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PLANNING

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INTRODUCTION

The Sustainable Airport Manual (SAM) Planning Chapter is intended to address the conceptual planning of the airport's physical environment to facilitate implementation of design, construction, and/or operation and maintenance in a sustainable manner. The Planning chapter also addresses operational guidance by outlining procedures for the airport's compliance with federal, state, and local standards, codes, and mandates, as well as daily operational best management practices. Planning is an ongoing pursuit that establishes qualitative and quantitative goals for all projects of all sizes and scopes at the earliest stage based on stakeholder input, collaboration and commitment.

Planning begins at the earliest stages of a project and thereby becomes part of the sustainable fabric and vision that influences later stages of design, construction, and operation for all projects, large and small. With the integration of sustainability into every aspect of airport functions, the consideration of sustainability will become more routine. Moreover, the inclusion of sustainability considerations at the planning stage will result in greater benefits and lower costs than the addition of sustainability features at a later date. Understanding the needs and limitations of airport stakeholders and system conditions is also an important part of planning in order to achieve long term effectiveness.

The Planning chapter outlines a broad integrated approach, customizable to organizational and system conditions and shaped by input from stakeholders. Once system conditions (and options) are defined and understood, the airport can then look to one or more sustainability strategies for inspiration and development of specific goals. The Chapter provides guidance and support in developing, maintaining, or increasing the performance of sustainable initiatives within the overall framework of each airport planning project. It considers sustainable design concepts throughout the planning of airport development projects and programs from inception, thereby increasing the ability of each project to meet and to hopefully exceed various initiatives based on each airport's optimal conditions.

The approach to sustainability planning outlined in this chapter strives to collectively elevate everyday planning to proactively address environmental issues beyond minimum standards and embrace sustainability as an important achievement. Many airports often struggle with the daily reality of their economic and social concerns, like balancing limited budgets or satisfying customer demands, where sustainability opportunities can be overlooked. Through this process, all of the required elements of the standard planning process can be achieved, while embracing sustainable practices that can potentially reduce the environmental impact of the built environment while at the same time creating financial and operational benefits for a project, and social benefits for the community at large.

The sustainable planning path outlined here will help to define the airport's sustainability goals and objectives for each project based on system conditions and unique situations. From there, the key stakeholders collectively develop the project's "Sustainability Schematic," which is an overall plan outlining the measurable sustainability targets and goals for the project that, when finalized, will become part of the official plan for the project, such as a Project Definition Document (PDD) and/or Capital Improvement Program (CIP) Application, or other applicable planning documentation.

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APPLICABILITY

All projects begin with the development of a plan. That plan may be a major program, such as an airport master plan, or it may be a relatively small improvement, such as the addition of a new jet bridge or an update to an airport's Stormwater Pollution Prevention Plan. Just like cost estimates and schedules, sustainability considerations and goals need to be integrated into the planning process for all projects, regardless of size and scope. Integration of sustainability considerations into the planning process sets the groundwork for inclusion of sustainability features as a project proceeds through the design, implementation, and operational stages.

Planning projects that would be applicable to this SAM Planning Chapter include, but are not limited to the following:

- Master Plan
- Maintenance Plan
- Utilities Plan
- Operations Plan
- Construction Plan
- Deconstruction Plan
- Asset Maximization Plan
- Facilities Plan
- Existing Facility Optimization Plan
- Terminal Renewal/Improvement Plan
- Facility Re-Use Analysis
- Land Use Plan
- Noise Compatibility Plan
- Regulatory/Code Requirements
 - Title V Permit Application or Update
 - Air Quality State Implementation Plan (SIP) Update
 - NPDES Permit Application or Update
 - Stormwater Pollution Prevention Plan (SWPPP) Update
 - USACE 404 Permit Application
- Other Projects or Strategic Initiatives
 - Demand Driven Projects
 - Customer Service Projects
 - Revenue Opportunities

PROCESS

The process of sustainable airport planning as described in this SAM Planning Chapter involves the creation of an overall plan outlining the measurable sustainability targets and goals for the project that, when finalized, will become part of the official plan for that project, function, or



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activity. This is to be accomplished primarily through the development of a “Sustainability Schematic.” The sustainable airport planning process can be summarized by reviewing an outline of the credits included in the Chapter:

