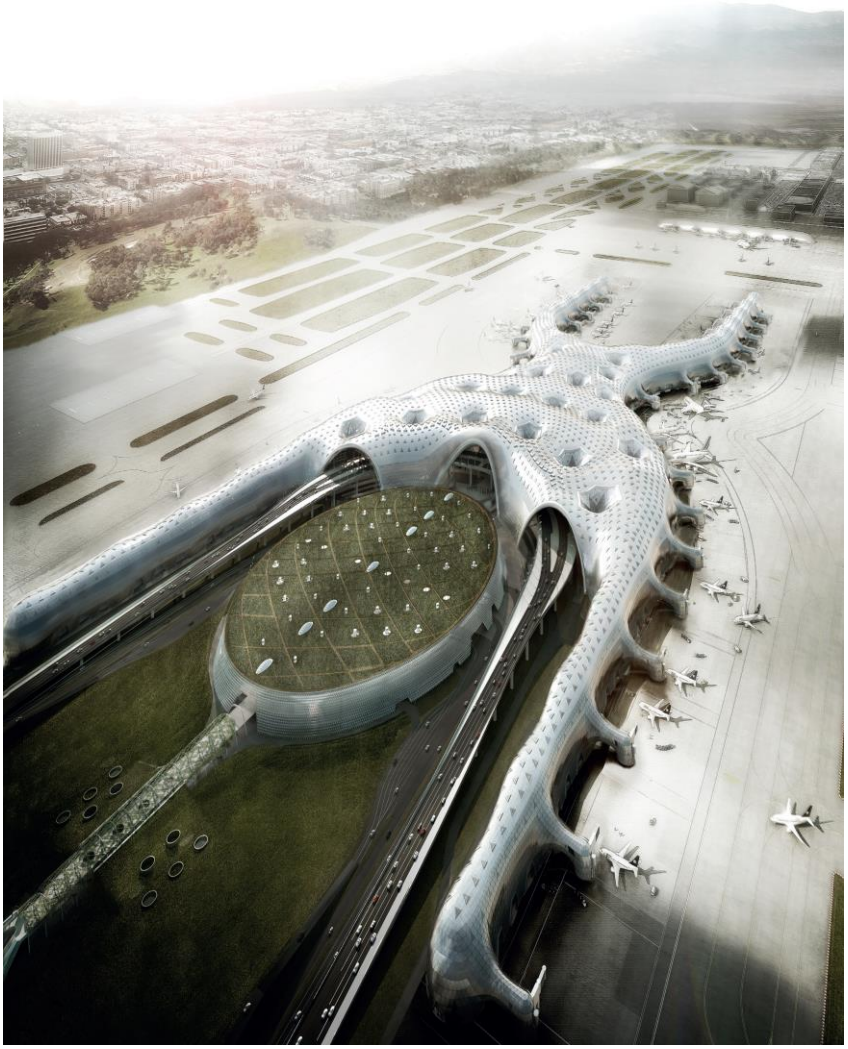
NAICM
AIRPORT PROGRAM
PARSONS PROJECT MANAGEMENT OFFICE

GRUPO AEROPORTUARIO
DE LA CIUDAD DE MÉXICO



Mexico City Airport Trust
NAICM Green Bond Reporting

Report #1
December 2016

1. Introduction

Grupo Aeroportuario de la Ciudad de México, S.A. de C.V. (GACM) is responsible for the preparation and providing a fair representation of this Green Bond Framework as of September, 6th 2016, which will cover the issuance of Green Bond from Mexico City Airport Trust.

For each Green Bond issued by the Mexico City Airport Trust, GACM management asserts that it will adopt the use of the proceeds eligibility criteria and processes and policies as set out in the Mexico City New International Airport (NAICM by its Spanish acronym) Green Bond Framework as outlined in Figure 1.

This initial report describes an outline of the green works that are currently underway for the Airport program development paying particular attention to currently designed elements and the initial construction and site preparation activities.

This report will be updated quarterly to report on specific activities which have occurred in the report time-frame and to show development of the performance indicators.

