Los Angeles International Airport
Sustainable Design & Construction

LEED Certification Starter Kit

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Los Angeles World Airports

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Section 1: Background

Los Angeles World Airports (LAWA) has had a longstanding commitment to advancing sustainability in our built environment and operations, first articulated in our Sustainability Vision and Principles adopted in 2007. As announced by the Honorable Mayor of Los Angeles, Eric Garcetti, at the Greenbuild International Conference in 2016, this Sustainable Design and Construction Policy formalizes the requirement that all LAWA-owned and tenant new construction and major renovation projects achieve Leadership in Energy & Environmental Design (LEED) Silver certification or better. The policy directly aligns with LAWA's 2016 Strategic Plan, *Gold-Standard Airports… Delivered*, and demonstrates LAWA's continued commitment to operating sustainably – balancing economic, social and environmental responsibilities.

In support of our commitment to achieve LEED Silver or better for eligible new construction projects, including those that are part of the $14 billion modernization of LAX, LAWA has assembled this *LEED Certification Starter Kit* to help streamline the LEED certification process. The *Starter Kit* includes standardized documentation for many LEED credits that apply across the LAX campus and LAWA operations that can be leveraged for future projects pursuing LEED certification. Documentation includes sample narrative language and exhibits that project teams may use as a starting point for the LEED certification process.

Existing LAX LEED Certified Projects

LAWA has successfully achieved LEED certification for a range of projects at LAX. A summary of these projects is as follows, including a depiction of which credits and level of certification each project achieved.

Category	Credit (LEED v4)	A	B	C	D	E	F	G
Location & Transportation	LEED for Neighborhood Development Location							
	Sensitive Land Protection ★							
	High Priority Site ★							
	Surrounding Density and Diverse Uses ★							
	Access to Quality Transit ★							
	Bicycle Facilities ★							
	Reduced Parking Footprint ★							
	Green Vehicles ★							
Sustainable Sites	Site Assessment ★							
	Site Development - Protect or Restore Habitat ★							
	Open Space ★							
	Rainwater Management ★							
	Heat Island Reduction							
	Light Pollution Reduction ★							
Water Efficiency	Outdoor Water Use Reduction ★							
	Indoor Water Use Reduction ★							
	Cooling Tower Water Use ★							
	Water Metering ★							
Energy & Atmosphere	Enhanced Commissioning							
	Optimize Energy Performance							
	Advanced Energy Metering							
	Demand Response ★							
	Renewable Energy Production ★							
	Enhanced Refrigerant Management							
	Green Power and Carbon Offsets ★							

Category	Credit	A	B	C	D	E	F	G
Materials & Resources	Life Cycle Impact Reduction							
	Environmental Product Declarations							
	Sourcing of Raw Materials							
	Material Ingredients							
	Construction & Demolition Waste Management ★							
Indoor Environmental Quality	Enhanced Indoor Air Quality Strategies							
	Low-Emitting Materials							
	Construction Indoor AQ Management Plan							
	Indoor Air Quality Assessment							
	Thermal Comfort							
	Interior Lighting							
	Daylight							
	Quality Views							
	Acoustic Performance							
Innovation	Innovation							
	LEED Accredited Professional							

Legend

- Received at least 1 Credit
- May receive at least 1 Credit
- Did not receive at least 1 Credit
- New LEED v4 credit
- Not available in results
- ★ Potential for Inclusion in LEED Campus Program

- **A** ***ARFF***
  - Gold
  - LEED V2.2
- **B** ***Bradley West***
  - Gold
  - LEED V2.2
- **C** ***Central Utility Plant***
  - Gold
  - LEED V2.2
- **D** ***CONRAC***
  - Not yet rated
  - LEED V4
- **E** ***Interim West Bus Terminal***
  - Silver
  - LEED V2.2
- **F** ***Midfield Satellite***
  - Not yet rated
  - LEED V3 2009
- **G** ***TBIT***
  - Silver
  - LEED V2.2

Notes:

- LEED V2.2 and V3 2009 credits were mapped to LEED v4 on guidance from USGBC (http://www.usgbc.org/resources/summary-changes-leed-2009-v4-bdc)
- Projects A, B, C, E and G have been officially scored. Project D and F are still in process and do not have an official LEED rating yet

LAWA LEED Campus Program

The development of the *LEED Certification Starter Kit* coincides with LAWA's pursuit of the LEED Master Site Campus Program, which will ultimately enable projects within the LAX Campus to leverage a number of LEED

prerequisites and credits that will be pre-approved for use with any associated LEED project on the Campus. LAWA is working with the US Green Building Council (USGBC) to pre-approve documentation for the credits included in this *Starter Kit* under the Campus Program. **Until these credits are pre-approved, project teams will need to submit documentation for each of these credits as they normally would through the LEED certification process.**

The LEED Campus Program is for projects that are located on a shared site under the control of a single entity (in this case, LAWA). The purpose of the LEED Campus Program is to:

- Encourage a holistic approach to project management
- Define campus-appropriate documentation requirements and capture economies of scale in the certification process
- Address the unique challenges and opportunities inherent in campus projects
- Maintain the technical integrity and rigor of the LEED rating systems

The LAX Campus itself will not receive LEED Certification. Instead, individual projects associated with the LAX Campus may use the pre-approved campus credits earned to submit for certification under the LAX Master Site Campus Program. A separate registration is required for each individual project, and each project goes through the typical review process for individual projects. Project teams will not need to document campus credits for their LEED project, unless there are any project specific variations from the LAX Campus Program documentation.