1. **Define Sustainability Vision Statement** *(SAM Credit PL.1 Prerequisite 1)*
2. **Determine Key Stakeholders and hold Initial Project Meeting to Discuss Sustainability Goals** *(SAM Credit PL.2 Prerequisite 2)*
3. **Sustainability Baseline Assessment and Cost/Benefit Analysis** *(SAM Credit PL.3 Prerequisite 3)*
Requires the completion of a preliminary sustainability baseline assessment and the completion of a preliminary cost/benefit analysis for all project alternatives, including the no-project alternative. The cost/benefit analysis enables a comparison of initial versus longer term operational and maintenance costs, while also considering the potential environmental and social impacts that may occur as a result of the project.
4. **Develop a Draft Sustainability Schematic** *(SAM Credit PL.4 Prerequisite 4)*
Requires the development of a Sustainability Schematic which outlines the steps for sustainability considerations in planning any project or activity, and addresses the following major considerations:
 - a. Identify and establish sustainability objectives, target goals, and minimum thresholds
 - b. Identify sources of funding
 - c. Provide for and conduct education and public outreach initiatives
 - d. Plan for the integration of SAM guidelines into the specific project elements, as appropriate to the size and scope of each project
 - e. Plan for sustainable operation and maintenance of completed projects/programs/facilities
 - f. Establish plan to close the feedback loop
5. **Project Meeting to Finalize Sustainability Schematic** *(SAM Credit PL.5 Prerequisite 5)*
6. **Close the Feedback Loop at Project Completion** *(SAM Credit PL.6 Prerequisite 6)*

Within the Chapter’s main body, each sustainable planning “Credit” has five subsections: Intent, Requirements, Submittals, Technology/Strategy, and Case Studies, as described below:

- **Intent:** The primary motivations for any sustainable practice.
- **Requirements:** Specifies institutional, operational, and functional elements that satisfy the intent. The prerequisites must be achieved; other credits are optional, but contribute to the overall sustainable planning process for the project.
- **Submittals:** Required and supporting documentation and/or information required to achieve applicable prerequisites or credits. This documentation indicates how the requirements are being met.
- **Technology/Strategy:** Highlights specific ways of meeting the recommendations within the scope of each specific credit. Case studies where available, are presented to help guide the application of sustainable credits to planning projects and efforts.
- **Case Study:** Examples of credit intent “in action” at airports and/or other industry facilities.



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While not all strategies will be applicable to every project, planners are highly encouraged to think creatively and to consider the intent of each issue throughout the decision process. In all cases, it is the responsibility of the planning team to evaluate and review with the appropriate CDA managers any anticipated cost or schedule impact.

THRESHOLDS AND GUIDANCE

For all planning projects involving CDA owned, operated, or leased facilities and for all planning projects involving resources for which CDA has regulatory responsibilities, CDA encourages the targets or goals listed in the following table, as appropriate and applicable to the size and scope of each project. Although the targets or goals included in the following table might be above and beyond the thresholds established by the other chapters of this Manual, the CDA strives for them to be attainable and therefore, encourages innovation and forward-thinking in order for their achievement.

Topic	Description and/or Example Measure(s)	Encouraged Target or Goal
Site Selection	Locate near mass transit (bus, CTA rail lines, Metra, etc.) and carpooling. Protect and restore site, while minimizing wildlife attractants.	Encourage employees and visitors to utilize mass transit Protect natural resources Minimize attraction of wildlife
Stormwater	Minimize impervious surfaces, incorporate vegetated roofs, curb breaks and bioswales. Harvest rainwater for reuse.	Slow, intercept and encourage infiltration (landside only), reuse, protect and treat stormwater whenever possible to minimize contamination and runoff Recover and recycle deicing fluid
Reduction of Heat Islands, roof and non-roof	Examples include, but are not limited to green roofs, green walls, white roofs, and shading. Minimize paved surfaces. Use light colored/high-albedo materials for pavements, roadways, parking lots, sidewalks and plazas.	Integrate into all projects involving structures (occupied and unoccupied)



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Topic	Description and/or Example Measure(s)	Encouraged Target or Goal
Water Efficiency	Use low-flow, high-efficiency plumbing fixtures (USEPA WaterSense). Recycle vehicle washwater and reclaim water from cooling towers. Use native, drought tolerant landscaping to minimize maintenance and irrigation needs.	Reduce use of potable water resources by 40%
Energy Efficiency	Improve airfield and landside – design for efficiency. Provide pre-conditioned air and 400 Hz power at aircraft gates, and hydrant fueling. Utilize natural daylighting, heat, absorption cooling and ventilation. Minimize building energy loss. Incorporate efficient lighting, HVAC, and human-demand controls, such as occupancy sensors	Reduce total project energy use by 50%
Equipment and Appliances	Optimize energy performance, provide high efficiency ,motors, pumps, systems and equipment	100% ENERGY STAR compliant
Generation and/or Integration of Renewable Energy	Examples include, but are not limited to solar applications, wind turbines, geothermal.	Consideration of onsite renewable energy options for at least 5% of total energy usage – dependent upon life cycle costs and benefits achieved
Green Power	Utilization of green resources such as biomass, solar, wind, and water to generate electricity.	Encourage development and use of grid-source, renewable energy technologies on a net zero pollution basis, as applicable and appropriate
Materials and Resources	Utilize pre-existing buildings and resources.	Reuse and salvage existing resources and materials whenever possible



