SUSTAINABLE MANAGEMENT PLAN

Sustainable Design Criteria Manual

Tampa International Airport

TAMPA INTERNATIONAL AIRPORT

Sustainable Design Criteria Manual

SEPTEMBER 2014

PREPARED FOR:

Hillsborough County Aviation Authority

PREPARED BY:

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Tampa International Airport Sustainability Program
SUSTAINABLE DESIGN CRITERIA MANUAL

Introduction

As the Hillsborough County Aviation Authority (the Authority) embarks on the implementation of the Sustainability Program for Tampa International Airport (the Airport), one of the high ranking initiatives identified during the Sustainable Management Plan project is to incorporate sustainability into the planning, design, and construction of Authority projects. Development of this Sustainable Design Criteria Manual (SDCM), completed as part of the Sustainable Management Plan project, is a critical tactic of this initiative.

The Authority is committed to considering sustainability and green building approaches as near-term and longer term projects are implemented, particularly those emerging from the 2013 Airport Master Plan Update. These efforts will yield a growing understanding of the benefits, challenges, potential barriers, and opportunities created by implementing the Authority's Sustainability Program.

Green Building

The U.S. Environmental Protection Agency defines "green building" as "the practice of creating and using healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition," a definition that is generally understood in the design and development communities.

In a sustainable approach to the built environment, social responsibility, financial viability, environmental sensitivity, and operational efficiency are emphasized in the definition, design, and construction of projects, including significant facility renovations, modifications to existing facilities, development of new facilities, and repurposing and reuse of existing facilities. This SDCM provides guidance to project design teams on those green building strategies that support the Authority's defined vision of sustainability and specific sustainability goals articulated in the Authority's Sustainable Management Plan.

Background and Context

In 2013, the Authority embarked on the development of a Sustainable Management Plan under a sustainability pilot program defined by the Federal Aviation Administration (FAA). This pilot program provided an opportunity to capture, extend, and document sustainable actions at the Airport, as well as define a comprehensive sustainability program. The Sustainable Management Plan was completed in 2014 and adopted as a primary component of the Sustainability Program for Tampa International Airport. This SDCM is a component of that program.

The Authority's Sustainability Priorities

- Health, Safety, and Security
- Community
- Natural Systems Management
- Waste Management
- Build Green and Buy Green
- Energy Management
- Regional Economic Impacts

The Sustainability Program is guided by the Authority's sustainability priorities that were adopted during the Sustainable Management Plan project. These priorities formed the basis for the derivation of 22 sustainability goals. This guidance has been prepared with an emphasis on design strategies that support the Authority's sustainability goals.

Intended Use

The SDCM is intended to communicate the Authority's expectations and encourage and document green building measures incorporated into advanced planning, design, and construction of projects. It is not intended to be prescriptive—establishing sustainability measures that must be incorporated during the design process—but rather encourage creativity in the design process and allow project design teams to incorporate green building strategies and measures where relevant and appropriate. The SDCM guidance should not be viewed as the only option available for infusing sustainability in project planning and design; rather, it reflects the Authority's sustainability priorities and goals and is a source of potential design strategies for promoting sustainability in built environment projects.

This SDCM supplements other design guidance and code requirements and is not intended in any way to supersede existing guidance. In all cases, design guidance and code requirements promulgated by the State of Florida, Hillsborough County, the City of Tampa, the Hillsborough County Aviation Authority, or other appropriate agency will be met first and foremost with the SDCM providing supplemental green building guidance.

Benefits

The SDCM provides the Authority with a consolidated source of planning and design guidance that can be distributed as part of the professional services solicitation and/or contracting process. Application of the guidance in this document will help the Authority achieve the sustainability goals documented in the Sustainable Management Plan. The Authority will be able to define desired areas of sustainability focus on an individual project basis, recognizing that projects will offer varying opportunities in this regard. A specific

project record will be developed for each project that highlights the relevant sustainability goals, and documents achievement or exceedance of those goals, challenges with incorporating or implementing specific sustainability measures, general costs associated with specific sustainability actions, and conflicts identified during the planning and design process for the project.

Over time, an expanding aggregate project record, representing the collective green building experience at the Airport, will allow the Authority to refine and adjust specific sustainability goals, supplement the SDCM, work to minimize or remove barriers to sustainability implementation and green building, expand the design and construction communities' understanding and prioritization of sustainability, understand the costs and benefits of prioritizing sustainability, and communicate successes and achievements to various stakeholders. For these reasons, a comprehensive project record will be a critical part of the overall Sustainability Program.

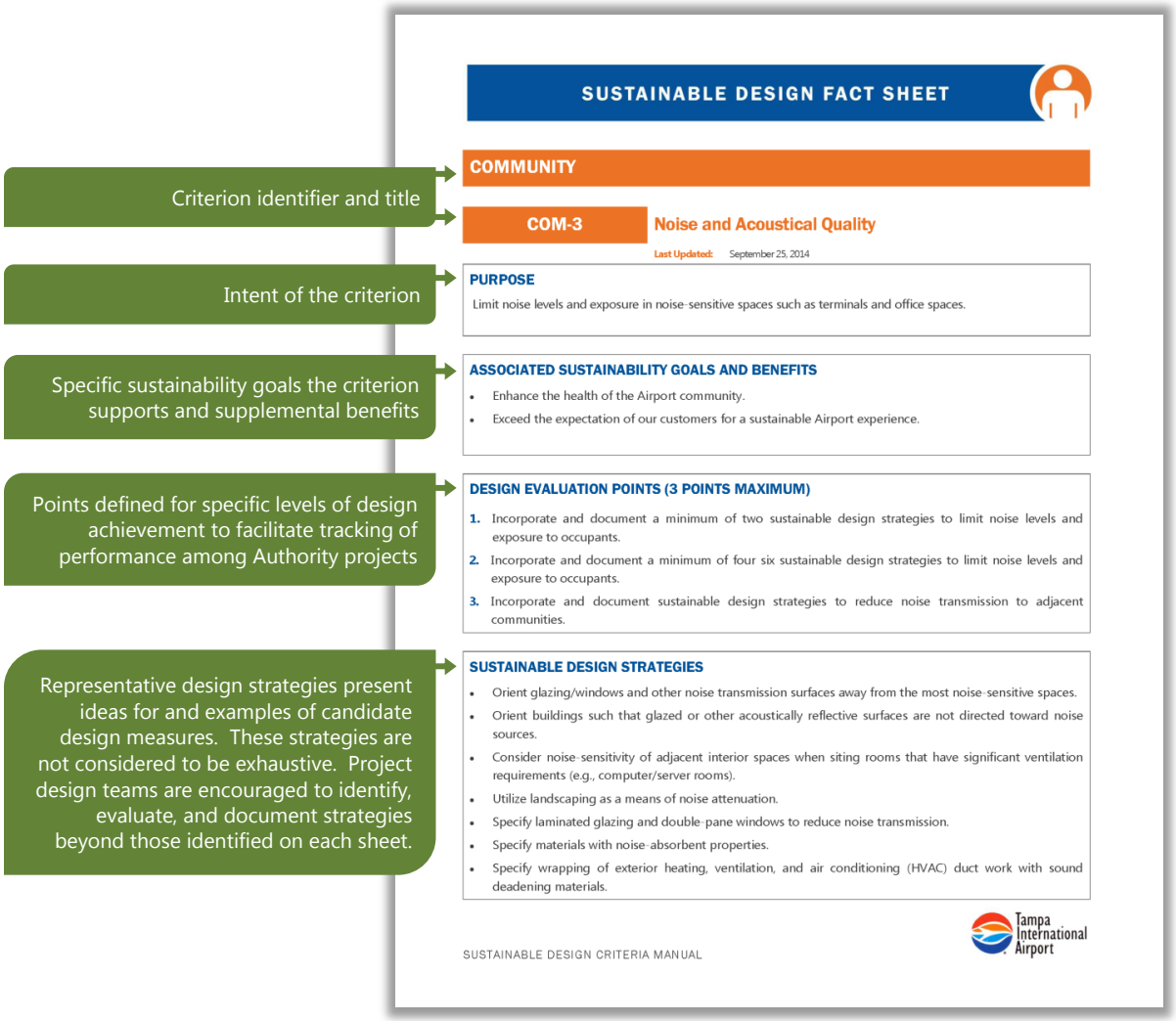
Applicability

The guidance in the SDCM ensures that all projects will include sustainability considerations with the degree of implementation driven by the scope of the project and the feasibility, benefit, and cost of the sustainability strategy. While the SDCM will be utilized initially in the design of Authority projects, it is available to tenants and others to support the design of any on-Airport projects. The SDCM formalizes and institutionalizes the Authority's commitment to infusing sustainability into ongoing operations, including development and construction.

While sustainability measures are applicable to construction activities, this manual prioritizes the design process with the general expectation that design accomplishments will ultimately lead to green building construction practices. Future iterations of the SDCM may encompass more criteria specifically related to construction activities.

Content

The SDCM includes specific criteria that are organized on sustainable design fact sheets to be considered for each project. A sample fact sheet is shown below.



Each fact sheet presents design strategies that represent ideas or examples of measures that can be taken to further the Authority's sustainability accomplishments. However, project design teams are encouraged to consider strategies beyond those shown on each fact sheet.

Criteria were defined to align with and support the Authority's sustainability priorities and specific goals. It is recognized that there are opportunities for sustainability measures that are not covered in the specific criteria or strategies presented in the SDCM. Project design teams are encouraged to stretch beyond the criteria presented herein to help the Authority demonstrate and communicate sustainability leadership within the aviation industry and local communities.

Design Evaluation Point System

Design Evaluation Points have been defined for each criterion and are presented on each fact sheet. The intent of the point system is to identify those areas/categories where green building actions can apply, support the documentation of sustainability achievement on an individual project basis, and facilitate comparison among Airport development projects over time. Commonality between the SDCM Design Evaluation Points and point systems defined by green building rating systems (e.g., the U.S. Green Building Council's LEED Rating System) exists. However, the SDCM Design Evaluation Points are designed to support development of a foundational knowledge base of how sustainability can be effectively incorporated into project design at the Airport and to encourage and foster the consideration of sustainability actions as part of the design process. As the Authority refines and expands the SDCM, future guidance may more closely align with other green building rating systems. Alternatively, the Authority may opt to utilize one of these rating systems to refine the comprehensive green building program at the Airport.

Implementation

In general, the following steps will be followed in the implementation of the SDCM in Airport projects.

Project Sustainability Integration

NOTE: PMP is a Planning document that describes a project scope, budget, schedule, Airport project team, potential impacts, cost benefit analysis, delivery approach, and design review process (HCAA Development Program Manual).

Sustainability should be considered at the earliest stages of a project, allowing the Authority to capture these considerations in the Capital Improvement Program (CIP) so that project budgeting reflects realistic allowances for incorporation of sustainability measures.