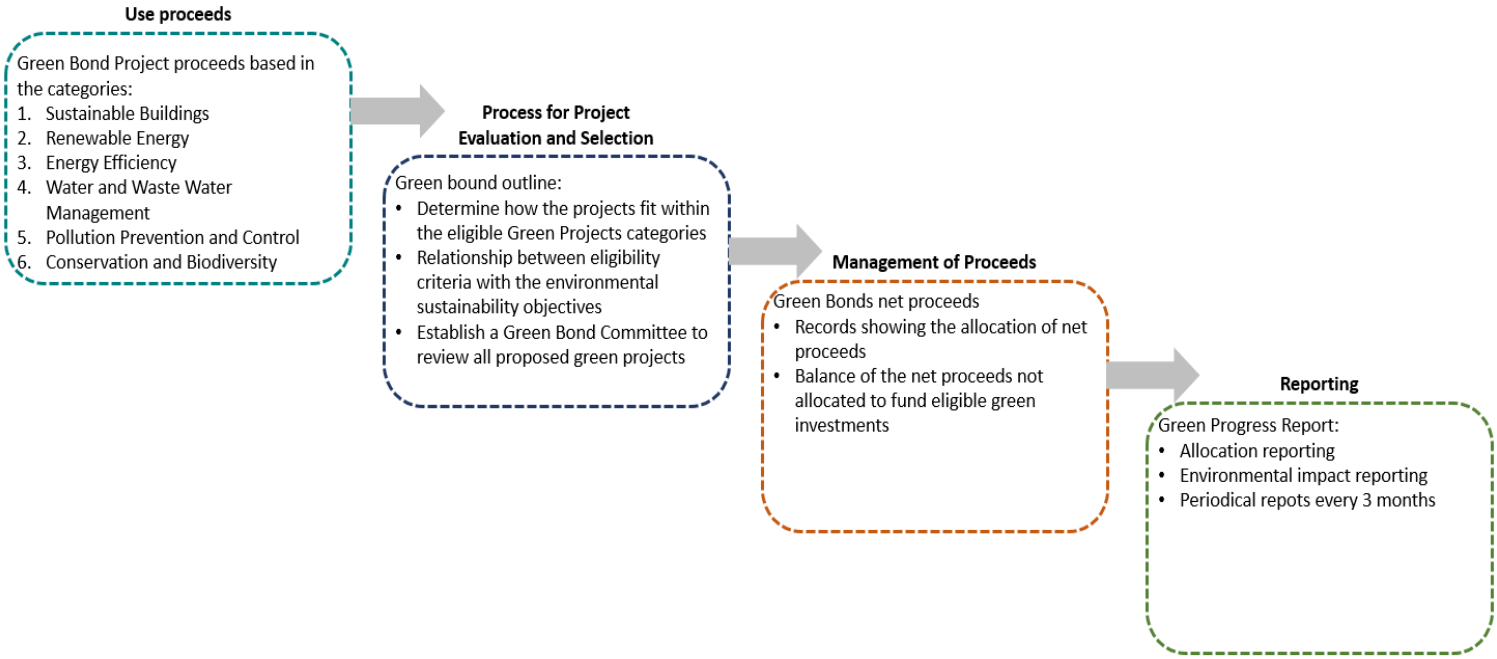


Figure 1 - NAICM GREEN BOND FRAMEWORK

2. Green Bond Eligibility Categories

The eligibility categories are focused in the planning, design and construction of the NAICM project according to green building & environmental best practices standards.

Six categories were selected to describe the different areas of sustainability focus for the project scope. These are described below:

- **Eligibility Categories**
    1. Sustainable Buildings
    2. Renewable Energy
    3. Energy Efficiency
    4. Water and Wastewater Management
    5. Pollution Prevention and Control
    6. Conservation and Biodiversity

See Figure 2 for location of major program elements locations.

