Airports Going Green Conference

Presented by: Michael Cheyne, A.A.A.E., PMP, SFP
Director, Asset Management & Sustainability

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Agenda

- Asset Management
- Sustainability
- Airport Rankings
- Green Airports Self-Certification
- Airport EcoDistrict ATL
- Challenges & Recommendations
ATL Asset Management and Sustainability Division

Mission:
To lead the Department of Aviation to become one of the greenest airports in the U.S. and proactively manage our aging infrastructure based on life cycle analysis, total cost of ownership, and sustainable development.
Asset Management
Vision:
Manage Hartsfield-Jackson Atlanta International Airport (ATL) at an agreed level of service in a sustainable manner, while increasing efficiency and optimizing life cycle cost of the core facilities and their systems.

Mission:
The mission is to develop an enterprise approach in managing ATL’s assets by utilizing existing operating systems to provide Total Cost of Ownership (TCO) which allow for capital investment planning in a logical, sustainable and strategic manner.
The vision, mission and goals would be achieved by developing and implementing an enterprise asset management system that integrates the ATL existing platforms including: VFA, MAXIMO, COA Utility Management System (UMS), EPMS (Oracle project database), PropWorks, Infor and GIS and to identify assets and guide reinvestment decisions.
Asset Management Approach

The asset management enterprise solution is integrated into a Geographic Information Systems (GIS) platform as shown above.
GIS Ties It All Together For The Common User

- The ‘gateway’ to most AMS data for the common Department of Aviation user is via the GIS-based Asset Management Viewer web map

- The Asset Management Viewer provides an easy to use and easy to navigate map interface that provides the user access to key AM&S and TCO data

- The mapping (GIS) data is developed and maintained by the Department of Aviation GIS Group, with links back to the GIS database and the TCO module

- Since GIS data is maintained in Oracle it makes cross-database ties much easier
Data Mart

- Lifecycle Costs (VFA)
- Utilities Costs (UMS)
- Project Costs (EPMS)
- Operating Cost Projections (TCO Module)
- Lease Data (PropWorks)
- Maintenance Data (Maximo)
Sustainability
Why Sustainability Rankings

- Improve visibility of airport mission and operations
- Encourage good stewardship among internal (airlines/tenants) and external stakeholders (passengers)
- Improves opportunity to secure funding for more costly, leading edge technologies
Airport Sustainability Performance Indicators

Common Performance Indicators
(all ranking organizations include)

- Energy Use and Conservation Measures
- Water Quality Protection and Conservation
- Greenhouse Gas Emission Reduction Initiatives
- Waste Reduction, Reuse and Recycling
- Transportation and Mobility (Planning and Design)
- Workplace Learning and Career Paths
- Diversity and Equal Opportunity
- Sustainability Education and Stakeholder Engagement
Airport Ranking Organizations

- Envision
- Global Reporting Initiative (GRI)
- International Council for Local Environmental Initiatives Star Community Index
- Sustainable Aviation Guidance Alliance (SAGA)
## Sustainable Management Plan
### Matrix Criteria