SDCM Implementation Tools

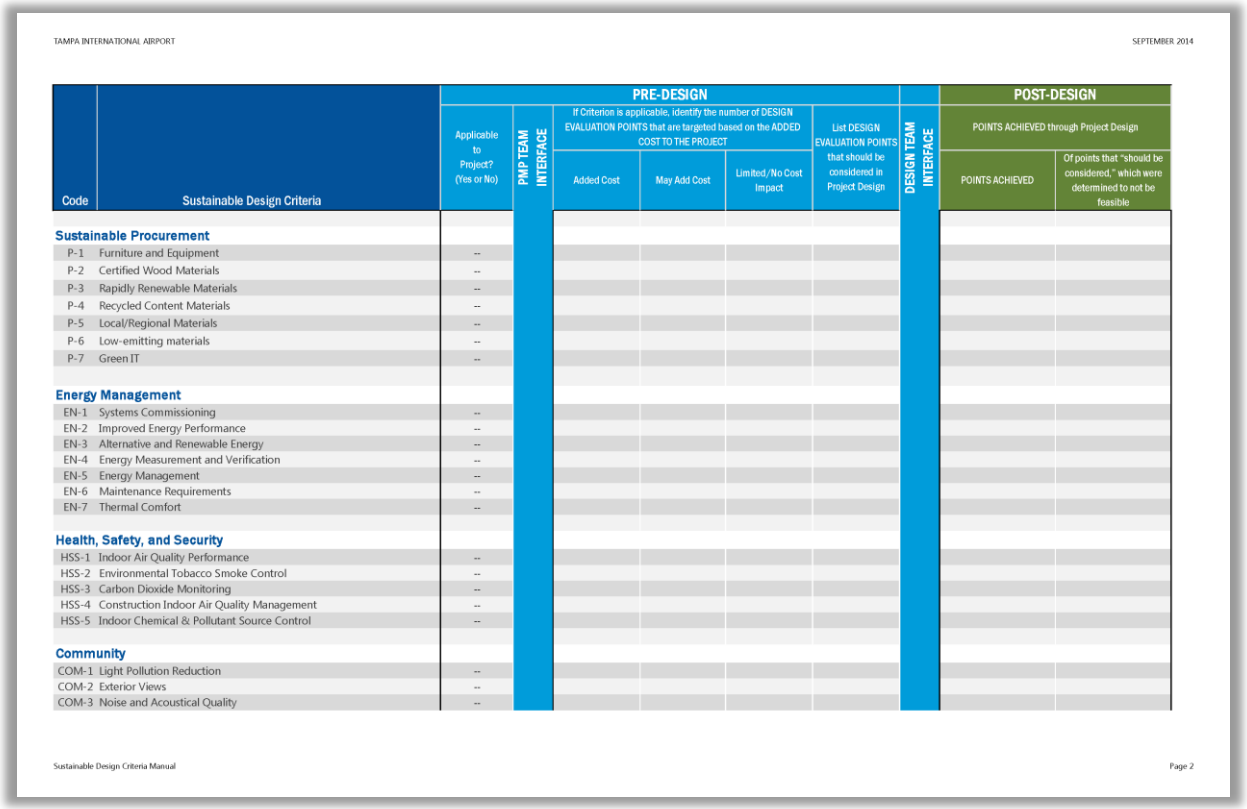
The Project Record Worksheet, Design Criteria Experience Summary, and Innovation Worksheet are included as part of the Sustainability Program Toolkit.

The Authority relies on a documented process, defined in its *Development Program Manual*, for project planning, programming, and implementation. The sustainable design process defined in the SDCM is intended to be integrated into the Authority's current development program processes rather than conducted as a separate or parallel process. Integration will embed sustainability as a fundamental component of project budgeting, planning, programming, design, and implementation, rather than have it occur as an afterthought. Integration will also encourage durable project design that minimizes the potential for value engineering to eliminate sustainability aspects from projects.

Once a Project Management Plan (PMP) Team is established, that team will review each project to specifically define the sustainability expectations and objectives for that project.

Specifically, during pre-design, the PMP Team will, as part of the pre-design process, determine whether certain criteria in the SDCM are considered applicable to the specific project and then complete a worksheet documenting the applicability assessment and defining targeted Design Evaluation Points. An excerpt of the Project Record Worksheet is shown below. Through the worksheet, the applicability of these criteria to each project will be documented as part of the design record for ultimate communication with the design team. Use of the SDCM encourages the incorporation of sustainability practices, in support of specific goals, appropriate and applicable to the nature and scale of projects.

Project Record Worksheet Excerpt



TAMPA INTERNATIONAL AIRPORT SEPTEMBER 2014

Code	Sustainable Design Criteria	PRE-DESIGN							POST-DESIGN	
		Applicable to Project? (Yes or No)	PMP TEAM INTERFACE	If Criterion is applicable, identify the number of DESIGN EVALUATION POINTS that are targeted based on the ADDED COST TO THE PROJECT			List DESIGN EVALUATION POINTS that should be considered in Project Design	DESIGN TEAM INTERFACE	POINTS ACHIEVED through Project Design	
				Added Cost	May Add Cost	Limited/No Cost Impact			POINTS ACHIEVED	Of points that "should be considered," which were determined to not be feasible
Sustainable Procurement										
P-1	Furniture and Equipment	--								
P-2	Certified Wood Materials	--								
P-3	Rapidly Renewable Materials	--								
P-4	Recycled Content Materials	--								
P-5	Local/Regional Materials	--								
P-6	Low-emitting materials	--								
P-7	Green IT	--								
Energy Management										
EN-1	Systems Commissioning	--								
EN-2	Improved Energy Performance	--								
EN-3	Alternative and Renewable Energy	--								
EN-4	Energy Measurement and Verification	--								
EN-5	Energy Management	--								
EN-6	Maintenance Requirements	--								
EN-7	Thermal Comfort	--								
Health, Safety, and Security										
HSS-1	Indoor Air Quality Performance	--								
HSS-2	Environmental Tobacco Smoke Control	--								
HSS-3	Carbon Dioxide Monitoring	--								
HSS-4	Construction Indoor Air Quality Management	--								
HSS-5	Indoor Chemical & Pollutant Source Control	--								
Community										
COM-1	Light Pollution Reduction	--								
COM-2	Exterior Views	--								
COM-3	Noise and Acoustical Quality	--								

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At design initiation, the SDCM will be provided to the project design team, along with a summary identifying the criteria specifically considered by the PMP Team to be applicable to the project. It will be the responsibility of the project design team to consider each of these design criteria and document the efforts and conclusions in addressing each criterion using the Design Criteria Experience Summary. In some cases during the design development phase, it will be concluded that it is not feasible to incorporate a specific criterion into the project based on cost, regulatory, or other considerations. It will be the responsibility of the project design team to document the reasons that a specific criterion is determined to be infeasible and to communicate that to the Authority during project design and/or sustainability reviews.

Design Evaluation Points achieved during the design process will be documented by the by Project Director and PMP Team based on sustainability reviews at established design review milestones. It is the intent of the Authority to continually extend its understanding of sustainability influence on and achievement through the design process. Consequently, the design team is encouraged to consider sustainability early in the design process, looking for opportunities beyond those defined in the SDCM.

Innovation

While the sustainable design strategies listed on the SDCM fact sheets offer ideas for incorporating sustainability into the built environment, these strategies are not the only recognized ways to accomplish the purpose of each sustainability criterion or the broader purpose of green building. Project design teams are encouraged to explore and propose supplemental or alternative design strategies that incorporate new or emerging green building approaches and products to achieve the sustainable design intent expressed in the criteria purpose statements or that push beyond the Authority's established sustainability criteria and meet the broader intent of sustainable design. Encouraging innovation and *out-of-the-box* problem solving has the potential to both increase the sustainability aspects and benefits of individual projects, but also to expand the Authority's understanding of green building opportunities.

When an alternative sustainable design strategy is proposed, the project design team is encouraged to complete the Innovation Worksheet to document and explain the proposal, describe the alternative approach and its alignment with one or more criteria in the SDCM, and identify anticipated budget or schedule consequences.

Conclusion

Sustainable design strategies and best practices continue to evolve and expand, suggesting future opportunities that are not captured in this version of the SDCM. The Authority intends to update this guidance document in the future, as necessary, to reflect:

- Experience with the application of this guidance to Authority projects
- Experience of and alignment with the sustainability actions and accomplishments of Airport stakeholders
- Accomplishment of defined Authority sustainability goals (allowing the designation of future sustainability goals as sustainability remains an organizational priority)
- Identification of new opportunities for sustainability in design (new products, technologies, etc.)

Sustainable Design Fact Sheets

Natural Systems Management: Air

NATURAL SYSTEMS MANAGEMENT: AIR

A-1 Erosion and Sediment Control—Dust

Last Updated: September 25, 2014

PURPOSE

Minimize airborne dust and particulate matter generated by construction activities.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Design and construct more environmentally responsible facilities using industry best practices and systems.
- Enhance the health, safety, and security of the airport community.
- Reduce airborne dust and particulate matter during construction.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. Develop an Erosion and Sediment Control Plan that includes a plan for dust and particulate matter, minimizes the construction footprint, and requires for monitoring of activities throughout construction.

SUSTAINABLE DESIGN STRATEGIES

- Specify the re-use of stockpiled topsoil (if available).
- Prepare a construction dust control plan covering construction activities, site, and material transport (minimize fugitive dust through tarping, spraying, roadway sweeping, or other measures). Consider environmental factors such as seasonal weather patterns (dry vs. wet season) in developing plan.
- Employ temporary and permanent soil stabilization techniques, such as hydroseeding, biodegradable rolled mats, lime, soil binders, and mulching.
- Specify the use of non-potable water (e.g., stormwater, reclaimed, or graywater) to provide dust control.
- Minimize the size and duration of disturbed construction areas at any one time.
- Control/minimize wind driven movement of sediments and dust through the use of barriers such as fences, hay bales, and crate walls.
- Specify rock or other stabilizing materials on designated haul routes, and restrict vehicle and equipment movements to the use of the designated routes.

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: AIR

A-2 Alternative Transportation

Last Updated: September 25, 2014

PURPOSE

Reduce pollution and regional road congestion by reducing low-occupant vehicle use.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce greenhouse gas emissions (Scopes 1 and 2) on a per passenger basis by 5% by 2021 (compared with a 2011 baseline).
- Reduce air pollutant emissions.
- Enhance links between the Airport and the Tampa Bay area community.
- Support regional planning interests.
- Pursue strategies to reduce petroleum fuel use.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Develop an alternative transportation plan (consistent with other local and regional transportation master plans) that reduces the amount of automobile traffic and increases the option for public and alternate transportation types.
2. Incorporate 1 to 3 sustainable design strategies to improve alternative transportation access and use.
3. Incorporate 4 or more sustainable design strategies to improve alternative transportation access and use.

SUSTAINABLE DESIGN STRATEGIES

Public Transportation/Mass Transit:

- Maintain passenger rail right-of-way on appropriate development parcels.
- Coordinate with Tampa Bay Area Regional Transportation Authority (TBARTA) to verify that all current and future projects are compatible with the TBARTA master plan.
- Coordinate with Hillsborough and Pinellas Metropolitan Planning Organizations (MPOs) to verify that all current and future projects are compatible with their Long Range Transportation Plans (LRTPs).

Bicycle and Non-vehicular Access:

- Coordinate with local and regional transportation planning organizations to evaluate the potential of co-locating a multi-use trail with passenger rail right-of-way for appropriate projects.
- Incorporate bicycle lanes and pedestrian facilities (e.g., bike lanes, sidewalks, improved crosswalks) to public transit connections that are supported by appropriate signage and consistent with local and regional transportation plans.
- Incorporate a facility for secure bicycle storage and access to convenient changing/shower areas.

