Union Pacific Railroad
Application for Development Project Approval

INTERMODAL CONTAINER TRANSFER FACILITY (ICTF) MODERNIZATION PROJECT

Submitted to:

Governing Board
Intermodal Container Transfer Facility
Joint Powers Authority

Submitted by:

Union Pacific Railroad

Barry D. Michaels
Assistant Vice President
Premium Operations-Network

December 26, 2007

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INTRODUCTION

The materials included in this information package comprise Union Pacific Railroad Company's (Union Pacific) re-submittal of its Application for Development Project Approval (ADPA) for its Intermodal Container Transfer Facility (ICTF) Modernization Project (ICTF Project).

Union Pacific is an operating subsidiary of Union Pacific Corporation. It is the largest railroad in North America, operating in the Western two-thirds of the United States. Union Pacific serves 23 states, links every major West Coast and Gulf Coast port, and provides service to the East Coast through its four major gateways at Chicago, St. Louis, Memphis and New Orleans. Additionally, Union Pacific operates key north/south corridors and is the only railroad to serve all six major gateways to Mexico. Union Pacific also interchanges traffic with the Canadian rail systems.

On March 30, 2007, Union Pacific submitted its first application to the Port of Los Angeles (the POLA) for the ICTF Project. In its April 27, 2007 letter response to Union Pacific, the POLA informed Union Pacific that the ICTF Joint Powers Authority (the JPA), not the POLA, was the appropriate public lead agency for the ICTF Project under the California Environmental Quality Act (CEQA) and the Permit Streamlining Act (PSA).

Accordingly, on May 21, 2007, Union Pacific re-submitted its application – as recommended by the POLA – to the JPA. In its June 18, 2007 letter response to Union Pacific, the JPA deemed that application incomplete because "certain preliminary project information that is requested in the JPA's Application for Development Project Approval has not been provided." Union Pacific immediately requested a meeting with JPA planning and engineering staff to: (1) reach a consensus regarding what specific project information was outstanding; and (2) ensure that the next application submittal would be deemed complete. That meeting occurred on August 15, 2007. On August 24, 2007, Union Pacific provided the JPA a letter memorializing "a final understanding on the JPA's requirements for determining Union Pacific's forthcoming Application to be complete." No response was received from the JPA suggesting any modifications or additions to the understandings reflected in the August 24th letter. That letter is attached hereto as Appendix I.

The present, comprehensive ADPA contains all pertinent ICTF Project information, as well as every item requested by the JPA during the August 15, 2007 meeting. Therefore, this submittal is complete and includes all of the necessary information required for the JPA to initiate the ICTF Project's environmental review and development project approval process. Further, by its submittal of this ADPA, Union Pacific seeks the JPA's approval of a development project, in accordance with the provisions of California Government Code section 65943(a).

Specifically, this ADPA contains the following components:

- **Executive Summary:** A succinct description of Union Pacific's current ICTF operation, the proposed modernization project and its potential environmental impacts and benefits.

- **ICTF Project Description:** A detailed explanation of the ICTF Project's location, existing conditions and setting, purpose, objectives, key design features, modernized operations and construction plan staging.

- **Preliminary Environmental Impact Analysis:** An initial analysis of the ICTF Project's potential environmental impacts and substantial environmental benefits, with respect to air quality, traffic and circulation, noise, lighting and glare, and aesthetics. Several figures and tables are provided to supplement the textual discussion of potential environmental impacts.

- **Supporting Appendices:** Appendix materials include :

  - Appendix A: This Appendix consists of the completed "Application for Discretionary Project for Intermodal Container Transfer Facility Joint Powers Authority" form.

  - Appendix B: This Appendix consists of five (5) documents which detail: the kinds of construction equipment which will be used during the ICTF Modernization Project, the expected extent of their use, their fuel type and consumption rates and volumes; the methodology used to calculate construction equipment fuel usage; the number of hours and gallons used per month per equipment item over the course of the anticipated 36-month construction cycle.

  - Appendix C: This Appendix is a comprehensive Air Quality Technical Report which contains emissions inventories for direct and indirect sources of criteria and non-criteria pollutants for the 2005 baseline year as well as projected emissions inventories for the years 2010, 2012, 2014 and 2016. These baseline year and projected future emissions inventories include emissions from the Dolores Yard, a nearby locomotive servicing facility which supports the ICTF, and other Union Pacific yards in the area. Appendix C also contains an air dispersion modeling analysis for the 2005 baseline year. The greenhouse gas emission estimates for the 2005 baseline year are extended to the California state line and the current emission estimates for trains and heavy duty diesel-fueled trucks related to the ICTF have been calculated for the boundaries of the South Coast Air Basin.

  - Appendix D: This Appendix consists of a Health Risk Assessment (HRA) based on Union Pacific's 2005 calendar year ICTF operations. This HRA was prepared (per agreement with the JPA) by the California Air Resources Board (CARB). It uses a standard modeling domain of approximately 10 km and it includes emissions from onsite sources as well as emissions from ICTF-related trains and drayage truck operations within 0.5 miles of the ICTF boundary.

  - Appendix E: This Appendix consists of estimates of criteria pollutant, diesel particulate matter (DPM) and greenhouse gas emissions from onsite and offsite construction equipment and vehicles, as well as estimates of PM10 emissions from wind erosion, material handling and roadways over the course of the estimated 36-month ICTF Project construction cycle.

- Appendix F: This Appendix consists of two lists: one, a list of the emission factors associated with yard hostlers powered by alternative fuels at the modernized ICTF ; and the second, a list of the properties (including flash point) of those alternative fuels.

- Appendix G: Appendix G contains an ICTF Hazardous Materials Closure Plan, current ICTF Hazardous Materials Inventory Forms, and the current ICTF Emergency Response Plan. The still-conceptual Hazardous Materials Closure Plan represents Union Pacific's commitment: that regulated hazardous materials and wastes that are or have been handled or released at the ICTF will be transported, disposed of or recycled in a manner that protects public health and safety and the environment; that any residual contamination and/or hazardous materials will be removed as part of the closure process; and that the closure process will be accomplished in compliance with statutory and/or regulatory requirements in existence and applicable to the ICTF and its operations at the time of Facility Closure.

- Appendix H: This Appendix contains Union Pacific's compilation of as comprehensive as possible a collection of site-specific geology and soils reports. Included in this Appendix are the following documents: several Leroy Crandall and Associates geotechnical investigation reports prepared in 1982-1985 for Southern Pacific Transportation Company in connection with the original ICTF construction; Phase I Environmental Site Assessment data for an adjacent property outside of the ICTF footprint which Union Pacific anticipates may be developed for the modernization project; and the August 2006 Preliminary Report of Geotechnical Feasibility Study prepared for Union Pacific's first ICTF modernization project application, with non-technical revisions from November 2007.

- Appendix I: This Appendix contains an August 24, 2007 letter from Union Pacific to the JPA memorializing the understandings reached between those parties' representatives during an August 15 meeting intended to identify the contents of a resubmitted ICTF modernization project application which would be necessary for the JPA to deem that application complete.

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EXECUTIVE SUMMARY

UNION PACIFIC RAILROAD INTERMODAL CONTAINER TRANSFER FACILITY MODERNIZATION PROJECT

Project Necessity

Between 1982 and 1986, the Port of Los Angeles (the POLA), the Port of Long Beach (the POLB) (collectively referred to herein as the “San Pedro Bay Ports” or the “Ports”) and the Union Pacific Railroad Company (Union Pacific), entered into an unprecedented public-private partnership to jointly develop a state-of-the-art Intermodal Container Transfer Facility (“ICTF” or “Facility”) to handle container cargo from the San Pedro Bay Ports.[1] The ICTF became a vital link in the national system of interstate goods movement by facilitating the rail distribution of cargo throughout the region and the United States.

Twenty years later, the ICTF continues to be a critical component of Union Pacific's interstate rail system business and is an integral contributor to the continued growth and strength of the Ports. Those twenty years have also stretched the ICTF’s capacity to its limits and it must now be modernized. Union Pacific proposes this ICTF Modernization Project (“Project” or “ICTF Project”) in order to significantly increase its productive capacity, while providing a dramatic reduction in air emissions and commensurate overall predicted adverse health risks. In fact, Union Pacific's modernized ICTF sets a new standard for environmentally sensitive rail facilities and demonstrates that it is truly possible to simultaneously “green and grow” the Ports.

The ICTF currently handles an annual average of 725,000 cargo containers. However, the existing Facility was not designed to accommodate present cargo container volumes, much less the significant projected increases in Port container traffic. Union Pacific’s proposed ICTF Project more than doubles container handling capacity to an estimated 1.5 million containers annually and, concurrently, will modernize existing equipment, revolutionize operational methods, increase efficiencies, reduce existing and minimize

[1] Southern Pacific Transportation Company ("SPTC") was the original private party in this partnership. Union Pacific subsequently acquired SPTC and its rights and responsibilities under the ICTF agreements.

future environmental impacts, and help sustain the future growth and economic attractiveness of the Ports.

Project Objectives

As noted above, the ICTF is a critical part of Union Pacific's interstate rail system. Union Pacific's substantial market share of the Ports' rail traffic reflects the importance of this business component. Union Pacific is convinced that the Ports' sustainable growth depends on consistent support from the near-dock ICTF, which supplements the effective but limited number of existing and planned on-dock facilities. The 2006 San Pedro Bay Ports Rail Study Update[2] anticipates that cargo traffic will double by Year 2020. Union Pacific knows that it must modernize the ICTF now if it is going to be able to meet the demands of that projected growth in cargo traffic. Union Pacific also knows that this modernization can best maintain and strengthen the Ports' economic health if the ICTF itself becomes a leading model for environmentally responsible rail yard design and operation.

In addition, Union Pacific is committed to maximizing the synergy among the Ports, the ICTF and the Alameda Corridor. The Alameda Corridor is a 20-mile-long dedicated rail line running from the POLA and the POLB to the transcontinental rail network near downtown Los Angeles. The Corridor is a series of bridges, underpasses, overpasses and street improvements that separates freight trains from street traffic and passenger trains. Its grade-separations eliminate vehicular wait-time and reduce emissions at track crossings. The Project's design allows trains to move more efficiently on a direct route from the Ports and provides substantial regional air quality benefits. The ICTF's modernization also maximizes environmental benefits associated with increased use of the Alameda Corridor.

Specifically, ICTF modernization expands the rail, rather than the truck, transport of container cargo from the POLA and the POLB to destinations outside of Southern California. This increase in the movement of goods by rail and corresponding decrease in the movement of goods by truck provides significant local and regional environmental benefits by slashing the emission of air pollutants associated with container cargo transport. The 2005 Alameda Corridor Air Quality Benefits Final Report[3] found that increased use of the Alameda Corridor rail system coupled with decreased highway container truck traffic substantially reduces air emissions and regional health risks, reduces at-grade crossing accidents, reduces the risks of hazardous material spills, and increases container transport efficiencies. Additional benefits of the Alameda Corridor were reported to include reduced vehicle delays, congestion relief, and a substantial reduction in total locomotive idling time. In short, another key Project objective is to enhance regional environmental benefits and economic efficiencies by increased use of the Alameda Corridor.

Both on-dock and near-dock facilities are essential for the existing and projected cargo handling demands of the Ports. Near-dock rail facilities, like Union Pacific's ICTF, serve numerous marine terminals and Port clients and, thereby, provide certain logistical advantages over on-dock facilities. Effective use of both facilities reduces the truck cargo

2 http://www.portoflosangeles.org/environment_studies.htm (Executive Summary only)

3 http://www.acta.org/environment.htm

transport to and from off-dock rail yards located over 25 miles away in downtown Los Angeles. Accordingly, undesirable air quality, noise, and traffic impacts are minimized. The 2006 San Pedro Bay Ports Rail Study Update recognizes that the combination of existing and currently-proposed on-dock and near-dock rail facilities will not meet projected cargo-handling demands beyond the Year 2010-2030 horizon. The Study Update states that additional near-dock as well as on-dock rail facility expansion will be required to meet those projected demands. Therefore, the ICTF Project is an essential component of the Ports' continued success and growth and central to both Union Pacific's and the Ports’ business models.

Project Funding

As is discussed in more detail in Section 1.5.4, Union Pacific intends to fund the overwhelming majority, if not all, of the Project’s costs by private means.

Project Location

The ICTF is located approximately 5 miles from the POLA and the POLB, at the terminus of State Highway 103, known as the “Terminal Island Freeway” (see Figure 1). The existing ICTF operational core is located on 148 acres of POLA land subleased by Union Pacific from the JPA within the City of Los Angeles. Adjacent supporting uses are located in the City of Carson, on approximately 15 acres Union Pacific purchased from the Watson Land Company, and another approximately 74 acres Union Pacific leases from the Watson Land Company. Surrounding land uses are primarily heavy industrial, except for a medium-density, single-family residential neighborhood on the northeast project boundary in the City of Long Beach.

Increased Capacity – Reduced Facility Footprint

Union Pacific estimates that its ICTF Project will increase the annual average number of containers transferred from truck to rail transportation from the present 725,000 to a projected 1,500,000. Despite this increase in capacity, the ICTF’s operational footprint will shrink to 177-acres from its current 233-acre area (see Figure 5). In addition to the projected average annual container lift increase, Union Pacific expects the number of average annual one-way truck trips to increase from 1,087,086 to 2,268,000[4], the average number of daily train arrivals and departures to double and container storage to increase from 3,500 40-foot wheeled spots to 8,400 40-foot stacked spots (see Table 1.1). Union Pacific’s plan to replace 10 existing diesel-fueled rubber tired gantry (RTG) cranes with 39 electric wide-span gantry (WSG) cranes will substantially increase container transfer efficiency and dramatically reduce air emissions and noise generation. The implementation of these and other Project elements will play a major and indispensable role in helping the POLA and the POLB satisfy the projected increases in container handling market demand while incorporating environmentally friendly terminal design features.

The ICTF Project includes numerous design features that improve existing environmental conditions. For example, the increased operational efficiency of the WSG cranes

[4] Although the average number of truck trips to and from the ICTF from the Ports will increase with this Project, ICTF modernization will displace longer distance truck trips to remote destinations by these same trucks.

substantially reduces truck loading and unloading wait times, resulting in minimized idling and the emission of fewer air contaminants. In addition, Union Pacific intends to eliminate 71 of the 73 existing diesel-fueled yard hostlers, resulting in a substantial reduction in diesel emissions as well as noise from this source. The remaining two hostlers are being retained for miscellaneous and intermittent use and will be powered by an alternative, non-diesel fuel source.

Electrifying Operations & Upgrading Infrastructure

Operationally, the new electric WSG cranes will service several loading tracks and will transfer containers between container stacks adjacent to the loading tracks (see Figure 4). The Project includes the construction of nine new tracks. Union Pacific will maintain three existing tracks, for a total of twelve tracks, to support the modernized operation (see Figure 19). Six new electric substations will accommodate the WSG crane system power demand.

The electrical power system required for the modernized ICTF, including the WSG cranes, reefer container receptacles[5], and yard lighting will consume an estimated peak demand of 30 megawatts (MW). Los Angeles Department of Water and Power (LADWP) will provide power by a primary power feed from the south side of the Facility. Either LADWP or Southern California Edison (SCE) will provide secondary power from a feed on the north side of the ICTF. LADWP will continue to provide drinking water and wastewater disposal services.

Aside from new electrical substations, the Project includes only two new structures: (1) a gate house with offices, restrooms, and canopies; and (2) a Crane Parts Building and Service Center to support the electric WSGs (see Figure 5). All other existing ICTF buildings will remain. Existing pavement will remain, where practical. To demolish concrete, Union Pacific intends to construct a temporary facility on a property located in the city of Carson adjacent to the ICTF and currently owned by Myron Z. Chlavin, Trustee of the Myron Z. Chlavin and Nettie Desser Trust dated August 1, 1991, amended and restated December 20, 1997 (hereafter, the “Desser property”). If the Desser property is unavailable for use, or infeasible for this purpose, Union Pacific will select an alternative adjacent location. The crushed concrete produced by that temporary facility will be recycled onsite for new pavement base material.

Union Pacific proposes to upgrade infrastructure as necessary to support the WSG crane components, new tracks, and pavement. The existing storm drain system (see Figure 8) will continue to convey runoff to a 78-inch reinforced concrete main that runs from east to west near the center of the Facility and drains to the Dominguez Channel. New catch basins and curb inlets constructed in the northern portion of the ICTF will convey runoff to an existing reinforced concrete storm drain box along the eastern edge of Alameda Street. The flow will continue via an existing 36-inch reinforced concrete pipe and will

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[5] The emission estimates presented in this ADPA do not account for any reductions that would be achieved through the use of reefer container receptacles. These reductions are expected to be insignificant. Transport refrigeration units (TRUs) and refrigerated railcars (reefer cars) are outfitted with small refrigeration units, powered by onboard diesel-fueled engines, to provide cooling for perishable and frozen goods during transport. When “plugged in” to a reefer car receptacles, these refrigeration units are powered by electricity instead of the onboard diesel-fueled engine, thereby reducing TRU and reefer car related emissions

drain into the Dominguez Channel. All new storm drainage improvements will comply with the ICTF's existing Los Angeles County Standard Urban Stormwater Mitigation Plan (SUSUMP), as required by its existing National Pollutant Discharge Elimination System (NPDES) permit.

Illuminating Effectively

The ICTF's modernization will result in the removal of more than 60 100-foot-tall light poles. They will be replaced by approximately 160 poles between 40- or 60-feet high. The new lighting fixtures, similar to those presently used at the ICTF, will be hooded to direct light downward within the Facility. Light will be shielded from surrounding properties to minimize offsite glare to the extent possible. Installation of new fire suppression utilities (pipes, valves, hydrants, etc.) will follow and will be compatible with proposed lighting centers.

Minimizing Diesel & Integrating Alternative Fuels

Union Pacific plans to eliminate all on-site diesel fueling and storage facilities within the ICTF, including the existing 20,000-gallon, above-ground diesel storage tank and the 1,000-gallon, above-ground unleaded gasoline storage tank.

Potential fuels to be used for the two remaining on-site yard hostlers include biodiesel, propane or liquefied natural gas (LNG). The proposed conceptual location for the alternative fuel fueling facility and storage tank is near the west wall of the existing chassis repair building, in the northern area of the existing ICTF footprint (see Figure 5). Union Pacific will store and dispense between a two-week to one-month supply of fuel at the Facility. If biodiesel is used, Union Pacific will construct an above-ground, 500-gallon-capacity fuel tank with required secondary containment. The tank will be approximately 48-inches in diameter and 66-inches in length and will be mounted on saddles fixed on a concrete pad near the fuel dispenser. If propane or LNG is used, the required fuel will be stored in an above-ground, 1,000-gallon dispenser tank, approximately 42-inches in diameter and 15-feet in length, mounted on a concrete pad.

The fueling facility and storage tank installation will comply with all applicable federal, state and local requirements. Fueling of yard trucks (i.e., small rail yard service trucks) will occur outside the ICTF at local gas stations in the project vicinity. Fueling of the remaining diesel-fueled heavy equipment will be done, as needed, from a fuel truck. No regular gasoline or diesel fuel storage will be required or occur on the ICTF site.

The Project does not require new underground fuel pipelines, because alternative fuels will be trucked to the Facility**.** Project construction will not disturb existing petroleum pipelines which are located along the southeastern and southern project boundaries. These pipelines and their easements are owned, used and controlled by other entities (See Figure 10).

Phased Construction

Union Pacific envisions Project construction occurring in multiple stages of approximately 4 to 6 months each. As new loading tracks are completed and placed in service, the next pair of tracks will be constructed. Construction may take approximately 3 to 4 years.

Maximum ICTF container throughput is estimated to occur by 2016. Union Pacific plans to maintain or exceed existing ICTF container throughput during all Project phases, in order to ensure that the demands of the San Pedro Bay Ports are met fully and efficiently. (See Figures 13-19)

Environmental Impact Summary

Air Quality: The ICTF Project, when completed, will reduce diesel particulate matter (DPM) emissions by approximately 74 percent and emissions of oxides of nitrogen (NOx) by more than 55 percent, from current (2005) levels. Emissions of carbon monoxide (CO), reactive organic gases (ROG), oxides of sulfur (SOx), and greenhouse gases (GHGs) will also be reduced by the ICTF Project. The near-total replacement of existing diesel-fueled cranes and yard hostlers, and the upgrade of switch locomotives will significantly reduce air emissions. Other federal, state and Port air pollution control measures and plans, along with existing railroad voluntary agreement control measures, will supplement and enhance the Project's own emission reductions. These emission reductions will concurrently lower any existing predicted health risk, further assisting the Ports to achieve their overall San Pedro Bay clean air goals. The Project will not only have an incremental health risk of less than 10 in a million, in conformity with the Ports' Clean Air Action Plan, but it will actually reduce the Facility's current predicted risk.

To assess the Project's incremental air quality benefits, the 2005 baseline emissions for the existing ICTF are compared to the modernized ICTF Facility's estimated emissions on a time-phased basis, for Year 2010 through Year 2016, when the Facility will be operating at maximum throughput. At the request of the JPA, emissions from the nearby Dolores Yard have also been included in the inventory for the 2005 baseline and future Project Years. The Dolores Yard is a locomotive servicing facility that provides support to the ICTF and other Union Pacific Railroad Yards in the area. The Yards are physically separate facilities, but due to their close proximity to one another, they were treated as one facility for the emission inventories and the baseline dispersion modeling analysis.

The projected emission reduction calculations in this analysis assume a gradual increase in freight handled at the ICTF beginning in 2010 through its maximum throughput capacity in 2016. In addition, the analysis takes into account certain other future regulatory and voluntary emissions reductions which will be implemented and effective during the period from 2010 (beginning of construction) to 2016 (maximum facility capacity throughput), e.g., CARB's Cargo Handling Equipment regulations, federal truck emission rules, and the 1998 and 2005 CARB MOUs. (This analysis neither includes nor takes credit for the significant additional emission reductions resulting from the Port's Clean Trucks Program.) Thus, the ICTF Project's emissions estimates for the 2010-2016 period are conservative but temporally and spatially realistic.

Clean Air Action Plan: The Clean Air Action Plan (CAAP) was developed through the collaborative efforts of the POLA, the POLB, the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) Region 9, and many public and industry stakeholders. The CAAP includes industry-specific mitigation measures and incentive programs, including the Ports' recently announced Clean Trucks Program, to reduce air emissions and health risks.

Union Pacific is committed to working with the Ports to achieve the San Pedro Bay Ports CAAP goals. While recognizing that its participation in these efforts is voluntary, Union Pacific designed and engineered its ICTF Project to further the CAAP's goals by achieving significant emission reductions. Moreover, as the Ports implement their Clean Trucks Program by 2011, emissions from trucks traveling to and from the ICTF will also be significantly reduced. To be conservative, the analysis of emissions from the ICTF Project does *not* take into account these additional truck emission reductions. Union Pacific will cooperate with the Ports in their Clean Trucks Program implementation plan. Conformity of the Project to the CAAP is detailed in Section 2.9.1.

Transportation: Development of a new ICTF gate at Alameda Street will improve traffic flow by the use of Alameda Street as a main conduit between the ICTF and the Ports. The new Alameda Street gate will serve as the truck entrance to the ICTF, while truck traffic will exit at the Sepulveda Boulevard gate. By designating Alameda Street as the required route between ICTF and the Ports, Union Pacific intends to limit the number of left-hand truck-turning movements onto Sepulveda Boulevard associated with trucks returning to the Ports. Subject to obtaining any necessary public agency approvals, Union Pacific will eliminate the left-turn signal light and post “no left turn” signs at the ICTF outbound Sepulveda Gate to prevent left-turns onto Sepulveda Boulevard. Therefore, wait times for eastbound and westbound vehicles on Sepulveda Boulevard will be reduced because trucks will not be permitted to turn left at the outbound driveway of the ICTF onto Sepulveda Boulevard. These measures will also ensure that traffic impacts on residential neighborhoods in Long Beach, to the east of the Facility, will be minimized as much as possible. Existing train routes to and from the ICTF, the Union Pacific Manuel Yard and the Ports will remain unchanged.

