

**December 2006**  
**Summary Report to West Oakland Neighbors**  
**Vision 2000 Air Quality Mitigation Program**

**A. EXECUTIVE SUMMARY**

In 1997, the Port of Oakland embarked on a harbor expansion program known as the “Vision 2000 Maritime Development Program.” This program included developing two new marine terminals, a rail terminal, a public park, roadways, and ancillary facilities. Most of these facilities have been completed. As part of the “Vision 2000 (V2K) Maritime Development Program,” the Port established an Air Quality Mitigation Program (AQMP). The AQMP includes ten main projects to reduce air emissions from a variety of sources, one of which includes several design and operational features for the Port.

In 1999, the Port entered into a settlement agreement with West Oakland Neighbors (WON), committing \$8.975 million to the AQMP. The Port also promised WON to make a “good faith effort” to increase the \$1.48 million funding for local truck engine replacement if any of the other AQMP measures turned out to be infeasible or less expensive than assumed.

To date, the Port has completed 3 of the ten measures, 4 measures are ongoing and 3 have been deemed infeasible, the funds for which have been reallocated to the truck replacement program.

Due to the recent reallocation of \$1.5 million to the Truck Replacement Program, \$1,692,000 now remains unexpended for this measure. After some initial challenges, the Truck Replacement Program is on a successful track. To date, the V2K Mitigation Fund has helped local truckers replace thirty-two 1990 or older heavy-duty trucks with model 2000 or newer trucks.

Also, \$3,224,000 remains unexpended for further work on Cargo Equipment Emissions Reduction, Train Switching Engines and Design and Operations improvements. This work is on-going.

Three projects – the Truck Alternative Fuel Demonstration Project, Tugboat Re-powering and AC Transit Bus Re-powering projects -- have been successfully completed. Additionally, the Port has completed most of the Design and Operations improvement measures.

The three projects deemed infeasible were Red Star Yeast, Precision Cast and the CARB Testing Station. The funds allocated to these projects have been re-allocated to the Truck Replacement Program as WON and the Port agreed it would attempt to do when feasible.

Throughout this process, the Port has consulted with West Oakland Neighbors and other community stakeholders to keep them informed of Port progress in implementing the mitigation measures. This has been done primarily through the Technical Advisory Committee/Technical Review Panel and, more recently, through the V2K Mitigation Committee. West Oakland Neighbors and other community stakeholders have been valuable partners in the implementation of the V2K Mitigation program.

## B. EXPENDITURE & STATUS SUMMARY CHART

A summary of the projects and expenditures is as follows:

| Mit # | Description                        | Status        | BUDGET              |                                   |                             | CHARGES TO V2K FUND                  |   |   | BALANCE                   |
|-------|------------------------------------|---------------|---------------------|-----------------------------------|-----------------------------|--------------------------------------|---|---|---------------------------|
|       |                                    |               | Original V2K Budget | Reallocation to Truck Replacement | Current Adjusted V2K Budget | Total V2K-AQMP Project Costs to Date | Port Admin Costs Removed from V2K-AQMP* | Adjusted V2K-AQMP Project Costs to Date** | Remaining Unspent Balance |
| M1    | Transport Truck Demo               | Complete      | \$90,000            | (\$14,000)                        | \$76,000                    | \$83,543                             | (\$7,543)                               | \$76,000                                  |                           |
| M1(A) | Truck Replacement                  | On-Going      | \$1,480,000         | \$1,500,000                       | \$2,980,000                 | \$1,574,268                          | (\$286,268)                             | \$1,288,000                               | \$1,692,000               |
| M2    | Cargo Handling Equipment           | On-Going      | \$5,245,000         | (\$867,000)                       | \$4,378,000                 | \$1,940,131                          | (\$677,131)                             | \$1,263,000                               | \$3,115,000               |
| M3    | Tugboat Re-powering                | Complete      | \$500,000           | (\$70,000)                        | \$430,000                   | \$463,674                            | (\$33,674)                              | \$430,000                                 |                           |
| M4    | Retrofit of AC Busses              | Complete      | \$700,000           | (\$31,000)                        | \$669,000                   | \$683,014                            | (\$14,014)                              | \$669,000                                 |                           |
| M5    | Train Switching Engines            | Ongoing       | \$10,000            |                                   | \$10,000                    | \$0                                  |   | \$0                                       | \$10,000                  |
| M6    | Design & Operations                | Most Complete | \$390,000           |                                   | \$99,000                    | \$0                                  |   |   | \$99,000                  |
|       | Air Quality Baseline Study         | Complete      |                     |                                   | \$290,000                   | \$400,971                            | (\$110,971)                             | \$290,000                                 |                           |
|       | CNG Fueling Station                | Complete      |                     |                                   | \$1,000                     | \$1,439                              | (\$439)                                 | \$1,000                                   |                           |
|       | 1) Shore power for tugboats        | On-Going      |                     |                                   |                             |                                      |   |   |                           |
|       | 2) 24-hour truck parking           | Complete      |                     |                                   |                             |                                      |   |   |                           |
|       | 3) Parking configuration           | Complete      |                     |                                   |                             |                                      |   |   |                           |
|       | 4) traffic signals synchronization | On-Going      |                     |                                   |                             |                                      |   |   |                           |
|       | 5) Spare-the-Air Days              | Complete      |                     |                                   |                             |                                      |   |   |                           |
|       | 6) Employee mass transit           | On-Going      |                     |                                   |                             |                                      |   |   |                           |
|       | 7) tenant empl cash-out policy     | Infeasible    |                     |                                   |                             |                                      |   |   |                           |
|       | 8) tenant parking                  | Infeasible    |                     |                                   |                             |                                      |   |   |                           |
|       | 9) Vehicle maintenance ed          | Complete      |                     |                                   |                             |                                      |   |   |                           |
|       | 10) truck driver education         | Complete      |                     |                                   |                             |                                      |   |   |                           |
| M7    | Red Star Yeast                     | Infeasible    | \$525,000           | (\$483,000)                       | \$42,000                    | \$90,931                             | (\$48,931)                              | \$42,000                                  |                           |
| M8    | Precision Cast                     | Infeasible    | \$30,000            | (\$30,000)                        | \$0                         | \$8,449                              | (\$8,449)                               | \$0                                       |                           |
| M9    | CARB Truck Inspection St.          | Infeasible    | \$5,000             | (\$5,000)                         | \$0                         | \$6,155                              | (\$6,155)                               | \$0                                       |                           |
|       | <b>Total Cost to Date</b>          |               | <b>\$8,975,000</b>  |                                   | <b>\$8,975,000</b>          | <b>\$5,252,575</b>                   | <b>(\$1,193,575)</b>                    | <b>\$4,059,000</b>                        | <b>\$4,916,000</b>        |

