



Salt Lake City
International Airport

Sustainability Management Plan



To be a leader in the community and airport industry by **preserving and enhancing** Salt Lake City Department of Airports' **financial, human, natural, and energy resources.**

2015

PREPARED FOR:
Salt Lake City
Department of Airports

PREPARED BY:
VHB
Brendle Group
C&S Companies
Gensler



Salt Lake City
International Airport

To be a leader in the community and airport industry
by **preserving and enhancing** Salt Lake City
Department of Airports' **financial, human, natural,
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Letter from the Executive Director



I am pleased to present the Salt Lake City International Airport Sustainability Management Plan (SLC SMP). The purpose of the SLC SMP is to advance the Airport's sustainability efforts, to establish Salt Lake City Department of Airports (SLCDA) as a leader in sustainability within the airport industry, and to support the sustainability principles of Salt Lake City.

SLCDA focuses on a holistic approach to sustainability through a commitment to enhancing the Airport's economic viability, operational efficiency, natural resource conservation, and social responsibility (EONS).

Our primary goal is to be a leader in the community and airport industry by preserving and enhancing Salt Lake City Department of Airport's financial, human, natural, and energy resources.

SLCDA has been a leader in sustainability planning, operations and implementation since the publication of a sustainability assessment in 2007. The SLC SMP continues our efforts by recommending nearly 200 new or enhanced sustainability initiatives, while providing the tools necessary to evaluate, implement, and track initiatives as well as monitor and report on the overall sustainability program's performance. The SLC SMP takes our sustainability program to the next level and ensures our continued success.

We would like to thank the many SLCDA employees and stakeholders who assisted in this effort. In particular, we would like to extend our sincere gratitude to the Federal Aviation Administration, who provided the financial resources to make this happen through its Sustainability Master Plan Pilot Program.

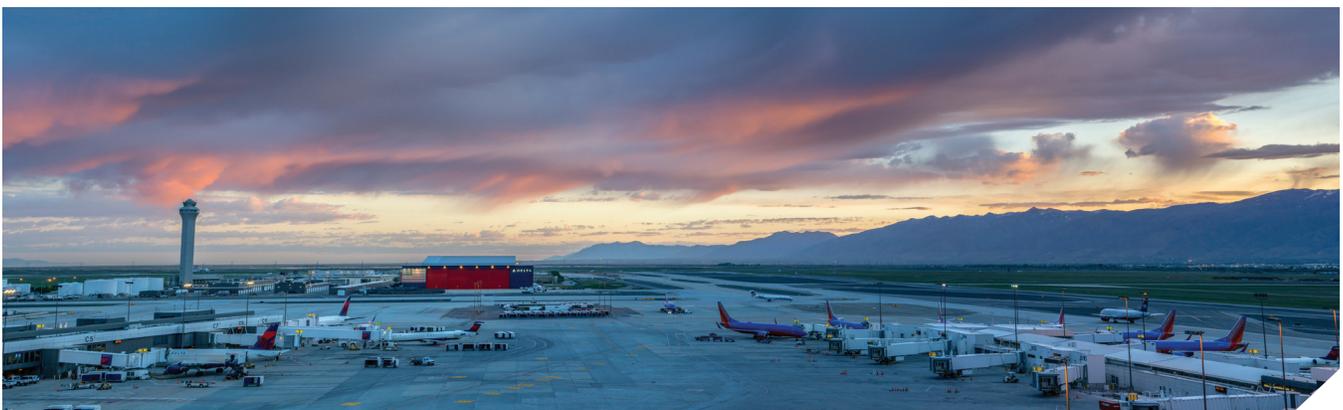
We are excited about working together to create a more sustainable future.

Sincerely,

A handwritten signature in blue ink that reads "Maureen Riley".

Maureen Riley

Executive Director, Salt Lake City Department of Airports



Acknowledgements

This plan was performed as part of the Federal Aviation Administration's (FAA's) Sustainable Master Plan Pilot Program. Because of a long-standing, demonstrated commitment to sustainability, Salt Lake City Department of Airports (SLCDA) received a grant under this program to complete Salt Lake City International Airport's first Sustainability Management Plan. SLCDA is grateful for the support of the FAA headquarters, Denver Airport District Office, and Northwest Mountain Region in the development of the Plan.

The Sustainability Management Plan Project Team would like to thank John Sweeney and Janell Barrilleaux of the FAA for their input and participation throughout this project.

Additionally, the Project Team would like to thank the SLCDA Sustainability Action Committee members for their thoughtful contributions in every phase of this study.

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1 Introduction to Sustainability

FAA Sustainability Planning Program

Salt Lake City Department of Airports (SLCDA) considers environmental stewardship and fiscal responsibility an integral part of airport activities and has demonstrated its commitment to improving and preserving natural and social environments through continuously developing and implementing new sustainability strategies at Salt Lake City International Airport (SLC or the Airport). Because of a long-standing, demonstrated commitment to sustainability, SLCDA received a grant from the Federal Aviation Administration's (FAA's) Sustainable Master Plan Pilot Program¹ to complete the first Sustainability Management Plan (SMP) at SLC. Through this program, the FAA provides funding for the development of Sustainable Master Plans and Sustainability Management Plans. Sustainability Management Plans develop sustainability principles and include strategies that aim to reduce environmental impacts, achieve economic benefits, and enhance community involvement.

The general goals of this SMP are to enhance the efficiency of the Airport's operations and broader sustainability efforts, and to support the broader sustainability principles of the municipality of Salt Lake City.

This report provides guidance for SLCDA on how to implement the SMP recommendations. In addition to this report, a suite of a web-based database and spreadsheet-based planning tools were custom designed to assist in continuous planning and implementation. A companion document – the *SLC Sustainability Management Plan Highlights Report* – provides a summary of the plan for the public and other stakeholders. An electronic version of the Highlights Report is available on the SLC website.

What is Sustainability?

