selected based on choice of excavation method as well as the ground conditions to be experienced. Shape and excavation method may also vary depending on changes in conditions. Tunneling machines can be used to bore the way, or a drill and blast method can be engaged for difficult soil types. Workers can follow the machine to apply shotcrete or line the segments to prevent water penetration, or rib the tunnel, respectively. Both of these applications can be layered with placed concrete to increase wall thickness and

refine structural tunnel support. Closer to the port, an immersed tube may be needed to account for the relatively higher water table.

If a track system were used, it could include steel rails if detachable wheels were used. The track would be laid end-to-end in two parallel lines that the wheels ride on. Each continuing segment would then be attached by rail joints, and bolted to plated cross-ties that distribute the load across a larger area. Beneath the cross-ties will be a floor of ballast to counter thermal stresses experienced by the rails, and to further redistribute the forces from the containers' weight into the ground. Man- or outside energy power can be used to overcome initial static friction coefficients when necessary. Ultimately, the capacity limit would be defined not only by the efficiency of track tunnel design, but also by the efficiency of elevator system used. Alternative features also call for rollers to be attached to a series of generators to feed energy back into the power grid.

#### **8.4. Costs**

##### **8.4.1 Infrastructure Cost**

Due to unprecedented objectives and open-ended design parameters, the costs for the gravitational transportation system are estimates based from current values of raw materials and budgets from similarly large-scale excavation projects. One example is the Central Artery/Tunnel Project, better known as the Big Dig in Boston, which cost \$14.6 billion for 3.5 miles of underground highway (Associated Press). The tunnel under the English Channel, also known as the Chunnel, cost \$19 billion for 31 miles of underground rail. More locally, the ongoing campaign for an extension of the Metro Red Line along Wilshire Boulevard is projected to cost an additional \$5 billion for 17 more miles of subway; the Los Angeles Department of Transportation estimates that each subway mile costs about \$350 million to construct (NBC).

This means that if the gravitational transportation system were non-gravitational, and just a level subsurface tunnel from the ports to the rail yards, the system would cost over \$8 billion. Based on these numbers and knowledge of intention to enter depths uncommon for subway systems, we estimate that the gravitational transportation system would cost upwards of \$25 billion after taking the following budgeting into account. This approximation does not include additional features from the original proposal like sewage pipes, desalination tubes, power grid infrastructure, and disaster habitation facilities.

#### **8.4.2 Operating Cost**

The operating cost would be minimal, particularly when compared to the maintenance and infrastructure costs. The wages of maintenance, handlers, and operator personnel would be negligible due to the low staff number needed for operation. The cost of electricity for endpoint lighting, machinery, and any power augmentation would be the other significant bill from operation.

#### **8.4.3 Maintenance Cost**

Regular inspections would be needed bimonthly for the first few months of operation, and adjusted accordingly based on those results. A recent review of Boston's Big Dig following a collapse cost \$4.5 million (Associated Press). The maintenance cost for this facility would be fairly high, depending on the medium of transportation used. For example, the original proposal for this project suggested mechanical rollers attached to the base of the tunnel, over which the cargo containers could roll down on. If this technique were to be used, the lifespan of the parts would be limited by the composition due to the daily wear and tear sustained by the rollers. Therefore, an additional cost for long-term investment in the means to manufacture of these

parts would be necessary. Alternatively, wheel attachments for the cargo containers would be less costly and would be easier to maintain, but would further limit the efficiency to the speed at which the attachments could be fitted and removed at each end.

#### **8.4.4 Revenue Generation and Benefits**

Revenue generation would be restricted to attempts to advertise it as a tourist attraction during its off-hours. Other long-term benefits for investment lie in the possibility of using the tunnels for disaster evacuation points. At bare minimum, this system would relieve some traffic along the Alameda Corridor.

#### **8.5. Jobs and Safety**

The role of the truckers in rail yard-to-port transport would be diminished. If the system were to be expanded to include other destinations, such as the warehouse district or other desirable industrial zones, similar effects would occur. The creation of such a system would be an extensive project open to hiring thousands of workers for its construction. Employment opportunities would also be available for geologists, as well as architects and engineers. This system would be completely operator-safe, as the operators do not travel with the cargo, and would be stationed at either end of the track with the handlers.

#### **8.6. Pollution**

The advantage from designing such a technological innovation from scratch is that there is a great amount of leeway to be had in its planning. The noise and visual pollution would be attenuated by the tunnel walls and the surrounding soil in the environment. With the main power source of this system ideally being gravity, there should be no other on-site pollution. If another

energy type was incorporated to augment gravitational forces, it would be a minor additive to pollution generated by electric lighting and machinery due to power plant usage off-site.

### **8.7. Timeframe**

Extensive geological surveys of the various soil types would have to be conducted after the funding was secured for each step of the process. A prototyping or simulation facility would be ideal to test the design of the system as details are ironed out. Zoning, excavation, and construction would contribute extensively to the timeline. Again, the potential timeframe must be estimated from known case scenarios. The Big Dig took 20 years to build 3 miles of highway, but the Chunnel only took 7 for 31 miles of underground rail because the 15,000 workers assigned to the project tunneled from both ends (Associated Press). The Metropolitan Transit Authority's plan for expansion of the Red Line subway along Wilshire is expected to take at least 10 years for 17 miles of close-to-surface tunneling (NBC). Based on these figures, the project would take at least 20 years from surveying to completion.

## Section 9

### Alternative Fuels

#### 9.1. Overview

Alternative fuels are mostly fuels that are derived from non-petroleum sources, unlike gasoline and diesel. Alternative fuels have certain benefits over traditional petroleum fuels like increased energy security and reduced environmental impact. According to a list provided by The Clean Fuel Development Coalition, fuels that are considered alternative fuels by the U.S. government include: methanol and denatured ethanol (alcohol mixtures that contain no less than 85% of the alcohol fuel), natural gas (compressed or liquefied), liquefied petroleum gas, hydrogen, coal-derived liquid fuels, fuels derived from biological materials, and electricity (including solar energy). The U.S. Department of Energy has authority to expand this list whenever new fuels are developed and approved according to these criteria ([www.cleanfuelsdc.org](http://www.cleanfuelsdc.org)). In this project three alternative fuels were analyzed as possible replacements for the diesel that is currently used by trucks and trains taking cargo from the Los Angeles and Long Beach ports to the Downtown L.A. rail yards. The three fuels are: liquid natural gas, biodiesel, and ethanol. However, due to the fact that switching to liquid natural gas or biodiesel would increase the emissions of reactive hydrocarbons and nitride oxides respectively, ethanol was chosen as the most suitable alternative fuel to replace the diesel used by trucks and trains. For this reason only ethanol will be discussed in terms of more specific economic and environmental impacts.

#### 9.1.1. Liquid Natural Gas

Natural gas is one of the cleanest, safest, and most useful sources of energy. Liquid natural gas is a mixture of gaseous hydrocarbons (Fig.9.1) composed primarily of methane that



has been liquefied by cryogenic cooling. It is colorless, shapeless, and odorless in its pure form. It is extracted from underground reserves and is used as a source of energy due to the great amount of energy it releases when it is combusted ([www.naturalgas.org](http://www.naturalgas.org)). Natural gas is widely used for heating homes, cooking, and for generating electricity. Natural gas has been used as an alternative fuel since 1930, and according to the Natural Gas Vehicle Coalition, there are currently 130,000 Natural Gas Vehicles (NGVs) in the United States and 2.5 million worldwide. Liquid natural gas burns cleaner than diesel and gasoline; however, it increases the emissions of reactive hydrocarbons, which are believed to be carcinogenic.

**Typical Composition of Natural Gas**

Methane	CH <sub>4</sub>	70-90%
Ethane	C <sub>2</sub> H <sub>6</sub>	0-20%
Propane	C <sub>3</sub> H <sub>8</sub>	
Butane	C <sub>4</sub> H <sub>10</sub>	
Carbon Dioxide	CO <sub>2</sub>	0-8%
Oxygen	O <sub>2</sub>	0-0.2%
Nitrogen	N <sub>2</sub>	0-5%
Hydrogen sulphide	H <sub>2</sub> S	0-5%
Rare gases	A, He, Ne, Xe	trace

*Figure 9.1*

### 9.1.2. Biodiesel

Biodiesel is a clean burning alternative fuel produced from domestic, renewable resources

such as: soybean oil, rapeseed oil, and waste cooking oil. Biodiesel contains no petroleum, but it can be blended with petroleum diesel to produce a biodiesel blend ([www.biodiesel.org](http://www.biodiesel.org)). These blends can be used in regular diesel engines with little to no modification. Biodiesel is biodegradable, nontoxic, contains insignificant sulfur and aromatic levels. Biodiesel is made through a chemical process called transesterification. Biodiesel is environmentally beneficial because it is made from renewable resources and has lower emissions compared to petroleum diesel (Fig.9.2). However, the use of Biodiesel as an alternative fuel can increase the emission of nitride oxides (NOx), which are toxic.