\* Includes \$1.098M in Port Labor, Temporary Help and Owner-controlled Insurance costs prior to 04/14/06 and additional costs accrued since 04/14/06.

\*\* Total "Adjusted V2K-AQMP" Project Costs To-date excludes Port Labor, Temporary Help and Owner-controlled Insurance costs.

## **C. HISTORY OF THE VISION 2000 (V2K) SETTLEMENT FUND**

### **Origin**

In 1997, the Port of Oakland embarked on a harbor expansion program known as the “Vision 2000 Maritime Development Program” (V2K). This program included developing two new marine terminals, a rail terminal, a public park, roadways, and ancillary facilities. All of these facilities have been completed; the two marine terminals opened in 2001 and 2002 and the rail terminal opened in 2002, and Middle Harbor Shoreline Park was dedicated in September 2004.

In April 1999, the Port and West Oakland Neighbors (WON) entered into a settlement agreement to end a suit brought by WON challenging the adequacy of the EIR/EIS for development of new shipping berths 55 – 58, a component of the V2K. Under terms of the settlement the Port agreed to fund a list of ten air quality mitigation measures. These measures are codified in a Board Resolution 99154 (Resolution) passed by the Board of Commissioners as Item 21 at their April 20, 1999 meeting. This action officially committed the Port to fund the nine measures at a cost of \$7.495 million, and to spend an additional \$1.48 million towards a truck replacement program, the latter a proposal specifically advocated by WON. The Board action, referenced in the settlement agreement, therefore has a total dollar commitment of \$8.975 million to mitigate air quality impacts of the V2K program.

### **Purpose and Limitations of the Settlement Fund**

Although air emissions from trains, trucks, cargo handling equipment and cargo vessels are within the control of private entities that own them and subject to the regulatory authority of other agencies, the Port committed \$8.975 million to emission reduction programs and demonstration projects to promote technological advances in improving air quality. The V2K projects are intended to reduce emissions from a variety of maritime and other local sources. These sources include, for example, trucks, cargo-handling equipment, tugboats, public buses, other vehicles, and local stationary sources.

The settlement agreement requires the Port to make “good faith efforts to increase the \$1.48 million funding for local truck engine replacement if any of the measures currently recommended for implementation are shown to be infeasible or less expensive than assumed.” Accordingly, on October 4, 2005, the Board of Port Commissioners authorized the reallocation \$1.5 million of unspent V2K funds from methods deemed infeasible towards truck replacement.

Assuming the Port has fulfilled its good faith effort to fund truck engine replacement, the Resolution permits the flexibility to re-allocate funding among existing or new mitigation measures “based upon the overall goal of maximizing the quantity of emissions reduced for the dollars spent, with a preference for reducing diesel particulates and for measures that will reduce local Near-Port emissions.” Specifically, the Resolution mentions a cost effectiveness standard of \$10,000 per ton of reduction of at least one pollutant. The Port must “consult with West Oakland Neighbors to keep them informed of Port progress in implementing the mitigation measures.” This has been done primarily through the Technical Advisory Committee/Technical Review Panel and, more recently, through the V2K Mitigation Committee.

