

Port of Oakland
Comprehensive Truck Management Program

Updated: April 21, 2008

D R A F T

CTMP Statement of Purpose

The Port of Oakland seeks to balance its economic responsibility to manage its resources as a competitively positioned global gateway for the United States economy, while affirming its commitment to improve the Port drayage system and its social responsibility to reduce exposure of neighboring residents to air pollution and inconsistent land-use from Port-generated trucking activity. Furthermore, the Port is committed to balance the needs of its customers with those of its neighboring community in an effort to improve commerce and quality of life for those living and working in and around the Port.

CTMP Program Elements

1. Clean Trucks (Port Priority)
2. Truck Registry (Port Priority)
3. Safety and Security (Port Priority)
4. Community Impacts (Port Priority)
5. Stakeholder Participation
6. Customer Service
7. Increased Productivity
8. Sustainable Drayage Truck Workforce
9. Funding (Port Priority)
10. Political Support

Discussion of the Elements:

Clean Trucks (Port Priority)

Reducing diesel emissions from trucks serving the Port is an integral part of the Port's overall clean air program, MAQIP. Ways to reduce truck emissions include replacing older, dirtier trucks; retrofitting trucks with diesel particulate filters (DPFs); requiring lower sulfur diesel fuels to be burned; or switching to alternative fuels such as CNG. A determination of which measures to use and when to implement them needs to be the product of a careful analysis that weighs strengths and weaknesses, costs to implement, and any unintended consequences. The measures are expensive, so a plan to fully fund this CTMP element needs to be thought out in advance. Port staff has been engaged in such analysis and has agreed to partner with the Bay Area Air Quality Management District and CARB to fund retrofits and replacements of older trucks serving the Port. Port staff is also evaluating alternative revenue sources to provide a Port source of funding for retrofits and replacements. The Port has received funding to proceed with an

early action retrofit program in advance of the CARB regulation pertaining to Port drayage trucks and is in the process of retrofitting approximately 75 trucks.

Pending the anticipated availability of locally-based funding for truck retrofits and replacements, the Port is looking to make approximately 2000 trucks compliant with the CARB regulation.

With respect to requiring trucks to burn cleaner fuel – trucks already use Ultra Low Sulfur Diesel (ULSD) which has a sulfur content of 15 parts per million (ppm) compared to 140 ppm average/ 500 ppm maximum for pre-2006 diesel. The real value of this fuel is that it doesn't clog the diesel particulate filters to the degree that higher sulfur diesel fuels do. Most diesel fuel sold these days, at least in California is ULSD.

One other aspect of any clean truck program would be the establishment of an operating protocol and driver education program to cover restrictions on idling.

Previous Work Pertaining to Clean Trucks:

June 2007:

The Port is developing a plan to phase-in trucks that meet 2007 emission standards to replace older trucks currently providing drayage services. The intent is for the port to directly work with trucking companies to ensure certain safety, security and operational standards are achieved.

Similar programs are under consideration at other California ports and nationally. The Ports of LA/LB have announced a clean truck program to take effect January 2008 with the objective of replacing pre-2007 trucks over a 5-year period. LA/LB propose to fund their clean truck program through a combination of grant money, truck and gate fees.

Oakland has yet to determine the exact nature of its clean truck program, but anticipates the program will include a local business component and provision for trucker training and assistance to facilitate the transition to clean trucks. Similar to the ports of LA/LB, a fee schedule is under consideration.

Establish baseline data to define an emissions footprint: Gather accurate data about the age and type of trucks providing drayage services in the Port Area, the number and duration of truck trips will assist with establishing a truck emissions footprint.

August 2007:

Port staff thinking was characterized as leaning toward providing subsidies only for LNG/CNG alternative-fueled trucks and not providing incentives for retrofit devices. Further, thinking was that 2003-2006 trucks that had retrofits would be allowed to enter the Port, but would have to pay an impact fee.

