LAX MASTER PLAN

COMMUNITY BENEFITS AGREEMENT (CBA)

2017 ANNUAL PROGRESS REPORT

PUBLISHED JUNE 2018

Los Angeles World Airports™

LAX MASTER PLAN

COMMUNITY BENEFITS AGREEMENT (CBA)

2017 ANNUAL PROGRESS REPORT

Prepared by

Los Angeles World Airports
Environmental Programs Group

Cover Photo By:
Nancy Price,
LAWA

Disclaimer: LAWA obtained data from a variety of sources to generate this report. The reporting team did not have access to each individual primary document and thus was not able to verify all data sets fully against the source documents. Due to these limitations, it is possible that certain numbers may not be accurate.

LAX Master Plan CBA 2017 Annual Progress Report

Acknowledgements

LAWA Group/Division

Airport Response Coordination Center (ARCC):
Ed Bushman

Planning and Development Group:
Robin Ijams, Anthony Skidmore, Roger Sowell, Patrick Tomcheck

Community Relations Division Staff:
Jamie Gutierrez, Allyson Lavalais

Environmental Programs Group Staff:
Erica Blyther, Amylou Canonizado, Norene Hastings, Carolyn Lin, Tamara McCrossen-Orr, Kendrick Okuda, Kathryn Pantoja, Marjorie Phan, Nancy Price, Evelyn Quintanilla, Catalina Saldivar Chavez, Alfred Tong

Procurement Services Division:
Erin Henning, Martin Obregon, Charlene Waters

Independent Third Party Monitor
Clean Fuel Connection, Inc. - Ray Gorski, Lauren Dunlap

LAX Master Plan Program
2017 CBA Annual Progress Report
June 2018

Table of Contents

1.0 Executive Summary

On December 6, 2004, the Los Angeles World Airports' Board of Airport Commissioners (BOAC) approved an agreement with the LAX Coalition for Economic, Environmental and Educational Justice (Coalition). The agreement will expire upon the conclusion of the LAX Master Plan Program or, no later than December 31, 2020.

The Cooperation Agreement and the Community Benefits Agreement included therein call for measures to mitigate noise, pollutant emissions, and traffic impacts of the Master Plan, as well as benefits such as job training and hiring programs for eligible residents of the Project Impact Area (PIA)[1] and the City of Los Angeles. The agreement precludes Los Angeles World Airports (LAWA) from making expenditures or taking actions prohibited by the Federal Aviation Administration (FAA) or any other regulatory authority. The Cooperation Agreement also prohibits the use of Los Angeles City's General Fund or any other City-controlled non-airport source of funds to meet any of LAWA's obligations under the Agreement.

In accordance with Section XVI "Miscellaneous" of the Community Benefits Agreement (CBA), LAWA is required to prepare annual reports on the implementation of the CBA and the progress of the LAX Master Plan Program. LAWA is to provide the annual reports to Coalition representatives and make them available for at least one month on the LAWA website. This document is the thirteenth annual report on the progress of the CBA. This document has been provided to Coalition representatives and is available on the LAWA website at https://www.lawa.org/en/lawa-our-lax/studies-and-reports.

2.0 Introduction/Background

The "Community Benefits Agreement" is comprised of several documents:

1. **Cooperation Agreement.** The Cooperation Agreement sets out the legal framework of the Agreement, including conditions, commitments, obligations, enforcement, and more.

2. **Community Benefits Agreement.** The CBA is an attachment to the Cooperation Agreement that details the various proposals of mitigations and benefits. The various proposals include:

   Noise Mitigation

   - Increased Funding for Airport Noise Mitigation Program
   - End-of-Block Soundproofing
   - Suspension of Avigation Easement
   - Limitations on Nighttime Departures

[1] *Project Impact Area or PIA includes the communities immediately surrounding the airport and those most impacted by airport operations, and is comprised of South Los Angeles, El Segundo, Hawthorne, Inglewood, and Lennox.*

Economic Development Benefits

- Job Training Program
- Work Experience Programs
- First Source Hiring Program
- Small Business Attraction and Retention Program
- Living Wage, Worker Retention, and Contractor Responsibility

Community Environmental/Health Studies

- LAX Air Quality and Source Apportionment Study
- Health Study of Upper Respiratory System and Hearing Loss Impacts
- Environmental Justice Community-Based Research Studies

Air Quality/Emission Reductions and Control

- Electrification of Passenger Gates
- Electrification of Cargo Operations Areas
- Electrification of Hangars
- Emission Reductions from Ground Service Equipment
- Emission Reductions from On-Road Trucks, Buses, and Shuttles
- Conversion of On-site Trucks, Shuttles, and Buses to Alternative Fuel
- Limits on Diesel Idling
- Assessment and Mitigation of Particulate Matter
- Provision of Alternative Fuel

Environmental Mitigations/Commitments for Construction

- Construction-Related Diesel Emission Reduction Requirements
- Rock Crushing Operations/Materials Stockpiles Away from Residential Areas
- Application of Green Building Principles
- Diversion of Construction Traffic from Residential Streets

Settlement Agreement with Inglewood Unified School District. The Inglewood Settlement Agreement calls for LAWA to (a) fund certain mitigation measures for the Inglewood Unified School District for noise abatement, (b) assist the Inglewood Unified School District in the coordination and dissemination of appropriate information related to emergency preparedness and response of local law enforcement agencies, emergency response groups, and the local communities in the event of an airport-

related emergency, and (c) work collaboratively with the Inglewood Unified School District to support a variety of community programs, such as job training and academic programs.

Settlement Agreement with Lennox School District. The Lennox Settlement Agreement calls for LAWA to (a) fund certain mitigation measures for the Lennox School District for noise abatement, (b) assist the Lennox School District in the coordination and dissemination of appropriate information related to emergency preparedness and response of local law enforcement agencies, emergency response groups and the local communities in the event of an airport-related emergency, and (c) work collaboratively with the Lennox School District to support a variety of community programs, such as job training and academic programs.

As described in the Cooperation Agreement and the CBA, LAWA's obligations are conditioned upon FAA approval of these expenditures and use of airport revenues for these specific purposes. Under no circumstance will any of LAWA's obligations under these Agreements require any expenditure from the City's General Fund or any other City-controlled source of funds. The CBA and the Settlement Agreements with Inglewood Unified and Lennox School Districts will expire upon the conclusion of the LAX Master Plan Program or, no later than December 31, 2020.

The primary purpose of this report is to document and report on the status of current and recently completed commitments set forth in the CBA. This report covers the period January 1, 2017 through December 31, 2017.

3.0 Community Benefits Agreement Progress Update

Section III. Residential Noise Mitigation

Section III.A Funding of Aircraft Noise Mitigation Program (ANMP)

The Agreement states:

"Beginning in fiscal year 2004-2005, LAWA shall fund its Aircraft Noise Mitigation Program (ANMP) at least at the following levels:

- $4.275 million per year for the Inglewood component; and
- $4.275 million per year for the County of Los Angeles component

These funding levels shall be met by LAWA. LAWA shall use additional revenue, including Airport Improvement Program funds, as appropriate. LAWA expenditure of funds under this Section III.A is contingent on the City of Inglewood and the County of Los Angeles complying with all requirements established in BOAC Resolution Nos. 21481 and 21360, and with FAA regulations."

Status → In Progress:
The FAA developed new program guidance in 2016 that requires programs to conduct surveys and acoustically test homes for a noise threshold of 45 dB or higher, to determine eligibility for those homes to receive funding for sound insulation construction.

In 2016, the City of Inglewood and the County of Los Angeles acoustically tested homes to determine eligibility under the FAA's new guidance and both jurisdictions submitted contract specifications for including eligible homes in the residential sound insulation program to the FAA.

Acoustic Testing in LA County- Lennox

In 2017, the FAA approved the jurisdictions' contract specifications for eligible homes. The FAA awarded $20M in Airport Improvement Project (AIP) grant funds to the City of Inglewood and $6.5M in grant funds to the County of Los Angeles. LAWA did not provide new grants in 2017 as both jurisdictions had sufficient LAWA funds to match the new FAA grants.

Section III.B Acceleration of Noise-Mitigation Programs for City[2]

The Agreement states:

"Within eight months of the effective date of this Agreement, LAWA will provide a written schedule and work program to the Coalition Representative that is designed to achieve completion of the ANMP soundproofing program for the City by the end of 2008, and will take all reasonable steps to timely implement that schedule and work program."

Status → Completed:
LAWA spent approximately $160 million on the City of Los Angeles' Sound Insulation Program. Under this Program, the City of Los Angeles sound insulated over 7,300 dwelling units in the communities of South Los Angeles, Playa del Rey and Westchester. The City of Los Angeles completed and closed its Program in 2014.

Section III.C Acceleration of Noise-Mitigation of Places of Worship

The Agreement states:

"LAWA shall accelerate the program of soundproofing Places of Worship as part of the ANMP in effect as of the effective date of this Agreement. Within eight months of the effective date of this Agreement, LAWA shall conduct a needs assessment for this program, in consultation with the Coalition Representative. LAWA shall provide annual reports on the progress of the program."

Status → No Change
No discussions on this measure occurred in 2017 between LAWA and the Coalition.

Section III.D End of Block Soundproofing

The Agreement states:

"Within one year of the completion of the current ANMP for participating jurisdictions, LAWA shall commence an end-of-block soundproofing program, under which, if any residence on a particular city-block falls within the applicable noise contour for that block, then each residence on that block will be eligible for noise mitigation as described in this Section III.D. Offers of soundproofing shall be made to the owner of each residence, whether or not the owner of that residence chose to participate in previous soundproofing programs. Soundproofing under this program shall reduce interior noise at participating residences to an interior CNEL of 45 decibels or less, within habitable rooms."

[2] "City" refers to the City of Los Angeles.

City of Los Angeles Status → Completed
The FAA approved 759 homes for inclusion in the end-of-block/block rounding portion of the City of Los Angeles' Sound Insulation Program. Of the 759 eligible homes, 514 participated in the Program and were sound insulated. The City of Los Angeles completed and closed the Program in 2014.

Other Jurisdictions Status → Ongoing:
In 2016, the FAA approved the 2020 Noise Exposure Map (NEM) and the City of Inglewood and the County of Los Angeles' end-of-block maps for inclusion in these jurisdictions' sound insulation programs.

The City of Segundo has not submitted any homes for inclusion in the end-of-block/block rounding portion of its Residential Sound Insulation program to the FAA for approval. The City of El Segundo suspended its Residential Sound Insulation Program in 2016.

Section III.E Suspension of Avigation Easement

The Agreement states:

1. Present Avigation Easement Requirements. All homeowners receiving LAWA provided or funded noise insulation measures within the 65 dBA CNEL noise contour presently must execute express, full avigation easements (as set out in Exhibit A). In return for LAWA's providing these noise insulation benefits, each homeowner presently must sign a full, express avigation easement (as set out in Exhibit A), expressly waiving his or her ability to sue LAWA with respect to the impacts (listed in the avigation easements) that are created by aircraft operations at LAX on the affected residences.

2. Proposed Modified Easement Requirements. In order to promote the cooperation between LAWA and the Coalition that is envisioned by this Agreement, and as long as this Agreement remains in effect, LAWA agrees to suspend its requirement that express, full avigation easements (as set out in Exhibit A) be executed by homeowners receiving LAWA provided or funded noise insulation benefits for particular residences located within the 65 dBA CNEL noise contour in the City of Los Angeles, City of Inglewood, and Los Angeles County communities of Lennox and West Athens, and only under the following circumstances:

    a. Caltrans approves LAWA' compromise position as described in this Agreement during the effective term of this Agreement. This approval is necessary because Caltrans currently requires avigation easements as part of LAWA's ongoing noise variance within its permit from Caltrans to operate LAX;

    b. In lieu of requiring full, express avigation easements (as set out in Exhibit A), the homeowners will execute the Noise Easement attached as Exhibit B. The homeowners will provide, among other things, a written acknowledgment, accompanying the homeowner's authorization to proceed with the installation that the homeowner is aware of the proposed level of noise reduction that the installation is intended to provide. After the installation, the homeowner will

execute an acknowledgement that the improvements have been installed and have attenuated the noise.

LAWA promises to make all reasonable efforts to obtain Caltrans' expedited approval of suspension of the requirement for full, express avigation easements (as set out in Exhibit A) and use of the Noise Easement (as set out in Exhibit B) in its place."

Status → Completed:
There was no construction activity requiring avigation easements in either the County of Los Angeles and City of Inglewood in 2017, so LAWA did not acquire any easements.

Section III.F Compatibility with Local Building Codes

The Agreement states:

"LAWA shall not require property owners participating in the ANMP to satisfy regulations or standards related to property conditions where these regulations or standards are more stringent than those actually enforced by the local government jurisdiction possessing code enforcement authority over the property in question."

Status → Completed:
No action is required on this provision as LAWA does not impose regulations or standards related to property conditions that are more stringent than those enforced by the local government jurisdiction.

Section III.G Limitations on Nighttime Departures

The Agreement states in part:

"LAWA and the Coalition agree that restrictions on departures between the hours of midnight and 6:30 a.m. over the communities to the east of LAX would be desirable, when LAX is operating under normal weather conditions (when LAX is either in Over-Ocean Operations or remains in Westerly Operations and excluding times when LAX operates in Easterly Operations). This is known as the "LAX Proposed Restriction".

1. Part 161 Study. By April of 2005, LAWA shall have completed a Contract Award Process for a study on the feasibility of implementing the LAX Proposed Restriction (the "Part 161 Study"). Within 90 days of the contract award, the contract will have commenced. LAWA shall require that the Part 161 Study meet the relevant requirements of 14 C.F.R. Part 161, and that the entity performing the Study provide annual reports to LAWA on study progress and findings"...

2. Record of Eastbound Departures. LAWA shall maintain a record of all nighttime eastbound departures during Over-Ocean Operations and Westerly Operations. This record shall be made available to the public on the LAWA website and shall be updated monthly.

3. Community Response Program. LAWA shall operate a community response program through which the public may report nighttime flights in the areas east of LAX. LAWA shall maintain a record of all individual reports, and shall prepare annual reports documenting individual reports, including records of airline, flight, date, and time of each reported flight, where possible. All records of reports, excluding the reporting individual's name and address, shall be maintained as public records and posted on the LAWA website."

Status → Completed:
LAWA began the Part 161 Study in June 2005 to study possible imposition of a nighttime runway use restriction at LAX. In 2014, the FAA rejected LAWA's application for a runway use restriction at LAX. See the 2014 CBA Annual Report for a more information on the Part 161 Study. All materials related to the Study and LAWA's application can be found at http://www.lawa.org/LAXPart161.aspx?id=7203.

Although the Part 161 Study itself is completed, LAWA still maintains the Record of Eastbound Departures and nonconforming East Departures Annual Complaint Reports. These reports are posted on LAWA's website at http://www.lawa.org/LAXNoiseEDR.aspx.

LAWA maintains a community response program for the public to report flights and their related locations. LAWA maintains records of all individual reports and prepares monthly and annual summary reports. All reports are available on the LAWA website at http://www.lawa.org/LAXNoiseEDR.aspx.

Section IV. Job Training

The Agreement states in part:

"Job Training Program. Beginning in fiscal year 2005-2006, LAWA shall provide $3 million per year for five years, not to exceed $15 million over five years, to fund job training for Airport Jobs and Aviation-Related Jobs, and for Pre-apprenticeship Programs. Any funds unspent in a particular year shall be rolled over to the subsequent year. At the conclusion of the five-year period, any unused funds shall revert to the job training funds described in Section XV…"

Status → Not FAA Approved:

The FAA did not approve the proposed job training program set forth in CBA Section IV. Instead, LAWA uses its relationships with various agencies such as Work Source Centers and the Los Angeles Community College District to provide relevant job training.

Section V. First Source Hiring Program

The Agreement states in part:

"First Source Hiring Program for Airport Jobs. The First Source Hiring Program shall provide early access to targeted applicants for available Airport Jobs, and employers will receive prompt, cost-free referrals of qualified and trained applicants. Except where City's Worker Retention Policy requires retention of particular workers, LAWA shall require participation in the First Source Hiring Program with regard to all Airport Jobs by any:

- New Airport Contractor, Airport Lessee, and/or Airport Licensee resulting from the approved LAX Master Plan Program;
- Airport Contractor that enters into or receives a new, amended, or renewed Airport Contract, or receives a voluntary extension of an existing Airport Contract;
- Airport Lessee that enters into or receives a new, amended, or renewed lease of any property owned by LAWA, or receives a voluntary extension of an existing lease; and
- Airport Licensee that agrees, receives, or is subject to a new, amended, extended, or revised licensing or permitting agreement or set of requirements.

As of July 1, 2005, LAWA shall ensure that the First Source Hiring Program, attached as Exhibit C, is a material term of all Airport Contracts, lease agreements, and licensing or permitting agreements or sets of requirements that are new, extended, amended, renewed, or revised. Under these Airport Contracts, agreements, or requirements, employer participation in the First Source Hiring Program shall commence on the effective date of the Airport Contract agreement, or requirement in question, or on July 1, 2005, whichever is later…."

Status → Completed; implementation ongoing:
The First Source Hiring Program (FSHP) provides residents from the Project Impact Area access to airport jobs.

FSHP works closely with local Community Organizations such as Work Source Centers, One-Stop Centers, and faith-based organizations to promote airport jobs for LAX employers. FSHP provides training to these organizations on how to apply for jobs at LAX and what is needed to obtain a job at LAX. FSHP also promotes jobs through social media and currently has over 4,450 followers on Facebook. In 2017, LAWA attended 44 job-related/community events.

In 2017, FSHP participated in several events to promote the Landside Access Modernization Program (LAMP)and inform potential LAX contractors of the ability to advertise airport-related employment opportunities with the FSHP.

	2017
Job Openings	*13,714*
Registered Job Seekers	*60,770*
Website Visits	*697,595*
Job Referrals to LAX Employers	*87,899*
LAX Employers	*183*
Community Partners	*189*

For more information on the FSHP, please visit the program website at http://www.lawa.org/bjrc/Employment.aspx?id=2058 and the Jobs@LAX website at www.jobsatlax.org.

Section VI. Living Wage, Worker Retention, and Contractor Responsibility

The Agreement states:

"LAWA shall apply to all Airport Contractors, Airport Lessees, and Airport Licensees the City's Living Wage Ordinance, as set forth in Los Angeles Administrative Code Section 10.37; the City Worker Retention Policy, as set forth in Los Angeles Administrative Code Section 10.36; and the Contractor Responsibility Program set forth in BOAC Resolution No. 21601, in accordance with City policy."

Status → Completed:
These provisions apply to LAWA contracts. Effective July 1, 2017, the Living Wage Ordinance (LWO) cash wage increased to $12.08 and the health benefits increased to $5.18. If $5.18 of health benefits are not provided by an airport employer, then the differential must be added to the base hourly rate. Contractors must provide at least 12 compensated days off per year for sick leave, vacation or personal necessity, and at least 10 days of uncompensated time. The LWO is applicable to airport service contractors, public lessees/licensees, City financial assistance recipients, and their subcontractors.

Section VII. Air Quality Study

The Agreement states in part:

"Air Quality Study. LAWA shall fund a study by an Independent Expert of toxic air contaminants and criteria air pollutant emissions from jet engine exhaust and other emission sources ("Air Quality Study"). In addition to other contaminant and pollutant emissions, the Air Quality Study shall measure jet engine exhaust emissions and provide chemical composition data from a representative sample of engine types and ages under a variety of conditions that reflect actual operations, and shall include this data and all other relevant study results as part of the final study provided to LAWA."

Status → Completed:
LAWA completed the LAX Air Quality and Source Apportionment Study in 2013. The study and informational materials are posted at https://www.lawa.org/en/lawa-environment/lax/lax-air-quality-and-source-apportionment-study.

Section VIII. Health Study

The Agreement states in part:

"Health Study. LAWA shall fund a study to measure and investigate upper respiratory system and hearing loss impacts of LAX operations due to the LAX Master Plan Program. LAWA, in consultation with the Coalition Representative, shall develop a scope of work and objectives for the Health study…"

Status → Denied by FAA; Substitute Program In Development:
In 2015, the FAA notified LAWA that airport revenue may not be used to provide funding for CBA Section VIII. Health Study. Section V.A.5. of the Cooperation Agreement requires LAWA to develop substitute programs or activities designed to achieve equivalent levels of mitigation and/or benefit through an equivalent expenditure of airport revenue.

In 2017, LAWA proposed to the Coalition to substitute an incentive program for the LAX Alternative Fuel Vehicle Requirement program. The proposed program would utilize the $500,000 in Air Quality funding for the CBA Health Study to encourage LAX operators to use zero emission vehicles at LAX. LAWA would also work with operators to identify other available funding incentives.

Section IX. Community-Based Research Studies as Part of LAWA's Future LAX Master Plan Program Project-Level Analysis

The Agreement states in part:

"Inclusion in Project-Level Environmental Analysis. LAWA acknowledges that, pursuant to CEQA, it will perform additional environmental review on the various LAX Master Plan Program project components as they are processed for future approval. In undertaking this additional environmental review, LAWA shall require the general contractor preparing the environmental documents for these future project-level analysis to subcontract with an Independent Expert to coordinate community-based research studies as described in Section IX.B (the "Community-Based Studies"), that are designed to become a part of the environmental analysis. LAWA shall expend no less than $300,000 on the Community-Based Studies. As future project-level environmental documents are prepared for LAX Master Plan Program projects, LAWA is not required to utilize the Community-Based Studies as part of each project-level environmental review, and shall have discretion to determine whether a particular project-level analysis would be appropriate for including the Community-Based Studies…"

Status → In Progress:
LAWA allocated $300,000 of the environmental analysis contract for LAMP for the Community Based Studies set forth in CBA Section IX. With input from the Coalition, the Community Based Studies focused on how LAWA's investment in the LAMP facilities could generate jobs and provide other benefits to communities in the Project Impact Area. LAWA's consultant completed the Draft Study in 2017 and it is expected to be finalized in 2018.

Section X. Air Quality

The Agreement states in part:

Section X.A. Electrification of Passenger Gates

"1. Passenger Gate Electrification Schedule. LAWA shall ensure that all Passenger Gates are equipped and able to provide electricity sufficient for aircraft needs under the following schedule:

a. All Passenger Gates for which new construction (excluding maintenance) is completed after the effective date of this Agreement shall be equipped and able to provide electricity to parked aircraft from date of initial operation and at all time thereafter.

b. Three years from the effective date of this Agreement, and at all times thereafter, at least fifty percent of Passenger Gates at LAX shall be equipped and able to provide electricity to parked aircraft.

c. Five years from the effective date of this Agreement, and at all times thereafter, one hundred percent of Passenger Gates at LAX shall be quipped and able to provide electricity to parked aircraft.

2. Aircraft Use of Gate-Provided Electricity. LAWA shall ensure that gate-provided electricity is provided to all aircraft parked at Equipped Passenger Gates and, except for the exemptions identified in this section, that all aircraft use the gate-provided electricity in lieu of engine operation of aircraft or mobile/ground auxiliary power units…

3. Assessment of Electrification of Passenger Loading Areas. LAWA shall conduct an assessment of operations at Passenger Loading Areas for the purpose of determining whether electrification of Passenger Loading Areas is Operationally Infeasible. The assessment shall include, but not limited to, inventory utilization, operations, technological trends, and capital and maintenance costs…

4. Commuter Flight Loading and Unloading. By the conclusion of the LAX Master Plan Program, loading and unloading of passengers of commercial aircraft shall be performed only through Passenger Gates."

Status → Completed:
All passenger gates, i.e., terminal and regional boarding ramp gates are electrified with 400 hertz ground power.

Section X.B. Electrification of Cargo Operations Areas

"1. Cargo Operations Areas Electrification Schedule. LAWA shall ensure that all, unless determined under procedures described below to be Operationally Infeasible and/or Technically Infeasible, all Cargo Operations Areas are equipped and able to provide electricity sufficient for aircraft needs as following:

a. All Cargo Operations Areas for which new construction, not maintenance, is completed after the effective date of this Agreement shall be equipped and able to provide electricity to parked aircraft from date of initial operation of the Cargo Operations Area at LAX and at all time thereafter.

b. Three years from the effective date of this Agreement, and at all times thereafter, at least fifty percent of Cargo Operations Areas at LAX shall be equipped and able to provide electricity to parked aircraft.

c. Five years from the effective date of this Agreement, and at all times thereafter, one hundred percent of Cargo Operations Areas at LAX shall be equipped and able to provide electricity to parked aircraft.

2. Aircraft in Cargo Operations Areas Use of LAX-Provided Electricity if Available. LAWA shall ensure that electricity sufficient for aircraft needs is provided to all aircraft parked at Equipped Cargo Operations Areas and that all these aircraft use LAX-provided electricity as power in lieu of engine operation of aircraft or ground/mobile auxiliary power units…

3. Assessment of Electrification of Cargo Operation Areas and Feasibility Evaluation. LAWA shall conduct an assessment of Cargo Operations Areas for the purpose of evaluating whether electrification of a particular Cargo Operations Areas is Operationally Infeasible and/or Technically Infeasible. The assessment shall include, but not limited to, inventory utilization, operations, technological trends, and capital and maintenance costs…"

Status → In Progress:
In 2016, LAWA completed the Project Definition Booklet for electrification of LAWA-owned/operated cargo aircraft parking positions at the Imperial Cargo Complex and the conceptual design for electrification of the aircraft parking positions at the South Pads location. In 2017, LAWA continued to work on the conceptual design for electrification of aircraft parking positions at these two facilities.

LAWA is currently undertaking an update to the 2013 Gate Electrification Feasibility Study to determine the remaining cargo, maintenance, remain-over-night, and hangar aircraft parking positions to be electrified and develop a workplan. The study is expected to be completed in 2018

Section X.C. Electrification of LAX Hangars

"LAWA shall conduct an assessment of operations at LAX Hangars for the purpose of determining whether electrification of LAX Hangars to provide electricity sufficient for aircraft needs at LAX Hangars is Operationally Infeasible and/or Technically Infeasible. The assessment shall include, but not be limited to, inventory utilization, operations, technological trends, and capital and maintenance costs…"

Status → In Progress:
LAWA is currently undertaking an update to the 2013 Gate Electrification Feasibility Study to determine the remaining cargo, maintenance, remain-over-night, and hangar

aircraft parking positions to be electrified and develop a workplan.The study will be completed in 2018.

Section X.D. FAA Prohibition

"If an FAA Determination, as defined in and pursuant to the procedures set out in the Cooperative Agreement, or any other regulatory authority prohibits LAWA from taking actions required by Subsections A through C of this Section X, or threatens to withhold federal funding if LAWA takes actions required by Subsections A through C of this Section, then LAWA shall set aside $1.7 million to the air quality fund described in Section XV."

Status → Not applicable at this time:
Action is required only if the FAA prohibits LAWA from implementing this section.

Section X.E. Reporting

"LAWA shall report in writing to the Coalition Representative on the progress of electrification of Passenger Gates, Cargo Operations Areas, and LAX Hangars semiannually. Reports shall include, but not be limited to, the number and types of facilities and areas electrified, operational guidelines issued, a summary of exemptions granted, reports of violations of usage requirements, and actions taken by LAWA to enforce usage requirements."

Status → In Progress:
LAWA has provided a status of the electrification program in each of the annual CBA reports.

Section X.F. Construction Equipment

Best Available Emission Control Devices Required. LAWA shall require that all diesel equipment used for construction related to the LAX Master Plan Program be outfitted with the best available emission control devices primarily to reduce diesel emissions of PM, including fine PM, and secondarily, to reduce emissions of NOx. This requirement shall apply to diesel-powered off-road equipment (such as construction machinery), on-road equipment (such as trucks) and stationary diesel engines (such as generators).