### **Administrative Overhead Costs**

In March 2006, WON expressed concern that nearly \$1,000,000 in administrative and salary costs had been applied to the settlement fund. While such charges are standard for capital projects, Executive Director Jerry Bridges agreed to restore to the V2K budget the charges for Port labor, temporary help and the owner controlled insurance -- a total of \$1,098,432. Going forward the Port will no longer charge these expenses to the project budget.

## D. STATUS OF EACH MITIGATION MEASURE

This section provides the text of each mitigation measure in the AQMP, a summary of the measure's background, and an update on the current status of that measure. Each measure is listed below by its corresponding number in the Mitigation Monitoring and Reporting Program (MMRP) for the Berths 55-58 Project. In the MMRP, however, the full designation for each measure begins with "3.3-3/M" (e.g., Mitigation Measure 3.3-3/M1).

### **1 -- Truck Program: Demonstration Project**

**Status: Complete.**

**Charge to V2K Fund: \$76,000**

Measure: As a demonstration project, install add-on exhaust treatment devices for diesel transport trucks.

Background: For the demonstration project, the Port evaluated the feasibility of several emission control strategies, including using exhaust treatment devices alone as well as using exhaust treatment devices in combination with emulsified diesel. Staff concluded that the treatment devices plus emulsified diesel together could be expected to provide cost-effective reductions of particulate matter. The Port subsequently designed a demonstration project to test the use of diesel oxidation catalysts (DOCs) and PuriNOx™, an emulsified diesel created by The Lubrizol Corporation. In December 2001, the Bay Area Air Quality Management District (Air District) and the California Environmental Protection Agency, Air Resources Board (ARB) awarded an Alternative Diesel Fuel grant to the Port to partially fund the use of PuriNOx™.

The project was designed to evaluate the emissions reductions, operational requirements, and costs associated with the DOCs and emulsified diesel in various combinations. A total of 12 trucks were compared under the following four conditions:

- (1) 2 trucks without DOCs and fueled with standard California (CARB #2) diesel,
- (2) 2 trucks with DOCs and fueled with CARB #2 diesel,
- (3) 4 trucks without DOCs and fueled with emulsified diesel, and
- (4) 4 trucks with DOCs and fueled with emulsified diesel.

Partners in this project include the Air District, ARB, Horizon Lines (a trucking company with a yard in the Port area), The Lubrizol Corporation (the creator of the PuriNOx™ blend and DOC used in this project), and Ramos Oil Company (the local PuriNOx™ blender and distributor).

On November 10, 2003, baseline smoke opacity tests and NOx emissions tests were conducted on four of the eight trucks to be fueled with PuriNOx™. Horizon Lines then began fueling all eight of the test trucks with PuriNOx™ on the same day. After operating for several hours, smoke opacity and NOx emissions tests were again conducted on the same four trucks. Smoke opacity dropped 70 to 100 percent, and NOx emissions dropped 6 to 20 percent. On January 9, 2004, Horizon Lines received six DOCs (the AZ Purimufflers™) from Lubrizol Engine Control Systems and installed each within a week.

The demonstration project was originally scheduled to conclude in November 2004, but was extended to July 2005 to take advantage of remaining incentive funds and to continue providing the emissions benefits of PuriNOx.

During the course of the program, emulsified diesel cost from 4 to 41 cents per gallon more than CARB #2 diesel, with an average over the period of a 19 cent per gallon difference.

Results: A total of 60,809 gallons of PuriNOX were purchased by Horizon Lines during the course of the demonstration project, with incentive funding of \$15,202.25 (at \$0.25 per gallon of fuel) provided by the

Alternative Diesel Fuel grant. The Port paid for tank rental and inspection (\$13,965), purchase and installation of DOCs (\$15,486.65), and the difference in market price between diesel fuel and PuriNOX (\$11,425.84).

Regarding performance, some drivers of the trucks fueled with PuriNOx™ noticed a drop in power, but reported that it was not a problem for the type of truck trips that they routinely made. According to Horizon Line's project manager, they experienced no problems with the supply or use of the fuel, and no problems with the diesel oxidation catalysts (DOCs) that were installed in on the trucks. One truck was eliminated from the program when it developed serious engine cylinder problems that were unrelated to the use of PuriNox, according to the company. However, Horizon purchased new trucks for its fleet and decided not to continue using PuriNOX after their last delivery of fuel in May 2005 ran out over the summer.

Horizon Lines provided truck fueling and odometer logs for the 8 trucks fueled with PuriNOx for the period from December 2003 to January 2005. Average miles per gallon for the trucks were calculated for the study period, with values ranging from 4.0 mpg to 4.8 mpg (the truck that was eliminated showed only 3.7 mpg over the six months it was in the program.) Unfortunately, Horizon was unable to provide comparable data for its trucks that were not fueled with PuriNOx.

On August 5, 2004, midway through this demonstration project, CARB announced verification that PuriNOx™ fuel reduces PM emissions at least 50 percent and reduces NOx emissions at least 15 percent from certain on-road heavy-duty engines, including the 1990 Cummins NTC-315 engines used in this project.<sup>1</sup> Remaining unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.