The project is utilizing the rating system Leadership in Energy and Environmental Design version 4 (LEED v4). The rating system seeks to enhance architectural and engineering designs and construction processes to reduce the environmental impacts of the building and its occupants, improve the indoor environmental quality and minimize changes to natural systems. Four of the airport buildings on the site are being designed and constructed to meet these LEED requirements, in particular the 743,000 m^2 Passenger Terminal Building.

The project undertook Environmental Impact Assessment, commonly known in Spanish as *Manifestacion de Impacto Ambiental* (MIA), as it is required for all new major projects in line with SEMARNAT (*Secretaría del Medio Ambiente y Recursos Naturales)* requirements. The MIA is an instrument of environmental policy that is required to present all information about the environmental conditions of the site and analyze and outline requirements for the works and activities that could cause environmental or ecological imbalance.

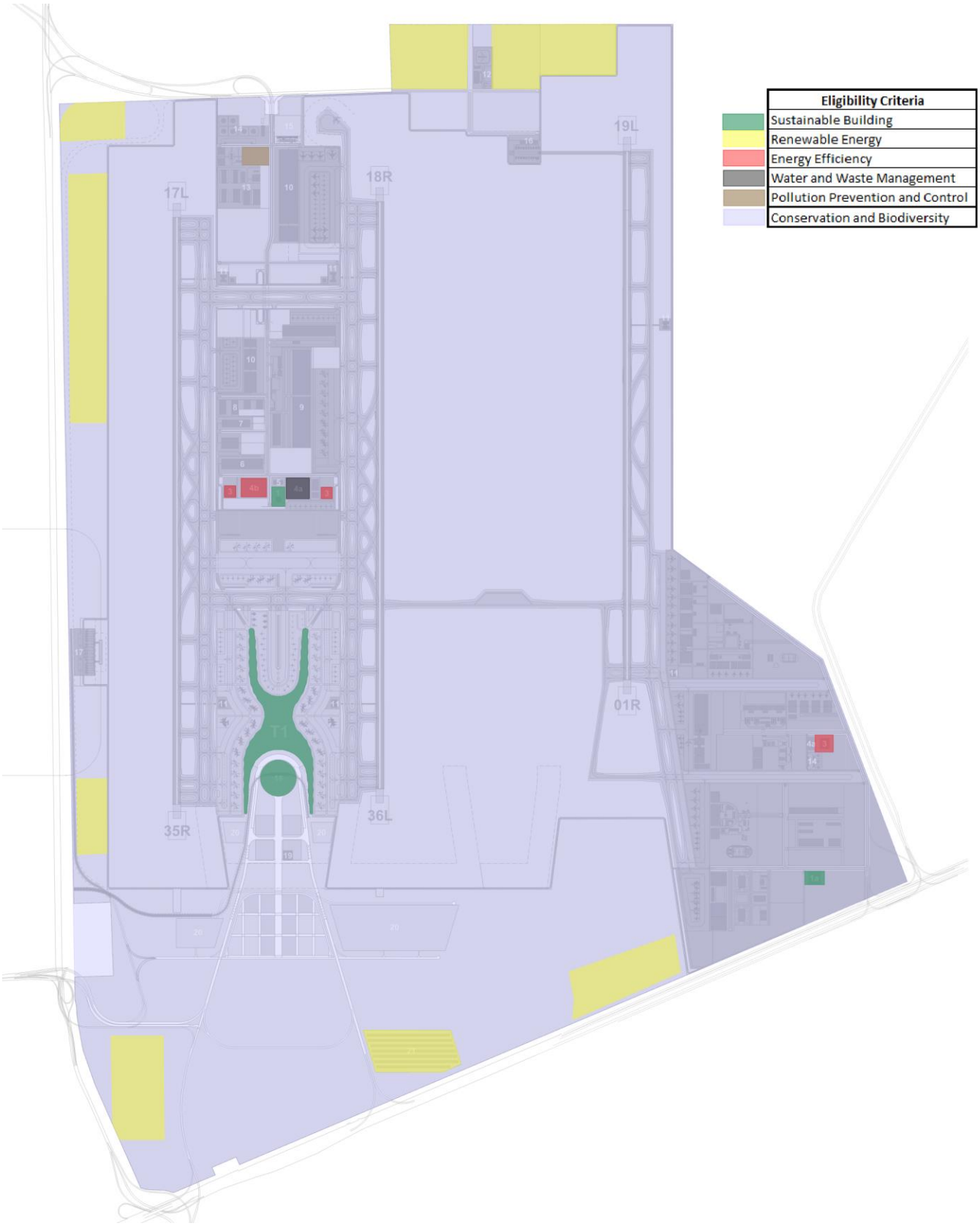


Figure 2 - Site polygon showing location of main program elements per eligibility criteria.