***Noise*:** The Project eliminates several pieces of noise-generating equipment and replaces others with quieter models. In particular, the RTG cranes and their back-up safety horns will be eliminated altogether. The WSG cranes which replace the RTGs are expected to generate only minimally-perceptible noise levels. In addition, the elimination of 71 of the 73 yard hostlers and their back-up safety horns will dramatically reduce the noise generated by that vehicular source. The existing noise barrier which screens Long Beach residences from ICTF activities will be effective to address additional truck and train noise resulting from the Project.

Lighting: The Project replaces over 60 existing 100-foot-high lighting fixtures with approximately 160 poles of 60- and 40-feet heights. High-pressure sodium bulbs that reduce visual contrast will remain. New fixtures will be fitted with the most modern and efficient hoods, so that illumination will be directed downward onto ICTF surfaces and away from surrounding properties. The number of lighting fixtures located closer to the eastern property boundary will be minimized to the extent possible without impacting worker safety, and will be automatically turned off when cranes are not in use.

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CHAPTER 1

ENVIRONMENTAL DOCUMENT PROJECT DESCRIPTION

1.1 Introduction and Project Overview

This Application for Development Project Approval (ADPA) describes Union Pacific Railroad's (Union Pacific) Intermodal Container Transfer Facility (ICTF) Modernization Project ("Project" or "ICTF Project"). The ICTF currently transfers containerized cargo from the terminals of the Port of Los Angeles (the "POLA") and the Port of Long Beach (the "POLB") (collectively, the "San Pedro Bay Ports" or "Ports") to trains for distribution throughout the region and the United States. ICTF modernization will increase the number of containers handled at the ICTF from the current average of 725,000 to an estimated 1.5 million annually, while modernizing existing equipment and equipment operating methods so that efficiencies will be substantially increased and adverse environmental impacts will be significantly reduced.

Union Pacific has engaged in an intensive effort to design and engineer a modernized ICTF which is capable of accommodating the Ports' projected container traffic growth beyond levels that can be provided by existing and anticipated on-dock rail terminals. At the same time, ICTF modernization is expected to minimize the Facility's adverse environmental impacts by incorporating newer, more efficient and environmentally sound container traffic movement technologies. The Project's environmental benefits and economic efficiencies will extend beyond the ICTF's borders by contributing to increased use of the Alameda Corridor. Union Pacific is particularly proud of the contributions it will be making to sustainability and improved air quality as a result of the Project's implementation.

1.1.1 Project Throughput Comparison

Cargo containers that are transported on ocean-going vessels are usually counted in Twenty-Foot Equivalent Units (TEUs). The TEU is a unit of measurement preferred by steamship lines. Railroads count the number of containers transferred between railcars and trucks as "lifts." Cargo containers are manufactured in several lengths, including 40-, 45- and 48-feet, with the majority being 40-feet in length. The existing and proposed container throughput calculations presented in this ADPA assume 40-foot-long containers. However, approximately 15 to 20 percent of international containers handled on the West Coast are 20-foot units. Therefore, Union Pacific estimates that ICTF operations average 1.865 TEUs per lift (or per container transferred).

Table 1.1 compares existing and proposed ICTF activities. Union Pacific estimates that container throughput will reach maximum levels by Year 2016. All values shown for Year 2016 are estimates.

Table 1.1. Project Throughput Comparison (Estimated)

	Existing (2006)	*Project (Year 2016)*
ICTF Operations Acreage	233	177
Container Lifts/Year (average)	725,832[6]	1,500,000
TEU Lifts/Year	1,353,677	2,797,500
Average Daily/Year One-way Truck Trips	3,020/1,087,086	6,300/2,268,000
Train Departures/Day	5.5	11.0
Train Arrivals/Day	7.8	15.6
Storage	3,500 40-foot Wheeled Spots	8,400 40-Foot Stacked Spots
Employee numbers	478	398

1.2 Project Location and Setting

The ICTF is located approximately 5 miles from the POLA and the POLB at the terminus of State Highway 103, known as the "Terminal Island Freeway" (see Figure 1).[7] The ICTF's operational core is located on 148 acres of POLA land sub-leased by Union Pacific from the JPA within the City of Los Angeles. That core parcel is supported by two adjacent parcels to the west within the City of Carson, which provide wheeled container storage and include (1) an approximately 15-acre Union Pacific-owned parcel; and (2) an approximately 74-acre Watson Land Company-owned parcel also within the City of Carson. Union Pacific leases the 74-acre Watson Land Company parcel for storage and handling of freight and cargo containers and truck chassis in conjunction with the ICTF operations.

1.3 Existing Conditions

1.3.1 Regional Context

As discussed above, the Union Pacific ICTF is located within the cities of Los Angeles and Carson. The General Plan Land Use Designation and Zoning Designation for the site is Heavy Industrial. Land to the east of the Facility is within the City of Long Beach (see Figure 2). The Facility is bounded on the north by 223rd Street, on the east by Southern California Edison (SCE) property, on the southeast by Union Pacific's San Pedro Branch,

[6] The figure of 626,000 ICTF container lifts (shown in Tables 2.2-1 through 2.2-10 of this ADPA) is associated with ICTF operations in 2005.

[7] All ADPA Figures can be found immediately following the final section of this document.

on the south by Sepulveda Boulevard, and on the west by Alameda Street, the Dominguez Channel, and the McMillan Tank Farm.

1.3.2 Project Site and Surrounding Uses

The Project vicinity includes heavy industrial uses, industrial refining facilities, and container and truck parking and servicing facilities extending southward toward the POLA. Surrounding land uses include the following (see Figure 3):

North: East 223rd Street and the I-405. Heavy industrial land uses extend beyond these roadways.

Northeast: Medium-density, single family residential neighborhoods exist on Hesperian Avenue and East 223rd Street in the City of Long Beach.

East: Land owned by SCE, containing agricultural row crops, to the north and south of an SCE substation, are farmed under high voltage transmission power lines associated with the SCE substation. An agricultural truck loading facility also exists to the south of the SCE substation.

South: East Sepulveda Boulevard and the Terminal Island Freeway are located directly south of the Facility. Industrial uses associated with warehousing, container storage, and truck trailer parking and servicing are located further to the south.

West: A vacant structure, formerly housing a gun club, is located on the far west side of the Watson Land Company property, adjacent to Alameda Street. The Watson Land Company parcel and the Desser parcel, located immediately to its north, are largely underlain by an organic refuse landfill. The Watson Land Company parcel is currently used for the storage and handling of cargo containers and truck chassis, to support Facility operations.

1.3.3 Project Site Operations

The ICTF operates 24-hours a day virtually all year long. Current ICTF train lengths vary depending on the route. Containers are stacked two units high on rail cars. Five cars are generally linked together in articulated groups to form a “platform” approximately 300-feet long. A single platform generally carries 10 40-foot-long containers. A train with 25 platforms, extending 8,000 feet and transporting 250 40-foot containers, is the preferred minimum length.

The Sunset Route (Los Angeles to New Orleans via Tucson, El Paso, San Antonio, and Houston), which is the primary route for all trains leaving the ICTF, regularly runs 8,000-foot long trains. A total of 55 trains (an average of 7.8 per day) arrive at the ICTF weekly, while 39 trains (an average of 5.5 per day) depart during this period. This amounts to an average of 13.3 trains either entering or leaving the ICTF on a daily basis, or 4,745 per year. There are currently an average of 3,020 one-way truck trips per day, or 1,087,000 per year, at the ICTF.

Union Pacific performs train switching at the adjacent Dolores Yard, which is located between Alameda Street and the Alameda Corridor. The Dolores Yard is subdivided into the “300 Yard” (south of 223rd Street) and the “900 Yard” (by the I-405 and 223rd Street bridges over the Dolores Yard and Alameda Corridor). The 300 Yard supports intermodal, automotive and manifest train switching. The 900 Yard primarily handles intermodal trains. In addition, the Dolores Yard handles switching for the POLA and the POLB on-dock yards and for the ICTF. Arriving trains must be split and departing trains must be built in the Dolores Yard. Anything less than a unit train[8] coming from the on-dock facilities or out of the ICTF must be assembled in the Dolores Yard before it can depart. The same is true for arriving unit trains that carry containers to be hauled to an on-dock yard.

Empty platforms to be loaded with import containers for outbound shipment from the POLA or the POLB must often be switched in the ICTF. Locations where exports represent a higher percentage of facility throughput, such as the Railport Oakland, generate many of the empty platforms which arrive at the Ports.

Trains enter the ICTF from the Dolores Yard via the 223rd Street bridge and grade separation. The track here is constructed on a long earth embankment across the northerly end of the ICTF. The bridge has vertical abutments and retaining walls that present a narrow passage for the two lead rail tracks passing under the roadway and into the ICTF.

Trucks transporting containers (i.e. drayage trucks) currently enter and exit the ICTF via the Sepulveda Boulevard gate. Gate entrance and exit lanes are partially covered with canopies. (See Figure 4.) A North Gate House at the northern 223rd Street Facility boundary is used for emergency ingress and egress only.

The ICTF handles as wide or wider a variety of container goods than any of the other container transfer facilities in the United States. Importantly, however, Union Pacific prohibits intermodal trains from accessing their terminals with any hazardous materials listed by the American Association of Railroads as toxic by inhalation.

1.3.4 Project Site Infrastructure[9]

1.3.4.1 Cargo Handling Equipment (Cranes/Lift Equipment/Yard Hostlers)

Ten diesel-fueled Rubber-Tired Gantry cranes (RTGs) currently serve the ICTF. These cranes have a 45-foot wide horizontal span capable of reaching over a single railroad track to load or unload a single row of trucks. There are nine Mi-Jack 1000 RTG models with 100,000 pound capacity and one Mi-Jack 850 RTG model with an 85,000 pound capacity. Secondary lifts (i.e., “flips”) occur when a crane transfers a container to a second truck chassis after it has been originally unloaded. Three assigned rubber-tired sideloaders[10] perform the flips.

[8] A “unit” train is one which is either all intermodal, or all automotive or all of whose contents are going to a single customer.

[9] All existing ICTF infrastructure is illustrated in Figure 5.

[10] The term “sideloader” includes the equipment known as top picks, piggy-packers and Reach Stackers.

1.3.4.2 Rail Loading Track

The ICTF currently contains eight tracks (see Figure 3). Insufficient space exists for an RTG to operate between Track 801 (located farthest to the east in the ICTF) and Track 802. Thus, Track 801 is not used for loading. Track 810 (not shown in Figure 3) is a stub track used for in-place container repair or other uses as required. This leaves six tracks for loading: Tracks 802, 805, 807, 808, 811, and 812. Existing loading track grades are nearly flat throughout the entire Facility.

1.3.4.3 Pavement

Several types of pavement sections exist throughout the ICTF, depending on their function:

- Crane runways consist of 15” of Portland Cement Concrete (PCC) over 6” of Cement Treated Base (CTB) and 6” of Cement Treated Soil, or Soil Cement (SC);
- Truck driveways consist of 10” of PCC over 6” of CTB and 5” of Aggregate Subbase (ASB);
- Parking areas consist of 6” of Asphalt Concrete (AC) over 15” of Aggregate Base (AB);
- Paving in the gate area consists of 6” of AC over 15” of AB; and
- Paving within the currently leased, approximately 74-acre Watson Land Company area is primarily asphalt and gravel, with approximately 20 percent covered with asphalt.

1.3.4.4 Structures

The ICTF contains the following structures (see Figure 5):

- Administration Building;
- U.S. Customs Building;
- Gate Tower Building and Overhead Bridge connecting to the Administration Building;
- Gate Office;
- Gate Lane Canopies;
- Hostler Maintenance Equipment Storage Building;
- Container and Chassis Repair Building;

- North Gate House (emergency entrance/exit at the northern 223rd Street Project site boundary); and

- Fueling facilities, including a 20,000-gallon above-ground diesel fuel storage tank, a 1,000-gallon above-ground unleaded gasoline storage tank, and several fuel dispensers, located at the north end of the ICTF between tracks 810 and 813.

1.3.4.5 Storm Drainage

The ICTF loading track area stormwater drainage system includes a series of sloped, cast-in-place trench drains, or "continuous inlet channels" along Tracks 802, 809 and 812. Catch basins and curb inlets are used where trench drains are not installed. The storm drain piping system is constructed of reinforced concrete pipe (RCP). In general, manholes are spaced at 200- to 400-foot intervals and at pipe junctions. A 78-inch reinforced concrete main that runs from east to west near the center of the site collects storm drainage from the loading tracks and southern area and drains into the Dominguez Channel (See Figure 8).

The catch basins and curb inlets draining the northern area connect to a 36-inch reinforced concrete pipe that drains into the Dominguez Channel via a large (7.5-foot x 10.5-foot reinforced concrete storm drain box (RCB) along the eastern edge of Alameda Street. (A 60-inch City of Long Beach storm drain pipe crosses the site and connects to an RCB in Alameda Street.)

1.3.4.6 Lighting

High mast lighting, at 300-foot spacing, illuminates the existing ICTF loading areas with 80-foot standards mounted on concrete pedestals 4.5-feet above ground foundations. Existing luminaires use six-, seven-, or eight-1000 Watt fixtures. (See Figure 9.)

40-foot lighting standards with single and double luminaires, supported by standard street lighting poles and fixtures, are the primary means of lighting such ICTF structural areas as the main entrance, the U.S. Customs area, the train entrance area, the guest automobile parking area, the storage area and the maintenance and guardhouse area. Cobra-type lighting fixtures use a mix of 400-Watt and 250-Watt fixtures.

Lighting for the existing hazardous materials handling area and the Administration Building area consist of 40-foot lighting standards with four luminaires, and 15-foot lighting standards with decorative post luminaires, respectively. Both areas use 400-Watt fixtures.

In general, the standard ICTF lighting level is 3.0 foot-candles. The voltage used for the yard lighting is 480 Volts. The total site area lighting demand at peak use periods is approximately 530 kilowatts (kW).

1.3.4.7 Energy

Electrical

The ICTF receives electricity from two sources: (1) the Los Angeles Department of Water and Power (LADWP), via two separate lines supported on poles terminating south of the Facility and north of Sepulveda Boulevard; and (2) Southern California Edison

(SCE), via an overhead 12.5kV distribution line terminating north of Sepulveda Boulevard on a riser pole east of the Dominguez Channel. Six substations are located throughout the ICTF, serving various structure and container refrigeration requirements.

Fuels

Existing on-site diesel fueling facilities are located at the north end of the ICTF, between tracks 810 and 813. The Facility includes a 20,000-gallon above-ground storage tank for tractor and crane diesel fuel. An additional 1,000-gallon above-ground tank holds unleaded gasoline. Both tanks are equipped with standard 110-percent secondary spill containment infrastructure. (See Figure 5.)

Approximately 20 underground petroleum pipelines traverse the ICTF along its eastern boundary. The pipelines are not associated with Union Pacific or ICTF operations, but convey product to and from surrounding facilities offsite.

1.3.4.8 Water and Sewer

LADWP provides drinking water and sanitary sewer service to the Facility. (See Figure 10.)

1.3.4.9 Pressurized Air

Two compressors located approximately midway along the eastern Facility boundary provide compressed air for ICTF rail car maintenance. Driers and a single tank are located adjacent to the air building. An additional tank is located at the northeast corner of the ICTF. In-ground “pits” are covered with 18” x 24” metal lids. Mechanical crews keep all required hoses in their trucks. (See Figure 10.)

1.3.5 Project Site Development History

Between 1982 and 1986, the POLA and the POLB created an independent ICTF Joint Powers Authority (JPA). In a public-private partnership, Southern Pacific Transportation Company (subsequently acquired by Union Pacific) and the JPA developed and bond-financed the ICTF to handle the rapidly growing international container shipping demand. The three-phase Master Plan for the ICTF was proposed as a state-of-the-art facility. The total acreage, general configuration, and track lengths used for loading and unloading containers was state-of-the-art for intermodal terminals at that time.

As originally proposed, and analyzed in the 1982 ICTF Environmental Impact Report (EIR), ICTF Phases II and III included construction of six additional loading and unloading rail tracks[11], and the leasing of approximately 50 acres of SCE property east of the ICTF and 50 acres of Watson Land Company property (or alternatively, 50 acres of POLA property south of Sepulveda Boulevard) to accommodate required container storage. The EIR was based in large part on a POLA- and POLB-sponsored ICTF Feasibility Study. That study “determined whether or not a suitable, efficient, and expandable ICTF could be developed and operated on available land, possibly augmented by some of the privately

[11] For a total of twelve (12) tracks, the same number of tracks proposed in this Modernization Project (see Figure 19).

owned adjacent parcels." Alternative storage and access gate locations, among other things, were evaluated.[12] An ICTF facility of over 260 acres was envisioned.

Ultimately, only Phase I of the ICTF Master Plan was implemented, despite increased container throughput demand and Union Pacific acquisition – via lease and purchase – of certain adjacent parcels. The ICTF has expanded its throughput capacity to date primarily by internal operational efficiencies rather than external facility land expansion, as envisioned in Phases II and III of the ICTF Master Plan. Now, while the Union Pacific ICTF remains one of the more efficient intermodal terminals in the United States railway system, the demand for increased intermodal container handling and shipping at the POLA and the POLB exceeds the capacity of the existing Facility.

1.4 Project Purpose

Union Pacific faces rapidly increasing demand from the steamship lines at the POLA and the POLB to move containers between the Ports and the Central United States. The San Pedro Bay Ports collectively move over 12 million TEUs or over 6,600,000 containers per year across their docks. The volume of container business continues to grow at over 8 percent per year, with some recent years seeing 15 percent growth. Union Pacific, as Southern Pacific's successor at the ICTF, currently handles an average of 725,000 annual lifts, an amount approximately equivalent to 15 percent of the containers handled at the San Pedro Bay Ports.

The ICTF is a critical part of the nation's goods movement system and Union Pacific's own interstate rail system. Union Pacific's substantial market share of the San Pedro Bay Ports' rail traffic reflects the importance of this business to the Company. Union Pacific believes that continued growth at the Ports largely depends on consistent support from the near-dock ICTF, which supplements the no-less-essential but limited number of existing and anticipated future on-dock facilities at the Ports. The 2006 San Pedro Bay Ports Rail Study Update projects that cargo traffic will double by Year 2020. Union Pacific desires to maintain and increase its significant contribution to the nation's commerce and the San Pedro Bay Ports' economic standing. The way to achieve those objectives is to provide a modernized facility that is designed to meet the demands of projected growth.

Unless ICTF capacity is increased, the Facility cannot continue to meet intermodal container shipping demands at the POLA and the POLB. As noted above, the 1982 ICTF Master Plan and associated EIR analyzed three-phases of ICTF development and expansion. Those planning documents anticipated the need for full buildout (Phase I, II and III) before Year 2000 to handle increased container shipping demand. To date, only Phase I has been implemented and the previously approved Facility expansion has not occurred. Necessary railroad terminal expansions continue to lag behind the demands of shippers, even though Union Pacific and such public sector entities as the POLA, the POLB, the California Department of Transportation, and the Alameda Corridor Transportation Authority have made substantial improvements to the regional transportation system, such as the Alameda Corridor project. Therefore, Union Pacific must respond as soon as possible to satisfy the demand for container shipping.

12 The Watson Land Company parcel was evaluated for remote storage and an alternative entry gate.

Since April 15, 2002, trains traveling to and from the ICTF have used the Alameda Corridor. The Alameda Corridor is a 20-mile-long, dedicated rail line running from the POLA and the POLB to the transcontinental rail network near downtown Los Angeles. The Corridor is series of bridges, underpasses, overpasses and street improvements which separates freight trains from street traffic and passenger trains. Its grade-separations eliminate vehicular wait-time and reduce emissions at track crossings. This design allows trains to move more efficiently on a direct route from the Ports and provides substantial regional air quality benefits.

The ICTF Project expands the volume of container cargo movement from the POLA and the POLB by increasing rail transport and decreasing truck transport. The increased numbers of outbound trains that carry containers stacked on platforms at the ICTF will utilize the Alameda Corridor. According to the 2005 Alameda Corridor Air Quality Benefits Final Report, use of the Alameda Corridor, instead of truck container transport on highways, substantially reduces air emissions and regional health risks, reduces at-grade crossing accidents between trains and cars, reduces the risk of hazardous material spills, and increases container transport efficiency. Additional benefits include reduced vehicle delays, congestion relief, substantially improved locomotive idling efficiency resulting from consolidation of train operations, and shorter routes. In other words, the Project will provide regional environmental benefits (including reductions in air emissions, noise, and adverse transportation impacts) on multiple fronts and will take advantage of existing economic efficiencies by increased use of the Alameda Corridor.

The ICTF Project directly and responsibly addresses the anticipated shortfall of intermodal container capacity at the San Pedro Bay Ports. Without this Project, the number of container truck trips between the POLA and the POLB and other more distant off-dock facilities will substantially increase, and that increase in container truck traffic will exacerbate air quality problems and adverse transportation impacts.

Both on-dock and near-dock facilities are essential for the existing and projected cargo handling demands of the Ports to be met. Near-dock rail facilities, like Union Pacific's ICTF, serve numerous marine terminals and Port clients and, thereby, provide certain logistical advantages over on-dock facilities. Both on-dock and near-dock rail facilities reduce the use of truck cargo transport to and from off-dock rail yards located over 25 miles away in downtown Los Angeles, thereby minimizing undesirable air quality, noise, and traffic impacts. Cargo handling projections prepared for the San Pedro Bay Ports acknowledge that both existing and proposed on-dock and existing near-dock rail facilities will be inadequate to meet future demands beyond the Year 2010-2030 Horizon (*San Pedro Bay Ports Rail Study Update*, 2006). Therefore, the ICTF Project, in addition to expanded on-dock rail facility capacity, is an essential component of the continued growth of the San Pedro Bay Ports.

Simultaneously, ICTF modernization replaces antiquated and less fuel-efficient infrastructure and processes with state-of-the-art equipment. These enhancements will reduce energy expenditures and adverse emissions on a per-container-unit basis throughout the Facility. In summary, ICTF modernization fully supports the San Pedro Bay Ports' environmental stewardship goals.

1.4.1 Project Objectives

A modernized ICTF will not only help the San Pedro Bay Ports to manage their growing volume of containerized goods, it will also help to mitigate the adverse impacts of this growth on neighboring communities and the larger Los Angeles and South Coast region. Union Pacific is proud to highlight the following ICTF Project elements:

- Provides additional near-dock rail capabilities to continue promoting direct transfer of cargo from ship to rail, and minimizes surface transportation congestion and/or delays;
- Increases the capacity of the existing ICTF to continue optimizing the use of existing near-dock rail into and out of the POLA and the POLB;
- Modernizes container lift infrastructure to accommodate existing as well as projected containerized cargo volumes entering and leaving the POLA and the POLB;
- Satisfies projected future container terminal on/offloading demands, while actually reducing the existing ICTF operations footprint; and
- Provides enhanced cargo security through new technologies, including biometrics.

1.5 ICTF Modernization Details

Union Pacific's ICTF Modernization Project increases the annual average number of containers transferred from rail to truck transportation from 725,000 to 1,500,000, while substantially decreasing the Facility footprint from 233 acres to 177 acres (see Figure 5).

The planned replacement of existing diesel-fueled RTG cranes with electric-powered WSG cranes will substantially increase container transfer efficiency, and drastically reduce air emissions and noise generation. The WSGs can service several loading tracks and can shuttle containers between container stacks adjacent to the loading tracks. As a result, WSG cranes significantly reduce drayage truck container unloading and/or loading times within the ICTF and thereby provide a significant environmental benefit.

The primary access to the modernized ICTF will be via a new gate at Alameda Street. Based on current Project design, this new access gate will be located on the Desser property, which is adjacent to the operational core of the ICTF, as shown on Figures 2 and 5. However, if that parcel is unavailable, or proves infeasible to use, for gate development or other associated ICTF Project construction activities, Union Pacific would consider an alternative location for those activities on the adjacent Watson parcel. As previously noted, both the Desser and Watson parcels are underlain by organic refuse landfill material that could potentially restrict certain kinds of development activity.[13] Union Pacific is currently pursuing a real property interest in the Desser parcel to

[13] Preliminary Environmental Site Assessment ("ESA") information is provided in Appendix H of this ADPA, and a formal Phase 1 ESA will be performed during preparation of the Project EIR.

facilitate ICTF modernization. If a legal interest in the Desser parcel is not or cannot be obtained, Union Pacific would potentially consider alternative uses of the currently-leased Watson parcel, similar to the uses evaluated or approved in the previously prepared Feasibility Study and certified EIR. However, no new development or activities are proposed for the Watson parcel at this time. Acquisition and utilization of the Desser parcel for the ICTF Project would result in the post-ICTF modernization discontinuation of container and chassis storage on the presently leased Watson parcel, based on the Facility's operational change from wheeled-crane parking to container stacking.