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Topic	Description and/or Example Measure(s)	Encouraged Target or Goal
Waste Management and Recycling	Divert waste from landfill disposal	100% diversion of recyclable, reusable, or compostable waste from landfill disposal 100% of soils kept onsite (Balanced Earthwork Plan)
Recycled Content of Materials	Use materials and products that incorporate recycled content materials, therefore reducing impacts resulting from extraction and processing of new virgin materials	All products contain some percentage of recycled content where applicable
Use of Local/Regional Materials	Use materials and products that are extracted and manufactured within the region, thereby supporting the regional economy and reducing the environmental impacts resulting from transportation	100% usage of materials and products that are extracted and manufactured within in a 250 mile radius from the site
Alternative Fuels/Vehicles	Examples include, but are not limited to electric, hybrids, CNG, Biodiesel, ULSD, Propane	100% usage of alternative fuels/alternatively fueled vehicles in all vehicles used on airport property unless no reasonable alternatively fueled vehicle option exists

SUBMITTALS

Incorporation of sustainable elements into planning efforts is tracked using the SAM checklist provided in **Appendix PL-A – Planning Checklist** along with any paperwork and documentation required for each SAM Credit.

SAM GREEN AIRPLANE CERTIFIED PLANNING PROJECTS IMPLEMENTATION AND REVIEW PROCESS

The SAM and its supporting documentation are administered by the Sustainable Review Panel (SRP), which currently consists of representatives of the CDA Management Staff, OMP Project Management Office (PMO) and Master Civil Engineer (MCE), and Airport Planners actively involved in CDA projects. The composition of the SRP is intended to be dynamic depending on each project's unique needs. The primary tasks of the SRP are to oversee the application of the

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Manual and review planning submittals for their compliance with the Manual. Planning projects submitted to the SRP for review shall be evaluated to ensure all prerequisites have been met as outlined in this chapter. Planning projects that meet all planning prerequisites set forth by this Manual will be recognized as “Green Airplane Certified” by the CDA.

Just as any airport can easily customize the Chicago-specific guidance elements within the SAM, the composition of a SRP can also be tailored to an airport’s needs.

All planning projects conducted by or under management of the CDA will follow these procedures. For any and all sustainability-related questions and/or submittals, please use the following email address to submit forms electronically (preferred method): SAMdocs@cityofchicago.org



airportsgoinggreen.org

For comments, case studies, lessons-learned, new technologies or for any and all project submittal forms, please email:

SAMdocs@cityofchicago.org

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PL PLANNING

PL.1 Prerequisite 1 – Define Sustainability Vision Statement

Required

INTENT

The Project Manager shall define in writing, a project description and sustainability vision statement for the project.

REQUIREMENTS

Regardless of project size, scope, or scale, create a project description outlining what is to be improved, retrofit, upgraded, replaced, enhanced, or corrected as a result of the project completion. The description of the project should be as comprehensive as possible, and include as appropriate, regulatory, guidance, and operational documents.

Define in writing, the vision statement, which at a minimum, clearly states the project's sustainability goals, objectives and opportunities. Whenever possible, specific measures should be listed (e.g., incorporation of solar) including goals and targets (e.g., 50% energy use reduction over standard practices). The vision statement will be unique to every project and situation. It can be simple and goal oriented, or more detailed with thoughts on achieving both goals and specific measures (e.g., to be LEED certified).

SUBMITTALS

1. Project Description
2. Sustainability Vision Statement

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PL PLANNING

PL.2 Prerequisite 2 – Determine Key Stakeholders and Hold Initial Project Meeting to Discuss Sustainability Goals

Required

INTENT

Determine key stakeholders for the planning project and hold an Initial Project Meeting to discuss project sustainability goals. The meeting with key stakeholders will provide a forum for discussion regarding the overall sustainability goals for the project as initially defined in the Sustainability Vision Statement for the project, while capturing innovative ideas and concepts, and resolving any potential conflicts. As a result of the meeting, it is anticipated that the method and required inputs for the cost/benefit analysis will be determined (see SAM Credit PL.3 Prerequisite 3 – Sustainability Baseline Assessment and Cost/Benefit Analysis), as well as the necessary environmental approvals, permitting requirements, and any other additional approvals that would be needed as part of the project. All of this information will factor into the development of the project's Sustainability Schematic as described in SAM Credit PL.4 Prerequisite 4 – Develop a Sustainability Schematic. In addition, as a result of this meeting, the project vision statement (SAM Credit PL.1 Prerequisite 1 – Define Sustainability Vision Statement) may require modification pursuant to the sustainability targets and goals identified for the project.