#### **1A -- Truck Program: Truck Replacement Project**

**Status: On-going**

**Charge to V2K Fund to-date: \$1,288,000**

Measure: The Port will subsidize the retrofit of diesel truck engines with new engines meeting California emission standards for new diesel engines, or add-on exhaust treatment devices, including soot traps and catalytic converters. This subsidy would be prioritized for those pieces of equipment that have the longest remaining period of useful life.

Background: The trucks that serve the Port's marine and rail terminals are neither owned by the Port, nor under contract to the Port. Thus, until recently, the Port had little information about their ownership, type, age, or typical routes. During 2003, as described in the Summary Report #8, several surveys of the local truck population were conducted and found several key characteristics. The trucking companies distinctly fall into two categories: companies that primarily (a) shuttle containers within the Port area, or (b) transport containers to and from points beyond the Port area. The engines in about 40 percent of the trucks pre-date 1994, and these older engines tend to be in "shuttle" trucks.

While surveying the local truck population, available emissions reductions strategies were also evaluated. Three primary alternatives emerged:

- (1) retrofitting trucks with DOCs or comparable exhaust controls,
- (2) replacing older trucks with newer (but not necessarily new) trucks, and
- (3) replacing old engines with newer engines.

---

<sup>1</sup> State of California, Air Resources Board. Executive Order DE-04-008. August 5, 2004.

The Port, with substantial input from the Technical Review Panel, developed General Program Guidelines for a grant program based on alternatives (1) and (2) above.

The General Program Guidelines are based on the success of two similar incentive-based programs for heavy-duty trucks in California -- the Sacramento Emergency Clean Air and Transportation (SECAT) Program in Sacramento, and the Gateway Cities Clean Air Program in southern California.<sup>2</sup> Both programs provide valuable models for the design and administration of the Port's program.

On February 3, 2004, the Board of Port Commissioners adopted the General Program Guidelines (Port Resolution 04016). Under the Guidelines, the Port will offer grants to truck owners for the full cost of retrofitting trucks with DOCs, and for a portion of the cost of replacing older trucks with newer trucks. The Guidelines were attached to Summary Report #9.

It was determined that high out-of-pocket costs and uncompensated down-time for engine work made engine replacement infeasible for truckers to participate. Port staff went to the Board on October 4, 2005 to pursue truck replacement and supplement the program with up to an additional \$1.5 million in available funding.

Progress. The Port launched the program in October 2005. To date, thirty-two 1990 or older heavy-duty trucks have been scrapped and replaced with model 2000 or newer trucks. Over the next five years, these thirty-two newer trucks will result in an estimated reduction of 38.5 tons of NOx, 3.3 tons of ROG, and 6.2 tons of diesel particulate emissions.

## **2 -- Cargo-handling Equipment**

**Status: On-going**

**Charge to V2K Fund to-date: \$1,263,000**

Measure: Subsidize retrofit of diesel cargo-handling equipment with new engines meeting California emission standards for new diesel engines or add-on exhaust treatment devices, including soot traps and catalytic converters. This measure applies to cargo-handling equipment at existing container yards.

Background: This measure targets the off-road, heavy-duty, diesel-powered equipment that moves cargo containers within the marine terminal yards. Such equipment includes, for example, toppicks, sidepicks, transtainers, and yard tractors. In July 2000, the Board of Port Commissioners approved guidelines for a grant program for the marine terminal operators to (1) re-power older diesel engines with new engines, (2) retrofit equipment with emissions control technologies, and (3) switch to ultra-low-sulfur diesel (ULSD). This program, known as the Container Terminal Equipment Re-power and Retrofit Program (CTERRP), was implemented through grant agreements with the six marine terminal operators eligible for this program, and through periodic revisions to the adopted guidelines. The participating terminal operators included American President Lines (APL), Maersk Pacific Ltd. (Maersk), Marine Terminals Corporation (MTC), TransBay Container Terminal Inc. (TransBay), Trans Pacific Container Service Corporation (TraPac), and SSA Terminals.

Results: A portion of the funds allocated to this program remain. It has yet to be determined whether these funds will be applied to other emissions reductions efforts for cargo-handling equipment or will be applied to other projects within the AQMP.

---

<sup>2</sup> SECAT is a partnership of the Sacramento Area Council of Governments and the five Air Districts in the Sacramento Federal Nonattainment Area. The Gateway Cities Clean Air Program is a partnership of the Gateway Cities Council of Governments, Port of Long Beach, and California Air Resources Board.

*Re-powering.* A total of 83 pieces of equipment were re-powered; in some cases, new, cleaner equipment was purchased. This total is equivalent to about 78 percent of the eligible equipment, and includes toppicks, sidepicks, yard tractors, and forklifts.