Emission Type	B100	B20
<b>Regulated</b>		
Total Unburned Hydrocarbons	-67%	-20%
Carbon Monoxide	-48%	-12%
Particulate Matter	-47%	-12%
Nox	+10%	+2% to -2%
<b>Non-Regulated</b>		
Sulfates	-100%	-20%*
PAH (Polycyclic Aromatic Hydrocarbons)**	-80%	-13%
nPAH (nitrated PAH's)**	-90%	-50%***
Ozone potential of speciated HC	-50%	-10%

Figure 9.2 – B100 (pure biodiesel); B20 (mixture containing 20% biodiesel and 80% petroleum diesel)

### 9.1.3. Ethanol

Ethanol is a clean burning fuel that is produced from grain or agricultural waste. It is basically a grain alcohol with a high-octane rating ([www.ethanol.org](http://www.ethanol.org)). Ethanol is a liquid, colorless fuel that is used in blends with unleaded gasoline. The blend of ethanol with gasoline decreases the fuel's cost, increases the fuel's octane rating (fuel quality), and decreases the gasoline's harmful emissions, providing a much cleaner and more environmentally beneficial

fuel. There are two main blends of ethanol and gasoline (when considering alternative fuels). The E-85 and the E-95. The E-85 is a mixture containing 85% ethanol and 15% gasoline, and it is better suited for light duty applications such as fueling small vehicles and light load machinery. The E-95 is a mixture containing 95% ethanol and 5% gasoline, and it is better suited for heavy-duty applications such as big trucks, trains and heavy load machinery ([www.cleanfuelsdc.org](http://www.cleanfuelsdc.org)). Ethanol also presents a great advantage to the American economy as it has the potential of greatly decreasing the American dependence on foreign oil. Ethanol currently presents a brighter future as an alternative to diesel and gasoline, with greater environmental and economic benefits compared to other alternative fuels.

## **9.2. History**

### **9.2.1 Liquid Natural Gas**

The exploration of natural gas as a source of energy is considered by many to have begun in 1821 by William Hart. Hart noticed bubbles rising to the surface of a creek in Fredonia, New York. Hart dug a 27-foot well to try to obtain a larger flow of gas to the surface. Continuing Hart's work, Fredonia Light Gas Company was formed and became the first natural gas company in America ([www.naturalgas.org](http://www.naturalgas.org)). Natural gas was observed to be flammable and thus considered as a possible source of energy.

### **9.2.2 Biodiesel**

Petroleum diesel was widely adopted over biomass fuels such as biodiesel in the beginning of the last century due to its cheaper price of production. Only recently have concerns

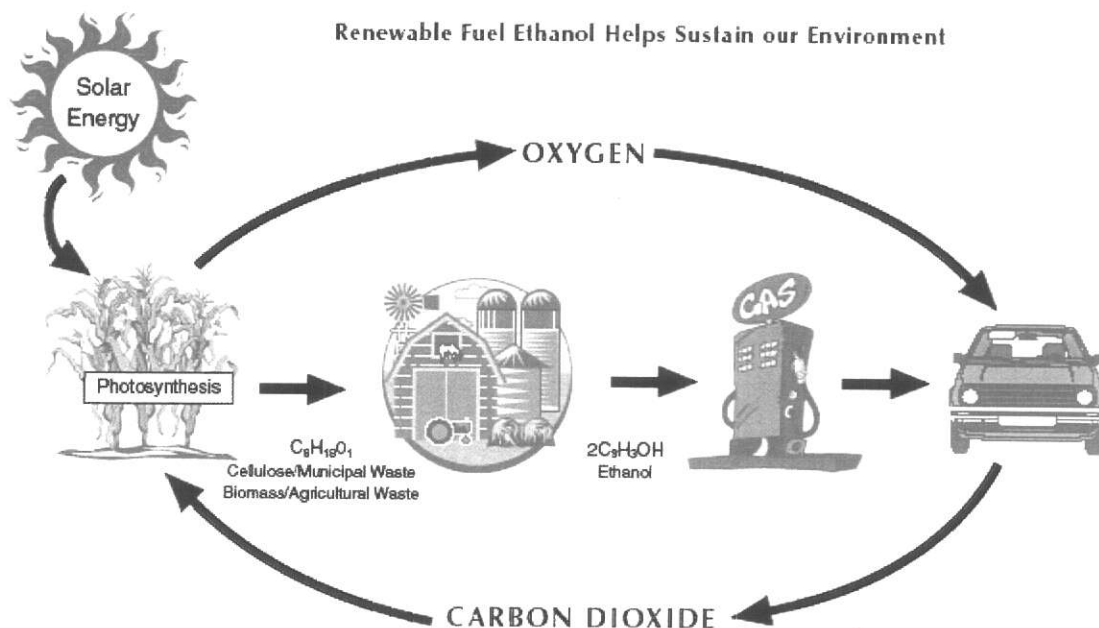
involving environmental impacts and decrease in cost differentials between biodiesel and petroleum diesels made biodiesel a more appealing alternative. Research involving biodiesel as alternative fuel began in 1979 in South Africa. In 1983 the process of producing a quality biodiesel engine was tested and published internationally. Gaskoks, an Austrian company used the technology from the South African engineers and erected the first industrial biodiesel plant on 12 April 1989, with a production capacity of 30,000 tons of biodiesel per year.

### **9.2.3 Ethanol**

Ethanol was first produced synthetically in 1826 by Henry Hennel in Britain and S.G. Serullas in France. It has been used in the United States since at least 1908 with the Ford Model T. The Ford Model T could be modified to run either on gasoline or pure ethanol. Ethanol was never considered as a major alternative of fuel until the late 1970s when environmental concerns started to grow and when oil supply was disrupted in the Middle East. Ethanol production in the United States went from 175 million gallons in 1980 to 3.4 billion gallons in 2004 ([www.ethanol.org](http://www.ethanol.org)).

### **9.3. Operating Procedure**

Trucks and trains taking cargo from the ports to the railroads would run on ethanol blends instead of diesel. Refueling would have to occur at fuel stations where such blends are available. Figure 9.3 demonstrates how well balanced with the environment the implementation and operation of ethanol is as an alternative fuel source.



*Figure 9.3*

## 9.4. Costs

There are costs that one should consider when implementing ethanol as a new source of fuel. These costs include the cost of ethanol production, the cost of implementation, and the cost of operation.

### 9.4.1 Cost of Production

The production cost of ethanol is higher than the production price of petroleum derived fuels. For example, the production cost of ethanol ranges from \$0.90 to \$1.25 per gallon, while the production price of gasoline is approximately \$0.60 per gallon ([www.cleanfuelsdc.org](http://www.cleanfuelsdc.org)). However, the \$0.52 per gallon of ethanol excise tax exemption allows ethanol to reach the market with a competitive price.

### 9.4.2 Cost of implementation

The cost of implementation is the cost involved in transforming diesel engines into ethanol engines. Most engines will operate on the low concentration ethanol blend but may require adaptations or significant modifications to be able to run on high concentration ethanol blends. However, a reasonable number of vehicles, usually newer models, are ethanol compatible.

### 9.4.3 Cost of operation

The cost of operation involved would be the refueling cost. Ethanol prices are ranging nationwide from \$2.20 to \$2.24 per gallon. Diesel is roughly ranging from \$2.60 to \$2.80 per gallon ([www.energy.ca.gov](http://www.energy.ca.gov)). Ethanol prices are currently more competitive than diesel prices, however, ethanol is not as efficient as diesel in terms of miles per gallon. Ethanol fueled vehicles have shown a fuel economy 30% worse than vehicles fueled by gasoline (Convenience Store News). Diesel vehicles on the other hand offer a fuel economy approximately 20-30% better than vehicles fueled by gasoline (Evans). Considering the example of the 2007 Chevrolet Tahoe. The SUV was capable of running with a fuel economy of 21 miles per gallon on gasoline while 15 miles per gallon on E-85. If theoretically this SUV were run on diesel it would present a fuel economy of approximately 26 miles per gallon. In conclusion, ethanol vehicles would bring considerable environmental benefits but would be more expensive to operate.

<b>Fuel</b>	<b>Price per Gallon</b>	<b>Miles per Gallon</b>	<b>Cost per Mile</b>
Diesel	\$2.70	26	\$0.10
E-85	\$2.22	15	\$0.15

Figure 9.4: These numbers are not guaranteed to be accurate; they are based on a rough estimate

## 9.5. Jobs

There will be no significant loss or creation of jobs regarding the implementation of ethanol as a substitute fuel for diesel in this project. The substitution of diesel with ethanol will not affect the jobs of the truck or train drivers. However, if ethanol was implemented on a large scale as a source of fuel, ethanol plants would have to be constructed directly involving the creation of jobs. According to the Clean Fuels Development Coalition,

*“During ethanol plant construction, approximately 370 local jobs are created, providing up to 5,604 person-years of work. During ethanol plant operation, up to 4,000 local jobs are created. Ethanol plant construction creates \$60 million to \$130 million in additional income. Ethanol plant operation creates \$47 million to \$100 million in additional income.”*

These numbers are based on an ethanol plant with a production capacity of 40 million gallons per year.