REQUIREMENTS

Early in the project, hold an initial project meeting with CDA Project Manager, SRP, and all additional key stakeholders involved in planning, design, construction, and daily operation/maintenance, as well as local sustainability leaders, community leaders, schools, and businesses that could potentially be affected by the end result of the overall project effort. Each project is unique and therefore, each stakeholder group will have a unique composition. The intent is to include members who may have an interest in the outcome of the project. Enable members to utilize conference calls, net-meetings, webinars, etc. when unable to attend in person. The purpose of the meeting with key stakeholders is to determine the overall sustainability goals for the project, capture innovative ideas and concepts, resolve any potential conflicts (to the greatest extent possible), determine the method and required inputs for cost/benefit analysis, and to determine the necessary environmental approvals, permitting requirements, and any other additional approvals that would be needed as part of the project.

SUBMITTALS

1. Include a descriptive narrative in the SAM Checklist
2. List of stakeholders, including name, title, and role and/or special interest in project – noting key stakeholders who did not attend and provide evidence that a separate meeting(s) was held for those who were unable to attend initial meeting
3. Meeting Agenda
4. Meeting sign-in sheet including name, company, title, contact information, and role on project
5. Meeting Minutes and Meeting materials (presentations, handouts, etc.)

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CASE STUDY

Sustainable Master Plan

Ithaca Tompkins Regional Airport – Ithaca, New York

Ithaca Airport has designed its latest master plan update with sustainability in mind. The Federal Aviation Administration agreed to fund this sustainable master plan as the first in the U.S. The project was the first to integrate sustainability directly into the entire master planning process, instead of having a stand-alone sustainability plan. This approach was chosen so that there would be consistency and alignment between projects and policies arising from the traditional aspects of a master plan as well as the sustainability considerations.

Significant changes to a traditional master plan included performing baseline assessments of 12 sustainability categories and developing goals and targets for improvement. Because the most sustainable projects are the ones that are never built, the project team looked to meet identified facility needs by maximizing existing infrastructure instead of immediately resorting to new construction. When new construction was deemed necessary, policies were put in place to ensure projects are built as sustainably as possible.



The project commenced with an advisory committee kickoff meeting in September 2009 and progressed through the phases of the project with frequent input from committee members.



The project commenced with an advisory committee kickoff meeting in September 2009 and progressed through the phases of the project with frequent input from committee members.

A concerted effort was made to increase the diversity of viewpoints on the advisory committee beyond the traditional makeup.



The project team reached out to leaders of local sustainability not-for-profits as well as academic experts from nearby Cornell University and Ithaca College. Public outreach efforts also included a project website with downloadable documents and project updates, online passengers, business, and pilot surveys, and involvement with students at both local universities. Copies of the report are available at:

www.flyithaca.com



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Innovative efforts to increase participation in project-related online surveys included using a donation to the Tompkins County Society for the Prevention of Cruelty to Animals (SPCA), which is a neighbor to Ithaca Tompkins Regional Airport and is the first LEED-Certified animal shelter in the country.

Source: Case Study text and photos provided by, and used with the permission of, C&S Companies and Ithaca Tompkins Regional Airport.



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PL PLANNING

PL.3 Prerequisite 3 – Sustainability Baseline Assessment and Cost/Benefit Analysis

Required

INTENT

Perform a preliminary sustainability baseline assessment to represent the no-project alternative for comparison purposes. Perform a preliminary cost/benefit analysis for all project alternatives, including the no-project alternative, in order to compare life cycle costs with the range of potential environmental and social impacts as a result of the project, in order to be able to select the alternative that is the most desirable as measured by the appropriate balance of environmental, social, and financial impacts of the project.