Sustainability has redefined the values and criteria for measuring organizational success by using a "triple bottom line" approach that considers economic, environmental, and social well-being. Applying this approach to decision-making is a practical way to optimize economic, environmental, and social capital. SLCDA takes a broad view of sustainability that builds on the

¹ FAA. Airport Sustainability, Airports. <http://www.faa.gov/airports/environmental/sustainability/>. Accessed October 22, 2014.

concept of the triple bottom line, and considers the airport-specific context. Consistent with the Airports Council International - North America's (ACI-NA) definition of Airport Sustainability (Figure 1-1),² SLCDA focuses on a holistic approach to managing the Airport to ensure economic viability, operational efficiency, natural resource conservation, and social responsibility (EONS).

A key element of sustainability is recognizing that addressing one aspect does not necessarily come at the expense of another. Optimally, evaluating a project or activity based on environmental, economic, social, and/or operational concerns will spur innovation that ultimately reduces costs and enhances benefits over the life of the project.

FIGURE 1-1: EONS APPROACH TO SUSTAINABILITY



Source: ACI-NA. <http://www.aci-na.org/>

Airport sustainability as part of a business strategy has both immediate and long-term benefits that can be measured. Some of the demonstrated benefits of implementing sustainability at various airports worldwide include:

- Improved passenger experience;
- Better use of assets;
- Reduced operations and maintenance costs;
- Reduced environmental footprints;
- Facilitation of environmental approvals/permitting;
- Improved relationships within the community;
- Enhancement of regional economy;

² Airport Council International – North America (ACI-NA). Undated. *Airport Sustainability: A Holistic Approach to Effective Airport Management*. <http://www.aci-na.org/static/entransit/Sustainability%20White%20Paper.pdf>. Accessed July 17, 2013.

- Creation of an engaged and enriched place to work; and
- Creation of new technologies through increased demand and investment in technologies that facilitate sustainable solutions.

Primary Goal

As part of this Sustainability Management Plan development process, SLCDCA crafted a primary goal that is reflective of its holistic definition of sustainability:

To be a leader in the community and airport industry by preserving and enhancing Salt Lake City Department of Airport's financial, human, natural, and energy resources.

History of SLCDCA Involvement in Sustainability

SLCDCA has taken a holistic approach to sustainability through the integration of environmental policies and practices with business operations and asset management. SLCDCA has committed to a quadruple bottom line, or EONS approach.

SLC Original Business Case Model

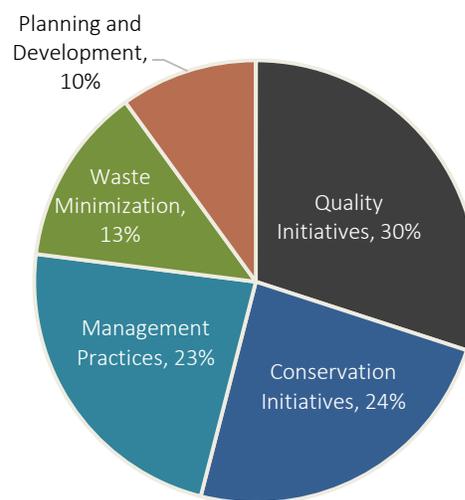
In 2007, SLCDCA was one of the first airports in the nation to conduct a sustainability assessment. The study, *Making the Business Connection to Airport Sustainability*,³ identified 150 sustainable programs and practices that SLCDCA managed in the past or was managing at that time. These programs and practices fell into five categories based on their intended outcomes or their administering business units. The five categories, or sustainable practice areas, were:

- **Management Practices** - everyday programs and policy-motivated sustainable practices used at SLCDCA to reduce their environmental impacts.
- **Conservation Initiatives** - particular programs and practices aimed at reducing the use of natural resources such as energy and water.
- **Waste Minimization** - programs and practices designed to reduce the amount of waste entering the waste stream through recycling and reusing materials.
- **Planning and Development** - practices that support current and future development projects, which improve social, economic, and environmental impacts.
- **Quality Initiatives** - practices that improve or innovate and show that SLCDCA is dedicated to seeking improved results.

³ SLCDCA. 2007. *Making the Business Connection to Airport Sustainability*. Prepared for SLCDCA by Carter & Burgess.

A review of the types of programs and practices included in the 2007 study revealed that those identified as *Quality Initiatives* were implemented most often, with 45 programs/practices representing 30 percent of all the practices at SLCDCA; followed closely by *Conservation Initiatives*, representing 24 percent; and *Management Practices* representing 23 percent of all initiatives. The categories with the fewest practices were *Waste Minimization* and *Planning and Development* at 13 percent and 10 percent of all initiatives, respectively.

FIGURE 1-2: MAKING THE BUSINESS CONNECTION TO AIRPORT SUSTAINABILITY - PROGRAMS AND PRACTICES BY CATEGORY



The 150 programs and practices were also sorted by the SLCDCA unit that supports each initiative:

- Environmental Management supports 42 sustainable programs and practices;
- Facility Systems Management supports 52 sustainable programs and practices; and
- Airport Operations and Management supports 56 sustainable programs and practices.

This study also included interviews with airline personnel and other airports around the U.S. The other U.S. airports were able to provide additional sustainability recommendations and program enhancement concepts. SLCDCA was known to “manage its business practices holistically to achieve sustainable outcomes” and it was recommended that SLCDCA “further institutionalize sustainability as a business model.” The assessment is available on SLCDCA’s website: <http://www.slcairport.com/cmsdocuments/sustainability.pdf>.

In addition to identifying existing programs and practices, the 2007 Study also proposed goals and strategies to further SLCDCA’s sustainability efforts. SLCDCA committed to the goals and strategies outlined in the 2007 assessment. It has also committed to applicable

environmental goals published by ACI-NA.⁴ The goals developed for this SMP are consistent with *Making the Business Connection to Airport Sustainability* findings and the applicable ACI-NA goals.

Awards

SLCDA has achieved national recognition for its creativity and commitment to sustainability. Table 1-1 lists the grants and awards presented to SLCDA. In addition to the reason for each award, the table includes the EONS categories associated with each initiative. The “EONS” categories refer to the four aspects that underlie airport sustainability: economic viability, operational efficiency, natural resource conservation, and social responsibility, previously described in this chapter and shown in Figure 1-1.