*Retrofits.* A total of 178 retrofits on existing equipment were made, including 174 Diesel Oxidation Catalysts (DOCs) and 4 Diesel Particulate Filters (DPFs). This program total represents 57 percent of the eligible equipment. The CTERRP retrofit program was originally designed and funded based on DPF installation on equipment. Data logging by the DPF vendors found that yard tractors did not run hot enough in their duty cycles to allow use of DPFs, so DOCs were installed on nearly all equipment that was funded through this program.

*ULSD.* Most of the terminals took advantage of the ULSD incentive to switch to that fuel for all of their on-terminal diesel equipment in advance of the regulatory requirement. As of summer 2006, all California diesel was converted to ULSD, at 15 parts per million of sulfur.

**Table 1: CTERRP Activity through December 2005<sup>3</sup>**

| <b>Activity</b>           | <b>Pieces of Eligible Equipment</b>                          | <b>Number Completed</b> | <b>Percent Completed</b> |
|---------------------------|--|-------------------------|--------------------------|
| Re-powering               | 106*   | 83                      | 78                       |
| Retrofits                 | 230 in 5 agreements<br>+ 82 in SSA agreement**<br>312 total* | 178                     | 57                       |
| ULSD                      | 6 terminals  | 4 terminals             | 66                       |
| Alternative fuel vehicles |  | 6                       | n/a                      |

\* Note that some pieces of equipment are both re-powered and retrofitted, and thus the total number of pieces of equipment in the program is less than the totals for re-powering and retrofitting combined.

\*\* The 82 pieces of equipment in the SSA agreement include the two DPFs that SSA Terminals installed in 2001.

*Emissions Reductions.* Preliminary estimates of actual emissions reductions indicate that they are on target for three of the four types of emissions being tracked for this program. The fleet inventory completed in December 2000 estimated that re-powering and/or retrofitting 372 pieces of eligible equipment would result in annual emissions reductions of 99 tons of NO<sub>x</sub>, 14 tons of PM, 28 tons of hydrocarbons (HC), and 97 tons of carbon monoxide (CO). As of February 2004, 133 pieces of equipment have been re-powered and/or retrofitted, or 36 percent of the eligible equipment.<sup>4</sup> The resulting annual emissions reductions translate into 42 tons of NO<sub>x</sub>, 4 tons of PM, 12 tons of HC, and 34 tons of CO. This in turn equates to 43 percent of the estimated NO<sub>x</sub> reductions, 28 percent of estimated PM reductions, 43 percent of estimated HC reductions, and 35 percent of estimated CO reductions. Thus, all but the current PM reductions are at or above the year 2000 estimates, i.e., at or above 36 percent of the estimated reductions. These figures are summarized in Table 3 below.

<sup>3</sup> Data on percentages based upon best available data on hand for eligible equipment through December 2005

<sup>4</sup> The figure of 36 percent is based on the year 2000 estimate of 372 pieces of equipment in the program. However, only 333 pieces of equipment are currently in the program. It appears that even with fewer pieces of equipment, the program may reach most of the original estimates. See the paragraph following the table for factors that will influence the ultimate results of the program.

The lower reductions for PM are primarily due to the switch from retrofits with diesel particulate filters (DPFs) to retrofits with DOCs. In 2000, it was assumed that a substantial number of pieces of equipment would be retrofitted with DPFs. However, field testing subsequently indicated that while DPFs may operate effectively on some of the toppicks and sidepicks, they would not operate effectively on the yard tractors. This finding affected about 137 yard tractors alone. At that time, it was estimated that the switch from DPFs to DOCs on yard tractors would reduce CTERRP's program-wide emissions reductions by 10 to 28 percent. The low end of the range assumed that DPFs would become feasible for yard tractors in 2004 or 2005, and the high end assumed that DPFs would not become feasible during the life of the program.

The emissions reductions ultimately achieved by the program will depend on many factors. Factors likely to decrease actual reductions are the trend for some terminals to replace old equipment with more powerful equipment, completing repowerings and retrofits later than originally anticipated, and the ongoing unavailability of suitable DPFs. Factors likely to increase reductions include retiring more pieces of equipment than originally anticipated, replacing equipment sooner than anticipated, replacing old equipment with far cleaner equipment, and the additional use of ULSD. For example, APL has elected to not only replace many of its yard tractors earlier than anticipated, but to also replace them with yard tractors that meet the tougher emissions standards for on-road engines.

Due to the use of the much less expensive DOCs (c. \$2,000) instead of DPFs (c. \$8,000) in most equipment, much of the money originally budgeted for this program has not been spent. Furthermore, not all terminal operators participated to the full extent of their eligibility due to business decisions and to other equipment program priorities.

*Cost-effectiveness.* The Funding Guidelines for the CTERRP originally set a cost-effectiveness threshold for individual repowerings and retrofits of \$5,000 per combined ton of NO<sub>x</sub> and 20-times PM.<sup>5</sup> The threshold was later raised to \$7,500 to adjust for more accurate hours of equipment operation and baseline emission levels.