Categories Description

The project must meet one or more of the following eligibility criteria:

1. Sustainable Buildings: Any project for an existing or new building
    (i) that has received, or expects to receive based on its design, construction and operational plans, rating according to third party verified green building standards such as LEED Silver or higher, or an equivalent rating scheme; AND
    (ii) that has achieved, based on third-party assessment, a reduction in energy consumption of at least 15% relative to industry standards and benchmarks such as ASHRAE 90.1 or equivalent.

2. Renewable Energy: Development, construction, installation, operation and upgrades of
    (i) equipment or facilities wholly dedicated to renewable energy generation; OR
    (ii) wholly dedicated transmission infrastructure for renewable energy generation sources.

    The projects must meet the definitions of renewable energy outlined in Mexico's Energy Transition Law (Ley de Transición Energética) and may include wind, solar, tidal, geothermal, biomass and run-of-river hydro projects.

3. Energy Efficiency: Development, construction, installation, operations and upgrades of any projects (products or technology) that reduce energy consumption or improve resource efficiency in airport management and operations, including but not limited to
    (i) projects that enable energy performance monitoring and modelling such as design and installation of computer controls, sensors, or building information systems; OR
    (ii) projects that optimize the amount and timing of energy consumption and minimize peak loads such as design and installation of metering, peak load shedding, or fuel switching systems; OR
    (iii) projects that involve installation, maintenance or replacement of energy efficient heating, ventilation, air-conditioning, cooling, lighting and electrical equipment.

4. Water and Wastewater Management: Development, construction, installation, operations and upgrades of any projects (products or technology) that reduce water consumption or improve resource efficiency in airport management and operations, including but not limited to

    (i) new or existing facilities that are used for the collection, treatment, recycling, or re-use of water, rainwater, wastewater or sewage; OR
    (ii) infrastructure for flood prevention, flood defense or storm-water management such as wetlands, retention berms, reservoirs, lagoons, sluice gates, drainage systems, tunnels and channels.

5. Pollution Prevention and Control: Development, construction, installation, operations and upgrades of any projects (products or technology) that reduce and manage waste generated in airport management and operations, including but not limited to
    (i) new or existing facilities, systems and equipment that are used for the collection, treatment, recycling or re-use of solid waste, hazardous waste or contaminated soil; OR
    (ii) new or existing facilities, systems and equipment that are used to divert waste from landfills and reduce emissions from transport of waste.

6. Conservation and Biodiversity: Any projects for
    (i) reforestation and ecological restoration; OR
    (ii) creation and protection of forests and wetlands; OR
    (iii) monitoring and mitigation of adverse impacts on flora and fauna such as potential impacts from construction and noise pollution.

3. Use of Proceeds Summary

Description	Amount USD
Net Proceeds from Green Bonds	$1,914,264,909

- **Allocated Amount to each Eligible Category**

Category	1	2	3	4	5	6
USD	**Sustainable Buildings**	**Renewable Energy**	**Energy Efficiency**	**Water and Waste water Management**	**Pollution Prevention and Control**	**Conservation and Biodiversity**
Disburse amount	**$143,800,686**	**$35,549**	**0.00**	**$16,613,786**	**$1,316,543**	**$15,376,068.**
Total						$**177,142,634**

Description	Amount
Amount Available for Allocation	$1,737,122,274

Note: Values are shown in dollars. The exchange rate used from MXN to USD is the applicable rate at the time for each disbursement being paid.