Analysis of Previous Thinking:

- LNG/CNG replacement is considerably more expensive and not physically feasible to implement in the time frame in which we currently plan to retrofit or replace 2,000 trucks. Further, by 2010, the diesel engine emission standard set by EPA will be equal to that of alternative fuels, negating their advantage.
- Previous thoughts about arbitrarily imposing fees on retrofitted trucks meeting CARB requirements would likely have led to time-consuming and program-delaying lawsuits.
- Baseline data about truck age will be obtained in the economic impact analysis currently in the RFP stage.

Truck Registry (Port Priority)

A program is needed to distinguish between trucks that are in conformance with the requirements of the CTMP and those that are not. Those that conform would be allowed to do business at the Port, those who do not would be given the opportunity to conform, and until they did, would not be authorized to do business at the Port. Doing business at the Port would be defined as being allowed to enter marine or intermodal terminals in the Port Area. Eventually, if Port were to be gated at the access portals (Maritime at Grand; 7th St. and Adeline) then the zone of enforcement could be extended to the entire Port Area. Implicit in complying with CTMP requirements is compliance with CARB regulations for Port drayage trucks.

Various methods of demonstrating compliance for trucks could include a medallion system, similar to that used by taxicabs, in which a driver would have to give the truck's registration or medallion number when entering terminals; a truck-mounted transponder (such as RFID) that would register with readers at terminal gates and other key locations around the Port; a GPS system that would report truck locations to a tracking system; or any combination of the above methods.

Presentations by proponents of RFID and GPS systems have been made to the Port. Each technology has strengths and weaknesses. Port operational staff have discussed the systems and drivers, trucking companies and marine terminal operators have been interviewed to obtain their views on the effectiveness and compatibility of the technologies with their operations. A number of marine terminals have employed or are in the process of setting up their own on-terminal tracking system; some use RFID and some use GPS technology. The number of systems to be employed on trucks should be kept to as few as possible so individual trucks won't have to have multiple transmitting devices installed. A working group of Port staff, terminal operators and truckers is currently assessing the needs that a tracking system and truck database need to meet and is analyzing the ability of different technologies and databases to effectively meet those needs.

Registry truck data would be maintained in a data base accessible by the Port and other appropriate entities in order to ensure that compliance is achieved. Data on truck entities

at the Port would be kept secure and a privacy policy would be developed by the Port, with the cooperation of the trucking community serving the Port. Additionally, the Port would make available to those whose data was being maintained annual reviews of data protocols, including a list of parties who have accessed the data over the course of the previous year. Similarly, a central database on drivers would be maintained, containing appropriate information. The TWIC database will likely contain similar information on drivers, entered as a snapshot at the time of application. In the future, the Port would seek to work with the Dept. of Homeland Security to coordinate in the use of data management system components, such as readers and servers to the degree possible in order to minimize costly duplication.

As for general compliance with the registry, marine and rail terminals would refuse entry to non-registered vehicles or drivers. The authority/requirement to do so can be written into the tariffs which govern marine terminal operation at the Port. As for the rail terminals, the Port owns the BNSF intermodal facility, so it can require compliance by trucks entering or leaving that facility. The same will apply to rail facility development on the former Oakland Army Base. However, the UP owns its current intermodal facility, so the Port would need to negotiate compliance enforcement for trucks entering the facility with the railroad.

Previous Work Pertaining to Truck Registry:

June 2007 RE: Technology Utilization:

P.O.R.T. Visibility Initiative is the name of the port's GPS pilot program. The theme of the pilot is "Deploying Information to Improve Life for the Oakland Community".

GPS and RFID provide the means to use information technology to monitor truck incursions into neighborhoods adjacent to port operations through the application of geofencing; provide truckers with updated highway and terminal gate status; and, facilitate automated gate transactions.