## 9.6. Safety

There is no significant difference regarding safety issues when considering ethanol or diesel, although they present certain differences regarding physical properties. Figure 9.6 shows the flammability limit temperature range for diesel and ethanol, which is the range over which flammable vapor concentration will exist over the corresponding liquid ([www.nrel.gov](http://www.nrel.gov)). It also contains the auto-ignition temperatures of diesel and ethanol. Ethanol as noted presents a lower flammability limit temperature range, meaning ethanol vapors will be present at higher concentration at lower temperatures when compared to diesel. This may cause ethanol to be

more flammable than diesel if not handled properly. However, ethanol presented a higher autoignition temperature when compared to diesel. Although ethanol present a higher flammability risk when compared to diesel, existent technology in handling highly concentrated ethanol blends negates this issue's relevance to the use of ethanol.

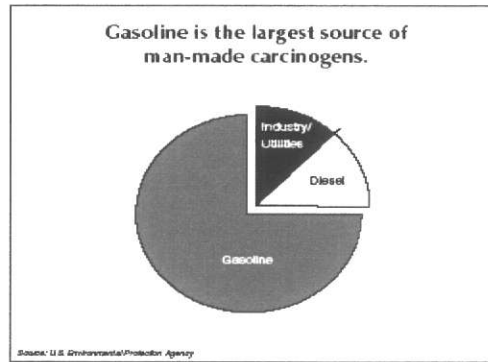
Fuel	Diesel	Ethanol
Autoignition Temperature, °C (°F)	230 (445)	366 (691)
Upper Flammability Limit Concentration, vol%	5.6	19
Temperature, °C (°F)	150 (300)	42 (108)
Lower Flammability Limit Concentration, vol%	0.6	3.3
Temperature, °C (°F)	64 (145)	13 (55)

*Figure 9.5: Diesel and Ethanol comparison.*

## 9.7. Pollution

Ethanol, compared to the other two alternative fuels analyzed in this project, presented the least environmental impact. It is significantly cleaner than petroleum derived fuels such as gasoline and diesel, the latter being the most polluting of all. According to the Clean Fuels Development Coalition, “cars designed to run on high concentrations of ethanol have the potential to emit 80% to 90% less reactive hydrocarbons than advanced-technology gasoline cars” ([www.epa.gov](http://www.epa.gov)). Considering the fact that diesel is even more polluting compared to gasoline, the difference between high concentration ethanol blends and diesel emissions would be even more significant. Petroleum derived fuels, mainly gasoline and diesel, are responsible for approximately 90% of man made carcinogen sources as shown in Figure 9.6.





*Figure 9.6*

According to the American Lung Association:

*Transportation sources (i.e., burning gasoline and diesel) are responsible for 55.8% of outdoor air pollution. That includes 77.3% of the total carbon monoxide, 44.5% of the oxides of nitrogen, 3.3% of the sulfur oxides, 35.6% of volatile organic compounds (VOCs), and 26.3% of particulate matter (less than 10 microns), and 26.6% of lead emitted into the air. (www.lungusa.org)*

Ethanol has the potential to drastically reduce toxic and carcinogenic emissions derived from today's petroleum derived fuels such as gasoline and diesel. Ethanol blends can reduce carbon monoxide emissions substantially. This reduction can vary from 10% to 30% depending on the vehicle's combustion technology (www.usda.gov). In addition, according to the Technical Committee of the Clean Fuels Development Coalition, blended mixtures of ethanol significantly reduces toxic emissions and can reduce cancer risk up to 30% (www.cleanfuelsdc.org).

RFG with Oxygenates, Like Ethanol, Substantially Reduces Harmful Gasoline Emissions	
Air Toxics	-28%
Volatile Organic Compounds	-17%
Nitrogen Oxides	-3%
Carbon Monoxide	-13%
Sulfur Oxides	-11%
Carbon Dioxide	-4%
Particulate Matter	-9%
<b>Reduced Cancer Risk</b>	<b>-20% to -30%</b>

Figure 9.7

## 8. Efficiency

Highly concentrated ethanol fuels such as E-85 have comparable performance with gasoline. There is no significant difference regarding acceleration, power and cruise speed ([www.eere.energy.gov](http://www.eere.energy.gov)). The same is true for blends of ethanol and gasoline. The performance of the trucks and trains that take cargo from the Los Angeles and Long Beach ports to the Los Angeles rail yards therefore should not be affected. Regarding the efficiency of implementation of E-85 as a substitution fuel, new stations would have to be built (or existing ones upgraded) as the nearest fuel station that offers E-85 is located in San Diego. In addition, if E-85 is chosen as the best alternative fuel, the trucks and trains would need to have their engines adapted to a Flexible Fuel Vehicle compatible engine. Despite both of these disadvantages, ethanol blends are sold in most gas stations, and all automobile manufacturers approve the use of ethanol/gasoline blends (21<sup>st</sup> Century Fuels).

## 9. Implementation Timeframe

The adaptation necessary to implement ethanol blends or high concentrated ethanol as the

substituting fuel for the diesel currently used by trucks and trains carrying cargo from the L.A. and Long Beach ports to the L.A. Rail yards should not take considerable time. This is a fast implementation process that should not take more than a year to be completed. All changes that need to occur do not involve costly changes or expensive infrastructure modifications. The implementation of ethanol or ethanol blends is the most immediate solution for considerably reducing pollution caused by cargo transportation from the L.A. and Long Beach ports to the L.A. Rail yards compared to the other technologies analyzed in this report.

## Conclusions

The technologies presented in this report have variable degrees of feasibility for both immediate and long term reduction of negative environmental and community impact caused by transportation of cargo from the Port of Los Angeles/Long Beach to the Downtown Los Angeles Railroad Yard Center. Evaluating the available information, electrification of existing rail lines combined with modification of truck engines to use E95 ethanol would reduce emissions of particulate matter and nitrogen oxides with minimal investment in new infrastructure or development of untested technologies. However, electrification and ethanol will not increase the capacity of the existing transportation grid and are, therefore, not viable long term solutions. Of the evaluated technologies magnetic levitation, either based on a Transrapid or General Atomics model, is the most feasible, as it is non-polluting and due to the greatly reduced footprint of an elevated track, eliminating the need to buy large tracts of land from the local community, the infrastructure cost would actually be comparable to expanding traditional road or rail routes. Many of the other technologies cannot be recommended for implementation due to the lack of data available on them, the untested nature of the technology, high implementation costs, or insufficient capacity.

The Alameda Corridor was constructed with the intent of being electrified at some point; however, electric freight engines have never been used in the U.S. even though they are very popular in Europe. Traditional diesel train engines are actually diesel-electric, using a diesel engine to generate electricity then using this electricity to drive the electric motors which actually propel the train. Given that these engines are already "electric" it may be possible to modify them to run on external power which can be generated much more efficiently at a large power station. Electric trains are actually a simplification of diesel-electric trains making them lighter, more efficient, and easier to maintain. The corridor could be electrified very rapidly; the

main delay in the implementation of this technology would be the importation, manufacture, or retrofitting of trains to take advantage of this infrastructure.

Magnetic levitation may well be the future of the Alameda corridor. There are currently two companies developing maglev technology for freight transportation: General Atomics and Transrapid. General Atomics (GA) uses a method called Inductrack licensed from Lawrence Livermore National Laboratory. GA has constructed a working prototype of their freight system. Maglev has the advantages of being fast, non-polluting, and very safe. Maglev tracks can also be elevated more easily than traditional train tracks as their weight is distributed more evenly and vibration is reduced. This means that the footprint of a maglev system can be tremendously less than that of an expanded rail or highway route as less land would need to be purchased to make room. This actually makes maglev a cost effective solution.

Transrapid's maglev system has been employed extensively around the world for high-speed passenger trains, but no prototype has ever been constructed for freight transportation. Even though Transrapid is a more established and proven name in maglev technology, they are not as developed as General Atomics in terms of freight technology.

The Skytech Transportation Framework is another proposed technology to transport containers from the port. The Skytech system transports entire tractor trailers on top of shuttles propelled by linear induction motors. Linear induction motors are basically standard AC motors unrolled to generate linear rather than rotational force. Unfortunately the Skytech system is untested, prohibitively expensive, has an insignificant capacity, and would require decades to implement. Therefore, it is not a practical solution for freight transportation from the port.

The Tube Freight transportation system is a technology proposed to reduce truck trips, but not train traffic. It uses a linear induction motor to propel a cylindrical vehicle down a two meter wide underground tube roughly the size of a sewer pipe. These vehicles could each hold

about five pallet loads of cargo, but could not accommodate an intermodal container. This means that loading and unloading of these vehicles would be a major bottleneck in the system. The costs of underground tunneling, the untested nature of the technology, and the fact that it cannot accommodate intermodal containers prevent this technology from being an effective option for cargo transportation from the ports.

The CargoRail transportation system uses electrically powered rubber tire vehicles to transport containers along an elevated guideway. Since there is no large scale implementation of this system, nor any independent study of its feasibility, the only figures available are from the CargoRail company itself. That being said it appears to be a technology with a lot of potential meriting further study and external review.

It has also been proposed that an underground inclined track be constructed to use the force of gravity to transport containers from the ports to the rail yards, with elevators to return containers to the surface. There are several problems with this proposal. In order to transport the containers at an effective speed the incline of the track would have to be fairly steep, meaning that the tunnel would end up being farther underground than has been excavated in Los Angeles. Given the costs and engineering challenges associated with such excavation, the costs run into hundreds of millions of dollars per mile. Also, the amount of energy required to lift the containers from this depth would defeat any energy savings from the gravity slide.