REQUIREMENTS

Complete a preliminary sustainability baseline assessment to represent the no-project alternative. The sustainability baseline assessment could include the following, at a minimum, as appropriate to the size and scope of the project; with the level of analysis within each appropriately tailored to the size and scope of the project:

- Emissions inventory
- Greenhouse gas inventory
- Electrical usage
- Water usage
- Stormwater discharges
- Waste disposal volumes and destinations
- Recycling programs
- Indoor environmental quality
- Cleaning and maintenance programs

Because every project is different, the specific methods of conducting the analysis are not specified here, but left open for definition and refinement based on the nature of the project. The end result of the analysis is intended to inform decisions on the manner in which the project will or will not proceed, particularly relative to sustainability measures. Some examples of considerations that may be helpful to inform the decision making process may include, but are not limited to the following:

- Comparison of initial project costs with and without sustainability initiatives
- Comparison of longer-term costs for operation and maintenance, with and without sustainability initiatives (i.e., utilities, staffing, cleaning, replacing)
- Any other associated cost benefit received not in O&M (i.e., less fees paid, reduced permitting costs)
- Anticipated environmental benefits to be realized
- Consideration of applicable grant incentives, rebates and tax credits that may be available

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Using a method, model and/or software deemed appropriate by the key stakeholders and project planning team, perform a preliminary cost/benefit analysis of all project alternatives, including the no-project alternative.

As part of this assessment, it is required to research and identify the potential sources of funding for the project. In addition to airport fund sources, there are many opportunities for grants, rebates, tax incentives and credits available from Federal, State and private sources. For example, www.dsireusa.org/ is a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. eCivis® Grants Network™ (www.ecivis.com/) provides grants management software for accurate grants information, reporting, and management used by governments and community organizations.

SUBMITTALS

- Results of the sustainability baseline assessment, representing the no-project alternative
- A copy of the cost/benefit analysis calculations or the report produced by the selected method software
- A brief narrative describing the results of the cost/benefit analysis for each project alternative considered
- Recommendations of the preferred alternative and the principal reasons for selecting it, based on the results of the cost/benefit analysis

TECHNOLOGY/STRATEGY

Each project is unique, and therefore a particular method of conducting the cost/benefit analysis is not prescribed. The details of the analysis are defined as part of the planning process by the stakeholder group and the project planning team. Examples for cost/benefit analyses include, but are not limited to the following:

- California Department of Transportation Guide to Benefit-Cost Analysis:
http://www.dot.ca.gov/hq/tpp/offices/eab/LCBC_Analysis_Model.html
- The Environmental Valuation and Cost Benefit Analysis web site:
www.costbenefitanalysis.org/
- Life Cycle Cost Analysis (LCCA) of project alternatives considered in accordance with the method described by the following, or similar.

Federal Energy Management Program (FEMP):
www1.eere.energy.gov/femp/program/lifecycle.html

National Institute of Building Sciences, Whole Building Design Guide:
www.wbdg.org/resources/lcca.php

Federal Highway Administration:
www.fhwa.dot.gov/infrastructure/asstmgmt/lcca.cfm

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- Life Cycle Assessment (LCA) of project alternatives considered in accordance with the method described by the following, or similar.

ISO 14040, Environmental Management Life Cycle Assessment Principles and Framework:

www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=37456

EPA National Risk Management Research Laboratory:

<http://www.epa.gov/nrmrl/>

- If applicable, provide analysis of Greenhouse Gas (GHG) Emissions, Global Warming Potential (GWP) or Ozone Depleting Potential (ODP) of project alternatives, using metrics or indices as described by the following, or similar.

EPA GHG Site: www.epa.gov/climatechange/emissions/index.html

EPA GWP Site: www.epa.gov/highgwp/scientific.html

EPA ODP Site: www.epa.gov/ozone/climate.html

Stockholm Environment Institute (SEI):

www.co2offsetresearch.org/aviation/MetricsIntro.html

CASE STUDY

Sustainable Management Plan

Hartsfield-Jackson Atlanta International Airport – Atlanta, Georgia

The Hartsfield-Jackson Atlanta International Airport created a Sustainable Management Plan (SMP) in 2011 based on the Airport's sustainability guiding principles. In order to identify key areas of the plan, officials in Atlanta created baselines from a comprehensive assessment of existing facilities and operations in 2008. Before creating the plan, data from 2010 was compared to these baselines in order to determine areas of concern and where improvements were needed.

<http://www.atlanta-airport.com/docs/Airport/Sustainability/2011%20Annual%20Sustainability%20Report%2011-15-12.pdf>

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PL PLANNING

PL.4 Prerequisite 4 – Develop a Sustainability Schematic

Required

INTENT

Integrate sustainability into the earliest possible stage of a project. By using a sustainability schematic, the CDA can utilize or organize various internal and external processes to work together toward the same goal of sustainability. A process or processes may be applicable to different organizations at different times for different projects, but when used within a sustainability schematic, synergies are more easily identified and realized. When finalized, the Sustainability Schematic will become part of the official plan for the project, such as the Project Definition Document (PDD) and/or Capital Improvement Program (CIP) Application, or other planning parameter documentation depending on the type of project.