The existing Gate Complex at Sepulveda Boulevard will be maintained primarily for out-bound, egress movements. The resulting traffic pattern will substantially reduce the volume of ICTF truck traffic on the Terminal Island Freeway and promote increased use of the Alameda Corridor.

Existing train routes to and from the ICTF, the Union Pacific Manuel Yard, the POLA and the POLB will remain unchanged.

Existing Facility and Project specifications are provided in Table 1.2 below.

Table 1.2. Project Summary Matrix

	Existing Baseline (2006)	*Project (2016)*
CONSTRUCTION		
Project Area Gross Acres	233	177 (est.)
Grading in cubic yards (CY)	N.A.	439,000 CY (312,000 CY export)
Structures	Control Tower Administration Building Inspection Building Customs Office Entrance Office Terminal Contractor Building North-End Gate Emergency Supply Building Emergency Storage Area Hostler Maintenance Equipment Building Crane Maintenance Pad	Control Tower Administration Building Inspection Building Customs Office Entrance Office Terminal Contractor Building North-End Gate Emergency Supply Building Emergency Storage Area Six electrical substations Crane Parts Building and Service Center Gate house including offices, restrooms, canopies
Railroad Tracks	6 loading, 1 support	12 loading
OPERATIONS		
Yard Hostlers (diesel-fueled)	73	2
Rubber Tire Gantry Crane (RTG) (diesel-fueled)	10	0
Wide Span Gantry Crane (WSG) (electric-powered)	0	39
Sideloaders (incl. piggy-packers, top picks and Reach Stackers)	3	1
Annual One-Way Truck Trips	1,087,086	2,268,000
Annual Rail Trips	4,745	9,490
Total Number of Access Gates	1	2

1.5.1 Project Elements

1.5.1.1 Cranes/Lift Equipment

The replacement of existing diesel-fueled RTG cranes with electric WSG cranes is the central Project component that enables container throughput to increase from an average of 725,000 to 1,500,000 while reducing the existing ICTF footprint. The replacement of wheeled-crane parking operations with container stacking further reduces the area required for container storage. The result is a significantly reduced ICTF footprint, rather than the originally envisioned, greatly expanded one.

The Project design includes an estimated 39 WSGs configured into three sets or modules, each serving four rail loading tracks (see Figures 4 and 12). The cranes can transfer containers between trucks and the stacking area, as well as between adjacent stacking areas. This design eliminates the need for 71 of the 73 existing diesel-fueled yard hostlers. The two remaining yard hostlers will use an alternative non-diesel fuel source.

The efficiency of the WSG cranes will substantially reduce the area required for truck chassis and container storage. As a result, the 74 acres that Union Pacific currently leases from the Watson Land Company will likely not be needed for storage and handling of freight and cargo containers. Nevertheless, Union Pacific desires to keep the leased Watson Land Company parcel for possible other related ICTF uses, including a potential alternative access gate location, a concrete crushing facility during construction, or more likely, a buffer area. Currently, however, Union Pacific is not proposing any new development or activity on the Watson Land Company parcel.

As discussed above, Union Pacific plans to purchase, or acquire the use of, approximately 14 acres of the Desser property within the City of Carson to construct a new western Alameda Street gate, directly north of the existing leased container storage area (see Figures 2 and 5).

Truck loading and unloading will occur in a truck aisle where vehicles will back into or pull through 45-degree angled stalls, depending on the final terminal layout. WSG slewing (rotating) capability allows containers to be lifted off trucks from any angle and placed in the desired orientation on a platform. WSGs will stack those containers not being moved directly between the trains and trucks, or between the trucks and trains.

Union Pacific proposes to use a Terminal Operating System (TOS) to manage the stacking and movement of containers (see Table 1.1) to their train or truck destinations in a timely manner. The TOS will upgrade the existing OASIS system used to control and track inventory at the ICTF, and will manage trucker appointments, shuttling of containers between modules, and lift operations orchestration. Due to the WSG spacing, the TOS will continuously update service call orders to the crane operators, so that the truck, train, and stack service orders get containers moved in a timely manner between trucks, trains, and container stacks.

The existing northern gate will be retained for emergency truck and vehicle access only.

Together, these crane and lift equipment modernizations will increase efficiency, substantially reduce truck loading/unloading time, and minimize air emissions from truck idling. These Project elements incorporate environmentally friendly terminal design.

1.5.1.2 Rail Loading Track

Union Pacific will construct WSG loading tracks in the east WSG module, leaving existing tracks 801 and 802 in place (see Figure 19). Two additional tracks will be constructed west of existing track 802 to complete the first WSG module. The second WSG module includes realignment of existing track 809 to the east; the existing track 810 will remain in place. Construction of two new tracks west of existing track 810 will complete the center WSG module. The westerly WSG module will not align with existing railroad track, but includes four new loading tracks constructed just west of the center WSG module, creating a back-to-back or mirrored WSG configuration.

Union Pacific will construct additional railroad track in the easterly two thirds of the ICTF site (see Figure 19). Truck turnouts will be closer together in the ladder area, and aisle crossings at the north and south end will require the fabrication and installation of welded steel crossing panels.

Adding track will require partial reconstruction of the north and south lead tracks (see Figure 1). Union Pacific will construct a total of 20 new turnouts to reconstruct the ladder and leads.

1.5.1.3 Pavement

Union Pacific will build a paved roadway system to allow truck movements and container loading under the WSGs. Trucks will follow a prescribed route dictating one-way circulation flow between crane modules to avoid disruptive and inefficient movements

Existing pavement will remain in place where practical. Where necessary, all new paving will be PCC.

1.5.1.4 Structures[14]

At present, Union Pacific plans to retain all existing structures, with the exceptions of the service building and the fueling station (see Figure 5). Union Pacific expects to add the following new structures:

- Crane Repair/Parts Storage Building located at the terminus of Intermodal Way. This building would function as a structure to repair cranes and store parts associated with those cranes. Its conceptual size and general type of construction are shown on Figure 5 and Figure 6.

- Alameda Street Gate including gate house, offices, restrooms, and canopies providing truck ingress/egress via Alameda Street. The access gate would function as a new ingress point and is illustrated in Figure 7. The gate house

14 See Figure 5.

conceptual building would function as an administrative building with associated employee facilities parking, and is shown on Figure 5.

Refer to Section 1.5.2.2 for further discussion of new structures, buildings and other site development elements.

1.5.1.5 Storm Drainage

Extensive revisions to the existing storm drainage system are not required because the Project components are almost entirely within the existing Facility footprint. The principal proposed storm drainage infrastructure will include a series of sloped, cast-in-place trench drains, or catch basins and curb inlets constructed along new tracks. The major drainage structures, storm drain pipes and directional storm drain flow are illustrated on Figure 8. The 78-inch reinforced concrete main that runs from east to west in the approximate center of the Facility and drains to the Dominguez Channel will continue to collect stormwater runoff. New catch basins and curb inlets draining the northern area will connect to the existing 36-inch reinforced concrete pipe draining into the Dominguez Channel via a large (7.5-foot x 10.5-foot) reinforced concrete storm drain box along the eastern edge of Alameda Street. New storm drainage improvements will be designed to be consistent with the Facility's existing Los Angeles County Standard Urban Stormwater Mitigation Plan (SUSUMP), as required under its existing National Pollutant Discharge Elimination System (NPDES) permit. A cross-section of the existing Facility showing these drainage facilities is provided in Figure 12.

1.5.1.6 Lighting

ICTF modernization includes the removal of over 60 high-mounted light poles 100-feet tall, and their replacement by approximately 160 poles with a reduced 60-foot and 40-foot height. Similar to procedures used for standard street lighting, proposed fixture spacing of approximately 100-feet will allow cranes to operate above the top of the poles and luminaires, while still allowing illumination at a 2- to 3-foot candle level. Selection of a final WSG crane configuration design will determine lighting height, spacing, and other specifications. The new fixtures, similar to those presently used at the Facility, will be hooded to direct light downward within the ICTF and away from surrounding properties thereby minimizing the extent of glare experienced offsite.

1.5.1.7 Energy and Fuels

Electrical Supply

The electrical power system required for the modernized ICTF is estimated to provide for a peak demand of 30 MW. The actual peak demand will be dependent on the number of WSG cranes, reefer container receptacles, and lights that are in use at any given time. LADWP will provide power from a primary power feed on the south side of the Facility. LADWP or SCE will provide secondary power from a feed on the north side of the ICTF. Each utility feed will provide an estimated 34,500 volts.

Each utility feed will connect to a transformer which will step down the voltage to 12,000 volts for distribution throughout the Facility. This is a typical voltage level used when distributing large amounts of power. The existing and proposed new utilities, including substations supporting the Project, are illustrated on Figure 9.

Either Union Pacific or the utility will provide the transformers, based on the contracted rate schedule. Presently, Union Pacific has a rate schedule for power at 4.16 kV. Union Pacific will determine the power transformer rating if the contracted rate schedule is for power at 34.5kV. If Union Pacific provides the transformers, they will normally be rated to provide coincidental peak load power for all 39 cranes, reefer container receptacles, and yard lights. The proper selection of these transformers will ensure the effective operation of the cranes.

Each of the six proposed electrical substations will serve one-half of the cranes in each WSG module. Selected substations will serve reefer container receptacles and yard lights. Union Pacific will place the power distribution system downstream of the substations in trenches running the length of the Facility. These trenches will house conduits, power cables, and communication cables for the WSG cranes. The WSGs will be linked to a Facility data communication network with fiber optic cables imbedded in each cable reel.

Substation equipment for the crane power system will require between 5,000 to 10,000 square feet. Conceptual substation locations that do not interfere with truck traffic between the WSG crane modules are identified on Figure 9.

Electrical demands during Project construction cannot be reliably estimated at this time. Demand, however, is expected to be consistent with other construction projects of this size and nature. Estimated figures for usage of various utilities during Project demolition and construction activities (Table 1.5.1.10-1) and during Project operations (Table 1.5.1.10-2) are provided in Section 1.5.1.10 below.

Fuels

ICTF modernization eliminates the need for on-site diesel and gasoline fueling facilities. As a result, Union Pacific will remove the existing 20,000-gallon above-ground diesel storage tank and the 1,000-gallon unleaded gasoline storage tank (see Figure 5). A new tank for storage of alternative, non-diesel, fuels will be installed. The new tank will include all required secondary containment infrastructure.

Potential fuels to be used for the two remaining yard hostlers include biodiesel, propane or liquefied natural gas (LNG). The air pollutant emissions factors and properties (such as flashpoints) for these potential fuels are contained in Appendix F.

The proposed conceptual location for the new fueling facility and storage tank is near the west wall of the existing chassis repair building, in the northern area of the existing ICTF footprint (see Figure 5). The tank and fueling facility installation will comply with all federal, state, and local requirements.

Union Pacific anticipates that a two-week to one-month supply of alternative fuel will be stored and dispensed at the Facility. Fuel deliveries will be undertaken by certified handlers, occurring on approved routes. Conservative estimates for alternative fuel volumes are as follows:

- If biodiesel is used, Union Pacific will construct an above-ground, 500-gallon capacity fuel tank with required secondary containment. The tank, which will be approximately 48 inches in diameter and 66 inches in length, will be mounted on saddles fixed on a concrete pad near the fuel dispenser.

- If propane or LNG is used, Union Pacific will construct an above-ground, 1,000-gallon capacity dispenser tank with required secondary containment. The tank, which will be approximately 42 inches in diameter and 15 feet in length, will be mounted on a concrete pad.

Project design requires that the fueling of yard trucks (i.e., small rail yard service and personnel trucks) will occur outside of the ICTF at local gas stations in the Project vicinity. No gasoline or diesel fuel storage will be required or will occur within the Facility. Any remaining diesel-fueled equipment (such as the top pick) will be fueled, as needed, directly from a fuel delivery truck which will come onto the ICTF periodically for that purpose. During Project development, existing privately-owned pipeline corridors along the southeastern and southern project boundaries will not be disturbed. No other pipelines will be impacted.

1.5.1.8 Water and Sewer

Water and sewer demands during Project construction are assumed to be consistent with other construction projects of this size and nature. Conceptual estimates are provided in Table 1.5.1.10-1 below. Existing LADWP drinking water and wastewater disposal services will continue after ICTF modernization. New drinking water lines, fire suppression utilities (pipes, valves, hydrants, etc.), and sewer lines will be linked with existing infrastructure (see Figure 10).

1.5.1.9 Pressurized Air

Union Pacific will construct new air compressors and new air pits to provide adequate air pressure and outlets for proposed additional tracks and trains (see Figure 10). Union Pacific will evaluate the need to retrofit the existing compressed air system if main air pipes require replacement.

1.5.1.10 Utilities Usage

Tables 1.5.1.10-1 and 1.5.1.10-2, below, provide Union Pacific's estimates of utility demands during ICTF Project demolition and construction activities, and during post-modernization Project operations, respectively.

Table 1.5.1.10-1 Utilities Use During Demolition/Construction Activities

Utility	*Amount per day*	*Hours per day*	*Duration*
Electricity	3-4 kw	10 – 12	36 months
Natural Gas	0	N/A	36 months
Water	12,000 gallons	10 – 12	36 months
Solid Waste Disposal	3 cy	10 – 12	36 months
Sewer	500 gallons	10 – 12	36 months
Other			

Table 1.5.1.10-2 Utilities Use During Project Operations

Utility	*Amount per hour*	*Hours per day*	*Duration*
Electricity	30 MW peak	24	Permanent
Natural Gas	10,000 Therms/Year	24	Permanent
Water	75,000 CCF (CCF=100s of cubic feet)	24	Permanent
Solid Waste Disposal	Current usage + 60%	24	Permanent
Sewer	NA (billed with water)	24	Permanent
Other			

1.5.2 Project Construction

1.5.2.1 Site Preparation

ICTF Modernization construction will be phased in seven stages over the course of approximately 3 to 4 years.

Union Pacific proposes the following demolition and construction activities:

- **Demolition and Removal Activities:** approximately 360,000 cubic yards (CY) of pavement, storm drain pipe facilities, lighting systems, fire hydrants, railroad tracks and miscellaneous structures will be demolished and removed from the site.

- **Excavations and Amount of Grading**: approximately 360,000 CY of soil and pavement base materials will be excavated. Union Pacific expects to use front-end loaders, bulldozers and scrapers for excavation and grading activities. The 57 pieces of demolition and construction equipment expected to be used during these phases of the ICTF Modernization Project are identified and described in Appendix B-2. This grading will generally extend no deeper than 2 feet below ground surface (see Figure 11). Union Pacific will recycle 88,000 CY of the ground concrete in new paving, resulting in a net 272,000 CY of export. Excavation for utility trenches and the new Alameda Gate is expected to total 79,000 linear feet of utility trench excavation, extending between 2 and 8 feet below ground surface (see Figure 11), with 40,000 CY of this material exported offsite. Total grading is expected to equal 439,000 CY, while total export is expected to equal 312,000 CY.

- **Method of Export Transport and Size of Loads:** Export material will be transported from the site by truck. The size of each truck load is estimated to be approximately 12 CY. With that load capacity, approximately 26,000 truck trips for export activity are expected to occur.

- **Location of Export and Haul Routes:** Union Pacific anticipates that exported materials will be suitable for use in fill-in projects within in a 15-mile round-trip from the Project site. The export material is not expected to require restricted landfill disposal. The destination of export materials will likely be within a 15-mile round-trip vicinity. The vast majority of construction traffic is expected to access the Project site via I-405 and Alameda Street. Union Pacific will require construction traffic to use the new Alameda Street gate for ICTF access to avoid conflict with ongoing facility operations. Imported fill material is not required for Project development.

- **Summary of Existing Geotechnical Conditions:** Appendix H contains Union Pacific's Comprehensive Site-Specific Geology and Soils Report, which summarizes existing geotechnical information contained in an August 2006 Preliminary Geotechnical Report prepared for Union Pacific as well as portions of the 1983 geotechnical engineering report prepared for the original Facility. Despite its efforts, Union Pacific could not obtain permission to access ICTF-adjacent property to collect new geotechnical information for this ADPA. Therefore, as agreed between the JPA and Union Pacific, Union Pacific has obtained publicly available information regarding the environmental and geotechnical conditions on certain properties outside of the existing ICTF footprint that could be developed in connection with the ICTF Modernization Project. Preliminary evaluation of that available geotechnical information suggests that portions of adjacent properties are underlain by an old organic refuse landfill whose contents may affect the manner in which those properties can be developed. To the extent possible, considering the publicly available Phase I Environmental Site Assessment information Union Pacific has obtained to date, this Appendix contains detailed environmental and geotechnical information which characterizes the levels of contaminant concentrations associated with those properties.

1.5.2.2 Site Development

ICTF Project construction will include the improvements described below. Figure 5 is the Project Site Plan and indicates site layout, gates, buildings, and other pertinent facilities. Union Pacific will construct a small alternative fuels storage and fueling station near the west wall of the existing chassis repair building (see Figure 5). Site development will include the following activities:

- **Paving:** 78,000 CY of Portland Cement Concrete, and 25,000 tons of Asphaltic Concrete Paving.

- **New Buildings** (see Figure 5):

  Crane Repair/Parts Storage Building (see Figure 6). This complex contains two attached structures:

    The Crane Parts Building provides office, locker, shop and storage space. The office and locker area would be a masonry/pre-engineered metal building with a standing seam metal roof over the masonry office/locker room area. The facility will provide office work space for approximately 10 employees. In addition, locker rooms, lunch rooms and restrooms for office employees will be provided. A conference room, lunch room, file/storage room, and a utility room for mechanical/electrical and communication equipment will also be provided.

    The Repair/Parts Storage area is a 3,600 square-foot, two-story (25 foot high) masonry/pre-engineered metal building with a standing seam metal roof over the masonry, four tractor bays and a crane parts storage area. The proposed facility provides men's and women's restrooms for shop employees, a conference room, a lunch room, a parts/storage room, and a utility room for mechanical/electrical and communication equipment.

Entry Gate Canopy at Alameda Street. The masonry column structure contains a standing seam metal roof system over wood trusses and a plywood decking canopy structure. The proposed structure has a 17.5-foot clearance, 27-foot total height, is 250-feet long, and 80-feet wide. This canopy provides cover and lighting for 15 lanes of inbound trucks (see Figure 7); and

Alameda Street Entry Gate Administration Building. The proposed Gate Administration Building consists of a one-story masonry structure with a standing seam metal roof system, over wood trusses and plywood decking. It provides a variety of functions including: office work space for employees; restrooms; conference rooms; lunch room; an Automated Gate System (AGS) equipment room; receiving area and utility rooms for mechanical/electrical equipment; a stand-by emergency generator; an uninterruptible power supply (U.P.S.) system, and communication equipment. Twenty-four parking stalls are proposed for employee-owned and company-owned vehicles (see Figure 5). The striped, asphalt-covered parking area will be illuminated, with landscaping and irrigation as required by the City of Carson.

- **New Railroad Track**: approximately 50,000 feet (see Figure 19)**;**
- **New Crane Rail**: approximately 28,000 feet of fixed track for the 39 cranes (see Figures 5 and 12)**;**
- **Storm Drainage Facilities**: trench drains, track drains, and laterals (large diameter pipes don't require relocation or replacement) (see Figures 8 and 12);
- **New Power and Telecommunication Systems**: electrical substations, distribution systems, lighting systems and crane power systems (see Figure 9);
- **Other Infrastructure**: including fire hydrants, fire suppression systems, compressed air systems (see Figure 10); and
- **Street Improvements along Alameda Street and Sepulveda Boulevard**: (see section 2.3 and Figure 22).

Appendix B provides supporting data on the type, number, and fuel consumption of ICTF Modernization Project construction equipment. The conceptual schedule of construction activity and associated fuel use is also provided in Appendix B.

1.5.2.3 Construction Plan Staging

Union Pacific proposes to construct the Project over multiple stages (see Figures 13-19), while maintaining the number of operational loading tracks at current levels throughout ICTF modernization construction. By doing so, San Pedro Bay Ports container traffic activity will not be compromised. New loading track construction will progress in pairs from east to west, beginning with construction of new loading tracks 803 and 804 on the eastern Facility boundary. As new loading tracks are completed and placed in service, the next pair of tracks will be constructed. Each construction stage will take approximately 4 to 6 months.

Union Pacific will modify operating methods and make existing tracks 801 and 802 available to swap lift operations between tracks and to shift associated truck traffic to opposing sides of the tracks. This flexibility, in conjunction with adding new track 4 in Stage 1, provides a means of completing the east WSG module as the first major milestone (see Figure 13) Union Pacific also proposes to maintain current parking and container storage capacity during construction. The Project requires that some early container stacking be implemented to offset lost surface stalls during construction. There is already a means of implementing container stacking on existing PCC crane runways. The stage construction sequence requires that the parking stalls between tracks 806 and 809 northerly of the north aisle break be converted to container stacking (see Figure 13, stage A1). Temporary use of 60-foot wide span RTGs capable of stacking containers up to three units high and three or four wide can create storage for up to 450 stacked containers, compared with the existing 200 wheeled-parking stall configuration.

The second means of temporarily adding storage capacity may involve conversion of area adjacent to track 806 to service, using 60-foot wide span RTGs that will allow stacking of two containers wide adjacent to the track, while still serving the truck-to-train operations.

Finally, Union Pacific plans to be able, if necessary, to convert storage lot W3 to temporary container stacking using 60-foot wide span RTGs. Storage lot W3 is located near the existing check-point gate. Temporary asphalt-concrete runways will probably be required in this area, depending on the duration of the container stacking operations.

The construction stages described below are based on a conventional 40-hour work week, with crews beginning work between 7:00 and 7:30 a.m., and ending work between 3:30 and 4:00 p.m., Monday through Friday. Though the specific time frames will be developed during negotiation of a construction contract, the ultimate schedule will be developed so that workers entering and leaving the ICTF can avoid associated peak hour commute periods. Depending on the need to accommodate ongoing ICTF operations, it may be necessary to extend the construction schedule to weekend days and/or second shift work. Though this is unlikely to result in 24 hour/day construction, activity could include two 10-hour work shifts up to seven days a week for shorter periods of time.

Union Pacific estimates that peak construction periods will require the employment of between 100 to 150 construction workers. Fifty of those will be Union Pacific track and construction forces. The general contractor will retain approximately 50 to 100 workers of various crafts on site, depending on the phasing process. A combination of skilled and unskilled laborers involved with concrete, site work, electrical, utility lines and building construction will be needed at various times during the construction period.

The conceptual list of equipment required during ICTF Project construction is detailed in Appendix B1, and equipment types required for each project activity are listed in Appendix B2. The overall ICTF Project construction equipment schedule is listed in Appendix B3. Union Pacific will implement a Construction Traffic Control Plan to ensure that construction equipment traffic avoids residential neighborhoods, schools, and parks in the vicinity. This Plan will avoid conflicts with ongoing Facility operations, and will be designed to minimize incompatibilities with City of Long Beach residential neighborhood traffic to the east of the Project site.

The general construction phasing of the Project is planned as follows:

Stage 1: Implement container stacking and begin construction of Module #1, the most eastern of the three modules to be constructed. This stage also includes mobilization of a concrete crushing facility and commencement of utility and drainage modifications. Union Pacific intends to operate a temporary concrete crushing facility on the Desser parcel during this and all subsequent construction stages. As previously discussed, if the Desser parcel is unavailable, the temporary concrete crushing and construction staging would be located at one of two other alternative locations. Container loading operations will continue to be conducted using RTG's. See Figure 13 for additional detail.

Stage 2: Continue construction of Module #1, including Track 5 and lighting, utilities, drainage, electrical substations, temporary facilities and crane rails. Concrete crushing operations, begun in Stage 1, continue. Container loading operations continue to be conducted using RTG's. See Figure 14 for additional detail.