An immediate reduction in pollution could be achieved by switching from diesel to E95 ethanol as a fuel source for both trains and trucks. This could be accomplished with minimal modification to existing engines and would greatly reduce emissions of particulate matter and nitrogen oxides as well as reducing dependence on non-renewable fossil fuels.

Considering all available information, electrification of the Alameda Corridor and modification of engines to run on E95 ethanol would provide an immediate reduction in

pollution throughout the greater Los Angeles area as well as setting a shining example of eco-friendly transportation planning to the rest of the country. In the long term, adoption of an elevated maglev system, either a Transrapid or General Atomics version, would greatly increase the efficiency and capacity of cargo transportation from the ports to the rail yards with minimal environmental impact.

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- Veronica Hendrix, Port of Los Angeles Public Information Director, Public Relations and  
Legislative Affairs
- Kevin Maggay, Port of Los Angeles Environmental Specialist

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Alfred Wimmer, architect.

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## Project Purpose



- **Response to *Coalition For a Safe Environment* Request for Proposals**
- **Current transportation system causes too much pollution**
- **Present Alternative Non-Polluting Transportation Systems**

USC

## The Technologies

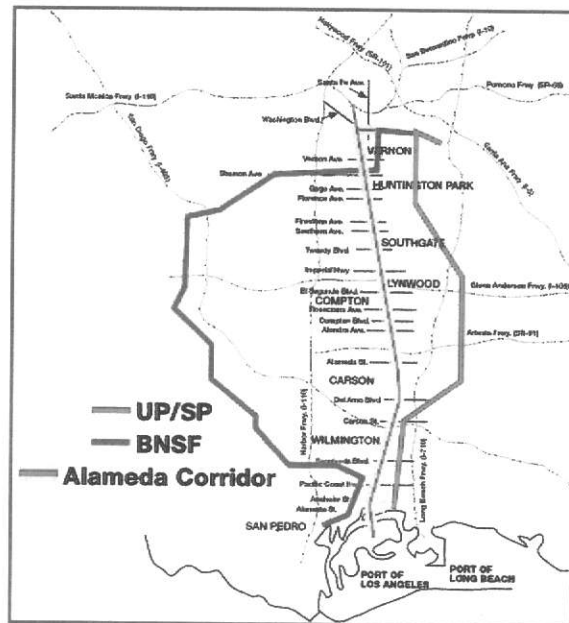


- **Electrified Rail**
- **Magnetic Levitation**
- **Linear Induction Motor**
- **Electric Motor & Rubber Tire Vehicles**
- **Underground Gravitational Track**
- **Alternative Fuels**

USC

## The Status Quo

- Containers moved by truck or train
- Diesel powered
- 3 rail routes
- 2 Interstate highways



**USC**

## Alameda Corridor

- Links Ports of LA and Long Beach to downtown rail center
- 20 miles long
- Mid-Corridor Trench
- Cost \$2.4 billion and 5 years to build
- Capable of being electrically powered

**USC**



## Pollution

- **Factors: Age, Engine, Route**

- **Trucks:**

Particulate Matter: 188 tons per year

NOx: 9,264 tons per year

- **Trains:**

Particulate Matter: 111 tons per year

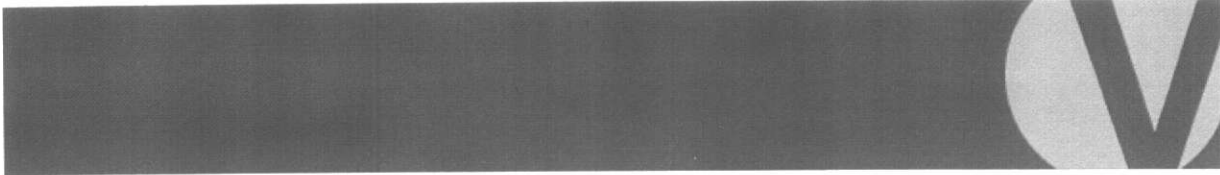
NOx: 4,533 tons per year

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## Efficiency

- **1.5 million containers transported between POLA/POLB and the rail yards in 2005**
- **An additional 4.7 million between the ports and warehouses**
- **Alameda Corridor Transportation Authority reports there are 55 trains per day operating in the corridor**

USC



# Electrifying the Rail System

Chris Roth



## Electrifying the Rail System

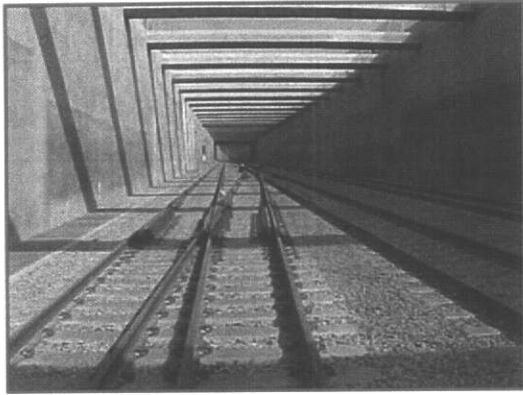
### General idea:

- Diesel locomotives are actually Diesel-Electric locomotives
- Diesel power plant onboard generates electricity
- Centralize power generation, increase efficiency



## Electrifying the Rail System

### Current Technology:

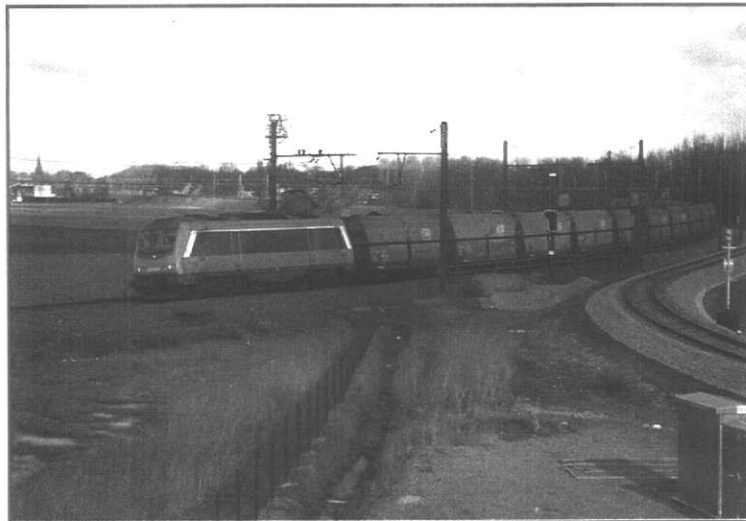


Alameda Trench and GE Evolution Series Diesel Locomotive

USC

## Electrifying the Rail System

### European Example: (Electric Freight Trains in Antwerp)



USC

## Electrifying the Rail System – Costs



### Minimal infrastructure capital cost:

- Power junctions already in place
- 3 story trench has room for overhead power lines
- Phase in new locomotives to replace aged models

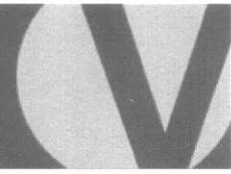
Maintenance costs should decrease

Operating costs should decrease

Revenue generation should increase

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## Electrification – Jobs, Safety, Pollution



### Jobs should remain largely unchanged

- Generate some construction jobs during implementation

### Two safety issues: (both are nearly negated by Trench)

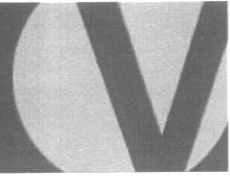
- Hard to hear
- Exposed electrical wires

### Pollution:

- No onsite pollution

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## Electrification – Summation



### Setting a precedent:

- Unprecedented in US, could set good example
- Eliminates pollution along path of transport

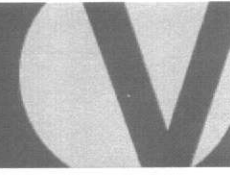
### Timeframe – Unknown

- In US no pure electric locomotive models in production

Capacity – Should be unchanged

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## Electrification – Pros and Cons



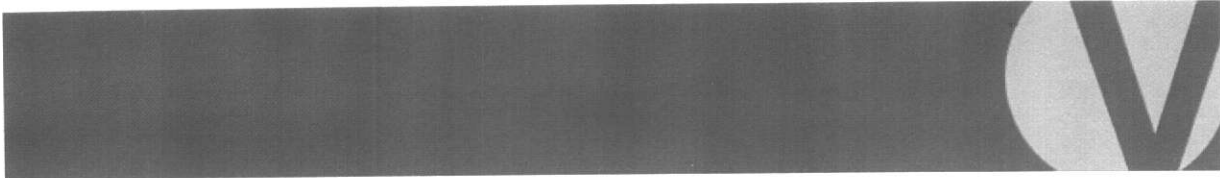
### Pros:

- Lower operating costs
- No train emissions
- Quieter than conventional rail
- Proven concept
- Safe
- Lower maintenance costs
- Infrastructure largely in place