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Cost to implement</strong></td>
<td><strong>Cost to operate and maintain</strong></td>
<td><strong>Cost savings</strong></td>
</tr>
<tr>
<td>0 High cost to implement (&gt; $250k)</td>
<td>0 High cost to operate and maintain (&gt;$50k)</td>
<td>0 No to low cost savings (0-5%)</td>
</tr>
<tr>
<td>10 Medium cost to implement ($50k-$250k)</td>
<td>10 Medium cost to operate and maintain (&gt;$50k)</td>
<td>10 Medium cost savings (5-25%)</td>
</tr>
<tr>
<td>20 Low cost to implement (&lt; $50k)</td>
<td>20 Low cost to operate and maintain (&lt; $50k)</td>
<td>20 High cost savings (&gt; 25%)</td>
</tr>
<tr>
<td><strong>Ease of implementation</strong></td>
<td><strong>External funding Opportunities</strong></td>
<td><strong>Revenue Generation Opportunities</strong></td>
</tr>
<tr>
<td>0 Difficult to implement</td>
<td>0 No external funding opportunities</td>
<td>0 No revenue generation opportunities</td>
</tr>
<tr>
<td>10 Moderately difficult to implement</td>
<td>10 Some external funding opportunities</td>
<td>10 Some revenue generation opportunities</td>
</tr>
<tr>
<td>20 Easy to implement</td>
<td>20 Many external funding opportunities</td>
<td>20 Many revenue generation opportunities</td>
</tr>
<tr>
<td><strong>Incorporates lifecycle analysis</strong></td>
<td><strong>Impact on biodiversity</strong></td>
<td><strong>Impact on local communities</strong></td>
</tr>
<tr>
<td>0 No incorporation of lifecycle analysis</td>
<td>0 Negative or no impact on biodiversity</td>
<td>0 No change or negative impact on local communities</td>
</tr>
<tr>
<td>10 Minor incorporation of lifecycle analysis</td>
<td>10 Minor positive impact on biodiversity</td>
<td>10 Minor positive impact on local communities</td>
</tr>
<tr>
<td>20 Major incorporation of lifecycle analysis</td>
<td>20 Major positive impact on biodiversity</td>
<td>20 Major positive impact on local communities</td>
</tr>
<tr>
<td><strong>Enhances capacity</strong></td>
<td><strong>Greenhouse gas emissions</strong></td>
<td><strong>Impact on local suppliers</strong></td>
</tr>
<tr>
<td>0 No capacity enhancement</td>
<td>0 Increase or no impact on greenhouse gas emissions</td>
<td>0 Negative or no impact on local suppliers</td>
</tr>
<tr>
<td>10 Minor capacity enhancement</td>
<td>10 Minor decrease in greenhouse gas emissions</td>
<td>10 Minor positive impact on local suppliers</td>
</tr>
<tr>
<td>20 Major capacity enhancement</td>
<td>20 Major decrease in greenhouse gas emissions</td>
<td>20 Major positive impact on local suppliers</td>
</tr>
<tr>
<td><strong>Cost/Benefit</strong></td>
<td><strong>Waste sent to landfills</strong></td>
<td><strong>Impact on local hiring</strong></td>
</tr>
<tr>
<td>0 Low benefits vs costs</td>
<td>0 No impact on the amount of waste sent to landfills</td>
<td>0 Negative or no impact on local hiring</td>
</tr>
<tr>
<td>10 Medium benefits vs costs</td>
<td>10 Minor decrease on the amount of waste sent to landfills</td>
<td>10 Minor increase in local hiring</td>
</tr>
<tr>
<td>20 High benefits vs costs</td>
<td>20 Major decrease on amount of waste sent to landfills</td>
<td>20 Major increase in local hiring</td>
</tr>
<tr>
<td><strong>Improves Efficiency</strong></td>
<td><strong>Recycled</strong></td>
<td><strong>Enhances customer experience</strong></td>
</tr>
<tr>
<td>0 No improvement to efficiency</td>
<td>0 Decrease or no impact on the amount of waste recycled</td>
<td>0 Negative or no impact on customer experience</td>
</tr>
<tr>
<td>10 Minor improvement to efficiency</td>
<td>10 Minor increase in the amount of waste recycled</td>
<td>10 Minor improvement in customer service</td>
</tr>
<tr>
<td>20 Major improvement to efficiency</td>
<td>20 Major increase in the amount of waste recycled</td>
<td>20 Major improvement in customer service</td>
</tr>
<tr>
<td><strong>Hazards waste</strong></td>
<td><strong>Noise abatement</strong></td>
<td><strong>Consistent with ATL’s Master Plan</strong></td>
</tr>
<tr>
<td>0 Increase or no change on the amount of hazardous waste</td>
<td>10 Minor positive impact on noise abatement</td>
<td>-10 Not consistent with ATL’s Master Plan</td>
</tr>
<tr>
<td>10 Minor decrease in the amount of hazardous waste</td>
<td>10 Minor negative impact on noise abatement</td>
<td>10 Consistent with ATL’s Master Plan</td>
</tr>
<tr>
<td>20 Major decrease in the amount of hazardous waste</td>
<td>20 Major positive impact on noise abatement</td>
<td>10 Consistent with ATL’s Master Plan</td>
</tr>
<tr>
<td><strong>Landscape management</strong></td>
<td><strong>Consistent with SMP</strong></td>
<td><strong>Consistent with SMP</strong></td>
</tr>
<tr>
<td>0 Negative or no impact on landscape management</td>
<td>-10 Not consistent with SMP</td>
<td>-10 Not consistent with SMP</td>
</tr>
<tr>
<td>10 Minor positive impact on landscape management</td>
<td>10 Consistent with SMP</td>
<td>10 Consistent with SMP</td>
</tr>
<tr>
<td>20 Major positive impact on landscape management</td>
<td>20 Consistent with SMP</td>
<td>20 Consistent with SMP</td>
</tr>
</tbody>
</table>