The LEED Certification Starter Kit serves as an interim measure to streamline the LEED certification process for LAWA project teams while it concurrently develops its Master Site Campus Program. As noted above, until the Master Site Campus Program is developed, project teams must pursue LEED Certification under the standard process established by the USGBC.

Section 2: LEED Documentation for Select LEED Credits

The LEED Certification Starter Kit contains documentation for prerequisites and credits that can be considered at the LAX campus scale and whose approach will likely apply across multiple projects at LAX:

Location & Transportation	
credit	Sensitive Land Protection
credit	High Priority Site
credit	Surrounding Density and Diverse Uses
credit	Access to Quality Transit
credit	Bicycle Facilities
credit	Reduced Parking Footprint
credit	Green Vehicles
Sustainable Sites	
prerequisite	Construction Activity Pollution Prevention
credit	Site Development - Protect or Restore Habitat
credit	Open Space
credit	Rainwater Management
Water Efficiency	
prerequisite	Building-Level Water Metering
prerequisite /credit	Outdoor Water Use Reduction
prerequisite /credit	Indoor Water Use Reduction
Energy & Atmosphere	
prerequisite	Minimum Energy Performance
prerequisite	Building-Level Energy Metering
credit	Green Power and Carbon Offsets
Materials & Resources	
prerequisite	Construction and Demolition Waste Management Planning
credit	Construction & Demolition Waste Management
Indoor Environmental Quality	
prerequisite	Minimum Indoor Air Quality Performance
prerequisite	Environmental Tobacco Smoke Control
Innovation	
credit	Green Building Education
credit	Clean Construction
credit	Integrated Pest Management

The following documentation is provided for each credit:

Credit Name as defined in LEED v4 (Building Design + Construction);
Example Credit Narrative that may serve as a starting point for project teams pursuing LEED credits and as required as documentation by USGBC (also includes credit intent as defined by USGBC);
Example Exhibits, as above, that may serve as supporting documentation; and

Other Information that may be relevant, such as guidance on submittal template content.

Items highlighted in yellow must be tailored to reflect individual project specifications.

Note: It is critical that project teams verify the current status of credit narratives and exhibits, as information may change over time.

Location & Transportation Credits

Credit Name	Sensitive Land Protection
Example Credit Narrative	The intent of this credit is to avoid the development of environmentally sensitive lands and reduce the environmental impact from the location of a building on a site. The project will be constructed on previously developed land at Los Angeles International Airport, which meets the requirements of this credit under Option 1 – Locate the development footprint on land that has been previously developed. Originally known as Mines Field, the LAX site began as a 640 acre general aviation field in 1928. During World War II, it was used for military flights. Commercial airline service started on December 9, 1946, and in 1950, it was officially named Los Angeles International Airport. The present Central Terminal Area complex was constructed in 1961, along with a 12-story, 172-foot-tall combination airport administration building and Federal Aviation Administration air traffic control tower. In the early 1980s, LAX added the Tom Bradley International Terminal, a second-level roadway, concourses connecting terminals with satellite gates, and parking structures.
Example Exhibits	• Flood Map • Statewide Prime Farmland Map • LAWA Commitment Memo – Sensitive Sites
Other Information	--

Credit Name	High Priority Site
Example Credit Narrative	The intent of this credit is to encourage projects to locate in areas with development constraints and promote the health of the surrounding area. The South Coast Air Quality Management District considers the site contaminated under Rule 1166; therefore, the site is considered a brownfields site and may be eligible for this credit under Option 3 – Brownfield Remediation. Because of historical contamination throughout the LAX site, an environmental assessment was completed and geotechnical testing confirmed hydrocarbon soils mitigation would be necessary. The Contractor's Submittal is attached with a full detailed description of hydrocarbons contamination of soils that have been removed and treated.
Example Exhibits	• LAWA Commitment Memo – Brownfields Development • Example Geotechnical Report • Example Hazardous Materials Close-Out Document

Other Information	Under Option 3, the site has been defined as a brownfield by a local, state or federal government agency.

Credit Name	Surrounding Density and Diverse Uses
Example Credit Narrative	The intent of this credit is to conserve land and protect farmland and wildlife habitat by encouraging development in areas with existing infrastructure, to promote walkability, and transportation efficiency and reduce vehicle distance traveled, and to improve public health by encouraging daily physical activity. No example project narratives are available as no LAWA project has achieved this credit to date.
Example Exhibits	Not available
Other Information	To date, no LAWA project has achieved this credit. Meeting the intent of the Surrounding Density and Diverse Uses credit can conflict with land use requirements by FAA, noise ordinance, and other regulations. USGBC is working with Subject Matter Experts to develop an Alternative Compliance Pathway for this credit specific to airports. Meanwhile, please contact the USGBC to discuss the best options for specific projects.