4. General Sustainable Criteria for NAICM buildings

The Mexico City New International Airport project is using an Integrative Design Process approach to deliver a design in which all the parties involved come together with sustainable solutions around architectural, water and energy efficiency, finishes & materials, indoor environmental issues and innovation and regional priority improvements that comply with LEED V4 rating which will continue in the Construction phase.

The design features of Passenger Terminal Building (PTB), Air Traffic Control Tower (ATCT), Ground Transportation Centre (GTC) and Area Control Centre (ACC) are based on LEED v4 rating and each one seeks to achieve a final score and rating level. It is considered for the design process to develop infrastructure and services in the area so future development can take place. Also it is considered to reduce the amount of parking space that the project will provide, by complying with just the number of parking spaces required by the Mexican law and regulation, promoting the use of public transport and the use of hybrid and electric cars.

The heat island effect is going to be diminished in the project by specifying high SRI (Solar Reflective Index by the English acronym) materials for the exterior paved areas.

Some of the material and resource specifications included in building elements, such as building envelope and structural elements, are designed to have a minimum service life of 60 years, to meet the requirements of the Building Life Cycle Impact Reduction criteria also includes footings, foundations, structural wall assemblies (from cladding to interior finishes), structural floors and ceilings (not including finishes), and roof assemblies. The life cycle assessment of the airport project will prove, at minimum 10%, a reduction compared with a baseline building's CO2 emissions.

To achieve LEED rating the project is using the Building Product Disclosure and Optimization Calculator to track and document life cycle information of products and materials that are specified in the project complying with Environmental Product Declaration (EPD). Among other important aspects, this criteria seek to use recycled content or products extracted and manufactured within 160 km of site, to incentivize the purchase of products that support the local economy. Additionally to LEED criteria the project have to follow other general aspects, for example, verify that all suppliers has environmental permits (mining, stone, gravel and sand mining permits).

The buildings also consider reduction in water consumption inside of the buildings by 50% by specifying low consumption fixtures and 100% outside of the buildings by specifying zero water consumption landscapes with native vegetation.

All of the buildings are designed to save 50% of the energy they use, with around 35% of that energy being generated by Photovoltaic system built on-site.

Passenger Terminal Building

The main building for the Mexico City New International Airport is the Passenger Terminal Building (PTB); the gross area of the building is 743,000 sqm with a current design capacity to process up to 57 million passengers. The PTB is pursuing a LEED v4, Platinum level.

Passenger Terminal Building	
Phases	**Number of points documented**
Design Points	67
Construction Points	15
Total for Platinum level	82

The energy model of the building will be provided in compliance with the building energy criteria for the project. In particular ASHRAE 90.1 standards.

The PTB reached design development in March 2016 and construction documents will be delivered in January 2017 which will complement the documents that the contractors have been provided.