The GPS data will be integrated with modeling and systems developed by P.A.T.H. for managing and metering the flow of truck traffic into the port area and to coordinate this data with terminal appointment systems to reduce gate queues.

The RFID initiative includes distribution of truck tags and sponsorship of trucker data base through eModal. The tags can be electronically read and associated with a specific trucking company and drives. Approximately 1,000 trucks have activated RFID tags and another 600 are in the process. This compares to an estimated 2,500 trucks currently providing drayage services at the Port. The objective is for all trucks providing services at the Port to have RFID tags and GPS.

The technology that supports RFID and GPS also supports the security initiatives such as domain awareness and TWIC (Transportation Worker Identification Card)

June 2007 RE: Trucker Data Base

The port does not have accurate information about firms and truckers providing drayage services at port facilities. Such information is essential to develop a truck management program. The data base will allow the port to identify all companies engaged in the provision of trucking services, enable the port to develop a profile of trucks operating at the port and facilitate port outreach efforts in support of the clean truck program. It would also help determine how many marine-related truckers are based within the local impact area (LIA).

Safety and Security (Port Priority)

The nation's seaports have historically been wide open gateways for international trade. Because of their large size and relatively open architecture, they have been identified as potential sites or entry points for destructive cargoes such as nuclear, chemical, biological or explosive devices. The Federal Government has mandated certain security measures at seaports for the purpose of decreasing the risk of a deliberate destructive act. The Port is complying with such mandates and has also taken the initiative to bolster security ahead of regulations with measures such as the installation of radiation detection portals at all marine terminals. The Port has recently been awarded a \$3.8 million grant from state security funding through the infrastructure bond for the purpose of installing RFID equipment and transponders to communicate truck information among trucking firms, terminal operators and authorities at the Port.

Trucks often queue up in roadway medians and along roadway shoulders while waiting to enter marine terminals. This can create circulation and motorist visibility problems for other road users. Truckers and terminal operators meet monthly to discuss such operational issues and to seek ways to reduce waits and shorten queues. One possible solution that has come up and that will be examined further is the establishment of off-Port container yards to serve two principal purposes: (1) to serve as a container exchange point between trucks that come in from out of the area and local trucks that are able to serve Oakland's marine terminals and (2) to provide a safe and secure off-street area to wait for gate appointments at marine terminals.

Previous Work on Safety and Security:

June 2007:

The events of 9/11 highlighted security concerns related to port operations. Trucks and drivers are subject to considerable oversight by federal and state law enforcement agencies. The port security plan identifies the following trucker-related priorities:

- Ability to track trucking activity in the Port of Oakland to establish landside domain awareness;
- Ability to associate drivers with trucking company to help establish business purpose and streamline terminal access and exit control process; and,
- Potential for integration with software program/algorithm to identify "exceptional" activity for focused investigations/law enforcement

Sept. 2007:

Security: Implementing a security system to manage truck movement, investigate and respond to potential incidents and suspicious activity in the Port of Oakland. The focus of this discussion was on truck tracking and TWIC.

Community Impacts (Port Priority)

Trucks (cabs or chassis) parked in neighborhoods near the Port Area are a safety issue, a nuisance for residents and businesses who need curbside parking and a blight on neighborhoods that are trying to make themselves attractive. At present, there is no clearly identifiable party to go to for relief and enforcement of parking restrictions has been reported to be inconsistent. Trucks circulating through city streets and roads, off of agreed-upon truck routes also constitute a nuisance as well as a health and safety problem. Port and City staff continue to meet periodically to discuss status and proposed modifications to truck routes in West Oakland.

Currently, the Port pays for two person-shifts per day from the Oakland Police Dept. for general maritime area truck enforcement, which includes checking for truck safety violations and illegal parking monitoring. Reports are that assigned officers frequently subordinate these duties to other, higher-priority OPD needs. This being the case, the Port needs to revisit the agreement with the City to provide this service and come up with a more effective solution.

