



Monterey Peninsula Airport District



Sustainability Takes Flight

At Monterey Peninsula Airport



February 2011



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Introduction

Airports are no longer places where planes just take off and land but have evolved into major business enterprises with spatial impacts and functional implications that extend deep into city and county areas. Airport-led urban development, notwithstanding its employment and income generating capabilities and potentials, comes with costs and risks: economic, environmental, and cultural.

Hosts of planning issues are raised when sustainability becomes part of the equation. Traditional reactions against airport expansion are evolving into more fundamental critiques of aviation around issues such as climate change. Mediating the conflict between the aviation industry's pro-growth stance and more skeptical perspectives is the concept of sustainable aviation. This may prove difficult but it remains vital to link airport planning to the broader planning of sustainable communities and regions.



What is Airport Sustainability?

Airport Sustainability represents a holistic approach to managing an airport to ensure the Economic viability, Operational efficiency, Natural resource conservation, and Social responsibility (EONS), as defined by Airports Council International of North America (ACI-NA).

Sustainable development has redefined the values and criteria for measuring organizational success, including the accounting concept of "triple bottom line", also known as "people, planet and profits", which captures the need to consider economic, ecological, and social aspects in planning and development decisions. This underscores the need to develop initiatives based on their economic, environmental, and social impacts.

As indicated by aviation industry research and sources, airports are already implementing environmental and energy-based initiatives that weigh environmental, economic, and social considerations in response to financial challenges, public expectations, and regulatory mandates on the aviation/airport industry.

There are many ways to define sustainability. A broad, generally-accepted definition is one developed in 1987 by the Brundtland Commission, which states that sustainability is:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Brundtland Commission, also known as the World Commission on Environment and Development, was convened by the United Nations (UN) to address a growing concern "about the accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development." In establishing the commission, the UN General Assembly recognized that environmental problems were global in nature and determined that it was in the common interest of nations to establish policies for sustainable development. The exponential growth in the world's population requires the implementation of global resource management to ensure that resources are available for future generations.



Airport Sustainability Dimensions

Sustainable outcomes are characterized by four complementary dimensions. These dimensions (EONS) are accepted and promoted within the aviation industry as enabling a holistic approach to airport sustainability. Incorporating the sustainability dimensions into Monterey Peninsula Airport District's (MPAD) business practices, policies and programs, ensures consideration of these across the business functions of the airport organization, to include:

Economic Viability

- Provides positive return on investment within a reasonable timeframe
- Creates strategic opportunities for future development or funding
- Promotes innovation and continuous improvement of the organization

Operational Efficiency

- Improves operational outcomes through documented policies, guidelines and procedures
- Reduces costs while preserving social, economic or conservation benefits
- Improves workforce effectiveness through the use of tools and technology

Natural Resource Conservation

- Minimizes waste through effective management
- Conserves resources through process change and innovative practices
- Focuses on preserving nature within an economic framework

Social Responsibility

- Improves and manages the environmental qualities that promote healthy living
- Focuses on social awareness and responsibility within the community
- Considers community needs and practical initiatives



Why Be Sustainable?

Airport operators across the country and around the world have embraced sustainability and are implementing programs or initiatives at their facilities. Along with benefiting their communities and the environment, airports are finding that sustainability makes good business sense. Airports that have adopted sustainable practices have found substantial benefits including reduced capital asset life cycle costs, reduced operating costs, better customer service and satisfaction, and enhanced relationships with their neighbors.

A number of airport operators have undertaken sustainability programs because the airport's management simply believes it is the right thing to do. Certainly, airports play a vital role in the movement of passengers and goods, but future growth in airport operations and air travel will have the potential to adversely affect the environment and the surrounding community. While airports are already subject to an array of environmental regulations, operators are going beyond regulatory compliance to proactively improve their environmental performance. Airports are also using sustainability practices to meet economic and/or social goals that will mitigate and perhaps benefit the surrounding community and other stakeholders.