Credit Name	Access to Quality Transit
Example Credit Narrative	The intent of this credit is to encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use. The project meets the requirements of this credit as it is located within a ¼ mile walking distance of an existing bus stops which are served by multiple routes. LAWA promotes the use of buses, subway, light rail, and commuter train for commuting as part of its alternative transportation program. There are several public transportation options available from LAX including Metro Buses, Metro Rail (Green/Blue/Red/Gold Lines), LAX FlyAway Buses, Metrolink Trains, LADOT Commuter Express, Santa Monica Big Blue Bus, Torrance Transit, Culver CityBus, and South Bay Max. These buses and rail connections provide easy commuting to anywhere in the greater Los Angeles area and beyond. Shuttle buses are provided from each terminal to the LAX Transit Center and the Aviation/LAX Metro Station for connections to transit options, and a stop is located XX feet from the project building's entrance. • Metro Rail (light rail): Metro Rail consists of five lines in Los Angeles County. The Red line connects downtown LA to North Hollywood and Wilshire. The Purple line runs between downtown LA and Koreatown/Mid-Wilshire and the

Blue line runs between downtown LA to Long Beach. The Gold line runs between East LA and Pasadena. The Green Line runs between Redondo Beach and Norwalk. This line can be directly accessed via shuttle bus from the airport to the Aviation/LAX Metro station. With direct connections from Union Station, all Metro Rail lines are accessible from LAX. Website: www.metro.net

- Metro Buses: Over 150 bus lines serve the greater Los Angeles area with service from LAX. Metro Bus connections from FlyAway buses and shuttles can be made at Union Station and Aviation/LAX Metro Station. Buses run round the clock to service airport travelers and employees. Website: www.metro.net
- LAX FlyAway Buses: Non-stop transportation from LAX to Van Nuys, Union Station, Westwood, and Irvine. Buses typically depart every 15-30 minutes during commute hours and can be found at the green pick-up and drop off curbs at each terminal. Website: www.lawa.aero/flyaway
- Metrolink Trains: Commuter rail system that spans 5 counties with 7 different routes and 55 stations. Highly used during commuting hours, Metrolink provides reliable service throughout LA and has a direct connection to LAX via the Metro Bus. Website: www.metrolinktrains.com
- LADOT Commuter Express: Operating Monday through Friday during commute hours, this bus leaves LAX and connects to El Segundo, Encino and Grenada Hills. There are also transfer points to Metrolink stations and Metro bus lines. Website: www.ladottransit.com
- Santa Monica Big Blue Bus: Line 3 runs from LAX through Westchester, Marina del Rey, Venice, Santa Monica, Brentwood, Westwood, and up to UCLA. It also leaves from the Aviation/LAX Metro station, right outside the airport. The Rapid 3 also stops at the LAX Transit Center and link the airport to several stops along Lincoln Boulevard to Santa Monica. Website: www.bigbluebus.com
- Torrance Transit: Provides weekday and limited weekend service from Los Angeles International Airport on Line 8 to El Segundo, Manhattan Beach, Redondo Beach and Torrance. Buses pick up at the LAX Transit Center every 20 minutes. Website: www.ci.torrance.ca.us/92.htm
- Culver CityBus: Runs from the Metro Green Line Station and the LAX Transit Station along Sepulveda to Culver City and up to Westwood on weekdays. Website: www.culvercity.org/Government/Transportation/Bus.aspx
- South Bay Max: MAX operates three routes going north in the morning and south in the evening. MAX runs Monday through Friday only and delivers service from South Bay to El Segundo and the Aviation/LAX Metro Station. Website: www.maxbus.com

	• Transit Subsidy Program: As an incentive to ride public transit, LAWA provides a Mass Transit Subsidy Program which provides employees discounted rates if they use public transit for the majority of their work day commutes.
Example Exhibits	• Transit routes and schedules (examples only; should be updated at time of project certification) • Aviation/LAX Station Connections • LA Metro system map • Example map – rail station to building entrance
Other Information	--

Credit Name	Bicycle Facilities
Example Credit Narrative	The intent of this credit is to promote bicycling and transportation efficiency and reduce vehicle distance traveled, and improve public health by encouraging utilitarian and recreational physical activity. The project facility serves XX full time employees. The FTE exhibit provides a calculation of required bike storage requirement. XX secure bikes rack are provided for this project, as are XX men's and XX women's shower facilities.
Example Exhibits	• Example FTE calculation • Example Bike Rack and Shower Location
Other Information	There are extensive bike routes in the immediate LAX area, including bike lanes on several nearby streets but no direct bike paths to each terminal at LAX. There are bike storage facilities at the Aviation/LAX Metro Station and a connecting shuttle to get to each LAX terminal. Bikes are also allowed on Metro Rail lines except during peak hours. All Metro buses are equipped with front bike racks which are available first-come, first-served. LAWA provides bike lockers, racks, showers and a "Bike Valet" for LAWA staff at the airport. Bikes are not widely used to get to work because of the traffic and congestion in and around the airport. Bike facilities will continue to be installed as needed.

Credit Name	Reduced Parking Footprint
Example Credit Narrative	The intent of this credit is to minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff. The XX on-site parking spaces provided will not exceed the minimum local code requirement for parking capacity.

	XX car/van pool parking has been provided for XX% of the total provided parking spaces. A parking plan has been provided depicting the location of these parking spaces. Additionally, FTE calculations have been provided describing the total shifts and project occupancy.
Example Exhibits	• Example site plans • Example signage for carpools • Example FTE calculations
Other Information	USGBC is working with subject matter experts as well as the Airports LEED liaison to try and develop an Alternative Compliance Path for this credit specific to airports. While the USGBC works through this process, project teams should contact the USGBC directly to discuss the best option for the project at hand. In the interim, teams should also consider installing an Automated Parking Guidance System combined with a Revenue Control system to minimize vehicle idling within the LEED project boundary as well as obtaining Parksmart certification, silver level for structured parking serving the parking needs within the LEED project boundary. The airport could also submit the following information as part of the application: • An area plan indicating the location of parking (highlighting the location of preferred parking spaces) • A map of the area showing density of the built environment and transit options in vicinity • Examples of the preferred parking signage • Plan showing preferred parking for carpools

Credit Name	Green Vehicles
Example Credit Narrative	The intent of this credit is to reduce pollution by promoting alternatives to conventionally fueled automobiles. To achieve this credit, the project team must designate 5% of all parking spaces used by the project as preferred parking for green vehicles. In addition to preferred parking, the project team must either install electrical vehicle supply equipment (EVSE) in 2% of all parking spaces used by the project OR install liquid or gas alternative fuel fueling facilities or a battery switching station capable of refueling a number of vehicles per day equal to at least 2% of all parking spaces. For this project, XX% of on-site parking capacity has been designated to be used for alternative fuel refueling stations. The project will include XX new electric vehicle (EV) charging stations. Information on the location of the stations is included in the supporting documentation.

