



**Federal Aviation Administration**  
**Office of Airport Planning and Programming**  
**National Planning and Environmental Division**

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**December 17, 2012**

**Report on the Sustainable Master Plan Pilot Program and Lessons Learned**

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**1. The Sustainable Master Plan Pilot Program is Helping Airports Incorporate Sustainability into Long-Term Planning**

Initiated in 2010, the Sustainable Master Plan Pilot Program’s goal is to help airports achieve their planning and operational objectives while reducing environmental impacts, achieving environmental benefits, and improving relationships with local communities. This goal is pursued through preparation of comprehensive, long-range plans that incorporate sustainability.

Based on lessons learned, and draft and final plans from five participating airports, the Pilot Program is helping airports identify sustainability initiatives. Notable initiatives are included in Appendix A. A list of airports that contributed to this report is included in Appendix B. Lessons learned provided through the First Quarter of 2012 were used to develop this report.<sup>1</sup>

To ensure the sustainability initiatives are incorporated, most of the plans also include methods of tracking and reporting. Paragraph 3 of this report will elaborate on those methods.

**2. The Pilot Program is Progressing On-Schedule**

The Pilot Program consists of two “precursor” plans and 10 Phase 2 plans. All plans remain on-schedule for completion in 2013. Following is a summary of notable updates:

- Eight of the FAA-funded sustainability plans have been completed.
- One of the four pending plans has been delayed, but we still expect to complete the pilot program in 2013.

Status of the Sustainable Master Plan Pilot Program – as of December 15, 2012		
Airport	Plan Type	Status
Denver International Airport	Sustainable Management Plan	In-Progress
Fresno Yosemite International Airport	Sustainable Management Plan	Completed
Hartsfield-Jackson Atlanta International Airport	Sustainable Management Plan	Completed
Ithaca-Tompkins Regional Airport	Sustainable Master Plan	Completed
Nashville International Airport	Sustainable Master Plan	In-Progress

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<sup>1</sup> Lessons learned for this report are primarily drawn from input received in December 2011 and March 2012.

Newark Liberty International Airport	Sustainable Management Plan	Completed
Newport News/Williamsburg International Airport	Sustainable Master Plan	In-Progress
Newton City-County Airport	Sustainable Master Plan	Completed
Northeast Florida Regional Airport	Sustainable Management Plan	Completed
Outagamie County Regional Airport	Sustainable Management Plan	Completed
Renton Municipal Airport	Sustainable Management Plan	In-Progress
Teterboro Airport	Sustainable Management Plan	Completed

Additional information on the pilot plans is included in Appendix C.

### 3. Best Practices and Lessons Learned

The Sustainable Master Plan Pilot Program’s Interim Guidance allowed airports to choose between two sustainability plan types.<sup>2</sup> The guidance also outlined six requirements for each plan.<sup>3</sup> These aspects of the guidance were used to divide lessons learned into five categories:

- Plan Preparation: Document Types, Development Process, and Timelines
- Sustainability Categories
- Baseline Assessments
- Sustainability Goals and Objectives
- Outreach and Stakeholder Engagement

#### a. Plan Preparation: Document Types, Procedural Frameworks, and Timelines:

##### (1) Sustainable Master Plan vs. Sustainable Management Plan:

- a. When considering which plan to prepare, airports should know that balancing sustainability objectives and aviation needs is challenging in a Sustainable Master Plan. In some cases, early deliverables for sustainable master plans resembled those for stand-alone management plans. In others, little attention was initially devoted to sustainability. It is important to ensure the correct balance is achieved.
- b. Despite the challenges, integrating sustainability into a master plan affords more opportunities to align sustainability and planning. Airports that chose to prepare a Sustainable Master Plan were pleased with their decision to do so. With one document to work from, it was easier for airport management and consultants to marry needed development with sustainability initiatives.
- c. Based on the master plans we’ve reviewed, those that intersperse sustainability throughout the document are more effective than ones that devote a chapter to the topic. Ithaca was one plan that fully interspersed sustainability considerations. Appendix D displays their procedural framework.

<sup>2</sup> Sustainable Master Plans and Sustainable Management Plans.