TABLE 1-1: GRANTS AND AWARDS PRESENTED TO SLCDA

AWARD NAME	YEAR	PRESENTER	REASON FOR AWARD	SUSTAINABILITY CATEGORIES ¹
SLC in the Top Ten Fastest Airports in the Country	2013	USA Today	Based on security wait times, expedited screening options, and airport layout	O, S
First Place for its Special Dietary Directory Program	2013	ACI Concessions Awards program	To inspire creativity in the industry and recognize innovative and outstanding airport concessions	O, S
Second Place for its Best Specialty Retail Program	2013	ACI Concessions Awards program	To inspire creativity in the industry and recognize innovative and outstanding airport concessions	O, S
SLC International Airport Among the Best Airports in the World	2013	Skytrax Research of London	Annual survey ranked SLC 94 out of 100 of the world's best airports. Only four US airports were named in the top fifty	O, S
SLC Airport Best Concessions Management Team	2013	Airport Revenue News	Award was based after the complete renovation of the concessions program	O, S
Honorable Mention for Excellence	2013	Northeast Chapter of the American Association of Airport Executives (NECAAAE) Balchen Post	For the performance of snow and ice control in the large hub category	O, N
Storm Ready Site	2013	National Weather Service Weather Forecast Office	SLCDA has made a commitment to implement infrastructure and systems needed to save lives and protect property when severe weather strikes.	O, S
First for Arrival and Departure 2013	2013	U.S. Department of Transportation	In 2013, 89.8 percent of departures from SLC were on time, while 88.6 percent of arrivals to SLC were on time.	O, S

Source: SLCDA: Compiled by VHB, 2014.

Note: ¹ EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)

⁴ ACI-NA. 2009. *ACI-NA Environmental Goals*. http://74.209.241.69/static/entransit/board_enviro_goals_feb6.pdf. Accessed October 7, 2013.



TABLE 1-1: GRANTS AND AWARDS PRESENTED TO SLCDA (CONT.)

AWARD NAME	YEAR	PRESENTER	REASON FOR AWARD	SUSTAINABILITY CATEGORIES ¹
SLC ranked 27 th out of the 40 largest airports for superior technical services	2012	PC World Magazine	Superior technical services, including free and high-quality Wi-Fi and cell phone reception	O, S
On-Time Service Performance	2012	FlightStats	Awarded for the Airport's on-time departure record of 86.55%, the national average was 76.67% in 2012	O, S
Certificate of Achievement for Excellence in Financial Reporting	2007-2012	Government Finance Officers Association of the United States and Canada (GFOA)	For readable and organized Comprehensive Annual Financial Reports	E
SLC Ranked 57 th in a survey of the top 101 Affordable US Airports	2011	Cheapflights Media	Based on average airfare searches	E, S
Fifth in Passenger Satisfaction Survey	2010	J.D. Power and Associates	SLC was fifth among airports with between 10-30 million annual passengers	O, S
Excellence in Paving Award	2010	Utah Chapter of the American Concrete Paving Association and the Utah Department of Transportation	Reuse of construction materials during the reconstruction of Taxiways M and H	O, N
Honorable Airport Service Quality Award, Best Airport with 15-25 million passengers	2010	Airport Service Quality – ACI-NA	Measure of customer service compared to airports nationwide	O, S
Tourism Achievement Award	2010	The Salt Lake Convention and Visitors Bureau	Awarded in the spirit of partnership and dedication to the tourism industry demonstrated by the hardworking staff of SLCDA	O, S
Best Print Advertising Campaign	2010	Utah Tourism Industry Coalition and the Utah Office of Tourism	Appreciation for the Airport's involvement in support of tourism in the State	O, S
Emergency Medical Dispatch Center of Excellence	2010	International Academies of Emergency Dispatch	SLC was the first Airport to receive this distinction for its comprehensive implementation and compliance with the Medical Priority Dispatch System	O

Source: SLCDA: Compiled by VHB, 2014.

Note: 1 EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)

TABLE 1-1: GRANTS AND AWARDS PRESENTED TO SLCD A (CONT.)

AWARD NAME	YEAR	PRESENTER	REASON FOR AWARD	SUSTAINABILITY CATEGORIES ¹
No. 1 Airport for On-Time Performance	2008-2009	Travel and Leisure Magazine	SLC was first in the nation for on-time departures and on-time arrivals, in 2009 only 12% of flights were delayed	O, S
Local Government Recycling Program of the Year	2005	Recycling Coalition of Utah	For creativity and passion in the commitment to recycling programs	O, N
Achievement Award in Pollution Prevention	2004	Utah Pollution Prevention Association	Recognizes SLCD A's water conservation program and implementation of xeriscape	O, N
Clean Air Promotion Award	2004	Natural Gas Vehicle Coalition	For the promotion and/or use of Compressed Natural Gas (CNG) vehicles	O, N
First Place for Excellence (Snow and control)	2001-2003, 1994, 1992, 1988-1989, 1982-1984, 1979, 1975	NECAA AE Balchen Post	For the performance of snow and ice control in the large hub category	O, N
Clean Cities Special Projects Grant	2001	U.S. Department of Energy	Recognizes SLCD A's Clean Fuel Program and provides the purchase of heavy-duty CNG vehicles	O, N

Source: SLCD A: Compiled by VHB, 2014.

Note: ¹ EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)

Organization of the Sustainability Management Plan Report

The SMP report includes the following chapters and supporting appendices, and has a companion document, the *SLC Sustainability Management Plan Highlights Report*.

- Chapter 1, *Introduction to Sustainability*, provides an overview of the FAA's sustainability planning grant program and the definition of sustainability that forms the basis for this SMP. This chapter also reviews SLCD A's history and awards received for its commitment to sustainability.
- Chapter 2, *Sustainability Planning Process*, details the elements of the Sustainability Management Plan process and the stakeholder engagement activities.
- Chapter 3, *Airport Profile*, places the SMP in context by providing a profile of SLC, including passenger and aircraft operations activity levels, transportation accessibility, airport facilities and tenants, as well as the organizational structure of the Airport.
- Chapter 4, *Baseline Assessment*, provides a thorough understanding of sustainability performance for key resources such as energy, water use and consumption, recycling and material management, people (passengers, employees, and tenants), natural resources. The baseline assessment will form the comparison point against which

continuous improvement will be measured over time. This chapter also provides an overview of the Collector™ tool.