REQUIREMENTS

For all projects, develop a sustainability schematic that addresses the following major principles:

- I. Identify and establish sustainability objectives, target goals, and minimum thresholds
 - a. Project Alternatives (including no-project) and innovations
 - a. Procedures and incentives for Stakeholder involvement
 - b. Sustainability baseline assessment results
 - c. Cost/Benefit Analysis results for each project alternative (including the no-project alternative)
 - d. Environmental Approvals required as part of the project
 - e. Permits required as part of the project
 - f. All other additional approvals required as part of the project
 - g. Use of additional tools and resources to provide supplemental information, as deemed appropriate
 - i. Examples tools and resources may include, but are not limited to:
 1. Design for the Environment (DFE)
 2. Ecological Footprinting (EF)
 3. Sustainability Management Systems (SMS)
 4. Sustainable Airport Guidance Alliance (SAGA)
 5. ACRP Sustainability reporting and guidance
 - h. Establish measurable sustainability goals and targets and quantifiable metrics for the project, as appropriate as a way of tracking and reporting the success/failure of the project.
 - i. Examples include, but are not limited to:
 1. Percent reduction in energy use per square foot of facilities or on a per passenger or customer basis
 2. Percent increase of renewable energy
 3. Percent reduction in water use
 4. Reduce number of pollutant exceedences and concentration of pollutants at the “end of the pipe” (e.g. SADF, pH, TDS, petroleum sheens)

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5. Identify and reduce sources of pollutants
 6. Reduce percentage of failed BMPs
 7. Reduce number of noise complaints received and incompatible land uses authorized in adjacent cities
 8. Reduce the volume of solid waste generated from sources airport-wide
 9. Increase volume of recycled waste generated from sources airport-wide
 10. Reduce volume of hazardous waste generated
 11. Increase procurement of environmentally-friendly products
- II. Identification of Funding Sources
 - i. Grants
 - ii. Rebates
 - iii. Tax Credits
 - iv. Other
 - III. Provide for and conduct Education and Public Outreach Initiatives
 - i. Examples include, but are not limited to:
 - i. Environmental Stewardship Training (“Eco-Training”) for employees, contractors, tenants, concessionaires
 - ii. Implement or require training programs as part of tenant leasehold
 - iii. Provide educational materials to passengers and visitors in public terminal areas, gate holdrooms, parking areas, vehicle roadways/ toll plazas
 - iv. Use kiosks and informational displays to inform and generate interest
 - v. Develop short educational videos for passengers to watch on ATS and/or shuttle buses to/from remote parking area
 - IV. Plan for the integration of SAM guidelines into the following specific project elements, as appropriate to the size and scope of each project:
 - a. Energy use and carbon emissions inventory
 - b. Air quality enhancement strategies
 - c. Fleet and vehicle operations
 - d. Material and resource use
 - e. Heating and cooling systems
 - f. Lighting systems
 - g. Construction and administrative procedures
 - h. Indoor quality of life
 - i. Waste management and recycling
 - j. Landscape and natural resource management
 - k. Noise abatement
 - l. Surface transportation management
 - m. Water efficiency, quality, and conservation
 - n. Green building and asset management



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- V. Plan for sustainable operation and maintenance of completed projects, programs or facilities (see Operations and Maintenance Chapter and Concessions and Tenants Chapter of SAM)
- VI. Feedback Loop
 - a. Plan for original project team and key stakeholders to meet upon full project completion in order to gauge and/or determine:
 - i. Was the Sustainability Schematic useful? Why or why not?
 - ii. Was the Sustainability Schematic accurate? Why or why not?
 - iii. Was the Sustainability Schematic reasonable? Why or why not?
 - iv. Were the sustainability measures planned implemented? Why or why not?
 - v. Were additional sustainability measures implemented that were not originally identified?
 - vi. Were sustainability goals and targets met? Why or why not?
 - vii. Were the anticipated benefits achieved? Why or why not?
 - viii. Describe tracking and reporting of results.
 - ix. Provide overall “lessons learned” through the project
 - x. Recommend improvements to the process for enhancements to SAM Planning Chapter for future planning projects

SUBMITTALS

- Present Sustainability Schematic to CDA Project Manager and Sustainable Review Panel (SRP) for review and comment.
- Descriptive narrative in the SAM Checklist.

TECHNOLOGY/STRATEGY

The consideration of sustainability has been successfully integrated into the planning process at Dallas Fort-Worth International Airport as shown in the Project Development Process (PDP) Flow-Chart on the following page. The PDP has been provided courtesy of Dallas Fort-Worth International Airport.