<sup>3</sup> All plans must begin with a sustainability mission statement. They must then identify sustainability categories that will be analyzed, and include baseline assessments, sustainability goals, and sustainability initiatives for each category. Public and stakeholder involvement is also encouraged.

- d. Northeast Florida Regional Airport’s procedural framework is a good example that can be used for Sustainable Management Plans. It is included in Appendix D.

(2) Plan Timelines: All timelines should conform to those in the Interim Guidance:

Airport Size/Type	Recommended Timeline
General Aviation	12 months
Relievers	12 months
Nonhub Primary	12-18 months
Small, Medium, Large Hub	18-24 months

More than one pilot participant was concerned their plans were being completed too quickly. In one case, the airport’s timeline was seven months shorter than the recommended timeline in our guidance. Consensus from FAA reviewers was the plan was not as robust as it should have been, and insufficient time was devoted to review.

(3) Encouraging Decision-Maker and Airport Participation: Coordination with all levels of airport management and staff is critical. Success comes when everyone supports the plan and has a say in its development. These measures encouraged internal participation:

- Involvement by staff from all areas of the airport in plan brainstorming sessions.
- Regular meetings with Airport staff to obtain feedback and input.
- Having the airport’s sustainability mission statement approved by the airport director or governing board. This increases leadership’s personal stake in plan outcomes.
- Describing rationale and benefits of sustainability early in the process. Examples and case studies that illustrate the financial benefits are particularly compelling.
- Annual sustainability reports are one way to demonstrate sustainability benefits to airport employees and leadership.

(4) Maintaining a Focus on Sustainability: Continued focus on sustainability has been a challenge for some pilot airports. Discussions could easily gravitate back towards the old way of doing things. This is particularly true for master plans.

For example, during a discussion about additional vehicle parking for Ithaca, the need to maintain revenue was a central concern. Ithaca decided to add more vehicle parking and did not use permeable pavement.<sup>4</sup> This was not the most sustainable solution, but they did have a meaningful conversation about alternative modes. They also replaced the trees that had to be removed to make room for the additional spaces.

The lesson is for airports to *always* consider sustainability as a part of their decision making process. Even if they cannot pursue the most sustainable solution, sustainability plans can get the airport to think creatively about other options.

(5) Encouraging More Sustainable Project Designs:

<sup>4</sup> The consultant for the pilot plan indicated that additional funding for permeable pavement could have provided an incentive to pursue sustainable alternatives.

- a. Some airports and consultants felt it was a challenge to keep enthusiastic participants focused on the fact that these are plans and not design projects. One way to address this is to develop tools to help future designs become more sustainable. Decision trees and project design questionnaires that incorporated sustainability considerations are two examples. These tools can be in plan appendices and provided electronically for future use.
- b. As projects are designed, getting engineers or architects on board early can facilitate discussions about sustainability features. Discussing sustainability late in the design process will reduce opportunities for a more sustainable project.
- c. Familiarizing design engineers and architects with a sustainability plan's goals will result in a more sustainable project design. This worked well for apron rehabilitation at Ithaca. Infrastructure to accommodate future electric ground power for aircraft was added to the project. Though power was not provided at the time, infrastructure was put in place for easier implementation in the future.

The engineers also called for HSP lighting fixtures to replace the metal halide fixtures on the roof of an existing hangar, and opted to use crushed stone instead of crushed ledge rock, a more cost-effective option.

- d. To encourage sustainable solutions, a business case needs to be made that a return on investment exists for sustainable design and construction. This can be emphasized when educating airport leadership and discussing financing options for sustainability goals.

(6) The Sustainability Mission Statement:

- a. The airport's sustainability mission statement is generally the first pilot plan deliverable. It should not be completed solely by airport sustainability personnel and the consultant. The process of developing this statement should be a useful exercise that demonstrates the benefits of sustainability to airport leadership, employees, and stakeholders.

In the early stages of Northeast Florida Regional Airport's (NFRA's) plan, time was spent educating all parties about what the plan intended to accomplish.