The Port is installing a one-stop trucker information trailer in the Port area, to provide information for truckers on permissible areas off-Port in which to operate, obtaining TWIC cards, and complying with Port air emissions and registry requirements. It is anticipated that the trailer will be ready by late April or early May. Port staff and community representatives will staff the trailer.

Previous Work on Community Impacts:

June 2007 RE: Traffic Flow and Truck Routes:

The City of Oakland, working with the port and the community, has established truck routes to control the flow of commercial traffic into residential areas. Equipping port drayage trucks with GPS provides a mechanism to monitor compliance. Physical barriers are another means of controlling truck traffic flow. Staff will examine the range of traffic management alternatives to keep port-related trucks out of residential neighborhoods.

June 2007 RE: Truck Parking:

The City of Oakland has established ordinances governing overnight street parking in residential neighborhoods. The port has undertaken surveys in order to quantify the nature and extent of overnight truck parking in west Oakland, and contracts with the City for the services of two police officers to enforce parking. As an incentive, the port has offered subsidized truck parking to mitigate the impact of maritime related overnight parking. Some trucks continue to park illegally overnight.

Staff intends to explore other means and mechanisms with the City for preventing illegal street parking by trucks engaged in the movement of marine containers.

The Port has offered subsidized truck parking as a means of mitigating the adverse impact of maritime related truck activity on the communities adjacent to the port area. The truck parking area formerly managed by the port was transferred to the City of Oakland as part of the land swap between the two organizations. The Port has issued an RFP for the management of a truck parking area which is targeted for opening in July 2007. The Port is also in discussions with the City to determine the feasibility of operating joint truck parking facilities.

June 2007 RE: Local Business and Worker Utilization:

In developing the truck management program, staff will examine the impact on local business and worker utilization. Promoting local business and worker utilization is an essential outcome.

August 2007 RE: Local Hiring

- As part of a local hiring program the Port will provide incentives for concessionaires who hire local truckers (e.g. subsidies, selection preferences, etc.).
- Integrate local hiring with educational opportunities and training to support local readiness for driver positions.
- Specific outreach and assessment efforts in West Oakland.

August 2007 RE: Local Business

Provide preferences for businesses in the Port's LIA and LBA through the Port local business utilization policy.

Stakeholder Participation

One of the strengths of this program is that it will be driven from the bottom up; that the various stakeholders involved with trucking at the Port will be sought out for input regarding their needs, proposed actions to meet those needs and for feedback to program elements as the plan is developed and refined.

As a first step, the various stakeholder groups (terminal operators, shippers, independent truck drivers, trucking firms, community organizations and residents, environmental advocacy groups, the labor movement and others) will be called upon to share their positions on their particular priority needs and proposed actions to meet those needs. This will give the stakeholders an opportunity to organize their thoughts and to focus on productive ways to improve the trucking sector involved in Port activity. Individual group meetings, as opposed to mass meetings will allow more efficient and productive use of the limited Port staff time and will move us all toward a more comprehensive and practical CTMP. Subsequently, the broader-based technical advisory committee will

convene to review and discuss a considerably more-refined and thought out proposal prior to submittal to the Board of Port Commissioners for formal adoption.

Previous Work on Stakeholder Participation:

June 2007

The West Oakland community and other community-based organizations have expressed an interest in truckers, trucking operations and the relationship to the Port activities. Port staff have developed and participate in several mechanisms to address community participation, including:

- Ad Hoc Truck Route Committee
- Maritime Air Quality Improvement Plan (MAQIP) Stakeholders Task Force
- Truck Management Plan Forum
- Trucker Working Group
- Vision 2000 Air Quality Mitigation Program
- West Oakland Toxic Reduction Collaborative - Truck Incentive Work Group

June 2007 RE: Customer and Tenant Outreach

Truck management will need to address the business and operational requirements of Port customers and tenants. A formal process to solicit customer input and participation will be instituted.