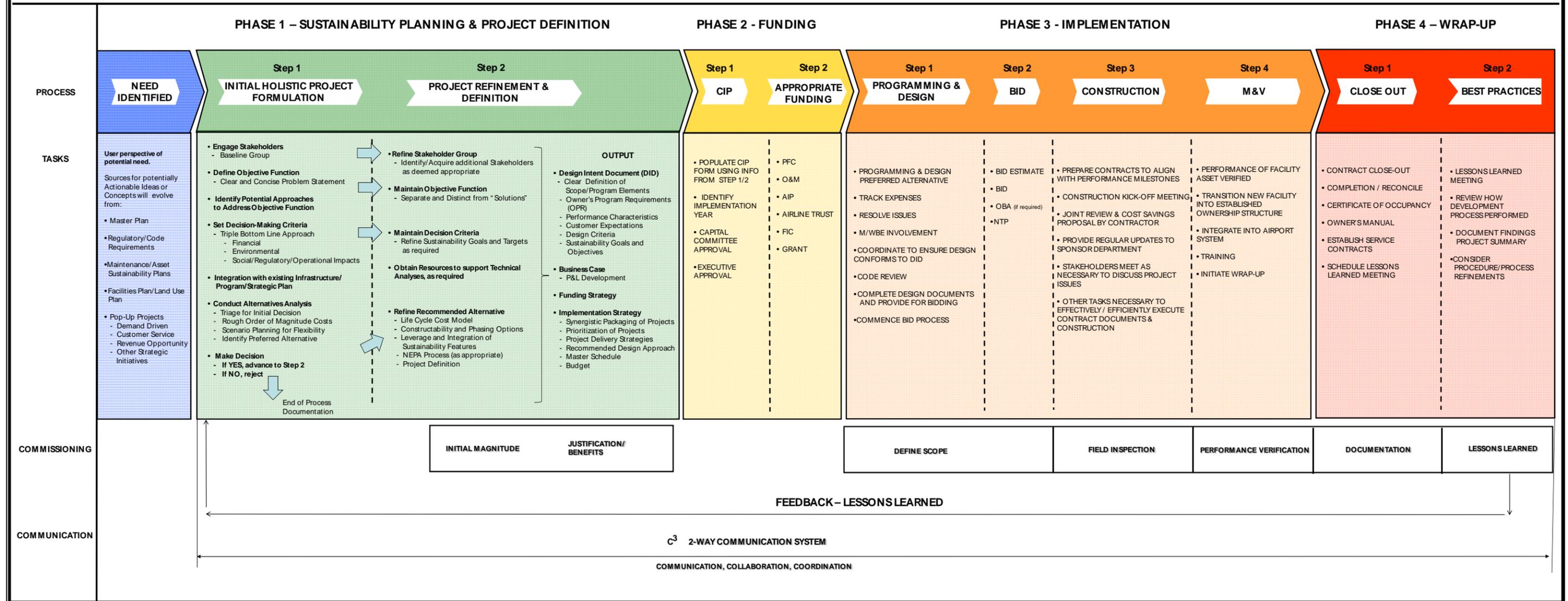
CASE STUDY

Complete information regarding Dallas Fort-Worth’s Sustainability Initiative is available at: www.dfairport.com/sustainability/index.php

PROJECT DEVELOPMENT PROCESS (PDP)

AN INTEGRATED APPROACH TO SUSTAINABLE AIRPORT DEVELOPMENT

September 15, 2009



ACRONYMS:
 ADE = AIRPORT DEVELOPMENT & ENGINEERING
 AIP = AIRPORT INFRASTRUCTURE PROGRAM
 AM = ASSET MANAGEMENT
 ARE = AIRPORT REAL ESTATE
 BU = BUSINESS UNIT
 CEO = CHIEF EXECUTIVE OFFICER
 CIP = CAPITAL IMPROVEMENT PROGRAM
 DHS = DEPARTMENT OF HOMELAND SECURITY
 DID = DESIGN INTENT DOCUMENT
 DPS = DFW DEPARTMENT OF PUBLIC SAFETY (POLICE & FIRE)
 EAD = ENVIRONMENTAL AFFAIRS DIVISION
 EEI = EXPLORE – EVALUATE – IDENTIFY OPTION

EPA = ENVIRONMENTAL PROTECTION AGENCY
 E&TM = ENERGY & TRANSPORTATION MANAGEMENT
 FAA = FEDERAL AVIATION ADMINISTRATION
 FIC = FACILITY IMPROVEMENT CORPORATION
 ITS = DFW INFORMATION TECHNOLOGY SERVICES
 M&V = MEASUREMENTS & VERIFICATION
 M/WBE = MINORITY/WOMEN BUSINESS ENTERPRISE
 OBA = OFFICIAL BOARD ACTION
 O&M = OPERATIONS & MAINTENANCE
 PFC = PASSENGER FACILITY CHARGES
 RM = RISK MANAGEMENT
 TSA = TRANSPORTATION SECURITY ADMINISTRATION