### Cons:

- Electricity demand
- No pure electric locomotives in production in US

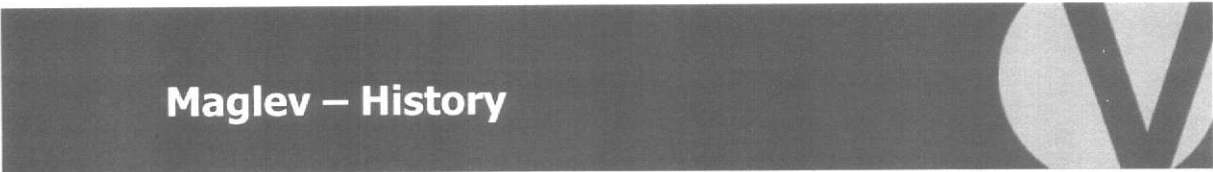
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# Magnetic Levitation

Daniel Kitayama

Marcus Marquadt

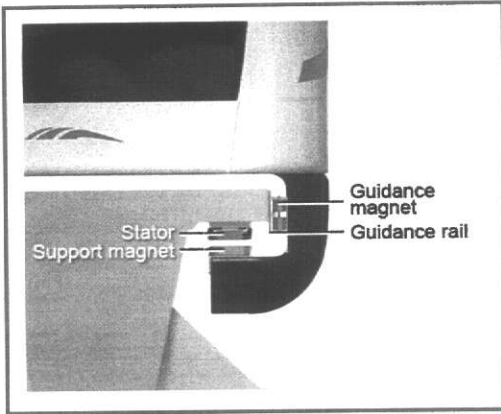


## Maglev – History

- 1974 - Research started
- 1976 - First prototype in Germany
- 1979 - Transrapid 05 test vehicle
- 1983 - Transrapid 06 test vehicle
- 1988 - Transrapid 07 test vehicle
- 1999 - Transrapid 08 test vehicle
- 2003 - First commercial passenger implementation in China



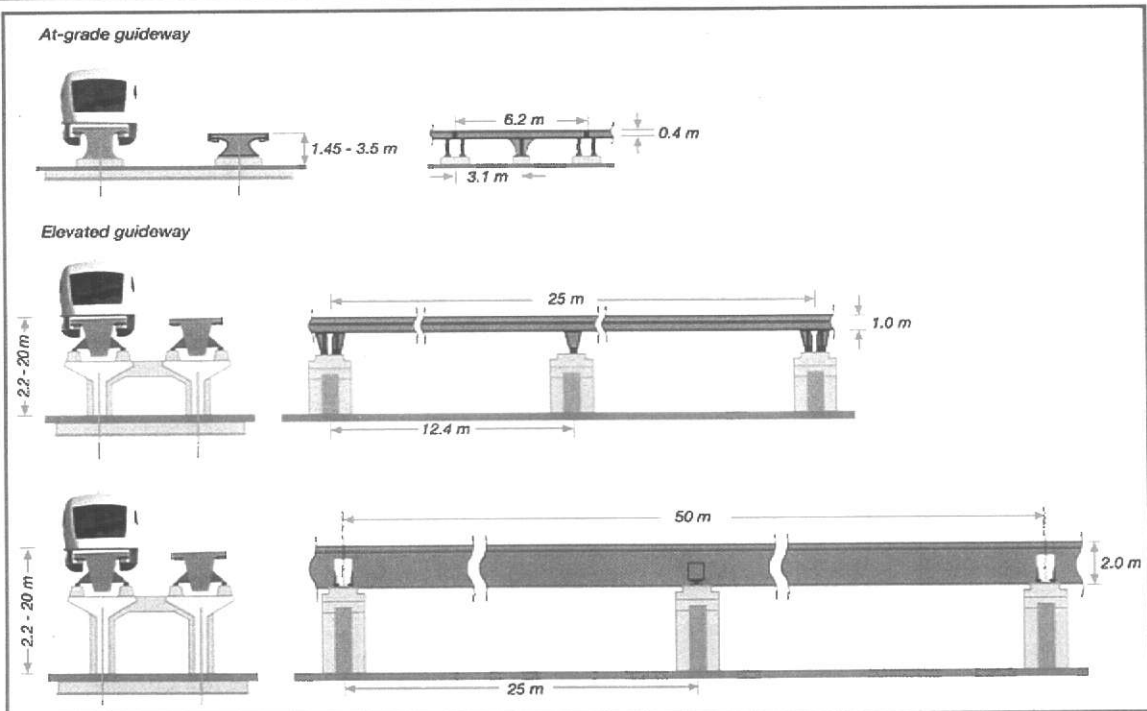
# Maglev – What is it?



- Cars levitated by magnets above a track
- Propelled by linear induction motor
- Track sections that are individually powered up, moving the vehicle
- Vehicles can travel up to 310mph
- Types:
  - EMS (ElectroMagnetic System)
  - EDS (ElectroDynamic System)

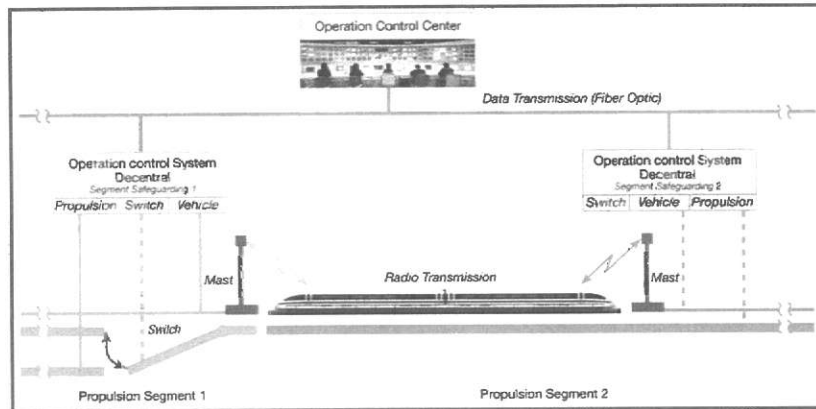
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# Maglev Tracks



## Maglev – Operating Procedure

- **Central operational control system**
  - Controls the motors on the track
  - Requires few personnel for operation
- **Communication by radio**



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## Freight Maglev – Capacity

- **5,000+ containers per day**
- **1,825,000+ containers per year**

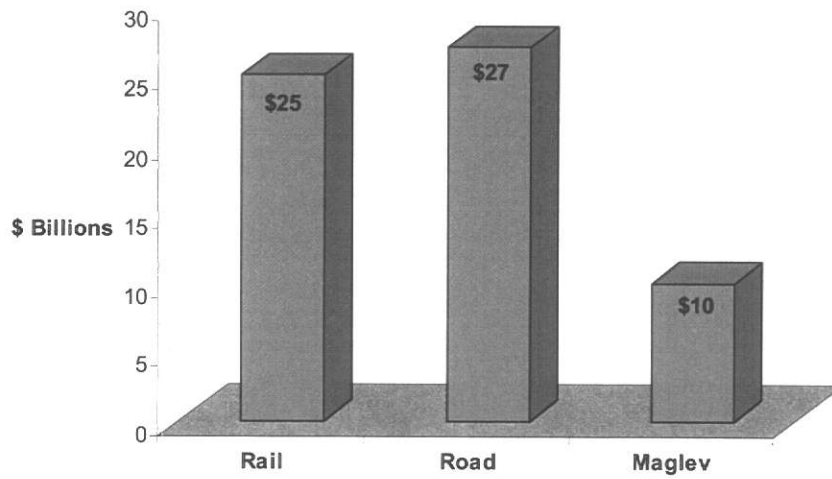


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## Infrastructure Costs of a Freight Maglev

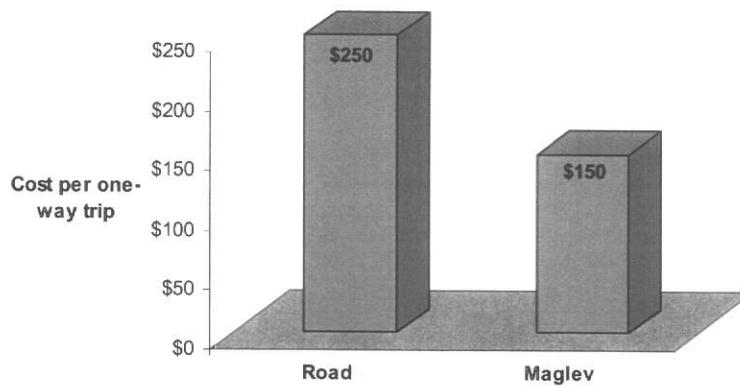
Estimated Capital Cost to Downtown LA



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## Operating Costs of a Maglev