Alternative Fuel and Fuel Efficient Vehicles:

- Design infrastructure and curbfront layout to facilitate shared vehicle use (e.g., space for designated carpool and shuttle service pick-up and drop-off areas, shared ride boards, and preferred parking locations for shared-ride vehicles).
- Designate preferred parking spaces for alternative fuel vehicles in employee and public lots.
- Specify preferred parking and/or lot locations for rental car companies that offer alternative fuel rental vehicles.
- Design (or accommodate space to expand existing) fueling station infrastructure to meet the space requirements and considerations for alternative fuels for public and/or on-Airport use (e.g., electric charging stations for employee or public parking, comfortable waiting areas for electric vehicle charging, space for different types of fuel lines).
- Support tenant initiatives to convert to alternative fuel fleets (e.g., airline ground service equipment) through design of relevant projects.

Other Strategies:

- Design and site facilities to minimize vehicle miles traveled and reduce idling.
- Support regional efforts to improve connectivity between the airport and the region (e.g., Greenlight Pinellas Initiative) through design measures, as appropriate based on project type and scope.
- Require contractor shuttling of employees to construction site with pick-up locations in proximity to public transportation links.
- Locate contractor staging areas in locations that offer convenient bicycle and pedestrian facilities that link to public transportation connections.
- Specify limited contractor on-site vehicle parking to encourage use of public transportation, alternative transportation, or employee carpooling.

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: AIR

A-3 Reduce Heat Islands

Last Updated: September 25, 2014

PURPOSE

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce greenhouse gas emissions (Scopes 1 and 2) on a per passenger basis by 5% by 2021 (compared with a 2011 baseline).
- Provide opportunities for people to experience the Tampa Bay area's natural environment.
- Reduce heat island effect of the built environment.
- Reduce energy use required to condition interior spaces.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Develop and implement a heat island reduction plan that includes strategies for both roof and nonroof applications and makes a meaningful effort to reduce heat islands.
2. Develop and implement a heat island reduction plan that includes strategies for both roof or nonroof applications and covers full roof area OR at least 50% of site hardscape areas, respectively.
3. Develop and implement a heat island reduction plan that includes strategies for both roof or nonroof applications and covers full roof area AND at least 50% of site hardscape areas, respectively.

SUSTAINABLE DESIGN STRATEGIES

Non-roof Strategies:

- Maximize light colored/high albedo pavement, such as Portland cement concrete, for taxiways, runways, roadways, parking lots, sidewalks, and outdoor plazas, and other paved surfaces that are not under roof or other shading device. Reflectance must be a minimum of 0.3. ["White" Portland cement – 0.7 to 0.8, typical Portland cement – 0.35 to 0.5, typical asphalt pavement – 0.05 (new) to 0.15 (over 5 years)].
- For Landside projects, specify the planting of trees to provide shade within 5 years or architectural components (immediate benefit) for at least 30% of dark colored impervious surfaces, including parking lots, roadways, walkways, and outdoor plazas.

- Minimize amount of paving (impervious surfaces) on new projects (e.g., reduced lane widths, smaller parking spaces, and smaller walks).
- Specify coatings or colorants to improve reflectance of dark pavements.
- Combine design strategies to reduced heat islands. For example, a project can provide 5% shading of dark colored impervious surfaces and 25% light colored/high albedo pavement.
- Design structured parking in lieu of asphalt paved surface lots.
- Design an open grid pavement for surface lots and site pavement.
- Specify planting of shade producing trees in landside parking lot islands and in roadway medians.
- Specify architectural treatments of vertical walls to minimize heat absorption.
- Specify green walls to minimize heat absorption, considering both interior and exterior opportunities for integrating into new construction and significant renovation projects.
- Specify warm mix asphalt in place of hot mix asphalt.

Roof Strategies:

- Design a cool roof over enclosed areas with dedicated electric heating, ventilating, and air conditioning (HVAC) system. (See TECO Cool Roof Program: The cool roof must reflect at least 70 percent of the solar radiation, have a thermal emittance greater than 0.75 and be installed by a licensed contractor. The cool roof product must be labeled by ENERGY STAR and be based on ASTM E-903 or ASTM C-1549 testing. Also see Cool Roofs Rating Council Website, at www.coolroofs.org.)
- Design a cool roof.
- Consider the integration of green roofs into building design, giving consideration to plant selection to minimize the potential for wildlife attraction.

NATURAL SYSTEMS MANAGEMENT: AIR

A-4 Ozone-Depleting Chemicals and Refrigerant Management

Last Updated: September 25, 2014

PURPOSE

Reduce ozone depletion while minimizing direct contributions to climate change from refrigerant management.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce greenhouse gas emissions (Scopes 1 and 2) on a per passenger basis by 5% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Reduce contribution to climate change.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Achieve no use of any chlorofluorocarbon (CFC) based refrigerants in new HVAC&R systems.
2. Create a CFC phase-out conversion plan for existing HVAC&R systems impacted by the project that use CFC refrigerants.
3. Utilize refrigerants in HVAC&R systems which have a low Lifecycle Direct Global Warming Potential or consider use of natural refrigerants or no refrigerants (i.e., natural ventilation).

SUSTAINABLE DESIGN STRATEGIES

- Specify new base building HVAC equipment that uses no CFC or hydrochlorofluorocarbon (HCFC) refrigerants.
- Specify HVAC equipment that uses refrigerants with low Global Warming Potential.
- Prohibit the specification of insulation materials that use ozone-depleting chemicals.
- Prohibit the specification of halons in fire suppression.
- Prohibit the specification of ozone-depleting substances in adhesives, coatings, and inks.

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: AIR

A-5 Exterior Air Quality

Last Updated: September 25, 2014

PURPOSE

Reduce emissions of air toxins and criteria pollutants (National Ambient Air Quality Standards ([NAAQS]) and limit exposure of airport visitors and employees to fuel vapors, air toxins, and particulate matter.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health of the Airport Community.
- Reduce air pollutants and exposure to noxious fuel vapors.
- Reduce greenhouse gas emissions (Scopes 1 and 2) on a per passenger basis by 5% by 2021 (compared with a 2011 baseline).
- Pursue strategies to reduce petroleum fuel use.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Identify and incorporate operational changes in project design that reduce air toxins/criteria pollutants.
2. Document the use of low-emitting construction and contractor vehicles for 10% of the equipment fleet.
3. Document the use of low-emitting construction and contractor vehicles for 25% of the equipment fleet.

SUSTAINABLE DESIGN STRATEGIES

- Evaluate opportunities to include criteria pollutant emissions reduction measures into project design.
- Specify the use of fuel efficient and low-emitting construction and contractor vehicles during construction.
- Specify the reporting of monthly fuel usage quantities by contractors.
- Identify candidate operational changes to mitigate adverse air quality impacts and integrate into design.
- Minimize distances traveled in new facility design to minimize emissions (e.g., aircraft taxi distances/routes, vehicle distances/routes, vehicle circulation patterns).
- Encourage or incentivize the specification of low-emitting construction and contractor vehicles.

Sustainable Design Fact Sheets

Natural Systems Management: Water

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: WATER

WA-1 Erosion and Sediment Control—Stormwater Runoff

Last Updated: September 25, 2014

PURPOSE

Reduce pollution by controlling soil erosion and waterway sedimentation.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Design and construct more environmentally responsible facilities using industry best practices and systems.
- Avoid erosion and sedimentation impact to local waterways and stormwater infrastructure.
- Reduce overall stormwater flows.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Develop and implement an Erosion and Sediment Control Plan to address soil erosion and waterway sedimentation by stormwater runoff.
2. Develop an Erosion and Sediment Control Plan that addresses soil erosion and waterway sedimentation by stormwater runoff, minimizes the construction footprint, and provides monitoring for activities throughout construction.

SUSTAINABLE DESIGN STRATEGIES

- Obtain NPDES Permit for Construction Activities through the Florida Department of Environmental Protection for construction projects over 1 acre.
- Prepare Erosion and Sediment Control Plan for applicable projects.
- Incorporate temporary and permanent soil stabilization techniques including hydroseeding, biodegradable rolled mats, sod stabilization, dust control, soil binders, stream buffer zones, and mulching.
- Incorporate temporary or permanent structural practices that may include earth dikes, drainage swales, temporary stream crossings, pipe slope drains, silt fences, storm drain inlet protection, sediment traps, sediment basins, outlet protection, energy dissipation assemblies, and check dams.
- Require contractor use of and provide access to reclaimed or other non-potable water source for use in construction activities (e.g., vehicle and equipment washing, spraying for dust control).

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: WATER

WA-2 Stormwater Management—Rate and Runoff Quality

Last Updated: September 25, 2014

PURPOSE

Limit disruption and pollution of natural water flows by minimizing and effectively managing stormwater runoff, and reducing stormwater contaminants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Avoid impacts to local waterways and stormwater infrastructure.
- Reduce overall stormwater flows.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Incorporate stormwater minimization component(s) that reduce site runoff by 10% (compared to existing/pre-project conditions).
2. Incorporate stormwater minimization component(s) that reduce site runoff by 25% (compared to existing/pre-project conditions).
3. Incorporate stormwater minimization component(s) that reduce site runoff by 40% (compared to existing/pre-project conditions).

SUSTAINABLE DESIGN STRATEGIES

- Design landscaping, rain gardens, and bio-retention areas to reduce runoff.
- Incorporate non-wildlife attracting vegetated green roof systems (full or partial) to intercept and treat rainwater into design, where applicable.
- Design buildings and facilities to collect and reuse stormwater (e.g., building-integrated rainwater harvesting, rainwater cisterns, collection of water used during airport rescue and firefighting training exercises) and reuse stormwater for non-potable uses (e.g., toilet and urinal flushing, machine/vehicle washing, custodial uses, and landscape irrigation in areas not served by reclaimed water) to the extent allowed by the Safe Drinking Water Act of 1974.
- Consider future development of adjacent Airport parcels or off-Airport properties when designing storm water management facilities and identify opportunities to improve facility design efficiency.

- Design for the harvesting of stormwater for irrigation and use in buildings.
- Incorporate bio-filtration into stormwater detention for stormwater quality treatment.
- Design onsite detention basins, ditches, ditch checks and other BMPs to accommodate first flush treatment.
- Design first flush detention capacity for increasingly intensive future storms, based on latest climate change predictions for the Tampa Bay area.
- Incorporate bioswales in design (along roadways and parking areas) to encourage ground infiltration of stormwater runoff (address wildlife attractant potential, especially on the airfield).
- Specify the use of pervious and/or porous pavement and permeable pavers (e.g., pedestrian areas, roadways, shoulders, non-traffic pavements, maintenance roads, utility yards, and surface parking).

NATURAL SYSTEMS MANAGEMENT: WATER

WA-3 Water Efficient Landscaping

Last Updated: September 25, 2014

PURPOSE

Reduce potable and subsurface water usage by eliminating the use of potable water for interior and exterior landscaping.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce potable water use on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Minimize reliance on the Floridan aquifer.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Meet landscaping irrigation needs with a maximum of 50% potable or other subsurface water usage.
2. Meet landscaping irrigation needs with a maximum of 25% potable or other subsurface water usage.
3. Meet landscaping irrigation needs with no potable or other subsurface water usage.