Customer Service

Trucks need to be able to deliver and pick up loads on time. This can be difficult when there are long queues at terminal gates, delays on terminal and congested roadways outside of the Port. Terminal operators and beneficial cargo owners (BCOs) rely upon drivers to keep appointments and meet schedules. Trucks can get caught in traffic in the Bay Area and drivers may be unaware of alternative routes. Additionally, it may be determined that it is desirable for terminal operators, shippers, brokers, BCOs, ocean carriers or trucking companies to be able to track the movement of their cargoes. This is a topic that is routinely discussed at the Trucker Working Group.

One measure that the Port has looked at to help reduce truck congestion on roadways leading to marine terminals is to develop chassis pools off-Port. Port staff and chassis owners continue to explore this possibility.

Previous Work on Customer Service:

June 2007 RE: Appointment Systems

All the marine terminals at the port operate appointment systems providing truckers the opportunity to make appointments on-line for the pick-up and delivery of containers. Approximately 25 percent of terminal in-gate activity is made by appointment, depending on the particular terminal.

The objective is to increase the utilization of appointments and to apply technology solutions to improve coordination between truck dispatchers and terminal gate operations.

June 2007 RE: Interface Between Marine Terminals and Truckers

Trucking operations by necessity must coordinate their drayage activities with the marine terminals that set rules for conducting business at their facilities. The rules are in place to safeguard the premises by complying with government security mandates and to optimize terminal operations.

In addition to on-line appointment systems, truckers interface with terminal personnel at the gates and in the yard. Terminals are increasingly automating their gate and yard operations through the use of RFID and GPS enabled equipment. The truck management plan will examine ways that the port can expedite the adoption of technology by trucking companies as a means of improving productivity, security and customer service.

Productivity

Trucks need to make the most productive use of their time: on the road, at the Port and inside marine terminals. Wages and revenues are not optimized when trucks sit in traffic, in queues or have to wait for required transaction information to be transmitted to terminal operators. Inside terminals, improved technologies such as RFID or GPS and operational practices can significantly cut the time it takes for a truck to drop or pick up a box.

Previous Work on Productivity:

June 2007

Under the current truck drayage system independent owner operators are compensated based on the trip, rather than the time. This means traffic and terminal delays directly impact compensation. Improving truck turn times and trucker IT capabilities, allows truckers to perform more moves and to provide enhanced customer service.

Sustainable Drayage Truck Workforce

The Port will strive to ensure that truck drivers have safe, healthy and economically viable employment. This will most likely be accomplished in cooperation with the newly-established trucking concessions. These concessions will be qualified trucking companies or enterprises that execute concession agreements with the Port. They will be required to meet standards pertaining to labor, employment and local and small business participation, subject to conditions that may be set forth by the Board of Port Commissioners.

Previous Work on Sustainable Drayage Truck Workforce:

June 2007

The development of the truck management program requires the participation and input of a wide spectrum of truckers and trucking companies. The port participates in several trucker outreach programs. Staff hopes to directly communicate with all truckers and companies identified by the trucker data base.

Sept. 2007 RE: Trucker Assistance

- Coordinate with community groups for the development of placement services for trucker transition.
- Link to resources for truck financing.
- Concessionaire fees to help fund trucker support services.
- Coordinate with clearinghouse to provide and maximize trucker work opportunities.

Sept. 2007 RE: Labor

Port thinking at the time was to work with industry partners to develop concessionaire model. Concessionaire model would include employee drivers with “carve out” for local business owner operators. Program would be phased in.

Analysis of Previous Thinking:

RFP is currently out for an economic impact analysis of alternative structures of the drayage system at the Port. An open mind will be kept in order to objectively review the findings of the analysis and to develop a sound business policy for the Port based upon them.

Funding (Port Priority)

Port staff will have to find a means of funding the effort to meet these needs. Some funding will need to be pursued in the immediate near-term (e.g.: the 2008-09 air emissions reduction fund in the state infrastructure bond) while other funding can be spread over the schedule for CTMP.