Overall, specific factors that are driving airport operators to become sustainable include:

- Worldwide awareness and a global economy
- Airline industry financial pressures
- Rising energy costs
- Green and environmental mandates
- Resource conservation
- Aging infrastructure
- Facility lifecycle costs
- Enabling technologies

Although many airports have not undertaken formal sustainability programs, many have existing activities or programs that fall within the sustainability realm. Examples include "Buy Local", "Recycling", or "Stockpile and Reuse Construction Materials". These are common sense activities that fall under a definition of sustainability once they are appropriately documented and tracked. Identifying these existing activities may assist in building the support and buy-in an airport will need to launch a sustainability program.



What are the Benefits of Managing an Airport in a Sustainable Manner?

Airport sustainability as a business strategy has both immediate and long-term benefits that can be measured and when persistently managed, offers rewards.

Within the airport context, sustainability has broad implications throughout the entire system, including energy consumption; environmental impacts; and overall facility life-cycle costs.

Many airports operators understand that initiating and implementing a sustainability program often results in numerous benefits to the airport. These include:

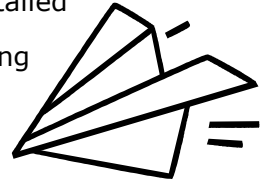
- Increased competitiveness through lean operations and reduced operating and life-cycle costs
- Greater utilization of assets
- Reduced environmental footprint
- Optimization of new and better technologies
- Reduced costs of asset development
- Improved bond ratings
- Improved benefits to and greater support from the community
- Improved work environment for employees leading to higher productivity
- Reduced environmental, health and safety risks

It is important to isolate specific operations and facilities within the airport management and infrastructure which can benefit from sustainable practices. For example, the ability of an airport operator to control many aspects of the activities and operations conducted by tenants of its facility are often limited. However, the effectiveness of an airport sustainability program can be enhanced through the education, cooperation and engagement of tenants, who can see reduced operation and maintenance costs as a result of these programs. Stakeholder engagement, particularly with tenants, is key to the successful implementation and maintenance of an airport's sustainability program.



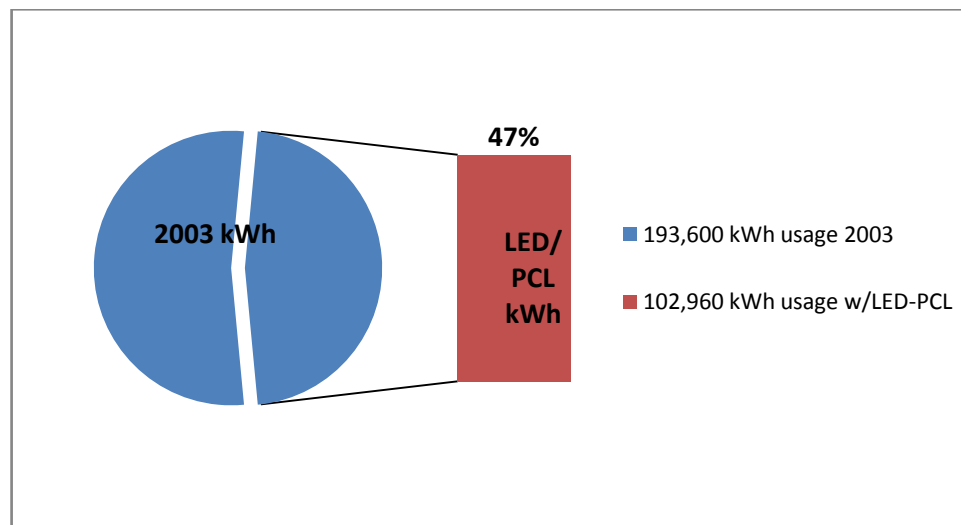
Current Efforts Underway

Monterey Peninsula Airport District began its Airport sustainability efforts as far back as 1999 with the purchase of an Electric Maintenance Vehicle that is still in service today. In 2000, motion sensors for sinks and toilets in the terminal restrooms were installed to maintain water conservation. Since 2008, a Airport Terminal wide Recycling program has been in place. MPAD maintains appropriate recycling containers in District offices as well as throughout the Terminal building. This recycling is environmentally important since the benefits extend beyond saving energy to also reducing area landfills and reducing greenhouse gas emissions.