SUSTAINABLE DESIGN STRATEGIES

- Specify low-maintenance, drought-tolerant, non-wildlife attracting vegetation in landscaping designs that does not require irrigation beyond initial plant establishment (e.g., temporary irrigation systems using reclaimed water are permitted if removed within 1 year of installation).
- Incorporate reclaimed water supply infrastructure for irrigation and other uses into design, such as cooling tower water makeup.
- Limit or eliminate the use of irrigation on turf areas for new landscapes/projects.
- In areas of low visibility, specify the replacement of high water requirement turf with more drought tolerant turf (e.g., replace St. Augustine with Bahia) and remove or abandon irrigation after establishment.
- For projects in locations of low visibility, require the establishment and maintenance of landscaping without the use of supplemental irrigation.
- Design buildings and facilities without access to reclaimed water to collect and reuse stormwater for landscape irrigation (e.g., building-integrated rainwater harvesting, rainwater cisterns, collection of water used during airport rescue and firefighting training exercises).

- Consider use of high-efficiency, slow-drip, sub-soil irrigation system that has an automated linkage to meteorological data and/or soil moisture content sensors.
- Design to avoid expansion of existing irrigation system or installation of new irrigation system that relies on potable water (for HCAA and tenant projects).
- Incorporate space/design for a water efficient landscaping demonstration area with informational signage within 200 yards of main public access to share strategies with the public.
- Incorporate space/design for non-plant components as part of the landscape design in areas with resort-style landscaping. Non-plant components (e.g., public art, an apiary) should be integrated into landscape design and visually interesting, but reduce the area dedicated to water-hungry plantings.
- Design a non-potable water supply for the irrigation of all interior landscaping.

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: WATER

WA-4 Wastewater Reduction

Last Updated: September 25, 2014

PURPOSE

Reduce the burden on municipal wastewater systems.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce potable water use on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Reduce water utility bill costs.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Reduce potable water use for building sewage conveyance by 40%.
2. Reduce potable water use for building sewage conveyance by 60%.
3. Reduce potable water use for building sewage conveyance by 80%.

SUSTAINABLE DESIGN STRATEGIES

- Specify high-efficiency fixtures and valves.
- Specify waterless or water-efficient urinals, dual flush toilets, and/or pressure-assisted toilets.
- Specify motions sensors and water-conserving aerators on faucets.
- Design buildings and facilities to utilize non-potable water (e.g., rainwater harvesting, graywater, or reclaimed) to provide water for flush fixtures.
- Design for on-site wastewater treatment and infiltration of water on site versus conveying to public/municipal wastewater facility. Consider and mitigate the potential for wildlife attraction.
- Provide project-specific wastewater treatment as an alternative to the municipal system (e.g., engage a local partner to provide service).

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: WATER

WA-5 Water Use Reduction

Last Updated: September 25, 2014

PURPOSE

Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce potable water use on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Reduce water utility bill costs.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Reduce the amount of potable water use by 30%.
2. Reduce the amount of potable water use by 40%.
3. Reduce the amount of potable water use by 50%.

SUSTAINABLE DESIGN STRATEGIES

- Specify high-efficiency fixtures and valves.
- Specify motion sensors and water-conserving aerators on faucets.
- Specify waterless or water-efficient urinals, dual-flush toilets, and/or pressure-assisted toilets.
- Design a non-potable water system (e.g., graywater) for toilet/urinal flushing in new construction, recognizing storage limitations.
- Design a non-potable water (e.g., reclaimed, rainwater) for cooling tower makeup; and/or capture condensate for use in cooling tower; and/or use pulsed-power electromagnetic water treatment, ultraviolet treatment, or ozone treatment for the cooling tower water.
- Evaluate the use of non-potable water (e.g., reclaimed, graywater, or rainwater harvesting) to meet construction water needs.
- Specify non-potable water for all vehicle and equipment washing.

Sustainable Design Fact Sheets

Natural Systems Management: Biodiversity

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: BIODIVERSITY

B-1 Integrated Pest Management Program

Last Updated: September 25, 2014

PURPOSE

Through design, manage pests using methods that minimize hazards to people, property, and the environment in both interior and exterior settings.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Establish a target percent for low-maintenance, non-wildlife attracting species for each project involving landscaping.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. Develop an Integrated Pest Management Plan that addresses both interior and exterior areas.

SUSTAINABLE DESIGN STRATEGIES

- Design interior and exterior landscapes that minimize the need for pest control measures and utilize low-maintenance plant materials.
- Specify the use of mulch as a weed control mechanism in all new or refreshed landscaped areas.
- Consider the use of stockpiled mulch created from on-airport landscape maintenance activities as a pest control measure.
- Minimize the use of non-native species in interior landscaping plans.
- Prohibit the use of invasive species in all interior landscaping.
- Submit a Plant Maintenance Plan as part of project landscape plans.
- Submit an Integrated Pest Control Plan as part of the design process that defines preferred methods for long-term prevention and management of pests without environmental harm.

SUSTAINABLE DESIGN FACT SHEET

NATURAL SYSTEMS MANAGEMENT: BIODIVERSITY

B-2 Wildlife Deterrence Program

Last Updated: September 25, 2014

PURPOSE

Through design, manage hazardous wildlife using non-toxic methods.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Establish a target percent for low-maintenance, non-wildlife attracting species for each project involving landscaping.
- Provide opportunities for people to experience the Tampa Bay area's natural environment.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Document consultation with FAA-certified airport wildlife biologist during the design process.
2. Incorporate and document wildlife deterrent aspects in facility design.

SUSTAINABLE DESIGN STRATEGIES

- Incorporate established landscaping criteria that minimize wildlife hazards.
- In airfield design, accommodate an avian radar system to improve aviation safety, security surveillance, environmental management, weather detection, and wind measurement.
- As part of design, avoid the creation of natural open water features on or near airfield sites that attract wildlife.
- Provide stormwater facilities that utilize dry retention areas to the greatest extent possible and avoid or minimize the use of wet detention areas.
- For projects that include standing water or inundated areas, require the installation of bird deterrent wires or other mechanisms to prevent waterfowl from using a water body.
- Consult with an FAA-certified airport biologist to verify that plants selected will not attract wildlife.

Waste Management

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-1 Storage and Collection of Recyclables

Last Updated: September 25, 2014

PURPOSE

Design buildings in a manner that facilitates the reduction of waste solid waste disposed by building occupants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycle to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Encourage zero-waste zones within the Airport campus.
- Support the continued growth of the Airport recycling program.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Design includes storage and collection provisions for at least two waste streams (i.e., paper and metals/plastics/glass).
2. Design includes storage and collection provisions for at least six waste streams (i.e., paper, metals/plastics/glass, electronics/IT, batteries, light bulbs, and motor oil).
3. Maximize storage and collection provisions for all relevant waste streams to minimize the amount of solid waste disposed.

SUSTAINABLE DESIGN STRATEGIES

- Identify all potential recyclable waste streams (e.g., aluminum, glass, plastic, paper, cardboard, carpet, wood/pallets, food waste/grease and compostables, gas/oil filters, motor oil and anti-freeze, scrap metal, batteries, light bulbs, toner cartridges, tires, electrical wiring, electronics/e-Waste, deicing fluids/compounds, other) and consider opportunities to maximize collection of materials.
- Design buildings with convenient and appropriately sized areas for recyclable collection for a wide variety of waste streams.
- Design buildings with convenient, accessible, and appropriately sized areas for recyclable storage to support recycling infrastructure (e.g., cardboard balers).
- Specify identifying signage for all recycling collection and storage areas and equipment.

- Design area to accommodate of e-Waste recyclables, including storage area with necessary access to facilitate removal of stored materials.
- Design building to support separation of compostable waste from waste stream and potential onsite reuse of compostables.
- Identify zero-waste zone(s) within project design and minimize/eliminate corresponding solid waste infrastructure from zone(s).

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-2 Infrastructure and Building Reuse

Last Updated: September 25, 2014

PURPOSE

Extend the life cycle of existing buildings and infrastructure, conserve resources, and reduce waste and environmental impacts relating to materials, manufacturing, and transport.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycle to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Encourage zero-waste zones within the Airport campus.
- Reduce material and construction costs.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Maintain or reuse a minimum of 20%* of structural and/or non-structural elements.
2. Maintain or reuse a minimum of 40%* of structural and/or non-structural elements.
3. Maintain or reuse a minimum of 60%* of structural and/or non-structural elements.

***reuse can occur within a project or as part of a separate project**

SUSTAINABLE DESIGN STRATEGIES

- Maintain/adapt for reuse the existing building structure (including structural floor and roof decking) and envelope (the exterior skin and framing, excluding window assemblies and non-structural roofing material) and infrastructure components (e.g., pavement, piping).
- Maintain/adapt for reuse existing interior nonstructural elements (e.g., interior walls, doors, floor coverings, millwork, and ceiling systems) in the completed building, including additions.
- Relocate existing structures or structural elements.
- Identify project waste by type, specify stockpiling/storage, and support an HCAA active inventory of potential resources for other projects. Include materials such as concrete, asphalt, land clearing debris, small ancillary buildings or structures, and building components.
- Specify the donation of project waste that cannot be reused or salvaged onsite to a cooperating agency.

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-3 Planning for Deconstruction

Last Updated: September 25, 2014

PURPOSE

Design with consideration toward the building or structure disassembly so that resources can be reused, salvaged, or recycled when they have outlived the usefulness of their primary purpose.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycle to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Encourage zero-waste zones within the Airport campus.
- Reduce need for virgin materials on future projects.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Design for ease of dismantling and reuse of some major structural components.
2. Design for ease of dismantling and reuse of some major structural components AND finishes.
3. Design for ease of dismantling and MAXIMUM reuse of both major structural components AND finishes.

SUSTAINABLE DESIGN STRATEGIES

- Consider the future value of materials and systems during selection/specification during design.
- Specify homogenous materials whenever possible.
- Provide a flexible structural system.

WASTE MANAGEMENT

WS-4 Construction/Contractor Staging Area Requirements

Last Updated: September 25, 2014

PURPOSE

Define minimum standards for construction/contractor staging areas to facilitate compliance with waste management, air quality, and other sustainability priorities and goals.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycling to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Encourage zero-waste zones within the Airport campus.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. As part of design, prepare a Contractor Staging Area Site Plan to achieve waste management, air quality, and other sustainability priorities and goals established for the project.

SUSTAINABLE DESIGN STRATEGIES

- Specify that contractor must prepare and submit an update to the designer's Contractor Staging Area Site Plan (even if occupying a previously developed or occupied site) prior to the start of construction.
- Specify that Contractor Staging Area Site Plan include designated areas for recyclable material stockpiling.
- Specify signage articulating appropriate water use (reclaimed and potable), material stockpiling, recycled material stockpiling and other elements determined to contribute to achievement of sustainability goals.
- Designate on-airport contractor haul routes in coordination with HCAA, focusing on safety and minimizing on-airport travel distance.
- Specify minimum conditions for contractor staging area, including storage of materials to prevent erosion or deterioration, separation of waste streams/storage, signage, on-site parking, sweeping/maintenance necessary to keep site and interface with public roadways safe and clean, and related elements.
- Specify the preparation of a minimum operations plan to address vehicle activity, deliveries, hours of access, lighting requirements and limitations, and other relevant operational, safety, and environmental considerations.
- Specify the use/provision of energy efficient temporary lighting in contractor staging areas.

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-5 Construction Waste Management

Last Updated: September 25, 2014

PURPOSE

Divert construction and demolition (C&D), including land clearing debris, from disposal. Redirect recyclable recovered resources back to the manufacturing process and reusable materials to appropriate uses.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycle to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems
- Encourage zero-waste zones within the Airport campus.
- Reduce waste disposal fees.
- Reduce need for virgin materials.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Develop a Construction Waste Management Plan and divert a minimum of 20% of C&D debris from the solid waste disposal stream.
2. Develop a Construction Waste Management Plan and divert a minimum of 40% of C&D debris from the solid waste disposal stream.
3. Develop a Construction Waste Management Plan and divert a minimum of 60% of C&D debris from the solid waste disposal stream.