Stage 3: Continue track construction, including rearrangement of ladder tracks for WSG Module #1. Continue construction of crane rails, utilities and drainage. Continue construction of electrical substations. WSG Module #1 crane power system construction begins. The first set of new WSG cranes will be erected. Container loading operations continue to be conducted using RTG's. Concrete crushing operations continue. See Figure 15 for additional detail.

Stage 4: Complete erecting and commissioning the first set of WSG cranes. Erect and commission the second set of WSG cranes. Place WSG Module #1 in service. Complete WSG Module #1 track connections. Construct reefer outlets. Continue construction of utilities and drainage facilities, focusing on WSG Modules # 2 and 3. Concrete crushing operations continue. Conduct container loading operations primarily using the new WSG in Module #1. RTG operations continue on Tracks 811 and 812 to meet capacity needs. See Figure 16 for additional detail.

Stage 5: Commence construction of WSG infrastructure for Module #2, the middle of the three modules to be constructed. Begin construction of new Crane Parts Building and Repair Center. Complete construction and commissioning of reefer outlets. Continue construction of utilities and drainage facilities, focusing on WSG Modules # 2 and 3. Container loading operations are conducted primarily in Module #1. RTG operations continue on Tracks 811 and 812 to meet capacity needs. See Figure 17 for additional detail.

Stage 6: Construct WSG Module #2 tracks and WSG Module #2 and #3 ladder tracks. Complete the Crane Parts Building and Repair Center. Complete construction of WSG Module #2 crane infrastructure. Erect and commission Module #2 WSG's. Continue construction of utilities and drainage facilities, focusing on Modules # 2 and 3. Commence WSG operations in Module # 2 – RTG operations cease. Concrete crushing operations continue. See Figure 18 for additional detail.

Stage 7: Construct tracks in WSG Module # 3, the most western of the three modules to be constructed. Construct WSG Module # 3 crane infrastructure. Erect and commission Module # 3 WSG's. Complete WSG Module # 3 and ladder track construction, and remove tracks to be retired. Complete construction of utilities, lighting and fire suppression systems. Construct a new inbound gate at Alameda Street, including canopy, administration building and employee parking. Modify the existing Sepulveda Street gate facility for outbound-only operation. Union Pacific will commence full operation of the modernized Facility following the completion of Stage 7. See Figure 19 for additional detail.

Construction will take approximately 3 to 4 years. Maximum ICTF container throughput is estimated to occur by 2016. Each construction stage will take approximately 4 to 6 months. A detailed engineering construction timeline is being developed to match construction with capacity and other operating requirements.

1.5.3 Project Operations

1.5.3.1 Rail Operations

As stated previously in Section 1.3.3 and shown in Table 1.1, approximately 13 trains either enter or leave the ICTF per day (4,745 per year) under present conditions. Union Pacific anticipates that this number will increase to approximately 27 trains per day, or 9,855 per year by 2016.

1.5.3.2 Truck Operations and Automated Gate System

As stated previously in Section 1.3.3 and shown in Table 1.1, an average of 3,020 daily/1,087,000 yearly one-way truck trips currently take place at the ICTF. Union Pacific anticipates that this number will increase to approximately 6,300 daily/2,268,000 yearly one-way truck trips by 2016.[15] Union Pacific intends to cooperate with the San Pedro Bay Ports in the implementation of their CAAP Clean Trucks Program.

Existing ICTF Gate System:_Currently**,** the Sepulveda Boulevard Gate check-point is regulated by an older, conventional OASIS (Optimization Alternatives Strategic Intermodal Scheduler**)** computer network connection operated by ICTF clerks, who manually verify the identity and employment of every driver, physically inspect every truck entering the ICTF with a container and/or chassis, and manually enter equipment unit numbers into their hand-held data entry units. (The existing system allows bobtail trucks (trucks without containers or chassis) to enter and exit the ICTF without any physical inspection and without recording any information about the bobtail itself or its driver's identity or employment. Bobtails can account for as many as one-third or more of all trucks entering and leaving the ICTF at a given time.) The gate clerk is equipped with a hand-held data entry unit, and must manually enter both the container and/or chassis number as well as the driver's commercial license number into the data entry unit

[15] As noted above, although the number of trucks calling at the ICTF will increase as a result of the Project, overall truck travel within the air basin will decrease as a result of the transfer of cargo to rail.

for storage in the railroad's inventory management database. The gate clerk must also physically inspect the exterior of the container and/or chassis and manually enter into the data entry unit the details of any exterior damage observed during that inspection. After the gate clerk's data has been entered and accepted, and after the driver's identity and employment have been validated, the driver is allowed to enter the ICTF. The out-gate process is identical to the in-gate process, with two exceptions. The gate clerk manually enters the shipment pick-up number provided by the driver into the hand-held unit. Also, the gate clerk must confirm a driver's claim that a unit the driver has picked up at ICTF is in damaged condition. If the gate clerk's inspection confirms the driver's claim, then the gate clerk must also enter the details of that damage into the hand-held unit before permitting the driver to leave the ICTF.

Union Pacific plans to replace this system with a specialized Automated Gate System (AGS), an Optical Character Recognition (OCR), portal-based system specifically designed to meet Union Pacific specifications. Less elaborate OCR systems are presently used at port shipping terminals throughout the world, including the POLA APL and Yusen Terminals and the POLB ITS and Container Terminals. Union Pacific has successfully implemented its specialized AGS OCR system at nine intermodal facilities in the United States, including Oakland, Kansas City, Dallas, Salt Lake City, and Chicago.

Proposed Automated Gate System (AGS): The AGS records information about every bobtail truck, as well as every truck with a chassis or container, which enters or exits the ICTF. Drivers entering the ICTF drive through an OCR portal to an open gate stand, where they stop to place two fingers on a biometrics reader which records and verifies their identity and employer. At that same moment, the OCR camera, which has already captured images of the truck and its chassis or container from top, bottom, front, back and side angles, photographs the driver's face. The AGS digitizes the vehicle and chassis/container information. Driver information recorded by the biometrics reader and the OCR camera is automatically entered into the Union Pacific computerized inventory system. The AGS also automatically scans a waybill file to identify the billing information about the particular unit being picked up or dropped off and determines whether or not the unit contains hazardous materials. Before the driver proceeds beyond the open gate stand into the ICTF proper, the biometrics reader has verified the driver's identity and generates a receipt for the driver which contains the driver's name, the driver's employer, the unit number, the chassis number, and the date. The receipt also instructs the driver where to drop off the unit or pick up a unit within the ICTF. When a bobtail has picked up a unit within the ICTF and is ready to leave as a container chassis, the driver must stop at a kiosk, re-record his identity by placing the same two fingers into the biometrics reader and then must manually enter the shipment pick-up number into a keyboard which is located next to the biometrics reader. At that moment, the OCR camera again photographs the driver's face. Union Pacific retains all this information for one year before it is purged.

Pier Pass System: Union Pacific's proposed AGS is entirely different from the Pier Pass system, which is currently employed at all of the POLA and POLB marine facilities. The Pier Pass system is designed to encourage cargo owners and truckers to access Port facilities during the evenings and week-end off-peak hours rather than peak hours during the week, and thereby reduce Port congestion by spreading as much gate volume as possible into off-peak hours. The proposed AGS will increase the efficiency of cargo transportation processing and improve facility security systems.

The AGS constitutes a dramatic technological improvement over Union Pacific's existing gate entry and exit system. The AGS has the ability to reduce the amount of idling time at the ICTF check stations from approximately 2-5 minutes to approximately 30 seconds. Studies conducted at facilities with AGS confirm these benefits. Decreased truck idling at the entrance gate results in a significant reduction in the emission of air contaminants, the generation of noise, and delays associated with long queue times. The biometrics reader, the OCR cameras and a system which automatically records and digitizes all information is inherently and operationally more efficient, more reliable and more secure than the same information which is currently collected and manually entered by a gate clerk.

1.5.3.3 Hazardous and Environmentally Sensitive Materials

During the course of Project operations, Union Pacific will continue to utilize its current procedures for the containment and cleanup of any hazardous or environmentally sensitive materials found to be leaking from container cargo. If any shipment, regardless of its contents, is found to be leaking while in Union Pacific's possession, Union Pacific takes immediate action to implement emergency response and chemical safety procedures and practices which ensure that response is immediate, appropriate, efficient and designed to achieve total containment, cleanup and control. In addition, Union Pacific immediately notifies the shipper, which is responsible for storage, appropriate disposal of any waste generated during site cleanup and other charges incurred due to the leaking shipment. After the commodity shipment is unloaded, and before any equipment is returned and released to Union Pacific, the shipper must inspect, decontaminate, clean, and repair the equipment used for the shipment. The shipper is also responsible for inspecting, decontaminating, and cleaning:

- any adjacent or vicinity property;
- all environmental damage when a release occurs; and
- all areas that were contaminated

1.5.4 ICTF Modernization Project Funding

At present, Union Pacific intends to privately fund the overwhelming majority, if not all, of the Project. Such private funding can come in the form of a direct private contribution or with a possible extension of the existing financing mechanism using a revenue stream generated by collection of an ICTF container fee. The ICTF Modernization Project has appeared on a variety of lists as a potential recipient of a portion of the $2 billion in "Trade Corridors Improvement Fund" (TCIF) dollars available for appropriation by the California legislature following the passage of Proposition 1B in November, 2006. It is not presently anticipated that such funding from the TCIF, or any other funding source, will play more than a very small role in the ICTF Project funding of such project if it plays any role at all.

1.5.5 ICTF Modernization Project Permitting

Subject to final confirmation, other responsible agency approvals and permits for the Project are expected to include the following:

Table 1.5.5 Potential ICTF Modernization Project Permits

Responsible Agencies	*Approvals/Permits*
City of Los Angeles	Building permit Grading permit Fire Department Plan and Inspection approval Street Plan Improvement approval
City of Carson	Conditional Use Permit Grading permit Building permit Street Plan Improvement approval
Los Angeles County	Flood Control Storm Drainage Plan approval (if necessary)
California Regional Water Quality Control Board-Los Angeles Region	National Pollutant Discharge Elimination System (NPDES) Permit Modification (if necessary)
Utility Companies	Utility Line (electric, water and sewer) Relocation and Connection approval (if necessary)
Oil Companies	Oil and Fuel Line Relocation approval (if necessary)

1.6 Project Agreement History

Between 1983 and 1986, the POLA, the POLB and Southern Pacific Transportation Company (acquired by Union Pacific in 1996) jointly developed and bond-financed the ICTF through a public-private partnership. As part of the partnership, the POLA issued Permit No. 529 to the ICTF JPA granting the JPA the right to use the premises for the ICTF. In turn, the JPA sub-leased its interest in the premises to Southern Pacific. As successor-in-interest to Southern Pacific, Union Pacific now owns both the sub-lease estate and the facilities located at the ICTF. Union Pacific also operates the ICTF. The Facility was specifically designed to provide near-dock infrastructure required to enhance the flow of container traffic through the POLA and the POLB.

1.7 Alternatives Analysis

The existing ICTF site is a well-established near-dock rail facility with substantial infrastructure and imbedded operational elements. The site location is strategic and necessary to achieve efficient container transport from ships to rail and trucks. As a result, there are few feasible available alternatives that satisfy the Project's objectives to increase near-dock container capacity while concurrently minimizing potential adverse environmental impacts. The alternative of identifying an off-site facility location instead of modernizing the existing ICTF infrastructure would be economically infeasible.

Union Pacific considered several Project alternatives during Project design and site planning. For the purpose of this Application, and subject to Union Pacific's further consideration, Union Pacific evaluated the additional alternative of expanding ICTF capacity by using existing container transfer technology and retaining the diesel-fueled RTG cranes. This RTG Crane Alternative is discussed below. Additional Project alternatives will be developed and analyzed during the forthcoming environmental review.

1.7.1 Alternative Screened from Detailed Consideration

As noted above, this Alternative would continue using diesel-fueled RTG cranes with an expanded Facility footprint. This Alternative would be comparable to buildout of the original ICTF Master Plan Phases II and III, which were approved by the Ports and the JPA in 1984. The RTG Crane Alternative would be designed to support levels of near-dock container transfer and storage equivalent to those contained in the 1984 Master Plan. Therefore, the number of containers handled at the ICTF in this Alternative would be the same as those for the Project.

The main components of the RTG Crane Alternative are described below and illustrated in Figure 20.

- Continue using 45-foot horizontal-span, diesel-fueled RTGs for container unloading and loading. The number of cranes would be doubled from existing levels and other supporting equipment, such as yard hostlers, would be increased proportionally to accommodate increased container throughput;
- Provide approximately 75 additional yard hostlers to support operations at 1.5 million lifts;
- Provide 12 additional diesel-fueled RTG's to support operations at 1.5 million lifts;
- Provide 12 additional diesel-fueled sideloaders[16] to support operations at 1.5 million lifts;
- Expand the ICTF by approximately 123 acres, either by purchasing or by leasing parcels adjacent to the existing Facility for increased container storage requirements. This element would require the following:
    - Purchase or continue leasing the 74 Watson Land Company acres currently used for chassis stacking and wheeled container storage. Convert this area to stacked container storage;
    - Purchase or lease six parcels of land totaling approximately 27 acres fronting on Alameda Street for new container storage; and
    - Purchase or lease approximately 26 acres of SCE land east of the existing ICTF for a new chassis stacking area between the ICTF and the Union Pacific San Pedro Branch.

[16] Sideloaders includes the equipment referred to as top-picks, piggy-packers and Reach Stackers

- Construct seven new loading tracks;
- Construct new structures including:
  - A second gate near the north end of the ICTF with access to Alameda Street;
  - A new train-crew health and welfare building, with lockers, rest areas, etc; and
  - Relocation of two parts-and-storage buildings, currently located near the fueling station, potentially to where the eastern-most row of stacked containers is presently located at the northern end of the Watson Land Company leased parcel**.** Provide approximately 100 acres of additional paved area for increased stacked container storage, with new pavement matching existing Portland Cement Concrete surfaces;
- Provide storm drain improvements to accommodate runoff from increased impervious surface area, including:
  - Approximately 30 new catch basins and 5,000 feet of collector pipe conveying stormwater to a new outfall in the Dominguez Channel, or to Sepulveda Boulevard through an estimated 66-inch diameter pipe; and
  - Storm drainage treatment, such as a detention/retention pond or grassy swales, as a component of the Facility's existing Los Angeles County Standard Urban Stormwater Mitigation Plan.
- Construct high mast lighting at approximately 400-foot spacing (an increase from the existing 300-foot spacing), to provide adequate lighting in the container stacking and chassis storage areas;
- Increase the existing electrical load by approximately 500 KW, or approximately 100 percent. Modify communications, yard intercom system, data network system, and signal and security systems; and
- Construct new fire mains and hydrants in the new stacked storage and chassis storage areas.
- Construction for the RTG Crane Alternative would occur over six stages, whereas the Project's construction calls for seven stages. The same general progression of modernization and replacement of track and cranes from east to west that is proposed for this Alternative would also occur for the Project. Construction duration would also last from 3 to 5 years.

1.7.1.1 Considerations for Eliminating the RTG Crane Alternative

The RTG Crane Alternative was eliminated from co-equal consideration with the Project as the result of an evaluation of the following key factors:

- Air quality emissions, and the associated predicted health risk, would be substantially higher based on the increased use of diesel-fueled equipment

- Required expansion of the ICTF footprint to the east and west of the existing and Project area would increase potential incompatibilities with adjacent land uses, including impaired air quality and increased noise and traffic from short-term construction, and long-term operational noise affecting a greater number of sensitive receptors

- Expansion of the ICTF footprint to the east and west would require several additional permits from responsible agencies, including the cities of Carson and Long Beach, with the potential to significantly increase the permitting phase of the Project and, therefore, the time to Project completion

For the reasons discussed above, Union Pacific considers the RTG Crane Alternative to be substantially inferior to the Project, and it has been eliminated from further consideration.

CHAPTER 2

PRELIMINARY ENVIRONMENTAL IMPACT ANALYSIS SUMMARY

2.1 Introduction

This section summarizes the potential environmental impacts from the ICTF Modernization Project. This preliminary assessment will be expanded, refined and modified as appropriate during the California Environmental Quality Act's (CEQA) environmental review process, which will be conducted by the ICTF JPA in its role as the CEQA lead agency.

Union Pacific's proposed ICTF Modernization Project provides substantial environmental benefits when compared to the ICTF's existing conditions. Union Pacific has designed and engineered a modernized ICTF capable of accommodating the Ports' projected container traffic growth beyond levels that anticipated on-dock rail terminals can practically provide. At the same time, the ICTF Project minimizes adverse environmental impacts by incorporating efficient and environmentally sound container traffic movement technologies. As described in more detail in Section 2.3, below, the Project's replacement of 10 diesel-fueled cranes by 39 electric-powered cranes also permits the elimination of 71 of the 73 diesel-fueled yard hostlers. These changes alone result in significantly reduced air emissions and noise generation with correspondingly significant increases in container transfer efficiencies. Along with substantial reductions in greenhouse gas emissions and energy savings from the regenerative crane design technology, Union Pacific's modernized ICTF will be a model of sustainable design and function for facilities of its kind.

The Project also contributes to the environmental benefits and economic efficiencies achieved by increased use of the Alameda Corridor. In addition, the Project shrinks the ICTF's footprint, substantially reducing the volume and intensity of potential adverse impacts on surrounding sensitive receptors. ICTF modernization dramatically improves the Project's on-site and surrounding environment compared to either the existing operation or the originally approved Facility's phased buildout over a 258-acre area.

2.2 Air Quality

The Project will replace the ICTF's diesel-fueled cranes and yard hostlers with electric and alternative non-diesel-fueled equipment. Also, the Project will replace the ICTF's existing switch locomotives with ultra-low emission locomotives (ULELs). Together, these actions will immediately and significantly reduce air emissions. Other federal, state and Port air pollution control measures and plans and existing railroad voluntary agreement measures supplement the ICTF Project's own emission reductions. Union Pacific identifies and discusses the Project's significant air quality improvements associated with each major mobile source in the sections below.

2.2.1 Project Emissions

As demonstrated below, the ICTF Project, when completed, will reduce diesel particulate matter (DPM) emissions by approximately 74 percent and oxides of nitrogen (NOx) emissions by more than 55 percent, from current (2005) levels. Emissions of carbon monoxide (CO), reactive organic gases (ROG), oxides of sulfur (SOx), and greenhouse gases (GHGs) will also be reduced by the ICTF Project. These Project-related reductions will concurrently lower any existing predicted health risk, further assisting the Ports to achieve their overall San Pedro Bay Standard and other CAAP goals. A detailed discussion of the Project's conformity with the Ports' CAAP is provided in Section and Table 2.9.1 below.

To assess the Project's incremental air quality benefits, the 2005 baseline emissions for the existing ICTF are compared to the modernized ICTF's estimated emissions on a time-phased basis, for Project Year 2010 through Project Year 2016, when the Facility will be at maximum throughput. At the request of the JPA, emissions from the nearby Dolores Yard have also been included in the inventory for the 2005 baseline and future Project Years. The Dolores Yard is a locomotive servicing facility that provides support to the ICTF and other UPRR Yards in the area. The Yards are physically separate facilities, but due to their close proximity to one another, they were treated as one facility for the emission inventories and the baseline dispersion modeling analysis. For the future Project Years, it was assumed that no infrastructure changes would be made at the Dolores Yard. To better assess the impacts of the Project, the emissions from the Dolores Yard are allocated into two categories—emissions related to ICTF operations and emissions not related to ICTF operations—based on car count projections. While, the overall activity level at Dolores is not expected to increase in the future Project years, operations will shift to incorporate more ICTF-related activities.

The projected emission reduction calculations in this analysis assume a gradual increase in freight handled at the ICTF beginning in 2010 through its maximum throughput capacity in 2016. In addition, the analysis takes into account certain other future regulatory and voluntary emissions reductions which will be implemented and effective during the period from 2010 (beginning of construction) to 2016 (maximum Facility capacity throughput), e.g., CARB's

Cargo Handling Equipment regulations, federal truck emission rules, 1998 and 2005 CARB MOUs. (This analysis neither includes nor takes credit for the significant additional emission reductions resulting from the Port's Clean Trucks Program.) Thus, the ICTF Project's emissions estimates for the 2010-2016 period are conservative but temporally and operationally realistic.

2.2.1.1 Overall Project Emission

Overall Project Emissions. Table 2.2-1 shows air pollutant emissions from the ICTF for the baseline and ICTF Project as the Project is implemented over time. As discussed above, the emission estimates include emissions from the adjacent Dolores Yard.

Table 2.2-1. Overall Project Emission Estimates

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626[17]	900	1,100	1,300	1,500
ROG	54	52	46	41	40
CO	234	220	179	170	176
NOx	601	351	274	251	258
PM_{10}	39	36	36	33	35
DPM	20	12	8	6	5
SOx	11	42	<1	<1	<1
Greenhouse Gases	*Emissions (Metric TPY)*				
CO_2	44,428	44,530	37,042	37,058	39,866
N_2O	<1	<1	<1	<1	<1
CH_4	2	2	2	2	1
Total GHGs as CO_2e[2]	44,619	44,733	37,247	37,271	40,090

Notes:
1) Includes emissions from the adjacent Dolores Yard.
2) Based on a global warming potential (GWP) of 310 for N_20 and 21 for CH_4, from CARB's Staff Report for the Mandatory Reporting of GHG Emissions Regulation[18]

To better assess the impacts of the Project, the ICTF-related portion of the total emissions from the ICTF and Dolores Yards is shown in Table 2.2-2. The emissions were divided based on railcar count data. The ICTF-related emissions include emissions that occur within the ICTF, such as emissions from cargo handling equipment, plus the portion of the emissions from the Dolores Yard that are related to ICTF.

Table 2.2-2. Overall ICTF-Related Emission Estimates

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	43	43	39	35	35
CO	207	195	159	152	162
NOx	410	300	233	215	231
PM_{10}	34	34	35	32	34

[17] The figure of 725,832 average container lifts per year, shown in Table 1.1, is associated with ICTF operations in 2006.

[18] Available at http://www.arb.ca.gov/regact/2007/ghg2007/isor.pdf

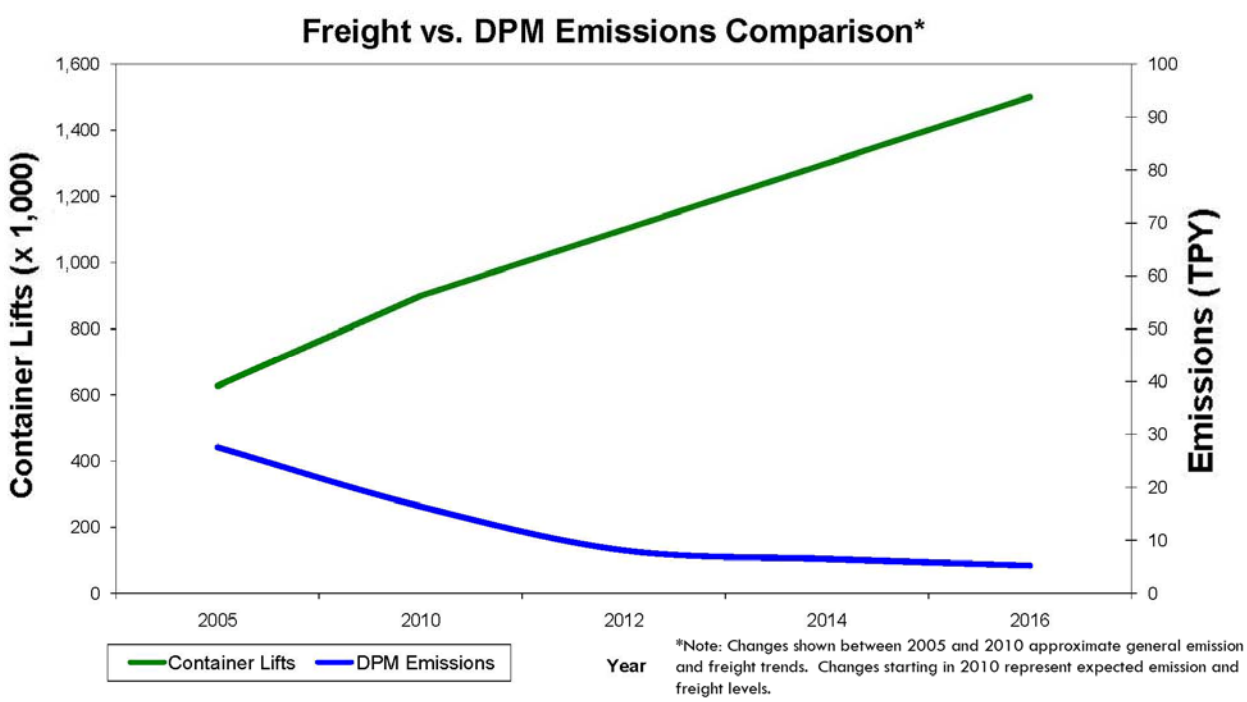
Table 2.2-2. Overall ICTF-Related Emission Estimates (continued)

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
DPM	16	10	7	6	5
SOx	6	2	<1	<1	<1
Greenhouse Gases	*Emissions (Metric TPY)*				
CO_2	34,171	35,580	29,701	30,383	34,607
N_2O	<1	<1	<1	<1	<1
CH_4	<1	1	1	1	1
Total GHGs as CO_2e[2]	34,268	35,713	29,843	30,540	34,783

Notes:
1) The ICTF-related emissions include emissions that occur within ICTF plus a portion of the emissions from the Dolores Yard. The emissions were allocated based on railcar counts.
2) Based on a global warming potential (GWP) of 310 for N_20 and 21 for CH_4, from CARB's Staff Report for the Mandatory Reporting of GHG Emissions Regulation[19]

As shown in the tables above, the proposed Project will significantly reduce criteria pollutant and GHG emissions compared to the existing (combined) Facility baseline emissions. Specifically, DPM emissions will be reduced by approximately 74 percent and NOx emissions will be reduced by more than 55 percent by Project Year 2016. These significant emissions reductions will result in a corresponding reduction in predicted health risks associated with the Facility.