1. In 2004, the first initiative of the Airport Energy Lighting Program took place, through FAA Airport Improvement Program grants, when MPAD Staff began replacing airfield lighting with energy efficient options, including LED lights on the taxiways and pilot controlled lighting (PCL) for both runways. When the final component, the PCL, was in operation for one year the following analysis highlights the savings on kWh usage:

In calendar year 2003, the total usage for airfield lighting was 193,600 kWh hours. In the twelve months following completion of the Airport Energy Lighting project, the total usage for the same airfield meter was 102,960 kWh. This represents a 47% reduction in kWh with these energy conservation measures.



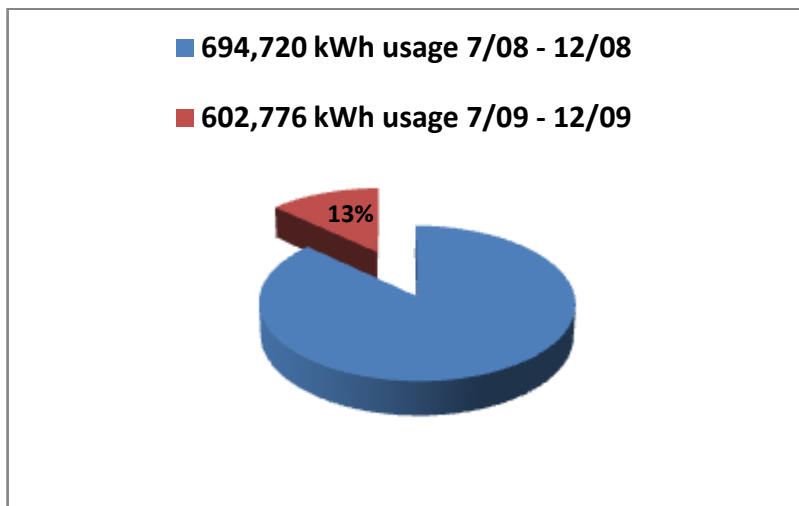


In 2009, as directed by the Strategic Plan developed in partnership with the Board of Directors and the Airport Management Staff, a sustainability project team was created. The first step was to compile an inventory of current airport sustainability initiatives and identify community resources that were available to assist in expansion of sustainable practices.

2. The second initiative of the Airport Energy Lighting Program was implemented in late spring of 2009, when the MPAD BOD approved an Airport Lighting Energy Efficient Capital Improvement Project. This first phase of this lighting initiative was to address the Airport Terminal lighting.

With the new Terminal lighting in operation for six months the following analysis of the savings on kWh usage was provided in March 2010:

For six months between July 2008 and December 2008 the total usage for terminal lighting was 694,720 kWh hours. For July through December in calendar year 2009, the total usage for the terminal meter was 602,776 kWh. This represents a 13% reduction in kWh with this energy conservation measure.



According to "Electrical Energy." *The New Book of Popular Science*. Grolier Incorporated. 2000 edition. 1998, "The average household in the United States uses about 8,900 kilowatt-hours of electricity each year." Using this calculation, the reduction in kWh's from the Airport Energy Lighting initiatives currently in place could power approximately 20 households per year.



3. The third initiative of the Airport Energy Lighting Program was undertaken in the fall of 2010 with the installation of energy efficient induction (ECH-ED) lights, retrofitting the street lighting beginning on Fred Kane Drive and wrapping around to the North Side of the Airport. Induction lamps have high quality light output and are energy efficient, long lasting, as well as low maintenance. This portion of the program was completed in late December 2010.



For the Airport Terminal and street lighting projects, the Airport District teamed with the Association of Monterey Bay Area Governments (AMBAG), Ecology Action's *RIGHTLIGHTS Energy Efficiency Program* implemented through Lumenature and Pacific Gas and Electric Company (PG&E) by applying for incentives and receiving rebates as part of the AMBAG Energy Watch Program.

AMBAG and PG&E partnered to deliver the AMBAG Energy Watch Program, a regional leader in energy efficiency in Monterey, San Benito and Santa Cruz counties. MPAD joined this partnership by submitting a request for rebates for the Airport Terminal lighting and street lighting projects.

The Energy Watch program is funded by California utility ratepayers and administered by AMBAG in partnership with PG&E under the auspices of the California Public Utilities Commission (CPUC).