SUSTAINABLE DESIGN STRATEGIES

- Identify opportunities for on-site soil management during design (e.g., infrastructure elevation changes, construction or enhancement of noise berms, landscaping opportunity enhancements)
- Establish project-specific goals for diversion (e.g., achieve the highest feasible level, with a minimum target of 50 percent of debris recycled or salvaged, and consider alignment with Design Evaluation Points) and development of a Construction Waste Management Plan to achieve project goals that tracks recycling of waste streams such as land-clearing debris, cardboard, metal, brick, concrete, asphalt, plastic, wood, glass,

gypsum wallboard, carpet, and insulation.

- Identify the waste from one project that is a potential resource for another project such as concrete, asphalt, land clearing debris, small ancillary buildings or structures, and building components.
- Reuse aggregate from on-airport sources.
- Specify on-site concrete crushing operations to maximize reuse opportunities without requiring transport off-airport. Use portable concrete/asphalt crushers or operate concrete crushing/recycling plants on-site to facilitate reuse of materials in other construction projects.
- Specify submittal of Construction Waste Management plans and milestone reports.
- Specify documentation of construction waste management performance relative to construction waste management plan on a monthly basis and with aggregate quantities to be provided at project close-out with consequences for non-compliance or inability to demonstrate compliance.
- Include in all contract documents the minimum quantities of excess materials that will be accepted for return by the vendor and the required conditions of such material.
- Establish a process to track recycling efforts throughout the construction process in a way that identifies progress toward set goals and identifies resources generated for upcoming tasks/projects.
- Specify documentation of subcontractor materials practices for refused or rejected material (in particular concrete loads). Specify requirements and processes for recycling of such materials.

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-6 Balanced Earthwork

Last Updated: September 25, 2014

PURPOSE

Divert soils from landfills, reduce transportation of soil to off-site locations, and maintain or make soil available for reuse on other on-airport projects.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Encourage zero-waste zones within the Airport campus.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Consider and document efforts to utilize stockpiled materials available onsite.
2. Reuse or stockpile at least 25%* of excavation and earthwork soils on airport property for later use.
3. Reuse or stockpile at least 50%* of excavation and earthwork soils on airport property for later use.

***does not include contaminated soils/materials**

SUSTAINABLE DESIGN STRATEGIES

- Develop a balanced earthwork plan and keep excavated soil on-site to reduce off-site hauling.
- Provide for the reuse or stockpiling of excavation and earthwork soils on airport property for later use.
- Specify contractor use of identified on-Airport earthwork stockpile areas acceptable to HCAA.
- Identify potential material reuse on concurrent projects.
- Utilize information on stockpiled earthwork materials during project design, maintained by HCAA.
- Evaluate opportunities for on-site soil management (e.g., infrastructure elevation changes, development of noise berms, considerations for landscaping needs).

SUSTAINABLE DESIGN FACT SHEET

WASTE MANAGEMENT

WS-7 Salvaged Materials & Resources

Last Updated: September 25, 2014

PURPOSE

Make salvaged resources available to other Authority projects and the regional construction community.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce, reuse, and recycle to reduce the solid waste disposed on a per passenger basis by 10% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Encourage zero-waste zones within the Airport campus.
- Reduced disposal fees.
- Reduce need for virgin materials.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Salvage or reuse some demolition materials.
2. Salvage or reuse a minimum of 10% of all demolition materials.
3. Salvage or reuse a minimum of 25% of all demolition materials.

SUSTAINABLE DESIGN STRATEGIES

- Define plan for stockpiling of salvaged material that establishes necessary protection and handling to avoid degradation of quality or usability.
- Designate a salvaged construction materials stockpile area on-Airport. Establish a method to track material quantities, composition, and other information.
- In coordination with HCAA, support an HCAA-maintained "virtual warehouse" for salvaged materials (e.g., site lighting, millwork, fencing) maintained on-site and available for on- and off-Airport projects.
- Establish/confirm a process for the submittal of a project-specific salvaged material summary for posting to a public information site for the sale or donation of salvaged materials.
- Require documentation at project construction close-out of the aggregate salvaged resources (by type

and quantity) made available throughout project construction with specified consequences for non-compliance or inability to demonstrate compliance.

- Specify and source salvaged materials for non-structural elements, especially finishes.
- Specify the donation of project waste that cannot be reused or salvaged onsite to a cooperating agency.

Buy Green: Sustainable Procurement

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-1 Furniture and Equipment

Last Updated: September 25, 2014

PURPOSE

Reduce the natural resource and air quality impacts of furniture and equipment acquired for use in a building.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Use products with lower environmental impact.
- Design and construct environmentally responsible and energy efficient facilities using industry best practices.
- Improve energy performance.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. At least 25%* of furniture and/or equipment purchased for the project achieves one or more environmental attribute.
2. At least 50%* of non-public furniture and/or equipment purchased for the project achieves one or more environmental attribute.
3. At least 75%* of non-public furniture and/or equipment purchased for the project achieves one or more environmental attribute.

***Based on total materials cost.**

SUSTAINABLE DESIGN STRATEGIES

- Re-use, repair, and/or refurbish furniture and equipment.
- Specify furniture materials and products that are recycled, rapidly renewable, local/regional, low-emitting (i.e., contain no/low volatile organic compounds), contain wood materials that are certified (e.g., Forest Stewardship Council [FSC]) or low-emitting (e.g., no added urea-formaldehyde) and/or are salvaged.
- Specify furniture systems that are GreenGuard certified.
- Specify furniture that contains specific minimum (e.g., 10%) post-consumer recycled content or locally-sourced materials.

- Specify furniture that contains specific minimum certified wood materials (e.g., 50% FSC-certified wood) or rapidly renewable materials (e.g., 25%).
- Specify ENERGY STAR-labeled appliances, electric equipment, and ENERGY STAR computers, monitors, and other applicable IT systems.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-2 Certified Wood Materials

Last Updated: September 25, 2014

PURPOSE

Encourage environmentally responsible procurement by purchasing products that are certified as meeting responsible forest management practices.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Use products with lower environmental impact.
- Reduce pressure on traditional forests.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. At least 10%* of wood-based materials purchased for the project are either reclaimed or third-party certified.
2. At least 50%* of wood-based materials purchased for the project are either reclaimed or third-party certified.
3. At least 75%* of wood-based materials purchased for the project are either reclaimed or third-party certified.

***Based on total materials cost. The use of creosote-coated lumber, chromate copper arsenate (CCA) pressure-treated lumber, extruded polystyrene (XPS) rigid board insulation, or fiberglass insulation that contains phenol-formaldehyde binders are not counted.**

SUSTAINABLE DESIGN STRATEGIES

- For permanently installed wood-based materials, purchase products that are certified by the Forest Stewardship Council (FSC) or Sustainable Forestry Initiative (SFI). Building components include, at a minimum, framing, flooring, sub-flooring, wood doors, and finishes.
- Specify FSC-certified, SFI-certified, or reused wood for temporary construction materials, such as bracing, formwork, scaffolding, sidewalk protection, or guard rails.
- Establish a project-specific goal for certified wood-based materials.
- Identify material suppliers early in the project to demonstrate ability to achieve the project goal, or document barriers to the achievement of the goal.

- Use of lower grades of wood where appropriate.
- Specify submittal of documentation of certified wood material use (by type and quantity) at project close-out with specified consequences for non-compliance or inability to demonstrate compliance.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-3 Rapidly Renewable Materials

Last Updated: September 25, 2014

PURPOSE

Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Use products with lower environmental impact.
- Reduce pressure on traditional forests.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Some products purchased for the project contain rapidly renewable materials, consistent with the project-specific goal.
2. At least 2.5%* of products purchased for the project contain rapidly renewable materials.
3. At least 5%* of products purchased for the project contain rapidly renewable materials.

***Based on total materials cost.**

SUSTAINABLE DESIGN STRATEGIES

- Establish a project-specific goal for rapidly renewable material content.
- Specify the use of rapidly renewable (a mature growing cycle of seven years of less) building materials and products made from plants that are typically harvested within a ten-year or shorter cycle, including cork, bamboo, natural rubber, wheat, cotton, straw, or linseed. Document consideration of rapidly renewable materials such as straw board or "agriboard," bamboo, cork, wool carpets and fabrics, cotton-batt insulation, linoleum flooring, sunflower seed board, wheat grass or straw board cabinetry and others.
- Identify of material suppliers early in the project design to demonstrate ability to achieve project goal, or document barriers to the achievement of the goal.
- Specify submittal of documentation of rapidly renewable material (by type and quantity) at project close-out with consequences for non-compliance or inability to demonstrate compliance.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-4 Recycled Content Materials

Last Updated: September 25, 2014

PURPOSE

Reduce the use and depletion of finite raw materials by replacing them with recycled materials.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Use products with lower environmental impact.
- Reduce need for virgin materials in building products.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Some products purchased for the project contain recycled content, consistent with project-specific goal*.
2. At least 15%** of products purchased for the project contain recycled content.
3. At least 30%** of products purchased for the project contain recycled content.

***Requires establishment of project-specific goal.**

****Based on total materials cost.**

SUSTAINABLE DESIGN STRATEGIES

- Establish a project-specific goal for recycled content materials.
- Specify the use of recycled content building materials and products (e.g., aggregate in cast in place concrete, fly-ash in cast in place concrete, aggregate in pre-cast concrete including site work and infrastructure piping, fly-ash in pre-cast concrete including site work and infrastructure piping, bituminous concrete pavement, unit pavers, steel reinforcement, structural steel, miscellaneous steel, steel fencing and furnishings, unit masonry, ductile iron pipe, aluminum products, steel doors and frames, aluminum doors and windows, plaster, terrazzo, acoustical ceilings, drywall, finish flooring including carpet, tiles, resilient flooring and terrazzo, toilet compartments, and special finishes).
- Identify material suppliers early in the project to demonstrate ability to achieve the project goal, or document barriers to the achievement of the goal.
- Specify recycled content materials that provide comparable durability to conventional counterpart

materials in recognition of the influence of life cycle costs on material selection.

- Incorporate recycled content language into project specification documents.
- Specify submittal of documentation of recycled material (by type and quantity) in monthly reports at project close-out with consequences for non-compliance or inability to demonstrate compliance.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-5 Local/Regional Materials

Last Updated: September 25, 2014

PURPOSE

Use materials and products (other than furniture and equipment) that are extracted, harvested, or recovered, as well as manufactured within the region, to reduce the environmental impacts from transportation and to support Tampa's regional economy.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Reduce energy and environmental impact from building products and transportation of products.
- Support regional market for building products.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Some products purchased for the project contain local/regional content, consistent with project-specific goal*.
2. At least 15%** of products purchased for the project contain local/regional content.
3. At least 30%** of products purchased for the project contain local/regional content.