Status → Completed; implementation ongoing:
LAWA retained an Independent Third Party Monitor to track compliance with the requirements of CBA Section X.F.

The following is an update of activities and findings of the Independent Third Party Monitor as it relates to diesel construction equipment used on the Midfield Satellite Concourse – North (MSC-North) project:

Section X.F.1 – Best Available Emissions Control Devices Required

All diesel equipment used for construction related to the LAX Master Plan Program is required to be outfitted with best available emission control devices, primarily to reduce diesel particulate matter emissions, including fine particulate, and secondarily to reduce emissions of oxides of nitrogen (NOx). This requirement applies to diesel-powered off-road equipment, on-road equipment, and stationary diesel engines. The emission control devices utilized for the equipment at the LAX Master Plan Program construction shall be verified or certified by the California Air Resources Board (CARB) or Environmental Protection Agency (EPA) for use on on-road or off-road vehicles or engines.

Status → Completed; implementation ongoing:
The Independent Third Party Monitor reviewed documentation submitted by MSC-North contractors for each piece of diesel equipment utilized or planned for possible utilization on the MSC-North project relative to compliance with CBA Section X.F.1. The Independent Third Party Monitor also conducted periodic site visits to verify compliance. The Independent Third Party Monitor assessed approximately 974 pieces of diesel equipment to determine compatibility with a CARB-verified or EPA-certified diesel emission control devices.

The Independent Third Party Monitor made the following findings with respect to this Section:

- *For on-road vehicles, 481 trucks were evaluated; all vehicles met or exceeded the EPA 2007 standards and are equipped with a factory installed VDECS. Relative to off-road diesel equipment, a total of 493 pieces of construction equipment have undergone independent monitoring. Three hundred thirty-nine (339) were certified by the US EPA as compliant with Tier 4 or Tier 4-Interim Emissions Standards – this equipment is configured with a factory-installed diesel emission control system. Thirteen (13) pieces of equipment are equipped with small displacement engines and were determined to not have a VDECS available at the time construction commenced. Twenty (20) pieces of equipment were granted a "20-day" exemption in accordance with CBA Section X.F.4. One hundred seven (107) pieces of equipment were disapproved by LAWA or withdrawn from consideration by the construction contractor.*

CBA Section X.F.1 Compliant Rock Truck Operating on MSC-North Construction Site

Section X.F.2 - Demonstration Projects

Notwithstanding the verification or certification requirement set forth in Section X.F.1, LAWA may allow diesel equipment used for construction related to the LAX Master Plan Program to be outfitted with a new emission control device designated by LAWA as a "Demonstration Project", even if the device has not yet been verified or certified by CARB or EPA for use in on-road or off-road vehicle or engine applications. These devices shall, at a minimum, meet all pollution reduction requirements specified in Section X.F.3.

Status → Not applicable at this time:
The Independent Third Party Monitor is available to assist LAWA and the Coalition in identifying potential opportunities to conduct a Demonstration Project in accordance with Section X.F.2. The parties did not identify any Demonstration Project opportunities in 2017.

Section X.F.3 - Emission Reduction Standards

Emission control devices used pursuant to Section X.F.1 shall achieve emission reductions no less than what would be achieved by a Level 2 (50 percent particulate matter reduction) diesel emission control strategy for a similar sized engine as defined by CARB regulations. Under no circumstances shall an emission reduction device or strategy used on the LAX Master Plan Program construction site increase the emission of any pollutant above that which is the standard for that engine.

Status → Completed; implementation ongoing:
LAWA's Environmental Monitor, in coordination with the Independent Third Party Monitor, assessed each piece of diesel construction equipment with a VDECS and made the following findings:

- *With respect to the MSC-North project, approximately 339 vehicles and equipment were equipped with diesel emission control systems that met or exceeded the CARB Level 3 standard of 85 percent or greater reduction in diesel particulate matter. No Level 1 or Level 2 VDECS were identified for equipment assessed pursuant to Section X.F.1.*

- *The Third Party Monitor verified with CARB that the Level 3 devices utilized on the MSC-North project did not result in an increase of any pollutant above which is standard for that equipment's engine.*

Section X.F.4 – Exemptions

The requirements of Sections X.F.1 through X.F.3 do not apply to a piece of construction related diesel equipment for which the operator provides a written finding, based upon appropriate market research and approved by LAWA, that the best available emission control device for reducing the emissions of pollutants as required by Sections X.F.1 through X.F.3 is unavailable for that equipment, in which case the contractor shall use whatever technology for reducing exhaust emissions is available and appropriate for that vehicle or engine, if any. In addition, Sections X.F.1 through X.F.3 do not apply to a piece

of construction related diesel equipment that is used on LAX Master Plan Program construction sites for fewer than twenty (20) calendar days per calendar year.

Status → Completed; implementation ongoing:
The Third Party Monitor reviewed each piece of diesel construction equipment proposed for use on the MSC-North project as it pertained to the requirements of Sections X.F.1 and X.F.3 and independently determined if a CARB verified or EPA certified diesel emission control system was compatible. These results were documented and compared with exemptions granted by LAWA, as follows:

- *Equipment whose engine is compatible with a CARB verified or EPA certified diesel emission control system, but whose use on the MSC-North project would not exceed twenty (20) calendar days per calendar year was granted a "20-day" exemption by LAWA. The Third Party Monitor maintained an independent database of all equipment operating under the 20-day exemption rule, including the date the equipment was moved onsite and the date the equipment was required to be removed from the airfield. Twenty (20) pieces of equipment received a 20-day exemption on the MSC-North project;*

- *The Third Party Monitor also independently assessed and documented diesel equipment for which no CARB verified or EPA certified diesel emission control system was available. This equipment was granted an exemption by LAWA on the basis of unavailability. Thirteen pieces of diesel construction equipment on the MSC-North project were granted an exemption on the basis of unavailability of a compatible VDECS.*

Section X.F.5 - Ultra-Low Sulfur Diesel and Other Fuels

All diesel equipment used for construction related to the LAX Master Plan Program shall use only Ultra-Low Sulfur Diesel Fuel (ULSD) with a sulfur content of fifteen (15) parts per million or lower. If adequate supplies of ULSD are not available in the Southern California area, other fuels may be used, provided that the other fuels do not result in greater emissions of fine particulate matter or oxides of nitrogen than that which would be produced by the use of ULSD.

Status → Completed; implementation ongoing:
The Third Party Monitor independently reviews and documents fuel purchase records for diesel used on the MSC-North project. No shortage of ULSD was experienced within Southern California during the MSC-North construction activities in 2017. No substitution of any fuel in lieu of 15 ppm ULSD occurred in 2017.

Section X.F.6 - Operational Requirements

Operational Requirements pertaining to excessive vehicle idling and required engine maintenance intervals shall be issued by LAWA and enforced.

Status → Completed; implementation ongoing:
The Independent Third Party Monitor monitored excessive vehicle idling enforcement and compliance with engine maintenance intervals based on independent observation, review of enforcement action documentation, and review of construction firm engine maintenance procedures and records. LAWA did not issue any written violations pertaining to excessive

equipment idling on any construction firm in 2017. On infrequent occasions, LAWA instructed contractors to turn off the engines of vehicles deemed to be idling beyond the period of time stipulated in CARB regulations. Formal enforcement actions were not deemed necessary by LAWA.

Section X.F.7 – Enforcement by LAWA

Compliance with all requirements delineated in Sections X.F. is required of all Airport Contractors, Airport Lessees, and Airport Licensees. LAWA shall enforce the findings and determinations of the Independent Third Party Monitor.

Status → Completed; implementation ongoing:
LAWA informed the Independent Third Party Monitor that no formal enforcement actions were taken relative to the requirements set forth in CBA Section X.F.

Section X.F.8 – Independent Third Party Monitor

Compliance with requirements of Section X.F. is required to be monitored, documented, and reported by an Independent Third Party Monitor.

Status → Completed; implementation ongoing:
LAWA retained an Independent Third Party Monitor. The findings of the Independent Third Party Monitor are reported in this document and in Appendix B.

Section X.F.9 – Reassessments of Emission Control Devices

"LAWA shall designate the best available emission control devices annually or more frequently, in consultation with the Coalition Representative and the Independent Third Party Monitor. LAWA, in consultation with the Coalition Representative, shall establish processes to revise these designations and incorporate the requirement to use the emission control devices newly designated as best available into construction bid documents to take into account advances in emission control devices prior to bidding of new construction phases of the LAX Master Plan Program. The process of emission control technology review shall include any new relevant requirements promulgated by CARB or EPA. Results from the reassessments shall not be applied retroactively."

Status → Completed; implementation ongoing:
The LAWA Environmental Monitor, in coordination with the Independent Third Party Monitor reviewed each piece of diesel construction equipment proposed for use on the MSC-North project for compatibility with newly verified Level 2 and 3 VDECS. While it was understood that the requirement to utilize new VDECS could not be applied retroactively for equipment operating on the MSC-North project, the reassessment process conducted in 2017 will be used to designate best available control emission devices for subsequent LAX Master Plan Program construction projects. It is important to note that a high percentage of equipment utilized on LAX Master Plan Projects is factory-equipped with diesel emission control systems that satisfy CBA requirements in accordance with CBA Section X.F.1.

Section X.G. Ground Service Equipment Diesel Emissions Reduction Incentive Program

"GSE Incentive Program. LAWA shall create a program providing incentives for the reduction of GSE diesel emissions ("GSE Incentive Program"). LAWA shall expend at least $500,000 on the GSE Incentive Program. Participation by GSE operators in the GSE Incentive Program shall be voluntary. Funding for the program shall commence in fiscal year 2005-06."

Status → In Progress:
LAWA adopted a Ground Service Equipment (GSE) Emissions Reduction Policy in 2015 (see Section X.I. below) and began implementing that policy shortly thereafter. Since that time, and continuing in 2017, LAWA has been tracking GSE Operator compliance with the GSE Emissions Reduction Policy, and developing effective strategies for an effective GSE Incentive Program. LAWA expects to launch the GSE Incentive Program in fiscal year 2018.

Section X.H. Ground Service Equipment Inventory

"1. Scope of GSE Inventory. LAWA shall prepare a study ("GSE Inventory") detailing all GSE operated On-Site. The GSE Inventory shall include, but not be limited to, an inventory of the number, type, sizes, model year, usage history, and identify of operator for all GSE operated On-Site at the time of the GSE Inventory…

2. Determination of 1997 GSE Fleet for Nonparticipating GSE Operators. The GSE Inventory shall include a determination of the number and types of On-Site GSE that were operated On-Site in 1997 by each Nonparticipating GSE Operator…"

Status → Completed:
LAWA completed the study in 2007 and completed an update of the inventory and study in 2014.

Section X.I. Requirements for Emissions Reductions by Nonparticipating GSE

"In order to achieve emission reductions from GSE operated at LAX by Nonparticipating GSE Operators, LAWA shall issue requirements leading to the use of less-polluting GSE by Nonparticipating GSE Operators, as described in this Section X.I. New, amended, renewed, or extended Airport Contracts, lease agreements, and any relevant LAX licensing or permitting requirements for Nonparticipating GSE Operators shall include language requiring compliance with requirements of this Section X.I. and allowing assessment of liquidated damages as described in this Section X.I against any entity responsible for a violation…"

Status → Completed:
In April 2015, BOAC adopted a GSE Emissions Policy to reduce emissions at LAX. The Policy calls for GSE operators to:

1. *Reduce their fleet-wide GSE emissions to 2.65 g/bhp-hr by December 31, 2021;*
2. *Provide LAWA with an interim assessment of the fleet-wide emission as of March 1, 2019;*
3. *Provide LAWA with an annual accounting of the composite HC plus NOx emission factors of their LAX GSE fleet; and*

4. *Provide LAWA with fleet inventory data for their LAX GSE Fleet that is consistent with data provided to the California Air Resources Board (CARB) and in a form or forms as requested by LAWA on an annual basis.*

In 2017, many of the LAX GSE operators had already achieved or exceeded the December 31, 2021 GSE emission target of 2.65 g/bhp-hr. for their fleets. Airport-wide emissions totaled 2.24 g/bhp-h, which is below the 2021 target.

Section X.J. Emission Reductions from On-Road Trucks, Buses, and Shuttles

"1. Inventory of On-Road Heavy-Duty Vehicle Traffic and Study of Feasible Mitigation

a. Heavy-Duty Vehicle Study. LAWA shall fund a study of on-road Heavy-Duty Vehicle traffic related to LAX Operations. This study shall begin no later than one year from the effective date of this Agreement. The study shall be completed within twelve months of its initiation. The Study shall be conducted by an Independent Expert, selected through a Contract Award Process…"

Status → Completed:
LAWA submitted a draft scope of work for the Heavy-Duty Vehicle Study to the Coalition in 2005. In 2016 and 2017, LAWA re-evaluated the heavy-duty vehicles used in operations at LAX as part of the analysis undertaken to update the LAX Alternative Fuel Vehicle Requirement. At the November 6, 2017 CBA Coordination Meeting, the Coalition representative said that LAWA's commitment to the Heavy-Duty Vehicle Study had been fulfilled, and no further action was needed.

"2. Conversion of Truck, Shuttles, Passengers, Vans and Buses to Alternative Fuel

a. Covered Vehicles. Requirements established under this Section X.J.2 shall apply to all on-road vehicles, including trucks, shuttles, passenger vans, and buses, that are 8,500 lbs gross vehicle weight rating or more and are used in operations related to LAX ("Covered Vehicles"). Diesel equipment for construction related to the LAX Master Plan Program that is subject to Section X.F. of this Agreement shall be exempt from requirements established pursuant to this Section X.J.2.

b. Conversion Schedule. LAWA shall ensure that by five years from the effective date of this Agreement, 50 percent of the Covered Vehicles operated by any Airport Contractor, Airport Lessee, and Airport Licensee (collectively "Operators") are Alternative-Fuel Vehicles or Optional Low NOx Standard Vehicles. LAWA shall ensure that by ten years from the date of execution of this Agreement, 100 percent of the Covered Vehicles operated by each Operator are Alternative-Fuel Vehicles or Optional Low NOx Standard Vehicles.

c. Least-Polluting Available Vehicles. In cases where Operators cannot comply with requirements established pursuant to Section X.J.2.b because neither Alternative-Fuel Vehicles nor Optional Low NOx Standard Vehicles are commercially available for performance of particular tasks, LAWA shall instead require Operators to use Least-Polluting Available Vehicles for such tasks. An Independent Third Party Monitor shall determine on an annual basis whether Alternative-Fuel Vehicles or Optional Low NOx Standard Vehicles are commercially available to perform particular tasks, and, in cases

where Alternative-Fuel Vehicles or Optional Low Standard Vehicles are not commercially available for performance of a particular task, shall identify the Least Polluting Available Vehicles for performance of that task."

Status → In Progress:
In 2017, LAWA completed an extensive evaluation of the LAX Alternative Fuel Vehicle Requirement and developed an updated Requirement. On October 5, 2017, BOAC approved an updated Requirement which continues to require LAX operators to use alternative-fuel vehicles but also allows heavy-duty vehicles that meet the California Air Resources Board's (CARB) Optional Low Oxides of Nitrogen (NOx) standards applicable at the time of purchase and medium-duty vehicles that meet CARB's Low-Emission Vehicle (LEV) II standards through 2019 and LEV III standards thereafter. Additionally, the Update only allows medium and heavy-duty vehicles that are equipped with engines less than 13-years old or with fewer than 500,000 miles to operate at LAX. In cases where an operator cannot comply with the requirements because neither alternative fuel vehicles nor Optional Low NOx Vehicles are commercially available for performance of particular tasks, LAWA's Independent Third Party Monitor will determine the Least-Polluting Available Vehicle.

The update adds an exemption for low-use vehicles and public safety vehicles. Zero-emission vehicles with engines older than 13-years will be allowed to operate at LAX. The update also adds a mechanism for LAWA enforcement, including suspension or cancellation of non-compliant operator licenses, permits, leases, and contracts, and requires full-compliance from LAX operators, within 18 months of the BOAC's adoption of the updated Requirement or by April 2019.

Section X.K. Particulate Matter (PM 2.5)

"1. Assessment of PM 2.5. LAWA shall assess and mitigate impacts of PM 2.5 in compliance with all applicable provisions of state and federal law. LAWA's obligation to mitigate PM 2.5 impacts within the context of the CEQA may be limited by feasibility, overriding considerations or other requirements articulated in applicable state and federal laws.

2. Determination of PM 2.5 Significance Thresholds. The assessment and mitigation of PM 2.5 impacts shall comply with the requirements for both attainment of PM 2.5 ambient air quality standards and the mitigation of significant project-related and cumulative impacts under CEQA.

3. Conferring with Applicable Agencies. LAWA shall confer with applicable agencies, including SCAQMD, CARB, and the EPA, to assure compliance with state and federal PM 2.5 ambient air quality standards after guidance for measuring and evaluating exceedances has been established. With respect to projects requiring CEQA analysis, LAWA shall include the SCAQMD as a responsible agency in the review process to seek adherence to the threshold standards to be established.

4. LAWA Project Assessment of PM 2.5. LAWA shall conduct and complete a CEQA assessment of PM 2.5 impacts related to the first LAX Master Plan Program project to be initiated after establishment of applicable thresholds, either by SCAQMD or as outlined above. This assessment shall be completed in consultation with SCAQMD as a responsible agency in the CEQA review process."

Status → Completed:
In 2008, LAWA initiated the environmental analysis of the Crossfield Taxiway Project and published a Draft Environmental Impact Report (EIR) on September 25, 2008. The Draft EIR included an assessment of PM2.5 impacts in its air quality analysis.

Section X.L. Rock-Crushing Operations and Construction Material Stockpiles

"LAWA shall locate rock-crushing operations and construction material stockpiles for all construction related to the LAX Master Plan Program in areas away from LAX-adjacent residents to reduce impacts from emissions of fugitive dust…"

Status → Completed; implementation ongoing:
LAWA located rock crushing operations within the MSC-North site, including stockpiled raw material, the crusher equipment, and the crushed rock. LAWA maintained soil stockpiles in the northwest portion of the airport, in an area well removed from any residential development that was previously used for soil stockpiling, and a soil sealant was sprayed on the stockpile to minimize, if not completely avoid, dust generation.

Section X.M. Limits on Diesel Idling
"LAWA shall prohibit diesel-powered vehicles from idling or queuing for more than ten consecutive minutes On-Site, unless CARB adopts a stricter standard, in which case LAWA shall enforce that standard. Exemptions to this rule may be granted for safety-related and operational reasons, as defined in CARB regulations."

Status → Completed; implementation ongoing:
Subject requirement was included in construction specifications for the MSC-North project, and the prime contractor extended that requirement to all subcontracts. Additionally, the prime contractor's air quality compliance monitor is onsite full-time and checks for excessive idling. LAWA did not issue any written violations pertaining to excessive equipment idling on any contractor on the MSC-North project. On infrequent occasions, vehicles deemed to be idling beyond the period of time stipulated in CARB regulations were instructed to turn off their engines.

Section X.N. Provision of Alternative Fuel

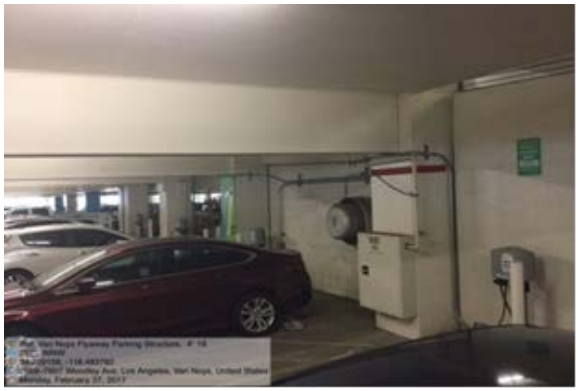
"LAWA shall ensure that its infrastructure for providing fuel to Alternative-Fuel Vehicles is sufficient and available, where not Operationally Infeasible and/or Technically Infeasible, to meet all requests for alternative fuel from contractors and other uses of LAX."

Status → Completed; implementation ongoing:
LAWA has a liquefied natural gas (LNG)/compressed natural gas (CNG) facility located on the west side of the airport to service LAWA vehicles. In addition Clean Energy operates three public CNG fueling stations near LAX at 10400 Aviation Blvd, 9601 Aviation Boulevard, and 9131 Aviation Boulevard. Since 2014, all three of Clean Energy's CNG fueling stations dispense Renewable Natural Gas.

In 2017, LAWA added 31 level 2 electric vehicle (EV) chargers in parking structure PS7, Administration West Lot and the Maintenance Yard bringing the total number of level 2

chargers at LAX to 102 , including 89 for public use. In 2017, LAWA received 44 of 51 all-electric Chevy Bolts.

EV Chargers in Lot C at LAX



EV Chargers at VNY FlyAway Terminal.

LAWA continues to assess demand and look for appropriate opportunities to expand its alternative fuel infrastructure at LAX.

Section X.O. Hydrogen Fuel Cell Infrastructure

"LAWA shall support efforts to place a hydrogen fuel cell system for the generation of electricity at or near LAX. This fuel cell system shall meet or exceed CARB 2007 distributed generation certification standard."

Status → Completed:
LAWA investigated the use of hydrogen fuel cells for the Central Utility Plant Replacement Project EIR published in 2009. LAWA determined that the use of hydrogen fuel cells was not feasible due to space constraints and energy inefficiency.

Section X.P. Cleaner Burning Jet Fuels

"LAWA shall support efforts to encourage the airlines and petroleum industries to embark on a study to promote the use of jet fuels that minimize air pollutant emissions from jet engines."

Status → Completed; implementation ongoing:
In 2017, LAWA continued to support the use of cleaner burning jet fuels by working with its airline and tenant stakeholders, as well as airport industry organizations and air quality agencies.

In 2017, United Airlines and KLM received 4.7 million gallons of blended biofuel (70 percent traditional fuel/30 percent biofuel) for use by commercial aircraft leaving LAX. This biofuel was dropped into the fuel storage tanks at LAX.

Photo credit: United Airlines

Section XI. Green Building Principles

The Agreement states in part:

"To the extent practical and feasible, in accordance with local building codes and California state codes, and subject to limitation or restrictions in accordance with FAA or Transportation Security Administration standards guidelines, LAWA shall incorporate Leadership in Energy and Environmental Design (LEED) building standards into demolition, design, construction and operation of all aspects of the LAX Master Program. LAWA shall apply the LEED standards for New Commercial and Major Renovations, Version 2.1, as defined by the U.S. Green Building Council.

LAWA shall abide by all applicable City regulations with respect to energy efficiency, sustainability and green building design."

Status → Completed; implementation ongoing:
The MSC-North project is pursuing LEED-Silver certification.

In addition, in 2017, BOAC adopted LAWA's Sustainable Design and Construction Policy and Requirements. The Policy mandates that applicable new building construction and renovation projects be designed to achieve LEED Silver certification or higher. The Requirements apply sustainability principles to airport-related construction projects that are not traditionally eligible for LEED certification. The Requirements incorporate concepts from a variety of environmental certification programs, including the LEED system, the Los Angeles Green Building Code, and others. The Sustainable Design and Construction Requirements include considerations for integrative design, energy efficiency, renewable energy, water conservation, material conservation, and environmental quality.

Section XII. Traffic

The Agreement states in part:

"A. Construction Traffic

1. Designated Routes. LAWA shall designate routes for construction equipment, construction-related vehicles, and trucks participating in construction projects related to the LAX Master Plan Program to access LAX. These route designations shall ensure that such construction equipment, construction-related vehicles, and trucks do not travel (i) on 111th Street between Hawthorne Boulevard and Inglewood Avenue; (ii) on 104th Street between Hawthorne Boulevard and Inglewood Avenue; (iii) on Inglewood Avenue between Century Boulevard and Inglewood Ave….

   a. Community Response Program. LAWA shall establish a mechanism for members of the public to report instances of non-compliance with designated truck routes….

2. Lennox/405 Interchange. If LAWA participates in construction of an interchange to the 405 Freeway at Lennox Boulevard, LAWA shall consult with the Coalition Representative and impacted residents in developing mitigation measures that shall be included in the project's Environmental Impact Report, to minimize negative impacts such as residential relocations and the demolition of a community center. These mitigation measures shall include pedestrian and bicycle access over or under the 405 Freeway at Lennox Boulevard, to ensure that local residents can safely access both sides of the 405 Freeway at Lennox Boulevard."

Status → Completed; implementation ongoing:
Designated routes for construction-related trucks, vehicles and equipment are specified in LAWA construction contracts, including LAX Master Plan projects undergoing construction in 2017. The designated routes avoid the roadway segments identified in this measure. LAWA inspectors and monitors checked that trucks used the designated routes.

LAWA developed and maintains a website at https://www.lawa.org/en/connectinglax/lax-construction-hotline to provide construction information for the public. The general, program-wide construction hotline number to report incidences of non-compliance is (310) 649-LAWA (5292). Please see Appendix A for a summary of calls in 2017 to the LAX construction hotline.

The Lennox Boulevard/I-405 interchange and associated mitigations are not currently being considered within the context of an overall landside improvement plan for LAX.

Section XIII. Minority Business Enterprise, Women Business Enterprise, and Small Business Utilization and Retention Program

The Agreement states in part:

"A. LAWA shall coordinate with the Mayor's Office, CDD, and other relevant business advocacy and assistance organizations to initiate a program to increase participation in the planning, construction, operation and maintenance of LAX by PIA small businesses and minority-owned business enterprises and women-owned business enterprises (MBE/WBE)….."

Status → Completed; implementation ongoing:
In collaboration with the Procurement Services Division, LAWA's Business and Job Resources Center's (BJRC) Business Outreach Unit conducts a monthly workshop, "Doing Business with LAWA." In 2017, approximately 209 business representatives attended the monthly workshops.

In October 2012, BOAC adopted the Small Business Enterprise (SBE) program to replace the Minority/Women/Other Business Enterprise (M/W/OBE) program. SBE is defined as an independently-owned and operated business that meets criteria set forth by the Federal Small Business Administration, or State of California SBE Program, whichever is greater. LAWA sets a specific, mandatory percentage of small business subcontracting on construction, professional and non-professional projects valued in excess of $150,000; there is a penalty for failure to meet the pledges.

Section XIV. Community Preparedness for Airport-Related Emergency

The Agreement states:

"LAWA shall assist in the coordination and dissemination of appropriate information related to emergency preparedness and response of local law enforcement agencies, emergency response groups (e.g., Red Cross, FEMA), and the local communities in the event of an airport-related emergency."

Status → Completed; implementation ongoing:
In 2017, LAWA continued to assist its partner agencies and airport stakeholders in the coordination and dissemination of appropriate information-related active incidents at LAX. Expanding use of mass notification systems and social media platforms continued to increase the ability of LAWA to send emergency notices and crisis messaging.

LAWA experienced multiple high-profile incidents and events in 2017, including a large demonstration due to the Federal Government's Travel Ban in January 2017. This event resulted in several thousand protestors in and around the Tom Bradley Terminal blocking traffic on both the upper and lower levels. Airport Police worked closely with Airport Operations to ensure flight crews were able to report to work on time despite the demonstration. Another high profile event was the much anticipated Delta Move in May 2017. This event gave LAWA a change to put into action incidient coordination and management between Airport Operations, LAWA Emergency Management, Airport Police, and many airlines. The after action report indicated that utilizing both the Incident Command Post and Department Operations Center increased the efficiency with which challenges were identified and addressed and created a collaborative environment across many entities.