	At the campus level, LAWA has installed over 80 Level 2 EV stations in parking structures across LAX that the public can use free of charge. LAWA has a policy in place for LAX whereby 100% of 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 shall be Alternative-Fuel Vehicles or Comparable Emissions Vehicles by January 31, 2015. Additional information on LAWA's alternative fuel program is provided in the Exhibits. In addition, LAWA encourages airlines to operate fuel efficient equipment whenever possible and to date, over 40% of all ground service equipment are zero emission vehicles—including electric, and natural gas powered tractors, lifts, loaders, and service trucks. A Credit Interpretation Request (CIR), 5036, dated 2/26/07 identified that amongst an on-campus 'fleet' of vehicles, a 50% threshold of alternative fueled vehicles would suffice to achieve the green vehicle credit. XX% of LAWA owned fleet vehicles, buses, and shuttles are zero emission vehicles. This is beyond the threshold addressed in the 2007 CIR, and should therefore be considered as a method of alternate compliance. A complete inventory of all fuel-efficient vehicles is included in the credit documentation.
Example Exhibits	• Example plans and figures • Example photos • List of EV charging stations across LAX • Applicable news releases • Green vehicle signage • LAWA green vehicle policies • Specs and scope of work for charging stations • Green and conventional fleet breakdown
Other Information	Before submitting information pertaining to this credit as part of LEED certification, it is suggested that the Project Team confirm with the USGBC that the 2007 resolution may still be applied to their project.

Sustainable Sites Credits

Prerequisite Name	Construction Activity Pollution Prevention
Example Prerequisite Narrative	The intent of this prerequisite is to reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust by creating and implementing an erosion and sedimentation control plan for all construction activities associated with the project which is conformant to the

	2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent. A Storm Water Pollution Prevention Plan (SWPPP) was prepared to comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Permit) (State Water Resources Control Board Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ, NPDES Permit No. XX). The SWPPP is included in the supporting documentation. Prior to the beginning of construction, the Project Owner filed a Notice of Intent (N.O.I.) with the State of California, State Water Resources Control Board to confirm that this project will comply with the terms of the State Water Resources Control Board's Order No. 99-0009-DWQ and the National Pollutant Discharge Elimination System (NPDES) General Permit No. XX, Waste Discharge Requirements (WDRs) for discharge of storm water run-off associated with construction activity to include erosion and sediment control. As shown in the supporting documentation, the Erosion and Sedimentation Control design was completed by XX. The SWPPP was prepared by XX. The Erosion and Sedimentation Control design and the SWPPP were implemented by XX. All the requirements of the State's General Permit regarding the implementation and maintenance of the SWPPP were complied with unless noted.
Example Exhibits	• Example plans and figures • Example SWPPP report • Example NOI submitted to regulator • Example Photos • Example pollution prevention BMPs • Example scope of work provided to contractors to write SWPPP / implement pollution prevention measures
Other Information	--

Credit Name	Site Development - Protect or Restore Habitat
Example Credit Narrative	The intent of this credit is to conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity. As part of LAWA's ongoing environmental efforts, 202.8 acres of land adjacent to the airport has been preserved, and restored as the El Segundo Blue Butterfly Area. Continued conservation of the area by the airport will protect sensitive habitat for the federally listed El Segundo Blue Butterfly. Under Option 2 for this credit, provide

	financial support equivalent to at least $0.40 per square foot for the total project site area (including the building footprint). Financial support must be provided to a nationally or locally recognized land trust with the same EPA Level III ecoregion, and must be accredited by the Land Trust Alliance. Within the campus of the LAX Airport, the preserved Blue Butterfly Area, with its 200+ acres, and the financial support to restore this area, will be adequate to meet to achieve this credit. Insofar as the efforts seek to restore, and not just set aside an important natural area for habitat, the campus-wide offset approach should be considered for compliance with the requirements for this credit.
Example Exhibits	• LAX Dunes - LEED Habitat Credit Set-Asides • LAWA Commitment Memo – Dunes Set-Asides • Habitat Set-Asides for LEED SS Credits • Financial documentation for the financial support provided to the Palos Verdes Land Conservancy for the Dunes Set-Asides
Other Information	The following habitat set-asides have been committed by LAWA as of April, 2017: • Bradley West: 12.88 acres • CUP: 2.04 acres • IWBT: 1.03 acres • ARFF: 0.5 acres The Project Team should make sure that the designated restored habitat area will not be separately accounted for by other LEED projects.