***Requires establishment of project-specific goal.**

****Based on total materials cost.**

SUSTAINABLE DESIGN STRATEGIES

- Establish a project-specific goal for local/regional content materials.
- Require the use of building materials or products that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project site.
- Incorporate local/regional material content language into project specifications.
- Identify material suppliers early in the project to demonstrate ability to achieve the project goal, or document barriers to the achievement of the goal.
- Specify submittal of documentation of local/regional materials (by type and quantity) at project close-out with specified consequences for non-compliance or inability to demonstrate compliance.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-6 Low-emitting Materials

Last Updated: September 25, 2014

PURPOSE

Reduce the quantity of indoor air contaminants that are odorous, potentially irritating, and/or harmful to the health, comfort, and well-being of contractors and occupants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.
- Enhance the health, safety, and security of the Airport community.
- Reduce the amount of harmful chemicals, such as volatile organic compounds (VOCs) released indoors during manufacturing, installation, and use of the product.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. One or more product types used in the project are compliant with the relevant standards specified for the project.
2. All applicable products used in the project are compliant with the relevant standards specified for the project.

SUSTAINABLE DESIGN STRATEGIES

- Specify submittal of documentation of low-VOC material at project close-out with consequences for non-compliance or inability to demonstrate compliance.
- Specify low-VOC adhesives and sealants that comply with the South Coast Air Quality Management District (SCAQMD) Rule #1168.
- Specify low-VOC field applied paints and coating coatings that comply with Green Seal Standards GS-11 and GC-3 and SCAQMD Rule #1113.
- Specify low-VOC carpet and flooring systems that comply with the Carpet and Rug Institute Green Label Plus program (carpet), Green Label program (cushion), and Floorscore (hard surface flooring).
- Specify furniture systems and furnishings that are GreenGuard certified.
- Specify wood and agrifiber products with no added urea-formaldehyde resins.
- Specify products with no-VOC content wherever feasible.

SUSTAINABLE DESIGN FACT SHEET

BUY GREEN

P-7 Green IT

Last Updated: September 25, 2014

PURPOSE

Reduce the environmental impacts associated with information technology (IT)-related materials, equipment, and processes.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Promote sustainable procurement throughout the Airport community.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. Complete paperless design project.

SUSTAINABLE DESIGN STRATEGIES

- Electronically submit design review submittals to facilitate HCAA electronic review/response.
- Use HCAA-maintained file sharing website for collecting and submitting necessary design-related information.
- Conduct paperless communications regarding the design project.
- Use a system/software to meet the demands of design, bidding, and construction processes.
- For projects encompassing significant IT systems or components, design server room and specify (related) energy systems and components that minimize heat generation/cooling demand.
- For projects encompassing significant IT systems or components, locate server rooms within the facility to minimize cooling demand due to solar load or other heat source.
- Specify contractor reliance on double-sided printing for all on-site printing requirements (contractor staging area) during construction.

Energy Management

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-1 Systems Commissioning

Last Updated: September 25, 2014

PURPOSE

Provide for the verification that fundamental building elements and systems are designed, installed, and calibrated to operate as intended.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3 percent by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Ensure that building systems operate as intended in terms of energy use performance from the date of completion.
- Reduce costs associated with energy consumption.
- Improved equipment life due to systems operating as designed.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Complete a commissioning plan for all major mechanical, electrical, and plumbing systems.
2. Complete a commissioning plan for additional building systems, including building envelope, lighting systems, airfield lighting and illuminated signage, airfield navigational aids, runway lighting systems, traffic signals, pump stations, and oil/water separators and other project-specific minor systems.

SUSTAINABLE DESIGN STRATEGIES

- Incorporate commissioning requirements into construction documents.
- Develop process for future documentation of conformance with commissioning plan as part of project close-out, including submittal of a commissioning report.
- Specify successful commissioning prior to facility occupancy.
- Specify manufacturer documentation/guarantee of installations, projected results, and in-situ performance criteria to compare to standard performance results as part of systems commissioning.
- Develop project-specific operations and maintenance (O&M) checklists.

- Specify the submittal of training, and operations and maintenance documentation.
- Specify the provision to the Maintenance Department a single manual that contains the information required for future re-commissioning systems.
- Specify the provision to the Maintenance Department a comprehensive operation manual for all systems to be commissioned to allow optimal facility operation and adjustment.
- Conduct and document independent third party review of commissioning plans during project design.
- Conform to the commissioning requirements of a third party rating system such as LEED, which includes both fundamental and enhanced commissioning goals.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-2 Improved Energy Performance

Last Updated: September 25, 2014

PURPOSE

Optimize energy performance to reduce environmental impacts associated with excessive energy use.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Reduce costs associated with energy consumption.
- Pursue strategies to reduce petroleum fuel use.
- Reduce the carbon footprint associated with the Airport community.

DESIGN EVALUATION POINTS (4 POINTS MAXIMUM)

1. Exceed mandatory and prescriptive requirements of ASHRAE 90.1.
2. Design a building which outperforms similar buildings by 40% as identified during benchmarking.
3. Design a building which outperforms similar buildings by 75% as identified during benchmarking.
4. Design a net-zero energy building (measure net-zero energy on an annual basis).

SUSTAINABLE DESIGN STRATEGIES

Overall Building Envelope:

- Prioritize energy conservation measures over renewable energy strategies (until such point that payback favors renewables) to achieve long-term energy use reduction in the most cost-effective manner.
- Design the building envelope and systems to maximize energy performance.
- Design buildings and site systems to comply with ASHRAE/IESNA 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*. Utilize concepts in the ASHRAE *Advanced Energy Design Guide* where feasible to improve building performance.

- Incorporate comprehensive energy specifications and design guidance into specifications and Requests for Proposals (RFPs).
- Use a computer simulation model to assess design energy performance and identify cost effective energy use optimization strategies.
- Provide opportunities for natural ventilation with building/structure orientation and operable windows in facilities that are not noise sensitive, such as cargo buildings.
- Incorporate renewable energy technologies (solar, wind) in design to offset all or a portion of the remaining energy usage after energy conservation measures have been implemented.
- Design a building automation system (BAS).
- Minimize air infiltration through all exterior openings including loading docks.

Energy Conservation/Performance:

- Design for energy peak shaving units to offset higher demand periods and costs.
- Design fuel cell, cogeneration, trigeneration, or geothermal systems to meet facility energy needs.
- Incorporate an on-airport power generation system in the project design.
- Incorporate an anaerobic digester in the project design.
- Design project facilities to meet the requirements of ASHRAE/IESNA 189.1, *Standard for the Design of High-Performance, Green Buildings*, to further improve project energy performance.
- Design facilities to comply with the Advanced Buildings™ Core Performance™ Guide, where applicable.
- For runways/taxiways/aprons, civil, stormwater, and roadways, design site systems to comply with the latest edition of ASHRAE/IESNA 90.1, to the greatest extent possible.
- Assess ENERGY STAR certification potential during the design process (relying on ENERGY STAR score) and consider design alternatives and options to support achievement of certification.
- Integrate high-performance chillers with thermal ice storage to reduce electrical demand use and costs during the cooling season.
- Perform payback analyses during the design phase which demonstrate that energy conservation measures have reasonable payback periods associated with them, and allow for increased project capital costs with the knowledge that both energy and operating costs will be saved long term.

HVAC/Mechanical Systems:

- Specify energy efficiency requirements for equipment in contract agreements.
- Specify premium efficiency motors for all air and water moving machines.
- Exceed ASHRAE 90.1 efficiency requirements for major HVAC equipment including refrigeration equipment.
- Design HVAC systems to provide ventilation air directly to spaces, reducing the overall quantity of ventilation air required for a given system.
- Include advanced HVAC equipment and control strategies on both airside and waterside systems to

reduce energy consumption. Strategies include economizers, energy recovery systems, room temperature setpoint setbacks, Variable Refrigerant Systems, and water and air supply temperature reset schedules.

- In large projects with central cooling plants, provide for optimization routines that examine the energy usage of all associated components in real time and make adjustments accordingly.
- Specify integrated occupancy sensors with heating, ventilation, and air conditioning (HVAC) operation.
- Specify an indirect evaporative and/or evaporative condensing direct expansion (DX) HVAC system instead of chilled water plant system.
- Specify direct-drive equipment instead of belt- or gear-driven HVAC equipment.
- Provide building automation systems (BAS) for all projects to facilitate the monitoring of energy related processes.

Lighting/Electrical:

- Incorporate energy efficient lighting systems, including LED and fluorescent lighting. Require individual control devices including occupancy sensors or timers to reduce lighting energy consumption.
- Specify lighting controls that dim or shut off lights in areas where daylighting is prevalent to maximize the use of daylighting. In single story buildings or at the roof level, incorporate skylights and/or light tubes to increase natural light and reduce artificial light.
- Incorporate large electrical cables (larger than required by the National Electric Code) into design to decrease the cable resistance and reduce energy loss during transmission.
- Specify solar-powered signage or equipment, where feasible.
- Specify occupancy sensors where practical to turn off lighting during unoccupied periods. Provide lighting control system that links lighting to flight schedules and occupancy. Provide occupancy sensors, either infrared (heat detection), ultrasonic (movement detection), or a combination of both, to control lighting in areas that are intermittently occupied (e.g., rest rooms, storage areas, stairwells).
- Upgrade airfield lighting to LED lighting if project affects existing airfield lights.
- Establish airside lighting controls and procedures to turn off or reduce the intensity of airside lighting (runway, taxiway, and apron lights, and navigational aids) when not in use.
- Specify energy efficient temporary lighting during construction.
- Provide task lighting in office areas and design overhead lighting to reduced levels.
- Specify use of Variable Frequency Drive (VFD) motors to control the rotational speed of an alternating current (AC) electric motor.

Other Equipment:

- Specify ENERGY STAR compliant equipment and appliances.
- Develop training program for the operation and maintenance of the facility to optimize the energy performance of the facility/equipment.
- Design aircraft gates to provide centralized pre-conditioned air (PCA) and ground power systems (400 Hz)

to gated aircraft.

- Design aircraft gates and hold rooms for common use, requiring airlines to use the same passenger processing system, displays, baggage handling, and baggage claim system.
- Design and equip aircraft remain overnight areas for common use (e.g., so they can serve as cargo ramps during the day and airline parking at night).
- Design for motor efficiency controllers in escalators and moving walkways.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-3 Alternative and Renewable Energy

Last Updated: September 25, 2014

PURPOSE

Increase the supply of on-site alternative and renewable energy technologies to reduce energy costs, dependency on fossil fuels, and the environmental impacts associated with fossil fuel energy use.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3% by 2021 (compared with a 2011 baseline).
- Design and construct more environmentally responsible and energy efficient facilities using industry best practices and systems.
- Pursue strategies to reduce petroleum fuel use.
- Promote the use of renewable energy sources over traditional energy sources.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Consider and document exploration of opportunities to incorporate alternative energy technologies and/or renewable energy sources into project.
2. Incorporate alternative energy technologies and/or renewable power in facility design to reduce fossil fuel energy consumption.
3. Provide for sufficient renewable energy in facility design to offset all fossil fuel energy consumption and achieve a net zero energy building.

SUSTAINABLE DESIGN STRATEGIES

- Assess projects for renewable energy feasibility (e.g., solar, wind, geothermal) to determine the optimal size, type, location, and the cost of installing and operating a renewable energy system.
- Explore opportunities to enter into a public-private partnership to construct and operate a renewable energy system.
- Incorporate solar photovoltaic (PV) panels and/or solar-thermal powered water heaters into design (buildings and/or ground level).
- Incorporate solar PV panels into facility design. Consider roof structural system/support, hurricane tolerance, wildlife attractant potential, and FAA guidance for solar installations at airports.