Throughout 2017, LAWA continued to develop, update and revise emergency plans. LAWA Emergency Management led a project to conduct a Risk Assessment, Business Impact Analysis and a Continuity of Operations Plan. These included participation from most of LAWA divisions and responding agencies. These Plan highlights the risks faced by LAWA, the potential impact to business from these hazards, and sets forth a contingency plan to resume and conduct business operations following a disruption.

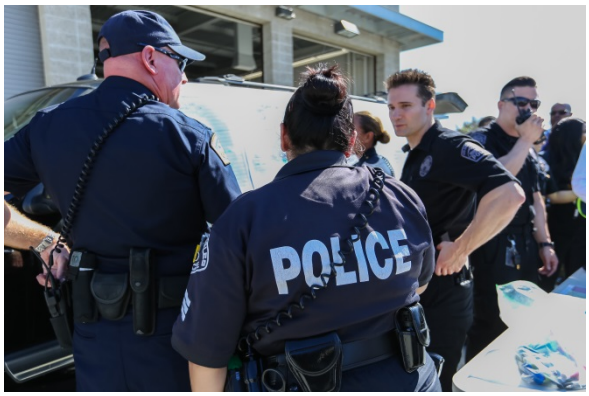
To test and train personnel on LAWA emergency plans, LAWA conducted a series of exercises, including "table top" exercises as part of LAX's Part 139 Airport Certification in March, April, and November of 2017. Each exercise brought partners together to review impacts, protocols, and enabled all personnel to network before an incident occurs. Additionally, LAWA Emergency Management hosted its largest Preparedness Expo with over 5,000 participants. It included a three day, three location event open to all LAWA badge holders and provided information on general home preparedness, office preparedness, LAWA emergency notifications, and featured demonstrations from Airport Police and Los Angeles Fire Department (LAFD).

Part 139 Table Top Exercise April 2017

LAWA EM Preparedness Expo Feb 2017

In 2017, LAWA Emergency Management continued to provide cardiopulmonary resuscitation, first aid and automatic defibrillator training to tenants. LAWA Emergency Management also provided emergency preparedness training during new employee orientation and continued to provide ADA training for LAWA.

LAWA Emergency Management and the LAFD facilitated a series of "Trunk-Top Exercises" for LAWA. These one (1) hour exercises unite personnel from LAWA, airport partner agencies and stakeholders, and airlines in an effort to collaborate during a simulated incident. The goal of the training is to achieve a common operating picture. In 2017, LAWA Emergency Management hosted a series of Incident Command System 300 trainings. These training provide opportunities for LAWA staff to learn about incident command and interact with one another as well as with LAWA's first responder and partner agencies.



Trunk-Top Training Exercises

LAWA continued to maintain additional resources that may be deployed during an emergency. LAX has nine Point of Distribution (POD) containers filled with provisions to support mass-care and comfort for the traveling public in case of an emergency. Additionally, LAWA's Emergency Response Teams (ERT) consist of trained staff from across LAWA disciplines who are trained to assist in an emergency as part of the effort to maintain a constant state of readiness.

Section XV. Designated Airport Fund

The Agreement states in part:

“Where this Agreement provides that LAWA shall contribute airport revenues to job training funds or air quality funds, LAWA will follow the procedures set forth in the Cooperative Agreement regarding "Alternative Job Training and Air Quality Expenditure."

Status → In Progress:
Please see Section VIII. Health Study, of this report.

Section XVI. Miscellaneous

The Agreement states in part:

"A. Implementation Meetings. To facilitate implementation of this Agreement, address concerns, and ensures an ongoing dialogue between the Coalition Representative and LAWA, the Coalition Representative and LAWA shall have regular Implementation Meetings….

B. Annual Reports. LAWA shall prepare annual reports on the implementation of this Agreement and the progress of the LAX Master Plan Program, and shall forward these reports to the Coalition Representative and post the reports on the LAWA website for at least a one-month period….

C. Contract Award Process. Where a provision of this Agreement refers to a Contract Award Process, that process shall be as described in this Section XVI.C. A Contract Award Process is "initiated" on the date the draft protocols and/or scope of work to be included in the RFP are provided to the Coalition Representative…"

D. Special Arbitrator…"

E. General LAWA Enforcement Responsibility…"

Status → Completed; implementation ongoing:
LAWA hosts periodic implementation meetings with the Coalition. LAWA management-level staff attends each meeting. LAWA prepares annual reports on the implementation of the CBA and the progress of the LAX Master Plan Program. The annual reports are posted on LAWA's website at https://www.lawa.org/en/lawa-our-lax/studies-and-reports.

4.0 Lennox School District – Sound Attenuation Measure

The Agreement states in part:

"LAWA Funding of Certain District Mitigation Measures. Subject to FAA Determination regarding the use of airport funds under the federal anti-revenue diversion laws, LAWA will fund certain mitigation measures for the District not to exceed $111,000,000 for noise abatement. Mitigation measures include replacement of HVAC equipment with pollution abatement, double-paned windows and/or sound reduction windows and doors, roofing upgrades, replacement of relocatable classrooms, and temporary housing during construction.

Security-Related Items. LAWA will assist the District in the coordination and dissemination of appropriate information related to emergency preparedness and response of local law enforcement agencies, emergency response groups (e.g., Red Cross, Federal Emergency Management Agency) and the local communities in the event of an airport-related emergency.

Community Programs. LAWA will work collaboratively with the District to support a variety of community programs, such as job training and academic programs; and…"

Status → In Progress:
In 2011, LAWA submited a PFC application to the FAA for authorization to collect and use PFC funds to sound insulate impacted schools in the Lennox School District. The FAA approved the application and authorized the expenditure of up to $34,089,058 in PFC funds to insulate impacted schools in Lennox. LAWA provided over $11 million to Lennox for the first phase of the sound insulation program. In 2014, LAWA authorized an additional $10 million for the second phase of Lennox's sound insulation program.

Since 2011, Lennox has completed sound attenuation work at Dolores Huerta Elementary School, Animo Leadership High School, Lennox Middle School, Felton Elementary School, and part of Jefferson Elementary School. As of December 2017, Buford Elementary sound attenuation work was ongoing and scheduled to be completed in 2018.

Buford Elementary School June 2017

5.0 Inglewood Unified School District – Sound Attenuation Measure

The Agreement states in part:

"LAWA Funding of Certain District Mitigation Measures. Subject to FAA Determination regarding the use of airport funds under the federal anti-revenue diversion laws, LAWA will fund certain mitigation measures for the District not to exceed $118,500,000 for noise abatement. Mitigation measures include replacement of HVAC equipment with pollution abatement, double-paned windows and/or sound reduction windows and doors, roofing upgrades, replacement of relocatable classrooms, and temporary housing during construction.

Security-Related Items. LAWA will assist the District in the coordination and dissemination of appropriate information related to emergency preparedness and response of local law enforcement agencies, emergency response groups (e.g., Red Cross, Federal Emergency Management Agency) and the local communities in the event of an airport-related emergency.

Community Programs. LAWA will work collaboratively with the District to support a variety of community programs, such as job training and academic programs; and…"

Status → In Progress:
In 2013, LAWA submitted a PFC application for $64 million dollars to sound insulate impacted schools in the Inglewood Unified School District (IUSD). The FAA approved the application for $44,378,659 to fund sound attenuation projects in the IUSD with PFC funds at the following schools in IUSD:

- *Morningside High School*
- *Oak Street Elementary School*
- *Payne Elementary School*
- *Woodworth Elementary School*
- *Monroe Middle School*
- *Child Development Center at Woodworth Elementary*

In 2015, BOAC approved an initial funding allocation of $10 million for the IUSD's First Workplan covering Payne Elementary, Woodworth Elementary, and the Child Development Center and Woodworth Elementary.

In 2016, IUSD amended their First Workplan to accommodate for logistical and planning issues. Monroe Middle School and Morningside High School were moved up on the schedule ahead of Woodworth Elementary. The First Workplan now includes Payne Elementary, Monroe Middle School and Morningside High School. LAWA also requested that the FAA reconsider exclusion of Inglewood High School from the FAA-approved schools. The school is bisected by the 2020 NEM.

In 2017, the Division of the State Architect approved design plans for sound attenuation at Payne Elementary School.

6.0 Summary

During 2017, LAWA continued to implement applicable provisions from the Community Benefits Agreement.

APPENDIX A

SUMMARY OF CALLS IN 2017 TO LAX CONSTRUCTION HOTLINE

Summary of Calls to LAX Construction Hotline in 2017

Summary of Calls in 2017 to LAX Construction Hotline

Overview: A total of 90 calls were received on the LAX Construction Hotline in 2017. The vast majority of the calls were not directly related to construction, particularly with regards not being construction-related complaints and concerns that Los Angeles World Airports could take immediate action to address and resolve. Those types of "non-construction related" calls generally include, but are not limited to, the following:

- Calls regarding the availability of all or certain food and beverage establishments within terminals undergoing construction activities
- Calls asking for walking directions from one particular terminal to another, and the approximate amount of time it would take to walk the route (i.e., would they be in time to catch their scheduled connecting flight)
- Calls inquiring about construction-related employment or offering construction products and services
- Calls regarding the scheduled relocation of airlines between Terminals 2, 3, 5, and 6, and how that relocation program may affect the callers' travel plans at LAX.
- Calls regarding malfunctioning equipment within terminals unrelated to construction
- Calls regarding traffic congestion in and around LAX unrelated to construction
- Calls expressing general concerns about LAX overall, including as compared to other specific airports

Calls received on the LAX Construction Hotline that were considered to be "construction-related" generally include, but are not limited to, the following:

- Calls regarding whether specific construction activities would delay their flight or would require additional time to get to their terminal/gate or the nearby parking structure.
- A call from an LAX cargo tenant regarding scheduled closure of a portion of West Imperial Highway for installation of fiber optic cable conduit to that tenant's facility.
- Calls with other specific concerns directly related to construction

The following provides a breakdown of calls received on the LAX Construction Hotline in 2017

Month	# of Calls Received	Construction Related	Non-Construction Related
January	2	0	2
February	2	0	2
March	1	0	1
April	18	2	16
May	4	0	4
June	23	5	18
July	4	0	0
August	2	0	2
September	4	2	2
October	3	0	3
November	18	3	15
December	9	1	8
Total	90	13	73

LAWA responded to all calls where the caller left contact information, regardless of whether the call was construction related or non-construction related.

APPENDIX B

THIRD PARTY MONITOR SEMI-ANNUAL REPORTS DATED OCTOBER 25, 2017 AND FEBRUARY 25, 2018

LAX Master Plan Projects Semiannual Report
Independent Third Party Monitor

Prepared by:

Clean Fuel Connection, Inc.

October 25, 2017

TABLE OF CONTENTS

Cover Photo Courtesy of Ray Gorski

SECTION 1 - INTRODUCTION

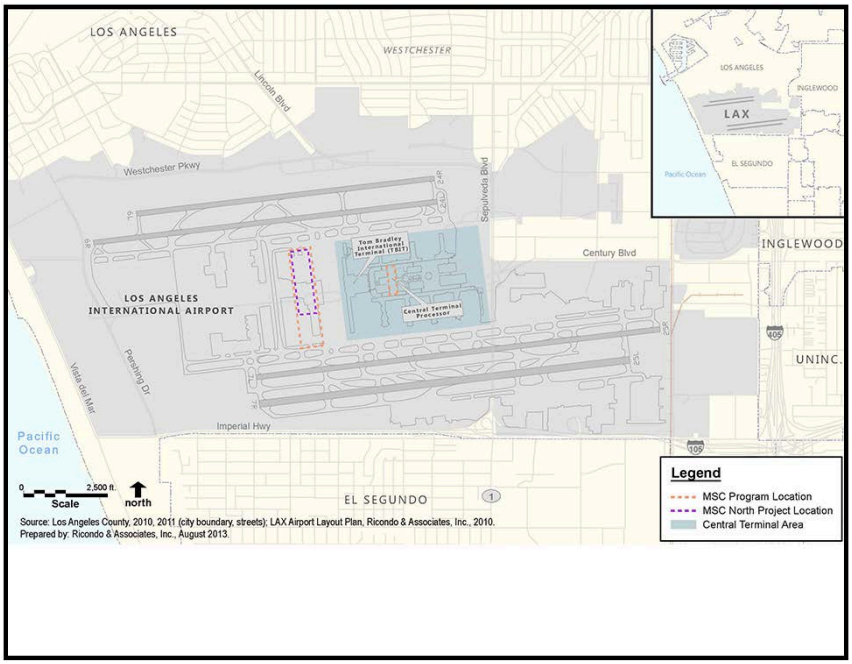
This Semiannual Report was prepared by Clean Fuel Connection Inc. (CFCI), Independent Third Party Monitor for LAX Master Plan Projects, and is submitted in accordance with Section X.F.8 of the Community Benefits Agreement (CBA)[1]. The purpose is to document CFCI's efforts as they relate to the monitoring of LAX Master Plan construction activities and construction contractor's conformance to requirements specified in CBA Section X.F.

This Semiannual Report covers the period commencing January 1, 2017 and ending June 30, 2017. During this period, one (1) LAX Master Plan project had ongoing construction activities. This project is the Midfield Satellite Concourse North (MSC).

The MSC Project includes a new passenger concourse facility approved as part of the LAX Master Plan. The MSC facility is located in the central area of the airfield, west of Tom Bradley International Terminal (TBIT). The MSC Program also includes a Central Terminal Processor, conveyance systems for passengers and baggage, and new taxiways/taxilanes and airport aprons. The construction contractor is Turner/PCL, a Joint Venture in association with Corgan/Gensler.

Figure 1-1 shows the location of the MSC North Project on the LAX airfield.

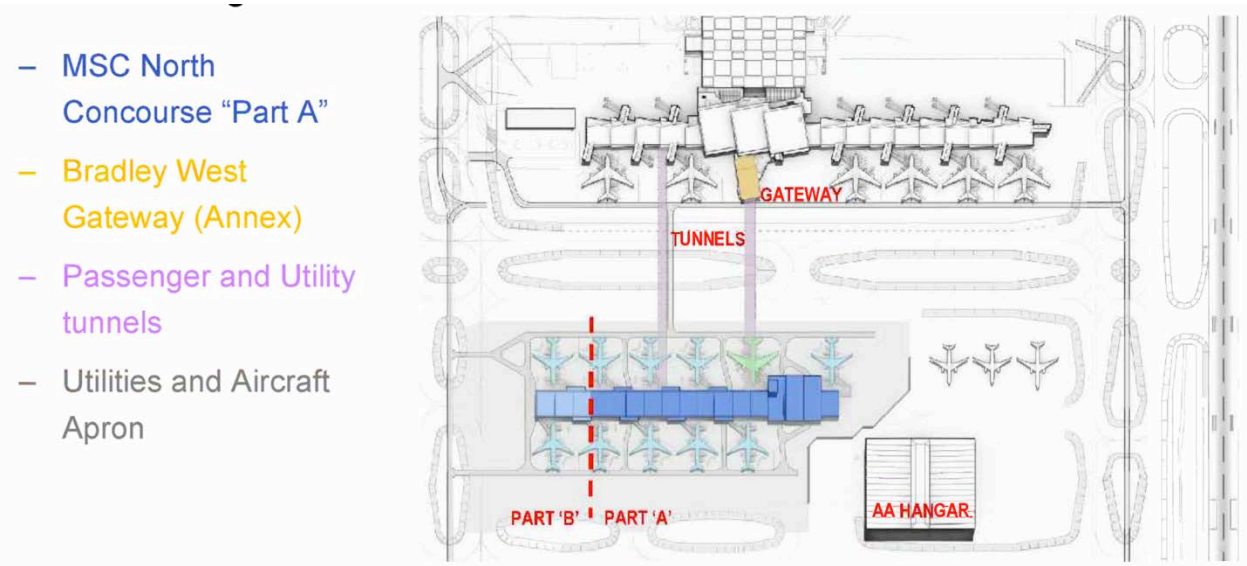
Figure 1-1 – Location of the Midfield Satellite Concourse Project



[1] http://www.lawa.org/ourLAX/AnnualReports.aspx?id=8034

Due to the size and scale of the MSC Program, LAWA proposes to develop the MSC Program in independent phases. Phase 1 ("MSC North Project") of the MSC Program is the construction of the northern portion of the multi-story MSC facility and associated improvements, as shown below in Figure 1-2:

Figure 1-2 –Midfield Satellite Concourse Phase 1 – North Project



This Semiannual Report will discuss adherence to the CBA requirements during MSC construction.

Third Party Monitoring - CFCI's efforts in monitoring, documenting, and reporting on the status of CBA Section X.F as it pertains to LAX Master Plan projects include:

- **Development of an Equipment database to include all known equipment utilized in each Master Plan Project**. This database documents the technical specifications of each piece of on and off-road construction equipment. The database documents each piece of equipment relative to compatibility with diesel emission control devices, the emission control device used or planned for use on each piece of construction equipment, or whether the equipment was determined to be incompatible with any available emission control system. The database also documents all equipment operating under an approved Los Angeles World Airports (LAWA) exemption, including but not limited to "20-day" exemptions, driver-visibility safety exemptions, or special circumstance exemptions;
- **Field verification of the equipment database and reconciliation with LAWA's environmental monitor vehicle records**. The construction contractors provide LAWA's environmental monitor with airfield equipment lists on a periodic basis (typically monthly). The Third Party Monitor

reviews all available vehicle records for the purpose of verifying compliance with 20-day exemption obligations as well as reconciling LAWA's environmental monitor records with the Third Party Monitor equipment database;

- **Examination and verification of requests for exemptions from installation of Best Available Control Technology (BACT).** As discussed in Section 2 of this Report, CFCI independently reviews each piece of construction equipment proposed for use on a LAX Master Plan project to determine compatibility with a commercially available California Air Resources Board (CARB) or U.S. Environmental Protection Agency (EPA) verified Diesel Emission Control System (VDECS). The results of this independent assessment are documented in each Semiannual Report as well as the equipment database;
- **Examination of fuel purchase records to verify that low sulfur diesel is being used**. This task has been substantially reduced in scope due to enactment of state law that allows only ultra-low sulfur diesel (ULSD) to be sold for on and off-road vehicles in California;
- **Monitoring of installed emission control devices on construction equipment**. This includes physical inspections of diesel construction equipment retrofitted with a VDECS to ensure emission control devices are properly installed and functioning;
- **On-airfield monitoring of construction equipment operations enforcement**. This includes, but is not limited to, observation of construction operations to determine compliance with equipment idling restrictions, fugitive dust emissions mitigation requirements, as well as identification of construction equipment in an apparent state of disrepair due to the presence of visible smoke;
- **Annual Reassessment of Available Emission Control Systems**. On an annual basis, the Third Party Monitor conducts a comprehensive evaluation of available CARB and EPA-verified emission control systems. The purpose of this reassessment is to ensure LAWA incorporates the any newly designated best available control strategies into construction bid documents prior to bidding of new construction phases of the LAX Master Plan Program. The process of emission control technology review also includes any new, relevant requirements promulgated by CARB or EPA. This Semiannual Report includes the results of the Annual Emission Control System Reassessment.

The CFCI project staff is comprised of the following individuals:

- Enid Joffe, founder and owner of Clean Fuel Connection, Inc.;
- Ray Gorski, lead air quality engineer and principal field engineer;
- Lauren Dunlap, air quality engineer and principal analyst in determining compatibility of emission control devices and calculations of emission reductions for VDECS installed on Master Plan project equipment. In addition, Lauren quantifies air quality benefits associated with onsite concrete crushing and batch plant concrete production.

Figure 1-5 –Aerial View of Midfield Satellite Concourse Phase 1 – North Project

SECTION 2 - TASK-BY-TASK STATUS REPORT

The following section documents CFCI's work during the past reporting period on each of the specific tasks in the Third Party Monitor Scope of Work.

TASK 1: BEST AVAILABLE EMISSIONS CONTROL DEVICES REQUIRED

Section X.F.1 of the Community Benefits Agreement (CBA) for the LAX Master Plan Program requires that all diesel equipment used for construction be outfitted with the best available emission control devices, primarily to reduce diesel particulate matter on the order of 10 microns[2] in diameter (PM_{10}), and fine particulate, which is on the order of 2.5 microns in diameter ($PM_{2.5}$). A secondary objective of this requirement is to reduce oxides of nitrogen emissions (NO_x), which are ozone precursors. Section X.F.1 of the CBA applies the requirement to outfit all diesel equipment, including off-road vehicles such as heavy-duty construction equipment, as well as on-road vehicles such as trucks, street sweepers, etc. The requirement also affects non-mobile diesel sources, such as portable generators, air compressors, and light towers. Thus, the requirement to retrofit diesel equipment used in LAX Master Plan construction projects encompasses every piece of diesel equipment, irrespective of its status as on-road mobile, off-road mobile, or stationary.

Section X.F.1 requires that the diesel emission control systems used to retrofit diesel equipment be verified or certified for use on on-road or off-road vehicles or engines by the California Air Resources Board (CARB), or verified by the U.S. Environmental Protection Agency (EPA) for use on on-road or off-road vehicles or engines. Section X.F.1 further allows CARB and EPA-verified "mobile source" devices to be applied to "stationary sources", such as generator engines, and allows technologies verified for "on-road" engines to be applied to "off-road" equipment. Thus, the overall context of Section X.F.1 is very broad and allows maximum flexibility in matching diesel emission control systems with diesel equipment used in Master Plan construction.

The role and responsibilities of the Independent Third Party Monitor as it relates to Section X.F.1 of the CBA is delineated in the following contract Task statements:

[2] One micron equals $1x10^{-6}$ meter or 0.000001 meter.

- Task 1.1 - Contractor shall develop a monitoring process and database to track each piece of diesel equipment used for construction, including documentation procedures and reporting requirements;
- Task 1.2 – Contractor shall monitor, document, and report independently from LAWA, each construction firm's compliance as it relates to outfitting their diesel construction equipment with the best available emissions control devices available.

The following are the results and findings of the Third Party Monitor as they relate to Tasks 1.1 and 1.2 for the period commencing in January 1, 2017 through June 30, 2017.

Task 1.1 – Monitoring Process, Database Development, and Documentation:

Key elements of the monitoring process include:

- *Review of available documentation* – The principal source of technical information for each vehicle proposed for operation on the MSC project are the equipment reports submitted by the construction contractors for review by LAWA's environmental monitor and environmental management staff. These reports document whether or not a compatible verified diesel emission control system (VDECS) is available for a given piece of diesel equipment;
- *Incorporation of all available data into an Equipment Database* – All relevant information derived from review of the equipment reports or field inspections is documented in the equipment database. This database is the principal tool for performing independent verification and validation of the information contained in the equipment reports reviewed and approved by LAWA;
- *Identification and documentation of missing, inconsistent, or inaccurate data* – The database notes which pieces of information are either missing or whose accuracy is suspect;
- *Request for Additional Information and/or Clarification* – Missing data or data that require validation are compiled, and a request for clarification is issued by the Independent Third Party Monitor to LAWA's environmental monitor staff;
- *Field Inspections* – In specific cases, the Independent Third Party Monitor will request permission to conduct a field inspection of the specific piece of equipment under scrutiny;

- *Task 1.2 Independent Verification and Validation* – For each piece of diesel construction equipment included in the database, an independent determination of whether or not a compatible VDECS device is available is conducted;
- *Documentation of Analysis Results* – For each piece of diesel equipment assessed, the availability and compatibility of a VDECS is recorded in the database;
- *Data Reconciliation* – The Third Party Monitor reconciles information contained in the database with the reports maintained by LAWA's environmental monitor and the construction manager's staff.

The Database Development element of Task 1.1 was conducted in accordance with a single objective – record as much data and supporting information as possible to fully characterize each piece of equipment proposed for operation on an LAX Master Plan construction project. To ensure completeness the database incorporates the following data fields:

- *Equipment ID Number* – Most equipment operating on an LAX Master Plan construction project is marked with a unique identifying number by the equipment owner. It has been the practice of the Independent Third Party Monitor and LAWA's environmental monitor staff to use this unique ID when describing, discussing or documenting a specific piece of equipment. All equipment is tracked and monitored relative to this ID number;
- *Owner* – the owner of the piece of diesel equipment, including prime contractor and name of subcontractor or equipment rental company;
- *Equipment Category* – A brief description for the type of diesel equipment, such as "articulated dump truck";
- *Equipment Manufacturer* – The manufacturer of the piece of equipment, usually the equipment chassis. In most cases the manufacturer of the chassis is different from the engine manufacturer;
- *Equipment Model Year* – The year of manufacture of the equipment or vehicle, usually referring to the chassis and vehicle body. It should be noted that it is common for the equipment chassis or body and diesel engine to be different model years;

- *Equipment Model Number* – The number or other descriptive terminology used by the equipment manufacturer in marketing the vehicle, oftentimes used to differentiate similar products;
- *Equipment Serial Number* – This differs from the Equipment ID number described above. The equipment serial number is the vehicle chassis or body identification number assigned by the equipment manufacturer;
- *Engine Manufacturer* – The manufacturer of the main diesel engine used in the equipment. In some cases, most notably off-road heavy-duty scrapers and on-road street sweepers, the equipment has two diesel engines. The first and second engines are designated #1 and #2, respectively, in the database;
- *Engine Model* – The number or other descriptive terminology used by the manufacturer in engine marketing, used to differentiate similar products;
- *Engine Model Year* – The year of manufacture of the diesel engine, diesel emission control devices are often verified for a specific engine model year;
- *Engine Serial Number* – A unique identification number or alphanumeric code assigned by the engine manufacturer;
- *Engine Displacement* – The total volumetric size of the engine's combustion cylinders, usually described as "cubic inches" or "liters". Displacement expressed in cubic inches is calculated by multiplying the number of cylinders by the piston area (square inches) and by the length of the piston stroke (inches). The commonly used metric designation of "liters" is the total engine displaced volume measured in cubic centimeters (1 liter = 1,000 cubic centimeters);
- *Engine Horsepower* – The rated horsepower of the engine by the engine manufacturer;
- *Engine Family* – Engine Family is a descriptive designation given by CARB to a diesel engine upon certification. It is a code, similar to an automobile Vehicle Identification Number, that identifies the engine model year, engine manufacturer, the engine's displacement, on-road or off-road applicability, emissions equipment included during certification testing. This piece of data, along with engine manufacturer and engine model year, is essential to determine conclusively if a VDECS is compatible with the engine undergoing assessment. With practice, one can quickly ascertain a substantial amount of information about an engine by deciphering the engine family designation;

- *Engine #2 Data* – Similar to the above for Engine #1, data are documented for the second diesel engine on a piece of equipment. In the case of heavy-duty earth moving scrapers, the two engines are front and rear; in the case of street sweepers, the second engine is an auxiliary engine that operates the vehicle's rotary brooms and vacuum system.

  For each piece of diesel equipment, the database also documents:

- Whether that piece of equipment has or is currently operated on a Master Plan project. For equipment that has been removed, the date of removal is recorded if known. This portion of the database is currently undergoing reconciliation with the results of the airfield equipment inventory.

- For equipment operating under a 20-day exemption, the date the equipment was placed on the airfield and the date removed. For more discussion on 20-day exemption status, please refer to the Task 4 Section of this report;

- Each piece of equipment's compatibility with both off-road and on-road Verified Diesel Emission Control Systems available at the time the equipment was originally submitted by the owner for review by environmental monitor staff.