Estimated Operating Cost



USC

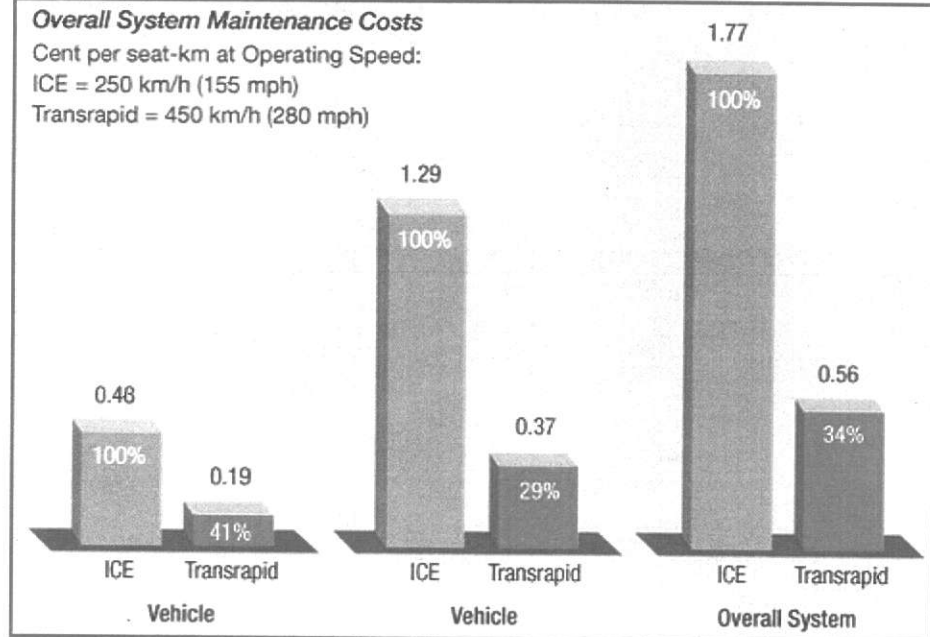
## Maintenance Costs of a Freight Maglev

### Overall System Maintenance Costs

Cent per seat-km at Operating Speed:

ICE = 250 km/h (155 mph)

Transrapid = 450 km/h (280 mph)



USC

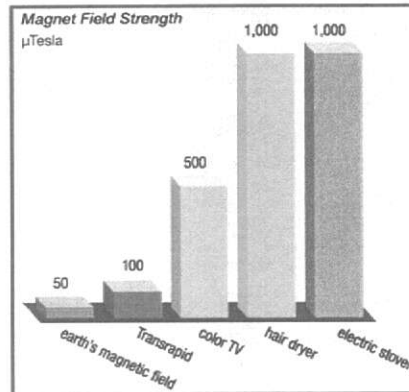
## Maglev – Jobs

- Would likely cause relocation of a portion of the LA trucking industry
- Would require control and maintenance personnel

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## Maglev – Safety

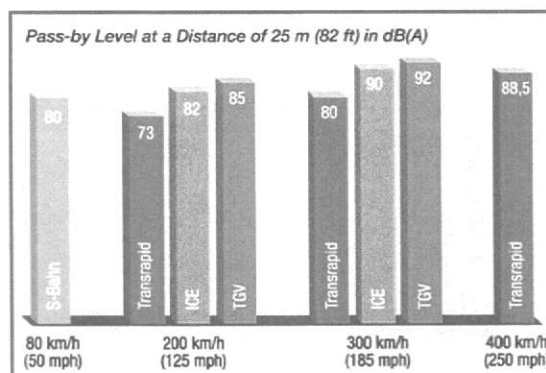
- Track determines speed
- Vehicle wrapped around track
- No combustible materials in vehicle
- Magnetic fields insignificant



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## Maglev – Pollution

- No point of transit air pollution
- Noise pollution
- Annoyance

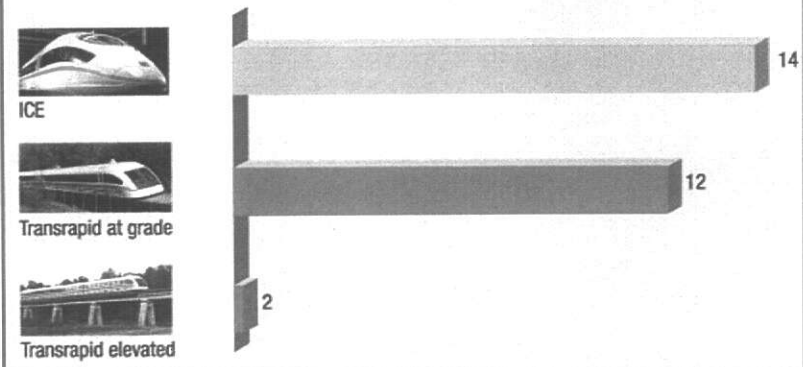


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## Maglev – Land Use

- **Track:**

*Land Consumption in Comparison (m<sup>2</sup>/m)*



- **Electrical Substations**

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## Maglev – Implementation Timeframe

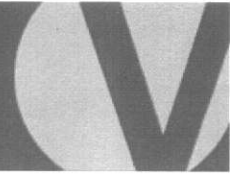
- **Technology exists**
- **Freight vehicles and track in prototype stage**

**Estimated time to implement: 5 - 10 years**



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## Maglev – Pros and Cons



### Pros:

- Low operating Costs
- No train emissions
- Quieter than conventional rail
- Fast (up to 93mph)
- Proven concept
- Small footprint
- Large capacity
- Safe
- Low maintenance costs

### Cons:

- High electricity demand
- Electrical substations every 3 miles along track
- Noise produced is annoying
- High capital investment cost

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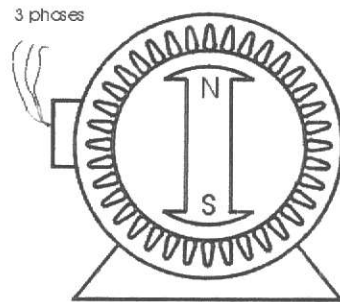
## Linear Induction Motors & Skytech Framework

Tajen Wu

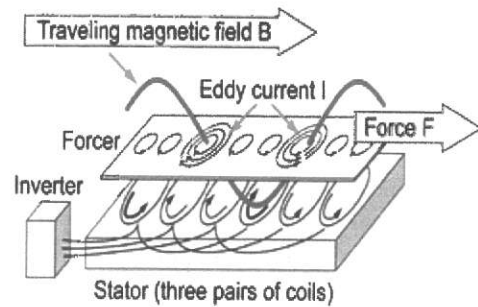
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## Theory of Linear Induction Motor (LIM)

- A LIM is basically a traditional AC motor laid out flat
- Instead of torque, produces linear force



AC Motor



LIM

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## LIM Advantages

- No moving parts
- Silent operation
- Reduced operating costs
- Compact size
- Ease of control and installation
- Saves energy

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## LIM – Skytech Transportation System

- 50 foot high structure
- Carry containers and tractor-trailers
- Can use both underside and top of structure for transport
- Containers underneath would levitate, reducing energy cost
- Shuttles moved by LIM
- Skytech estimates 90,000 pound container can go 70mph

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## Skytech – Operating Procedure

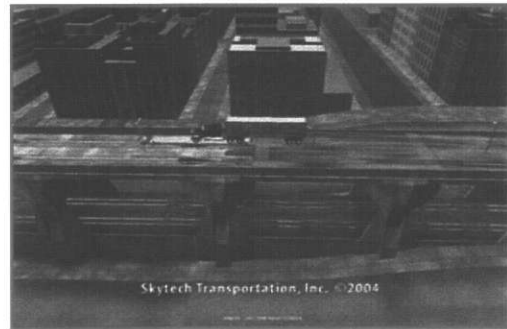
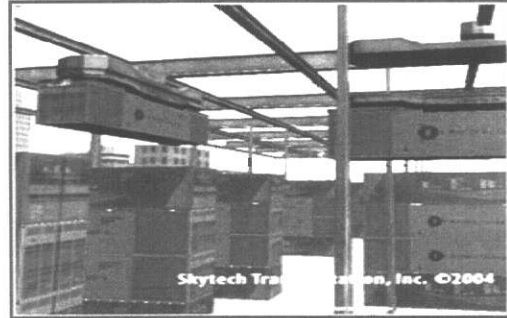
- Unloaded by elevator
  - Placed on shuttle
- 
- Transferred to structure
  - Picked up by over-hang shuttles



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## Skytech – Operating Procedure

- Containers unloaded inside the structure
- Transported from here by tractor-trailers
- Tractor-trailers with container transported by LIM shuttle on track



## Skytech – Phases

### Phase 1:

- Proof of Technology
- Costs \$1M and takes 1 year

### Phase 2:

- Prototype project
- Costs \$22M and takes 2 years

### Phase 3:

- Full project operation
- 25 years
- \$800M - \$1B





## Skytech – Operating Costs



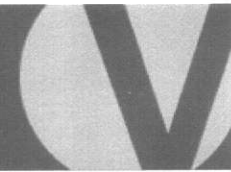
### Cost to transport 1 container 1 mile:

- Status quo - \$1.15
- Skytech Framework - \$0.47

Savings of 59%

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## Skytech – Pollution, Safety, Jobs



### Pollution:

- Nearly pollution free
- Nearly silent operation
- No emissions

### Safety:

- Elevated track protects public
- Like maglev, nearly impossible to derail

### Jobs:

- Estimated at 500

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## Skytech – Efficiency



- **Capacity – 1000 containers/day**
- **More than 50% reduction in transfer time and cost**
- **25-60% reduction in congestion and pollution**
- **25-35% reduction in maintenance cost**
- **10-15% increase in carrier margins**