Funding for the various program elements of the CTMP can be expected to come from a variety of sources. The mix of sources is likely to vary, depending upon the actual elements selected for inclusion in the program and upon the ground rules surrounding various sources, such as local match requirements and what are and are not eligible expenditures.

While no firm decisions have been made by the Port on which funding sources to pursue as of this date, it is likely that the Port will seek funds from the air emissions reduction fund of the state infrastructure bond. This source will likely make \$140 million available to the entire Bay Area over a four year period, probably split evenly over each of the years, beginning with FY 08-09. There are likely to be further expenditure restrictions

placed upon this funding, with limits on different modes, trucking being one of them. The Port, in conjunction with BAAQMD, submitted applications to CARB on April 4, 2008.

Possible other sources of locally-generated match funding include a portion of a possible Port container fee dedicated to reducing truck emissions; reauthorization of federal transportation funding (TEA-4); Moyer funds; other funds that may become available through regional, state or federal clean air funding programs (staff has a proposal for a truck impact fee program which it will present to the Maritime Committee and then to the Board for adoption in order to qualify for these funds); or from fees derived from a truck registration program.

Additionally, Cascade Sierra Solutions, an Oregon-based not-for-profit works to create truck funding opportunities. This organization has offered to provide loans and loan guarantees to drivers at the ports of Los Angeles and Long Beach. The Port is exploring funding opportunities that may be available through Cascade Sierra.

Previous Work on Funding:

August 2007

The Port will need to establish a fee structure to support the implementation and administration of the CTMP. Expect total revenue requirements/costs to be a minimum of \$60 million. Two potential fees that may be applied to trucks serving the Port: annual concession fee for each truck operating at the Port (suggested \$3,000 - \$6,000) and for trucks that don't meet the clean truck definition, an impact fee charged against them. No specific fee has been developed at this time to support the \$60 million that would need to be raised.

Analysis of Previous Thinking:

Port staff is carefully considering funding options, including user fees, concession fees, and other sources of grants and loans. The Ports of Los Angeles and Long Beach have funding proposals in place and are likely to test the legal waters with them. The Port of Oakland hopes to learn from their experience.

Political Support

A critical element throughout the process of developing a CTMP will be monitoring and where needed, intervention on the part of Port staff and representatives in Sacramento and Washington to ensure that elected officials and their staffs are kept abreast of the program development, given that there is keen interest, both on the state and federal level to get involved in the areas of mandating air quality standards and practices and container and truck fees. Mandates from outside the Port in these and other related areas could complicate the process of delicately balancing competing, and in some cases conflicting interests as we work to craft a CTMP.

Previous Work on Political Support:

June 2007

Numerous agencies work with the port to implement public policy related to safety, quality of life, security and economic growth. The External Affairs Branch of the Port coordinates with outside agencies to ensure effective two-way dialog. Several aspects of the truck management program involve outside agencies such as the City of Oakland, the Counties of Alameda and Contra Costa, CARB, EPA and the State of California.

Other Previous Work Covered in the CTMP and Elsewhere by the Port:

June 2007

Congestion Mitigation

Reducing congestion on port area roadways and the resultant spillover into the neighborhoods immediately adjacent to the port is an important objective of the truck management plan. Staff intends to examine mechanisms for metering the flow of trucks into and out of the port area.

The port is cooperating with the Alameda Congestion Management Board on a study to investigate the feasibility of truck parking facilities along major highway corridors I-80, I-580 and I-880 in Alameda County, as a means of reducing congestion.

The port is discussing with P.A.T.H. (Partners for Advanced Transit and Highways) their assistance with developing a truck-flow metering program. P.A.T.H. is recognized as a leader in the development of systems and technologies to address traffic congestion and related transportation issues.

Note: The Port has elected not to proceed with PATH on truck flow modeling at present.