To provide overall perspective on the ICTF Project's emission reductions and their significance in relation to ICTF goods movement, the graph below compares the ICTF's volume of freight handled to the amount of DPM emissions over time. As discussed above, emissions of ROG, NOx, CO, PM_{10}, SOx, and GHGs will also be reduced by the Project. However, for simplicity, only DPM emissions over time are shown in the graph below.



19 Available at http://www.arb.ca.gov/regact/2007/ghg2007/isor.pdf

2.2.1.2 Emission Estimates by Equipment Category

The analytical methodology and assumptions supporting the emission reduction calculations for each ICTF equipment category are set forth below. More detailed methodology, calculations, and supporting data for the emissions calculations are set forth in Appendix C.

2.2.1.2.1 Locomotives

Table 2.2-3. ICTF Project Emissions from Locomotives

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	18.9	19.1	19.8	19.8	19.8
CO	39.6	43.0	44.8	46.4	47.9
NOx	350.8	116.0	118.2	117.2	116.3
PM_{10}	8.0	3.0	3.0	2.9	2.7
DPM	8.0	3.0	3.0	2.9	2.7
SOx	8.2	0.7	0.4	0.3	0.3
Greenhouse Gases	*Emissions (Metric TPY)*				
CO_2	18,526	20,296	21,071	21,803	22,475
N_2O	0.5	0.5	0.5	0.6	0.6
CH_4	1.5	1.6	1.7	1.7	1.8

Note:
1) Includes emissions from the adjacent Dolores Yard.

Equipment Description

Low-horsepower switch locomotives will move smaller cuts of cars within the ICTF, and to and from the Dolores Yard, crossing Alameda Street. Most of the existing switch locomotive fleet serving the ICTF and Dolores Yards will be replaced with 10 new ultra-low emitting locomotives (ULELs). DPM and NOx emissions from these units are 80 to 90 percent lower than those of standard diesel switch locomotives. They represent the cleanest switchers available.

High-horsepower line haul locomotives will be required to move large unit trains of containerized freight between the ICTF and major intermodal terminals in Texas, Illinois, and other parts of the country, and these units will enter or depart the ICTF via the Alameda Corridor.

EPA's 2004 off-road engine fuel regulations required the phase-in of ultra-low sulfur diesel fuel for locomotives by 2012, allowing the development of new emission control technologies.

Line haul locomotives will also show substantial advances in emission control technology due to EPA locomotive emission standards and off-road engine fuel regulations, as well as Union Pacific's voluntary efforts. EPA's 1997 locomotive rulemaking established emission standards for Tier 0 and Tier 1 retrofits and the new Tier 2 locomotives, which first appeared in 2005. EPA's 2007 proposed rules would require even further reductions in emissions from existing and new locomotives. Collectively, these regulations will result in significant reductions in NOx, DPM, SOx, ROG and CO emissions.

Union Pacific has also taken the following additional steps to reduce locomotive-related emissions:

- Since January, 2005, Union Pacific has acquired more than 700 new high-horsepower locomotives that meet EPA's Tier 2 standard of 5.5 g/BHP-hr of NOx. Currently, approximately 50 percent of Union Pacific's fleet is certified under EPA's Tier 0, Tier 1 and Tier 2 standards. As a result, Union Pacific's fleet is the "youngest" and therefore cleanest of any North American railroad. Furthermore, the Union Pacific fleet is "turning over" at a faster pace than EPA has predicted for the nation's fleet.

- In addition, in 1998, Union Pacific voluntarily entered into an enforceable fleet average agreement with the CARB that achieves a weighted fleet-average emissions level equivalent to exclusive use of Tier 2 locomotives in the South Coast non-attainment area. CARB anticipates a reduction in NOx emissions from locomotives in the South Coast Air Basin, which includes the ICTF, by 67 percent on average by 2010. Union Pacific also committed to reducing DPM emissions from locomotives by approximately 47 percent by 2010.

- In 2005, Union Pacific entered into a voluntary agreement as part of an MOU with CARB and expects to achieve an additional 20% reduction in DPM emissions by applying idling controls and use of low sulfur fuel as part of the 2005 MOU with the CARB.

The proposed Project will implement emissions control systems and technology for locomotives as they become available and required by federal regulations or by voluntary agreement.

Analytical Method for Calculating Emissions

Base year (2005) emission inventory:

For the 2005 baseline year, emissions from the ICTF's operational locomotive were separately estimated for (1) "road power" (locomotives arriving and departing from the ICTF and Dolores Yards with intermodal and manifest freight trains), (2) yard switching operations, and (3) emissions from locomotive service and maintenance activities. See Part IV.A.1 of Appendix C for a complete description of train activities and detailed emission calculations.

2005 Road Power Emissions **-** Union Pacific databases provide detailed information on all trains arriving and departing the ICTF and Dolores Yards during calendar year 2005. These data included the number of trains and the number of locomotives on each train. Union Pacific data also provided the individual locomotive model, emission control technology (as defined by EPA Tier), and whether equipped with automatic start/stop idle controls.

Emission factors for individual locomotive models and control technologies were adjusted according to CARB guidance for the effects of fuel sulfur content in 2005 for both California fuel and fuel delivered in other states. These emission factors were used to calculate total emissions associated with movements into and out of ICTF based on routes followed, speeds, and throttle settings, as well as estimated idle time on arrival, and idle time prior to departure.

2005 Yard Switching Operations **–** ICTF and Dolores operations are supported by designated sets of yard switchers working specified shifts. Emissions for the 2005 baseline year were calculated based on emission factors for the specific locomotive models in use, the hours of operation, and the USEPA switcher duty cycle.

2005 Shop and Service Operations **-** Another Union Pacific database provided detailed information on the number of locomotives fueled and serviced at the service facility at the Dolores Yard. Emissions associated with servicing of road power for intermodal trains were calculated for movements to and from the service area, as well as idle time in service, and other emissions associated with maintenance (e.g., load testing following periodic maintenance). The number and type of service events associated with ICTF operations were estimated based on the full service data in proportion to the total road power traffic at Dolores and ICTF associated with intermodal operations.

2010 Emission Inventory Forecast:

The 2010 emission forecast was developed with consideration of the effects of a number of factors:

- Change in total ICTF rail activity (characterized based on the number of container lifts)[20]

- Progressive changes in the Union Pacific ICTF road power locomotive fleet due to new acquisitions, retirement of older units, rebuilding of older units, and the 1998 Fleet Average Agreement

- Changes in emission factors due to on-going reduction in sulfur content of California and 47-state diesel fuels, as well as the effects of EPA's 2007 proposed rules for locomotive emission standards

- Replacement of the "traditional" diesel-electric locomotives used in yard switching with "gen-set switchers," which are ultra-low emitting locomotives (ULELs) powered by multiple diesel generators meeting the highest level of diesel emission controls

2010 Road Power Emissions **-** The expected composition of the road power fleet in 2010 (expressed as the fraction of locomotives of each model and control technology) was developed starting from the 2005 fleet distribution, and adjusting for the requirements of the 1998 Fleet Average Agreement, as well as Union Pacific forecasts of new locomotive acquisitions and retirement or

[20] In 2005, approximately 40% of the train activity in the Yards was not ICTF-related.

remanufacturing of older units. As a result of the changes in fleet composition, the average horsepower of locomotives will increase, and the number of locomotives required per ton of freight will decrease. The estimated increase in total freight (a 44 percent increase from an average of 626,000 lifts in 2005 to 900,000 lifts by 2010) is assumed to result in a corresponding increase in available working horsepower from locomotives. The total number of road power locomotives active at the ICTF in 2010 was therefore calculated as a 44 percent increase from 2005, offset by the effect of the increase in average horsepower per locomotive. This increase was applied to all road power activity estimates for 2010, including movements and idling on arrival and departure, as well as movements to and from service, and idling and load testing in service.

Emission factors for 2010 were calculated using the updated fleet composition, including the increased number of units with Tier 1 and Tier 2 emission control technology. Emission factors were also adjusted to reflect the reductions in sulfur content for both California and 47-state fuels. Road power emissions were calculated in the same manner as for 2005 using the updated emission factors and revised activity. In addition, the Regulatory Impact Assessment prepared by EPA in support of its 2007 Notice of Proposed Rulemaking for locomotive and marine diesel engines projects gradual reductions in g/bhp-hr DPM emission rates for the national fleet of large line haul (i.e., road power) locomotives. The rate of reduction varies over time, and is estimated to be approximately 4 percent in 2010, with further reductions in later years. The road power emissions estimate for 2010 was adjusted to reflect this estimate. See Part IV.B.1 of Appendix C for detailed emission calculations.

2010 Yard Switching Operations **-** Beginning in 2007, gen-set switchers will handle all yard ICTF switching operations. CARB estimates that the DPM and NOx emissions of these ULELs are 80 to 90 percent lower on a g/bhp-hr basis than those of traditional locomotives. This analysis assumes the total yard switching activity in 2010 (expressed in bhp-hrs) to be 44 percent higher than 2005, based on the 44 percent increase in container lifts. Therefore, assuming an 85 percent reduction in g/bhp-hr emissions, the 2010 yard switching emissions were calculated as (0.15 x 1.44) or 0.22 times the emissions in the 2005 base case. See Part IV.B.1 of Appendix C for detailed emission calculations.

2010 Shop and Service Operations **-** The Service Track and Locomotive Shop at the Dolores Yard were operating at capacity during the 2005 baseline year. As discussed above, the volume of ICTF-related operations at Dolores will increase from the baseline year, but the overall activity level at the Yard will remain constant. Therefore, the number of locomotive service and load testing events was unchanged for Project Year 2010. See Part IV.B.1 of Appendix C for detailed emission calculations.

2012 – 2016 Emission Forecasts:

Emission forecasts for 2012, 2014 and 2016 were developed, starting from the 2010 emission inventory, with consideration of two factors: (1) the progressive increase in yard activity to 1.1MM, 1.3 MM and 1.5 MM lifts; and (2) the effects of on-going emission reductions attributable to the 2007 EPA proposed rules.

- Road power activity was assumed to grow in proportion to the number of lifts, and emission factors were assumed to decrease as projected in the EPA Regulatory Impact Analysis.

- Yard switching activity and emissions were assumed to grow in proportion to the number of lifts only. ULEL switcher emission factors were not assumed to change as a result of the proposed EPA regulations, which apply to traditional locomotives only.

See Parts IV.C.1, IV.D.1, and IV.E.1 of Appendix C for detailed emission calculations.

2.2.1.2.2 HHD Diesel-Fueled Drayage Trucks

Table 2.2-4. ICTF Project Emissions from Drayage Trucks

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	19.9	21.2	20.0	15.1	14.6
CO	58.6	65.0	61.4	48.0	48.6
NOx	103.8	132.2	128.6	105.8	113.0
PM_{10}	6.1	5.3	4.8	3.2	2.7
DPM	5.9	5.2	4.6	3.0	2.5
SOx	0.7	0.1	0.1	0.1	0.1
Greenhouse Gases	*Emissions (Metric TPY)*				
CO_2	7,886	10,915	12,144	10,975	12,658
N_20	0.01	0.02	0.02	0.01	0.02
CH_4	0.03	0.05	0.06	0.04	0.06

Drayage Trucks: Drayage trucks deliver containers between the Port marine terminals and the ICTF. The proposed Project will include two design features that will improve operations and reduce air emissions: (1) the implementation of the AGS at the ICTF check gate; and (2) the addition of a second gate at Alameda Street. Both measures will reduce current drayage truck dwell time by approximately 50 percent by 2014. So while the number of trucks accessing the ICTF will approximately double when the modernized Facility reaches full design capacity (i.e., the proposed Project), the 50 percent reduction in dwell time, along with the natural truck fleet turn-over, will result in lower emissions of ROG, DPM, and SOx.

The CAAP provides Control Measure SPBP-HDV-1, which outlines the Ports' intention to incentivize and/or mandate the use of "clean" drayage trucks at facilities conducting business with the San Pedro Bay Ports. These "clean" trucks will comply with the EPA 2007 on-road emission standards to reduce diesel particulate matter to 0.01 grams per horsepower-hour (g/bhp-hr), and reduce NOx to the most stringent level per available technology.

Under the Ports' Clean Trucks Program, "dirty" trucks would gradually be banned from servicing the San Pedro Bay Ports over a five-year period. Since the majority of the heavy-duty trucks are involved with drayage from the San Pedro Bay Ports, it is anticipated that ICTF drayage truck-related emissions will significantly decrease as the Ports implement this Clean Trucks Program. Union Pacific has not included the emission reductions resulting from the Ports' Clean Trucks Program in this ADPA analysis. Instead, all Clean Trucks Program emission reductions are above and beyond the ICTF Project's own emission reductions considered here. Union Pacific will cooperate with the Ports in their Clean Trucks Program.

As the Ports implement their Clean Trucks Program by 2011, approximately one year after the ICTF Modernization Project begins operation in or about 2010, all the Clean Trucks Program's drayage trucks' emission reductions will be nearly coincident with, and additional to, the ICTF Project's start up and all Project emissions reductions.

Analytical Method for Calculating Emissions

The emissions from drayage trucks operating at the ICTF were based on the number of truck trips, the length of each trip, and the amount of time spent idling. The number of truck trips during the 2005 baseline year was based on the 2005 lift count,[21] a gate count balancing factor,[22] and the assumption that 40 percent of the trucks entering ICTF with a container also leave the Facility with a container.[23] The number of truck trips for Project Years 2010-2016 was calculated based on the predicted lift count for each year, the 2006 gate balancing factor, and the assumption that 40 percent of the trucks entering ICTF with a container also leave with a container. See Appendix B-1 of the Air Quality Technical Appendix (ADPA, Appendix C) for a detailed discussion on the calculation methodology.

In addition to the traveling emissions, an average idling time of 30 minutes per trip was assumed for the baseline year, to account for emissions during truck queuing, staging, loading and/or unloading during the 2005 baseline year. The average queuing time at the ICTF gate is less than 10 minutes per truck, based on Union Pacific experience. In addition to idling during queuing, it was assumed that each truck idles an average of 15 minutes per trip while the chassis is connected/disconnected from the truck cab. An additional 5 minutes of idle per trip was included to account for any other delays. For Project years 2010-2016, drayage truck queuing and staging time was incrementally reduced to account for Facility upgrades such as the improved efficiency of the electric WSG cranes, the installation of the AGS, and the construction of the Alameda Street gate. See Parts IV.B.2, IV.C.2, IV.D.2 and IV.E.2 of Appendix C for a detailed discussion of idling time assumptions for each Project year.

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[21] Provided by Union Pacific.

[22] The gate balancing factor is equal to the "in-gate" container count divided by the total number of containers passing through the "in-gate" and "out-gate" of the ICTF. In 2005, the gate balancing factor was 63%.

[23] Personal communication from Greg Chiodo of HDR on September 24, 2007.

A fleet average emission factor for traveling exhaust emissions was calculated using CARB's EMFAC2007 model with the BURDEN output option. Since the fleet distribution is not known, the EMFAC 2007 default distribution for Los Angeles County was used. Idling emission factors were calculated using the EMFAC2007 model with the EMFAC output option. The EMFAC model was run for the baseline year and for each Project year to obtain the default fleet distribution and emission factors.

Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007)[24] were used to calculate GHG emissions from drayage truck operations during the baseline year and each Project year. The GHG emission factors are based on fuel consumption, not activity (i.e. miles driven or hours of operation). Therefore, the same factors are used to calculate emissions from both the traveling and idling modes. A fuel-specific carbon oxidization factor, from the CARB emission factor document, was also used to calculate CO_2 emissions. See Parts IV.B.2, IV.C.2, IV.D.2 and IV.E.2 of Appendix C for detailed emission factor calculations for each year.

2.2.1.2.3 Cargo Handling Equipment (CHE)

Table 2.2-5. ICTF Project Emissions from Cargo Handling Equipment

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	4.7	3.1	0.1	0.1	0.1
CO	67.4	40.8	1.2	1.2	1.3
NOx	121.2	75.9	0.9	0.9	0.9
PM_{10}	4.4	2.5	0.0	0.0	0.0
DPM	4.4	2.5	0.0	0.0	0.0
SOx	1.5	1.0	0.0	0.0	0.0
Greenhouse Gases	*Emissions (Metric TPY)*				
CO_2	14,682	9,535	92	92	92
N_2O	0.02	0.00	0.00	0.00	0.00
CH_4	0.05	0.03	0.00	0.00	0.00

Cargo Handling Equipment (CHE)

Cranes: The ten presently existing diesel-fueled RTGs will be replaced by 39 electric WSGs. (In the 2005 baseline year used in this analysis, the ICTF had nine RTGs.) The WSGs will be installed in 3 sets of 13 cranes. The first set is expected to be fully operational by 2010 and all 39 cranes are expected to be fully operation by 2012. As a result, all RTG crane-related emissions will be

[24] Available at http://www.arb.ca.gov/cc/ccei/reporting/reporting.htm. On October 19, 2007, the CARB released revised GHG emission factors. The relevant CO_2 emission factors in the October draft document are slightly lower than the CO_2 emission factors in the August draft document. Therefore, the GHG emission estimates presented in this document were not revised to reflect the updated emission factors.

incrementally reduced beginning in 2010 and effectively eliminated in 2012 and in all subsequent years.[25] The new WSG cranes require electricity, which will result in indirect emissions at the power generation source. This analysis does not quantify emissions from such indirect sources.

Yard Hostlers: The proposed Project eliminates 71 of the 73 existing diesel-fueled yard hostlers. The diesel-fueled yard hostlers will be phased out between 2010 and 2012 as the WSGs are installed. As a result, hostler-related emissions will be incrementally reduced beginning in 2010 and effectively eliminated in 2012 and in all subsequent years. The remaining 2 hostlers will be used for emergency purposes only (estimated to be no more than 1 hour per day each) and will be powered by alternative fuel (i.e., non-diesel), such as liquefied natural gas (LNG), propane, or biodiesel.

Top Picks/Forklifts: The proposed Project also eliminates the operation of 2 of the 3 existing diesel-fueled top picks. One top pick and the forklift will remain onsite for emergency operation.

Analytical Method for Calculating Emissions

The 2005 baseline year emissions from CHE operating at the ICTF were based on the number and type of equipment, equipment model year, equipment size, and the annual hours of operation. The hours of operation during the baseline year were obtained from Union Pacific staff. The brake-specific fuel consumption (BSFC) for each equipment unit was calculated using the OFFROAD2007 model. Equipment-specific criteria pollutant emission factors were calculated using a spreadsheet developed by CARB staff and are based on the OFFROAD2007 model. Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions from CHE operations during the baseline year. See Part IV.A.3 of Appendix C for detailed emission calculations for the baseline year.

The first set of WSG cranes is expected to be operating at full capacity by 2010. Therefore, a portion of the diesel-fueled CHE will be retired from service in 2010. The activity data for the remaining CHE were adjusted to account for the addition of the WSG cranes. See Part IV.B.3 of Appendix C for a detailed discussion on the CHE activity level for Project Year 2010.

All 39 WSG cranes are expected to be operating at full capacity by 2012. All of the diesel-fueled CHE, except one forklift and one top pick, will be removed from the Facility. For the 2012 and subsequent year emission calculations, it was assumed that the remaining CHE (including the 2 alternative-fueled yard hostlers) would be used for emergency operations only. See Part IV.C.3, Part

[25] As discussed in Section 1.5.2.3, 60-foot span RTG cranes will be temporarily used during the construction of the Project. For the air emission estimates, it was assumed that the emissions rates for the 60-foot span RTG cranes would not be substantially different from the emission rates for the existing 45-foot span RTG cranes and that the 60-foot span RTGs would be used in lieu of the 45-foot span RTGs, as needed.

IV.D.3, and Part IV.D.3 for a detailed discussion on the CHE activity level for project years 2012-2016.

Emission factors for project years 2010-2016 were calculated using the spreadsheet developed by CARB staff and are based on the OFFROAD2007 model. In December 2006, CARB's regulation for *Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards* (CHE Regulation) became effective. For the 2010-2016 emission estimates, the DPM emission factors were adjusted, as needed, to show emission reductions that will be achieved through compliance with the CHE Regulation.

Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used for the 2010-2016 emission calculations. See Parts IV.B.3, IV.C.3, IV.D.3 and IV.E.3 of Appendix C for detailed emission factor calculations for each year.

2.2.1.2.4 Heavy Equipment

Table 2.2-6. CTF Project Emissions from Heavy Equipment

Criteria Pollutants	*Emissions (TPY)*[1]				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	0.9	0.7	0.1	0.1	0.1
CO	11.6	12.2	10.7	11.5	12.2
NOx	9.4	7.0	2.8	2.8	3.0
PM_{10}	0.4	0.3	0.02	0.02	0.02
DPM	0.4	0.3	0.00	0.00	0.00
SOx	0.1	0.01	0.00	0.00	0.00
Greenhouse Gases	*Emissions (Metric TPY)*[1]				
CO_2	976.0	753	313	313	313
N_2O	0.0	0.0	0.0	0.0	0.0
CH_4	0.0	0.0	0.0	0.0	0.0

Notes:
1) Includes emissions from heavy equipment operating at both the ICTF and Dolores Yards.

Heavy Equipment

Heavy equipment is used for non-cargo-related activities at the Yards, such as RTG crane and locomotive maintenance, handling of parts and Company material, and derailments. There are currently seven pieces of heavy equipment operating at the ICTF and Dolores Yards including one diesel-fueled crane at the ICTF car department; three diesel-fueled forklifts and one diesel-fueled man lift at the ICTF RTG crane maintenance area; and two propane-fueled forklifts at the Dolores locomotive shop. The replacement of the diesel-fueled RTGs with the electric WSGs will eliminate the need for the RTG crane maintenance area and the associated heavy equipment. It was assumed that operation at the RTG crane maintenance area would be phased out at the same rate as the RTGs. The phase-out will begin in 2010, when the first set of WSGs is installed, and the maintenance area will be closed by 2012. While maintenance will be required on the WSG cranes, the nature of those operations has not yet been determined and specifications for support equipment are not available. Also, the WSG cranes are stationary units. Therefore, maintenance will be performed at the location of each crane and not at a centralized facility. It was assumed that there would be no change in operation from the 2005 baseline year for the other heavy equipment.