Credit Name	Open Space
Example Credit Narrative	The intent of this credit is to create exterior open space that encourages interaction with the environment, social interaction, passive recreation, and physical activities. The project should include outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy. As described in the narrative for the Site Development – Protect or Restore Habitat credit, as part of LAWA's ongoing environmental efforts, 202.8 acres of land adjacent to the airport has been preserved, and restored as the El Segundo Blue Butterfly Area. The inclusion of outdoor space greater than or equal to 30% of the total site area is required to fulfill the credit requirements. Within the campus of the LAX Airport, the preserved Blue Butterfly Area, with its 200+ acres will more than account for the required area. Note that this area has been

	developed in an area with no minimum local zoning code requirements for open space.
Example Exhibits	• Example plans and figures - LAX Dune Site area, and project set-asides • Example LAWA Commitment Memos – Dunes Set-Asides • Example signage • Past CIR ruling applicable to Open Space Credit
Other Information	The following habitat set-asides have been committed by LAWA as of April, 2017: • Bradley West: 12.88 acres • CUP: 2.04 acres • IWBT: 1.03 acres • ARFF: 0.5 acres It was determined in a CIR ruling dated 9/2/2003, that an open space area of contiguous habitat on a campus equal to the building footprint of the building site need not necessarily be adjacent to the building, so long as the area is located within the campus. The CIR ruling points out that locating the acreage in an area such that it is contiguous with existing open preserve may be even more beneficial to wildlife than providing sporadic patches of preserved open space near the building. The Project Team should make sure that the designated open space area will not be separately accounted for by other LEED projects, and make sure that it shows it has benefit to occupants or the community at-large.

Credit Name	Rainwater Management
Example Credit Narrative	The intent of this credit is to reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region. <u>Example language if the Project Team is electing to comply with Option 1. Percentile of rainfall events:</u> in a manner best replicating natural site hydrology processes, the project manages on site the runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure. The LA basin is considered semi-arid since it receives between 20-40 inches of rain annually. The supporting documentation discusses how runoff volume is reduced while water quality is improved as the project level, namely using filtration media vault layouts and locations. Oil/Water separation devices are used as containment devices to reduce flow rate. The Standard Urban Storm Water Mitigation Report shows the treatment of XX of the

	average annual rainfall, equivalent to 3/4 of an inch in semi-arid watersheds. The civil engineer will determine, along with the manufacturer, how many filters need to be installed in each vault to treat the first flush (3/4") of the stormwater runoff. At a whole-systems level, LAWA is involved in the development of the Argo Drain Sub-Basin Facility Project (commonly referred to as the Prop O project). This facility will capture, store and treat storm water runoff from a 2,320-acre drainage area that includes LAX and other local areas that discharge at Dockweiler Beach. This project will further assist the Project Team in complying with the requirements of this credit. Additionally, LAWA is developing a comprehensive, campus-wide LAX Storm Water Master Plan (SWMP) for LAX that addresses both storm water drainage and water quality issues. This Plan will identify improvement to the existing drainage system and address new regulatory requirements for stormwater runoff and ensure that a holistic approach is taken to manage stormwater. Example language if the Project Team is electing to comply with Option 2. Natural land cover conditions: In narrative, refer to credits Sustainable Sites: Site Development - Protect or Restore Habitat and Sustainable Sites: Open Space
Example Exhibits	• Example plans and figures • Example Stormwater Mitigation Reports • Example calculations • Example BMPs • Example fact sheet discussing the Argo Drain Sub-Basin Facility Project and plans for the Storm Water Master Plan
Other Information	--

Water Efficiency Credits

Prerequisite/Credit Name	Outdoor Water Use Reduction
Example Prerequisite/ Credit Narrative	The intent of this prerequisite and credit is to reduce outdoor water use by showing that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period, and/or reducing the project's landscape water requirement by at least 30% (or 50% for additional credit) from the calculated baseline for the site's peak watering month.

	The landscaping strategy for this project is to use trees and shrubs that are representative of the southern California aesthetic and that are drought tolerant in order to conserve potable water that is so critical in this part of the State. The selection of low-water use trees and shrubs including XX, will require less water than other options appropriate for this area. All landscaped areas are irrigated with a XX system, which significantly reduces water consumption. The irrigation water calculations for both the baseline and design case used the methodology outlined in the LEED Reference Guide. As presented in the Recycled Water Connectivity Study (October 2010), municipal non-potable water will not be used for irrigation because it will not be available from the local municipality at the time of project certification, but the project is being built to receive recycled water via purple pipe from the City of Los Angeles (LA) Hyperion Waste Water Treatment Plant (HWWTP) to offset potable water consumption, anticipated to be complete in 2020.
Example Exhibits	• Example landscape layout. • Example plant palette highlighting images and descriptions of the vegetation to be used on the project • Irrigation water calculations (using US EPA WaterSense, or LEED V4 Outdoor Water Use Reduction Calculator) • Recycled Water Connectivity Study (October 10, 2016) • Layout showing the LAWA/LAX recycled water connections to City of LA recycled water connections (Recycled Water Information)
Other Information	The project may be eligible to claim credit for use of non-potable water using LAWA's planned HWWTP purple pipe system depending on when project certification occurs.