Infrastructure and Roadway Development

As identified in the Maritime Development Alternative Study, the course of growth at the port will directly affect truck activity and congestion in the port area. A strategy of high rail IPI growth will likely reduce the growth of truck activity. Likewise, the planned improvements to 7th street will improve traffic flows and offer the opportunity to examine the feasibility of Intelligent Transportation Systems (ITS) or computer-supported systems to manage the flow of traffic.

Note: The 7th St. project has been approved by CTC for TCIF funding.

Timeline for implementation:

1. Holding stakeholder group meetings	Jan.-Oct.
2. Began Early Action truck retrofit program (to be completed Dec. 31)	April
3. Complete economic impact analysis of Port drayage	June 30
4. Convene a trucking firm/driver organization forum	July
5. Approval of CTMP design by Board	July 15

CTMP: Appendix A

In-Use Truck/Engine Emission Requirements under
Three Proposed California Regulations

Year	Los Angeles & Long Beach Ports	California Air Resource Board	
	Clean Air Action Plan – Clean Truck Program (Adopted Tariff POLA 11-1-2007)	Statewide Port & Railyard Reg. (version dated 10/11/2007) (Adopted 12/7/2007)	Private Fleet Rule (1) (version dated 1/22/2008)
10/1/2008	<u>Pre-1989 trucks</u> : banned from accessing ports (replace with 1994-2002 retrofitted* – or – truck w/ 2004 engine		
12/31/2009	<u>Pre-1994 engines</u> : cannot access port <u>1994-2003 engines</u> : can be dispatched if retrofit(*CARB verified 85% PM control and 25% NOx control) <u>2004+ engines</u> : can be dispatched	<u>Pre-1994 engines</u> : cannot be dispatched to port/railyards <u>1994-2003 engines</u> : can be dispatched if retrofit with CARB verified Level 3 (85%) PM control <u>2004+ engines</u> : can be dispatched	All trucks complying with Port truck rule and those who retrofit (85% PM VDECS Level 3) before 12/31/2009 will be grandfathered in until 12/31/ 2013
12/31/2010			<u>Pre-1998 engines</u> : retrofit with ≥70% NOx and highest PM controls (2007 standards)
12/31/2011	<u>1994-2006 engines</u> : can be dispatched if retrofit to 2007 standards (see Private Fleet Rule for specific control levels by engine model year) <u>2007 + engines</u> : can be dispatched		<u>1998-2002 engines</u> : retrofit with ≥70% NOx and highest PM controls (2007 standards)
12/31/2012			<u>2003 engines</u> : retrofit with ≥70% NOx and highest PM controls (2007 standards) <u>2004 engines</u> : retrofit with ≥40% NOx and highest PM controls (2007 standards)
12/31/2013		<u>1994-2003 engines</u> : can be dispatched if retrofit to 2007 standards (see Private Fleet Rule for specific control levels by engine model year <i>Subject to Private Fleet Rule requirements hereafter</i>	<u>2005-2006 engines</u> : retrofit with ≥40% NOx and highest PM controls (2007 standards) <u>Grandfathered engines</u> : retrofit to 2007 standards for engines previously retrofit with highest PM controls before 2010
2014			
2015			
2016			

Appendix A continued

12/31/2017			<u>Pre-2004 engines</u> : retrofit with >85% NOx and highest PM controls (2010 standards)
12/31/2018			<u>2004-2006 engines</u> : retrofit with >85% NOx and highest PM controls (2010 standards)
12/31/2019			<u>2007 engines</u> : retrofit with >75% NOx control (2010 standards)
12/31/2020			<u>2008 engines</u> : retrofit with >75% NOx control (2010 standards)
12/31/2021			<u>2009 engines</u> : retrofit with >75% NOx control (2010 standards)

(1) A Fleet Averaging Option is also proposed; along with special provisions for low mileage and NOx exempt areas.