Analytical Method for Calculating Emissions

The 2005 baseline year emissions from heavy equipment operating at ICTF and Dolores were based on the number and type of equipment, equipment model year, equipment size, fuel type, and the annual hours of operation. The hours of operation during the baseline year were obtained from Union Pacific staff. Equipment-specific criteria pollutant emission factors and BSFC were calculated using the OFFROAD2007 model. Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions from heavy equipment operations during the baseline year. See Part IV.A.4 of Appendix C for detailed emission calculations for the baseline year.

As previously discussed, the first set of WSG cranes is expected to be operating at full capacity by 2010. Therefore, a portion of the diesel-fueled heavy equipment will be retired from service in 2010. The activity data for the remaining heavy equipment were adjusted to account for the addition of the WSG cranes. See Part IV.B.4 of Appendix C for a detailed discussion on the heavy equipment activity level for Project Year 2010.

By 2012, all 39 WSG cranes are expected to be operating at full capacity and the RTG maintenance area will be closed. All of the diesel-fueled heavy equipment associated with the crane maintenance area, except for the man lift, will be removed from the Facility. It was assumed that the man lift will be used for other activities throughout the Yard. As discussed above, maintenance will be required on the WSG cranes, but the nature of those operations has not yet been determined. Also, since the WSG cranes will be stationary units, maintenance will not be performed at a centralized facility. See Part IV.C.4, Part IV.D.4, and Part IV.D.4 for a detailed discussion on the heavy equipment activity level for project years 2012-2016.

Equipment-specific criteria pollutant emission factors for project years 2010-2016 were calculated using the OFFROAD2007 model. In December 2006, CARB's regulation for *Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards* (CHE Regulation) became effective. For the 2010-2016 emission estimates, the DPM emission factors were adjusted, as needed, to show emission reductions that will be achieved through compliance with the CHE Regulation. Greenhouse gas emission from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used for the 2010-2016 emission calculations. See Parts IV.B.4, IV.C.4, IV.D.4 and IV.E.4 of Appendix C for detailed emission factor calculations for each year.

2.2.1.2.5 Transport Refrigeration Units (TRUs) and Refrigerated Railcars (Reefer Cars)

Table 2.2-7. ICTF Project Emissions from TRUs and Reefer Cars

Criteria Pollutants	*Emissions (TPY)*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	6.1	4.3	3.5	2.9	2.7
CO	14.3	16.7	18.9	21.3	24.0
NOx	13.5	17.5	20.8	21.9	22.6
PM_{10}	1.5	0.7	0.4	0.5	0.1
DPM	1.5	0.7	0.4	0.5	0.1
SOx	0.1	0.02	0.03	0.04	0.04
Greenhouse Gases	*Emissions (Metric TPY)*[1]				
CO_2	1,418	2,037	2,490	2,943	3,396
N_2O	0.00	0.00	0.00	0.00	0.00
CH_4	0.01	0.01	0.01	0.01	0.01
HFC[1,2]	0.2	0.3	0.3	0.4	0.4

Notes:
1) In addition to the emissions shown for the diesel engines on TRUs and reefer cars, GHG emissions from refrigerant leaks were also calculated. See Appendix C for details.
2) Includes emissions of HFC-125, HFC-134a, and HFC-143a.

TRUs and Reefer Cars

Transport refrigeration units (TRUs) and refrigerated railcars (reefer cars) are used to transport perishable and frozen goods. TRUs and reefer cars are transferred into and out of, and are temporarily stored at, the ICTF. Criteria pollutant and greenhouse gas emissions were calculated from the diesel-fueled engines that power the refrigeration units on TRUs and reefer cars. In addition to the emissions from the diesel engines on TRUs and reefer cars, as shown in Table 2.2-7, GHG emissions from refrigerant loss were also calculated.

Analytical Method for Calculating Emissions

Emissions from TRUs and reefer cars are based on the average size of the units, the average number of units in the Yard, and the hours of operation for each unit. The hours of operation were from CARB's *Staff Report: Initial Statement of Reason for Proposed Rulemaking for Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate* (October 2003). It was assumed that the number of units and the annual hours of operation remain constant over the course of each year, with individual units cycling in and out of the Yard.

For the 2005 baseline year, criteria pollutant emission factors and BSFC were calculated using the OFFROAD2007 model and greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007).

Greenhouse gas emissions from refrigerant losses from TRUs were calculated according to the methods outlined in the *Berths 136-147 (TraPac) Container Terminal Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR)* (Port of Los Angeles, 2007).[26] See Part IV.A.5 of Appendix C for detailed emission calculations.

For the 2010-2016 emission estimates, the hours of operation for the TRUs and reefer cars were calculated by multiplying the 2005 hours of operation by the current year (2010-2016) lift count divided by the 2005 lift count.[27] Criteria pollutant emission factors and BSFC were calculated using the OFFROAD2007 model. The DPM emission factors were adjusted, as needed, to show emission reductions that will be achieved through compliance with the TRU ATCM. Greenhouse gas emissions were calculated using CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007). Greenhouse gas emissions from refrigerant loss were calculated according to the methods in the TraPac EIR. See Parts IV.B.5, IV.C.5, IV.D.5 and IV.E.5 of Appendix C for detailed emission calculations for each year.

2.2.1.2.6 Other Miscellaneous Diesel-Fueled Equipment

Table 2.2-8. ICTF Project Emissions from Miscellaneous Diesel-Fueled Equipment

Criteria Pollutants	*Emissions (TPY)[1]*				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	0.1	0.08	0.08	0.08	0.07
CO	0.2	0.2	0.2	0.2	0.2
NOx	0.9	0.9	0.9	0.9	0.9
PM_{10}	0.06	0.06	0.06	0.06	0.06
DPM	0.06	0.06	0.06	0.06	0.06
SOx	0.06	0.06	0.06	0.06	0.06
Greenhouse Gases	*Emissions (Metric TPY)[1]*				
CO_2	33	33	33	33	33
N_2O	0.0	0.0	0.0	0.0	0.0
CH_4	0.0	0.0	0.0	0.0	0.0

Notes:
1) Includes emissions from delivery trucks, an emergency generator, and a portable air compressor.

[26] The TraPac EIS/EIR is available at http://www.portoflosangeles.org/EIR/TraPac/eir_062907trapac.htm.

[27] The emission estimates presented in this section do not account for any reductions that would be achieved through the use of reefer container receptacles. These reductions are expected to be insignificant. Transport refrigeration units (TRUs) and refrigerated railcars (reefer cars) are outfitted with small refrigeration units, powered by onboard diesel-fueled engines, to provide cooling for perishable and frozen goods during transport. When "plugged in" to reefer car receptacles, these refrigeration units are powered by electricity instead of the onboard diesel-fueled engine, thereby reducing TRU and reefer car related emissions.

Miscellaneous Diesel-Fueled Equipment

In addition to the drayage trucks discussed above, HHD diesel-fueled trucks also deliver various fuels, oils, sand, and soap[28] to the ICTF and Dolores Yards. Criteria pollutant and greenhouse gas emissions were calculated for the delivery trucks.

Also, a diesel-fueled emergency generator and a portable diesel-fueled air compressor are operated at the ICTF. Criteria pollutant and greenhouse gas emissions were calculated for the engines in these units.

Analytical Method for Calculating Emissions

Delivery Trucks: The emissions from delivery trucks operating at the ICTF and Dolores Yards were based on the number of truck trips, the length of each trip, and the amount of time spent idling. The number of truck trips during the 2005 baseline year and each Project Year was based on the quantity of material delivered and the capacity of the truck.

A fleet average emission factor for traveling exhaust emissions was calculated using CARB's EMFAC2007 model with the BURDEN output option. Since the fleet distribution is not known, the EMFAC 2007 default distribution for Los Angeles County was used. Idling emission factors were calculated using the EMFAC2007 model with the EMFAC output option. The EMFAC model was run for the baseline year and for each Project year to obtain the default fleet distribution and emission factors.

Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions from delivery truck operations during the baseline year and each Project year. The GHG emission factors are based on fuel consumption, not activity (i.e. miles driven or hours of operation). Therefore, the same factors are used to calculate emissions from both the traveling and idling modes. A fuel-specific carbon oxidization factor, from the CARB emission factor document, was also used to calculate CO_2 emissions. See Parts IV.A.6, IV.B.6, IV.C.6, IV.D.6 and IV.E.6 of Appendix C for detailed emission factor calculations for each year.

Emergency Generator and Air Compressor: Emission estimates for the diesel-fueled emergency generator and air compressor at ICTF are based on the size of the unit and the hours of operation. Criteria pollutant emission factors are from AP-42, Table 3.3.-1 (10/96).

Greenhouse gas emission factors were from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007). No changes in the emission factor or operations were assumed for the 2010-2016 emission estimates. These units are used for non-cargo-related activities. Therefore, the emissions from these units are not expected to change as the Facility is modernized. See Parts IV.A.8, IV.B.8, IV.C.8, IV.D.8, and IV.E.8 for detailed emission calculations for each year.

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28 Liquid soap is used at the locomotive wash rack at the Dolores Yard. The soap is delivered to the facility by HHD Diesel truck and stored onsite in an 8,000 gallon tank.

2.2.1.2.7 Gasoline-Fueled Vehicles and Equipment

Table 2.2-9. ICTF Project Emissions from Gasoline-Fueled Vehicles and Equipment

Criteria Pollutants	*Emissions (TPY)*[1]				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	2.1	2.0	1.9	1.9	1.9
CO	39.8	39.2	38.9	38.9	38.8
NOx	1.3	1.2	1.1	1.1	1.1
PM_{10}	0.08	0.08	0.08	0.08	0.08
DPM[2]	NA	NA	NA	NA	NA
SOx	0.05	0.05	0.05	0.05	0.05
Greenhouse Gases	*Emissions (Metric TPY)*[1]				
CO_2	719	712	712	711	711
N_2O	0.0	0.0	0.0	0.0	0.0
CH_4	0.01	0.01	0.01	0.00	0.00

Notes:
1) Includes emissions from yard trucks, worker vehicles, and miscellaneous portable equipment.
2) This equipment is gasoline-fueled. Therefore, diesel particulate matter will not be emitted.

Gasoline-Fueled Equipment

Gasoline-fueled vehicles and equipment operating at the ICTF and Dolores Yards include yard trucks, worker vehicles, and miscellaneous portable equipment. For the 2010-2016 emission inventories, it was assumed that there would be no changes from the 2005 baseline year in equipment inventory or operations.

Analytical Method for Calculating Emissions

Yard Trucks: The emissions from gasoline-fueled yard trucks were based on the model year of the vehicle, the vehicle weight class, and the annual vehicle miles traveled. For the 2005 baseline year, a vehicle-specific emission factor for traveling exhaust emissions was calculated using CARB's EMFAC2007 model with the BURDEN output option. Idling emissions were assumed to be negligible for all light duty trucks. CARB's speciation database was used to determine the fraction of each toxic air contaminant (TAC) in the total VOC emissions from each yard truck. Greenhouse gas emission factors were from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007). See Part IV.A.7 for detailed emission calculations.

For Project Years 2010-2016, a modified fleet average emission factor for each vehicle was calculated using CARB's EMFAC2007 model with the BURDEN output option. It was assumed that vehicles in the fleet were the same model years as existed in the 2005 baseline year or newer. For example, the 2005 fleet included a model year 2000 Jeep Cherokee. For the 2010 emission estimate, it was assumed this vehicle would be replaced at some time after 2005 with a newer vehicle. Therefore, this vehicle was assumed to be a model year 2000-

2010 light duty truck. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from each yard truck. Greenhouse gas emission factors were from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007). See Parts IV.B.7, IV.C.7, IV.D.7 and IV.E.7 of Appendix C for detailed emission calculations for each year.

Worker Vehicles: The emissions from worker vehicles are based on the number of vehicles trips and the annual miles traveled. Fleet average emission factors were calculated for the 2005 baseline year and each project year using the EMFAC2007 model with the BURDEN output option. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from the worker vehicles. Greenhouse gas emission factors were from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007). See Parts IV.A.17, IV.B.17, IV.C.17, IV.D.17 and IV.E.17 of Appendix C for detailed emission calculations for each year.

Miscellaneous Portable Equipment: Emissions from the portable equipment are based on the fuel type, rated capacity, and hours of operation of each unit. Criteria pollutant emission factors were obtained from AP-42, Table 3.3-1 (10.96) for the 2005 baseline year and each project year. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from each piece of equipment. Emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions. See Parts IV.A.16, IV.B.16, IV.C.16, IV.D.16 and IV.E.16 of Appendix C for detailed emission calculations for each year.

2.2.1.2.8 Other TAC Sources

Table 2.2-10. ICTF Project Emissions from Miscellaneous Equipment and Processes

Criteria Pollutants	*Emissions (TPY)*[1]				
	2005	**2010**	**2012**	**2014**	**2016**
ICTF Lifts (1,000s)	626	900	1,100	1,300	1,500
ROG	1.4	1.2	0.6	0.6	0.6
CO	2.7	2.7	2.7	2.7	2.7
NOx	0.4	0.4	0.4	0.4	0.4
PM_{10}	0.01	0.02	0.02	0.02	0.02
DPM[2]	NA	NA	NA	NA	NA
SOx	0.0	0.0	0.0	0.0	0.0
Greenhouse Gases	*Emissions (Metric TPY)*[1]				
CO_2	188	188	188	188	188
N_2O	0.01	0.01	0.01	0.01	0.01
CH_4	0.0	0.0	0.0	0.0	0.0

Notes:

1) Includes emissions from tanks, refueling operations, wastewater treatment plant (WWTP), steam cleaners, heater, and the propane-fueled welder.
2) These are not diesel-fueled sources. Therefore, diesel particulate matter will not be emitted.

Other TAC Sources

In addition to the sources discussed above, there are a number of sources of toxic air contaminant (TAC) emissions in the ICTF and Dolores Yards, including tanks, refueling operations, wastewater treatment plant (WWTP), steam cleaners, a natural gas-fired heater, and a propane-fueled welder. As discussed in Section 1.5.1.7, the existing gasoline and diesel refueling facilities will be removed as part of this Project. Therefore, emissions from tanks and refueling operations will be reduced. The natural gas-fired heater is located at the ICTF Administration Building and is used for comfort heating. Since its operation is not tied to activity levels at the Facility, no increase in operation is expected for the future Project years. Also, as previously discussed, activity levels at the Dolores Yard will not increase in future years. Therefore, emissions from and operations of the WWTP, steam cleaners, and welder are not expected to be impacted by the Project.

Analytical Method for Calculating Emissions

Tanks: Emissions from the storage tanks are based on the size of the tank, material stored, and annual throughput. Beginning in 2010, the annual throughput of tanks at the ICTF crane maintenance area will be reduced as RTG crane use is reduced due to the installation of the WSGs. By 2012, all of the existing tanks at the crane maintenance area will be removed and one new tank, for storage of the alternative fuel for the hostlers, will be installed. Any remaining diesel-fueled CHE and heavy equipment will be fueled, as needed, directly from a mobile fuel truck.

VOC emissions from the storage tanks were calculated using EPA's TANKS program.[29] The emissions from small oil tanks,[30] stormwater tanks, and the sludge tank were assumed to be negligible. Also, the TANKS program does not calculate emissions from oil storage tanks. Therefore, the emissions from oil storage tanks were estimated by modeling the liquid contents as diesel fuel, resulting in conservative estimates. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from the tanks. See Parts IV.A.9, IV.B.9, IV.C.9, IV.D.9 and IV.E.9 of Appendix C for detailed emission calculations for each year.

Refueling Operations: Refueling operations occur at the crane maintenance area of the ICTF and at the locomotive shop at the Dolores Yard. Refueling emissions are based on the type of fuel, annual fuel throughput, and VOC emission factors from the *Supplemental Instructions for Liquid Organic Storage Tanks* document of the South Coast Air Quality Management District's (SCAQMD) *General Instruction Book for the AQMD 2006-2007 Annual Emissions Reporting Program.*[31] CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from refueling. As discussed above, fuel throughput at the crane maintenance area will be

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[29] Available at *http://www.epa.gov/ttn/chief/ap42/ch07/index.html*.

[30] The TANKS program requires a minimum shell length of 5 feet for horizontal tanks and a minimum shell height of 5 feet for vertical tanks to calculate emissions. Emissions from tanks with a shell length/height of 5 feet are considered to be negligible.

[31] Available at *http://www.ecotek.com/aqmd/download.htm*.

phased-out between 2010 and 2012. Therefore, emissions from refueling will also be reduced. See Parts IV.A.10, IV.B.10, IV.C.10, IV.D.10 and IV.E.10 of Appendix C for detailed emission calculations for each year.

Wastewater Treatment Plant (WWTP): The Dolores Yard also has a WWTP for pretreatment of wastewater generated by Yard operations prior to discharge to the public sewer. Emissions from the WWTP are based on the annual wastewater flow rate and from the *Air Emission Inventory and Regulatory Analysis Report for Dolores Yard* (Trinity Consultants, December 2005). Emission rates, based on the 1999 wastewater flow rate, were calculated by Trinity Consultants using EPA's WATER9 program. The 2005 annual emissions were calculated by multiplying the emission rates, in grams per second, by the ratio of the 2005 wastewater flow rate to the 1999 wastewater flow rate. Since no increase in activity level is expected for the Dolores Yard, it was assumed that there would be no change in flow rate from the 2005 baseline year for the 2010-2016 emission estimates. See Parts IV.A.12, IV.B.12, IV.C.12, IV.D.12 and IV.E.12 of Appendix C for detailed emission calculations for each year.

Steam Cleaners: Portable steam cleaners are used for a variety of activities at the Dolores Yard. Emissions from steam cleaners are based on the hours of operation, the fuel type and rated capacity of the heater, and the fuel type and rated capacity of the pump. Criteria pollutant emission factors for the propane-fueled heaters and the gasoline-fueled pump are from AP-42 Table 1.5-1 (10/96) and Table 3.3-1 (10/96), respectively.[32] Emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions from both the heaters and the pumps. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from the steam cleaning operations. Since no increase in activity level is expected for the Dolores Yard, it was assumed that there would be no change in equipment or operations from the 2005 baseline year, for the 2010-2016 emission estimates. See Parts IV.A.13, IV.B.13, IV.C.13, IV.D.13 and IV.E.13 of Appendix C for detailed emission calculations for each year.

Heater: There is a natural gas-fired heater located at the ICTF administrative building. The heater is used to provide comfort heating for the building. Emissions from the heater are based on the equipment's rated capacity, fuel type, and hours of operation. Criteria pollutant emission factors were obtained from AP-42, Table 1.4-1 (7/98).[33]

Emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from the heater. The operation of the heater is not tied to Facility operations. Therefore, for the 2010-2016 emission estimates, it was assumed that there would be no change in equipment or operations from the 2005 baseline year. See Parts IV.A.14, IV.B.14, IV.C.14, IV.D.14 and IV.E.14 of Appendix C for detailed emission calculations for each year.

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[32] Available at *http://www.epa.gov/ttn/chief/ap42/*.

[33] Available at *http://www.epa.gov/ttn/chief/ap42/*.

Welder: A propane-fueled welder is used for locomotive service and repair operations at the Dolores Yard. Emissions from the welder are based on the fuel type, rated capacity, and hours of operation for the unit. Criteria pollutant emission factors were obtained from AP-42, Table 3.2-3 (7/00).[34] Emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions. CARB's speciation database was used to determine the fraction of each TAC in the total VOC emissions from the welder. Since no increase in activity level is expected for the Dolores Yard, it was assumed that there would be no change in equipment or operations from the 2005 baseline year for the 2010-2016 emission estimates. See Parts IV.A.15, IV.B.15, IV.C.15, IV.D.15 and IV.E.15 of Appendix C for detailed emission calculations for each year.

2.2.1.3 70-Year Average Emission Rates

Table 2.2-11. ICTF Project 70-Year Average Emission Rates for Diesel-Fueled Sources

Source Group	*Emissions (TPY)*						*Emissions (Metric TPY)*		
	ROG	**CO**	**NOx**	**PM_{10}**	**DPM**	**SOx**	**CO_2**	**N_2O**	**CH_4**
Locomotives	17.6	47.7	79.2	1.8	1.8	0.3	22,385	0.6	1.8
Drayage Trucks	9.3	36.0	95.4	1.0	1.0	0.1	10,107	0.0	0.0
CHE	0.24	2.4	3.0	0.1	0.1	0.0	359	0.0	0.0
Heavy Equipment	0.2	12.1	3.1	0.0	0.0	0.0	326	0.0	0.0
TRUs and Reefer Cars	2.8	23.6	22.4	0.1	0.1	0.0	3,319	0.0	0.0
Total	**30.1**	**121.8**	**203.1**	**3.0**	**3.0**	**0.4**	**36,498**	**0.6**	**1.8**
ICTF-Related Total[1]	**26.0**	**108.4**	**184.3**	**2.6**	**2.6**	**0.3**	**32,446**	**0.5**	**1.4**

Note:
1) The ICTF-related emissions include emissions that occur within the ICTF plus a portion of the emissions from the Dolores Yard. For the purposes of computing the 70-year average, the emissions from the Dolores Yard were allocated based on predicted railcar allocations for calendar year 2016.

70-Year Average Emission Rates

A 70-year average (2010-2080) emission rate was calculated for diesel-fueled sources operating at the ICTF and Dolores Yards. For the 70-year average calculations, it was assumed that the ICTF reaches maximum capacity in 2016 and the Dolores Yard was at capacity in 2005. It was assumed that there was no growth in operations after these points, and no further improvements in emission controls. The 70-year average emission rate for each source group is summarized in Table 2.2-11. See Part IV.F of Appendix C for detailed emission calculations.

Analytical Method for Calculating Emissions

Locomotives - The locomotive emission rates were based on the calendar year emission rates from the USEPA's draft Regulatory Impact Analysis (RIA): Control of Emissions of Air Pollution from Locomotive Engines and Marine

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34 Available at *http://www.epa.gov/ttn/chief/ap42/*.

Compression Ignition Engines Less than 30 Liters per Cylinder (USEPA, 2007).[35] The RIA document provides emission data only out to calendar year 2040. Therefore, emission rates were held steady from 2040 through 2080.

Drayage Trucks **-** The drayage truck emission rates were calculated using the EMFAC2007 model. Emission rates were calculated for onsite travel only, and an average speed of 15 mph was used. The EMFAC2007 model provides emission factors only out to calendar year 2040. Therefore, emission rates were held steady from 2040 through 2080. The emission rate for delivery trucks is assumed to be the same as the emission rate for drayage trucks.

Cargo Handling Equipment **-** The emission rates for CHE were calculated from CARB's CHE emission spreadsheet. Beginning in 2012, the majority of the diesel-fueled cargo handling equipment will be replaced by the WSG cranes. Therefore, the emission rate was held steady from 2012 through 2080.

Heavy Equipment **-** The emission rates for heavy equipment were calculated based on OFFROAD2007 model. Beginning in 2012, the heavy equipment operation at the ICTF will be greatly reduced and all units will be in compliance with CARB's CHE Regulation. Therefore, the emission rate for heavy equipment was held steady from 2012 through 2080.

TRUs and Reefer Cars **-** The emission rates for TRUs were calculated based on the OFFROAD2007 model. By 2016, all units will be in compliance with the ULETRU standards in the TRU ATCM. Therefore, the emission rate for TRUs was held steady from 2016 through 2080.

2.2.1.4 Offsite Emissions

Offsite Emissions

At the request of the JPA (see Appendix I, Section III), and in addition to the onsite project emissions discussed above, the emissions from locomotive and drayage truck activity during the 2005 baseline year were calculated for the following:

- Criteria pollutant and GHG emissions were calculated for operations within 0.5 miles of the Facility;
- Criteria pollutant emissions were calculated for operations from the Yard to the boundary of the South Coast Air Basin (SoCAB); and
- GHG emissions were calculated for operations from the Yard to the California state line.