- Chapter 5, *SLCDA's Sustainability Vision: Goals, Objectives, and Targets*, details SLCDA's primary goal and sustainability goals, objectives, and performance targets.
- Chapter 6, *Sustainability Initiatives*, details the process used to identify and evaluate sustainability initiatives and provides an overview of the Selector™ tool, which was developed to assist with this process.
- Chapter 7, *Implementation Process*, discusses the procedure used to track and implement initiatives at SLC. Additionally, the Tracker™ and Implementer™ tools are highlighted in this chapter.
- Chapter 8, *Sustainability Performance Monitoring and Reporting*, reviews the processes and procedures recommended to monitor and report on SLCDA's sustainability successes. The Reporter™ tool was developed to assist with this evaluation, and it is introduced in this chapter.
- Chapter 9, *Organizational Engagement*, reviews SLCDA's organizational framework, details potential opportunities to integrate sustainability into existing processes and procedures, and reviews internal and external engagement activities.
- Chapter 10, *Funding and Partnerships*, details potential funding opportunities at federal, state, and local levels and recommends partnerships to advance sustainability at SLC.

Supporting Appendices:

- Appendix A, *Sustainability Action Committee Presentations*, Presentations from the five Sustainability Action Committee (SAC) meetings, dated June 4, 2013; November 26, 2013; February 26, 2014; July 16, 2014; and September 16, 2014.
- Appendix B, *Sustainability Planning Project Team and Terminal Redevelopment Program Meeting Materials*.
- Appendix C, *Tenant Surveys*, Memorandums containing the survey results for the airline, Fixed-Base Operator (FBO), and concessionaires surveys.
- Appendix D, *Federal Aviation Administration Quarterly Reports*, Memorandums for the Federal Aviation Administration (FAA) lessons learned and quarterly reports.
- Appendix E, *Air Quality and Greenhouse Gas Assessment*, Full assessment on air quality and greenhouse gas (GHG) emissions, including emissions baseline inventory assumptions and modeling results.
- Appendix F, *Waste Management and Recycling Audit*, Contains the methodology and results from the September 18, 2013 waste and recycling audit.



- Appendix G, *Energy Evaluation*, This appendix details the building automation system and the energy conservation program implemented in 2001.
- Appendix H, *Sustainability Initiatives*, This appendix contains the short-, mid-, and long-term initiatives that are recommended for implementation at SLC.
- Appendix I, *SLC SPOT™ User's Guide*, A User's Guide to help users understand the functionality, usability, and operational capability of SPOT™, SLCD's sustainability tools.



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2 Sustainability Planning Process

Sustainability Framework and Process

The planning process followed in this Sustainability Management Plan (SMP) (Figure 2-1) provides the flexibility necessary to consider our operating environment and resources, the opportunity for continuous improvement, monitoring and implementation, as well as the goals of our stakeholders and the municipality of Salt Lake City. Through a competitive process, the Salt Lake City Department of Airports (SLCDA) hired a consultant team to lead the Salt Lake City International Airport (SLC or the Airport) through the sustainability planning process.

The planning process for the SMP considers input from six main stakeholder groups: Airport directors/leadership, the Sustainability Action Committee (SAC), tenants (airlines and concessionaires), the Terminal Redevelopment Program (TRP) team, Salt Lake City municipal staff, and the Federal Aviation Administration (FAA). The Sustainability Planning Project Team consisted of SLCDA Project Management Team and the Consultant Team.

The Sustainability Management Plan project team included the following groups:

- The SLCDA Project Management Team
 - Patty Nelis, Environmental Program Manager, and
 - Kevin Staples, PE, LEED AP, Environmental and Sustainability Coordinator
- The Consultant Team led by the prime consultant and its sub-consultants
 - VHB (Prime Consultant)
 - Brendle Group
 - C&S Companies
 - Gensler, Inc.

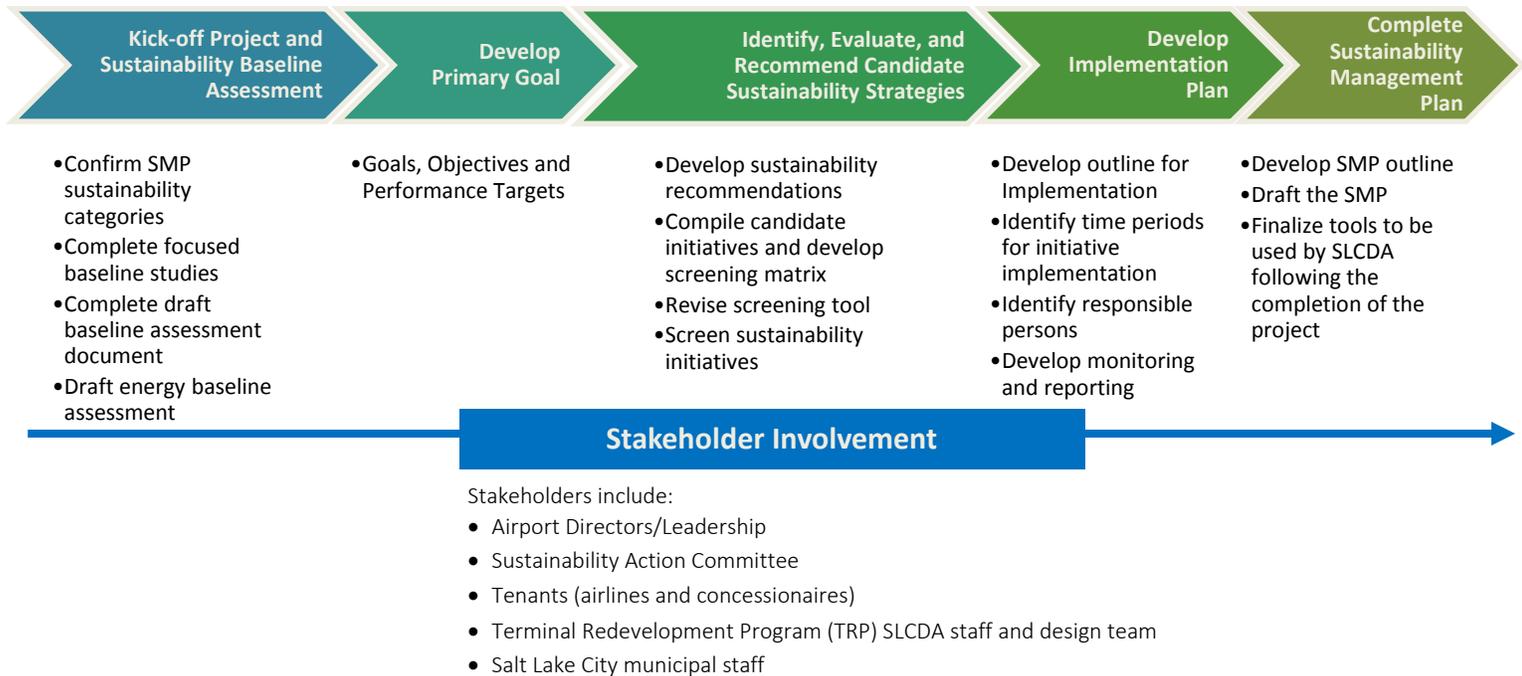
This chapter provides an overview of the steps in the SMP planning process; additional detailed information is described in subsequent chapters. To support the sustainability