## Skytech – Pros and Cons



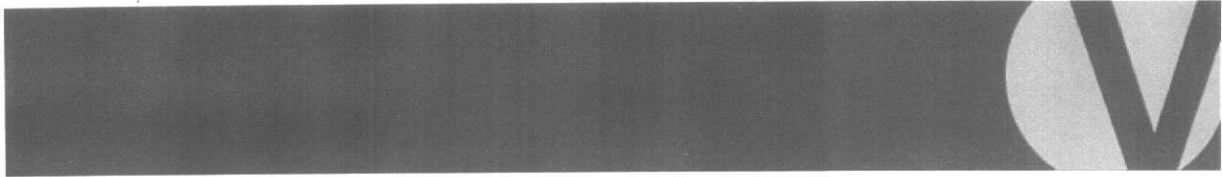
### **Pros:**

- **Low operating Costs**
- **No shuttle emissions**
- **Safe**
- **Low maintenance costs**
- **Higher efficiency**
- **Saves energy**

### **Cons:**

- **Long implementation**
- **Unproven technology**
- **Small capacity**
- **High capital investment cost**

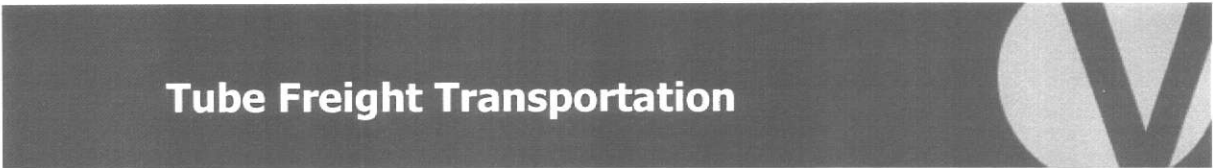




# Tube Freight Transportation

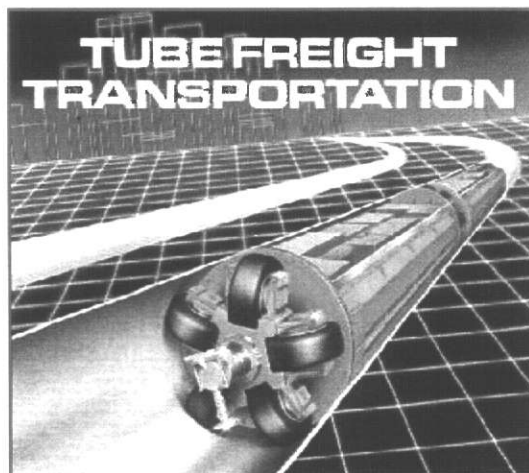
Mark Jordan

USC



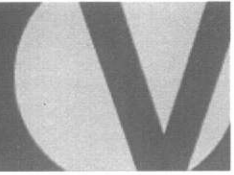
## Tube Freight Transportation

- Automated system
- Tubes



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## Tube Freight Transportation

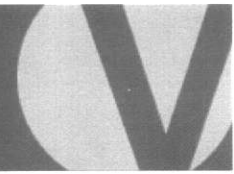


### Replace Trucks:

- 1.5 million trucks per year
- 33% of the cargo bound for rail yard
  - 23.4% of total traffic
- Benefits



## Tube Freight Transportation – Costs



### Infrastructure

- Tube construction
- Track construction
- Motors and controls
- Capsules
- Stations
- Tunneling

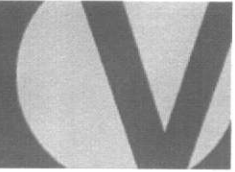
### Energy

### Maintenance

- Everything from infrastructure



## Tube Freight – Pros and Cons



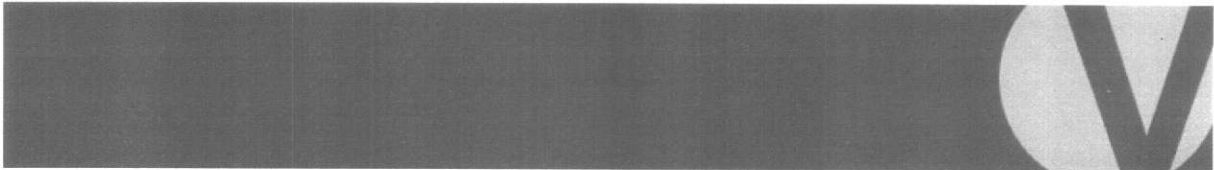
### Pros:

- Replace trucks
- Improve safety
- Decrease pollution
- Decrease road damage
- Reduce transportation costs

### Cons:

- Not an alternative for trains
- Unproven scale of technology
- High capital investment cost
- Relocation of trucking jobs
- Efficient intermodal transfer needed

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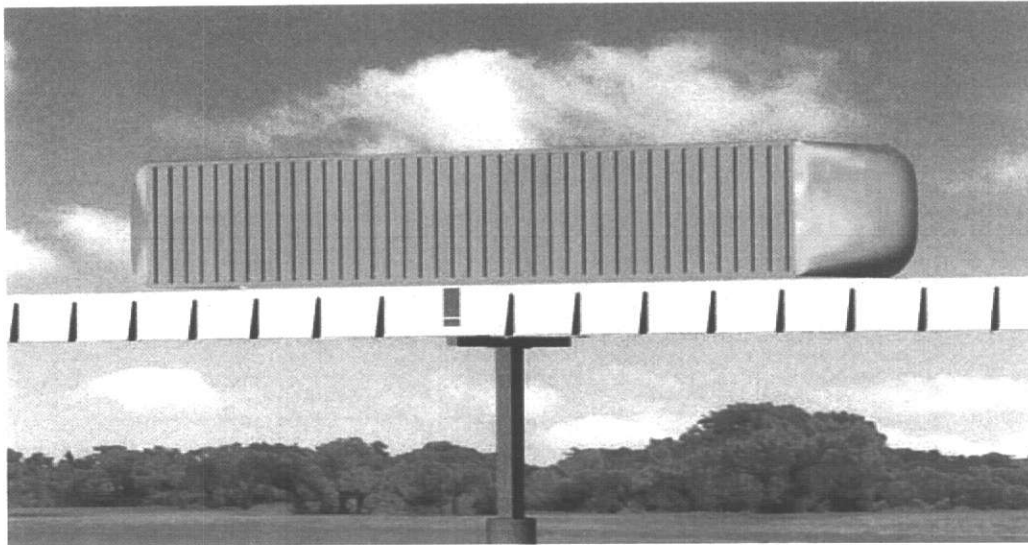


## The CargoRail System

Reg Sylvester

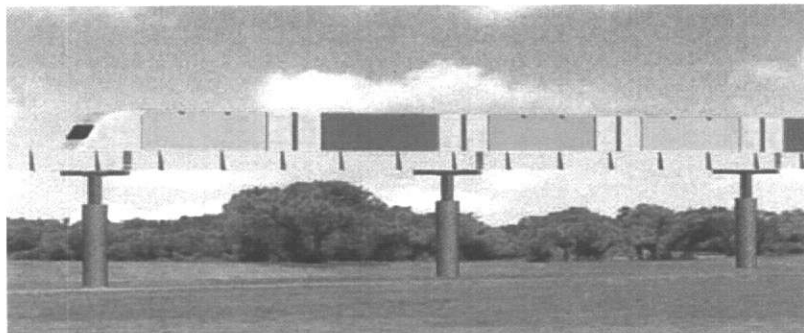
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## The CargoRail System



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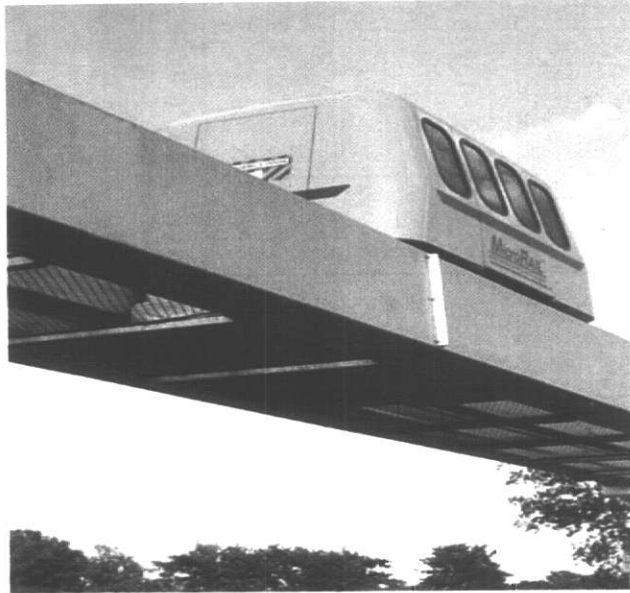
## CargoRail – Description



- Electric power cargo trams
- Travel on elevated rails
- No previous implementation

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## CargoRail – Operating Procedure



- Drives off rail for loading
- Travels on rail to destination
- Rails installed along highways or median

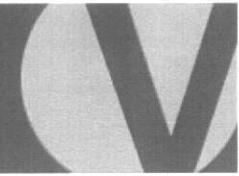
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## CargoRail – Costs

- Demo Model of Technology: \$10 Million
- 20 Mile Stretch of CargoRail System: \$1 Billion
- \$340 Million For Guide Rails, \$660 Million For Trams
- Lower Highway Maintenance Costs
- Lower Operational Costs
- Lower Shipping Prices

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## **CargoRail – Jobs and Safety**



### **Job Breakdown**

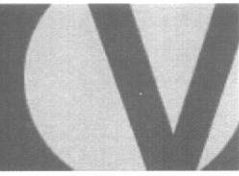
- **Short Term Construction Jobs**
- **Possible Long Term Factory Jobs**
- **Shift of Trucking Jobs**