During the period ending June 30, 2017, a total of 468 pieces of construction equipment associated with the overall MSC project was assessed. The equipment information described herein is based on the equipment list submittal through June 30, 2017; additional equipment has been submitted subsequent to that date. The additional equipment will be reviewed and reported in the next Semiannual Report for the period ending December 31, 2017.

Task 1.2 – Independent Monitoring, Documentation, & Reporting of Compliance with CBA Section X.F.1; Best Available Emission Control Devices Required:

The primary objective of this Task is to independently verify and validate the findings of LAWA's environmental monitor and contractor staff as it relates to the availability and compatibility of diesel emission control systems for diesel equipment operating on a Master Plan Project. Using the methodology described under Task 1.1, CFCI staff regularly coordinates with LAWA's environmental monitor, requesting and receiving access to files and records for diesel equipment operating or proposed for operation on a Master Plan project.

Only CARB and/or EPA-verified devices available at the commencement of construction activities on a specific Master Plan project were considered when assessing compliance with CBA Section X.F.1. This is based upon the following language included in the CBA:

- The CBA stipulates in Section X.F.9.a. "Reassessments of Emission Control Devices", that *"the process of emission control technology review shall include any new relevant requirements or regulations promulgated by CARB or EPA. Results from the reassessments shall not be applied retroactively"*;
- CBA Section X.F.9.b. states under "Application of New Requirements", that *"any new designations of emission control devices as best available shall apply only to projects that start after the devices are verified or certified for use by CARB or EPA, or approved for use as part of a Demonstration Project"*.

At the time of commencement of construction activities on the MSC project, multiple diesel emission control devices were verified by CARB for off-road use. CARB assigns a designation to each diesel emission control device as a function of its effectiveness in reducing diesel particulate matter (PM) emissions. This is referred to as the "Verification Level" of the device; CARB currently recognizes three verification levels, as follows:

- Level 1 – greater than or equal to 25% reduction of diesel PM;
- Level 2 – greater than or equal to 50% reduction in diesel PM;
- Level 3 – greater than or equal to 85% reduction in diesel PM.

As shown above, CARB Level 3 offers the highest level of diesel pollution reduction. In accordance with the CBA, the "Best Available Control Technology" (BACT) is Level 3 verification.

Tier 4 Standards - Tier 4 emission standards, which were phased-in over the period of 2008 - 2015, require that emissions of PM and NOx be reduced by approximately 90% compared to Tier 3 emission levels. These emission reductions are achieved through the use of control technologies—including advanced diesel emission control systems - similar to those required by the 2007-2010 standards for on-road engines. For the purpose of conformance to CBA requirements, equipment and vehicles equipped with an engine certified as "Tier 4 interim" or "Tier 4" final satisfies the diesel particulate matter emission reduction CBA requirements. Tier 4 engines are equipped with diesel PM emission control

systems that meet or exceed the performance of a Level 3 BACT system. Tier 4 engines also achieve NOx emissions approximately 90% lower as compared to Tier 3 engines.

Task 1.2 Results

Each piece of diesel equipment submitted to LAWA's environmental monitor for review was independently assessed by the Third Party Monitor to determine its compatibility with a CARB and/or EPA-verified diesel emission control system. The following sections discuss conformance with Task 1.2 for the MSC project for the six-month period ending June 30, 2017.

1.2.1 Midfield Satellite Concourse North – On-Road Vehicles - During the reporting period, a total of 468 pieces of construction equipment was evaluated. This includes 293 on-road vehicles and 175 pieces of off-road construction equipment. LAWA environmental management reviews each piece of equipment and supporting documentation and makes a determination as to whether or not the propose equipment conforms to LAWA environmental policy and the CBA requirements.

Table 1.2.1-1, below, lists the on-road vehicles reviewed under this Semiannual Report:

Table 1.2.1-1: MSC North On-Road Vehicles

Identification No.	Description	Year
WP49284	TRUCK - HEAVY LONG END DUMP	2001
F808204	TRUCK - WORK F450	2007
50663	TRUCK On Road Trucks	2007
8L67240	TRUCK WATER TRUCK	2007
8H79816	Truck F450 Work Truck	2007
SE575776	Truck WATER TRUCK - Granite	2008
9F68412	TRUCK Haul Truck	2008
8T09684	Truck - Ram 3500 crew truck	2008
8R00677	Truck - C3500 crew truck	2008
61603U1	Truck - CalEarth Super 10	2008
9F42434	TRUCK Haul Truck	2010
9E06250	TRUCK Haul Truck	2010
9E93027	Truck International	2010
9F16104	Truck Kenworth	2010
9B38607	Truck PTRB	2010
9F00165	Truck PTRB	2010
49568P1	Truck - haul trucks	2010
30367V1	Truck - Cal Earth	2010
TIERITA	Truck - Cal Earth	2010

Identification No.	Description	Year
9E72265	Truck - GO RODRIGUEZ	2010
OZZYSTK	Truck - GO RODRIGUEZ	2010
88526K1	Truck CalEarth	2010
30367V1	Truck - CalEarth Super 10	2010
TBD	Trucks - Granite Cal Earth	2010
TBD	Trucks - Granite	2010
TBD	Trucks - Granite	2010
9F68412	TRUCK Haul Truck	2011
86331D1	TRUCK On Road Trucks	2011
9E63246	Truck PTRB	2011
8416600	TRUCK WATER TRUCK	2011
XP00440	TRUCK Haul Truck	2011
XP00441	TRUCK Haul Truck	2011
25965T1	Truck PTRB	2011
9F11903	Truck PTRB	2011
9F45706	Truck PTRB	2011
WP29583	Truck PTRB	2011
WP31368	Truck PTRB	2011
9E72155	Truck Volvo	2011
WP31368	Truck - haul trucks	2011
9F61543	Truck Haul	2011
4QIV566	Trucks - Haul	2011
9F14989	Trucks - Haul	2011
WP16834	Trucks - Haul	2011
WP71082	Trucks - Haul	2011
WP71809	Trucks - Haul	2011
WP93509	Trucks - Haul	2011
90612D2	Truck - Cal Earth	2011
78927Y1	Truck - GO RODRIGUEZ	2011
8Y35500	Truck - GO RODRIGUEZ	2011
93050S1	Truck - CalEarth Super 10	2011
90612D2	TRUCKS - CALEARTH SUPER 10S	2011
TBD	Truck Striping Truck F550	2012
16716E1	Truck Water Blaster ACX	2012
31184N1	Truck - Flatbed	2012
72035H1	TRUCK On Road Trucks	2012
84603A2	TRUCK On Road Trucks	2012
17648U1	TRUCK WATER TRUCK	2012
7T62023	TRUCK F450 Truck	2012
9F32616	Truck End Dump	2012
9F61241	TRUCK - HEAVY LONG END DUMP	2012
61970A2	Truck-Super10-	2012

Identification No.	Description	Year
74184H1	TRUCK Ford Maintenance Truck	2012
06043M1	Truck Striping Truck F550 - 30,000 lbs.	2012
8L70861	Truck Mechanic - Granite	2012
9F17467	TRUCK Haul Truck	2012
9F61107	TRUCK Haul Truck	2012
72035H1	Truck - 20,000 lbs. PAGE enterprise	2012
07023K1	Truck - 20,000 lbs. PAGE enterprise	2012
86331D1	Truck - 20,000 lbs. PAGE enterprise	2012
9F35126	Truck Freightliner	2012
251401Z	Truck Kenworth	2012
9F29353	Truck Kenworth	2012
9D18020	Truck PTRB	2012
9E25613	Truck PTRB	2012
9E42269	Truck PTRB	2012
9E63910	Truck PTRB	2012
9E80616	Truck PTRB	2012
9F32399	Truck PTRB	2012
9F68191	Truck PTRB	2012
JSUA4	Truck PTRB	2012
9F51641	Truck Volvo	2012
25553T1	Truck - haul trucks	2012
CP99924	Truck - haul trucks	2012
XP02233	Truck - haul trucks	2012
JN4Y49	Crane Linkbelt HTC3140LB - 550 hp	2012
9F02427	Trucks - Haul	2012
9F06621	Trucks - Haul	2012
9F11667	Trucks - Haul	2012
9F33810	Trucks - Haul	2012
9F45933	Trucks - Haul	2012
9F46363	Trucks - Haul	2012
9F69725	Trucks - Haul	2012
WP50691	Trucks - Haul	2012
WP58089	Trucks - Haul	2012
WP63865	Trucks - Haul	2012
WP85683	Trucks - Haul	2012
WP92254	Trucks - Haul	2012
WP94057	Trucks - Haul	2012
XP02136	Trucks - Haul	2012
86948D2	Truck - Cal Earth	2012
MNGRN3	Truck - GO RODRIGUEZ	2012
47882M1	Truck - GO RODRIGUEZ ***	2012
32815W1	Truck - GO RODRIGUEZ	2012

Identification No.	Description	Year
02658D2	Truck - GO RODRIGUEZ ***	2012
60796T1	Truck - GO RODRIGUEZ	2012
11529E1	TRUCK - CONCO GRAVEL	2012
11530E1	TRUCK - CONCO GRAVEL	2012
11531E1	TRUCK - CONCO GRAVEL	2012
11532E1	TRUCK - CONCO GRAVEL	2012
56571F1	TRUCK - CONCO GRAVEL	2012
56572F1	TRUCK - CONCO GRAVEL	2012
56573F1	TRUCK - CONCO GRAVEL	2012
56662F1	TRUCK - CONCO GRAVEL	2012
CP85792	TRUCK - CONCO GRAVEL	2012
CP91650	TRUCK - CONCO GRAVEL	2012
56093H1	TRUCK - CONCO GRAVEL	2012
56094H1	TRUCK - CONCO GRAVEL	2012
70253H1	TRUCK - CONCO GRAVEL	2012
CP74862	TRUCK - CONCO GRAVEL	2012
CP74863	TRUCK - CONCO GRAVEL	2012
CP74869	TRUCK - CONCO GRAVEL	2012
CP74870	TRUCK - CONCO GRAVEL	2012
CP74871	TRUCK - CONCO GRAVEL	2012
CP74872	TRUCK - CONCO GRAVEL	2012
01643U1	Truck CalEarth	2012
40580Z1	Truck - Dump Super 10	2012
90623A2	TRUCKS - CALEARTH SUPER 10S	2012
70109H1	TRUCKS - CALEARTH SUPER 10S	2012
98813D2	TRUCKS - CALEARTH SUPER 10S	2012
32370N1	Truck - Flatbed	2013
31184N1	Truck - Flatbed	2013
31183N1	Truck - Flatbed	2013
19854S1	Truck - Paint Striper	2013
86028C2	TRUCK On Road Trucks	2013
9E86041	TRUCK	2013
CJ-04412	TRUCK WATER TRUCK	2013
9F54458	TRUCK - HEAVY LONG END DUMP-	2013
12149A2	Truck Water Truck -	2013
85313S1	TRUCK Penhall Water Truck	2013
7NYA778	TRUCK Conco Pump Trucks	2013
9D66121	Truck Kenworth	2013
WP47201	Truck Kenworth	2013
31656E2	Truck Mack	2013
9D66067	Truck PTRB	2013
9E61055	Truck PTRB	2013

Identification No.	Description	Year
9E70034	Truck PTRB	2013
9E77508	Truck PTRB	2013
9E83229	Truck PTRB	2013
9F42648	Truck PTRB	2013
9F66037	Truck PTRB	2013
92309R1	TRUCK - WATER TRUCK	2013
9F61106	Trucks - Haul	2013
WP89830	Trucks - Haul	2013
43636Y1	Truck - GO RODRIGUEZ	2013
29172V1	Truck - GO RODRIGUEZ	2013
MNGRN4	Truck - GO RODRIGUEZ ***	2013
70109H1	Truck - GO RODRIGUEZ	2013
70289H1	TRUCK - CONCO GRAVEL	2013
70290H1	TRUCK - CONCO GRAVEL	2013
70291H1	TRUCK - CONCO GRAVEL	2013
70292H1	TRUCK - CONCO GRAVEL	2013
79421H1	TRUCK - CONCO GRAVEL	2013
79422H1	TRUCK - CONCO GRAVEL	2013
79426H1	TRUCK - CONCO GRAVEL	2013
79680H1	TRUCK - CONCO GRAVEL	2013
79681H1	TRUCK - CONCO GRAVEL	2013
CP87839	TRUCK - CONCO GRAVEL	2013
47408H1	TRUCK - CONCO GRAVEL 40X	2013
9E90690	Truck CalEarth	2013
31656E2	Truck - CalEarth Super 10	2013
96699U1	Truck - CalEarth Super 10	2013
04115M1	TRUCK WATER TRUCK	2014
84144U1	TRUCK DUMP TRUCK	2014
05040V1	TRUCK DUMP - PETERBILT - BUBALO	2014
7DWB682	TRUCK Conco Pump Trucks	2014
7ENH865	TRUCK Conco Pump Trucks	2014
39239S1	Truck - 20,000 lbs. PAGE enterprise	2014
7CZS359	TRUCK - CONCO PUMPING TRUCK - MACK	2014
7FNY276	Truck Conco - Pump 14424-	2014
64230S1	Truck PTRB	2014
9B16298	Truck PTRB	2014
9E42354	Truck PTRB	2014
9F16383	Truck PTRB	2014
9F16684	Truck PTRB	2014
9D58048	Trucks - Haul	2014
CP96735	Trucks - Haul	2014
WP16214	Trucks - Haul	2014

Identification No.	Description	Year
88616N1	TRUCK - CONCO GRAVEL	2014
CP79486	TRUCK - CONCO GRAVEL	2014
88616N1	TRUCK - CONCO GRAVEL	2014
98021M1	TRUCK - CONCO GRAVEL	2014
CP79477	TRUCK - CONCO GRAVEL	2014
CP79479	TRUCK - CONCO GRAVEL	2014
CP84854	TRUCK - CONCO GRAVEL	2014
7DWB681	Truck Conco	2014
7PML931	Truck Conco	2014
7DWB680	Truck Conco	2014
81455S1	TRUCK On Road Trucks	2015
SE669506	Truck Conco - Pump 14435-	2015
9F2570	Truck PTRB	2015
84469W1	TRUCK WATER TRUCK	2015
658712	TRUCK WATER TRUCK	2015
72633W1	Truck F-450 Work Truck	2015
81455S1	Truck - 20,000 lbs. PAGE enterprise	2015
7LXE829	Truck Conco - Pump 14430 -	2015
74719T1	Truck CAT	2015
9B16299	Truck PTRB	2015
9F08697	Truck PTRB	2015
9F18342	Truck PTRB	2015
9F18343	Truck PTRB	2015
9F18344	Truck PTRB	2015
9F18462	Truck PTRB	2015
9F25513	Truck PTRB	2015
9F31785	Truck PTRB	2015
9F66033	Truck PTRB	2015
9E72263	Trucks - Haul	2015
9F31785	Trucks - Haul	2015
85552R1	Truck - Cal Earth	2015
71470U1	Truck - GO RODRIGUEZ	2015
38937S1	TRUCK - CONCO GRAVEL	2015
38938S1	TRUCK - CONCO GRAVEL	2015
60351U1	TRUCK - CONCO GRAVEL	2015
74221U1	TRUCK - CONCO GRAVEL	2015
74223U1	TRUCK - CONCO GRAVEL	2015
75737T1	TRUCK - CONCO GRAVEL	2015
75828T1	TRUCK - CONCO GRAVEL	2015
75831T1	TRUCK - CONCO GRAVEL	2015
75832T1	TRUCK - CONCO GRAVEL	2015
75833T1	TRUCK - CONCO GRAVEL	2015

Identification No.	Description	Year
75834T1	TRUCK - CONCO GRAVEL	2015
85745R1	TRUCK - CONCO GRAVEL	2015
9F18309	TRUCK - CONCO GRAVEL	2015
CP85757	TRUCK - CONCO GRAVEL	2015
CP85758	TRUCK - CONCO GRAVEL	2015
CP85769	TRUCK - CONCO GRAVEL	2015
CP85775	TRUCK - CONCO GRAVEL	2015
CP85798	TRUCK - CONCO GRAVEL	2015
CP92516	TRUCK - CONCO GRAVEL	2015
CP92517	TRUCK - CONCO GRAVEL	2015
CP92531	TRUCK - CONCO GRAVEL	2015
WP39525	TRUCK - CONCO GRAVEL	2015
CP92532	TRUCK - CONCO GRAVEL	2015
CP92533	TRUCK - CONCO GRAVEL	2015
CP92542	TRUCK - CONCO GRAVEL	2015
CP92543	TRUCK - CONCO GRAVEL	2015
03102V1	Truck CalEarth	2015
83584W1	TRUCKS - CALEARTH SUPER 10S	2015
96019D2	TRUCK WATER TRUCK	2016
35442Y1	TRUCK WATER TRUCK	2016
98176V1	TRUCK WATER TRUCK	2016
50099Z1	TRUCK - WORK - PETERBILT, GRANITE	2016
22960V1	TRUCK - WORK - PETERBILT, GRANITE	2016
43067U1	Truck - Mechanic	2016
85036Y1	Truck - Comet Boom Truck	2016
7KWT842	TRUCK Conco Pump Trucks	2016
7SQU804	TRUCK Conco Pump Trucks	2016
28909Y1	Truck - 20,000 lbs. PAGE enterprise	2016
11317D2	Truck - Service	2016
11316D2	Truck - Service	2016
7LXF284	Truck Conco - Pump 14432-	2016
7SQU803	Truck Conco - Pump 14436-	2016
9E24811	Truck PTRB	2016
9F42661	Truck PTRB	2016
9F43306	Truck PTRB	2016
9F52953	Truck PTRB	2016
50062Z1	Truck F450 50062Z1	2016
9F41012	Trucks - Haul	2016
9F46362	Trucks - Haul	2016
70114Z1	TRUCK - CONCO GRAVEL	2016
CP94415	TRUCK - CONCO GRAVEL	2016
CP94417	TRUCK - CONCO GRAVEL	2016

Identification No.	Description	Year
CP94428	TRUCK - CONCO GRAVEL	2016
CP94437	TRUCK - CONCO GRAVEL	2016
CP95395	TRUCK - CONCO GRAVEL	2016
7MSB387	Truck Conco	2016
81320W1	Truck - CalEarth Super 10	2016
66826F2	Truck - Ram 4500 Work truck	2016
7TCZ570	Crane - Bragg Crane Unit 11253	2016
9C33501	TRUCK WATER TRUCK	2017
9F56837	Truck	2017
85274A2	Truck-Super10-	2017
9F36864	Truck Kenworth	2017
9F36865	Truck Kenworth	2017
9F54476	Truck PTRB	2017
9F58459	Truck PTRB	2017
9F60181	Truck PTRB	2017
56753Z1	TRUCK - CONCO GRAVEL	2017
56755Z1	TRUCK - CONCO GRAVEL	2017
70252H1	TRUCK - CONCO GRAVEL	2017
70729Z1	TRUCK - CONCO GRAVEL	2017
CP94507	TRUCK - CONCO GRAVEL	2017
7XAT924	Truck Conco	2017
99446B2	Truck - Lube	2017

The 293 on-road vehicles shown above are comprised of the following model years:

Table 1.2.1-1: MSC North On-Road Vehicle Model Year Composition

Model Year	Number	Percent
2001 (w/DPF)	1	<1%
2007	4	1%
2008	5	2%
2010	16	5%
2011	25	9%
2012	78	27%
2013	42	14%
2014	26	9%
2015	50	17%
2016	31	10%
2017	15	5%

As shown in the above Table, all of the on-road vehicles meet the requirements of the CBA Section X.F.1, in that all of the vehicles are equipped with a verified diesel emission control system (VDECS). The model year 2001 vehicle has been retrofit with a diesel particulate filter. The remaining model year 2007 and newer vehicles are equipped with a factory installed VDECS.

It should also be noted that the model year 2010 and newer on-road vehicles are also equipped with a selective catalytic reduction (SRC) device that reduces oxides of nitrogen (NOx) emissions. The 2010 and newer heavy-duty vehicles are also certified to the 2010 NOx standard of 0.2 g/bhp-hr or cleaner.

1.2.2 Midfield Satellite Concourse North – Off-Road Equipment - During the reporting period, a total of 175 pieces of off-road construction equipment were evaluated.

LAWA environmental management reviews each piece of equipment and supporting documentation and makes a determination as to whether or not the propose equipment conforms to LAWA environmental policy and the CBA requirements.

Table 1.2.2-1, below, lists the off-road equipment reviewed under this Semiannual Report:

Table 1.2.1-1: MSC North Off-Road Equipment

EIN	Equipment Description	Tier
FM5P35	SCRAPER CAT Scraper 637G	T2
JT7H84	SCRAPER CAT Scraper 637G	T2
JN6F86	SCRAPER CAT SCRAPER 637G	T2
VN3T97	CRANE LIEBHERR CRANE	T3
UW9S69	BACKHOE John Deere Backhoe 310SL	T4F
PM4P98	BACKHOE John Deere Backhoe 410L	T4F
TD8M57	BACKHOE John Deere Backhoe 410L	T4F
KE5W48	LOADER John Deere Loader 624K	T4F
TBD	ROLLER Hamm roller HD75 double drum 8 ton	T4i
TBD	Dynapac CP142 9-wheel roller	T2
PK9H53	FORKLIFT Reach Forklift	T4F
XJ7T85	SOILMEC SM14.2/AR drill rig	T4i
RJ3G96	FORKLIFT JLG FORKLIFT	T4F
UE4E67	SOILMEC SM14.2/AR Drill Rig	T4i
DC5H96	FORKLIFT KING Rentals JLG Forklift	T4F
BX9X46	LOADER Komatsu Loader WA320	T4F
HE4W34	CAT ROLLER CS56B - GRANITE	T4F
MD4E68	EXCAVATOR CAT 336F - GRANITE	T4F
GE3U67	LOADER CAT LOADER 950M	T4F

EIN	Equipment Description	Tier
LL6V49	GRADER DEERE - GRADER 772GP - FINEGRADE	T4F
WW9F59	EXCAVATOR LALONDE HITACHI 350LC	T4i
RG5J78	BACKHOE CASE 590SN	T4F
XW9S88	BACKHOE CASE 590SN	T4F
WU4Y43	DRILL RIG SR-60 - SOILMEC	T4i
4HK1-739938	Generator	T4F
4HK1-739949	Generator	T4F
147365	COMPRESSOR IR 185	PERP
138438	Concrete Pump Reed C50SS (138438)	T3
173618	Compressor Doosan XHP750 (173618)	PERP
DF9F96	EXCAVATOR CAT 365B	T1
144671	Compressor I-R 185 (144671)	PERP
TS4D84	LOADER DEERE 310SL	T4F
JR6F66	EXCAVATOR DEERE 85G	T4F
WJ4F44	SKID STEER CAT 272D SKID STEER LOADER	T4i
YD4R94	FORKLIFT GEHL RS6-42 KING EQUIP	T4F
SV4U54	LOADER CAT 966M	T4F
SL6M33	FORKLIFT JLG FORKLIFT	T4F
XB3G34	EXCAVATOR CAT 349F	T4F
DT7R84	FORKLIFT GEHL FORKLIFT - DYNALIFT T4i OR F???	TBD
UB5K46	VOLVO A40G HAUL TRUCK - 469 hp	T4F
FG7Y55	VOLVO A40G HAUL TRUCK -- T4F???	T4F
143090	COMPRESSOR SULLAIR PERP - 143090	T3
AL9L64	BOBCAT	TBD
JU3V78	EXCAVATOR DEERE 135G	TBD
658712	TRUCK WATER TRUCK	TBD
SM5L43	FORKLIFT JLG FORKLIFT	T4F
TB8C56	LOADER Komatsu WA 320PZ	T3
VD7F86	LOADER CAT LOADER 950K	T4F
SG4Y54	FORKLIFT GEHL FORKLIFT RS6-42 KING EQUIP	T4F
YF4N34	EXCAVATOR 350X	T4i
UY9X45	FORKLIFT JLG FORKLIFT	T4i
HF4C75	EXCAVATOR Takeuchi TB2150	T4F
BS9R56	GENIE LIFT	T4i
XV6S93	FORKLIFT XTREME XR1255 - GRANITE	T4i
TU9R57	EXCAVATOR - EAGLE PAINTED	T4i
PC4K79	EXCAVATOR Hitachi ZX470 Excavator	T4F
WJ4Y69	FORKLIFT Cat TL1055C	T4i
CA8L94	LOADER SAVALA SKIP LOADER 210L	T4F
JN8E73	FORKLIFT JLG FORKLIFT	T4F
137755	Concrete Pump Reed C50 (137755)	T3
ME9F99	Excavator Takeuchi TB1140	T4i

EIN	Equipment Description	Tier
RB6B78	Forklift Gehl RS6-42 (EJDXL04.5211)	T4i
BJ3N76	Excavator Deere 250G (FJDXL06.8302)	T4F
BB8J63	Genie Aerial Lift S-80X (FDZXL02 .9020)	T4F
UU4W34	Forklift - Cummins 1255 (FCEXL03.8AAA)	T4F
??	BACKHOE Caterpillar 430	T4i
TG7X94	BACKHOE Caterpillar 430F ST Backhoe	T4i
RV8M85	Bigge Crane Liebherr LTM1220 – T4I	T4i
RR3U34	FORKLIFT GEHL Fork Lift	T4F
XV5S77	Excavator Takeuchi 2150 CL	T4F
HH7E67	FORKLIFT Cummins Forklift 55' Reach () T4F	T4F
NW9E83	EXCAVATOR Isuzu Excavator 350 X4	T4F
WT3F44	CAT LOADER/DOZER 824H	T3
FM5P35	SCRAPER CAT SCRAPER - FRONT- GRANITE 18-077	T2
CK3S97	SCRAPER CAT SCRAPER 637G - REAR GRANITE 18-077	T2
UW5K89	SCRAPER CAT SCRAPER - GRANITE 18-076	T2
PL6B79	EXCAVATOR CAT 328D PL6B79	T3
138438	Concrete Pump Reed C50SS (138438)	T3
173618	Compressor Doosan XHP750 (173618) - 340 hp	T4F
BT6S44	Loader Komatsu WA270 Loader	T4F
BT6M47	SAW Husqvarna Slab Saw	T4F
BH3D64	EXCAVATOR DEERE 225LC	T3
WL7V53	LOADER DEERE 210LE BACKHOE/LOADER	T2
YP4P65	ROLLER CAT CS54	T3
HE9P36	Excavator CAT 349 LaLonde	T4i
FG7Y55	VOLVO A40G HAUL TRUCK -- 469 hp	T4F
UB5K46	VOLVO A40G HAUL TRUCK -- 469 hp	T4F
NN6D79	FORKLIFT JLG FORKLIFT	T4F
YS4N47	DOZER CAT DOZER D8T 367 hp	T4F
PS6C86	Forklift JLG	T4F
DP3Y67	FORKLIFT GEHL RS-519 DP3Y67	T4F
SA5C84	Crane Link-Belt RTC 8090 II 260 HP	T4F
EM9W38	FORKLIFT JLG 12K	T4F
PW4W57	EXCAVATOR Hitachi ZX650 463 hp	T3
HA8S43	Backhoe John Deere 710K 130 hp	T4i
AL9L64	BOBCAT AL9L64	T4F
CG4W33	BACKHOE John Deere Backhoe 410K	T4i
GS5Y58	Loader Komatsu WA-380	T3
138437	REED C-50 (E781, 220 HP	T3
137758	REED C50 (E779	T3
137757	REED C50 (E779	T3
137756	REED C50 (E779	T3
	Truck Water Blaster ACX	TBD