- b. A mission statement that focuses on local priorities is preferred over one that relies on standard sustainability verbiage. NFRA's definition is an one example:

*“To maintain and enhance Northeast Florida Regional Airport as a vibrant asset that serves the needs of Northeast Florida residents and businesses, promotes economic growth in the region, and operates in an economically and environmentally sustainable manner that conserves natural resources and protects the environment.”*

(7) Making Best Use of Limited Airport Resources: The Sustainability Management Plan for NFRA resulted in lessons learned for airports that have limited resources to implement sustainability initiatives or monitor performance:

- a. Focus on initiatives that achieve objectives with low implementation costs. The Sustainable Aviation Guidance Alliance (SAGA) database and *ACRP Report 43: Guidebook of Practices for Improving Environmental Performance at Small Airports* were two sources of low-cost measures NFRA relied on.
- b. Develop simple tools to support implementation and monitoring of sustainability objectives. Decision trees, “Sustainability Report Cards,” checklists, and recommended formats for annual reports are three examples.
- c. Small airports should prioritize the economic pillar of sustainability more than larger airports that have more resources to pursue sustainability initiatives.
- d. Plan for initiatives that can be incorporated as airports expand.

b. Sustainability Categories:

(8) Classifying Categories: Sustainability categories will provide the substantive framework for the report. They are used to focus baseline assessments, and organize sustainability goals and objectives. To maximize airport flexibility, our Interim Guidance was not prescriptive when identifying categories.

- a. Selected categories should represent the highest priorities of the airport and stakeholders, and be in areas where the greatest benefits can be realized.
- b. The plans we have reviewed include 8-12 sustainability categories. The most common ones are related to:
  - Energy Reduction
  - Planned Development
  - Construction Methods
  - Waste Management and Recycling
  - Water Quality and Conservation
  - Air Quality
  - Emissions Reduction
  - Airport Connectivity
  - Land Use
  - Natural Resources Management

The sustainability categories for four pilot plans are provided in Appendix E.

- c. The existence of baseline information for a category (e.g. in previous environmental analyses or annual environmental reports) could influence its incorporation into a plan. It suggests the area has been worthy of focusing on in the past and can reduce the amount of new information that needs to be collected.

(9) Using Local Priorities, the Environmental Setting, and Stakeholder Input to Identify Sustainability Categories: Care should be taken to ensure sustainability categories are not solely derived from other sustainability and environmental stewardship plans. For instance, NFRA initially considered standard sustainability categories of some similar plans. Later, it became clear that revisions were necessary to meet NFRA's needs, and address community and natural resource issues. Consultants should:

- Work with the airport to understand the airports priorities.
- Identify vulnerable environmental resources in the local area, and existing airport, stakeholder, and community concerns.
- Cater the plan's strategies to the airport's needs and sustainability goals.

(10) The Number of Categories: In some cases, a lower number of categories may be beneficial. For instance, Fresno Yosemite reduced the number of categories in their plan from eleven to 9 between draft stages. Narrowing the focus allowed for in-depth analysis of categories that were important to airport leadership.

c. Baseline Assessments:

(11) Sequencing Baseline Assessments: Our interim guidance calls for completing baseline assessments before developing sustainability goals. The value of this sequence was confirmed by pilot participants. Analyzing existing conditions beforehand helped airports set realistic and accurate targets.

(12) The Baseline Year. Reach early agreement on the baseline year. To improve the data collection process, all team members, particularly the sponsor's facility and financial staff, need to know what year's data is required.

(13) Baseline Data Collection:

- a. Centralized data collection minimizes duplication of effort. Fresno Yosemite benefited from having a data collection leader that coordinated inflow and maintained common data. This reduced confusion about what data had been collected and what items were outstanding.
- b. The consultant and sponsor must be clear on which data is being sought. Developing a standardized list (or standard industry list) of data needs and checklists for individual contributors can aid the process.
- c. Relying upon local experts could aid data collection. For example, NFRA's benefited from input from their on-call consultant. Greater cost-efficiency was achieved thanks to their in-depth local knowledge.

d. Sustainability Goals and Objectives:

(14) Goal Setting Meetings: Goal setting meetings touch on nearly every aspect of the airport's operations. This could be time consuming. One method that saves time is having the consultant send recommended goals and targets to participants

beforehand. This allows participants to provide feedback in advance instead of brainstorming goals from scratch in a meeting.