[35] Available at *http://www.epa.gov/otaq/locomotv.htm#pns*

Table 2.2-12. ICTF 2005 Offsite Emissions

Source Group	*Emissions (TPY)*						*Emissions (Metric TPY)*		
	ROG	**CO**	**NOx**	**PM_{10}**	**DPM**	**SOx**	**CO_2**	**N_2O**	**CH_4**
Within 0.5 miles of the Yard									
Locomotives[1]	3.1	7.3	69.2	1.8	1.8	4.1	4,152	0.1	0.3
Drayage Trucks	2.6	10.0	29.1	1.6	1.6	0.2	2,306	0.0	0.0
Total	**5.7**	**17.3**	**98.3**	**3.4**	**3.4**	**4.3**	**6,459**	**0.1**	**0.3**
Emissions within the SoCAB[2]									
Locomotives	45.8	109.5	1,034.4	26.9	26.9	60.7	62,113	1.6	4.9
Drayage Trucks	56.0	218.5	653.3	37.5	35.5	5.0	53,814	0.1	0.2
Total	**101.8**	**328.0**	**1,687.7**	**64.4**	**62.4**	**65.7**	**115,927**	**1.7**	**5.1**
Emissions to the State Line[3]									
Locomotives	NA	NA	NA	NA	NA	NA	178,700	4.5	14.1
Drayage Trucks	NA	NA	NA	NA	NA	NA	180,544	0.3	0.8
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**359,244**	**4.8**	**14.9**

Notes:

1) Includes locomotive emissions from the section of the Alameda Corridor immediately adjacent to the Dolores Yard plus emissions from locomotive operations on the Alameda Corridor within 0.5 miles of the Yard.
2) Includes locomotive and drayage truck emissions from the Yard to the boundary of the South Coast Air Basin (SoCAB).
3) The JPA only requested estimates of GHG emissions to the state line.

Analytical Method for Calculating Emissions

***Locomotives* -** The primary activity indicator for emissions from Union Pacific and BNSF trains in the Alameda Corridor is annual fuel consumption per mile along the Corridor. This is calculated as the product of 71.9 million gross ton-miles (MGTM) of freight per mile of Corridor length and 1,296 gal/MGTM (Union Pacific's system-wide fuel consumption rate for 2005). To calculate emissions, gram-per-gallon emission factors were derived for the ICTF/Dolores intermodal locomotive model distribution operating on the EPA line-haul duty cycle. Notch-specific emission factors were calculated by dividing the gram-per-hour emission rates by the gallon-per-hour fuel consumption rates for each locomotive model, weighted by the model's fraction of the total model distribution. See Part IV.A of Appendix C for detailed emission calculations.

***Drayage Trucks* –** Offsite emissions from drayage trucks are based on the number of truck trips, the length of each trip, and fleet average emission factors from the EMFAC2007 model. Greenhouse gas emission factors from CARB's *Draft Emission Factors for Mandatory Reporting Program* document (August 10, 2007) were used to calculate GHG emissions.

The number of truck trips in the 2005 baseline year was based on the 2005 lift count, a gate count balancing factor, and the assumption that 40 percent of the trucks entering ICTF with a container also leave the Facility with a container. See Appendix B-1 of the Air Quality Technical Appendix (ADPA Appendix C) for a detailed discussion on the calculation methodology. Drayage trucks exiting the ICTF can take one of three basic routes. The percentage of trucks traveling on each route was based on the *Preliminary Traffic Study*. The trip length for each route was calculated from aerial photos of the site. See Part IV.A of Appendix C for detailed emission calculations.

2.2.2 Health Risk Assessment

The California Air Resources Board (CARB) has prepared a Health Risk Assessment (HRA) for the ICTF and Dolores Yards. The HRA was prepared based on the 2005 baseline emissions inventory and dispersion modeling analysis prepared by Union Pacific. The dispersion modeling analysis was performed for calendar year 2005, using a standard modeling domain of approximately 10 km, and included emissions from all onsite sources of DPM, plus offsite DPM emissions from locomotives and drayage trucks within 0.5 miles of the boundary of the Yards. See Section 2.2.1.4 above for a discussion on offsite emissions. See Part V of Appendix C for a detailed discussion on the data and methodology used to prepare the dispersion modeling analysis.

CARB has prepared both cancer and non-cancer risk isopleths for the 2005 base year, and has summarized the results in a brief report. The report is provided in Appendix D. As shown in Appendix D, the area with the greatest predicted impact has an estimated cancer risk of 500 chances in a million and occurs in a small area surrounding the Yards, within a quarter mile of the combined boundary of the ICTF and the Dolores Yards. The DPM concentration and associated predicted risk decrease as the distance from the rail yards increases. The estimated cancer risk drops to 50 in a million at a distance of 2 miles from the Yards and continues to drop to a level of 10 in million at a distance of approximately 6 miles from the Yards.

2.2.3 Construction Emissions

Emissions were also calculated for construction activities. Construction of the modernized ICTF is expected to last approximately 36 months. The construction will be completed in multiple stages lasting approximately 4 to 6 months each. Construction will begin on the east side of the property and will be occurring while the Facility remains in operation. Union Pacific has included, in Appendices B and E, a list of construction equipment expected to be used during demolition and construction activities, along with estimates of emissions, fuel types and fuel consumption rates expected during construction activities.

Criteria pollutant, diesel particulate matter (DPM), and greenhouse gas (GHG) emission estimates have been prepared for the operation of onsite construction equipment, onsite construction vehicles (fuel truck, dump trucks, water trucks, etc), offsite construction vehicles, and worker vehicles. Estimates of fugitive PM_{10} emissions from wind erosion, material handling, and roadways, have also been prepared. The methodology for calculating these emissions is discussed in detail in Appendix E.

Tables 2.2-13 and 2.2-14 show the estimated maximum monthly and project total emissions from heavy equipment exhaust and fugitive dust emissions with recommended mitigation measures for onsite construction activities. Detailed emission calculations and available mitigation measures are included in Appendix E.

Table 2.2-13. Maximum Monthly Emissions from Construction Activities

Source	*Maximum Emissions (Tons/month)*						*Maximum Emissions (Metric Tons/month)*		
	ROG	**CO**	**NOx**	**PM_{10}**	**DPM**	**SOx**	**CO_2**	**N_2O**	**CH_4**
Onsite									
Off-Road Equipment	0.39	1.49	3.18	0.16	0.16	0.00	260.63	0.00	0.00
Fugitive Dust	-	-	-	1.62	-	-	-	-	-
Offsite									
Vehicles	0.13	0.90	1.12	0.06	0.05	0.00	174.47	0.00	0.00
Fugitive Dust	-	-	-	0.28	-	-	-	-	-
Total									
Total	0.52	2.39	4.30	2.12	0.21	0.00	435.1	0.00	0.00

Table 2.2-14. Total Emissions from Construction Activities (36-month Duration)

Source	*Total Emissions (Tons)*						*Total Emissions (Metric Tons)*		
	ROG	**CO**	**NOx**	**PM_{10}**	**DPM**	**SOx**	**CO_2**	**N_2O**	**CH_4**
Onsite									
Off-Road Equipment	7.47	27.47	56.23	3.25	3.25	0.06	4,626.98	0.01	0.02
Fugitive Dust	-	-	-	23.88	-	-	-	-	-
Offsite									
Vehicles	2.66	23.15	16.14	0.78	0.62	0.04	3,679.18	0.01	0.05
Fugitive Dust	-	-	-	7.26	-	-	-	-	-
Total									
Total	10.13	50.62	72.37	35.17	3.87	0.10	8,306.16	0.02	0.07

2.3 Sustainability

Rail is the most environmentally friendly mode of overland freight transportation, with freight trains being two to four times more fuel-efficient than on-road trucks on a ton-mile basis. Union Pacific is committed to protecting the environment and is aggressively developing and investing in new technologies that provide for cleaner air and water, including a locomotive fleet that is the greenest in the industry.

The ICTF Project will incorporate a number of design features in its construction and operation that will result in a more environmentally sustainable facility. These features will allow the ICTF to operate more efficiently with higher throughput, while improving overall environmental performance.

The project includes the replacement of the existing diesel-fueled RTG cranes with electric-powered WSG cranes, which will provide environmental benefits by substantially increasing container transfer efficiency while drastically reducing air emissions and noise generation. This technology also provides significant energy efficiency benefits due to a regenerative design. Regenerative cranes use a form of dynamic braking whereby kinetic energy from cargo lowering is converted to electrical energy and fed back into the power system. This technology can reduce crane power consumption by as much as 70% compared to traditional crane designs.

In addition, the proposed WSG system will also facilitate the elimination of nearly all of the 73 yard hostlers. Thus, the project is expected to reduce NO_X emissions per container lift by over 90% when compared to the existing diesel-fueled cargo handling equipment (i.e., RTGs and yard hostlers).

As shown in Section 2.2, these sustainable design features are also expected to reduce greenhouse gas (GHG) emissions from the ICTF by over 40% when 2016 operations are compared to present operations. These GHG emission reductions will be achieved despite the facility's increased cargo throughput levels. The net result is that the ICTF Project will facilitate increased good movement with reducing environmental impacts.

2.4 Traffic and Circulation

The primary route between the POLA and the ICTF is the Terminal Island Freeway (State Routes (SR) 47 and 103). SR 47 becomes SR 103 just north of Terminal Island. This is also the primary route for POLB traffic originating on Terminal Island.

The graph and discussion below characterize present traffic conditions, including the general distribution of drayage truck traffic on adjacent roadways.

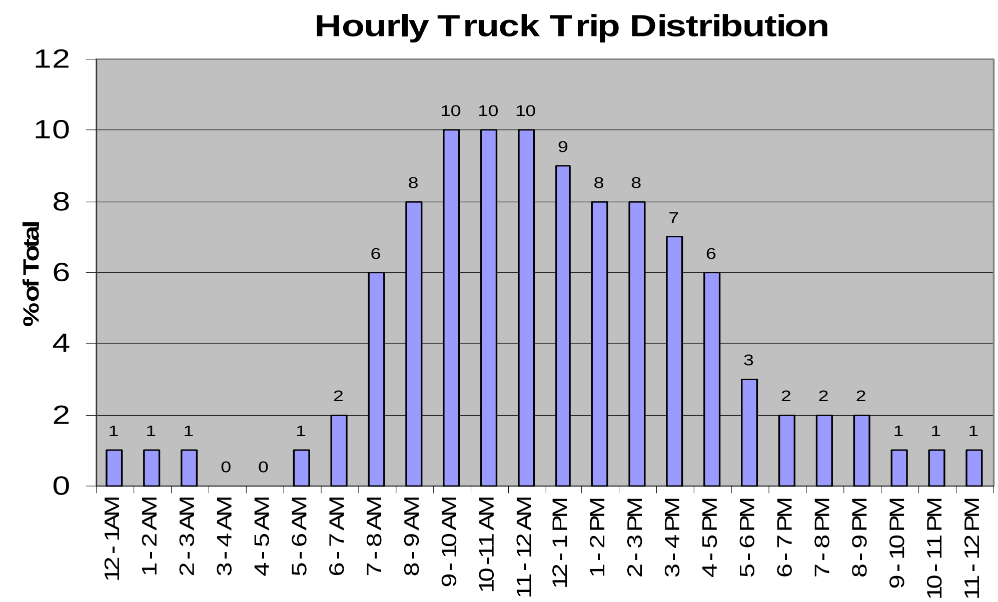
Under present traffic conditions, trucks are prohibited from using Willow Street, east of the Terminal Island Freeway, in order to minimize or eliminate any adverse environmental impacts on City of Long Beach residential neighborhoods east of the Project site. This prohibition prevents trucks from using I-710 and Willow Street to reach ICTF. Therefore, the general distribution of drayage trucks (i.e. traffic) coming to and departing from the ICTF uses the Terminal Island Freeway (SR-103).

A conceptual detail illustrating the proposed ICTF entrance (i.e., inbound gate) located at Alameda Street is provided in Figure 7. That gate will be open 24 hours per day to serve its customers. The proposed ICTF exit (i.e., outbound gate) will be located on Sepulveda Boulevard at the site of the existing gate. Conceptual infrastructure improvements to facilitate effective ingress and egress at these two access points are illustrated in Figure 22. This design assumes completion of the proposed SR-47 improvement project. Gate access will be controlled by the AGS, which is fully described above, in Section 1.5.3.2.

During the 3-4 year construction phase, the total estimated number of one-way trips for construction related trucks is 195,000. The estimated number of truck trips associated with export activity is 26,000 based on a 12 CY load capacity. Union Pacific will implement a Construction Traffic Control Plan to prevent ICTF-generated truck traffic from accessing the City of Long Beach residential neighborhoods to the east of the ICTF. See Sections 1.5.2.1 and 1.5.2.2 for further discussion of construction related trips.

Operationally, most of the drayage trucks entering and leaving ICTF are shuttling between the ICTF and the POLA and the POLB facilities. As noted above, under existing conditions ICTF conducts operations 24 hours per day. This would not change.

The estimated drayage truck trip distribution at Project completion is shown below. The graph shows the typical temporal distribution of traffic at the ICTF gate under present conditions. This temporal distribution has been used to estimate future peak hour traffic.



Current peak day and peak hour traffic counts are provided in Figure 21A. Projected peak day and peak hour truck traffic counts at full-buildout in Year 2016 are provided in Figure 21B. These Figures also illustrate estimated dray truck distribution on major roads serving the Ports, including Sepulveda Boulevard, Alameda Street and the Terminal Island Freeway.

Table 2-4 Estimated ICTF Project Truck Trip Distribution

Geographic Origin	*Route*	*Current Daily Trips*	*Percentage of Total*
POLB Piers J and G	I-710 to I-405 to Alameda St.	870	23
POLA/POLB Terminal Island	Terminal Island Freeway, SR 103 to Sepulveda Blvd.	2600	69
POLA West Basin	Harry Bridges Blvd to Alameda Street to Sepulveda Blvd.	300	8

Union Pacific estimates that the fully built-out and modernized ICTF will generate approximately 10,471 one-way peak daily drayage truck trips, with an average of 6,300 one-way daily trips. Peak hour trips are estimated as 1,047 one-way drayage truck trips. Annual drayage truck trips are estimated at 2,268,000 one-way truck trips. All of these estimates are based on the modernized ICTF operating at its maximum capacity of 1,500,000 lifts per year.

These estimates are also based on the following assumptions:

- 40 percent of trucks entering the Facility with a container will leave the Facility with a container

- Peak Day Traffic/Yearly Average Day Traffic = 1.66

- Peak Hour Traffic is 10 percent of Peak Day Traffic (Peak Hour Traffic/Avg. Hour Traffic = 2.4)

- Gate Balancing Factor of 61 percent. The gate balancing factor is equal to the "in-gate" container count divided by the total number of containers passing through the "in-gate" and "out-gate" of the ICTF

The POLA has prepared conceptual plans for a suite of roadway improvements that could be constructed between San Pedro Street and Alameda Street to address congestion on SR 103 (see Figure 22). The objective of these plans is to direct a portion of existing and projected Port traffic on this roadway to Alameda Street via Henry Ford Avenue. The POLA and the Alameda Corridor Transportation Authority (ACTA) have jointly proposed construction of an "expressway" connecting SR 47 and Alameda Street. This expressway would replace Henry Ford Avenue as a connector between SR 47 and Alameda Street.

The SR 47 Expressway project would offer a more efficient route for all POLA truck traffic traveling between the ICTF and the Ports. The expressway would collect traffic from Terminal Island and divert it northward to Alameda Street, rather than routing ICTF-bound traffic north on the SR 103 portion of the Terminal Island Freeway. Alameda Street improvements would also increase the efficiency of traffic moving along the reconstructed West Basin corridor. This enhanced route would likely be the favored route from the Ports to the ICTF.

Development of a new ICTF gate at Alameda Street represents an opportunity to capitalize on the importance of Alameda Street as a main conduit between the ICTF and the Ports. The new Alameda Street gate will serve as the inbound truck entrance to the ICTF, while outbound truck traffic will exit at the existing Sepulveda Boulevard gate.

Union Pacific will develop a Construction Traffic Control Plan to prevent truck traffic from accessing City of Long Beach residential neighborhoods to the east of the Facility, by preventing trucks from turning left (eastbound) out of the ICTF's Sepulveda Boulevard Gate. Subject to obtaining any necessary public agency approvals, Union Pacific intends to eliminate an existing left-turn signal light at the Sepulveda Boulevard outbound truck gate, install prominent "No Left Turn" signs at that gate and, if necessary, construct a small traffic island. By virtually eliminating left-hand truck turning movements onto Sepulveda Boulevard in this manner, Union Pacific not only will eliminate traffic impacts on adjacent Long Beach residential neighborhoods, but it also will eliminate waiting times for eastbound and westbound vehicles on Sepulveda Boulevard formerly due to outbound ICTF trucks turning left out of the Sepulveda Boulevard gate.

It is likely that roadway improvements will be required to accommodate ICTF growth. The POLA and the City of Carson have identified several measures to address anticipated general growth in traffic demand. The POLA has identified one such measure as the re-striping of Alameda Street to provide three through lanes, both northbound and southbound, where currently only two are striped in most areas. The City of Carson has identified the widening of Sepulveda Boulevard between the easterly landing of the Alameda Street grade separation and the City of Carson limit, near ICTF Driveway No. 2.

Conceptual Project transportation measures could include construction of new turn lanes at intersections and at the ICTF gates (see Figure 22). Under this scenario, Union Pacific would reconfigure the existing ICTF Sepulveda Boulevard Driveway No. 1 to provide one or two additional outbound lanes in addition to the existing three lanes. Construction of right-turn lanes at the proposed Alameda Street gate and at the Sepulveda Boulevard/Alameda Street connector (east of Alameda Street) would reduce or eliminate waiting time for those turning movements. The addition of a dedicated right-turn lane into the proposed Alameda Street gate would eliminate conflicts between inbound ICTF trucks and northbound Alameda Street traffic. The addition of a left-turn lane at the Sepulveda Boulevard/Alameda Street connector (north of Sepulveda Boulevard) would double the left-turn capacity at that intersection for Alameda Street southbound traffic. Both roadway and minor traffic signal modifications and relocations would be undertaken as well.

2.5 Noise

The sources of existing ICTF noise consist primarily of locomotives, trucks, and mobile cargo handling equipment. There is an approximately 20-foot-high sound wall located along the Facility’s northern and northeastern site boundaries, which was constructed to reduce noise impacts on the nearest residential neighborhood at Hesperian Avenue and West Wardlow Road in the City of Long Beach. The wall was built in compliance with standards contained in the City of Long Beach Noise Ordinance.

As identified below, the ICTF Project eliminates several pieces of noise generating equipment or replaces them with quieter models. This constitutes another key environmental benefit of the Project.

Cranes: Each of the ten existing RTG cranes generates noise levels of 77 decibels equivalent sound level (dBA L_{eq}) measured at 100 feet from the source. All of these ten RTG cranes will be eliminated[36] and replaced by 39 electric-powered WSG

[36] The City of Carson and the City of Long Beach maintain a threshold of 65 dBA Community Noise Equivalent Level (“CNEL”) comparable to L_{eq} for acceptable exterior residential area noise levels.

cranes whose noise levels are minimally perceptible. Union Pacific has requested dBA level equivalent data from the WSG crane manufacturers, and will provide the JPA with that information as soon as it is available. Additionally, RTGs sound a back-up horn for every reverse movement they make. In contrast, the WSGs are aligned on tracks and, as a result, neither require nor are equipped with back-up horns. In summary, replacing RTGs with WSGs will substantially reduce ICTF activity noise from this existing source.

Yard Hostlers: Each of the 73 yard hostlers currently operating at the ICTF is equipped with back-up alarms. 71 of those yard hostlers will be eliminated. The two hostlers will be retained for miscellaneous and intermittent light-duty use and generate 68 dBA L_{eq} measured at 100 feet. This will constitute a substantial reduction in ICTF activity noise over existing conditions from this source.

Trains: The Project will result in an increase in the number of trains accessing the ICTF. The Project's environmental review will evaluate any potential adverse effects relative to existing ICTF noise levels from this as well as other sources. The replacement of older switchers with genset switchers is expected to result in a significant decrease in ICTF yard noise levels.

The existing noise barrier along the ICTF's northern and northeastern boundaries, which screens certain Long Beach residences from ICTF activities, is expected to buffer and reduce the additional truck and train noise associated with the Project. Nonetheless, the Project's environmental review process will include an evaluation of the ability of the existing wall to satisfactorily attenuate Project truck and train noise levels experienced by adjacent sensitive receptors.

2.6 Lighting and Glare

As discussed in Section 1.3.4.6, the existing ICTF rail yard area is illuminated by approximately 60 high-pressure sodium light fixtures supported on standards between 80 and 100 feet high. The ICTF Project design specifies the removal of all existing fixtures and their replacement by approximately 160 poles with a reduced 60-foot and 40-foot height. The following measures are planned to ensure minimization of lighting and glare:

- Continue to employ high-pressure sodium bulbs that reduce visual contrast
- Fit new fixtures with the most modern and efficient hoods that precisely direct illumination downward on to the ICTF surface, and away from surrounding properties
- Minimize the number of lighting fixtures nearest the eastern property boundary to the extent allowed by safety
- Use an electronic timer to ensure that lights are automatically turned off when cranes are not in use

These measures are designed to reduce existing lighting and glare experienced by sensitive receptors on adjacent properties.

2.7 Aesthetics/Visual Resources

Residents of the Hesperian Avenue neighborhood in Long Beach, located to the east of the ICTF, are the nearest sensitive receptors. As discussed in Section 2.4, an approximately 20-foot-high sound wall separates these residences from the ICTF, and blocks all views of rail and truck traffic within the Facility. Other residential land uses to the east are separated by SCE property, where transmission towers and lines extend several hundred feet high. Therefore, with the exception of glimpses of the 65-foot-high RTG cranes over the top of the sound wall, there are no public views of activities within the existing ICTF. The cranes themselves are visible only from locations greater than 500 feet away from the Facility. These views are limited to a section of the southwest-trending skyline, which is already industrial in character.

The ten 65-foot-high RTG cranes will be replaced by 39 100-foot-high WSG cranes. This is the only Project component whose visual/aesthetic impact on residential receptors outside the Facility would potentially be increased. Due to the existing 20-foot-high sound wall along the Facility's northern and northeastern boundaries, the tops of the WSG cranes will be visible only to residents living over 500 feet away. As with the existing RTG cranes, the location of the WSGs will vary on a daily basis, depending on their position on the tracks to which they will be aligned. Thus, residents will not experience any new permanent structural massing. Although the additional 35-foot height difference between the RTGs and WSGs will be noticeable, it will be consistent with the existing and long-standing industrial visual character of this partial view of the horizon.

Other residential and recreational uses are located approximately 500 feet east of the ICTF, separated by the SCE property and, in part, by the Union Pacific San Pedro Branch rail line. Some of these intervening areas are planted with urban gardens, covered by the SCE Substation, and a large industrial building. As discussed above, views from these public areas are industrial in nature. The existing views are dominated by SCE transmission towers and lines several hundred feet high, as well as the RTG cranes. Although the taller WSG cranes will intensify the industrial character of these views, the ICTF modernization is compatible with the existing aesthetic setting.

2.8 Hazardous Materials Closure Plan

As required by the Application for Development Project Approval form (see Appendix A), Union Pacific has prepared a Hazardous Materials Closure Plan, which is contained in Appendix G. This Hazardous Materials Closure Plan provides the JPA with Union Pacific's commitment to transport, dispose of or recycle in a manner that protects public health and safety and the environment those regulated hazardous materials and wastes that are or have been handled and/or released at the ICTF; to remove any residual contamination and/or hazardous material before closure is complete; and to accomplish the foregoing activities as part of a closure process which is in compliance with federal, state and/or local statutory and regulatory requirements in existence and applicable to the ICTF at the end of its operating life.

The ICTF has been operating on its existing property under a sub-lease from the JPA for the last 24 years, and Union Pacific expects that the Modernization Project which is proposed in this Application will ensure that the ICTF remains a vital and productive container cargo handling facility for at least another 25 years, if not much longer. Accordingly, a plan which describes in 2007 how any hazardous materials and wastes remaining at the ICTF will be removed in compliance with applicable environmental and public health requirements in effect in 2037 or later, can only be conceptual in its level of detail. Nonetheless, the Hazardous Materials Closure Plan which Union Pacific has prepared for this Application contains the elements which current state and local laws, regulations and guidelines address for facilities such as the ICTF. Prior to the time for implementation of an ICTF Hazardous Materials Closure Plan, Union Pacific will revise the document attached to this ADPA to the extent necessary and required to implement it in compliance with applicable requirements in effect at that time.