Prerequisite/ Credit Name	Indoor Water Use Reduction
Example Prerequisite/ Credit Narrative	The intent of this prerequisite is to reduce indoor water consumption by 20% from a baseline. Additional credit available by reducing indoor water consumption beyond the 20% reduction. This project is designed to use high efficiency, ultra low-flow fixtures that are designed to meet California Title 24 2016 standards. Summarize the building's water-using equipment, fixtures and fittings and other strategies that will contribute to additional indoor water use reductions. As presented in the Recycled Water Connectivity Study (October 2010), municipal non-potable water will not be used for indoor water use because it will not be available from the

	local municipality at the time of project certification, but the project is being built to receive recycled water via purple pipe from the City of LA HWWTP to offset potable water consumption, anticipated to be complete in 2020.
Example Exhibits	• Example plumbing Schedule • Example list of plumbing fixtures and fittings • Example plumbing fixture and fitting specifications • Example FTE calculations • Example passenger volume data (not available) • Recycled Water Connectivity Study (October 10, 2016) • Layout showing the LAWA/LAX recycled water connections to City of LA recycled water connections (Recycled Water Information)
Other Information	The project may be eligible to claim credit for use of non-potable water using LAWA's planned HWWTP purple pipe system depending on when project certification occurs.

Prerequisite Name	Building Level Water Metering
Example Prerequisite Narrative	The intent of this credit is to support water management and identify opportunities for additional water savings by tracking water consumption. On December 13, 2016, the City Council adopted Ordinance No. 184674, establishing the Existing Buildings Energy & Water Efficiency Program to reduce energy and water consumption in buildings within the City of Los Angeles. Effective July 1, 2017, buildings owned by the City of Los Angeles and 7,500 sq ft or more in gross floor area are required to disclose energy and water consumption, using EPA's ENERGY STAR Portfolio Manager® for benchmarking. Non City-owned buildings are subject to this requirement on the following schedule: • 100,000 sq ft or more - July 1, 2017 • 50,000 sq ft or more, and under 100,000 sq ft - April 1, 2018 • 20,000 sq ft or more, and under 50,000 sq ft - April 1, 2019 LAWA's building-level water metering and monitoring program is summarized in the March 2016, Utility Monitoring Implementation Plan. Through this program, LAWA must meter and disclose water usage at the building level and commits to sharing with USGBC the resulting water consumption data for the project for a five-year period, as tracked at one-month intervals. The Project Team has installed permanent water meters that measure the total potable water use for the building and associated grounds. Meter data is being compiled into monthly and annual summaries. The Project Team is committed to sharing with USGBC the resulting whole-project water usage data for a five-year period beginning on

	the date the project accepts LEED certification or building occupancy, whichever comes first.
Example Exhibits	Utility Monitoring Implementation Plan (March 2016)
Other Information	--

Energy & Atmosphere Credits

Prerequisite Name	Minimum Energy Performance
Example Prerequisite Narrative	This prerequisite is intended to reduce the environmental and economic harms of excessive energy use by achieving a minimum level of energy efficiency for the building and its system. The mechanical, electrical and civil engineer on record for this project is XX. The project has been designed to meet California Title 24 2016 standards, which are understood to be more stringent than ASHRAE Standard 90.1-2010.
Example Exhibits	• Example Narrative • Example Building Energy Analysis Report • A summary of all energy consumption and costs associated with the project (example currently not available/provided). • A summary of LAX's Central Utility Plants maximum cooling capacity of 19,560 peak tons, and a maximum heating capacity of 72,000 MBH. • Comparison of a baseline for the building that complies with ASHRAE 90.1-2010, Appendix G, with errata. Demonstrate an improvement in the proposed building performance rating compared with the baseline building performance rating (i.e. 5% for new construction, 3% for major renovations, or 2% for core and shell projects) (example currently not available/provided).
Other Information	Additional information that would helpful to include with this prerequisite would be copies of the Title 24 2016 documentation requirements (CALGreen Reference Number 4.201.1).

Prerequisite Name	Building-Level Energy Metering
Example Prerequisite Narrative	The intent of this credit is to support energy management and identify opportunities for additional energy savings by tracking building-level energy use. On December 13, 2016, the City Council adopted Ordinance No. 184674, establishing the Existing Buildings Energy & Water Efficiency Program to reduce energy and water consumption in buildings within the City of Los Angeles.

	Effective July 1, 2017, buildings owned by the City of Los Angeles and 7,500 sq ft or more in gross floor area are required to disclose energy and water consumption, using EPA's ENERGY STAR Portfolio Manager® for benchmarking. Non City-owned buildings are subject to this requirement on the following schedule: • 100,000 sq ft or more - July 1, 2017 • 50,000 sq ft or more, and under 100,000 sq ft - April 1, 2018 • 20,000 sq ft or more, and under 50,000 sq ft - April 1, 2019 LAWA's building-level energy metering and monitoring program is summarized in the March 2016, Utility Monitoring Implementation Plan. Through this program, LAWA must meter and disclose energy usage at the building level and commits to sharing with USGBC the resulting energy consumption data for the project for a five-year period, tracked at one-month intervals.
Example Exhibits	Utility Monitoring Implementation Plan (March 2016)
Other Information	--

Credit Name	Green Power and Carbon Offsets
Example Credit Narrative	The intent of this credit is to encourage the reduction of greenhouse gas emissions through the use of grid-source, renewable energy technologies and carbon mitigation projects. LAWA purchases power from the Los Angeles Department of Water and Power (LADWP), and 10% of that power is Green-e Energy power. The Project team has engaged with XX Supplier for a minimum of five years to provide at least XX% of the project's energy from renewable energy certificates (RECs). Copies of the purchase order and check for the purchase of renewable energy credits from RECs are provided as proof of purchase. Additional information on the process of certifying REC's is also provided in the exhibits.
Example Exhibits	• Example Green e-Energy certified, or equivalent, purchase agreements with LADWP • Example REC narratives • Summary of annual LAWA energy consumption • Example Green-e Climate carbon offset documentation (if applicable)

Other Information	In order to meet the 50% minimum requirement to achieve one credit, the project team will need to make up the difference with some combination of RECs and Green-e Climate carbon offsets. If carbon offsets are also used, documentation for those will need to be included with the credit submittal package.