(15) Financing Sustainability Measures:

- a. Outlining financing options for sustainability measures can aid implementation. Subsections on financing options can be added to the discussion of any goal that requires additional funding.
- b. Checklists can also be added to plans that can help airports evaluate the different financial alternatives. Many plans left their goals open-ended so alternatives could be evaluated in the future.

(16) Quantifying Sustainability Goals:

- a. Focusing objectives on reduced rates of resource consumption and waste generation is preferred over absolute numbers. Static absolute numbers result in lower effective rates of reduction as airports expand.
- b. Goals for dual scenarios (e.g. future commercial service vs. no future commercial service) can address uncertainties about airport development.
- c. Metrics should only be developed if there is enough historical data. Quantifying performance was challenging at NFRA because energy and water consumption was low, and spread across a number of small buildings. A plan could always include procedures for developing metrics in the future.

(17) Tracking Sustainability Objectives:

- a. As mentioned earlier, decision trees, reports, and checklists can help airports track objectives. These are low cost options that can achieve the same objectives as a robust management system.
- b. Any tracking method should identify the metrics that will be used to analyze future performance. It can be both helpful and challenging to establish common metrics against which to measure progress. For example, do you measure impact per enplanement? Per square foot of space? Time should be devoted to identify the best methods.
- c. Strategies for integrating sustainability into future airport activities include:
  - Identifying a point of contact that will continue to monitor plan objectives. For small airports, this can be an individual. For larger airports, a sustainability committee may be appropriate.
  - Develop a process for continual improvement. The flexibility to revise and add sustainability goals is one option.

e. Outreach and Stakeholder Engagement:

- (18) The Value of Local Sustainability Experts: Airports like Ithaca were fortunate to have local green organizations and professionals that became involved in the project. Even in less sustainability-driven communities, there will always be experts willing to share their ideas.
- (19) Seeking Academic Partnerships: Reaching out to academia was a tremendous success for Ithaca and NFRA. It exposed students to aviation, and built stronger relationships between the airport and community. To direct students, the project team could identify research topics at the onset of coordination.
- (20) Methods of External Involvement: Airport tenants, airport users, the community, and local elected officials are some stakeholders that can become involved in a sustainability plan. Some strategies:
- “Visioning Meetings” with the community at an early stage to provide information about the project. This helped identify stakeholders that became involved in the project.
  - Creating a diverse external advisory committee including airlines, operations personnel, airport staff, TSA, airport tenants, sustainability experts, and academic institutions. Community perspectives can help the team move beyond traditional boundaries and think outside the box.
  - Stakeholder outreach sessions to brainstorm ideas for the sustainability plan.
  - Airport tenant surveys.
  - Small group discussions and breakouts. For Ithaca, small group breakouts were invaluable. Tenants and regular airport users provided input on potential initiatives, and clarified how the tenants are managing materials and resources.

#### **4. The Next Report will Focus on the remaining Pilot Plans**

The next lessons learned report should be published by June 30, 2013. It will focus on final draft plans by the remaining pilot program participants.