TERMS & DEFINITIONS:
 DID = EEI STRATEGY + PREFERRED ALTERNATIVE + ASSESSMENT FINDINGS + IMPLEMENTATION STRATEGY
 M&V = PROJECT CHAMPION = PROOF OF CONCEPT = SPONSOR = ORIGINATING/INITIATING DEPARTMENT, ORGANIZATION, ENTITY
 STAKEHOLDER BRIEFING = SUSTAINABLE = TRIAGE = DETERMINATION OF PRIORITIES FOR ACTION IN AN EMERGENCY



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PL PLANNING

PL.5 Prerequisite 5 – Project Meeting to Finalize Sustainability Schematic

Required

INTENT

Upon completion of the Sustainability Schematic, hold a project meeting to finalize the document and prepare it for inclusion in the official Project Definition Document (PDD) and/or Capital Improvement Program (CIP) Application, or other planning documentation as may be applicable.

REQUIREMENTS

Upon completion of the Sustainability Schematic, hold a project meeting(s) with CDA Project Manager, SRP, and all additional key stakeholders involved in planning, design, construction, and daily operation/maintenance of facility, as appropriate and applicable. Enable members to utilize conference calls, net-meetings, webinars, etc. when unable to attend in person. The meeting(s) purpose is to finalize the project's Sustainability Schematic and prepare it for inclusion in the official Project Definition Document (PDD) and/or Capital Improvement Program (CIP) Application, or other applicable planning documentation.

SUBMITTALS

1. Descriptive narrative in the SAM Checklist
2. Sustainability Schematic
3. Meeting Agenda
4. Meeting sign-in sheet including name, company, title, contact information, and role on project
5. Meeting Minutes
6. Meeting Materials (presentations, handouts, etc.)
7. If revisions are made to the Sustainability Schematic as a result of this meeting, provide the revised Final Sustainability Schematic (complete document), a summary of changes made, and a signature sheet for key stake-holders affirming agreement and acceptance of changes.
8. If subsequent follow-up meetings are held, provide items 2-7 for each additional meeting

TECHNOLOGY/STRATEGY

Provide the Sustainability Schematic to CDA Project Manager, SRP, and additional key stakeholders well in advance of the meeting. Request that all parties review and bring comments to the meeting. It is anticipated that one meeting would be held to finalize the Sustainability Schematic. However, if revisions are made to the Sustainability Schematic as a result of this meeting, subsequent follow-up meetings may be warranted. If that is the case, allow stake-holders ample review time of revised Sustainability Schematic in advance of each meeting.

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PL PLANNING

PL.6 Prerequisite 6 – Close the Feedback Loop at Project Completion

Required

INTENT

Due to the dynamic nature of the aviation industry, airport projects lend themselves to continual planning and renewal. The intent of this Prerequisite is to effectively close the feedback loop at project completion in order to determine if key performance indicators, targets, and goals were met as planned, exceeded plan, or were under plan, and the reasons why or why not. This “lessons learned” information can then be compiled and used as valuable background information on future projects. This information can also be used to inform similar project analyses, and enhance and improve the SAM Planning Chapter.

REQUIREMENTS

Examples of the types of information, analyses and comparisons suggested to review as part of the informative process for closing the feedback loop are included in Section VI. Feedback Loop of the Sustainability Schematic described in PL.4 Prerequisite 4 – Develop a Draft Sustainability Schematic.

Create a plan for as many of the key stakeholders as possible to meet upon final project completion, or at a point when the information outlined in the Sustainability Schematic (see Prerequisite 5 – Project Meeting to Finalize Sustainability Schematic) can be reasonably evaluated and measured with actual data. The purpose of the meeting will be to close the feedback loop by determining whether key performance indicators, targets, and goals were met as planned, exceeded plan, or were under plan, and the reasons why or why not. This “lessons learned” information can then be compiled and used as valuable background information on future projects, and ultimately to improve the overall process.

SUBMITTALS

1. Descriptive narrative in the SAM Checklist
2. Meeting Agenda
3. Names, titles, contact information, and role on project for key stake-holders and others involved in development of the Sustainability Schematic
4. Name, title, contact information and role on project for designated person and back-up person who will be responsible for keeping an up-to-date list of contact information for all key stake-holders and others involved in the development of the Sustainability Schematic (see Prerequisite 5).
5. Detailed descriptions of lessons-learned relative to the overall process and the Sustainability Schematic, as well as recommendations for enhancements to this SAM Planning Chapter.



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For comments, case studies, lessons-learned, new technologies or for any and all project submittal forms, please email:

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