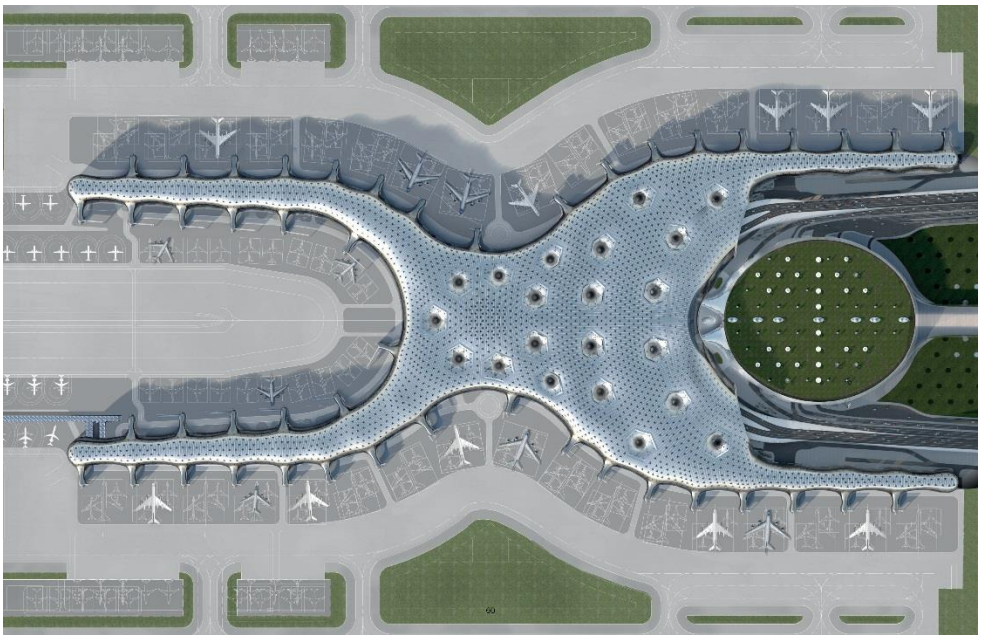


Figure 3 - Passenger Terminal Building

Ground Transportation Center

The other building for the Mexico City New International Airport is the Ground Transportation Center (GTC); the gross area of the building is 130,000 sqm. The GTC is pursuing a LEED v4, Gold level.

General Transportation Center	
Phases	**Number of points documented**
Design Points	57
Construction Points	13
Total for Gold level	70

At the moment the design of the GTC reached the construction documents in December 2016.

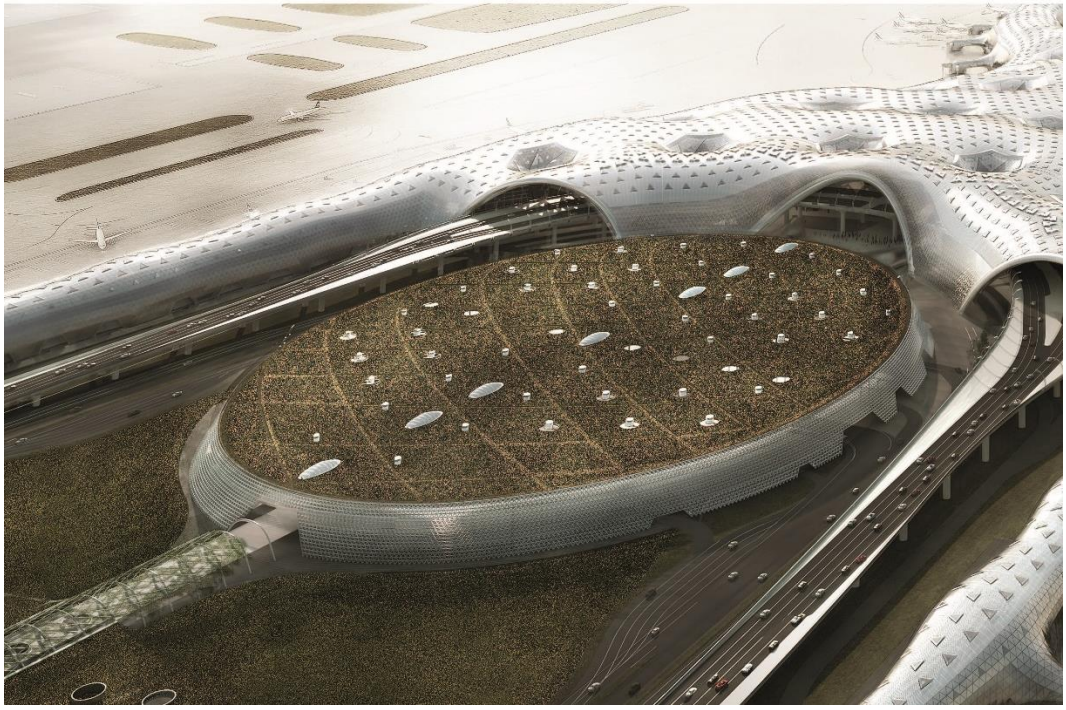


Figure 4 - Ground Transportation Center

Air Traffic Control Terminal

For the Mexico City New International Airport the Air Traffic Control Terminal (ATCT) will also be considered and designed with green building criteria; the gross area of the building is 5,000 sqm. The ATCT is pursuing a LEED v4, Gold level.