**Appendix A**  
**Fifty Notable Sustainability Goals, Targets, and Initiatives in Pilot Program Plans**

<b>1</b>	Make sustainability a significant part of future airport branding and marketing.	<b>26</b>	Develop online rideshare board to facilitate ridesharing to airport, especially among college students.
<b>2</b>	Effectively communicate all airport sustainability initiatives to airport employees, tenants, users and the community.	<b>27</b>	Maximize water use efficiency within buildings and reduce potable water consumption site-wide.
<b>3</b>	All new airport construction projects will exceed the guidelines outlined in the local Best Management Practices (BMP) Manual for construction and post construction.	<b>28</b>	When selecting trees for new plantings, no species shall exceed 10% of the total tree population.
<b>4</b>	Implement targeted strategies intended to significantly reduce water use without negatively affecting existing day-to-day airport operations.	<b>29</b>	Maintain existing tree canopy cover (32%) in terminal entry road and parking areas.
<b>5</b>	Provide a system of sidewalks, pedestrian paths and trails to connect uses throughout the airport. Identify opportunities to connect to the City/County trail system.	<b>30</b>	No net loss of wetlands.
<b>6</b>	Provide incentives to airport staff, tenants, users and the public to encourage the usage of alternative fuel vehicles.	<b>31</b>	Continue to track noise complaints and formalize record keeping.
<b>7</b>	Proactively work with the City and County to promote compatible land uses for properties adjacent the airport. Provide incentives to attract “Green” businesses and industries.	<b>32</b>	Communicate and actively engage with local and regional transit authorities to advance multiple transit connection opportunities.
<b>8</b>	Future non-insulated airport buildings such as T-Hangers will incorporate applicable energy efficient standards.	<b>33</b>	Prioritize projects/ opportunities that improve airport connectivity, including a multi-modal airport station, commercial barge, and non-aeronautical development on airport property.
<b>9</b>	Install occupancy sensors to turn off lighting when rooms are unoccupied.	<b>34</b>	Consider designing stormwater storage and conveyance systems to withstand heavier rainfall and more frequent flooding.
<b>10</b>	Incorporate skylighting to increase natural daylight and reduce heating costs during the winter. For hangars, skylighting design will need to account for liability issues associated with severe weather including hail storms that may damage planes and associated equipment.	<b>35</b>	Develop a wetland mitigation bank to ensure no net loss of wetlands as a result of future Airport development.
<b>11</b>	Reduce energy consumption through use of alternative fuel options for vehicles and aircraft.	<b>36</b>	An Air Quality Management Plan could be developed as part of an Airport Master Plan update or Airport Improvement Program. Following LEED indoor air quality principles, an indoor air quality management plan would specify practices for HVAC operation, housekeeping, maintenance, as well as minimizing pollutants associated with renovations, painting, and pest control.
<b>12</b>	When deemed cost effective, consider conversion of airport fleet vehicles to alternative fuels.	<b>37</b>	Encourage FBOs to install vapor recovery technology to recover evaporative hydrocarbons to

			prevent them from escaping into the atmosphere.
<b>13</b>	Provide easily accessible recycling receptacles throughout the airport. Provide signs within these areas that clearly identify what can and cannot be recycled.	<b>38</b>	Follow LEED indoor air quality principles by installing ductwork products that can be easily cleaned or those that protect against mold/fiber shredding.
<b>14</b>	Avoid using fertilizers and chemicals for landscape maintenance.	<b>39</b>	Reduce APU usage by providing 400 Hz electricity and preconditioned air at gates during passenger boarding and deplanement. This feature could be incorporated into future passenger terminal designs (to serve airline aircraft).
<b>15.</b>	Partner with local schools, colleges and other educational groups to help promote and advance the airport's sustainability initiatives.	<b>40</b>	Develop preferred car rental parking and/or lot locations for car rental fleets that offer low-emissions vehicles.
<b>16.</b>	Create Design and Construction Standards consistent with achieving LEED Silver or higher for all new construction and major renovations by January 1st 2012.	<b>41</b>	Encourage aircraft to use single-engine taxi procedures to reduce aircraft engine usage, save fuel, and reduce aircraft taxi emissions. This practice has a secondary benefit of reducing noise.
<b>17.</b>	Specify green construction equipment and methods by 2015.	<b>42</b>	As electric cars become more prevalent in the future, charging stations could be provided in Airport parking areas. The charging stations could be solar-powered to reduce operational costs to the Airport.
<b>18.</b>	Reduce greenhouse gas emissions by 2 percent of the 2008 level for each of the next 40 years, achieving an 80 percent reduction in greenhouse gas emissions by 2050.	<b>43</b>	Issue a Request for Proposal for a Power Purchase Agreement (PPA) for a solar energy system.
<b>19.</b>	Divert 75 percent of the waste stream generated from offices and terminal by 2015; establish intermediate goals to facilitate reaching this goal.	<b>44</b>	Use natural gas instead of oil.
<b>20.</b>	Reduce dependence on fossil fuels to the maximum extent practicable and use clean and renewable energy sources.	<b>45</b>	When designing new buildings, the airport should consider incorporation of green roofs.
<b>21.</b>	Minimize and reuse construction waste wherever possible.	<b>46</b>	Purchase renewable/ alternative energy generated off-site.
<b>22.</b>	Dispose 100% of used de-icing fluid within a 25 mile radius of the airport by 2015.	<b>47</b>	Shut down airfield lighting during nighttime, off-peak hours.
<b>23.</b>	Use only environmentally friendly or green products at airport facilities.	<b>48</b>	Install solar-powered signage for the airfield and airport buildings, and/or security lights.
<b>24.</b>	Provide efficient and consolidated public parking facilities at the airport. Consider additional long-term parking options to reduce trips generated by drop-off and pick-ups of passengers.	<b>49</b>	Require regular sustainability progress reports during construction projects (either quarterly or at certain construction progress milestones). Data should be collected based on pre-established sustainability performance metrics.