EIN	Equipment Description	Tier
VJ6G97	Excavator Cat 336E Excavator, 225 hp	T4i
KP6C54	Crane GROVE RT 890 -- not for cranes	T4i
SG7C79	Excavator Cat 328D 157 hp	T3
WC3Y59	Loader CAT 950	T4F
KJ3S33	Excavator John Deere 135G	T4F
ET6Y89	JLG Boom lift 49 HP	T4F
BM7K58	Excavator Hitachi Exc ZX470	T4F
RC7C77	Forklift JLG 1055	T4F
JA6G77	Forklift JLG 1255	T4F
UK3R66	Truck Rock Truck Bell 40E	T4F
AM9V49	Crane Link-Belt 80100T	T2
AH8T47	EXCAVATOR Caterpillar 304 CCR Excavator	T4i
AX8L36	EXCAVATOR Caterpillar 328 D LCR Excavator	T4i
US6R64	Excavator Hitachi ZX 245	T4i
XW3A66	Loader John Deere 624 K	T4i
NR8B65	Loader Caterpillar 299 DXHP Compact Track Loader	T4i
N/A	Compressor on Truck	TBD
XE4F99	Saw Concrete Coring Saw 3	T4i
DT6R46	Saw Concrete Coring Saw	T4i
XJ6F86	Saw Concrete Coring Saw 7	T4i
N/A	Truck Conco - Pump 14409- PUMP ENGINE	T2
AL7C96	Saw Concrete Coring Saw	PERP
ES8F57	BACKHOE Caterpillar 430 F2 Backhoe	T4F
NB3F85	BACKHOE John Deere Backhoe 410L	T4F
NP4M64	EXCAVATOR Caterpillar 305 E CR Excavator	UNDER 50
CY5P57	Excavator Caterpillar 314 CR	T4i
PX4C74	Excavator Hitachi ZX 135	T4i
SP9R85	Paver Caterpillar AP-255E	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
FW7R56	Excavator Hitachi ZX300	T4F
MN3S54	Forklift JLG QSF 3.8	T4F
HE9P36	Excavator CAT 349 - 417 hp	T4i
MD4K68	Saw Penhall Concrete Saw	T4F
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
WS6N98	Excavator Hitachi ZX670	T4i
WU9H44	Loader Case 1021F	TBD
EM3K73	Saw Penhall Concrete Saw	PERP
NN7U39	Saw Penhall Concrete Saw	PERP

EIN	Equipment Description	Tier
KN8S37	Saw Penhall Concrete Saw	PERP
KN8S37	Saw Penhall Concrete Saw	PERP
YN4J53	Saw Penhall Concrete Saw	PERP
YV8P78	Saw Penhall Concrete Saw	PERP
MU4V86	Saw Penhall Concrete Saw	PERP
WC5Y95	Saw Penhall Concrete Saw	PERP
BN7K39	Paver CR561R - 169 hp w Tier 1 engine	T1
DC5H96	Forklift - King equipment	TBD
MU9H67	Crane Linkbelt RTC 8090	TBD
HW4W77	Excavator CASE 490	T4F
MU9H67	Crane Linkbelt RTC 8090	TBD
XW3A66	Loader John Deere 624 K	T4i
NA9M63	CRANE RTC 8090	T4F
cv4p69	FORKLIFT - GEHL RS-519 CV4P69	TBD
VV6X96	Loader EC480EC Volvo	T4F
EM6Y54	Loader 980K CAT	T4i
SV4U54	LOADER CAT Loader 966M	T4F
N/A	Loader John Deere 624k	T4F
XN5X89	Forklift - King equipment	T4F
XY5E57	Forklift GEHL RS519	T4F
PW4W57	EXCAVATOR Hitachi ZX650 463 hp	T3
HL5N55	Saw Concrete Coring Saw	PERP
BU8Y83	Saw Concrete Coring Saw	PERP
DE9C95	Excavator JD 245G	TBD
CV4P69	FORKLIFT - GEHL RS-519	T4F
UM7K75	Loader Caterpillar 938M	T4F
160404	Generator 300KVA Generator (ND-9100355)	T4i
JL7W57	Excavator CAT 321D LCR, no DPF installed	T3
GG7D68	Crane - Liebherr LR1300sx 536 hp	T4F
JU3V78	EXCAVATOR DEERE 135G	T4i

The above-listed off-road equipment is summarized by emissions rating (Tier) below, including smaller diesel equipment operating under the South Coast AQMS Portable Equipment Registration Program (PERP). Twelve (12) pieces of off-road equipment had unspecified or indeterminable Tier level.

Table 1.2.2-2: Summary of MSC North Construction Equipment Breakdown by Equipment Tier

Emissions Standard/Classification	Quantity
Tier 4 Final	72
Tier 4 Interim	38
Tier 3	19
Tier 2	10
Tier 1	2
Portable Equipment Registration	14
Unspecified (TBD)	12

As shown in Table 1.2.2-2, a high percentage of the construction equipment submitted for LAWA review is factory equipped with a Level 3 VDECS and thus represents the best available emissions control technology (BACT). As discussed in Section 4, a small number of non-BACT equipment was granted airfield access under an approved exemption. For example, eight (8) pieces of off-road equipment shown in Table 1.2.2-1, above, is allowed to operate due to its small displacement (<50 HP) and incompatibility with a verified diesel emission control device.

TASK 2: DEMONSTRATION PROJECTS

Section X.F.2 of the CBA states that LAWA may allow construction-related diesel equipment to be outfitted with new emission control systems that are not CARB verified or EPA certified for use for on-road or off-road vehicles or engines. Such projects will be designated by LAWA as "Demonstration Projects". The roles and responsibilities of the Independent Third Party Monitor as they relate to Demonstration Projects is set forth in Task 2 of the contract and includes the following two primary subtasks:

- Task 2.1 – The Third Party Monitor shall perform a technical evaluation of the proposed demonstration technology and provide written findings to the Coalition Representative and LAWA. The Third Party Monitor shall also assist with the implementation of a Demonstration Project, including identifying suitable emission control devices and Demonstration Project funding sources;
- Task 2.2 – Upon acceptance by LAWA, the Third Party Monitor shall monitor, document, and report independently from LAWA, compliance of the demonstration equipment with all defined

Demonstration Project requirements, including but not limited to the pollution reduction requirements specified in Section X.F.3 of the CBA.

No demonstration projects were conducted during the six-month period of January 1, 2017 through June 30, 2017.

TASK 3: EMISSION REDUCTION STANDARD

Section X.F.1 of the Community Benefits Agreement (CBA) for the LAX Master Plan Program requires that all diesel equipment used for construction be outfitted with the best available emission control devices, primarily to reduce diesel particulate matter which is on the order of 10 microns[3] in diameter (PM_{10}), and fine particulate, which is on the order of 2.5 microns in diameter ($PM_{2.5}$). A secondary objective of this requirement is to reduce oxides of nitrogen emissions (NO_x), which are ozone precursors. This section also states that under no circumstance shall an emission reduction device or strategy used on the LAX Master Plan Program construction site increase the emission of any pollutant above that which is the standard for that engine.

The role and responsibilities of the Independent Third Party Monitor as it relates to Section X.F.1 of the CBA is delineated in the following contract Task statements:

- Task 3.1 - Contractor shall monitor, document, and report independently from LAWA, compliance of each piece of diesel construction equipment used pursuant to CBA X.F.1 as it relates to meeting or exceeding Level 2 diesel emission reductions for a similar sized engine;
- Task 3.2 – Contractor shall monitor, document, and report independently from LAWA, compliance of each piece of diesel construction equipment used pursuant to CBA X.F.1 to ensure its emission reduction device or strategy does not result in an increase of any pollutant above that which is standard for that engine;
- Task 3.3 – Contractor shall monitor, document and report on emission reductions of NO_x, ROG, PM and CO achieved through the use of best available control technology.

Task 3.1 - Monitor, document, and report equipment compliance with Level 2 requirement.

As summarized above in Task 1, the Third Party Monitor compiled a database of LAX Master Plan project equipment. This database is continually updated with new information collected from LAWA's environmental monitor staff on behalf of the construction contractors or visual inspection by CFCI. As

[3] One micron equals $1x10^{-6}$ meter or 0.000001 meter.

part of this inventory, the Task 1 effort included an equipment-by-equipment review for applicability of approved Best Available Control Technologies (BACT). Specifically, the equipment listed in this master database was compared against all available Verified Diesel Emission Control Systems (VDECS), with first priority given to Level 3 diesel emission reductions.

Not all equipment proposed for operation on the MSC Project is necessarily used – contractors provide a list of potential needs prior to the start of construction activities. Typically, a subset of this proposed equipment is actually used in construction activities. Also, not all equipment resides on the airfield during the entire project duration; equipment is moved on and off the airfield as construction demands dictate.

Task 3.2 – Ensure emission reduction devices/strategy does not result in an increase of any pollutant above that which is standard for that engine.

The U.S. EPA and ARB verification procedures are designed to ensure that no measurable increase on other pollutant emissions results from installation of the approved VDECS. One issue that should be noted is that the ARB verification procedures include a NO_2 limit requirement. Specifically, NO_2 may not increase more than 20 percent as a result of the installation and operation of the device[4]. All Tier 4i, Tier 4F, and 2007 EPA-compliant equipment and vehicles assessed under Task 1 for the MSC Project comply with the CARB NO_2 limit requirements.

Task 3.3 –Contractor shall monitor, document and report on emission reductions of NO_x, ROG, PM and CO achieved through the use of best available control technology.

A quantification of air quality benefits achieved through the use of best available control technology is not feasible at this time. Equipment operating on the airfield in support of the MSC Project that are equipped with engines certified at the Tier 4 Final and Tier 4 interim levels have particulate matter (PM) that comply with CBA obligations, and also emit oxides of nitrogen (NOx) emission levels that are substantially lower than those required under the CBA.

However, because these vehicles are designed and manufactured to meet more stringent emission standards, they are not "retrofitted" per se with Best Available Control Technologies (BACT) within the context of the CBA. "Tier 4" vehicles - in their baseline configuration - meet CBA requirements. Thus, because Tier 4 vehicles achieve CBA-mandated emission levels in their baseline configuration, there is

[4] Title 13 CCR section 2706(a)

no other vehicle configuration to compare them to. As a result, Tier 4 diesel equipment is not shown as offering an emissions benefit as a result of imposition of a CBA requirement. The equipment is inherently low emitting and represents the "state of the art" for off-road equipment emissions.

Figure 3-1 –Rock Truck Operating on Midfield Satellite Concourse Phase 1 Construction Site

TASK 4: EXEMPTIONS GRANTED ON MSC NORTH

4.1 Zero (0) on-road exemptions have been granted by LAWA on the MSC-North project. All of the on-road vehicles submitted for LAWA approval are equipped with a CBA-compliant diesel emission control device.

For off-road equipment, four (4) pieces of equipment were granted a 20-day exemption, and eight (8) pieces of equipment with an engine power rating of 50 horsepower or less were granted a small displacement exemption by LAWA. It should be noted that the CBA does not recognize a small displacement exemption; however, upon review it was determined that this equipment is not compatible with a commercially available VDECS. Thus, this equipment is eligible for an exemption under the "incompatibility with commercially available VDECS" CBA category.

TASK 5: ULTRA LOW SULFUR DIESEL AND OTHER FUELS

Section X.F.5 of the Community Benefits Agreement requires that all diesel equipment used for construction on LAX Master Plan Projects use only Ultra-Low Sulfur Diesel (ULSD) fuel containing 15

parts per million (ppm) of sulfur by weight or less. This requirement is in effect as long as adequate supplies are available in the Southern California region.

There are three tasks in the Scope of Work for the Third Party Monitor related Ultra Low Sulfur Diesel:

- Task 5.1 - Contractor shall monitor, document, and independently report on construction equipment related to LAX Master Plan Program construction as it relates to the use of ultra-low sulfur diesel fuel. Contractor will be provided all available fuel procurement records for construction equipment related to the LAX Master Plan Program;
- Task 5.2 – Contractor shall independently verify and report to LAWA and the Coalition Representative that adequate supplies of ULSD are or are not available in Southern California. For the purpose of this Task, "Southern California" is defined as the geographic region comprising Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties;
- Task 5.3 – Contactor shall independently verify and report to LAWA and the Coalition Representative that fuels substituted in lieu of ULSD do not result in greater emissions of fine PM or NO_x than that which would be produced by the use of ULSD at 15-ppm or lower. Verification will be based on CARB certification or equivalent.

South Coast AQMD Rule 431.2, which took effect on June 1, 2006, requires diesel fuel refined and sold for on-road and off-road use within the jurisdiction of the AQMD to contain no more than 15-ppm sulfur by weight. The California Air Resources Board subsequently adopted this requirement on a statewide basis on September 1, 2006. Thus, ULSD is the only diesel fuel legally available for purchase within California.

To independently verify the sulfur content of the diesel fuel used by equipment operating on LAX Master Plan projects, CFCI has requested fuel purchase records from the contractor and has examined the fuel receipts to ensure that only ULSD is being used. Fuel purchase records are clearly marked "ULSD"; thus, there is no ambiguity as to whether or not the fuel has the ultra-low sulfur content.

TASK 6: OPERATIONAL REQUIREMENTS

Section X.F.6 of the CBA requires that Operational Requirements be issued and enforced by LAWA as it pertains to: a) limitations of equipment engine idling; and, b) maintenance of equipment engines.

The environmental requirements mandated by LAWA state that *"Contractor shall prohibit construction diesel vehicles or equipment from idling in excess of the idling restrictions as defined in the CARB Vehicle Idling Rule. The contractor shall advise drivers and operators of these requirements at the pre-construction orientation meeting, remind them on a daily basis, and post signs in appropriate places indicating the CARB Vehicle Idling Rule. Exemptions may be granted for safety and operational reasons, as defined in CARB or as approved by the Engineer. The contractor and subcontractors shall have policies and procedures in place for compliance with the Vehicle Idling Rule and a copy of such shall be submitted within 30 days of Notice to Proceed to the Engineer for approval"*.

In CFCI's capacity as Third Party Monitor, monitoring, documentation, and reporting of operational requirements was conducted in accordance with the following two Tasks:

- Task 6.1 – The Independent Third Party Monitor shall establish processes and procedures for determining whether a construction firm is complying with the operational requirements specified by LAWA. For the purpose of this Task, Operational Requirements include, but are not limited to, engine idling and engine maintenance requirements;
- Task 6.2 – The Independent Third Party Monitor shall monitor, document, and independently report to LAWA and the Coalition Representative on operational requirements issued and enforced by LAWA as they relate to limitations on idling and engine maintenance, at a minimum. Idling and engine maintenance records for construction equipment related to the LAX Master Plan Program will be provided to the Contractor by LAWA.

The following sections describe the process developed and implemented to track adherence to the operational requirements delineated in the CBA, as well as the independent findings of the Interim Third Party Monitor.

Process for Determining Compliance with Operational Requirements

The process to determine construction contractor compliance with the Operational Requirements set forth in the CBA has two distinct components:

1. Review by the Independent Third Party Monitor of applicable written procedures, monthly logs, and records documenting construction contractor compliance with Operational Requirements;
2. Onsite inspections conducted independently by the Third Party Monitor to confirm Operational Requirements are being implemented in accordance with CBA requirements.

In conducting reviews of construction contractor records, logs, and written procedures, requests for specific information and/or documents were submitted by the Third Party Monitor to LAWA's construction manager's staff. Requests for documentation were in turn submitted to the construction contractor by LAWA. This protocol was established and adhered to by all parties to ensure the reporting relationships between LAWA's environmental monitor and the construction contractor were maintained and to prevent requests from the Third Party Monitor being construed by the construction contractor as contractual direction.

Once obtained by LAWA construction manager staff, the requested records, logs, and written procedures are provided to the Third Party Monitor for review. In most cases, photocopies are provided. In certain cases, such as equipment maintenance records, however, documents are retained at a location other than the on-site construction trailers; this requires that the documents be inspected at the offsite location. This is discussed further under Task 6.2, below.

Vehicle and Equipment Idling – The Environmental Requirements for the MSC project prohibit construction vehicles and equipment from excessive idling in accordance with the restrictions defined in the CARB Vehicle Idling Rule[5]. This Rule, more formally referred to as the *Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling*, is codified in Title 13 Section 2485 of the California Code of Regulations and took affect on February 1, 2005.

The law states that operators of diesel fueled commercial vehicles with a gross vehicle weight rating (GVWR) of 10,000 pounds or greater shall not idle their vehicle's primary diesel engine for greater than five (5) minutes at any location. The law only applies to commercial vehicles that are or must be licensed for operation on the highway.

The "five minute rule" is waived under the following circumstances:

- Idling when the vehicle must remain motionless due to traffic conditions;
- Idling when the vehicle is queuing that at all times is beyond 100 feet from any restricted area (i.e., homes and schools);
- Idling to verify safe operating condition;

[5] www.arb.ca.gov/toxics/idling/regtext.htm

- Idling mandatory for testing, servicing, repairing, or diagnostic purposes (cleaning of commercial vehicles is not considered servicing);
- Idling when positioning or providing power for equipment that is performing work;
- Idling when operating defrosters, heaters, air conditioners, or other equipment to prevent a safety or health emergency.

While the CARB Rule pertains only to "on-road" vehicles, it is important to note that LAWA extends the CARB idling restrictions to off-road vehicles and equipment operating in conjunction with the MSC project. In practice, LAWA's enforcement of idling restrictions exceeds those mandated under the CARB Rule for both on-road and off-road vehicles and equipment.

The Third Party Monitor reviewed and independently verified the following documentation pertaining to notice of idling restriction requirements:

- Posted Signs – large signs are posted at the construction site entrance in clear view of trucks entering the air operations area. These signs clearly state the restrictions on vehicle idling;
- Written Policies – LAWA construction manager staff provided the Third Party Monitor with copies of the written idle restriction policies and procedures provided to the construction contractor;
- Notes from LAWA's construction contractor/ environmental monitor Status Meetings – in which reiteration of LAWA idling restrictions were reviewed.

LAWA's environmental monitor confirmed that excessive idling had a lower incidence rate when compared to other LAX Master Plan projects. The CARB anti-idling rule has been in place long enough that most vehicle and equipment operators are aware of its existence. Additionally, major construction had yet to start; the number of vehicles and equipment operating during initial construction is limited.

Equipment Maintenance Records – The CBA requires that the construction contractor properly maintain all equipment in accordance with the manufacturers' specifications and schedules. Further, that all maintenance and repair records shall be made available upon request. The Third party Monitor made this request and was awaiting receipt of vehicle maintenance records.

LAWA's environmental monitor and the Third Party Monitor also conduct regular visual inspections of diesel equipment operating on LAX Master Plan projects, looking for excessive exhaust soot or other

indications that the equipment is in a state of disrepair. During the reporting period, no vehicles or equipment were determined by LAWA to be emitting excessive smoke. This is due in large part to the high percentage of Tier 4 equipment being utilized on the MSC project.

TASK 7: ENFORCEMENT BY LAWA

Section 7 of the Independent Third Party Monitor Scope of Work states that: "The Contractor shall monitor, document and independently report to the Coalition Representative on enforcement actions by LAWA".

During the period of January 1, 2017 through June 30, 2017, LAWA's environmental monitor noted reasonable compliance with environmental policies. An exception noted by LAWA project managers was contractors who attempted deliveries outside of the allowable delivery hours. Multiple curfew violations resulted in enforcement actions by LAWA.

No enforcement actions were required for excessive noise. The Third Party Monitor was informed that LAWA did enforce fugitive dust control. No South Coast AQMD Notices of Violation (NOV) were issued during the reporting period for dust violations, however.

Figure 7-1: Fugitive Dust Control on the MSC Crusher

TASK 8: REASSESSMENTS OF EMISSION CONTROL DEVICES

The Community Benefits Agreement Section X.F.9 requires that a reassessment of best available emission control devices be conducted on an annual basis, or more frequently if warranted. The purpose is to ensure that bid documents take into account advances in emission control devices prior to bidding new construction phases of the LAX Master Plan Program. This reassessment was conducted for all verified devices as of for the annual period commencing January 1, 2016 to June 30, 2017.

Section X.F.9 further requires that the emission control technology review process include any new and relevant requirements or regulations promulgated by CARB or the U.S. EPA, with the understanding that the results from any reassessment of diesel emission control systems cannot be applied retroactively. Specifically, Section X.F.9.b. states "any new designations of emission control devices as best available shall apply only to projects that start after the devices are verified or certified for use by CARB or the EPA... "

During the period of January 1, 2016 through June 30, 2017, the US EPA or CARB verified no additional diesel emission control systems. Given that new on-road and off-road vehicles and equipment are now manufactured with factory installed emissions control systems, including Tier 4 off-road equipment, there is a limited market for new VDECS for vehicle retrofits.

Task 9: Implementation of Public Complaint Registration Process

Task 9 of the Third Party Monitor Scope of Work requires the contractor to develop and implement a public complaint registration process. The components of the task are:

- Task 9.1 – Contractor shall develop and implement a process allowing any member of the public to register a complaint alleging any entity's noncompliance with the requirements of CBA Section X.F.
- Task 9.2 – Contractor shall investigate all complaints registered by a member of the public and determine if, when, and where a violation occurred. Contractor shall notify LAWA and the LAX Coalition Representative each time a complaint is registered.
- Task 9.3 – Contractor shall provide records or summaries of public complaints registered with Contractor, including actions, findings, and determinations, to the public upon request. Contractor shall provide LAWA and the LAX Coalition Representative copies of all actions, finding, and determinations requested by the public.

As LAWA already has a widely publicized hotline for complaints, it was decided to utilize the existing number instead of establishing a new one in order to avoid duplication and potential confusion in the community.

- No fugitive dust complaints were recorded, and LAWA, the South Coast AQMD, or any other environmental regulatory authority took no enforcement actions during that period;
- No excessive noise complaints were lodged during the reporting period.

Factors that most likely contribute to the absence of public complaints include:

- Dissemination and strict enforcement of the environmental requirements of the CBA by LAWA's environmental monitor and inspectors;
- Construction activities associated with the MSC project primarily take place largely in the geographic center of the LAX airfield. Sensitive receptors, such as the communities of El Segundo, are to a large extent buffered by the South Airfield runways. A similar situation exists on the Northern area, where the North Airfield runways provide a buffer. This serves as a barrier to common construction nuisances such as noise curfew violations.

SECTION 3 - RESULTS AND CONCLUSIONS

The following is a summary of Third Party Monitor independent monitoring results and findings for the six-month period commencing January 1, 2017 and ending June 30, 2017:

- Monitoring and documentation of diesel equipment utilized or proposed for utilization on the Midfield Satellite Concourse - North. A total of 468 pieces of construction equipment were independently assessed to determine compatibility with a commercially available CARB/EPA-verified diesel emission control system. This includes 293 on-road vehicles and 175 pieces of off-road construction equipment;
- Monitoring of diesel emission control devices installed on construction equipment. As documented in the above Sections of this report, 100% of the on-road vehicles were equipped with a Level 3 verified diesel emission control device. 110 pieces of off-road equipment were equipped with a Level 3 VDECS – this includes construction equipment designated as Tier 4i and Tier 4F equipped with a factory-installed VDECS;
- A review and documentation of all exemptions granted by LAWA that allow a piece of diesel construction equipment to operate on LAX construction projects without a best available control technology retrofit. This includes equipment that was deemed incompatible with a verified VDECS, or granted a "20-day" exemption on the basis of infrequent equipment use. A total of four (4) vehicles were granted 20-day exemptions. Eight pieces of off-road equipment were found to be incompatible with a VDECS – these include relatively low horsepower (< 50 HP) equipment;
- During the reporting period, no Notice of Violation (NOV) were levied by the South Coast Air Quality Management District for fugitive dust emissions associated with either earth moving operations or recycled concrete aggregate crushing. No dust complaints were received by LAWA from the public. LAWA project management, however, did enforce what were deemed to be excessive dust emissions during construction.
- No excessive noise complaints were received during the reporting period from the public.
- In accordance with CBA requirements, CFCI conducted a reassessment of available CARB and EPA-verified diesel emission control systems. This reassessment is conducted on an annual basis. The intent is that LAWA use these findings to designate newly verified devices as best

available control devices and incorporate the requirement to use these devices into construction bid documents for new construction phases of the LAX Master Plan Program. These findings, however, are not to be applied retroactively to Master Plan Projects already in the construction phase.

As a result of this reassessment, it was determined that no new verified diesel emission control systems have been verified for either on-road vehicles or off-road equipment during the reporting period.

Overall, diesel equipment used on construction activities during the specified time period was found to be in substantial compliance with all provisions of the CBA Section X.F. As discussed in previous sections, 100% of on-road construction equipment supporting MSC-North construction was found to be compliant with the CBA. The compliance rate for off-road construction equipment was found to be 70%, consistent with past LAX Master Plan Projects.

The next Semiannual Report will cover the period commencing July 1, 2017 and ending December 31, 2017. The Report will cover the continuation of construction activities for the Midfield Satellite Concourse - North project.

LAX Master Plan Projects Semiannual Report
Independent Third Party Monitor

Prepared by:

Clean Fuel Connection, Inc.

February 25, 2018

TABLE OF CONTENTS

Cover Photo Courtesy of Ray Gorski

SECTION 1 - INTRODUCTION

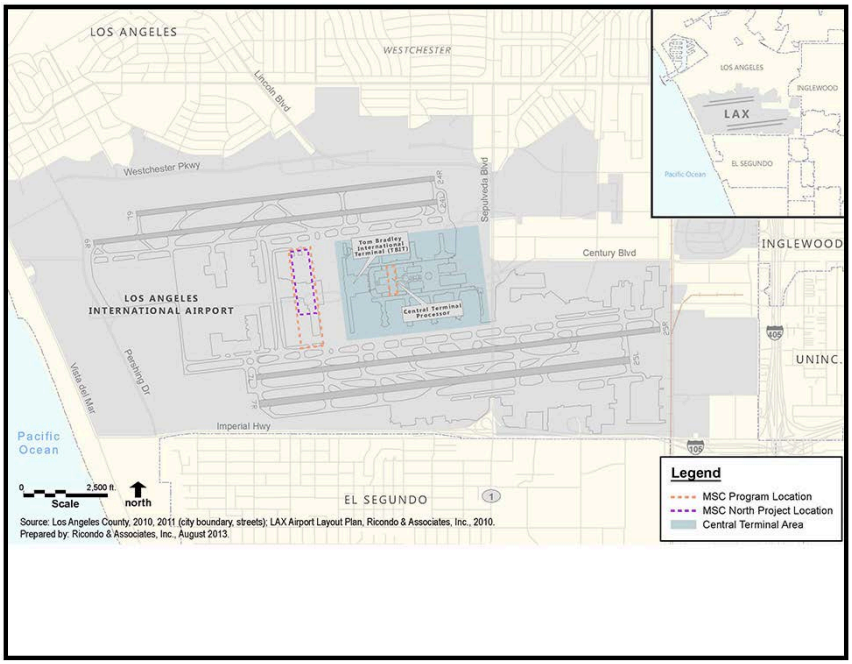
This Semiannual Report was prepared by Clean Fuel Connection Inc. (CFCI), Independent Third Party Monitor for LAX Master Plan Projects, and is submitted in accordance with Section X.F.8 of the Community Benefits Agreement (CBA)[1]. The purpose is to document CFCI's efforts as they relate to the monitoring of LAX Master Plan construction activities and construction contractor's conformance to requirements specified in CBA Section X.F.

This Semiannual Report covers the period commencing July 1, 2017 and ending December 31, 2017. During this period, one (1) LAX Master Plan project had ongoing construction activities. This project is the Midfield Satellite Concourse North (MSC).