planning process the Project Team custom designed a suite of tools, that will assist SLCDAs facilitate future implementation of the SMP recommendations. A brief summary of these tools is provided in this chapter, with detailed descriptions included in each relevant chapter.

Project Kick-off

The Sustainability Planning Project Team held meetings at the outset of the study to set expectations, establish communications protocols, and review the scope of work. The Project Team also met with the Airport Executive Director and Division Directors to brief them on the project and to receive input as to the Airport’s goals for the SMP. At the kick-off meetings two major tasks for the SMP process were also initiated, namely the stakeholder engagement effort and the baseline assessment.

FIGURE 2-1: SUSTAINABILITY MANAGEMENT PLAN PROCESS



Source: VHB, 2013.

Develop Primary Goal

The Sustainability Planning Project Team worked with the SAC at the earliest stages of the project to craft a succinct primary goal that captures the SLCDCA’s sustainability philosophy. The primary goal informed the development of sustainability goals and objectives for the focus areas identified at the beginning of the study, as well as measurable and specific performance targets that are quantifiable and specifically designed to help the SLC achieve each goal. This combination of high-level goals and more specific quantifiable targets gives SLCDCA flexibility to adjust targets in order to meet goals in changing circumstances.

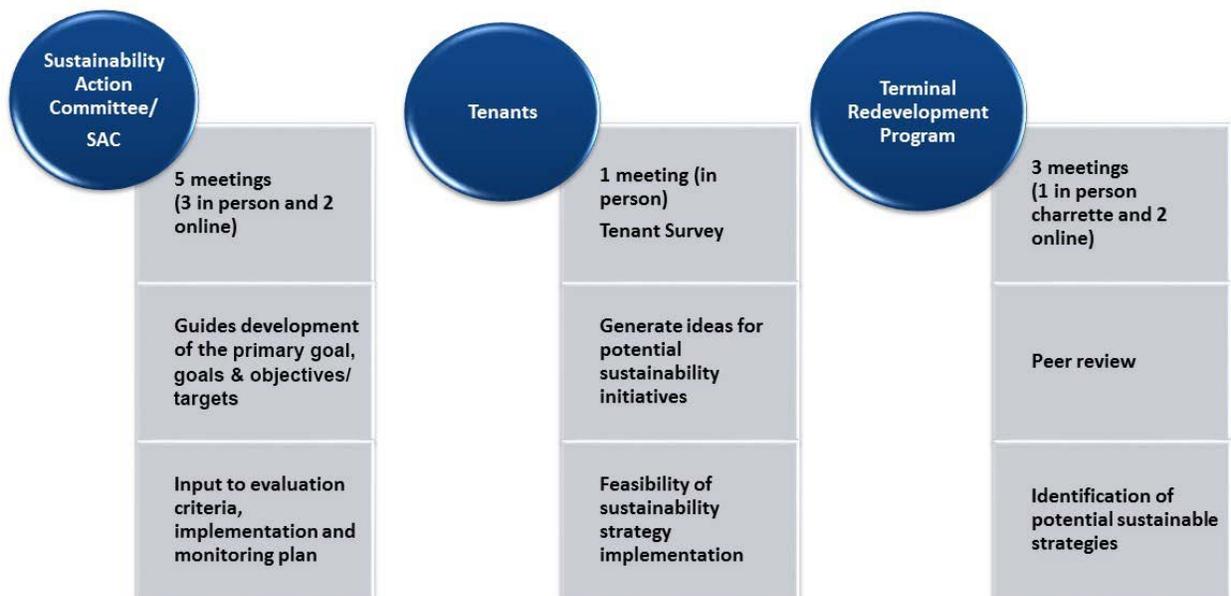
Our Primary Sustainability Goal

To be a leader in the community and airport industry by preserving and enhancing Salt Lake City Department of Airport’s financial, human, natural, and energy resources.

Stakeholder Involvement in Plan Development

From the outset of the project and at key milestones, the Sustainability Planning Project Team coordinated with a variety of key stakeholders to maximize the value of the plan and to ensure consistency with other on-going efforts. In addition to airport leadership and the City, Figure 2-2 shows the key stakeholder participants involved in plan development.

FIGURE 2-2: STAKEHOLDER PARTICIPATION



Source: VHB, 2014.

Airport Leadership

The Sustainability Planning Project Team met with the SLCDCA Executive Director, senior management and directors at the kick-off session and several times during the course of plan development to:

- Ensure understanding and buy-in of the sustainability planning process and implementation by SLCDCA leadership, and
- Enable staff members on the SAC to follow through on implementation of the SMP.