Materials & Resources Credits

Prerequisite Name	Construction & Demolition Waste Management Planning
Example Credit Narrative	The intent of this prerequisite is to reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials. The project team has developed and implemented a construction and demolition waste management plan that establishes waste diversion goals for the project by identifying at least five materials (both structural and nonstructural) targeted for diversion and described the diversion strategies planned for the project. Prior to project ground breaking, the Project Team contracted with Contractor X to be their designated Waste Hauler for the entire construction site, and for the full duration of the project. Prior to ground breaking, the Project Team and the waste hauler mapped out their procedures and plan to meet their goals. The goal was consistent with the contract documents, LAWA design guidelines and LEED requirements to divert at least 75% of construction and demolition debris, and divert at least four waste streams from landfill disposal.
Example Exhibits	• Example waste management plans
Other Information	--

Credit Name	Construction & Demolition Waste Management
Example Credit Narrative	The intent of this credit is to reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials. Example language if the Project Team is electing to comply with Option 1, Path 2 (higher diversion rate than path 1). Diversion: As described in the Construction and Demolition Waste Management Planning Prerequisite, the Project Team developed a waste management plan to document waste management goals. A tracking spreadsheet and system have been developed to incorporate ticket

	information into one spreadsheet. Each month a Recycling Report with the backup weight tickets were submitted to LAWA (see backup reports in Exhibits). Also, twice a month an invoice with all dumpster/container tickets and locations were submitted to LAWA for payment. Due to the large size of the project, and the amount of documentation on file, it was determined that the weight information would be entered as quarterly updates in order to fit in the template. A Construction Waste Management Summary Report and relevant Recycling Reports with monthly tracking sheets have been provided in the Exhibits, as well as corresponding weight tickets. Diverted waste was sent to XX different locations and separate tickets were assigned for each load. Dump Site 1: XX diverts XX % of waste from the landfills. Dump Site 2 XX diverts an average of XX from landfills (etc.). Concrete and Asphalt that was demolished prior to project construction by XX Contractor, was dumped at a location on LAWA's property, and 100% will be crushed and reused as aggregate for future paving projects. Through diligent record keeping, monthly analyses, and great coordination the Project Team exceeded its goal by reaching a diversion rate of XX%. Example language if the Project Team is electing to comply with Option 2. Reduction of total waste material: As shown in the supporting documentation, the Project Team has generated less than 2.5 pounds of construction waste per square foot of the building's floor area.
Example Exhibits	• Example recycling logs/reports • Example waste diversion tickets • Site maps of LAWA batch plants
Other Information	--

Indoor Environmental Quality Credits

Prerequisite Name	Minimum Indoor Air Quality Performance
Example Prerequisite Narrative	The intent of this credit is to contribute to the comfort and well-being of building occupants by establishing minimum standards for indoor air quality. The Mechanical, Electrical and Plumbing Engineer-of-Record for the project is XX. The project will be ventilated using mechanical/natural ventilation in compliance with ASHRAE 62.1-2010, therefore meeting the intent and requirements of the prerequisite. Tables summarizing the ASHRAE 62.1-2010 Section 6 Mechanical Ventilation Rate and ASHRAE 62.1-2010 Section 6 Mechanical Exhaust Rate are provided in the Exhibits. Monitoring of the ventilated space will be achieved by XX.

Example Exhibits	• Example narrative letter • Excel Spreadsheets for all the backup calculations that support compliance with ASHRAE 62.1-2010 • Example core mechanical schedule and its components • Example description/cut-sheet for the metering device installed (example currently not available/provided).
Other Information	For mechanically ventilated spaces (and for mixed-mode systems when the mechanical ventilation is activated), a description of direct outdoor airflow measurement device capable of measuring the minimum outdoor air intake flow must be provided. The device must measure the minimum outdoor air intake flow with an accuracy of +/–10% of the design minimum outdoor airflow rate defined by the ventilation requirements above. An alarm must alert staff whenever the outdoor airflow value varies by 15% or more from the outdoor airflow setpoint.

Prerequisite Name	Environmental Tobacco Smoke Control
Example Prerequisite Narrative	The intent of this prerequisite is to prevent or minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to environmental tobacco smoke. Smoking is prohibited by the City of Los Angeles in airport circulation areas and by LAWA's Rules and Regulations in any fuel storage area; aircraft movement area; passenger, or cargo ramp and apron area; aircraft parking areas, or any open deck, gallery or balcony contiguous to overlooking of any such area; or in any other place where smoking is specifically prohibited by signs. Smoking is prohibited with XX feet of all building openings.
Example Exhibits	• City of LA Municipal Code 41-50 non-smoking policy • Designated Smoking Areas at LAX (Appendix 1 LAWA Rules and Regulations) • Section 2 of LAWA's August 2015 Rules and Regulations (or most current version available at time of project) • Example letter from LAWA - Project no-smoking policy and enforcement • Example signage communicating the smoking policy as it relates to the project and its boundaries • Example site plan for the project showing the location of designated outdoor smoking and non-smoking locations, the property line and the site boundary and distances to any designated smoking areas to demonstrate they are at least 25 feet from any building openings.
Other Information	--