### **Safety Features**

- **Collision, Derailing, Skidding, Earthquake, Flat Tire Protection**
- **Backup Power, Computer Controlled, Dual Motors**



## **CargoRail – Efficiency and Implementation**



### **Efficiency Statistics**

- **31 Million Containers per Year**
- **5,000 Containers per Hour per Direction**
- **Supports Port Expansion**

### **Implementation Timeline**

- **Only Estimated 30 Months to Build**
- **Minimal Traffic Obstruction**





## CargoRail – Pros and Cons



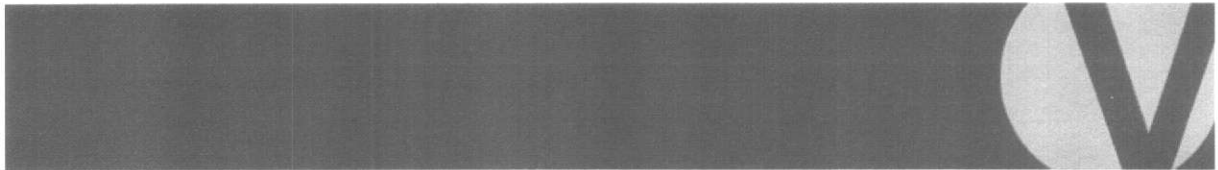
### Pros:

- No pollution
- Very Efficient
- Low cost solution
- Quick implementation
- Reduce transportation costs

### Cons:

- Untested technology
- Relocation of trucking jobs

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## Underground Gravitational Track

Ruth Chen

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## Underground Gravitational Track



Concept for Underground Angular Linear Gravitational System: Alfred Wimmer

### Pros:

- Out of sight
- Operator-safe
- Electric power, augmented by solar energy
- Technological innovation

### Cons:

- Excavate by bore method
- Implementation timeframe
- Maintenance problems
- Efficiency depends on design parameters

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## Underground Gravitational Track



### Problems with original and intermediate designs:

- Design Feasibility
- Additional Costs

Central Artery/Tunnel Project, a.k.a. "Boston's Big Dig"

20 years, \$14.6 billion for 3.5 mi of underground highway

The Channel Tunnel, a.k.a. "The Chunnel"

15,000 workers, 7 years, \$19 billion for 31 mi of underground rail

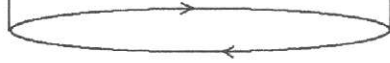
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## Underground Gravitational Track

Railyard



Port

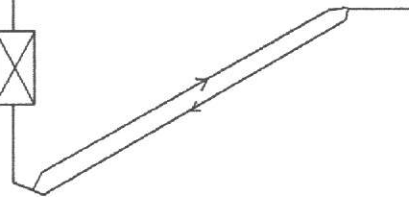


- Uniform depth: space efficient
- Non-gravitational
- Dual elevator systems
- Conveyer-capable for elliptical or parallel tracks

Railyard



Port



- One significant excavation plane
- Gravity-driven
- Single elevator system
- Conveyer-capable for elliptical or parallel tracks, or overhead ratcheting

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## Alternative Fuels

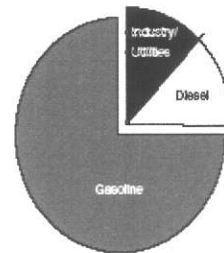
Joao Grangeiro

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## Carcinogens

- **Transportation generates 55.8% of air pollution**
- **EPA: 66-80% of carbon monoxide emissions in US cities from transportation**

Gasoline is the largest source of man-made carcinogens.



Source: U.S. Environmental Protection Agency

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## Sources of Alternative Fuels

- **Liquid Natural Gas**
- **Biodeisel**
- **Ethanol**

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## Liquid Natural Gas (LNG)



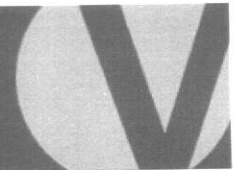
### Fuel Description:

- From underground reserves
- Primarily methane
- Reduction in ozone-forming emissions
- HC emissions may be increased.

**Domestic Content of Fuel: 100%**

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## Biodeisel



### Fuel Description:

- Domestic renewable resources
  - soy bean oil
  - waste cooking oil
  - animal fats
  - grapeseed oil
- Reduces particulate matter emissions
- Reduces global warming gas emissions
- NOx emissions may be increased

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## Ethanol

### Fuel Description:

- From grain or agricultural waste
- E-85: light-duty applications
  - 25% reduction in ozone-forming emissions
- E-95: heavy-duty applications

### Domestic Content of Fuel:

- As high as 100% for pure ethanol
- Depends on world market price

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## Fuels Matrix

	Biodeisel (B20)	Ethanol (E85)	LNG
Environmental Impact	<ul style="list-style-type: none"><li>• Reduces PM emissions</li><li>• Reduces global warming gas emissions</li><li>• NOx emissions may be increased</li></ul>	<ul style="list-style-type: none"><li>• 25% reduction in ozone forming emissions</li></ul>	<ul style="list-style-type: none"><li>• Reduce ozone forming emissions</li><li>• HC emissions may be increased</li></ul>

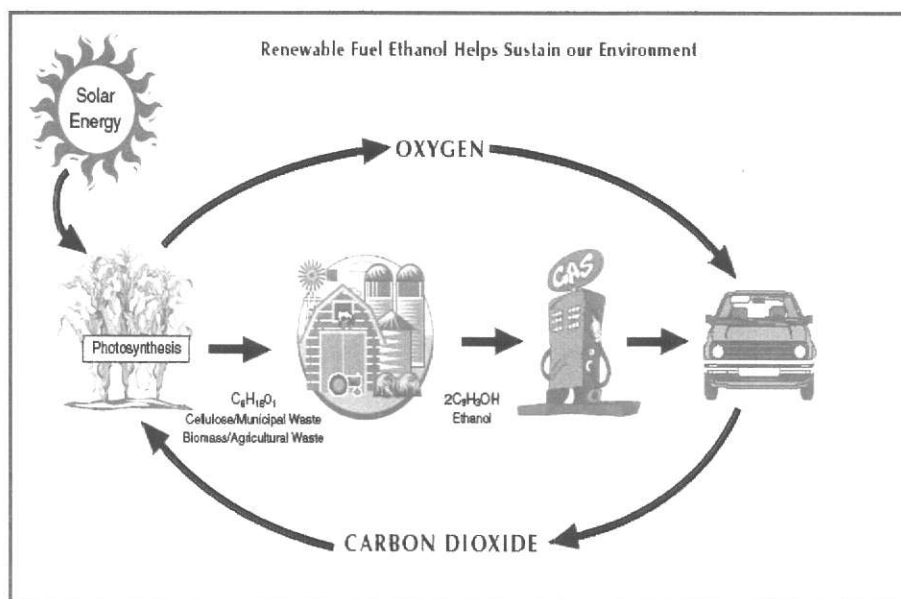
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## Why Ethanol?

- Can reduce 80% to 90% reactive hydrocarbon emission
- Reduce cancer risk 20% to 30%
- Most environmentally beneficial of these alternative fuels
- Reduce green house effect
- Increase life quality of population with cleaner air
- Decrease dependence on foreign oil
- U.S. self-sufficiency in production

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## Lifecycle of Ethanol



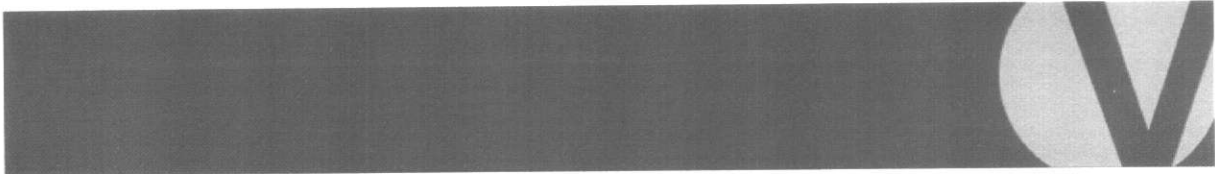
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## Brazilian Example



- 4.3 million vehicles use fuel that is 95% ethanol by volume (hydrated ethanol)
- 17 million cars use ethanol blended fuel
- Directly created 64,000 jobs
- Indirectly created ~9 million jobs
- 80% of Brazilian fuel stations sell ethanol

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## Analysis and Conclusion

Alex Poulton

USC



## Comparison Matrix – Part 1

Technology	Infrastructure Cost	Operating Cost	Land Need
Electrification	Low	Low	None
Maglev	High	Low	Low
Skytech	Low	Low	Low
Tube Freight	High	Low	Subterranean
CargoRail	Low	Low	Low
Gravity Track	Very High	Medium	Subterranean
Alternative Fuel	Low	Low	None

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## Comparison Matrix – Part 2

Technology	On Site Pollution	Capacity Change	Feasibility
Electrification	None	No Change	High
Maglev	None	Slight Increase	Moderate
Skytech	None	Dramatic Decrease	Low
Tube Freight	None	Supplemental	Low/Moderate
CargoRail	None	Dramatic Increase	Moderate
Gravity Track	None	Variable	None
Alternative Fuel	Medium	No Change	High

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