### Other [Weighted Score: 1]

- Consistent with SMP
- Consistent with ATL’s Master Plan

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Sustainable Management Plan

Hartsfield-Jackson
Atlanta International Airport
Green Airport Self Certification
Green Airports Self Certification

Some airports have taken steps to play their part in reducing their footprint and impacts to sustainability:

- Chicago O’Hare has developed a Sustainability Airport Manual (SAM) which yields a green airplane rating system
- Hartsfield-Jackson Atlanta International Airport has a Leadership in Energy and Environmental Design (LEED) certified gold international terminal
- San Diego International Airport was first to launch its comprehensive sustainability report that met the rigorous requirements of the Global Reporting Initiative (GRI). ATL has subsequently met a GRI of B+.
- The Sustainable Aviation Guidance Alliance (SAGA) has produced a guide for aviation to implement sustainable measures
- Many airports have completed or are in the process of completing either Sustainable Management Plans or Sustainable Master Plans
Green Airports Self Certification

So what does LEED, SAM, GRI, SAGA and now, as of late 2012, Envision all mean and how do they compare? Are some “greener” than others? With so many avenues for championing sustainability measures, it’s easy to see how some could get overwhelmed.

In an attempt to simplify the green standards let’s examine how these entities compare and see if there is a simpler comprehensive solution for green reporting.
# Green Airports Self Certification

<table>
<thead>
<tr>
<th></th>
<th>Unites States Green Building Council (LEED)</th>
<th>Green Reporting Initiative (GRI)</th>
<th>Sustainable airport guidance alliance (SAGA)</th>
<th>Sustainable Airport Manual (SAM)</th>
<th>Envision-Sustainable Infrastructure rating system</th>
</tr>
</thead>
<tbody>
<tr>
<td>When was it established</td>
<td>1993</td>
<td>2000</td>
<td>2008</td>
<td>2009</td>
<td>2010</td>
</tr>
<tr>
<td>Type of system (points, rating, performance etc.)</td>
<td>points</td>
<td>reporting based on performance</td>
<td>not a rating system. This is more of a sustainable guidance tool for the aviation industry</td>
<td>points</td>
<td>Scoring system based on percentage in each category</td>
</tr>
<tr>
<td>Area of popularity</td>
<td>U.S</td>
<td>Global</td>
<td>North America</td>
<td>U.S</td>
<td>U.S</td>
</tr>
<tr>
<td>Airport specific</td>
<td>no</td>
<td>Has a category dedicated for airports under the transportation system</td>
<td>yes</td>
<td>yes</td>
<td>Has a category dedicated for airports under the transportation system</td>
</tr>
<tr>
<td># of certifications issued</td>
<td>44,998 in the US</td>
<td>has a data base of sustainable practices</td>
<td>900 case studies</td>
<td>50+ projects</td>
<td>2</td>
</tr>
<tr>
<td>Categories of measurement</td>
<td>Sustainable Sites, Water efficiency, Energy, Materials and resources, indoor environmental quality, regional priority, Innovation in design</td>
<td>Sustainable Sites, Water efficiency, Energy, Materials and resources, indoor environmental quality, regional priority, Innovation in design</td>
<td>LEED and GRI</td>
<td>Sustainable sites, water efficiency, Energy and atmosphere, materials and resources, Indoor environmental quality, education and training</td>
<td>Quality of Life, Leadership, resource allocation, natural world, climate and risk</td>
</tr>
</tbody>
</table>
Green Airports Self Certification

Methods which measure sustainable efforts run the gamut. With all of these systems there is limited consideration for the size, jurisdiction, local and state laws or type of airport.

- For example, let’s say a nonhub aerodrome airport that is city government owned and operated, surrounded by water on 3 sides and has 50,000 enplanements a year would have very different needs and environmental impacts then than of a large landlocked hub airport owned and operated by a port authority.