Preliminary calculations of the average, program-wide, cost-effectiveness for repowerings and retrofits indicate that both are well below the \$7,500 threshold. The average cost-effectiveness for re-powering may be on the order of \$4,000 or less, and retrofitting \$2,000 or less. These figures are preliminary as they currently include the incentive payments and require additional verification. Additional calculations will be performed to separately determine the actual costs and the total costs, including incentive payments.

One of the key factors in cost-effectiveness has been when the repowerings and retrofits are completed. The earlier they are completed, i.e., when the equipment is youngest, the more cost-effective is the re-powering or retrofit. Thus delays in completing individual repowerings and retrofits reduce the average cost-effectiveness of the program. However, these reductions may be countered by other factors, such as the early re-powering or replacement of other equipment. The program will continue to monitor these trends to better understand emissions reductions achieved.

---

<sup>5</sup> The threshold is an annual cost based on project lifetime.

### **3 -- Tugboat Re-powering**

**Status: Complete.**

**Charge to V2K Fund: \$430,000**

Measure: Subsidize retrofit of one diesel tugboat as a demonstration project with a new engine meeting California emission standards for new diesel engines or an add-on exhaust treatment device such as a soot trap and catalytic converter.

Background: In October 2000, the Port conveyed \$408,300 to Oscar Niemeth Towing Inc. to replace the two main diesel engines on its tugboat, the *Silver Eagle*, with new, low-emission, diesel engines. The tugboat re-powering is estimated to reduce nitrogen oxide (NOx) emissions by 27 tons per year, or 445 tons over the life of the project. The re-powering is also estimated to reduce PM emissions one ton per year, or 16.4 tons over the life of the project. Oscar Niemeth Towing purchased the engines in 2000 and took delivery of them in early 2001.

Progress: Oscar Niemeth Towing, Inc. reported to the Port that it had installed the engines in the *Silver Eagle* in December 2005. Remaining unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.

### **4 -- AC Transit Buses**

**Status: Complete.**

**Charge to V2K Fund: \$669,000**

Measure: Subsidize retrofit of diesel bus engines with new engines meeting California emission standards for new diesel engines or retrofit buses with alternative fuels. This measure is targeted to those buses that operate in the West Oakland, Emeryville, and Alameda areas.

Background: In December 1999, the Port and the Alameda-Contra Costa Transit District (AC Transit) entered into a Memorandum of Understanding (MOU) to repower approximately 27 local buses with new engines and to retrofit the buses with diesel oxidation catalysts. The Port conveyed \$659,124 to AC Transit to help underwrite the re-powering and retrofitting costs.

Status: The project was completed in October 2001 when AC-Transit completed work on the 28th bus. The re-powered and retrofitted buses are assigned to routes in the West Oakland area and neighboring communities, and can be recognized by signs on the sides of each bus that include the Port's logo and note, "Another low emission bus provided by the Port of Oakland." Remaining unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.

### **5 -- Train Switching Operations**

**Status: On-going.**

**Charge to V2K Fund to-date: \$0**

Measure: When the new Joint Intermodal Terminal (JIT) is built, request the operator of [train] switch engines operating at the terminal to use engines that meet the requirements of the recently promulgated federal regulation limiting locomotive emissions. Implementation of this measure will require that the allocation of switching locomotives with new or rebuilt engines take into account the desire of the Port to minimize emissions related to switching activities.

Background: The JIT is designed as a railyard that allows shipping containers to be moved directly between trucks and trains. The Port began construction of the JIT in 1999. In February 2002, the Port signed a lease agreement with the Burlington Northern and Santa Fe Railway Company (BNSF) to lease

and operate the JIT. Per the mitigation measure, the agreement stipulates that the diesel-operated locomotives used in train-switching operations are to be locomotives that are subject to the federal air emission regulations for diesel operated locomotives as set forth in federal air quality regulations.<sup>6</sup> In addition, the BNSF and the Port are to exchange information with the goal of investigating options to accelerate compliance with the Tier 0, Tier 1, and Tier 2 requirements of the federal regulations. The JIT facilities opened in March 2002, and the term of the operating agreement with the BSNF took effect May 1, 2002.

With the execution of the agreement and opening of the facility, the mitigation measure was largely fulfilled. However, in accordance with the operating agreement, the Port will over time exchange information with the BNSF with the goal of investigating options to accelerate compliance with the federal regulations.

Status: Since the last Summary Report, the Port and the BNSF have informally discussed advances in emission reductions technologies for locomotives. BNSF has expressed an interest in replacing their existing switcher locomotive fleet with the latest model clean hybrid and multi-engine switch locomotives, and the Port is currently analyzing the cost-effectiveness and feasibility to provide subsidies.

### **6.1 through 6.10 -- Design and Operational Features**

**Status: Complete and On-going.**

**Charge to V2K Fund to-date: see each sub-project below**

Measures 6.1 through 6.4 pertain to the design of new Port facilities. Measures 6.5 through 6.10 are practices to be continued in, or added to, Port operations. There are two Measures listed here as 6.00 that were not specified by number in the original Resolution, but fall under this general category.