During the kick-off phase in June 2013, the Sustainability Planning Project Team gave a presentation to introduce the SMP, provide key background information on the FAA Sustainable Master Plan Pilot Program and other airport sustainability plans, as well as the main goals of the SLC SMP. The Sustainability Planning Project Team briefed the Board on the highlights of the plan and described the implementation approach during a final presentation held in November 2014.

Sustainability Action Committee (SAC)

As recommended by the FAA, SLCDCA convened an airport stakeholder group, the SAC, to facilitate development of the SMP. The SAC is an eleven-member committee of SLCDCA staff, appointed by Division Directors and managers, from a cross-section of divisions (the SAC also has an alternate from each department designated in case primary members cannot attend a particular meeting). SAC team members represent a cross-section of the functional areas of SLCDCA including:

- Engineering
- Operations
- Facilities/ Maintenance
- Human Resources
- Fleet
- Health & Safety
- Information Technology/
Building Automation
Systems
- Planning/Environmental
- Properties
- Finance



Sustainability Action Committee
Meeting #3, February 26, 2014

Figure 2-3 shows the SLCDA departments that participated in the plan development in conjunction with the SAC Committee.

FIGURE 2-3: DEPARTMENTS REPRESENTED IN THE SAC



Source: VHB, 2014.

The objectives of the SAC are to:

- Serve as the primary SLCDA working group during all phases of the planning process to provide input on the SMP development
- Play a key role in implementing the SMP after the close of the planning phase of the project

During the course of the SMP development, the SAC served the following roles and responsibilities:

- Helped define the primary goal, sustainability goals, objectives, and targets
- Identified existing sustainability initiatives
- Assisted in data collection process for the baseline assessment

- Defined screening criteria and evaluated feasibility of potential sustainability strategies
- Framed the implementation and monitoring program
- Reported to staff on the progress of the SMP development and implementation and solicited input from SLCDA's divisions

The SAC convened five times throughout the duration of the project in meetings facilitated by the Sustainability Planning Project Team. Each meeting lasted 1.5 to 2 hours. The topics for the five meetings included:

- Meeting 1 (June 2013): Primary Goal/Baseline Data Collection/ Stakeholder Engagement (in-person)
- Meeting 2 (November 2013): Review of Baseline/Primary Goal, Sustainability Goals, Objectives, and Targets (online webinar)
- Meeting 3 (February 2014): Identify and Evaluate Sustainability Strategies (in-person)
- Meeting 4 (July 2014): Tool Development (online webinar)
- Meeting 5 (September 2014): Action/Implementation Plan (in-person)

Each meeting was a mix of Sustainability Planning Project Team presentations to the SAC and small group exercises to elicit discussion and input from the participants, which are located in Appendix A, *Sustainability Action Committee Presentations*.

In the future, the SAC will be responsible for on-going implementation of the plan recommendations and continuation of the "Plan-Do-Check-Act" process (see Part II of the *Sustainability Management Plan*, Chapter 8, *Sustainability Performance Monitoring and Reporting* for more information on the "Plan-Do-Check-Act" process). The SAC will fulfill its responsibilities during upcoming quarterly meetings. Activities associated with "Plan-Do" and "Check-Act" will alternate from meeting to meeting to provide adequate time for each responsibility. Appendix A, *Sustainability Action Committee Presentations* includes example SAC quarterly meeting agendas.

Airport Tenants

Tenants, such as airlines and concessionaires, are a significant part of SLC's daily operations and, as such, are critical to success of the overall sustainability program at the Airport. While tenants operate as independent entities, SLCDCA has influence over tenant activities through various mechanisms such as leases, contracts, and licenses. Tenants must comply with terms of SLCDCA lease agreements and tenant alteration policies, where there may be opportunity to integrate sustainability practices. Thus, the SMP process can provide suggestions and a framework to support tenants' sustainable operations. Many tenants are already engaged in sustainability practices or programs of their own.

The objectives of tenant engagement efforts were to:

- Educate tenants on the SMP process and outcomes
- Engage tenants to develop a baseline assessment of tenant current practices, initiatives, and data that would inform a tenant-targeted pilot program
- Learn about unique challenges tenants face in implementing sustainability initiatives

The Sustainability Planning Project Team developed two surveys, as shown in Appendix C, *Tenant Surveys*, for collecting information from tenants on existing sustainability programs and for soliciting recommendations for new or enhanced initiatives. One survey targeted airlines/cargo operators and the other for concessionaires.

Members of the SLCDCA Project Management Team participated in a meeting with tenants at a regularly scheduled airport-wide tenant meeting. At the meeting, the SLCDCA Project Management Team briefed participants on the intent of the SMP and reviewed potential sustainability initiatives/programs. Discussion focused on opportunities for tenants to implement projects as part of their own operations and efforts SLCDCA could do to support or collaborate on those opportunities.



SLC offers a variety of dining options to enhance the passenger experience

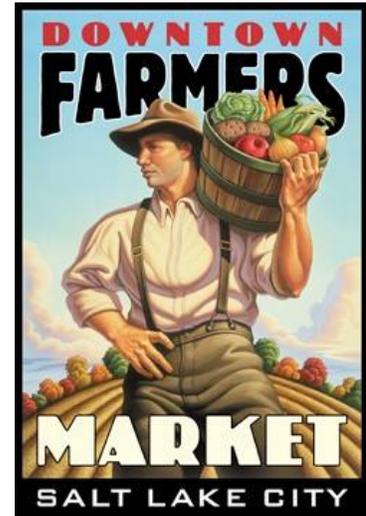
Terminal Redevelopment Program (TRP) Team

As part of the planning process, the Sustainability Planning Project Team also coordinated with the planners and team members of the SLC Terminal Redevelopment Program (TRP). The coordination process allowed for exchange of ideas and information on sustainability initiatives and ensured that efforts were not duplicated. The TRP is a multi-year effort, aimed at modernizing the terminal area and support facilities to enhance the passenger experience at SLC. New or remodeled facilities will include terminals, concourses, central-utility plant, parking structure, roadways, and rental car quick turn facilities. Each of these has noticeably different impacts and influences on the sustainability of the Airport such as energy demands, carbon reduction potential, water efficiency, sustainable material considerations, and customer engagement opportunities. The enabling projects of the

phased construction of the SLC TRP began in Spring 2014. Build-out of the entire TRP will be phased over several years.