- Although the entities above strive for success and are headed in the right direction, where they fall short is comparing entities to each other and not to themselves. It’s great that Airport A received LEED platinum rating and Airport B received 4 Green Airplane rating, but Airport C doesn’t compare to the size or geographical location of airport A or B. Does this mean Airport C is not as green?
Green Airports Self-Certification

It’s time to rethink what green accountability means for the aviation industry. It is safe to say that sustainability is about doing measurably better than the past and is always seeking to exceed today’s goals. So let’s start there.

What about a system that measures you against yourself and your past in the following categories. To qualify for the “green airport” self-certification the airport would have to meet 75 points.

- Construction Management                     20 points
- Materials and Resources                     20 points
- Energy Efficiency                            20 points
- Water Efficiency                             20 points
- Operations and Maintenance                   20 points

100 points available
Green Airports Self-Certification

Construction management (20 points)

- Site development protection, including erosion control and low impact landscape management plan (10 points)
- Reduce heat island effect by 50% for new development – any new development should have 50% of the developed surface should meet a SRI of at least 29 (5 points)
- Construction master plan, including laydown area and employee transportation (5 points)
Green Airports Self-Certification

Materials and Resources (20 points)

- Waste management – 20% of waste stream from airport operations is recycled (10 points)
- Construction waste management plan - 80% of all development debris does not end up in landfill (5 points)
- Materials purchased (30% of new materials purchased should fall into at least one of the following categories below) (5 points)
  - Regional materials
  - Recycled content
  - Materials reuse
  - Low emitting materials
Green Airports Self-Certification

Energy management and efficiency (20 points)
- Reduce purchase of energy, per passenger, annually through a combination of efficiency and use of alternative energy by 5% (10 points)
- Develop an energy plan (5 points)
- Have a refrigerant management plan in place (5 points)

Water management and efficiency (20 points)
- Water use reduction, per passenger, annually by 5% (10 points)
- Water efficient landscaping reduction by 20% (10 points)
Green Airports Self-Certification

Energy management and efficiency (20 points)

- Reduce purchase of energy, per passenger, annually by through a combination of efficiency and use of alternative energy by 5% (10 points)
- Install a metering system for tenants and develop an energy plan (5 points)
- Have a refrigerant management plan in place (5 points)

Water management and efficiency (20 points)

- Water use reduction, per passenger, annually by 5% (10 points)
- Water efficient landscaping reduction by 20% (10 points)
Short- and Long-term Operations and Management (20 points)

- Green procurement program (10 points)
- Green cleaning program (5 points)
- Employee training on sustainability initiatives (5 points)
Green Airports Self-Certification

- A score of 75 points out of 100 will yield a green airport declaration. To hold accountability for the self-certified airport, the airport should publish a public annual report.

- This is a self-reporting solution that is simple, global with regards to size, jurisdiction and geographical location.
Green Airports Self-Certification

- This project is in its beginning stages of development. It attempts to create a green standard for airports that is inclusive and as well comprehensive of sustainable initiatives.

- The details from other ranking agencies and policies provide excellent design detail, assist with capital decisions and priorities and set standards for energy efficiency.

- By no means does this replace the other green agencies and certifications they have in place. It’s just a system that cast a wider net to capture all airports. This system offers a no cost and non exclusion method of championing green efforts at airports.
Airport EcoDistrict ATL
Airport EcoDistrict ATL

- Airport EcoDistrict ATL is the first airport EcoDistrict in the world.
- The Airport EcoDistrict ATL is committed to achieving ambitious sustainability performance goals, implementing both infrastructure and behavior change projects and tracking the results over time.
Airport EcoDistrict ATL

- Defined by its stakeholders
- EcoDistricts are public-private partnerships
- Creating an Airport EcoDistrict helps to achieve the goals of ATL’s Sustainable Management Plan
- Airport EcoDistrict ATL was officially established on September 10, 2013
Challenges and Recommendations

Challenges

- How do airports measure their performance (e.g., energy use per square foot or per passenger)?
- Are currently measured performance indicators representative of airport priorities world-wide?

Recommendations

- Choose universal and realistic performance indicators
- Develop standard metrics for measuring performance
- Determine how to universally engage the software side of sustainability and report on that engagement
QUESTIONS ????

cleaner

Working toward a greener future

brighter