2.9 Relationship to Existing Governmental Agency Plans and Programs

2.9.1 Clean Air Action Plan (CAAP) and Clean Truck Program

The following Table 2.9-1 compares the proposed Project to the CAAP measures relevant to the proposed Project. The CAAP was developed through the collaborative efforts of the POLA, the POLB, the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) Region 9, and many public and industry stakeholders. The CAAP includes industry-specific mitigation measures and incentive programs, including the Ports' recently announced Clean Trucks Program, to reduce air emissions and health risks.

Union Pacific is committed to working with the Ports to achieve the San Pedro Bay Ports CAAP goals. While recognizing that its participation in these efforts is voluntary, Union Pacific designed and engineered its ICTF Project to further the CAAP's goals by achieving significant emission reductions. As detailed in the foregoing air quality sections, the ICTF Project reduces DPM emissions by more than 80 percent and NOx by 65 percent from current (2005) levels. Emissions of CO, ROG, SOx and greenhouse gases will also be reduced by the ICTF Project. The ICTF Project meets the Ports' CAAP 10-in-a-million incremental health risk limit for new development. However, most significantly, the Project also actually reduces the existing Facility's predicted health risk. Moreover, as the Ports implement their Clean Trucks Program by 2011, emissions from trucks traveling to and from the ICTF will also be significantly reduced.

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Table 2.9-1. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and the ICTF Modernization Project

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
HDV-1	Performance Standards for On-Road Heavy-Duty Vehicles (HDVs)	1) All frequent caller trucks and semi-frequent caller container trucks model year (MY) 1992 and older will meet or be cleaner than the EPA 2007 on-road emissions standard (0.015 g/bhp-hr for PM) and the cleanest available NO_X at time of replacement. 2) Semi-frequent caller container trucks MY1993-2003 will be equipped with the maximum CARB verified emissions reduction technologies currently available. 3) By 2011, replace or retrofit all frequent and semi-frequent container caller "dirty" trucks servicing both ports with "clean" trucks. "Clean" trucks are defined here, generally, as container trucks that meet or are cleaner than the EPA 2007 on-road emissions standard. 4) (Possible measure only) Implementation of an emblem program (i.e. entry pass) that would require all trucks to meet certain emission standards 5) (Possible measure only) Charge impact fees for "dirty" trucks that make calls at the Ports. 6) (Possible measure only) Provide companies exclusive rights on port properties if they meet or exceed "clean truck" definitions. 7) (possible measure only) Ports would mandate that only City of Los Angeles and City of Long Beach employees/trucks would be allowed on port properties. 8) By 2009, incentivize replacement / retrofit of trucks to run on alternative fuels such as LNG or cleaner diesel fuel.	To be determined	The diesel-powered on-road heavy duty vehicles visiting the ICTF are independently owned and operated. Union Pacific is committed to cooperate with the Ports in their Clean Trucks Program, including implementation with gate restrictions allowable under the ICTF permit and lease agreements and by law.
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	Construct LNG or compressed natural gas (CNG) refueling stations.	Not applicable	The Project will not include re-fueling for on-road heavy duty vehicles. Therefore, this measure is not applicable. However, Union Pacific acknowledges that the Ports are developing alternative fuel storage facilities in the project vicinity, such that these fuels will be available in the future for dray trucks accessing the ICTF.
OGV-1	OGV Vessel Speed Reduction (VSR)	OGVs that call at the SPB Ports shall not exceed 12 knots (kts) within 20 nautical miles (nm) of Point Fermin (extending to 40 nm in future).	Not applicable	Not applicable
OGV-2	Reduction of At-Berth OGV Emissions	Each Port will develop the infrastructure required to provide shore-power capabilities to all container and cruise ship berths. On a case-by-case basis, other vessel types, such as specially-outfitted tankers or reefer terminals, will be evaluated for the application of shore-power.	Not applicable	Not applicable
OGV-3	OGV Auxiliary Engine Fuel Standards	Require ships' auxiliary engines to operate using MGO fuels with sulfur content ≤0.2 percent S in their auxiliary engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin.	Not applicable	Not applicable
OGV-4	OGV Main Engine Fuel Standards	Require ships' main engines to operate using MGO fuels with sulfur content ≤0.2 percent S in their main engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin.	Not applicable	Not applicable
OGV-5	OGV Main & Auxiliary Engine Emissions Improvements	Focus on reducing DPM, NO_x, and SO_x emissions from OGV main engines and auxiliary engines. The goal of this measure is to reduce main and auxiliary engine DPM, NO_x, and SO_x emissions by 90 percent. The first engine emissions reduction technology for this measure will be the use of MAN B&W slide valves for main engines.	Not applicable	Not applicable
CHE-1	Performance Standards for CHE	1) By 2007, all cargo handling equipment (CHE) purchases will meet one of the following performance standards: a) cleanest available NOx alternative fueled engine, meeting 0.01 g/bhp-hr PM, available at time of purchase, or b) cleanest available NOx diesel fueled engine, meeting 0.01 g/bhp-hr PM, available at time of purchase. c) If neither of the two above is available, purchase cleanest available engine (either fuel type) and install cleanest VDEC available. 2) By 2010, all yard tractors operating at the Ports will have the cleanest engines meeting EPA on-road 2007 or Tier IV engine standards for PM and NOx. 3) By 2012, all pre-2007 on-road or pre-Tier IV off-road top picks, forklifts, reach stackers, RTGs, and straddle carriers <750 hp will meet EPA 2007 on-road engine standards or Tier IV off-road engine standards for PM and NOx. 4) By 2014, CHE with engines <750 hp will meet at a minimum the EPA Tier IV off-road engine standards for PM and NOx. 5) Starting in 2007, and until CHE with engines > 750 hp meet, at a minimum, the EPA Tier IV off-road engine standards, all CHE with engines >750 hp will be equipped with the cleanest available VDEC verified by CARB.	To be determined	1) Project will use electrified wide- span gantry cranes; hence, they will meet the requirements of CHE-1. Additional CHE purchases will be consistent with the provisions of CHE-1. 2) Project includes the elimination of 71 diesel-powered hostler tractors and the retrofit of the remaining two tractors with alternative fuel and/or advanced control technologies. This is consistent with CHE-1. 3) Project includes the gradual replacement of forklifts, TRUs, and other miscellaneous equipment with cleaner engines / equipment as necessary to comply with lower emission standards. This is consistent with CHE-1. 4) By 2014, CHE with engines < 750 hp will meet, at a minimum, the EPA Tier IV off-road engine standards for PM and NOx. This is consistent with CHE-1. 5) Not applicable; there are no plans for cargo handling equipment with engines > 750 hp at the ICTF.

Table 2.9-1. Comparison between San Pedro Bay Ports Clean Air Action Plan Control Measures and the ICTF Modernization Project (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP Measure Description*	*EIS/EIR Mitigation Measure (MM)*	*Discussion*
HC-1	Performance Standards for Harbor Craft	This measure will focus on harbor craft that have not already been re-powered/retrofitted (including construction-related harbor craft like dredges and support vessels). When candidate vessels are identified, the Ports will assist/require the owner/operator to re-power or retrofit propulsion and auxiliary engines. For non-construction related candidates, Ports' staff will assist the owners in applying for Carl Moyer Program incentive funding for the cleanest available engine that meets the emissions and cost effectiveness requirements. It should be noted that several tugs operating at POLB are home-ported on private property (not Port property) and therefore will not be affected by this measure.	Not Applicable	Not Applicable
RL-1	PHL Rail Switch Engine Modernization	A voluntary program initiated by the Ports in conjunction with PHL to modernize switcher locomotives used in Port service to meet Tier 2 locomotive engine standards and initiate the use of fuel emulsion in those engines. Also includes evaluation of alternative-powered switch engines including LNG and hybrid locomotives. In addition, a locomotive DOC and DPF will be evaluated and, based on a successful demonstration, will be applied to all Tier 2 switcher locomotives. Also restricts future purchases to the cleanest locomotives available.	Not Applicable	Not Applicable
RL-2	Existing Class 1 Railroad Operations	1) By 2011, all diesel-powered Class 1 switcher and helper locomotives entering Port facilities will be 90 percent controlled for PM and NO_X. 2) All diesel-powered Class I switcher and helper locomotives entering Port facilities will use 15-minute idle restrictors. 3) By 2007, all diesel-powered Class I switcher and helper locomotives entering Port facilities will use ULSD fuels. 4) By 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at Port properties will be Tier III equivalent (Tier 2 equipped with DPF and SCR or new locomotives meeting Tier 3) PM and NO_x and will use 15-minute idle restrictors. 5) By the end of 2007, Class 1 long haul locomotives will operate on ULSD while on Port properties.	To be determined	1) Union Pacific will continue participating in the Ports' RL-2 Technical Working Group to define the RL-2 standards and identify how they apply to the Project. 2) Captive switchers at the ICTF will be fitted with idle limiting devices by mid-2008. 3) Union Pacific is refueling switcher and helper locomotives with ULSD at all California sites. 4) Union Pacific will continue participating in the Ports' RL-2 Technical Working Group to define the RL-2 standards and identify how they apply to the Project. 5) Union Pacific is dispensing ULSD at all Union Pacific facilities in California. Union Pacific will continue participating in the Ports' RL-2 Technical Working Group to define the RL-2 standards and identify how they apply to the Project.
RL-3	New and Redeveloped Rail Yards	1) New rail facilities, or modifications to existing rail facilities located on Port property, will incorporate the cleanest locomotive technologies for all switcher, helper, and long haul locomotives, consistent with goals and timeframe of SPBP-RL2. 2) Use of "green-container" transport systems. 3) Use of idling shut-off devices. 4) Use of idling exhaust hoods equipped with emission controls where essential idling occurs routinely. 5) Use of ULSD or alternative fuels by switchers and Class 1 long haul locomotives operating on Port properties. 6) Use of clean CHE and HDV.	To be determined	1) Union Pacific is the leader in introducing Ultra-Low Emitting Locomotives (ULELs) into Southern California, with over 70 such locomotives already in operation. ULEL switchers are the cleanest locomotives available for that type of service. The Project will utilize ULEL switchers. Union Pacific will continue participating in the Ports' RL-2 Technical Working Group to define the RL-2 standards and identify how they apply to the Project. 2) This technology has not been defined. Union Pacific will monitor the Ports' Technology Advancement Program (TAP) for developments in this area. 3) Captive switchers at the ICTF will be fitted with idle limiting devices by mid-2008. 4) This technology is still under development; in particular, this technology has not been demonstrated to capture exhaust from multiple or moving locomotives. Union Pacific will monitor the Ports' TAP for developments in this area. 5) Union Pacific is dispensing ULSD at all Union Pacific facilities in California. Union Pacific will continue to participate in the Ports' RL-2 Technical Working Group to define the standards and identify how they apply to the Project. 6) The Project will replace diesel-powered rubber-tired gantry cranes with electric wide-span gantry cranes, discontinue use of 71 (out of 73) diesel-powered hostlers, and gradually replace miscellaneous CHE with cleaner, more efficient equipment. Union Pacific is committed to cooperate with the Ports in their Clean Trucks Program, including implementation with gate restrictions allowable under the ICTF permit and lease agreements and by law.

2.9.2 Other Governmental Plans

Table 2.9-2, below, summarizes the Project's relationship to relevant governmental agency plans and programs. A full analysis of the Project's compliance with all applicable governmental agency plans will be prepared in conjunction with the preparation of the Project's Draft EIR. The summary table below includes a preliminary discussion of the Project's compliance with: (1) the Port of Los Angeles Master Plan; (2) the City of Los Angeles General Plan and all relevant components, including the Wilmington Community Plan; (3) the City of Carson General Plan, including the Carson Zoning Ordinance; and (4) the Southern California Association of Governments' Regional Comprehensive Plan.

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Table 2.9-2. Applicable Statutes, Plans, Policies, and Other Regulatory Requirements

Applicable Statutes, Plans, Policies, and Other Regulatory Requirements	*Description*	*Discussion*
Port of Los Angeles		
Port of Los Angeles Port Master Plan with Amendments (2002 PMP: LAHD 1980)	The Port of Los Angeles Master Plan (PMP: LAHD 1980) provides for the development, expansion, and alteration of the Port (both short-term and long-term) for commerce, navigation, fisheries, Port-dependent activities, and general public recreation. Those objectives are consistent with the provisions of the Charter of the City of Los Angeles, and applicable federal, state, and municipal laws and regulations.	The Project will modernize existing equipment, revolutionize operational methods, increase efficiencies, minimize future environmental impacts, and help secure the Ports' future growth and economic attractiveness. The Project would not change the Facility's goods movement uses, which are currently consistent with the POLA Master Plan. Although not within the coastal zone, the ICTF is covered by and included in the POLA Port Master Plan. The original 1982 ICTF EIR analyzed the ICTF's consistency with the POLA Master Plan and found that the ICTF is consistent with the specific development plans of the POLA Master Plan. The ICTF is currently a vital link to interstate commence and will remain so after Project implementation. The ICTF Project is consistent with the POLA Master Plan policies and objectives. Further analysis of the Project's consistency with the POLA Master Plan will be provided in the Project's Draft EIR.
Port of Los Angeles Real Estate Leasing Policy	The purpose of this Policy is to provide a framework governing leasing and rental decisions as they relate to tenant retention, selecting new tenants, development of new agreements and, as appropriate, modifications to existing agreements by amendments.	The ICTF's operation core is located on land owned by POLA. Union Pacific sub-leases that land from the JPA. Union Pacific is a long-term tenant and implementation of the ICTF Project will not result in any change in tenancy. ICTF modernization addresses all current POLA Master Plan standards, ensuring consistency with activities occurring on portions of the Project site owned by POLA. After Project development, there will be continued consistency with POLA and JPA plans and polices related to real estate leasing. Further analysis of the Project's consistency with the POLA Real Estate Leasing Policies will be provided in the Project's Draft EIR.
Port of Los Angeles Strategic Plan (LAHD 2007)	The Port of Los Angeles Strategic Plan identifies the Port's mission and provides eleven strategic objectives for the next five years. The mission includes promotion of a "grow green" philosophy combined with fiduciary responsibility and promotion of global trade. The eleven strategic objectives include: minimizing land use conflicts; maximizing the efficiency and the capacity of current and future facilities; addressing needed infrastructure requirements; maintaining financial self-sufficiency; raising environmental standards and enhancing public health; promoting emerging and environmentally-friendly cargo movement technology and energy sources; providing for safe and efficient operations and homeland security; strengthening local community relations; and developing more and higher quality jobs.	ICTF modernization incorporates "grow green" technologies, including replacing diesel-powered cranes with electric-powered models. Union Pacific is promoting emerging and environmentally-friendly container movement technology and energy sources while removing nearly all sources of Facility equipment diesel pollutants. Increasing ICTF container throughput by over 100 percent promotes Port commerce and global trade. The modernized ICTF will increase throughput capacity while substantially reducing diesel particular matter (DPM) emission. ICTF modernization substantially reduces Facility air emissions, noise levels, and hazardous material storage requirements, minimizing land use conflicts with adjacent sensitive receptors and enhancing public health. New infrastructure resulting in increased efficiencies is almost exclusively proposed within the existing ICTF footprint. AGS gate screening technology increases Facility security, consistent with homeland security concerns. Additional jobs are generated by the increased container throughput. Further analysis of the Project's consistency with the POLA Strategic Plan will be provided in the Project's Draft EIR.
Risk Management Plan	The Risk Management Plan, an amendment to the Port of Los Angeles Master Plan, was adopted in 1983, per requirements of the California Coastal Commission. The purpose of the Risk Management Plan is to provide siting criteria relative to vulnerable resources and the handling and storage of potentially hazardous cargo such as crude oil, petroleum products, and chemicals. The Risk Management Plan provides guidance for future development of the Port to minimize or eliminate the hazards to vulnerable resources from accidental releases.	ICTF modernization infrastructure is based on the most current public safety standards. Union Pacific will continue to maintain the Facility's Risk Management Plan with POLA standards. The existing ICTF operates pursuant to required emergency response, fire and hazardous materials safety plans and procedures. After implementation of the Project, the ICTF will continue to operate in accordance will all such plans and procedures. The proposed Project design is consistent with the POLA Risk Management Plan. Further analysis of the Project's consistency with the POLA Risk Management Plan will be provided in the Project's Draft EIR.
Southern California Association of Governments (SCAG)		
Regional Comprehensive Plan (RCP)	SCAG Regional Plans present a vision of how Southern California can balance resource conservation, economic vitality, and quality of life. The Plans serve as blueprints to approaching growth and infrastructure challenges in an integrated and comprehensive way. Ultimately, the Plans spell out measurable objectives and targets to measure progress toward meeting ambitious goals for a sustainable region. The Regional Comprehensive Plan (RCP) integrates SCAG's planning policy for Land Use and Housing, Solid Waste, Energy, Air Quality, Transportation and various other planning elements. The RCP is based on the Compass Growth Vision and its four principles, which include: (1) mobility; (2) livability; (3) prosperity; and (4) sustainability. Furthermore, the RCP transportation policies are based on the adopted 2004 Regional Transportation Plan (RTP), which establishes a transportation vision for the Southern California area.	The ICTF Project improves transportation, circulation onsite, and mobility in the Project vicinity by increasing truck circulation efficiency from the Ports to the ICTF. The modernized ICTF will substantially reduce air emissions in comparison to the existing condition, which enhances the livability of the nearest sensitive receptors. The ICTF will supply much needed capacity for goods movement from the Ports throughout the nation, which facilitates local and national prosperity. ICTF Project design incorporates upgraded and emissions-reducing technology that leads to sustainability of the environment. Development of a new ICTF access gate at Alameda Street improves project-related traffic flow on the surrounding roadway network. The resulting traffic pattern will substantially reduce the volume of ICTF truck traffic on the Terminal Island Freeway and promote increased use of the recently completed Alameda Corridor. ICTF Project design allows trains to move more efficiently on a direct route from the Ports, provides substantial regional air quality benefits, and maximizes environmental benefits associated with increased use of the Alameda Corridor. The ICTF Project will not generate population migration into the area or create a demand for new housing units. Accordingly, the Project will be consistent with SCAG policies and goals. Further analysis of the Project's consistency with SCAG's policies and plans will be provided in the Project's Draft EIR.
City of Los Angeles		
City of Los Angeles General Plan-Port of Los Angeles Plan	The Port of Los Angeles Plan is part of the General Plan for the City of Los Angeles. This Plan provides a 20-year official guide to the continued development and operation of the Port. The plans and policies of the Port of Los Angeles are discussed above.	The Project is designed to be consistent with the Port of Los Angeles Port Master Plan, as discussed above. Because the proposed Project would be consistent with the Port of Los Angeles Port Master Plan, it would also be consistent with the goals of the City of Los Angeles General Plan and Port of Los Angeles Plan element. The ICTF is covered by and included in the City of Los Angeles General Plan's Port of Los Angeles Plan element. Further analysis of the Project's consistency with the Port of Los Angeles Plan will be provided in the Project's Draft EIR.

Table 2.9-2. Applicable Statutes, Plans, Policies, and Other Regulatory Requirements (continued)

Applicable Statutes, Plans, Policies, and Other Regulatory Requirements	*Description*	*Discussion*
City of Los Angeles (continued)		
City of Los Angeles General Plan- Air Quality Element	The City of Los Angeles General Plan has an Air Quality Element (City of Los Angeles 1992) that contains general goals, objectives, and policies related to improving air quality in the region. Policy 5.1.1 relates directly to the Port and requires improvements in harbor operations and facilities to reduce emissions. In addition, the POLA and POLB, with guidance from AQMD, CARB, and USEPA, developed the San Pedro Bay Clean Air Action Plan (CAAP), which was approved by the Los Angeles and Long Beach Boards of Harbor Commissioners on November 20, 2006. The CAAP focuses on reducing diesel particulate matter (DPM), NO_x, and SO_x, with two main goals: (1) to reduce Port-related air emissions in the interest of public health, and (2) to decouple cargo growth from emission increases.	The modernized ICTF dramatically reduces the Facility’s diesel particulate matter (DPM) emissions as compared to existing conditions. The ADPA provides a detailed air emissions analysis showing the substantial air quality improvements associated with DPM reductions. More specifically, the ICTF Project is designed to address CAAP implementation and control measures. This ADPA includes a detailed matrix that compares the Project to applicable CAAP measures. As discussed in the ADPA, the Project is consistent with the applicable CAAP and General Plan Air Quality Element's goals, objectives, and policies related to improving air quality in the region. Further analysis of the Project's consistency with the City of Los Angeles Air Quality Element and CAAP will be provided in the Project's Draft EIR.
City of Los Angeles General Plan – Land Use Element: Wilmington Harbor District Community Plan	The City of Los Angeles General Plan Land Use Element includes 35 local plans, known as Community Plans. The boundaries of the Wilmington Harbor District Community Plan are in close proximity to the ICTF.	The ICTF is not within the boundaries of the Wilmington Harbor District Community Plan, but the ICTF's proximity warrants analysis of that Plan. That Plan recommends integrating future development of the Port with the Wilmington community, including any applicable changes to transportation and circulation systems and Port land acquisitions. That Plan also recommends interagency coordination during planning and implementation of Port-related projects. The ICTF Project would be consistent with those recommendations, since the Port (and JPA as the CEQA Lead Agency) will be involved in interagency coordination for the ICTF during environmental review.
City of Carson		
City of Carson General Plan	The General Plan of the City of Carson is a long-range planning tool that contains general goals, objectives and implementation policies that direct and guide residential and business development and encourage land uses that are compatible, sustainable and most beneficial to the City of Carson community. The elements that make up the Plan are Land Use, Economic Development, Transportation and Infrastructure, Housing, Safety, Noise, Open Space and Conservation, Parks, Recreation and Human Services, and Air Quality.	Project reductions in on-site air quality emissions resulting from use of updated equipment technologies and alternative fuel sources address the Air Quality, Land Use and Safety General Plan element goals. The Project increases the Land Use Plan element goals addressing compatibility of existing site operations with adjacent residential neighborhoods by reducing the amounts of light and noise pollution generated from the site through the incorporation of site-planning techniques including new lighting fixtures with lower mounting positions and the replacement of the existing RTG cranes with substantially quieter electric WSG cranes. Transportation and Infrastructure Plan Element goals are addressed by relieving impacts on sensitive receptors through redirection of truck traffic coming to and leaving from the Project site. Further analysis of the Project's consistency with the City of Carson's General Plan will be provided in the Project's Draft EIR.
Zoning Ordinance- Municipal Code	The purpose of the City of Carson Zoning Ordinance is to serve the public health, safety, comfort, convenience and general welfare, by establishing land use districts designed to obtain the physical, environmental, economic and social advantages resulting from planned use of land in accordance with the General Plan of the City of Carson, and by establishing those regulations for the development and use of land and improvements within the various districts which will ensure that the growth and development of the City of Carson shall be orderly, attractive and efficient for the maximum benefit of its citizens.	The ICTF's operational core is located in the City of Los Angeles. The Project proposes, however, to develop a new ICTF access gate on the Desser property, which is located in the City of Carson. That gate, and any other ICTF modernization activity proposed, is consistent with heavy industrial zoning designation of the Desser property. As discussed in the ADPA, if acquisition of a property interest in the Desser property is infeasible, gate development or other ICTF supporting uses could occur on the Watson property. No new development or activities are proposed on the Watson property at this time. Nonetheless, the Watson property is also in a heavy industrial zone. All Municipal Code requirements for structural height, setbacks, and health and safety stipulations are integrated into the proposed ICTF Project design. The Project improves upon the previously-approved phased development by minimizing the footprint required to achieve needed increased container handling capacity. This results in an orderly, attractive, efficient, and environmentally sensitive ICTF that provides maximum benefits to the surrounding community through increased property tax revenues. Further analysis of the Project's consistency with the City of Carson's zoning code will be provided in the Project's Draft EIR.

CERTIFICATION

The undersigned, an authorized representative of the applicant, Union Pacific Railroad, hereby certifies that the statements furnished herein and in any attached exhibits present the data and information required for this initial evaluation, and that the facts, statements, and information presented are true and correct, to the best of the undersigned's knowledge and ability.

Signature:_________________________________ Date: December 26, 2007

Print: Barry D. Michaels Title: Assistant Vice President, Premium Operations – Network

Union Pacific Railroad

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