#### **6.00 – Air Quality Baseline Study**

**Status: Complete.**

**Charge to V2K Fund: \$290,000**

The Port initiated an air quality and meteorological monitoring program in April 1997 to measure the levels of particulate matter (PM) in West Oakland. The purpose of the program was to measure particulate levels prior to construction of the Vision 2000 projects, to monitor particulate levels during construction, and to monitor particulate levels during the early operation of the facilities.

The program measured PM10 and PM2.5 concentrations at two monitoring stations: one at the Port (the “Port station”) and one in the West Oakland residential area downwind of the Port facilities (the “Residential station”). The Port station also recorded meteorological data.

The sampling results were used to determine if there are localized sources of particulate air contaminants in the West Oakland area (i.e., if particulate levels at the West Oakland site exceeded regional levels), and, if evidence of any such local sources was found, to identify them if possible. All sampling procedures were coordinated with the Bay Area Air Quality Management District.

As construction of the Vision 2000 facilities was largely complete and the major facilities had been operating for more than a year, air monitoring was discontinued as of April 2005. A comprehensive final report was issued in June 2006. (Please note, the BAAQMD continues to operate their air monitoring station at the W. Oakland residential station.)

---

<sup>6</sup> 40 Code of Federal Regulations Part 92.

## **6.00 – CNG Fueling Station**

**Status: Complete.**

**Charge to V2K Fund: \$1,000**

The Port maritime Compressed Natural Gas (CNG) station is scheduled to be operational in summer 2007. The CNG station project developed as a joint partnership between the Port, the City of Oakland, and Clean Energy. The City of Oakland obtained a federal grant for the project.

## **6.1 -- Alternative Marine Power (AMP) for Tugboats**

**Status: On-going.**

**Charge to V2K Fund to-date: \$0**

Measure: Provide electrical connections to allow tugs at Berth 59 to cold iron while berthed.

Background: This measure would allow a tugboat docked at Berth 59 to connect to shore-side electrical power while it is berthed. This would reduce the need for the tugboat to run its diesel engines at the dock for on-board equipment and systems.

Status: Tugboats no longer use Berth 59; the Port relocated tugboat operations to Berths 7 and 9 when Berth 59 was incorporated into the new SSA Terminal. The feasibility of providing electrical power connections to allow tugboats or other harbor craft in other areas of the Port is under review as a component of a study to explore Alternative Marine Power. Currently, a few local tugboats are equipped to handle shore power.

## **6.2 -- Truck Parking**

**Status: Complete**

**Charge to V2K Fund: \$0**

Measure: Provide subsidized 24-hour truck parking facilities in the maritime area.

Background: The purpose of this measure is to minimize truck parking in neighborhood areas. While the Port did not charge the V2K fund for any costs of this project, the original AQMP stated that this project had a lost opportunity cost of \$490,000 to the Port.

Status: The Port provides low-cost, 24-hour truck parking at 20 sites totaling approximately 74 acres in the Port area. It is interesting to also note that the Port is working with the City of Oakland to enforce a new Truck Route as well as ticket trucks parked illegally in residential neighborhoods. During the first 17 days of parking enforcement, over 500 trucks received tickets. These efforts have also minimized truck parking in neighborhood areas.

## **6.3 -- Parking Configuration**

**Status: Complete.**

**Charge to V2K Fund to-date: \$0**

Measure: Configure parking to minimize traffic.

Background: This measure entails configuring parking areas for transport trucks at the new terminals in a manner that minimizes traffic congestion and idling.

Status: This has been incorporated into the design of the new terminals.

#### **6.4 -- Traffic Signal Synchronization**

**Status: On-going.**

**Charge to V2K Fund to-date: \$0**

Measure: Work with the City of Oakland to synchronize traffic signals in West Oakland.

Background: The purpose of this measure is to synchronize traffic signals in West Oakland on routes leading to the Port so that as traffic volumes increase with the implementation of Vision 2000 projects, traffic signal timing is adjusted to handle the increase in volumes.

Status: The Port has initiated discussions with the City of Oakland regarding this project.

#### **6.5 -- Spare-the-Air Days**

**Status: Complete.**

**Charge to V2K Fund: \$0**

Measure: Encourage employees and tenants to use alternative transportation on “Spare the Air Days” called by the Bay Area Air Quality Management District.

Background: The Air District announces “Spare-the-Air Days” on high ozone days, and requests that residents and businesses voluntarily reduce activities that produce air pollution. The mitigation measure calls for the Port to work with its employees and tenants through newsletters and other methods of communication to encourage employees to use carpools or other modes of transportation on Spare-the-Air Days.

Status: The Port has actively participated in the Air District’s program for several years. The Air District’s Spare-the-Air advisories are quickly forwarded to all Port employees via the Port’s internal email notification system. Each advisory includes tips on how to reduce pollution during the Spare-the-Air Days. In addition, the Port included provisions encouraging carpooling during Spare-the-Air Days in the Plans and Specifications for the Vision 2000 construction contracts.