- Incorporate solar thermal storage systems (e.g., solar Trombe walls) in facility design to provide passive solar heating.
- Incorporate solar trash compactors along curbfronts and in remote areas.
- Incorporate solar-powered roadway signage and parking lot lighting.
- Incorporate solar-powered obstruction and barricade lighting.
- Incorporate solar-powered water heating.
- Incorporate geothermal heating and cooling systems.
- Incorporate wind turbine power generation as a component of facility design.
- Incorporate sewer heat recovery systems.
- Incorporate wind power.
- Investigate energy tax credits, rebates, and grants by local utilities or federal, state, or local agencies.
- Incorporate the use of fuel cells, biofuels, cogeneration, and geothermal energy technologies to reduce on-site fossil fuel consumption.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-4 Energy Measurement and Verification

Last Updated: September 25, 2014

PURPOSE

Ensure ongoing accountability and optimization of energy consumption

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3% by 2021 (compared with a 2011 baseline).
- Ensure that building systems operate as intended in terms of energy use performance from the date of completion.
- Reduce costs associated with energy consumption.
- Assist maintenance personnel in the diagnosis and correction of system inefficiencies.
- Promote the involvement of facilities personnel in the overall goal of reducing energy consumption in the Airport community.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Develop Energy Measurement & Verification (M&V) Plan incorporating all energy end uses.
2. Incorporate continuous monitoring devices and energy management control systems into design.

SUSTAINABLE DESIGN STRATEGIES

- Incorporate energy use metering and/or continuous monitoring (sub-metering) devices and energy management control systems into design; including but not limited to the following end uses: lighting systems and controls, constant and variable motor loads, chillers unitary equipment, chilled water and hot water, air and water economizer and heat recovery cycles, air distribution static pressures, ventilation air volumes, boiler efficiencies, building-related process energy systems and equipment (including cooking), and domestic hot water equipment.
- Diagnose and correct unexpected excess energy consumption in existing facilities when developing project designs for a related facility (e.g., where new facility ties into the HVAC or other systems of an existing facility).
- Include data collection requirements in M&V Plan to facilitate the collection and trending analysis of operational data to evaluate systems/equipment that are not operating at peak efficiency.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-5 Daylighting

Last Updated: September 25, 2014

PURPOSE

Reduce energy use through the introduction of daylight into regularly occupied areas.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3% by 2021 (compared with a 2011 baseline).
- Promote the use of renewable energy sources over traditional energy sources.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Provide 25 foot-candles of daylight where feasible.
2. Provide 25 foot-candles of daylight in 50% of spaces.
3. Provide 25 foot-candles of daylight in 75% of spaces.

SUSTAINABLE DESIGN STRATEGIES

- Design skylights and/or light tubes in conjunction with daylight dimming controls to reduce daytime lighting requirements.
- Specify daylight dimming controls to reduce daytime lighting requirements.
- Integrate daylight harvesting strategy with the Building Automation System (BAS) and lighting control system.
- Specify spectrally selective glazing to maximize daylight while minimizing heat gain.
- Specify glazing films and/or coatings to minimize solar heat gain and air conditioning loss, maximize visible light transmittance and penetration, reduce glare, increase privacy, protect installed materials from the sun's ultraviolet rays, and prevent injury and damage from broken glass.
- Provide photo-integrated light sensors to dim artificial lights.
- Use a daylighting model or calculations to assess foot-candle levels and daylight factors achieved.
- Provide sky or clerestory lighting in appropriate facilities, such as cargo.

- Orient building geometry and articulate fenestration to optimize passive solar and/or daylight penetration.
- Orient building to optimize passive solar and/or daylight penetration when feasible.
- Optimize architectural features for daylighting and glare control. Consider light shelves, ceiling design, window placement, and window treatments.
- Specify thermally efficient/high performance glazing and window systems.
- Incorporate interior and exterior shading devices/strategies into design to filter daylight and control glare (e.g., shades, louvers, blinds, awnings/overhangs, vegetation).
- Provide exterior and interior permanent shading devices.
- Provide spectrally selective glazing to maximize daylight while minimizing heat gain.
- Provide photo-integrated light sensors to dim artificial lights.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-6 Maintenance Requirements

Last Updated: September 25, 2014

PURPOSE

Minimize the operational and environmental impacts of maintenance for Authority facilities and avoid maintenance requirements that are not cost-effective over the life of the facility/equipment.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Reduce electricity consumption on a per passenger basis by 3% by 2021 (compared with a 2011 baseline).
- Minimize adverse environmental and operational impacts relating to system maintenance.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. Perform and document design reviews by HCAA Maintenance Department at all design milestones.

SUSTAINABLE DESIGN STRATEGIES

- Specify environmentally friendly cleaning products and processes for installed systems in O&M manuals.
- Project annualized maintenance costs and life-cycle costs for all equipment and systems during selection.
- At all design milestones, identify, consider, and document unique maintenance requirements or equipment.
- Develop project-specific operations and maintenance (O&M) checklists.

SUSTAINABLE DESIGN FACT SHEET

ENERGY MANAGEMENT

EN-7 Thermal Comfort

Last Updated: September 25, 2014

PURPOSE

Provide a thermally comfortable environment that supports the productivity and well-being of building occupants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Maximize the number of building occupants that find the environment suitable.
- Promote employee productivity via a comfortable indoor workspace.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Meet the requirements of ASHRAE 55.
2. Provide individual temperature controls for 25% of building occupants in non-public spaces.

SUSTAINABLE DESIGN STRATEGIES

- Design buildings to meet the requirements of ASHRAE 55: *Thermal Environmental Conditions for Human Occupancy*, including humidity control within established ranges.
- Provide air circulation or natural ventilation to increase air movement in cargo spaces and other large, open plan facilities.
- Provide dehumidification in HVAC systems serving office and terminal areas.
- Specify a temperature and humidity monitoring system that provides operators with control over thermal comfort performance and humidification and/or dehumidification systems.
- Provide controls for each individual in office spaces for airflow, temperature, and lighting of the occupied space, and for the occupants in non-perimeter, regularly occupied areas.
- Design buildings with operable windows in appropriate areas (consider security issues, noise-sensitivity of activities within building).
- Incorporate under floor air distribution systems with individual diffusers (controllable outlets) in office areas.
- Integrate micro switches of operable windows with HVAC operation.
- Specify direct digital control systems for greater accuracy, flexibility, and operator interface compared to pneumatic systems.

Health, Safety, and Security

SUSTAINABLE DESIGN FACT SHEET

HEALTH, SAFETY, AND SECURITY

HSS-1 Indoor Air Quality Performance

Last Updated: September 25, 2014

PURPOSE

Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings, contributing to the comfort and well-being of the occupants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health and comfort of the Airport community.
- Reduce energy waste due to the over-ventilation of occupied spaces.
- Reduce irritants in the air via proper air filtration.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Design to exceed the minimum requirements for ventilation, as defined in applicable codes.
2. Specify permanent measurement equipment to allow continuous monitoring of ventilation levels.

SUSTAINABLE DESIGN STRATEGIES

- Design the HVAC system to meet the minimum ventilation requirements described in the latest version of ASHRAE 62.1: *Ventilation for Acceptable Indoor Air Quality*. If local building codes are applicable, design the minimum ventilation to satisfy the requirements of the most stringent code or standard.
- Design air filtration requirements that meet the needs of the spaces being served without over-filtering the air to reduce energy consumption associated with fan horsepower.
- Specify permanent outdoor air monitoring stations in all air handling units that supply ventilation and connect these stations to the building automation system (BAS).
- Locate air intakes in low traffic, elevated, or secure areas for protection from potential attacks.
- Provide operable windows, where appropriate.
- Design airside buildings to be positively pressurized at all times in order to prevent jet exhaust and other fumes from the airfield from entering the buildings.

SUSTAINABLE DESIGN FACT SHEET

HEALTH, SAFETY, AND SECURITY

HSS-2 Environmental Tobacco Smoke Control

Last Updated: September 25, 2014

PURPOSE

Prevent exposure of building occupants and systems to environmental tobacco smoke (ETS) by providing outdoor smoking areas.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health of the Airport community.
- Reduce energy consumption associated with exhaust and ventilation of indoor smoking lounges.

DESIGN EVALUATION POINTS (2 POINTS MAXIMUM)

1. Prepare an environmental tobacco smoke (ETS) control plan as part of design.
2. Provide only outdoor smoking areas, a minimum of 25 feet from entries, air intakes, and operable windows.

SUSTAINABLE DESIGN STRATEGIES

- Specify appropriate signage (indoors and outdoors) that clearly communicates smoking area location.
- Provide sheltered and naturally ventilated exterior smoking areas for employees and travelers.
- If an indoor custom smoking room is desired, it must conform to the requirements of Florida Clean Indoor Air Act Section 386.2045.
- Specify specific and defined areas of construction sites for construction employee smoking, outside of any buildings and at least 25 feet from building entrances once the building is enclosed.

SUSTAINABLE DESIGN FACT SHEET

HEALTH, SAFETY, AND SECURITY

HSS-3 Carbon Dioxide Monitoring

Last Updated: September 25, 2014

PURPOSE

Provide capability for carbon dioxide monitoring to help sustain long-term occupant comfort and well-being.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health and comfort of the Airport community.
- Reduce energy consumption by providing demand controlled ventilation in densely occupied spaces.
- Promote productive work environments by ensuring that carbon dioxide concentrations remain at low levels.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Specify installation of carbon dioxide monitors in all densely occupied spaces (i.e., spaces exceeding 25 occupants per thousand square feet of floor area).
2. Connect monitors to the building automation system (BAS) and provide alarms when high concentrations are reached.
3. Implement demand-controlled ventilation strategies to reduce outside air intake quantities when typically densely occupied spaces experience reduced occupant levels.

SUSTAINABLE DESIGN STRATEGIES

- Design HVAC systems for terminal buildings with carbon dioxide monitoring sensors in all densely occupied spaces and integrate these sensors with the building automation system (BAS).
- Design for real-time control of terminal unit (VAV box) flowrates and total outdoor air flowrates at the system level based on space carbon dioxide levels.
- Specify a permanent carbon dioxide monitoring system that provides feedback on space ventilation performance.
- Provide operable windows that allow systems to adjust the periods during which outside air is supplied by the system.
- Design to incorporate Demand Control Ventilation strategies, where possible, to vary the amount of

ventilation air based on carbon dioxide levels in the spaces being served by the Air Handling Units.

- Establish minimum ventilation rates for airside buildings so buildings are positively pressurized at all times to prevent fumes from entering buildings from airfield.

SUSTAINABLE DESIGN FACT SHEET

HEALTH, SAFETY, AND SECURITY

HSS-4 Construction Indoor Air Quality Management

Last Updated: September 25, 2014

PURPOSE

Reduce indoor air quality (IAQ) problems resulting from construction or renovation activities to promote the health, comfort, and well-being of construction workers and building occupants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health and comfort of the Airport community.
- Improve indoor air quality (by reducing airborne contaminants) for workers during construction and for employees, passengers, and tenants during occupancy.
- Protect and extend the lifetime of the ventilation system.

DESIGN EVALUATION POINTS (1 POINT MAXIMUM)

1. Develop a Construction IAQ Management Plan during design.

SUSTAINABLE DESIGN STRATEGIES

- Develop a Construction IAQ Management Plan during design that includes activities to be completed during construction and includes an approach for ensuring optimal IAQ before occupancy.