By participating in Energy Watch, *RIGHTLIGHTS Energy Efficiency Program*, Monterey Peninsula Airport is taking a leadership role by demonstrating energy efficiency actions and how taking these measures can better manage energy use, reduce operating costs, and help protect the environment.





As MPAD continues to seek ways to enhance service to the customer it strives to balance sustainability with necessary enhancements.

4. In November of 2010, the District completed the installation a Flight Information Display System. The FIDS system employs the use of energy rated display screens that transmit Flight Information and with the use of smart software the screens are programmed individually to power on and off as appropriate for the customer traffic in each area.



A proposed electric vehicle charging station is scheduled to be installed in the short-term parking lot in front of the Terminal in the near future. MPAD requested to be included in the regional collaboration for implementation of electric transportation put into action by Green Fuse Energy. Green Fuse is currently the lead facilitator for the Monterey Bay Electric Vehicle Alliance (MBEVA) involving business, government, labor, higher education, non-profit organizations, and other interested groups. The Alliance is designed to increase regional collaboration to prepare communities for the successful implementation of electric transportation (vehicles and infrastructure) and this initiative is funded through the California Energy Commission (CEC).



Next Steps: Confirm Sustainability Goals & Objectives

When embarking on a sustainability program, it is critical for the airport to determine its specific definition of sustainability. This is an important step that establishes the groundwork for future planning and implementation. Through the FAA Airport Improvement Program, MPAD will apply for a Grant to initiate an Airport Master Plan Update with a Sustainable Management Plan. The document will evaluate ways to make sustainability a core objective while assessing the airport’s long-range planning through a Master Plan document. The Plan will include initiatives for reducing environmental impacts and achieving economic benefits while increasing integration with the local community. Some of the sustainability practices will include:

- Conservation, efficiency, and demand management
- Emission (CO2) reductions
- Clean energy production and clean fuel vehicles
- Use of green building principles, sustainable design, and high-performance buildings
- Economic self-sufficiency of the airport
- Economic growth of the airport and the community
- Capacity enhancement
- Revenue growth

The Airport Master Plan offers an excellent vehicle to evaluate prime sustainability opportunities, consider unique circumstances, and evaluate the airport’s role within local communities and environment. The Master Plan will include extensive public outreach that encourages input and involvement from various stakeholders as it continues to explore additional ways to maximize sustainability efforts. Such involvement creates airport-wide commitment to the mission of the sustainability program and will facilitate the successful development and implementation of sustainable airport practices.

As a part of the Master Plan steering committee, sustainability will become an integral part of the master planning effort, not only for the technical consultants but also for key stakeholder groups. The following sustainability categories will be considered during the Airport Master Planning project:

Economic Vitality	Airport Connectivity	Air Quality
Energy including Solar	Buildings/Facilities Standards	Noise
Water Quality and Conservation	Materials Use and Solid Waste	Land Use
Socioeconomic Benefits and Community Involvement	Hazardous Materials	Natural Resources



Resources Regarding Sustainability

There are a number of excellent resources available to gain a better understanding of airport sustainability and sustainability planning. Resources include:

Area Monterey Bay Area Government (AMBAG), Energy Watch Program,

<http://www.ambag.org/programs/EnergyWatch/index.html>

Monterey Bay Area Green Business Program,

<http://www.montereybaygreenbusiness.org/ForGovm.html>

Monterey Business Council, C2 Green Building Committee; Step up to 2Green; Montereybay365.com, Meet Green;

Transportation Research Board (TRB)-Airport Cooperative Research Program (ACRP)

[ACRP Synthesis 10: Airport Sustainability Practices](#)

[ACRP Project 20: Strategic Planning in the Airport Industry](#)

Sustainable Aviation Guidance Alliance (SAGA), <http://www.airportsustainability.org>

SAGA is a broad coalition of aviation associations that is undertaking an initiative to develop comprehensive guidelines on sustainability practices at airports. Participants include representatives from ACI-NA, Airport Consultants Council (ACC), American Association of Airport Executives (AAAE), Air Transport Association (ATA), FAA, airport representatives, and consultants.

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