The MSC Project includes a new passenger concourse facility approved as part of the LAX Master Plan. The MSC facility is located in the central area of the airfield, west of Tom Bradley International Terminal (TBIT). The MSC Program also includes a Central Terminal Processor, conveyance systems for passengers and baggage, and new taxiways/taxilanes and airport aprons. The construction contractor is Turner/PCL, a Joint Venture in association with Corgan/Gensler.

Figure 1-1 shows the location of the MSC North Project on the LAX airfield.

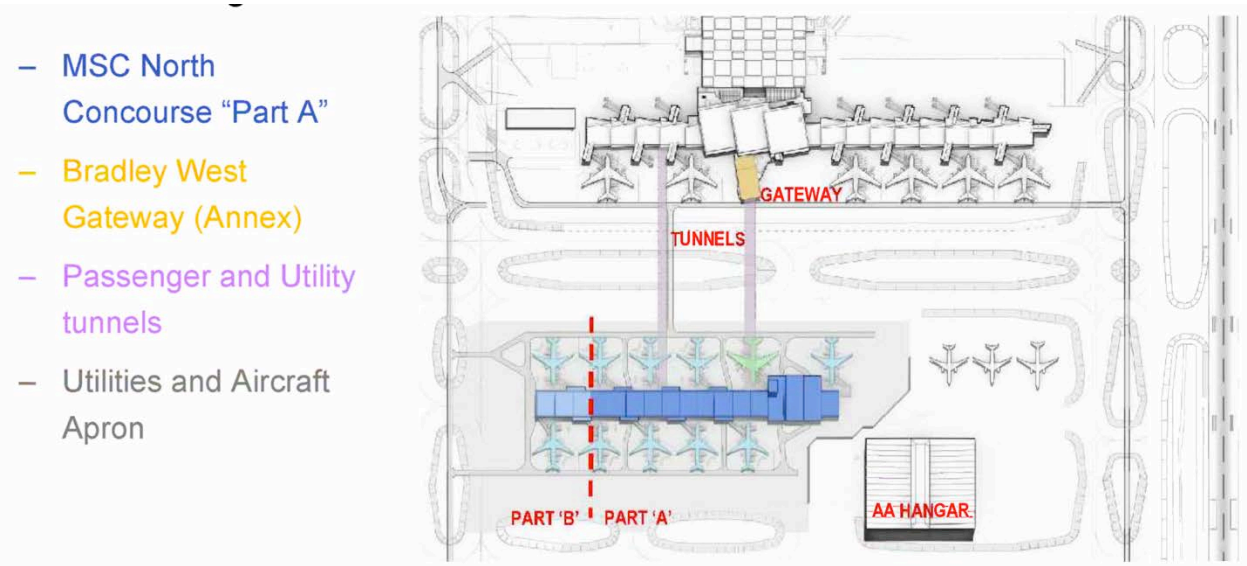
Figure 1-1 – Location of the Midfield Satellite Concourse Project



[1] http://www.lawa.org/ourLAX/AnnualReports.aspx?id=8034

Due to the size and scale of the MSC Program, LAWA proposes to develop the MSC Program in independent phases. Phase 1 ("MSC North Project") of the MSC Program is the construction of the northern portion of the multi-story MSC facility and associated improvements, as shown below in Figure 1-2:

Figure 1-2 –Midfield Satellite Concourse Phase 1 – North Project



This Semiannual Report will discuss adherence to the CBA requirements during MSC construction.

Third Party Monitoring - CFCI's efforts in monitoring, documenting, and reporting on the status of CBA Section X.F as it pertains to LAX Master Plan projects include:

- **Development of an Equipment database to include all known equipment utilized in each Master Plan Project**. This database documents the technical specifications of each piece of on and off-road construction equipment. The database documents each piece of equipment relative to compatibility with diesel emission control devices, the emission control device used or planned for use on each piece of construction equipment, or whether the equipment was determined to be incompatible with any available emission control system. The database also documents all equipment operating under an approved Los Angeles World Airports (LAWA) exemption, including but not limited to "20-day" exemptions, driver-visibility safety exemptions, or special circumstance exemptions;
- **Field verification of the equipment database and reconciliation with LAWA's environmental monitor vehicle records**. The construction contractors provide LAWA's environmental monitor with airfield equipment lists on a periodic basis (typically monthly). The Third Party Monitor

reviews all available vehicle records for the purpose of verifying compliance with 20-day exemption obligations as well as reconciling LAWA's environmental monitor records with the Third Party Monitor equipment database;

- **Examination and verification of requests for exemptions from installation of Best Available Control Technology (BACT).** As discussed in Section 2 of this Report, CFCI independently reviews each piece of construction equipment proposed for use on a LAX Master Plan project to determine compatibility with a commercially available California Air Resources Board (CARB) or U.S. Environmental Protection Agency (EPA) verified Diesel Emission Control System (VDECS). The results of this independent assessment are documented in each Semiannual Report as well as the equipment database;
- **Examination of fuel purchase records to verify that low sulfur diesel is being used**. This task has been substantially reduced in scope due to enactment of state law that allows only ultra-low sulfur diesel (ULSD) to be sold for on and off-road vehicles in California;
- **Monitoring of installed emission control devices on construction equipment**. This includes physical inspections of diesel construction equipment retrofitted with a VDECS to ensure emission control devices are properly installed and functioning;
- **On-airfield monitoring of construction equipment operations enforcement**. This includes, but is not limited to, observation of construction operations to determine compliance with equipment idling restrictions, fugitive dust emissions mitigation requirements, as well as identification of construction equipment in an apparent state of disrepair due to the presence of visible smoke;
- **Annual Reassessment of Available Emission Control Systems**. On an annual basis, the Third Party Monitor conducts a comprehensive evaluation of available CARB and EPA-verified emission control systems. The purpose of this reassessment is to ensure LAWA incorporates the any newly designated best available control strategies into construction bid documents prior to bidding of new construction phases of the LAX Master Plan Program. The process of emission control technology review also includes any new, relevant requirements promulgated by CARB or EPA. This Semiannual Report includes the results of the Annual Emission Control System Reassessment.

The CFCI project staff is comprised of the following individuals:

- Enid Joffe, founder and owner of Clean Fuel Connection, Inc.;
- Ray Gorski, lead air quality engineer and principal field engineer;
- Lauren Dunlap, air quality engineer and principal analyst in determining compatibility of emission control devices and calculations of emission reductions for VDECS installed on Master Plan project equipment. In addition, Lauren quantifies air quality benefits associated with onsite concrete crushing and batch plant concrete production.

Figure 1-3 –Aerial View of Midfield Satellite Concourse Phase 1 – North Project

SECTION 2 - TASK-BY-TASK STATUS REPORT

The following section documents CFCI's work during the past reporting period on each of the specific tasks in the Third Party Monitor Scope of Work.

TASK 1: BEST AVAILABLE EMISSIONS CONTROL DEVICES REQUIRED

Section X.F.1 of the Community Benefits Agreement (CBA) for the LAX Master Plan Program requires that all diesel equipment used for construction be outfitted with the best available emission control devices, primarily to reduce diesel particulate matter on the order of 10 microns[2] in diameter (PM_{10}), and fine particulate, which is on the order of 2.5 microns in diameter ($PM_{2.5}$). A secondary objective of this requirement is to reduce oxides of nitrogen emissions (NO_x), which are ozone precursors. Section X.F.1 of the CBA applies the requirement to outfit all diesel equipment, including off-road vehicles such as heavy-duty construction equipment, as well as on-road vehicles such as trucks, street sweepers, etc. The requirement also affects non-mobile diesel sources, such as portable generators, air compressors, and light towers. Thus, the requirement to retrofit diesel equipment used in LAX Master Plan construction projects encompasses every piece of diesel equipment, irrespective of its status as on-road mobile, off-road mobile, or stationary.

Section X.F.1 requires that the diesel emission control systems used to retrofit diesel equipment be verified or certified for use on on-road or off-road vehicles or engines by the California Air Resources Board (CARB), or verified by the U.S. Environmental Protection Agency (EPA) for use on on-road or off-road vehicles or engines. Section X.F.1 further allows CARB and EPA-verified "mobile source" devices to be applied to "stationary sources", such as generator engines, and allows technologies verified for "on-road" engines to be applied to "off-road" equipment. Thus, the overall context of Section X.F.1 is very broad and allows maximum flexibility in matching diesel emission control systems with diesel equipment used in Master Plan construction.

The role and responsibilities of the Independent Third Party Monitor as it relates to Section X.F.1 of the CBA is delineated in the following contract Task statements:

[2] One micron equals $1x10^{-6}$ meter or 0.000001 meter.

- Task 1.1 - Contractor shall develop a monitoring process and database to track each piece of diesel equipment used for construction, including documentation procedures and reporting requirements;
- Task 1.2 – Contractor shall monitor, document, and report independently from LAWA, each construction firm's compliance as it relates to outfitting their diesel construction equipment with the best available emissions control devices available.

The following are the results and findings of the Third Party Monitor as they relate to Tasks 1.1 and 1.2 for the period commencing in July 1, 2017 through December 31, 2017.

Task 1.1 – Monitoring Process, Database Development, and Documentation:

Key elements of the monitoring process include:

- *Review of available documentation* – The principal source of technical information for each vehicle proposed for operation on the MSC project are the equipment reports submitted by the construction contractors for review by LAWA's environmental monitor and environmental management staff. These reports document whether or not a compatible verified diesel emission control system (VDECS) is available for a given piece of diesel equipment;
- *Incorporation of all available data into an Equipment Database* – All relevant information derived from review of the equipment reports or field inspections is documented in the equipment database. This database is the principal tool for performing independent verification and validation of the information contained in the equipment reports reviewed and approved by LAWA;
- *Identification and documentation of missing, inconsistent, or inaccurate data* – The database notes which pieces of information are either missing or whose accuracy is suspect;
- *Request for Additional Information and/or Clarification* – Missing data or data that require validation are compiled, and a request for clarification is issued by the Independent Third Party Monitor to LAWA's environmental monitor staff;
- *Field Inspections* – In specific cases, the Independent Third Party Monitor will request permission to conduct a field inspection of the specific piece of equipment under scrutiny;

- *Task 1.2 Independent Verification and Validation* – For each piece of diesel construction equipment included in the database, an independent determination of whether or not a compatible VDECS device is available is conducted;
- *Documentation of Analysis Results* – For each piece of diesel equipment assessed, the availability and compatibility of a VDECS is recorded in the database;
- *Data Reconciliation* – The Third Party Monitor reconciles information contained in the database with the reports maintained by LAWA's environmental monitor and the construction manager's staff.

The Database Development element of Task 1.1 was conducted in accordance with a single objective – record as much data and supporting information as possible to fully characterize each piece of equipment proposed for operation on an LAX Master Plan construction project. To ensure completeness the database incorporates the following data fields:

- *Equipment ID Number* – Most equipment operating on an LAX Master Plan construction project is marked with a unique identifying number by the equipment owner. It has been the practice of the Independent Third Party Monitor and LAWA's environmental monitor staff to use this unique ID when describing, discussing or documenting a specific piece of equipment. All equipment is tracked and monitored relative to this ID number;
- *Owner* – the owner of the piece of diesel equipment, including prime contractor and name of subcontractor or equipment rental company;
- *Equipment Category* – A brief description for the type of diesel equipment, such as "articulated dump truck";
- *Equipment Manufacturer* – The manufacturer of the piece of equipment, usually the equipment chassis. In most cases the manufacturer of the chassis is different from the engine manufacturer;
- *Equipment Model Year* – The year of manufacture of the equipment or vehicle, usually referring to the chassis and vehicle body. It should be noted that it is common for the equipment chassis or body and diesel engine to be different model years;

- *Equipment Model Number* – The number or other descriptive terminology used by the equipment manufacturer in marketing the vehicle, oftentimes used to differentiate similar products;
- *Equipment Serial Number* – This differs from the Equipment ID number described above. The equipment serial number is the vehicle chassis or body identification number assigned by the equipment manufacturer;
- *Engine Manufacturer* – The manufacturer of the main diesel engine used in the equipment. In some cases, most notably off-road heavy-duty scrapers and on-road street sweepers, the equipment has two diesel engines. The first and second engines are designated #1 and #2, respectively, in the database;
- *Engine Model* – The number or other descriptive terminology used by the manufacturer in engine marketing, used to differentiate similar products;
- *Engine Model Year* – The year of manufacture of the diesel engine, diesel emission control devices are often verified for a specific engine model year;
- *Engine Serial Number* – A unique identification number or alphanumeric code assigned by the engine manufacturer;
- *Engine Displacement* – The total volumetric size of the engine's combustion cylinders, usually described as "cubic inches" or "liters". Displacement expressed in cubic inches is calculated by multiplying the number of cylinders by the piston area (square inches) and by the length of the piston stroke (inches). The commonly used metric designation of "liters" is the total engine displaced volume measured in cubic centimeters (1 liter = 1,000 cubic centimeters);
- *Engine Horsepower* – The rated horsepower of the engine by the engine manufacturer;
- *Engine Family* – Engine Family is a descriptive designation given by CARB to a diesel engine upon certification. It is a code, similar to an automobile Vehicle Identification Number, that identifies the engine model year, engine manufacturer, the engine's displacement, on-road or off-road applicability, emissions equipment included during certification testing. This piece of data, along with engine manufacturer and engine model year, is essential to determine conclusively if a VDECS is compatible with the engine undergoing assessment. With practice, one can quickly ascertain a substantial amount of information about an engine by deciphering the engine family designation;

- *Engine #2 Data* – Similar to the above for Engine #1, data are documented for the second diesel engine on a piece of equipment. In the case of heavy-duty earth moving scrapers, the two engines are front and rear; in the case of street sweepers, the second engine is an auxiliary engine that operates the vehicle's rotary brooms and vacuum system.

  For each piece of diesel equipment, the database also documents:

- Whether that piece of equipment has or is currently operated on a Master Plan project. For equipment that has been removed, the date of removal is recorded if known. This portion of the database is currently undergoing reconciliation with the results of the airfield equipment inventory.

- For equipment operating under a 20-day exemption, the date the equipment was placed on the airfield and the date removed. For more discussion on 20-day exemption status, please refer to the Task 4 Section of this report;

- Each piece of equipment's compatibility with both off-road and on-road Verified Diesel Emission Control Systems available at the time the equipment was originally submitted by the owner for review by environmental monitor staff.

During the period ending December 31, 2017, a total of 974 pieces of construction equipment associated with the overall MSC project was assessed. The equipment information described herein is based on the equipment lists provided by LAWA environmental management.

<u>Task 1.2 – Independent Monitoring, Documentation, & Reporting of Compliance with CBA Section X.F.1; Best Available Emission Control Devices Required</u>:

The primary objective of this Task is to independently verify and validate the findings of LAWA's environmental monitor and contractor staff as it relates to the availability and compatibility of diesel emission control systems for diesel equipment operating on a Master Plan Project. Using the methodology described under Task 1.1, CFCI staff regularly coordinates with LAWA's environmental monitor, requesting and receiving access to files and records for diesel equipment operating or proposed for operation on a Master Plan project.

Only CARB and/or EPA-verified devices available at the commencement of construction activities on a specific Master Plan project were considered when assessing compliance with CBA Section X.F.1. This is based upon the following language included in the CBA:

- The CBA stipulates in Section X.F.9.a. "Reassessments of Emission Control Devices", that *"the process of emission control technology review shall include any new relevant requirements or regulations promulgated by CARB or EPA. Results from the reassessments shall not be applied retroactively"*;
- CBA Section X.F.9.b. states under "Application of New Requirements", that *"any new designations of emission control devices as best available shall apply only to projects that start after the devices are verified or certified for use by CARB or EPA, or approved for use as part of a Demonstration Project"*.

At the time of commencement of construction activities on the MSC project, multiple diesel emission control devices were verified by CARB for off-road use. CARB assigns a designation to each diesel emission control device as a function of its effectiveness in reducing diesel particulate matter (PM) emissions. This is referred to as the "Verification Level" of the device; CARB currently recognizes three verification levels, as follows:

- Level 1 – greater than or equal to 25% reduction of diesel PM;
- Level 2 – greater than or equal to 50% reduction in diesel PM;
- Level 3 – greater than or equal to 85% reduction in diesel PM.

As shown above, CARB Level 3 offers the highest level of diesel pollution reduction. In accordance with the CBA, the "Best Available Control Technology" (BACT) is Level 3 verification.

Tier 4 Standards - Tier 4 emission standards, which were phased-in over the period of 2008 - 2015, require that emissions of PM and NOx be reduced by approximately 90% compared to Tier 3 emission levels. These emission reductions are achieved through the use of control technologies—including advanced diesel emission control systems - similar to those required by the 2007-2010 standards for on-road engines. For the purpose of conformance to CBA requirements, equipment and vehicles equipped with an engine certified as "Tier 4 interim" or "Tier 4" final satisfies the diesel particulate matter emission reduction CBA requirements. Tier 4 engines are equipped with diesel PM emission control systems that meet or exceed the performance of a Level 3 BACT system. Tier 4 engines also achieve NOx emissions approximately 90% lower as compared to Tier 3 engines.

Task 1.2 Results

Each piece of diesel equipment submitted to LAWA's environmental monitor for review was independently assessed by the Third Party Monitor to determine its compatibility with a CARB and/or EPA-verified diesel emission control system. The following sections discuss conformance with Task 1.2 for the MSC project for the six-month period ending December 31, 2017.

1.2.1 Midfield Satellite Concourse North – On-Road Vehicles - During the reporting period, a total of 974 pieces of construction equipment was evaluated. This includes 481 on-road vehicles and 493 pieces of off-road construction equipment. LAWA environmental management reviews each piece of equipment and supporting documentation and makes a determination as to whether or not the propose equipment conforms to LAWA environmental policy and the CBA requirements. Of the 493 pieces of off-road construction equipment submitted for review, 107 pieces were either subsequently withdrawn from airfield use consideration by the construction contractor or were disapproved for airfield use by LAWA environmental management.

Table 1.2.1-1, below, lists the on-road vehicles reviewed under this Semiannual Report:

Table 1.2.1-1: MSC North On-Road Vehicles

Identification No.	Description	Year
WP49284	TRUCK - HEAVY LONG END DUMP	2001
F808204	TRUCK - WORK F450	2007
50663	TRUCK On Road Trucks	2007
8L67240	TRUCK WATER TRUCK	2007
8H79816	Truck F450 Work Truck	2007
SE575776	Truck WATER TRUCK - Granite	2008
9F68412	TRUCK Haul Truck	2008
8T09684	Truck - Ram 3500 crew truck	2008
8R00677	Truck - C3500 crew truck	2008
61603U1	Truck - CalEarth Super 10	2008
9F42434	TRUCK Haul Truck	2010
9E06250	TRUCK Haul Truck	2010
9E93027	Truck International	2010
9F16104	Truck Kenworth	2010
9B38607	Truck PTRB	2010
9F00165	Truck PTRB	2010
49568P1	Truck - haul trucks	2010
30367V1	Truck - Cal Earth	2010
TIERITA	Truck - Cal Earth	2010

Identification No.	Description	Year
9E72265	Truck - GO RODRIGUEZ	2010
OZZYSTK	Truck - GO RODRIGUEZ	2010
88526K1	Truck CalEarth	2010
30367V1	Truck - CalEarth Super 10	2010
TBD	Trucks - Granite Cal Earth	2010
TBD	Trucks - Granite	2010
TBD	Trucks - Granite	2010
9F68412	TRUCK Haul Truck	2011
86331D1	TRUCK On Road Trucks	2011
9E63246	Truck PTRB	2011
8416600	TRUCK WATER TRUCK	2011
XP00440	TRUCK Haul Truck	2011
XP00441	TRUCK Haul Truck	2011
25965T1	Truck PTRB	2011
9F11903	Truck PTRB	2011
9F45706	Truck PTRB	2011
WP29583	Truck PTRB	2011
WP31368	Truck PTRB	2011
9E72155	Truck Volvo	2011
WP31368	Truck - haul trucks	2011
9F61543	Truck Haul	2011
4QIV566	Trucks - Haul	2011
9F14989	Trucks - Haul	2011
WP16834	Trucks - Haul	2011
WP71082	Trucks - Haul	2011
WP71809	Trucks - Haul	2011
WP93509	Trucks - Haul	2011
90612D2	Truck - Cal Earth	2011
78927Y1	Truck - GO RODRIGUEZ	2011
8Y35500	Truck - GO RODRIGUEZ	2011
93050S1	Truck - CalEarth Super 10	2011
90612D2	TRUCKS - CALEARTH SUPER 10S	2011
TBD	Truck Striping Truck F550	2012
16716E1	Truck Water Blaster ACX	2012
31184N1	Truck - Flatbed	2012
72035H1	TRUCK On Road Trucks	2012
84603A2	TRUCK On Road Trucks	2012
17648U1	TRUCK WATER TRUCK	2012
7T62023	TRUCK F450 Truck	2012
9F32616	Truck End Dump	2012
9F61241	TRUCK - HEAVY LONG END DUMP	2012
61970A2	Truck-Super10-	2012

Identification No.	Description	Year
74184H1	TRUCK Ford Maintenance Truck	2012
06043M1	Truck Striping Truck F550 - 30,000 lbs.	2012
8L70861	Truck Mechanic - Granite	2012
9F17467	TRUCK Haul Truck	2012
9F61107	TRUCK Haul Truck	2012
72035H1	Truck - 20,000 lbs. PAGE enterprise	2012
07023K1	Truck - 20,000 lbs. PAGE enterprise	2012
86331D1	Truck - 20,000 lbs. PAGE enterprise	2012
9F35126	Truck Freightliner	2012
251401Z	Truck Kenworth	2012
9F29353	Truck Kenworth	2012
9D18020	Truck PTRB	2012
9E25613	Truck PTRB	2012
9E42269	Truck PTRB	2012
9E63910	Truck PTRB	2012
9E80616	Truck PTRB	2012
9F32399	Truck PTRB	2012
9F68191	Truck PTRB	2012
JSUA4	Truck PTRB	2012
9F51641	Truck Volvo	2012
25553T1	Truck - haul trucks	2012
CP99924	Truck - haul trucks	2012
XP02233	Truck - haul trucks	2012
JN4Y49	Crane Linkbelt HTC3140LB - 550 hp	2012
9F02427	Trucks - Haul	2012
9F06621	Trucks - Haul	2012
9F11667	Trucks - Haul	2012
9F33810	Trucks - Haul	2012
9F45933	Trucks - Haul	2012
9F46363	Trucks - Haul	2012
9F69725	Trucks - Haul	2012
WP50691	Trucks - Haul	2012
WP58089	Trucks - Haul	2012
WP63865	Trucks - Haul	2012
WP85683	Trucks - Haul	2012
WP92254	Trucks - Haul	2012
WP94057	Trucks - Haul	2012
XP02136	Trucks - Haul	2012
86948D2	Truck - Cal Earth	2012
MNGRN3	Truck - GO RODRIGUEZ	2012
47882M1	Truck - GO RODRIGUEZ ***	2012
32815W1	Truck - GO RODRIGUEZ	2012

Identification No.	Description	Year
02658D2	Truck - GO RODRIGUEZ ***	2012
60796T1	Truck - GO RODRIGUEZ	2012
11529E1	TRUCK - CONCO GRAVEL	2012
11530E1	TRUCK - CONCO GRAVEL	2012
11531E1	TRUCK - CONCO GRAVEL	2012
11532E1	TRUCK - CONCO GRAVEL	2012
56571F1	TRUCK - CONCO GRAVEL	2012
56572F1	TRUCK - CONCO GRAVEL	2012
56573F1	TRUCK - CONCO GRAVEL	2012
56662F1	TRUCK - CONCO GRAVEL	2012
CP85792	TRUCK - CONCO GRAVEL	2012
CP91650	TRUCK - CONCO GRAVEL	2012
56093H1	TRUCK - CONCO GRAVEL	2012
56094H1	TRUCK - CONCO GRAVEL	2012
70253H1	TRUCK - CONCO GRAVEL	2012
CP74862	TRUCK - CONCO GRAVEL	2012
CP74863	TRUCK - CONCO GRAVEL	2012
CP74869	TRUCK - CONCO GRAVEL	2012
CP74870	TRUCK - CONCO GRAVEL	2012
CP74871	TRUCK - CONCO GRAVEL	2012
CP74872	TRUCK - CONCO GRAVEL	2012
01643U1	Truck CalEarth	2012
40580Z1	Truck - Dump Super 10	2012
90623A2	TRUCKS - CALEARTH SUPER 10S	2012
70109H1	TRUCKS - CALEARTH SUPER 10S	2012
98813D2	TRUCKS - CALEARTH SUPER 10S	2012
32370N1	Truck - Flatbed	2013
31184N1	Truck - Flatbed	2013
31183N1	Truck - Flatbed	2013
19854S1	Truck - Paint Striper	2013
86028C2	TRUCK On Road Trucks	2013
9E86041	TRUCK	2013
CJ-04412	TRUCK WATER TRUCK	2013
9F54458	TRUCK - HEAVY LONG END DUMP-	2013
12149A2	Truck Water Truck -	2013
85313S1	TRUCK Penhall Water Truck	2013
7NYA778	TRUCK Conco Pump Trucks	2013
9D66121	Truck Kenworth	2013
WP47201	Truck Kenworth	2013
31656E2	Truck Mack	2013
9D66067	Truck PTRB	2013
9E61055	Truck PTRB	2013

Identification No.	Description	Year
9E70034	Truck PTRB	2013
9E77508	Truck PTRB	2013
9E83229	Truck PTRB	2013
9F42648	Truck PTRB	2013
9F66037	Truck PTRB	2013
92309R1	TRUCK - WATER TRUCK	2013
9F61106	Trucks - Haul	2013
WP89830	Trucks - Haul	2013
43636Y1	Truck - GO RODRIGUEZ	2013
29172V1	Truck - GO RODRIGUEZ	2013
MNGRN4	Truck - GO RODRIGUEZ ***	2013
70109H1	Truck - GO RODRIGUEZ	2013
70289H1	TRUCK - CONCO GRAVEL	2013
70290H1	TRUCK - CONCO GRAVEL	2013
70291H1	TRUCK - CONCO GRAVEL	2013
70292H1	TRUCK - CONCO GRAVEL	2013
79421H1	TRUCK - CONCO GRAVEL	2013
79422H1	TRUCK - CONCO GRAVEL	2013
79426H1	TRUCK - CONCO GRAVEL	2013
79680H1	TRUCK - CONCO GRAVEL	2013
79681H1	TRUCK - CONCO GRAVEL	2013
CP87839	TRUCK - CONCO GRAVEL	2013
47408H1	TRUCK - CONCO GRAVEL 40X	2013
9E90690	Truck CalEarth	2013
31656E2	Truck - CalEarth Super 10	2013
96699U1	Truck - CalEarth Super 10	2013
04115M1	TRUCK WATER TRUCK	2014
84144U1	TRUCK DUMP TRUCK	2014
05040V1	TRUCK DUMP - PETERBILT - BUBALO	2014
7DWB682	TRUCK Conco Pump Trucks	2014
7ENH865	TRUCK Conco Pump Trucks	2014
39239S1	Truck - 20,000 lbs. PAGE enterprise	2014
7CZS359	TRUCK - CONCO PUMPING TRUCK - MACK	2014
7FNY276	Truck Conco - Pump 14424-	2014
64230S1	Truck PTRB	2014
9B16298	Truck PTRB	2014
9E42354	Truck PTRB	2014
9F16383	Truck PTRB	2014
9F16684	Truck PTRB	2014
9D58048	Trucks - Haul	2014
CP96735	Trucks - Haul	2014
WP16214	Trucks - Haul	2014