Air Traffic Control Terminal	
Phases	**Number of points documented**
Design Points	56
Construction Points	13
Total for Gold level	69

The ATCT building will also save up to 50% of the energy requirements; the Photovoltaic system on-site will also provide this building with around 35% of the building energy requirements; the design criteria is including at least a 50% of water use reduction in the interior of the building and a 100% water use reduction in the exterior.

At the moment the design of the ATCT reached the Construction Documents.

Figure 5 – Air Traffic Conctrol Terminal

Area Control Central

The Area Control Central (ACC) for the Mexico City New International Airport will also be considered and designed with green building criteria; the gross area of the building is 12,000 sqm. The ACC is pursuing a LEED v4, Gold level.

The design phase has not started yet.

5. Performance Indicators

Specific performance indicators are being developed for tracking through the on-going reporting in line with the Green Bonds framework.

- **Eligible buildings**

The Airport program is currently developing designs for LEED v4 ratings for the following buildings:

Building	LEED v4 Rating Target
Passenger Terminal Building	Platinum
Ground Transportation Center	Gold
Air Traffic Control Center	Gold
Area Control Center	Gold

In addition to the specific buildings undergoing the LEED rating process, there are impacts for other ancillary buildings and systems to achieve these targets.

The Central Utility Plants A & B (CUPs) are located in the West airfield and supply chilled water for cooling the Passenger Terminal Building (PTB) and Air Traffic Control Tower (ATCT), as well as facilities to the North within the Midfield area. The cooling systems are being designed to a high level of energy efficient performance.

The Ground Transportation Center will include a bus station and a metro rail station. A further bus station will be located to the North of the site for employees of the Midfield areas. Connectivity for the airport workers as well as passengers is critical for successful opening of the project and reducing car travel.

The project includes a dedicated Waste Water Treatment Plant. All black water from the initial phase of development will be treated to a high level to meet California Building Code requirements to provide a supply of treated water to airport buildings for lavatory flushing, irrigation and cleaning needs.

- **Energy and water consumption & reduction strategies**

The MIA reviewed the currently observed values of water and energy consumption at the existing airport; based on these usages the new airport is targeting a reduction of around 70% in its use of potable water and 40% for energy usage.

All the buildings seeking a LEED rating are currently targeting a 50% energy cost reduction to meet the full points available. This 50% cost reduction is being designed through the following strategies:

- Implementation of Energy Conservation Measures (ECM's) within the building
- Connection to a High Efficiency Campus Central Utility Plant
- Power sourced from renewable energy sources.

Water consumption is being reduced through the following strategies:

- Dedicated on-site Waste Water Treatment Plant to provide a supply of treated water.
- Use of low flow fixtures for toilet flushing using treated water in buildings seeking a LEED rating.
- Use of low flow fixtures for lavatory fixtures using potable water in buildings seeking a LEED rating.

- **Greenhouse Gas emissions**

As laid out in the MIA the proposed building designs, boilers and power plants will reduce the Greenhous Gas emission by 50% compared to the current Mexico City Airport.

Reduction in Greenhouse Gas emissions aligns with the energy reduction strategies noted above for energy consumption.

Other opportunities which are being implemented or investigated at this time are as follows:

- Use of photovoltaic panels to provide site lighting and perimeter protection during construction.
- Provision of sufficient infrastructure to allow electric Ground Source Equipment (eGSE) for airlines and ground handlers to reduce non-aircraft airside air pollution.
- Identification of locations of natural resources and products to reduce pollution from transportation to the site.

- **Waste reduction and diversion from landfill**

The MIA outlines a range of reduction and recycling targets. Overall the new airport seeks a reduction of 10% to 30% in waste generation and an improvement of 10 to 30% in the amount to waste diverted to recycling facilities.

- **Energy purchased or generated on-site from renewable energies**

The use of photovoltaics is currently being utilized for site lighting.

An extensive feasibility study is also currently in progress. This is to determine the best cost solution to meet the LEED demands of the project.