#### **6.5 -- Port Employee Transit Subsidies**

**Status: On-going.**

**Charge to V2K Fund to-date: \$0**

Measure: Offer transit subsidies to Port employees.

Background: Under this measure, the Port would offer employees subsidies or passes to use mass transit.

Status: The Port is working to implement the Commuter Check program for its employees.

#### **6.7 -- Terminal Employee Cash-out Policy**

**Status: Infeasible.**

**Charge to V2K Fund: \$0**

Measure: Establish an employee “cash-out” policy at new marine terminals.

Background: Parking cash-out programs offer employees the option of giving up their employer-provided parking space in exchange for its equivalent in monetary value. This provides an incentive for employees to switch from single-occupancy vehicle commuting to alternate modes of commuting.

Status -- Infeasible. An employee cash-out policy conflicts with the marine terminal operators' agreements with the labor unions. Thus, this measure is infeasible.

#### **6.8 -- Parking Restrictions**

**Status: Infeasible.**

**Charge to V2K Fund: \$0**

Measure: Restrict the supply of parking for tenant vehicles.

Background: This measure would be implemented during the design or redesign of employee parking areas at marine terminals.

Status -- Infeasible: Restricted employee parking conflicts with the marine terminal operators' agreements with the labor unions. Thus, this measure is infeasible.

#### **6.9 -- Vehicle Maintenance**

**Status: Complete.**

**Charge to V2K Fund: \$0**

Measure: Enhance maintenance of Port and tenant vehicles.

Background: Under this measure, the Port will inform its maintenance staff and its tenants, through regular workshop and training sessions, of the importance of regular maintenance on vehicles in order to reduce emissions.

Status: Port vehicles are regularly maintained in good operating condition. In addition, the Port has been using ultra-low-sulfur diesel in its diesel vehicles since June 2002. The Port has not initiated workshop or training sessions for tenants. Harbor Facilities has established a training coordinator who has set up classes at the GM training center at Los Positas College in Livermore to improve maintenance skills and awareness of preventive maintenance. Note that in addition, the mechanics will be receiving training on maintaining **Hybrid Vehicles** as the Director of Maritime has made it a priority to move the Port's fleet in this direction as soon as possible. Everyone at the Garage has already been set up with a student ID and profile in the GM system.

#### **6.10 -- Truck Driver Education Program**

**Status: Complete.**

**Charge to V2K Fund: \$0**

Measure: Carry out [transport] truck driver education program aimed at reducing truck-idle emissions.

Status: The Port has been working with Air District staff on outreach to truckers regarding local truck idling regulations. The Port has facilitated public meetings and conducted weekend trucker outreach meetings to inform truck owner-operators on existing regulations and available incentive programs. Information has been provided in English and Spanish.

## **7 -- Lesaffre Yeast (formerly Red Star Yeast)**

**Status: Infeasible.**

**Charge to V2K Fund: \$42,000**

Measure: Subsidize an engineering study to determine whether cost-effective measures exist to reduce reactive organic gas (ROG) emissions from the Red Star Yeast facility in West Oakland, and if cost-effective, subsidize such measures.

Background: The Port solicited proposals for the engineering study and selected a consulting team to prepare the study. In February 2001, the Red Star Yeast Division was acquired by Lesaffre Yeast Corporation, and the terms of the study were renegotiated with the new owners. In September 2002, the ROG Emission Reduction Feasibility Study was completed, and Lesaffre and the Port discussed which options to pursue.

Status -- Project Infeasible: On March 31, 2003, Lesaffre Yeast Corporation announced the immediate closure of its Oakland plant, and the building has been subsequently demolished. Thus, this measure is no longer feasible. Unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.

## **8 -- Precision Cast**

**Status: Infeasible.**

**Charge to V2K Fund: \$0**

Measure: Subsidize an engineering study and control measures to reduce ROG emissions from the Precision Cast facility in West Oakland.

Background: Concurrent with the Red Star Yeast study mentioned above, the Port solicited proposals for the engineering study for Precision Cast, selected a consulting team, and negotiated a contract with them to prepare the study. During the summer of 2001, the Port learned that Precision Cast ceased operating its West Oakland plant at the end of May 2001. The building was subsequently sold and will no longer be operated as an industrial facility. Thus this source of ROG emissions no longer exists.

Status -- Project Infeasible: As the facility has closed, this measure is infeasible. Unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.

## **9 -- Emissions Testing Station**

**Status: Infeasible.**

**Charge to V2K Fund: \$0**

Measure: Contact the California Air Resources Board (ARB) and work with them to determine the feasibility and potential benefits of establishing a heavy-duty diesel truck emissions testing station in the Port area.

Status -- Project Infeasible: Upon discussion, the Port, ARB, and other agencies have determined that this measure is in conflict with the jurisdiction of those agencies. Unspent funds for this project were reallocated to the Truck Replacement Project in October 2005.