Credit Name	Thermal Comfort
Example Credit Narrative	The intent of this credit is to promote occupants' productivity, comfort, and well-being by providing quality thermal comfort. The HVAC systems in the Project were engineered in accordance with ASHRAE Standard 55-2010, Thermal Environmental Conditions for Human Occupancy, meeting the credit requirements for both thermal comfort design and thermal comfort control. All the normally occupied areas of the buildings are mechanically ventilated, cooled and heated via a variable air-volume air handling system. The main air-handling unit and zone reheat coils were sized and selected with enough capacity to maintain the indoor thermal comfort levels set forth by ASHRAE Standard 55-2010.
Example Exhibits	• Example ASHRAE compliance reports • Example measurements of thermal comfort control
Other Information	In certain projects, due to security and management concerns, thermal comfort controls for certain spaces might be unavailable to the public but available to appropriate staff and building management. In this case, project teams may utilize the retail credit rating system variation methodology that addresses the credit design and controls requirements in offices and administrative areas only to demonstrate compliance with this credit.

Innovation Credits

Credit Name	Green Building Education
Example Credit Narrative	The intent of this credit is to provide public education focusing on green building strategies and solutions. Two of the following three elements were included in the educational program (select and describe at least two of the following approaches): 1. A comprehensive signage program built into the building's spaces to educate the occupants and visitors of the benefits of green buildings. This program includes [examples: windows to view energy-saving mechanical equipment or signs to call attention to water-conserving landscape features.] 2. The development of a manual, guideline or case study to inform the design of other buildings based on the successes of this project. 3. An educational outreach program or guided tour could be developed to focus on sustainable living, using the project as an example. Note: LAWA maintains websites for its capital projects; this can readily be used to fulfill this credit option.
Example Exhibits	• Example Fact Sheet(s) about Modernizing LAX • Example Pubic Outreach Brochure

	• Example LEED Kiosk Design • Example LEED Signage and Details Layout
Other Information	Other options and supporting documentation include a comprehensive signage program (electronic examples), a case-study (pdf of the hardcopy), guided tours (a script and our stop description drawing), educational outreach program (detailed narrative and supporting document), and/or a website (pdf of the website) or electronic newsletter (pdf of the hardcopy).

Credit Name	Clean Construction
Example Credit Narrative	The intent of this credit is to minimize the health and climate impacts to local communities from diesel engine emissions associated with construction activities. The project includes a plan to reduce particulate matter (PM) emissions from nonroad and on-road diesel fueled vehicles, construction equipment, and temporary power generation used during construction projects. The plan includes: • Nonroad Diesel Engines: Engines used on the jobsite that are 25 horsepower (HP) and greater must meet at least the equivalent of USEPA Tier 2 PM emission standards and the USEPA Tier 4 PM emission standard. • On-road Diesel Engines: 95% of all diesel engine contractor/ subcontractor vehicles used for the construction project must comply with USEPA model year 2007 on-road standards. • Idling Limitations: LAWA policy limits unnecessary vehicle and equipment engine idling to no more than 5 minutes, or in compliance with applicable local, state and national laws, whichever is more stringent. • Prevention of Indoor Air Pollution: Equipment, vehicles, and loading/unloading staging areas must be located away from air intakes or operable openings of adjacent buildings. • Equipment Information: The project must document information for each piece of construction equipment used onsite including Vehicle type, Engine make, Engine model number, Serial number of engine, Engine family name and model year, Horse power and/or Kilowatts (for nonroad only), Current Tier level (for nonroad only), Serial number and VIN of vehicle, Make and model number of USEPA/CARB verified emission control technology, if applicable (or local equivalent for projects outside the U.S.), Type of fuel used, and Number of use hours (if available)
Example Exhibits	• Example “Additional Information to Support LAWA Clean Construction Policy” • Example Sustainable Construction Certification Statement • Example Sustainable Construction Checklist • PR-16 LAWA Sustainable Construction Requirements

	• Example equipment information (not available, project specific)
Other Information	--

Credit Name	Integrated Pest Management
Example Credit Narrative	The intent of this credit is to minimize pest problems and exposure to pesticides. LAWA has an integrated pest management (IPM) plan in place that covers the footprint of the airports it oversees, including the building and grounds within the project boundary. At the center of this plan are specifications for integrated pest control and abatement that have been developed for LAWA staff and pest control contractors. The specifications include: • Provisions for identifying and monitoring pests, e.g. performing initial building inspections, including prior to building occupancy • Establishing pest management action thresholds and associated pest control methods • Applying nonchemical pest preventative measures as a first step • Documentation and record keeping protocols • Communication procedures between the IPM team and building occupants LAWA will act as the manager of the IPM team and oversee the work performed by IPM contractors. LAWA will facilitate communication channels between the contractor and facilities staff and building occupants.
Example Exhibits	• LAX Specifications for Integrated Pest Management Control and Abatement
Other Information	The Integrated Pest Management Credit is included in LEED v4 O +M, not LEED v4 New Construction. In order to achieve this innovation credit, it is important that the project team emphasize that IPM will take place prior to building occupancy.

For Further Information

***LAWA LEED Certification Starter Kit* or LAX Campus Program**	Los Angeles World Airports Environmental Programs Group 424-646-7236 www.laxsustainability.org
LEED Certification	• For a complete list of LEED prerequisites and credit information, please visit www.usgbc.org/credits. • For credit submittal forms, please visit www.usgbc.org/sampleforms. • For general LEED information, please visit www.usgbc.org/leed.