Identification No.	Description	Year
88616N1	TRUCK - CONCO GRAVEL	2014
CP79486	TRUCK - CONCO GRAVEL	2014
88616N1	TRUCK - CONCO GRAVEL	2014
98021M1	TRUCK - CONCO GRAVEL	2014
CP79477	TRUCK - CONCO GRAVEL	2014
CP79479	TRUCK - CONCO GRAVEL	2014
CP84854	TRUCK - CONCO GRAVEL	2014
7DWB681	Truck Conco	2014
7PML931	Truck Conco	2014
7DWB680	Truck Conco	2014
81455S1	TRUCK On Road Trucks	2015
SE669506	Truck Conco - Pump 14435-	2015
9F2570	Truck PTRB	2015
84469W1	TRUCK WATER TRUCK	2015
658712	TRUCK WATER TRUCK	2015
72633W1	Truck F-450 Work Truck	2015
81455S1	Truck - 20,000 lbs. PAGE enterprise	2015
7LXE829	Truck Conco - Pump 14430 -	2015
74719T1	Truck CAT	2015
9B16299	Truck PTRB	2015
9F08697	Truck PTRB	2015
9F18342	Truck PTRB	2015
9F18343	Truck PTRB	2015
9F18344	Truck PTRB	2015
9F18462	Truck PTRB	2015
9F25513	Truck PTRB	2015
9F31785	Truck PTRB	2015
9F66033	Truck PTRB	2015
9E72263	Trucks - Haul	2015
9F31785	Trucks - Haul	2015
85552R1	Truck - Cal Earth	2015
71470U1	Truck - GO RODRIGUEZ	2015
38937S1	TRUCK - CONCO GRAVEL	2015
38938S1	TRUCK - CONCO GRAVEL	2015
60351U1	TRUCK - CONCO GRAVEL	2015
74221U1	TRUCK - CONCO GRAVEL	2015
74223U1	TRUCK - CONCO GRAVEL	2015
75737T1	TRUCK - CONCO GRAVEL	2015
75828T1	TRUCK - CONCO GRAVEL	2015
75831T1	TRUCK - CONCO GRAVEL	2015
75832T1	TRUCK - CONCO GRAVEL	2015
75833T1	TRUCK - CONCO GRAVEL	2015

Identification No.	Description	Year
75834T1	TRUCK - CONCO GRAVEL	2015
85745R1	TRUCK - CONCO GRAVEL	2015
9F18309	TRUCK - CONCO GRAVEL	2015
CP85757	TRUCK - CONCO GRAVEL	2015
CP85758	TRUCK - CONCO GRAVEL	2015
CP85769	TRUCK - CONCO GRAVEL	2015
CP85775	TRUCK - CONCO GRAVEL	2015
CP85798	TRUCK - CONCO GRAVEL	2015
CP92516	TRUCK - CONCO GRAVEL	2015
CP92517	TRUCK - CONCO GRAVEL	2015
CP92531	TRUCK - CONCO GRAVEL	2015
WP39525	TRUCK - CONCO GRAVEL	2015
CP92532	TRUCK - CONCO GRAVEL	2015
CP92533	TRUCK - CONCO GRAVEL	2015
CP92542	TRUCK - CONCO GRAVEL	2015
CP92543	TRUCK - CONCO GRAVEL	2015
03102V1	Truck CalEarth	2015
83584W1	TRUCKS - CALEARTH SUPER 10S	2015
96019D2	TRUCK WATER TRUCK	2016
35442Y1	TRUCK WATER TRUCK	2016
98176V1	TRUCK WATER TRUCK	2016
50099Z1	TRUCK - WORK - PETERBILT, GRANITE	2016
22960V1	TRUCK - WORK - PETERBILT, GRANITE	2016
43067U1	Truck - Mechanic	2016
85036Y1	Truck - Comet Boom Truck	2016
7KWT842	TRUCK Conco Pump Trucks	2016
7SQU804	TRUCK Conco Pump Trucks	2016
28909Y1	Truck - 20,000 lbs. PAGE enterprise	2016
11317D2	Truck - Service	2016
11316D2	Truck - Service	2016
7LXF284	Truck Conco - Pump 14432-	2016
7SQU803	Truck Conco - Pump 14436-	2016
9E24811	Truck PTRB	2016
9F42661	Truck PTRB	2016
9F43306	Truck PTRB	2016
9F52953	Truck PTRB	2016
50062Z1	Truck F450 50062Z1	2016
9F41012	Trucks - Haul	2016
9F46362	Trucks - Haul	2016
70114Z1	TRUCK - CONCO GRAVEL	2016
CP94415	TRUCK - CONCO GRAVEL	2016
CP94417	TRUCK - CONCO GRAVEL	2016

Identification No.	Description	Year
CP94428	TRUCK - CONCO GRAVEL	2016
CP94437	TRUCK - CONCO GRAVEL	2016
CP95395	TRUCK - CONCO GRAVEL	2016
7MSB387	Truck Conco	2016
81320W1	Truck - CalEarth Super 10	2016
66826F2	Truck - Ram 4500 Work truck	2016
7TCZ570	Crane - Bragg Crane Unit 11253	2016
9C33501	TRUCK WATER TRUCK	2017
9F56837	Truck	2017
85274A2	Truck-Super10-	2017
9F36864	Truck Kenworth	2017
9F36865	Truck Kenworth	2017
9F54476	Truck PTRB	2017
9F58459	Truck PTRB	2017
9F60181	Truck PTRB	2017
56753Z1	TRUCK - CONCO GRAVEL	2017
56755Z1	TRUCK - CONCO GRAVEL	2017
70252H1	TRUCK - CONCO GRAVEL	2017
70729Z1	TRUCK - CONCO GRAVEL	2017
CP94507	TRUCK - CONCO GRAVEL	2017
7XAT924	Truck Conco	2017
99446B2	Truck - Lube	2017

Description Trucks - Haul	Year 2014
Trucks - Haul	2014
TRUCK - CONCO GRAVEL	2014
TRUCK - CONCO GRAVEL	2014
TRUCK - CONCO GRAVEL	2014
TRUCK - CONCO GRAVEL	2014
TRUCK - CONCO GRAVEL	2014
Truck Conco	2014
Truck Conco	2014
Trucks Cal Earth Haul	2014
Trucks - Anderson Haul	2014
Trucks - Anderson Haul	2014
Trucks - Anderson Haul	2014
Trucks - Anderson Haul	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014

Description	Year
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Truck - fueling	2014
Truck	2014
Truck	2014
Truck 2014	2014
TRUCK On Road Trucks	2015
Truck Conco - Pump 14435-	2015
Truck PTRB	2015
TRUCK WATER TRUCK	2015
TRUCK WATER TRUCK	2015
Truck F-450 Work Truck	2015
Truck - 20,000 lbs. PAGE enterprise	2015
Truck Conco - Pump 14430 -	2015
Truck CAT	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Truck PTRB	2015
Trucks - Haul	2015
Trucks - Haul	2015
Truck - Cal Earth	2015
Truck - GO RODRIGUEZ	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
Trucks - Anderson Haul	2011
Trucks - Anderson Haul	2011

Description	Year
Trucks - Anderson Haul	2011
Trucks - Anderson Haul	2011
Truck Cal earth Super 10	2011
Trucks	2011
Truck	2011
Trucks - Haul	2012
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
TRUCK - CONCO GRAVEL	2015
Truck CalEarth	2015
TRUCKS - CALEARTH SUPER 10S	2015
Truck GO Rodriguez	2015
TRUCK Haul Truck	2010
Truck 2015	2015
Truck 2015	2015
TRUCK	2015
TRUCK WATER TRUCK	2016
TRUCK WATER TRUCK	2016
TRUCK WATER TRUCK	2016
TRUCK - WORK - PETERBILT, GRANITE	2016

Description	Year
Trucks - Anderson Haul	2010
Truck - haul	2010
TRUCK - WORK - PETERBILT, GRANITE 4-24853	2016
Truck - Mechanic	2016
Truck F450 Work Truck	2007
Truck WATER TRUCK - Granite	2008
Truck Kenworth	2010
Trucks - Murray Co.	2014
Trucks - Murray Co.	2014
Trucks - Anderson Haul	2015
Trucks - Anderson Haul	2015
Trucks - Anderson Haul	2015
Truck 2015	2015
Truck 2015	2015
Truck - Comet Boom Truck	2016
TRUCK Conco Pump Trucks	2016
TRUCK Conco Pump Trucks	2016
Truck - 20,000 lbs. PAGE enterprise	2016
Truck - Service	2016
Truck - Service	2016
Truck Conco - Pump 14432-	2016
Truck Conco - Pump 14436-	2016
Truck PTRB	2016
Truck PTRB	2016
Truck PTRB	2016
Truck PTRB	2016
Truck F450 50062Z1	2016
Trucks - Haul	2016
Trucks - Haul	2016
TRUCK - CONCO GRAVEL	2016
TRUCK - CONCO GRAVEL	2016
TRUCK - CONCO GRAVEL	2016
TRUCK - CONCO GRAVEL	2016
TRUCK - CONCO GRAVEL	2016
TRUCK - CONCO GRAVEL	2016
Truck Conco	2016
Truck - CalEarth Super 10	2016
Truck - Ram 4500 Work truck	2016

Description	Year
Truck - Ram 3500 crew truck	2008
Truck - CalEarth Super 10	2008
Truck - haul trucks	2010
Crane - Bragg Crane Unit 11253	2016
Truck GO Rodriguez	2016
Truck GO Rodriguez	2016
Truck GO Rodriguez	2016
Truck GO Rodriguez	2016
Truck Cal Earth Haul Trucks	2016
Crane - LIEBHERR 120T	2016
Truck F450 - Welding	2016
Truck F450 - Welding	2016
Truck - water truck F750	2016
Truck - GO Rodriguez	2016
Truck Water truck	2016
Crane Grove on road	2016
Trucks - Water	2016
Trucks - Water	2016
TRUCK	2016
TRUCK	2016
TRUCK WATER TRUCK	2017
Truck	2017
Truck-Super10-	2017
Truck Kenworth	2017
Truck Kenworth	2017
Truck PTRB	2017
Truck PTRB	2017
Truck PTRB	2017
TRUCK - CONCO GRAVEL	2017
TRUCK - CONCO GRAVEL	2017
TRUCK - CONCO GRAVEL	2017
TRUCK - CONCO GRAVEL	2017
TRUCK - CONCO GRAVEL	2017
Truck Conco	2017
Truck - Lube	2017
Trucks Cal Earth Haul	2017
Truck GO Rodriguez	2017
Trucks - Anderson Haul	2017
Truck - haul	2017

Description	Year
Trucks - Water	2017
Trucks - Water	2017
Truck - Water	2017
Truck - Water	2017
Truck - Water	2017
Truck	2017
Truck	2017
Truck	2017
Truck 2017 temp tags	2017
Truck	2017
Truck	2017
Truck	2017
Truck 2017	2017
Truck 2017	2017
Truck 2017	2017
Truck 2017	2017
Truck F-750 3FRXF7FK0FV099243	2017
Truck 2017	2017
Truck 2017	2017
Truck - Pump 2017	2017
CRANE 2017	2017
TRUCK WATER	2017
Trucks - Water	2018
Truck Water	2018
TRUCK	2018
Trucks	2010

As shown in the above Table, all of the on-road vehicles meet the requirements of the CBA Section X.F.1, in that all of the vehicles are equipped with a verified diesel emission control system (VDECS). The model year 2001 vehicle has been retrofit with a diesel particulate filter. The remaining model year 2007 and newer vehicles are equipped with a factory installed VDECS.

It should also be noted that the model year 2010 and newer on-road vehicles are also equipped with a selective catalytic reduction (SRC) device that reduces oxides of nitrogen (NOx) emissions. The 2010 and newer heavy-duty vehicles are also certified to the 2010 NOx standard of 0.2 g/bhp-hr or cleaner.

Figure 1.2-1: On-Road Trucks Staged Work on MSC-North

An assessment of the on-road truck fleet age and VDECS equipment was conducted. Table 1.2.1-2, below, shows that all vehicles were equipped with a Level 3 VDECS and thus meets the CBA requirement of being equipped with a BACT device.

Table 1.2.1-2: All On-Road Vehicles were Equipped with a Level 3 VDECS

Model Year	Number	Percent
2001 (w/DPF)	1	<1%
2007	5	1%
2008	5	1%
2010	31	6%
2011	63	13%
2012	111	23%
2013	68	14%
2014	47	10%
2015	59	12%
2016	47	10%
2017	41	9%
2018	3	<1%

It should also be noted that the model year 2010 and newer engines are equipped with selective catalytic reduction (SCR) technology to reduce oxides of nitrogen (NOx) emission. 470 vehicles out of the 481 on-road trucks assessed, or approximately 98% of on-road vehicles, are equipped with SCR.

1.2.2 Midfield Satellite Concourse North – Off-Road Equipment - During the reporting period, a total of 175 pieces of off-road construction equipment were evaluated.

LAWA environmental management reviews each piece of equipment and supporting documentation and makes a determination as to whether or not the propose equipment conforms to LAWA environmental policy and the CBA requirements. Table 1.2.2-1, below, lists the off-road equipment reviewed under this Semiannual Report:

Table 1.2.2-1: MSC North Off-Road Equipment

EIN	Equipment Description	Tier
FM5P35	SCRAPER CAT Scraper 637G	T2
JT7H84	SCRAPER CAT Scraper 637G	T2
JN6F86	SCRAPER CAT SCRAPER 637G	T2
VN3T97	CRANE LIEBHERR CRANE	T3
UW9S69	BACKHOE John Deere Backhoe 310SL	T4F
PM4P98	BACKHOE John Deere Backhoe 410L	T4F
TD8M57	BACKHOE John Deere Backhoe 410L	T4F
KE5W48	LOADER John Deere Loader 624K	T4F
TBD	ROLLER Hamm roller HD75 double drum 8 ton	T4i
TBD	Dynapac CP142 9-wheel roller	T2
PK9H53	FORKLIFT Reach Forklift	T4F
XJ7T85	SOILMEC SM14.2/AR drill rig	T4i
RJ3G96	FORKLIFT JLG FORKLIFT	T4F
UE4E67	SOILMEC SM14.2/AR Drill Rig	T4i
DC5H96	FORKLIFT KING Rentals JLG Forklift	T4F
BX9X46	LOADER Komatsu Loader WA320	T4F
HE4W34	CAT ROLLER CS56B - GRANITE	T4F
MD4E68	EXCAVATOR CAT 336F - GRANITE	T4F
GE3U67	LOADER CAT LOADER 950M	T4F

EIN	Equipment Description	Tier
LL6V49	GRADER DEERE - GRADER 772GP - FINEGRADE	T4F
WW9F59	EXCAVATOR LALONDE HITACHI 350LC	T4i
RG5J78	BACKHOE CASE 590SN	T4F
XW9S88	BACKHOE CASE 590SN	T4F
WU4Y43	DRILL RIG SR-60 - SOILMEC	T4i
4HK1-739938	Generator	T4F
4HK1-739949	Generator	T4F
147365	COMPRESSOR IR 185	PERP
138438	Concrete Pump Reed C50SS (138438)	T3
173618	Compressor Doosan XHP750 (173618)	PERP
DF9F96	EXCAVATOR CAT 365B	T1
144671	Compressor I-R 185 (144671)	PERP
TS4D84	LOADER DEERE 310SL	T4F
JR6F66	EXCAVATOR DEERE 85G	T4F
WJ4F44	SKID STEER CAT 272D SKID STEER LOADER	T4i
YD4R94	FORKLIFT GEHL RS6-42 KING EQUIP	T4F
SV4U54	LOADER CAT 966M	T4F
SL6M33	FORKLIFT JLG FORKLIFT	T4F
XB3G34	EXCAVATOR CAT 349F	T4F
DT7R84	FORKLIFT GEHL FORKLIFT - DYNALIFT T4i OR F???	TBD
UB5K46	VOLVO A40G HAUL TRUCK - 469 hp	T4F
FG7Y55	VOLVO A40G HAUL TRUCK -- T4F???	T4F
143090	COMPRESSOR SULLAIR PERP - 143090	T3
AL9L64	BOBCAT	TBD
JU3V78	EXCAVATOR DEERE 135G	TBD
658712	TRUCK WATER TRUCK	TBD
SM5L43	FORKLIFT JLG FORKLIFT	T4F
TB8C56	LOADER Komatsu WA 320PZ	T3
VD7F86	LOADER CAT LOADER 950K	T4F
SG4Y54	FORKLIFT GEHL FORKLIFT RS6-42 KING EQUIP	T4F
YF4N34	EXCAVATOR 350X	T4i
UY9X45	FORKLIFT JLG FORKLIFT	T4i
HF4C75	EXCAVATOR Takeuchi TB2150	T4F
BS9R56	GENIE LIFT	T4i
XV6S93	FORKLIFT XTREME XR1255 - GRANITE	T4i
TU9R57	EXCAVATOR - EAGLE PAINTED	T4i
PC4K79	EXCAVATOR Hitachi ZX470 Excavator	T4F
WJ4Y69	FORKLIFT Cat TL1055C	T4i
CA8L94	LOADER SAVALA SKIP LOADER 210L	T4F
JN8E73	FORKLIFT JLG FORKLIFT	T4F
137755	Concrete Pump Reed C50 (137755)	T3
ME9F99	Excavator Takeuchi TB1140	T4i

EIN	Equipment Description	Tier
RB6B78	Forklift Gehl RS6-42 (EJDXL04.5211)	T4i
BJ3N76	Excavator Deere 250G (FJDXL06.8302)	T4F
BB8J63	Genie Aerial Lift S-80X (FDZXL02 .9020)	T4F
UU4W34	Forklift - Cummins 1255 (FCEXL03.8AAA)	T4F
??	BACKHOE Caterpillar 430	T4i
TG7X94	BACKHOE Caterpillar 430F ST Backhoe	T4i
RV8M85	Bigge Crane Liebherr LTM1220 – T4I	T4i
RR3U34	FORKLIFT GEHL Fork Lift	T4F
XV5S77	Excavator Takeuchi 2150 CL	T4F
HH7E67	FORKLIFT Cummins Forklift 55' Reach () T4F	T4F
NW9E83	EXCAVATOR Isuzu Excavator 350 X4	T4F
WT3F44	CAT LOADER/DOZER 824H	T3
FM5P35	SCRAPER CAT SCRAPER - FRONT- GRANITE 18-077	T2
CK3S97	SCRAPER CAT SCRAPER 637G - REAR GRANITE 18-077	T2
UW5K89	SCRAPER CAT SCRAPER - GRANITE 18-076	T2
PL6B79	EXCAVATOR CAT 328D PL6B79	T3
138438	Concrete Pump Reed C50SS (138438)	T3
173618	Compressor Doosan XHP750 (173618) - 340 hp	T4F
BT6S44	Loader Komatsu WA270 Loader	T4F
BT6M47	SAW Husqvarna Slab Saw	T4F
BH3D64	EXCAVATOR DEERE 225LC	T3
WL7V53	LOADER DEERE 210LE BACKHOE/LOADER	T2
YP4P65	ROLLER CAT CS54	T3
HE9P36	Excavator CAT 349 LaLonde	T4i
FG7Y55	VOLVO A40G HAUL TRUCK -- 469 hp	T4F
UB5K46	VOLVO A40G HAUL TRUCK -- 469 hp	T4F
NN6D79	FORKLIFT JLG FORKLIFT	T4F
YS4N47	DOZER CAT DOZER D8T 367 hp	T4F
PS6C86	Forklift JLG	T4F
DP3Y67	FORKLIFT GEHL RS-519 DP3Y67	T4F
SA5C84	Crane Link-Belt RTC 8090 II 260 HP	T4F
EM9W38	FORKLIFT JLG 12K	T4F
PW4W57	EXCAVATOR Hitachi ZX650 463 hp	T3
HA8S43	Backhoe John Deere 710K 130 hp	T4i
AL9L64	BOBCAT AL9L64	T4F
CG4W33	BACKHOE John Deere Backhoe 410K	T4i
GS5Y58	Loader Komatsu WA-380	T3
138437	REED C-50 (E781, 220 HP	T3
137758	REED C50 (E779	T3
137757	REED C50 (E779	T3
137756	REED C50 (E779	T3
	Truck Water Blaster ACX	TBD

EIN	Equipment Description	Tier
VJ6G97	Excavator Cat 336E Excavator, 225 hp	T4i
KP6C54	Crane GROVE RT 890 -- not for cranes	T4i
SG7C79	Excavator Cat 328D 157 hp	T3
WC3Y59	Loader CAT 950	T4F
KJ3S33	Excavator John Deere 135G	T4F
ET6Y89	JLG Boom lift 49 HP	T4F
BM7K58	Excavator Hitachi Exc ZX470	T4F
RC7C77	Forklift JLG 1055	T4F
JA6G77	Forklift JLG 1255	T4F
UK3R66	Truck Rock Truck Bell 40E	T4F
AM9V49	Crane Link-Belt 80100T	T2
AH8T47	EXCAVATOR Caterpillar 304 CCR Excavator	T4i
AX8L36	EXCAVATOR Caterpillar 328 D LCR Excavator	T4i
US6R64	Excavator Hitachi ZX 245	T4i
XW3A66	Loader John Deere 624 K	T4i
NR8B65	Loader Caterpillar 299 DXHP Compact Track Loader	T4i
N/A	Compressor on Truck	TBD
XE4F99	Saw Concrete Coring Saw 3	T4i
DT6R46	Saw Concrete Coring Saw	T4i
XJ6F86	Saw Concrete Coring Saw 7	T4i
N/A	Truck Conco - Pump 14409- PUMP ENGINE	T2
AL7C96	Saw Concrete Coring Saw	PERP
ES8F57	BACKHOE Caterpillar 430 F2 Backhoe	T4F
NB3F85	BACKHOE John Deere Backhoe 410L	T4F
NP4M64	EXCAVATOR Caterpillar 305 E CR Excavator	UNDER 50
CY5P57	Excavator Caterpillar 314 CR	T4i
PX4C74	Excavator Hitachi ZX 135	T4i
SP9R85	Paver Caterpillar AP-255E	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
FW7R56	Excavator Hitachi ZX300	T4F
MN3S54	Forklift JLG QSF 3.8	T4F
HE9P36	Excavator CAT 349 - 417 hp	T4i
MD4K68	Saw Penhall Concrete Saw	T4F
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
N/A	COMPRESSOR - UNDER 50 -	UNDER 50
WS6N98	Excavator Hitachi ZX670	T4i
WU9H44	Loader Case 1021F	TBD
EM3K73	Saw Penhall Concrete Saw	PERP
NN7U39	Saw Penhall Concrete Saw	PERP

EIN	Equipment Description	Tier
KN8S37	Saw Penhall Concrete Saw	PERP
KN8S37	Saw Penhall Concrete Saw	PERP
YN4J53	Saw Penhall Concrete Saw	PERP
YV8P78	Saw Penhall Concrete Saw	PERP
MU4V86	Saw Penhall Concrete Saw	PERP
WC5Y95	Saw Penhall Concrete Saw	PERP
BN7K39	Paver CR561R - 169 hp w Tier 1 engine	T1
DC5H96	Forklift - King equipment	TBD
MU9H67	Crane Linkbelt RTC 8090	TBD
HW4W77	Excavator CASE 490	T4F
MU9H67	Crane Linkbelt RTC 8090	TBD
XW3A66	Loader John Deere 624 K	T4i
NA9M63	CRANE RTC 8090	T4F
cv4p69	FORKLIFT - GEHL RS-519 CV4P69	TBD
VV6X96	Loader EC480EC Volvo	T4F
EM6Y54	Loader 980K CAT	T4i
SV4U54	LOADER CAT Loader 966M	T4F
N/A	Loader John Deere 624k	T4F
XN5X89	Forklift - King equipment	T4F
XY5E57	Forklift GEHL RS519	T4F
PW4W57	EXCAVATOR Hitachi ZX650 463 hp	T3
HL5N55	Saw Concrete Coring Saw	PERP
BU8Y83	Saw Concrete Coring Saw	PERP
DE9C95	Excavator JD 245G	TBD
CV4P69	FORKLIFT - GEHL RS-519	T4F
UM7K75	Loader Caterpillar 938M	T4F
160404	Generator 300KVA Generator (ND-9100355)	T4i
JL7W57	Excavator CAT 321D LCR, no DPF installed	T3
GG7D68	Crane - Liebherr LR1300sx 536 hp	T4F
JU3V78	EXCAVATOR DEERE 135G	T4i
172756	Generator 100KVA PERP 172756	T4F
PM5T57	Excavator John Deere 644 K Excavator	T4F
FM7M48	Excavator John Deere 300 G	T4F
PM9V48	Grader John Deere 872GP	T4F
KW6P43	Forklift Gehl RS634	T4F
WJ8Y93	Skip loader Case 570N-EP	T4F
HW5P76	Forklift GEHL RS5-19	T4F
JN6M67	Forklift JCB 510	T4F
XB3G34	Excavator CAT 349F	T4F
DK5F85	Backhoe 420F	T4F
RR6V47	Excavator CAT 430F2	T4F

EIN	Equipment Description	Tier
YY4S66	Loader CAT 950M	T4F
HA5H49	Forklift	T4F
SY4Y44	Forklift	T4F
166067	Generator 269 hp.	T4i
166072	Generator 256 hp.	T4i
EA5N76	Forklift	T4F
MU9H67	Crane Linkbelt RTC 8090	T4F
YC8T54	Truck - Rock Truck A40 469 HP	T4F
US6R64	Excavator Hitachi ZX 245	T4i
SV5J89	Loader CAT 963 Track Loader	T3
172753	Generator 322 hp.	T4F
WV3J67	Crane Linkbelt RTC 8090 260 hp.	T4F
RX3W44	Drill Rig RTG 19 Vibratory	T2
PK3Y73	Drill Rig LB24 Liebherr	T4F
SU6R57	Drill Rig Soilmec SR 45	T4F
JA6P63	Forklift	T4F
GD9D58	Forklift	T4F
KM6R46	Crane RTC 8090II	T4F
EMB02652	Loader CAT 950M	T4F
EU8C37	Forklift	T4F
GU8G87	Forklift	T4F
AJ7G64	Forklift	T4F
UM9C73	Forklift	T4F
JA6D66	Forklift	T4F
ER4L37	Forklift	T4F
FT4T64	Crane	T4F
XW4T33	Forklift	T4F
KY6J85	Forklift	T4F
FW6R38	Forklift	T4F
MD5S83	Excavator Link Belt	T4F
EP4P49	EXCAVATOR CAT 336F - GRANITE	T4F
FK7J66	Excavator 490X4	T4F
BY5H87	Excavator	T4F
170118	Compressor Doosan w PERP, 535 hp.	T4F
XB5P44	Crane Grove 240 T Grove	T3
HD5T53	Crane Grove	T4F
FV8W78	Crane Bigge RT345	T3
FM4E46	Excavator Hyundai HX330L	T4F
NF8A65	Loader Case 721F	T4F