The central mission of the SLCD is to “achieve excellent and unprecedented customer service” so that the SLC is the “most convenient and efficient air transportation center in the world.” To this end, SLCD worked with a public relations firm to develop an extensive outreach and feedback process for the TRP that solicited suggestions directly from passengers via an internet site, social networks, emails, and letters, passenger interviews, a table with displays at the downtown Farmers Market, etc.

The Sustainability Planning Project Team held a one-day charrette with SLCD and the TRP design team (architects and engineers) to review sustainability initiatives already proposed for the TRP and identify additional or alternative sustainability recommendations as appropriate. The Sustainability Planning Project Team and the TRP design team held two additional meetings during the course of the SMP development. All Sustainability Planning Project Team-TRP coordination meeting materials are included in Appendix B, *Sustainability Planning Project Team and Terminal Redevelopment Program Meeting Materials*.



Flyer for the Farmers Market, where SLCD hosts a table



TRP-SMP Charette, October 3, 2013



Outreach to the public on the new SLC terminal.

Salt Lake City Municipal Staff

The Sustainability Planning Project Team met twice with municipal staff at Salt Lake City to provide a briefing on the project as well as give the City an opportunity to provide input. Since SLC is a municipally run airport, and has a strong link to the City because of its geography and connections to the transportation network, this coordination was important. The City is currently spearheading a multitude of sustainability initiatives through its *Sustainable Salt Lake - Plan 2015*, and there are synergies between what the City hopes to accomplish and SLCDAs goals and strategies for the SMP.

City staff participated in a charrette with the Sustainability Planning Project Team and the TRP Team on October 3, 2013. City staff also participated in a SAC meeting on September 16, 2014. The City's Sustainability Director also attended the Board briefing on November 17, 2014.

The objectives of City engagement were to:

- Provide an overview of the SMP and the goals of the project
- Provide an opportunity for City officials to give input on current initiatives at the City level that could be integrated into the SMP and to learn from City efforts
- Provide an opportunity for City officials to give input on proposed sustainability initiatives

The Sustainability Planning Project Team also worked closely with the City’s Information Management Systems staff to develop a reporting mechanism within the suite of planning tools developed for the SMP that mirrors the City’s Sustainability Dashboard. See Chapter 8, *Sustainability Performance Monitoring and Reporting*.

FAA

In addition to providing five quarterly updates, which included “lessons learned” (Appendix D, *Federal Aviation Administration Quarterly Reports*), the Quarterly Reports contained summaries for use in future agency planning guidance documents. The FAA attended each of the SAC meetings by teleconference. Additionally, the Sustainability Planning Project Team and the FAA held a webinar to review the development of the sustainability implementation tools and procedures.

Sustainability Baseline Assessment

The FAA’s Interim Guidance suggests that the SMP focus on sustainability topics of relevance to each particular airport. The Sustainability Planning Project Team identified focus areas that were consistent with the recommendations in FAA’s Interim Guidance on preparing sustainable management plans and the City’s sustainability plan. The baseline inventory and assessment was conducted early in the planning process to create the framework for the SMP and assist in identifying potential data gaps in the sustainability focus areas. The baseline assessment also will provide the comparison point against which SLCDCA can measure its progress toward meeting the plan goals and evaluate its related sustainability performance.

The Project Team collected existing and historical data for SLC in areas under the management or operation of SLCDCA (SLCDCA facilities) or influence (tenant facilities) of the SLCDCA to generate rates of resource consumption and information on existing sustainability initiatives. The tenant surveys previously discussed in this chapter informed the tenant portion of the baseline inventory. The baseline inventory enabled the Project Team to evaluate and understand SLC’s performance, identify and recognize opportunities for enhanced sustainability. Figure 2-4 illustrates topics covered under the baseline assessment.

FIGURE 2-4: BASELINE INVENTORY TOPICS BY EONS CATEGORY



Source: ACI-NA. <http://www.aci-na.org/> VHB, 2013.

In addition to the broad baseline review, the following focused specialized studies were conducted as part of the plan either to augment existing available information, or to respond to FAA planning requirements:

- Waste management and recycling evaluation (including a waste audit)
- Air quality/Greenhouse gas (GHG) emissions inventory
- Water conservation evaluation
- Governance, organizational capacity, and existing management procedures review

Identify, Evaluate, and Recommend Candidate Sustainability Strategies

For the identified SMP sustainability categories, the Sustainability Planning Project Team identified and evaluated sustainability strategies for possible implementation by SLCDCA. The Project Team screened potential strategies to determine their contribution to achieving SLCDCA's sustainability goals and targets, and environmental and financial feasibility, while also maintaining the Airport's operational efficiency. The outcome of this task was a set of recommended sustainability strategies that are separated into short-, mid-, and long-term time-frames based on financial considerations and effectiveness in meeting sustainability goals.

Develop Implementation Plan

Based on the prioritization of sustainability initiatives, the Sustainability Planning Project Team developed a comprehensive implementation plan to ensure success of the plan in the future. The focus of the implementation plan is on the process used by SLCDCA to identify, evaluate, prioritize, and implement sustainability initiatives.

Document Sustainability Management Plan

The Sustainability Planning Project Team documented the plan in a comprehensive main report, the SMP (this document), and a summary document, *the Highlights Report*, for the public and other external stakeholders. The SMP documentation will be updated regularly by the SLCDCA Project Management Team as the process evolves in the future.

Sustainability Planning Optimization Tools (SPOT™)

To support the SMP planning process and facilitate future implementation of the SMP recommendations and monitor and report on progress, the Planning Team

custom-designed a suite of tools. The use and deployment of each tool is described in the relevant chapters that follow. Table 2-1 provides a brief overview of these tools.