During Construction:

- Specify the recommended control measures found in the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) *IAQ Guideline for Occupied Buildings under Construction*, 2nd Edition 2007, Chapter 3. The SMACNA guidelines recommend control measures in five areas including HVAC protection, source control, pathway interruption, housekeeping, and scheduling. Examples of control measures include:
    - Specify the protection of stored on-site and installed absorptive materials from moisture damage.
    - Specify the partitioning of construction areas from occupied non-construction portions of a building to prevent the circulation of airborne contaminants.
    - Specify the sequencing of installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard.
- Specify that if air handlers are used during construction, filtration media with a Minimum Efficiency

Reporting Value (MERV) of 8 at each return air grill, as determined by ASHRAE 52.2-1999, is required.

- Specify that smoking inside the building and within 25 feet of building entrances once the building is enclosed is prohibited during construction.

Before Occupancy:

- Specify replacement of all filtration media immediately prior to occupancy. Filtration media should have a Minimum Efficiency Reporting Value (MERV) of 13, as determined by ASHRAE 52.2-1999 for media installed at the end of construction.
- If practical after construction is complete and prior to occupancy, specify conduct of a two-week building flush out with 100% outside air or complete IAQ testing to ensure proper IAQ.

SUSTAINABLE DESIGN FACT SHEET

HEALTH, SAFETY, AND SECURITY

HSS-5 Indoor Chemical & Pollutant Source Control

Last Updated: September 25, 2014

PURPOSE

Minimize exposure of building occupants to potentially hazardous particulates and chemical pollutants.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health and comfort of the Airport community.
- Avoid unnecessary exposure to airborne chemicals and particles.
- Improve indoor air quality for employees, passengers, and tenants.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Design or specify some physical means of chemical and pollutant source controls.
2. Design or specify substantial physical and some mechanical means of chemical and pollutant source controls.
3. Design or specify substantial physical and substantial mechanical means of chemical and pollutant source controls.

SUSTAINABLE DESIGN STRATEGIES

- Specify permanent entryway systems (e.g., grills, grates) or carpet walk-off entryway systems to capture dirt and particulates from entering the building at all high volume entryways. Roll-out entryway systems should be at least 10 feet long.
- Where chemical use occurs (e.g., housekeeping areas, garages, shops, and copying/printing rooms), design segregated areas with deck-to-deck partitions, self-closing doors, or hard ceiling, and maintain separate outside exhaust at a rate of at least 0.50 cubic feet per minute per square foot, with no air re-circulation and a negative pressure maintained.
- Provide drains plumbed for appropriate disposal of liquid waste in spaces where water/liquid and chemical concentrate mixing occurs.
- Specify finish materials and assemblies that resist mold growth.
- Design central locations in terminal and office buildings for storage of concentrated cleaning chemicals

and other pollutant sources. Locate these areas away from high volume occupant and tenant work areas.

- Locate sources of outdoor air pollution or noxious odors (e.g., trash dumpsters, vehicle idling, tobacco smoke) away from outdoor ventilation air intakes.
- Design separate exhaust and plumbing systems in spaces that are known to use or contain chemicals and hazardous products to achieve physical isolation from the rest of the building.
- Provide water and electricity utility outlets for cleaning.
- Design buildings to minimize pollutant cross-contamination of regularly occupied areas.
- Design for the use of electric vehicles in indoor cargo facilities and other large volume enclosed spaces; provide necessary infrastructure to accommodate.
- Design for and install indoor toxic-absorptive vegetation (e.g., green walls).
- Specify implementation of a GreenSeal-compliant cleaning program.

Community

SUSTAINABLE DESIGN FACT SHEET

COMMUNITY

COM-1 Light Pollution Reduction

Last Updated: September 25, 2014

PURPOSE

Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce impact from lighting on nocturnal environments (light pollution reduction).

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Provide opportunities for people to experience the Tampa Bay area's natural environment.
- Enhance links between the Airport and the Tampa Bay community.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Limit exterior fixture night sky trespass to 10% and interior night sky trespass where feasible.
2. Limit exterior fixture and interior night sky trespass to 10%.
3. Specify full cut-off exterior fixtures and eliminate night sky trespass from interior lighting.

SUSTAINABLE DESIGN STRATEGIES

- Model the site lighting design using a computer model to establish a baseline level and to support evaluation of design alternatives.
- Specify site lighting criteria to maintain safe light levels while avoiding off-site lighting and night sky pollution.
- Minimize site lighting while satisfying public safety and passenger convenience needs.
- Utilize optimized fixture lenses to provide desired light distribution with reduced fixture quantities.
- Design the maximum candela value of all interior lighting to fall within the building (not out through windows) and the maximum candela value of all exterior lighting to fall within the property.
- Specify dynamic reductions in overall light levels during unoccupied periods within facilities, considering public safety.
- Specify full cutoff luminaries, low-reflectance, non-specular surfaces and low-angle spotlights for roadway and building lighting.

- Incorporate informed placement of interior lights, reflective glazing, physical shielding, and other measures to reduce/eliminate the trespassing of interior lighting into the night sky.
- Meet or provide lower light levels and uniformity ratios than those recommended by the Illuminating Engineering Society of North America (IESNA) *Recommended Practice Manual: Lighting for Exterior Environments* (RP-33-99).
- Develop greenbelts along the airport perimeter as an attractive light and noise buffer between the Airport and the community.
- Specify high pressure sodium (HPS) and/or LED lamps instead of metal halide (MH) lamps.
- Specify low-temperature fluorescents, LED, and/or solar-powered fixtures for exterior lighting.
- Specify high frequency electronic ballasts with fluorescent 2-, 4-, and 8-foot tubular lamps that do not contain mercury.
- Specify self-dimming ballasts and controls.
- Establish a schedule for when construction lighting is required and develop a policy to reduce lighting when not needed.

SUSTAINABLE DESIGN FACT SHEET

COMMUNITY

COM-2 Exterior Views

Last Updated: September 25, 2014

PURPOSE

Provide a connection for building occupants between indoor spaces and the outdoors through the incorporation of exterior views into regularly occupied areas.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Provide opportunities for people to experience the Tampa Bay area's natural environment.
- Exceed the expectations of our customers for a sustainable Airport experience.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Provide direct eye-level views to the outside from 50 percent of regularly occupied spaces on a square footage basis.
2. Provide direct eye-level views to the outside from 75 percent of regularly occupied spaces on a square footage basis.
3. Provide direct eye-level views to the outside from 90 percent of regularly occupied spaces on a square footage basis.

SUSTAINABLE DESIGN STRATEGIES

- Provide sky or clerestory restorative views as appropriate in terminal and non-terminal facilities (e.g., cargo).
- Orient building to optimize available restorative views.
- Limit the heights of interior partitions (e.g., maximum 42 inches).
- Design open workstation cubicles or cubicle walls to be lower than 42" and/or incorporate glazing into upper portions of partitions to provide views of the outside.
- Design partitioned and cellular office spaces toward the center of floor plans with windows to provide views of the outside.
- Incorporate glazing in interior walls with appropriate interior shading devices.
- Highlight airfield views in facility design.

- Consider use of interior daylighting patterns and views as a form of public art within public buildings.
- Consider sun penetration of views to support indoor landscaping.

SUSTAINABLE DESIGN FACT SHEET

COMMUNITY

COM-3 Noise and Acoustical Quality

Last Updated: September 25, 2014

PURPOSE

Limit noise levels and exposure in noise-sensitive spaces such as terminals and office spaces.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Enhance the health of the Airport community.
- Exceed the expectation of our customers for a sustainable Airport experience.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Incorporate and document a minimum of two sustainable design strategies to limit noise levels and exposure to occupants.
2. Incorporate and document a minimum of four six sustainable design strategies to limit noise levels and exposure to occupants.
3. Incorporate and document sustainable design strategies to reduce noise transmission to adjacent communities.

SUSTAINABLE DESIGN STRATEGIES

- Orient glazing/windows and other noise transmission surfaces away from the most noise-sensitive spaces.
- Orient buildings such that glazed or other acoustically reflective surfaces are not directed toward noise sources.
- Consider noise-sensitivity of adjacent interior spaces when siting rooms that have significant ventilation requirements (e.g., computer/server rooms).
- Utilize landscaping as a means of noise attenuation.
- Specify laminated glazing and double-pane windows to reduce noise transmission.
- Specify materials with noise-absorbent properties.
- Specify wrapping of exterior heating, ventilation, and air conditioning (HVAC) duct work with sound deadening materials.

- As project design allows, develop greenbelts as part of development projects along the airport perimeter as an attractive light and noise buffer between the airport and the community.
- Design acoustical silencers, barriers, and earthen berms to minimize transmission of noise to surrounding communities.
- Locate mechanical equipment and other sources of noise away from areas of occupancy. Where equipment cannot be located remotely, include sound insulation in adjacent partitions and ceiling voids.
- Specify acoustical ceiling tiles, flooring, and walls.

SUSTAINABLE DESIGN FACT SHEET

COMMUNITY

COM-4 Consistency with Local, Regional, and State Plans

Last Updated: September 25, 2014

PURPOSE

Foster and promote Airport development that maximizes alignment and consistency with local, regional, and state plans.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Inspire sustainable actions throughout the Airport community.
- Enhance links between the Airport and the Tampa Bay community.
- Support regional planning interests.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Document coordination with local and regional planning agencies to review proposed development (general and specific).
2. Document two sustainable design strategies incorporated to achieve consistency with local, regional, or state plans.
3. Document specific joint infrastructure utilization as a component of project design.

SUSTAINABLE DESIGN STRATEGIES

- Consider defined future local and regional development in designing infrastructure (e.g., intersection locations and future transit corridors).
- Support regional efforts to improve connectivity between the Airport and the region (e.g., Greenlight Pinellas Initiative).
- Propose cost-sharing or other mechanisms to incorporate specific improvements (e.g., expanded ductbank, supplemental manholes, detention basin inflow piping stubs) intended to facilitate future local or regional development with minimal impact.
- Consider future development of adjacent Airport parcels or off-Airport properties when designing storm water management facilities and identify opportunities to improve facility design efficiency.

SUSTAINABLE DESIGN FACT SHEET

COMMUNITY

COM-5 Placemaking

Last Updated: September 25, 2014

PURPOSE

Create a sense of place that capitalizes on the greater Tampa Bay community and regional assets to promote a restorative environment.

ASSOCIATED SUSTAINABILITY GOALS AND BENEFITS

- Inspire sustainable actions throughout the Airport community.
- Create a learning Airport community focused on continual improvement.
- Exceed the expectation of our customers for a sustainable Airport experience.
- Enhance links between the Airport and the Tampa Bay community.

DESIGN EVALUATION POINTS (3 POINTS MAXIMUM)

1. Consider and document the exploration of placemaking opportunities in publicly accessible projects or public spaces within a project (non-airfield).
2. Incorporate and document one placemaking strategy in project design (non-airfield).
3. Incorporate and document two placemaking strategies in project design (non-airfield).

SUSTAINABLE DESIGN STRATEGIES

- Incorporate public art in project design.
- Coordinate with local and regional organizations (e.g., City of Tampa Public Art Program) to capture local art resources.
- Provide interior spaces where employees and/or the public can voluntarily dwell to engage specific features or experiences that emphasize the greater Tampa Bay area (e.g., music, rotating art exhibits, local history displays, educational displays, imagery, culture).
- Provide space allowances to encourage the incorporation of place identity features.
- Provide inviting exterior spaces where employees and/or the public can voluntarily dwell to experience natural, geographic, and cultural aspects of the greater Tampa Bay area.

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Tampa International Airport