EIN	Equipment Description	Tier
TN7P79	Drill rig	T3
GP9V86	Forklift JLG 1055	T4F
RY5P99	Forklift JLG 1255	T4F
73923046	Generator	T4F
MK4V33	Excavator Komatsu	T4F
BX5G94	Excavator Link Belt	T4F
GA4K86	Paving Machine #3754 Terex	T3
BK3H47	Roller	T2
HA8S43	Backhoe 710 - priority	T4i
PB6E39	Scraper 613	T3
YV6S85	Forklift FYDXL3.32NDA	T4F
FB6A57	Forklift	T4F
CS4T58	Forklift	T4F
PA9B54	Forklift	T4F
BP9543	Forklift	T4F
PC9A43	Forklift	T4F
PV7X55	Dozer J Deere 450K	T4F
BR3T63	Dozer J Deere 550K	T4F
SC9E67	Excavator Komatsu 360LC	T4F
KR4X88	Backhoe Deere 310L	T4F
WM7S44	Loader Deere 744K	T4F
WF5L53	Excavator 210D	T4F
EX7E54	Loader Deere	T4i
WP78377	Truck	T4F
VF3E65	Excavator CAT	T4F
AE6X56	Crane link belt	T4F
MS4U95	Loader cat 950M	T4F
JJ3U36	Forklift	T4F
XA4H66	Forklift	T4F
LN7V73	Loader skid steer	T4F
JN8J59	Loader backhoe	T4F
RA3M35	Excavator	T4F
BW8B58	Drill rig	T4I
UT7S33	Loader skid steer	T4F
RS4E48	Loader 31oL	T4F
VE5W77	Loader 544K	T4F
GM7N48	Roller Bomag	T4F
RR8X37	Excavator ZX300	T4F
FU6R33	Forklift	T4F

EIN	Equipment Description	Tier
LR9N66	Loader skid steer	T4F
HP8R64	DOZER JD450-J	T4F
MU9H67	CRANE - Tier Unknown	
TH4C49	Drill Rig	T3
YL4K57	Drill Rig	T1
DL9A58	Excavator Tier -Unknown	
ER5D63	Excavator John Deere 410L	T4F
JW6R76	Excavator ZX870LC-6	T4F
BR8E65	Excavator	T4F
BA7H83	Excavator	T4F
EU9T49	Excavator	T4F
PP7S43	Excavator	T4F
GL4Y49	Excavator	T4F
SS5M84	Excavator	T4F
CH7A93	Excavator	T4F
FF8C55	Excavator	T4F
PB3E77	Excavator	T4F
FR6K73	Excavator	T4F
HD8F56	Forklift	T4F
YC7F78	Forklift - Skid steer	T4F
NS8B89	Forklift - Skid steer	T4F
DW9X63	Forklift - Skid steer	T4F
UH9Y63	Forklift - Skid steer	T4F
JG6B57	Forklift - Skid steer	T4F
YM6A55	Forklift - Skid steer	T4F
FT3L85	Forklift - Skid steer	T4F
ME7B48	Forklift - Skid steer	T4F
UT4J99	Forklift - Skid steer	T4F
SU6W44	Forklift - Skid steer	T4F
SK6Y77	Forklift - Skid steer	T4F
BG3T47	Forklift - Skid steer	T4F
HG4D53	Forklift - Skid steer	T4F
AJ5V56	Forklift - Skid steer	T4F
VF3B69	Forklift - Skid steer	T4F
MM4F75	Loader	T4F
LW7A66	Loader	T4F
JT5C53	Excavator CX145D	T4F
YG6P77	Roller	T4F
WR9G59	Excavator	T4F

EIN	Equipment Description	Tier
TR3P68	Excavator	T4F
NM8B64	Excavator	T4F
WY5C85	Excavator	T4F
YA3P77	Excavator	T4F
MN7B95	Excavator	T4F
NV3A58	Excavator	T4F
WA3N59	Excavator	T4F
VL9E99	Excavator	T4F
RB6L54	Excavator	T4F
PF3R83	Excavator	T4F
YN4U86	Excavator	T4F
HT9Y98	Excavator	T4F
JF3V75	Excavator	T4F
XW9C49	Excavator	T4F
GF4V68	Loader 210L	T4F
LL7V95	Loader 210L	T4F
WL7T98	ROLLER Hamm	T4F
XJ7C76	Crane	T4F
BN8G67	Loader 710L	T4F
XG6F39	Excavator	T4F
PE9G39	Loader CAT 966M	T4F
AC9H48	Loader - skid steer Bobcat Flexibility Engine	FLEX
JU7L98	Excavator	T4F
BS5D77	LOADER BACKHOE	T4F
KE9M77	Excavator	T4F
GB3B83	Excavator	T4F
MD4K68	Saw	T4F
VP5X37	Loader skid steer FLEX ENGINE	FLEX
SD9A86	Excavator	T4F
MG8S55	Excavator	T4F
GM7K68	Excavator	T4F
YX8V33	Excavator	T4F
PT4A87	Excavator	T4F
RF6X66	Loader	T4F
DT3D67	Loader	T4F
TV5P44	Loader	T4F
JJ5L46	Loader	T4F
KJ4L53	Loader	T4F
KP5E57	Loader	T4F

EIN	Equipment Description	Tier
UM5J87	Loader	T4F
CG9J65	Loader	T4F
CS9F34	Loader	T4F
KH3L57	Loader	T4F
NG6L98	Excavator - rubber tire T3	T3
CR7J46	Forklift	T4i
YX7F55	Forklift	T4F
JN3H36	Forklift	T4F
KL7U83	Forklift	T4F
VT9R88	Forklift	T4F
LJ3M63	Forklift	T4F
SB5V95	Forklift	T4F
AE5T33	Forklift	T4F
DG8B33	Forklift	T4F
HX7T96	Forklift	T4F
UT6G74	Forklift	T4F
FK6V54	Forklift	T4F
JJ7Y34	Roller	T4F
DU4V75	Roller	T4F
CN8E64	Roller	T4F
JA3E35	Roller	T4F
HA4R56	Roller	T4F
JL9K75	Loader	T4F
SX5K36	Forklift	T4F
ND7M98	Forklift	T4F
FJ4W78	Forklift	T4F
KN9B75	Forklift	T4F
XJ6F86	Saw	T4i
ET4J34	Backhoe Deere 210L	T4F
HV5N84	Roller	T4F
RE7J83	Crane	T4F
VD9J34	Forklift	T4F
XE4F99	Saw Concrete	T4i
BU8Y83	Saw Concrete	T4i
HL5N55	Saw Concrete	T4i
AA8F79	Backhoe Case 580	T4F
TU5S95	Crane	T4F
DB8K54	Dozer CAT D6T	T4F
NT9J99	Loader	T4F

EIN	Equipment Description	Tier
FF9Y87	Backhoe	T4F
CA3Y95	LOADER	T4F
XJ7C76	CRANE	T4F
DH9V66	CRANE	T4F
NR6X66	CRANE	T4F
3785	PAVER - ASPHALT	T4F
DM7F99	LOADER	T4F
YH3W48	LOADER	T4F
167325	Pumps, diesel - PERP No.	T4i
167816	Pumps, diesel - PERP No.	T4i
161759	Pumps, diesel - PERP No.	T4i
166358	Pumps, diesel - PERP No.	T4i

The above-listed off-road equipment is summarized by emissions rating (Tier) below, including smaller diesel equipment operating under the South Coast AQMS Portable Equipment Registration Program (PERP).

Table 1.2.2-2: Summary of MSC North Construction Equipment Breakdown by Equipment Tier

Emissions Standard/Classification	Quantity
Tier 4 Final	284
Tier 4 Interim	55
Tier 3	31
Tier 2	13
Tier 1	3
Portable Equipment Registration	13
Unspecified (TBD)	20

As shown in Table 1.2.2-2, a high percentage of the construction equipment submitted for LAWA review is factory equipped with a Level 3 VDECS and thus represents the best available emissions control technology (BACT). As discussed in Section 4, a small number of non-BACT equipment was granted airfield access under an approved exemption. For example, thirteen (13) pieces of off-road equipment shown in Table 1.2.2-1, above, is allowed to operate due to its small displacement (<50 HP) and incompatibility with a verified diesel emission control device.

TASK 2: DEMONSTRATION PROJECTS

Section X.F.2 of the CBA states that LAWA may allow construction-related diesel equipment to be outfitted with new emission control systems that are not CARB verified or EPA certified for use for on-road or off-road vehicles or engines. Such projects will be designated by LAWA as "Demonstration Projects". The roles and responsibilities of the Independent Third Party Monitor as they relate to Demonstration Projects is set forth in Task 2 of the contract and includes the following two primary subtasks:

- Task 2.1 – The Third Party Monitor shall perform a technical evaluation of the proposed demonstration technology and provide written findings to the Coalition Representative and LAWA. The Third Party Monitor shall also assist with the implementation of a Demonstration Project, including identifying suitable emission control devices and Demonstration Project funding sources;
- Task 2.2 – Upon acceptance by LAWA, the Third Party Monitor shall monitor, document, and report independently from LAWA, compliance of the demonstration equipment with all defined Demonstration Project requirements, including but not limited to the pollution reduction requirements specified in Section X.F.3 of the CBA.

No demonstration projects were conducted during the six-month period of July 1, 2017 through December 31, 2017.

TASK 3: EMISSION REDUCTION STANDARD

Section X.F.1 of the Community Benefits Agreement (CBA) for the LAX Master Plan Program requires that all diesel equipment used for construction be outfitted with the best available emission control devices, primarily to reduce diesel particulate matter which is on the order of 10 microns[3] in diameter (PM_{10}), and fine particulate, which is on the order of 2.5 microns in diameter ($PM_{2.5}$). A secondary objective of this requirement is to reduce oxides of nitrogen emissions (NO_x), which are ozone precursors. This section also states that under no circumstance shall an emission reduction device or strategy used on the LAX Master Plan Program construction site increase the emission of any pollutant above that which is the standard for that engine.

The role and responsibilities of the Independent Third Party Monitor as it relates to Section X.F.1 of the CBA is delineated in the following contract Task statements:

[3] One micron equals $1x10^{-6}$ meter or 0.000001 meter.

- Task 3.1 - Contractor shall monitor, document, and report independently from LAWA, compliance of each piece of diesel construction equipment used pursuant to CBA X.F.1 as it relates to meeting or exceeding Level 2 diesel emission reductions for a similar sized engine;
- Task 3.2 – Contractor shall monitor, document, and report independently from LAWA, compliance of each piece of diesel construction equipment used pursuant to CBA X.F.1 to ensure its emission reduction device or strategy does not result in an increase of any pollutant above that which is standard for that engine;
- Task 3.3 – Contractor shall monitor, document and report on emission reductions of NO_x, ROG, PM and CO achieved through the use of best available control technology.

Task 3.1 - Monitor, document, and report equipment compliance with Level 2 requirement.

As summarized above in Task 1, the Third Party Monitor compiled a database of LAX Master Plan project equipment. This database is continually updated with new information collected from LAWA's environmental monitor staff on behalf of the construction contractors or visual inspection by CFCI. As part of this inventory, the Task 1 effort included an equipment-by-equipment review for applicability of approved Best Available Control Technologies (BACT). Specifically, the equipment listed in this master database was compared against all available Verified Diesel Emission Control Systems (VDECS), with first priority given to Level 3 diesel emission reductions.

Not all equipment proposed for operation on the MSC Project is necessarily used – contractors provide a list of potential needs prior to the start of construction activities. Typically, a subset of this proposed equipment is actually used in construction activities. Also, not all equipment resides on the airfield during the entire project duration; equipment is moved on and off the airfield as construction demands dictate.

Task 3.2 – Ensure emission reduction devices/strategy does not result in an increase of any pollutant above that which is standard for that engine.

The U.S. EPA and ARB verification procedures are designed to ensure that no measurable increase on other pollutant emissions results from installation of the approved VDECS. One issue that should be noted is that the ARB verification procedures include a NO_2 limit requirement. Specifically, NO_2 may not increase more than 20 percent as a result of the installation and operation of the device[4]. All Tier 4i,

[4] Title 13 CCR section 2706(a)

Tier 4F, and 2007 EPA-compliant equipment and vehicles assessed under Task 1 for the MSC Project comply with the CARB NO_2 limit requirements.

Task 3.3 –Contractor shall monitor, document and report on emission reductions of NO_x, ROG, PM and CO achieved through the use of best available control technology.

A quantification of air quality benefits achieved through the use of best available control technology is not feasible at this time. Equipment operating on the airfield in support of the MSC Project that are equipped with engines certified at the Tier 4 Final and Tier 4 interim levels have particulate matter (PM) that comply with CBA obligations, and also emit oxides of nitrogen (NOx) emission levels that are substantially lower than those required under the CBA.

However, because these vehicles are designed and manufactured to meet more stringent emission standards, they are not "retrofitted" per se with Best Available Control Technologies (BACT) within the context of the CBA. "Tier 4" vehicles - in their baseline configuration - meet CBA requirements. Thus, because Tier 4 vehicles achieve CBA-mandated emission levels in their baseline configuration, there is no other vehicle configuration to compare them to. As a result, Tier 4 diesel equipment is not shown as offering an emissions benefit as a result of imposition of a CBA requirement. The equipment is inherently low emitting and represents the "state of the art" for off-road equipment emissions.

Figure 3-1 –Tier 4 Excavator on Midfield Satellite Concourse Phase 1 Construction Site

TASK 4: EXEMPTIONS GRANTED ON MSC NORTH

4.1 Zero (0) on-road exemptions have been granted by LAWA on the MSC-North project. All of the on-road vehicles submitted for LAWA approval are equipped with a CBA-compliant diesel emission control device.

For off-road equipment, four (4) pieces of equipment were granted a 20-day exemption, and eight (8) pieces of equipment with an engine power rating of 50 horsepower or less were granted a small displacement exemption by LAWA. It should be noted that the CBA does not recognize a small displacement exemption; however, upon review it was determined that this equipment is not compatible with a commercially available VDECS. Thus, this equipment is eligible for an exemption under the "incompatibility with commercially available VDECS" CBA category.

TASK 5: ULTRA LOW SULFUR DIESEL AND OTHER FUELS

Section X.F.5 of the Community Benefits Agreement requires that all diesel equipment used for construction on LAX Master Plan Projects use only Ultra-Low Sulfur Diesel (ULSD) fuel containing 15 parts per million (ppm) of sulfur by weight or less. This requirement is in effect as long as adequate supplies are available in the Southern California region.

There are three tasks in the Scope of Work for the Third Party Monitor related Ultra Low Sulfur Diesel:

- Task 5.1 - Contractor shall monitor, document, and independently report on construction equipment related to LAX Master Plan Program construction as it relates to the use of ultra-low sulfur diesel fuel. Contractor will be provided all available fuel procurement records for construction equipment related to the LAX Master Plan Program;
- Task 5.2 – Contractor shall independently verify and report to LAWA and the Coalition Representative that adequate supplies of ULSD are or are not available in Southern California. For the purpose of this Task, "Southern California" is defined as the geographic region comprising Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties;
- Task 5.3 – Contactor shall independently verify and report to LAWA and the Coalition Representative that fuels substituted in lieu of ULSD do not result in greater emissions of fine PM or NO_x than that which would be produced by the use of ULSD at 15-ppm or lower. Verification will be based on CARB certification or equivalent.

South Coast AQMD Rule 431.2, which took effect on June 1, 2006, requires diesel fuel refined and sold for on-road and off-road use within the jurisdiction of the AQMD to contain no more than 15-ppm sulfur by weight. The California Air Resources Board subsequently adopted this requirement on a statewide basis on September 1, 2006. Thus, ULSD is the only diesel fuel legally available for purchase within California.

To independently verify the sulfur content of the diesel fuel used by equipment operating on LAX Master Plan projects, CFCI has requested fuel purchase records from the contractor and has examined the fuel receipts to ensure that only ULSD is being used. Fuel purchase records are clearly marked "ULSD"; thus, there is no ambiguity as to whether or not the fuel has the ultra-low sulfur content.

TASK 6: OPERATIONAL REQUIREMENTS

Section X.F.6 of the CBA requires that Operational Requirements be issued and enforced by LAWA as it pertains to: a) limitations of equipment engine idling; and, b) maintenance of equipment engines.

The environmental requirements mandated by LAWA state that *"Contractor shall prohibit construction diesel vehicles or equipment from idling in excess of the idling restrictions as defined in the CARB Vehicle Idling Rule. The contractor shall advise drivers and operators of these requirements at the pre-construction orientation meeting, remind them on a daily basis, and post signs in appropriate places indicating the CARB Vehicle Idling Rule. Exemptions may be granted for safety and operational reasons, as defined in CARB or as approved by the Engineer. The contractor and subcontractors shall have policies and procedures in place for compliance with the Vehicle Idling Rule and a copy of such shall be submitted within 30 days of Notice to Proceed to the Engineer for approval"*.

In CFCI's capacity as Third Party Monitor, monitoring, documentation, and reporting of operational requirements was conducted in accordance with the following two Tasks:

- Task 6.1 – The Independent Third Party Monitor shall establish processes and procedures for determining whether a construction firm is complying with the operational requirements specified by LAWA. For the purpose of this Task, Operational Requirements include, but are not limited to, engine idling and engine maintenance requirements;
- Task 6.2 – The Independent Third Party Monitor shall monitor, document, and independently report to LAWA and the Coalition Representative on operational requirements issued and

enforced by LAWA as they relate to limitations on idling and engine maintenance, at a minimum. Idling and engine maintenance records for construction equipment related to the LAX Master Plan Program will be provided to the Contractor by LAWA.

The following sections describe the process developed and implemented to track adherence to the operational requirements delineated in the CBA, as well as the independent findings of the Interim Third Party Monitor.

Process for Determining Compliance with Operational Requirements

The process to determine construction contractor compliance with the Operational Requirements set forth in the CBA has two distinct components:

1. Review by the Independent Third Party Monitor of applicable written procedures, monthly logs, and records documenting construction contractor compliance with Operational Requirements;
2. Onsite inspections conducted independently by the Third Party Monitor to confirm Operational Requirements are being implemented in accordance with CBA requirements.

In conducting reviews of construction contractor records, logs, and written procedures, requests for specific information and/or documents were submitted by the Third Party Monitor to LAWA's construction manager's staff. Requests for documentation were in turn submitted to the construction contractor by LAWA. This protocol was established and adhered to by all parties to ensure the reporting relationships between LAWA's environmental monitor and the construction contractor were maintained and to prevent requests from the Third Party Monitor being construed by the construction contractor as contractual direction.

Once obtained by LAWA construction manager staff, the requested records, logs, and written procedures are provided to the Third Party Monitor for review. In most cases, photocopies are provided. In certain cases, such as equipment maintenance records, however, documents are retained at a location other than the on-site construction trailers; this requires that the documents be inspected at the offsite location. This is discussed further under Task 6.2, below.

Vehicle and Equipment Idling – The Environmental Requirements for the MSC project prohibit construction vehicles and equipment from excessive idling in accordance with the restrictions defined in

the CARB Vehicle Idling Rule[5]. This Rule, more formally referred to as the *Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling*, is codified in Title 13 Section 2485 of the California Code of Regulations and took affect on February 1, 2005.

The law states that operators of diesel fueled commercial vehicles with a gross vehicle weight rating (GVWR) of 10,000 pounds or greater shall not idle their vehicle's primary diesel engine for greater than five (5) minutes at any location. The law only applies to commercial vehicles that are or must be licensed for operation on the highway.

The "five minute rule" is waived under the following circumstances:

- Idling when the vehicle must remain motionless due to traffic conditions;
- Idling when the vehicle is queuing that at all times is beyond 100 feet from any restricted area (i.e., homes and schools);
- Idling to verify safe operating condition;
- Idling mandatory for testing, servicing, repairing, or diagnostic purposes (cleaning of commercial vehicles is not considered servicing);
- Idling when positioning or providing power for equipment that is performing work;
- Idling when operating defrosters, heaters, air conditioners, or other equipment to prevent a safety or health emergency.

While the CARB Rule pertains only to "on-road" vehicles, it is important to note that LAWA extends the CARB idling restrictions to off-road vehicles and equipment operating in conjunction with the MSC project. In practice, LAWA's enforcement of idling restrictions exceeds those mandated under the CARB Rule for both on-road and off-road vehicles and equipment.

The Third Party Monitor reviewed and independently verified the following documentation pertaining to notice of idling restriction requirements:

- Posted Signs – large signs are posted at the construction site entrance in clear view of trucks entering the air operations area. These signs clearly state the restrictions on vehicle idling;

[5] www.arb.ca.gov/toxics/idling/regtext.htm

- Written Policies – LAWA construction manager staff provided the Third Party Monitor with copies of the written idle restriction policies and procedures provided to the construction contractor;
- Notes from LAWA's construction contractor/ environmental monitor Status Meetings – in which reiteration of LAWA idling restrictions were reviewed.

LAWA's environmental monitor confirmed that excessive idling had a lower incidence rate when compared to other LAX Master Plan projects. The CARB anti-idling rule has been in place long enough that most vehicle and equipment operators are aware of its existence. Additionally, major construction had yet to start; the number of vehicles and equipment operating during initial construction is limited.

Equipment Maintenance Records – The CBA requires that the construction contractor properly maintain all equipment in accordance with the manufacturers' specifications and schedules. Further, that all maintenance and repair records shall be made available upon request. The Third party Monitor made this request and was awaiting receipt of vehicle maintenance records.

LAWA's environmental monitor and the Third Party Monitor also conduct regular visual inspections of diesel equipment operating on LAX Master Plan projects, looking for excessive exhaust soot or other indications that the equipment is in a state of disrepair. During the reporting period, no vehicles or equipment were determined by LAWA to be emitting excessive smoke. This is due in large part to the high percentage of Tier 4 equipment being utilized on the MSC project.

TASK 7: ENFORCEMENT BY LAWA

Section 7 of the Independent Third Party Monitor Scope of Work states that: "The Contractor shall monitor, document and independently report to the Coalition Representative on enforcement actions by LAWA".

During the period of July 1, 2017 through December 31, 2017, LAWA's environmental monitor noted reasonable compliance with environmental policies. An exception noted by LAWA project managers was contractors who attempted deliveries outside of the allowable delivery hours. Multiple curfew violations resulted in enforcement actions by LAWA.

No enforcement actions were required for excessive noise. The Third Party Monitor was informed that LAWA did enforce fugitive dust control. No South Coast AQMD Notices of Violation (NOV) were issued during the reporting period for dust violations, however.

Figure 7-1: Fugitive Dust Control on the MSC Crusher

TASK 8: REASSESSMENTS OF EMISSION CONTROL DEVICES

The Community Benefits Agreement Section X.F.9 requires that a reassessment of best available emission control devices be conducted on an annual basis, or more frequently if warranted. The purpose is to ensure that bid documents take into account advances in emission control devices prior to bidding new construction phases of the LAX Master Plan Program. This reassessment was conducted for all verified devices as of for the annual period commencing January 1, 2016 to December 31, 2017.

Section X.F.9 further requires that the emission control technology review process include any new and relevant requirements or regulations promulgated by CARB or the U.S. EPA, with the understanding that the results from any reassessment of diesel emission control systems cannot be applied retroactively. Specifically, Section X.F.9.b. states “any new designations of emission control devices as best available shall apply only to projects that start after the devices are verified or certified for use by CARB or the EPA... “

During the period of July 1, 2017 through December 31, 2017, the US EPA or CARB verified no additional diesel emission control systems. Given that new on-road and off-road vehicles and equipment are now manufactured with factory installed emissions control systems, including Tier 4 off-road equipment, there is a limited market for new VDECS for vehicle retrofits.

Task 9: Implementation of Public Complaint Registration Process

Task 9 of the Third Party Monitor Scope of Work requires the contractor to develop and implement a public complaint registration process. The components of the task are:

- Task 9.1 – Contractor shall develop and implement a process allowing any member of the public to register a complaint alleging any entity's noncompliance with the requirements of CBA Section X.F.
- Task 9.2 – Contractor shall investigate all complaints registered by a member of the public and determine if, when, and where a violation occurred. Contractor shall notify LAWA and the LAX Coalition Representative each time a complaint is registered.
- Task 9.3 – Contractor shall provide records or summaries of public complaints registered with Contractor, including actions, findings, and determinations, to the public upon request. Contractor shall provide LAWA and the LAX Coalition Representative copies of all actions, finding, and determinations requested by the public.

As LAWA already has a widely publicized hotline for complaints, it was decided to utilize the existing number instead of establishing a new one in order to avoid duplication and potential confusion in the community.

- No fugitive dust complaints were recorded, and LAWA, the South Coast AQMD, or any other environmental regulatory authority took no enforcement actions during that period;
- No excessive noise complaints were lodged during the reporting period.

Factors that most likely contribute to the absence of public complaints include:

- Dissemination and strict enforcement of the environmental requirements of the CBA by LAWA's environmental monitor and inspectors;
- Construction activities associated with the MSC project primarily take place largely in the geographic center of the LAX airfield. Sensitive receptors, such as the communities of El Segundo, are to a large extent buffered by the South Airfield runways. A similar situation exists

on the Northern area, where the North Airfield runways provide a buffer. This serves as a barrier to common construction nuisances such as noise curfew violations.

SECTION 3 - RESULTS AND CONCLUSIONS

The following is a summary of Third Party Monitor independent monitoring results and findings for the six-month period commencing July 1, 2017 and ending December 31, 2017:

- Monitoring and documentation of diesel equipment utilized or proposed for utilization on the Midfield Satellite Concourse - North. A total of 974 pieces of construction equipment were independently assessed to determine compatibility with a commercially available CARB/EPA-verified diesel emission control system. This includes 481 on-road vehicles and 386 pieces of off-road construction equipment. Note that an additional 107 pieces of off-road construction equipment were either withdrawn from airfield consideration by the contractor or disapproved for airfield use by LAWA environmental management;
- Monitoring of diesel emission control devices installed on construction equipment. As documented in the above Sections of this report, 100% of the on-road vehicles were equipped with a Level 3 verified diesel emission control device. 339 pieces of off-road equipment were equipped with a Level 3 VDECS – this includes construction equipment designated as Tier 4i and Tier 4F equipped with a factory-installed VDECS;
- A review and documentation of all exemptions granted by LAWA that allow a piece of diesel construction equipment to operate on LAX construction projects without a best available control technology retrofit. This includes equipment that was deemed incompatible with a verified VDECS, or granted a "20-day" exemption on the basis of infrequent equipment use. A total of twenty (20) vehicles were granted 20-day exemptions. Thirteen (13) pieces of off-road equipment were found to be incompatible with a VDECS – these include relatively low horsepower (< 50 HP) equipment;
- During the reporting period, no Notice of Violation (NOV) were levied by the South Coast Air Quality Management District for fugitive dust emissions associated with either earth moving operations or recycled concrete aggregate crushing. No dust complaints were received by LAWA from the public. LAWA project management, however, did enforce what were deemed to be excessive dust emissions during construction.
- No excessive noise complaints were received during the reporting period from the public.

- In accordance with CBA requirements, CFCI conducted a reassessment of available CARB and EPA-verified diesel emission control systems. This reassessment is conducted on an annual basis. The intent is that LAWA use these findings to designate newly verified devices as best available control devices and incorporate the requirement to use these devices into construction bid documents for new construction phases of the LAX Master Plan Program. These findings, however, are not to be applied retroactively to Master Plan Projects already in the construction phase.

  As a result of this reassessment, it was determined that no new verified diesel emission control systems have been verified for either on-road vehicles or off-road equipment during the reporting period.

Overall, diesel equipment used on construction activities during the specified time period was found to be in substantial compliance with all provisions of the CBA Section X.F. As discussed in previous sections, 100% of on-road construction equipment supporting MSC-North construction was found to be compliant with the CBA. The compliance rate for off-road construction equipment was found to be 76%, consistent with past LAX Master Plan Projects.

The next Semiannual Report will cover the period commencing January 1, 2018 and ending June 301, 2018. The Report will cover the continuation of construction activities for the Midfield Satellite Concourse - North project.