<b>25.</b>	Reduce percentage of drop-off/pick-up activity by 15% so that it is not the primary means of transportation to the airport by passengers.	<b>50</b>	Establish an aggressive land acquisition program that seeks to prevent residential encroachment, preserve wetlands and green spaces, and allow for future Airport development.
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<b>Appendix B Documentation Used to Prepare this Pilot Program Report</b>	
Airport	Documentation
Fresno Yosemite International Airport	Summary of Best Practices and Lessons Learned
Hartsfield-Jackson Atlanta International Airport	Draft Final Sustainable Management Plan
Ithaca-Tompkins Regional Airport	Final Draft Sustainable Master Plan Summary of Best Practices and Lessons Learned
Newton City-County Airport	Draft Sustainability Chapter, Sustainable Master Plan
Northeast Florida Regional Airport	Final Draft Sustainable Management Plan Summary of Best Practices and Lessons Learned

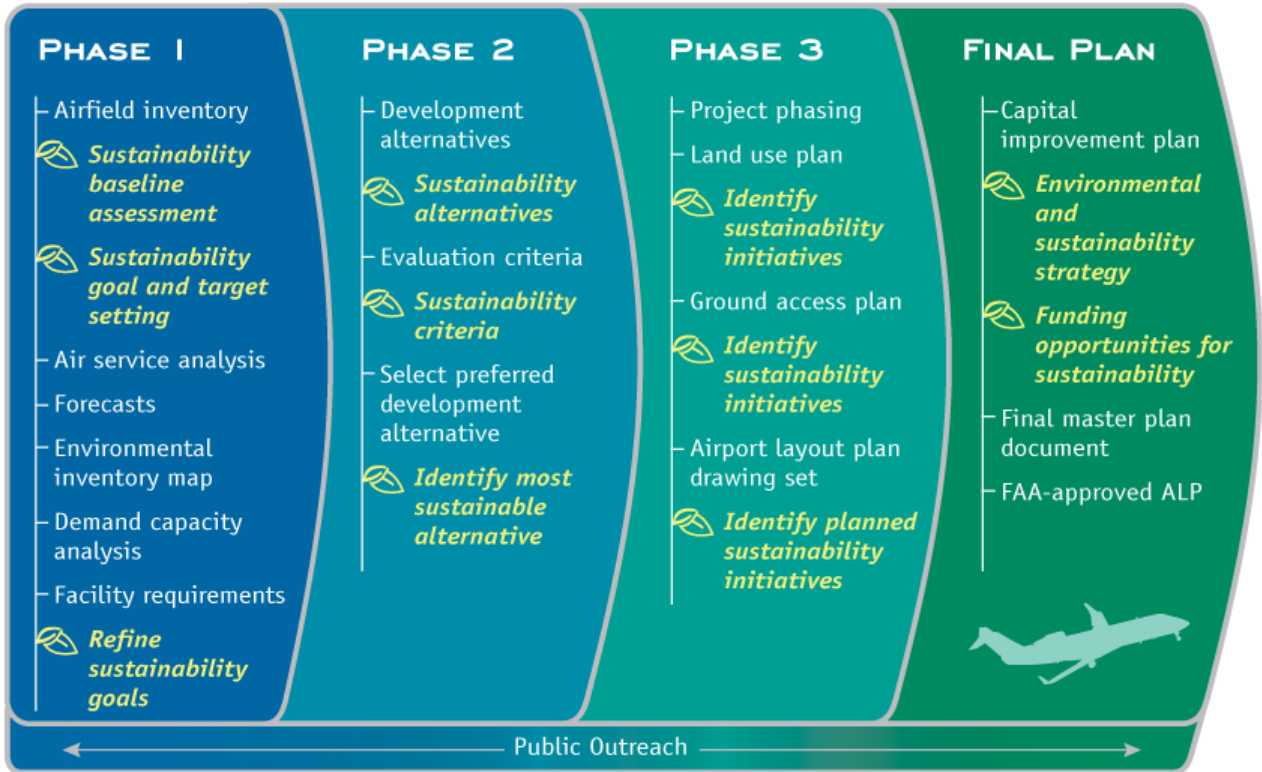
**Appendix C - Sustainable Master Plan Pilot Program Status**

<b>Airport</b>	<b>Code</b>	<b>State</b>	<b>Airport Type</b>	<b>Plan Type</b>	<b>Current Status</b>
Hartsfield-Jackson Atlanta International Airport	ATL	GA	Large Hub	Sustainable Management Plan	<b>Completed</b>
Outagamie County Regional Airport	ATW	WI	Non-Hub	Sustainable Management Plan	<b>Completed</b>
Nashville International Airport	BNA	TN	Medium Hub	Sustainable Master Plan	<b>Preparing Final Draft</b>
Denver International Airport	DIA	CO	Large Hub	Sustainable Management Plan	<b>Preparing Draft</b>
Newton City-County Airport	EWK	KS	Reliever	Sustainable Master Plan	<b>Completed</b>
Newark Liberty International Airport	EWR	NJ	Large Hub	Sustainable Management Plan	<b>Completed</b>
Fresno Yosemite International Airport	FYI	CA	Small Hub	Sustainable Management Plan	<b>Completed</b>
Newport News/Williamsburg International Airport	PHF	VA	Small Hub	Sustainable Master Plan	<b>In-Progress</b>
Renton Municipal Airport	RNT	WA	Reliever	Sustainable Management Plan	<b>Preparing Final Draft</b>
Teterboro Airport	TEB	NJ	Reliever	Sustainable Management Plan	<b>Completed</b>
<b><i>Pilot Program Precursors:</i></b>					
Ithaca Tomkins Regional Airport	ITH	NY	Non-Hub	Sustainable Master Plan	<b>Completed</b>
Northeast Florida Regional Airport (St. Augustine)	UST	FL	GA	Sustainable Management Plan	<b>Completed</b>

**National Planning and Environmental Division, Office of Airport Planning and Programming**

## Appendix D Sample Frameworks for Sustainability Plans

### Ithaca Tompkins Regional Airport Sustainable Master Plan:



### Northeast Florida Regional Airport Sustainable Management Plan:



**Appendix E  
Sustainability Categories for 4 Pilot Plans**

*Plan 1 (8 Categories)*

Category	Sub-Category (where applicable)
Procurement	Existing Footprint and Recent Improvements Opportunities for Sustainability Enhancements*
Energy Management	
Integrated Water Resources Management	
Emissions Reduction	
Waste Reduction	
Green Construction	
Noise Management and Land Use Compatibility	
Partnerships and Community Involvement	Collaboration and Coordination with Airlines Community Involvement and Education

*\*These subcategories were included in each sustainability section.*

*Plan 2 (9 Categories)*

Category	Sub-Category (where applicable)
Economic Vitality	
Community Relations	
Planned Development	
Energy	
Air Quality	
Natural Resources Management	
Water Quality and Conservation	
Materials and Waste Management	
Airport Connectivity	

*Plan 3 (9 Categories)*

Category	Sub-Category (where applicable)
Administration	
Stormwater Management	
Water Efficiency	
Ground Transportation	
Land Use	
Energy Efficiency	
Operations Maintenance	
Construction Materials and Methods	
Community Outreach	

*Plan 4 (12 Categories)*

Category	Sub-Category (where applicable)
Buildings and Facilities	
Air Quality Enhancement and Climate Change	
Energy Conservation and Renewable Energy	
Materials Use and Solid Waste Reduction & Recycling	
Hazardous Materials	
Surface Transportation Management	
Water Quality Protection and Water Conservation	
Land and Natural Resource Management	
Noise Abatement	
Land Use On- and Off-Site	
Socioeconomic Benefits and Community Outreach	
Design and Construction	