TABLE 2-1: SPOT™ TOOLS

PLANNING ELEMENT	SPOT™ TOOL
Baseline Assessment	Collector™ – Web-based tool to collect and organize baseline data
Identify Sustainability Initiatives	Selector™ – Excel-based spreadsheet to identify and select sustainability initiatives to meet goals. Includes pre-defined evaluation criteria such as feasibility, costs (capital, return on investment, staffing, operations, and maintenance) and benefits (environmental, social, and economic)
Implementation Plan	Implementer™ – Excel-based report that lays out the steps to implement initiatives Tracker™ – Excel-based spreadsheet that tracks the implementation status of initiatives including responsible personnel, timeframes, and completion
Monitoring and Reporting	Reporter™ – Excel-based dashboard that reports on key performance indicators such as energy and water consumption and compares them to goals, objectives and targets

Source: VHB, 2014.

3 Airport Profile

Salt Lake City International Airport (SLC or the Airport) is located four miles northwest of the downtown business district in Salt Lake City, UT. Approximately 21.1 million passengers (domestic and international) passed through the Airport in 2014.⁵ SLC covers 7,697 acres and has four runways, including three air carrier runways (16L/34R, 16R/34L, and 17/35), and one general aviation (GA) runway (14/32). Passenger terminal buildings consist of three passenger terminals that have five concourses and 82 gates:

- **Terminal 1** has Concourse A (gates A1-A9) and Concourse B (gates B1-B22).
- **Terminal 2** has Concourse C (gates C1-C13), Concourse D (gates D1-D13), and Concourse E (gates E60-E85).
- **International Terminal** is used for departing and arriving international flights at gates D2, D4, and D6.

The Salt Lake City Department of Airports (SLCDA) commenced planning and implementing a comprehensive Terminal Redevelopment Program (TRP) in 2014 that, over the next decade, will reconfigure the passenger terminals, concourses, central-utility plant, parking garage, roadways and rental car facilities.

Timeline History of SLC Airport

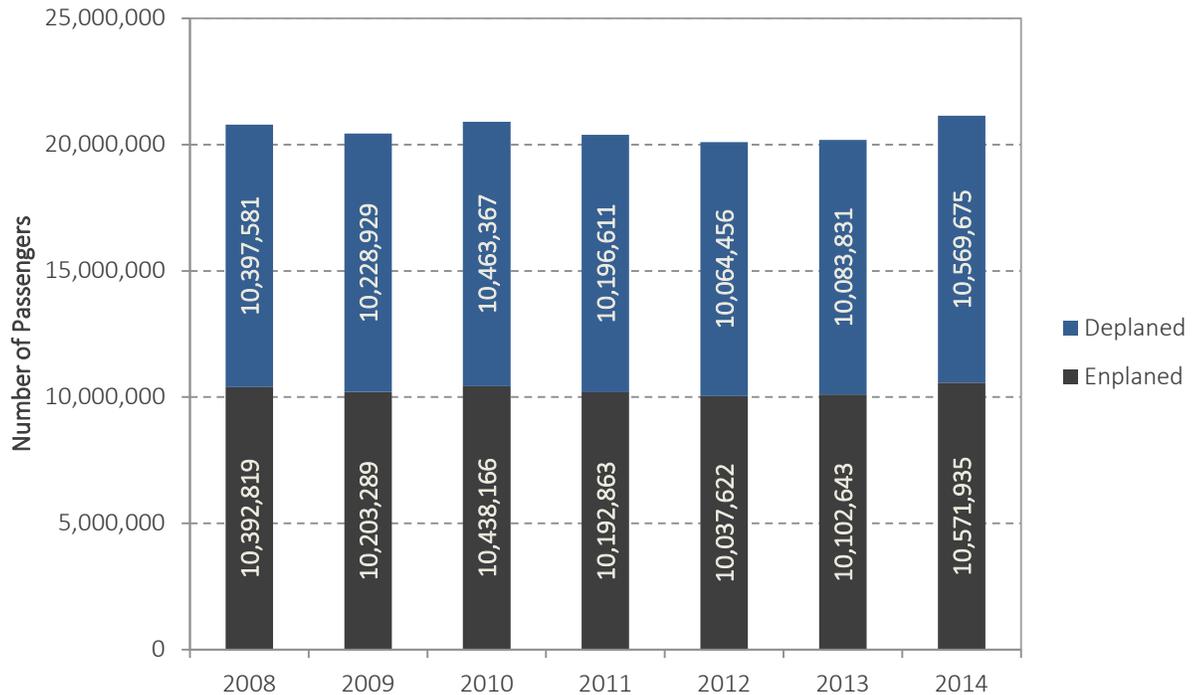
- *1910s*: Landing strip called Basque Flats is used for aerobatic flights
- *1920s*: Salt Lake City purchases 100 acres surrounding Basque Flats, which is renamed "Woodward Field." First commercial passenger flights from the Airport take place
- *1930s*: Woodward Field is renamed "Salt Lake City Municipal Airport." Three runways, an airport administration building and hangars are built
- *1940s*: U.S. Air Force uses the Airport as a training base and depot
- *1950s*: Three runways improved to support commercial jet aircraft
- *1960s*: Terminal One is dedicated and Airport is renamed "Salt Lake City International Airport"
- *1970s*: Airport is expanded to over 7,000 acres and Terminal Two is completed
- *1980s*: Terminals One and Two are expanded and remodeled and Delta Air Lines (formerly Western Airlines) establishes hub
- *1990s*: Parking garage constructed, new air carrier runway and International Terminal is built, Aircraft Rescue and Fire Fighting becomes operational, and FAA opens new Air Traffic Control Tower
- *2000s*: Salt Lake City hosts the Olympic Winter Games and west landside area is reconfigured

⁵ SLCDA. 2015. SLC Fast Facts. <http://www.slcairport.com/slc-fast-facts.asp>. Accessed March 6, 2015.

Activity Levels

In 2013, SLC was the 26th busiest airport in North America and the 80th busiest in the world by total number of passengers.⁶ Total passenger volume reached its peak of 22,045,233 passengers in 2007. Since 2008, total passenger volume has been relatively steady with only slight year-to-year fluctuations of between -2.0 percent and 2.0 percent. Figure 3-1 depicts total passenger traffic between 2008 and 2014.

FIGURE 3-1: TOTAL PASSENGERS (2008-2014)



Source: SLCD, 2015.

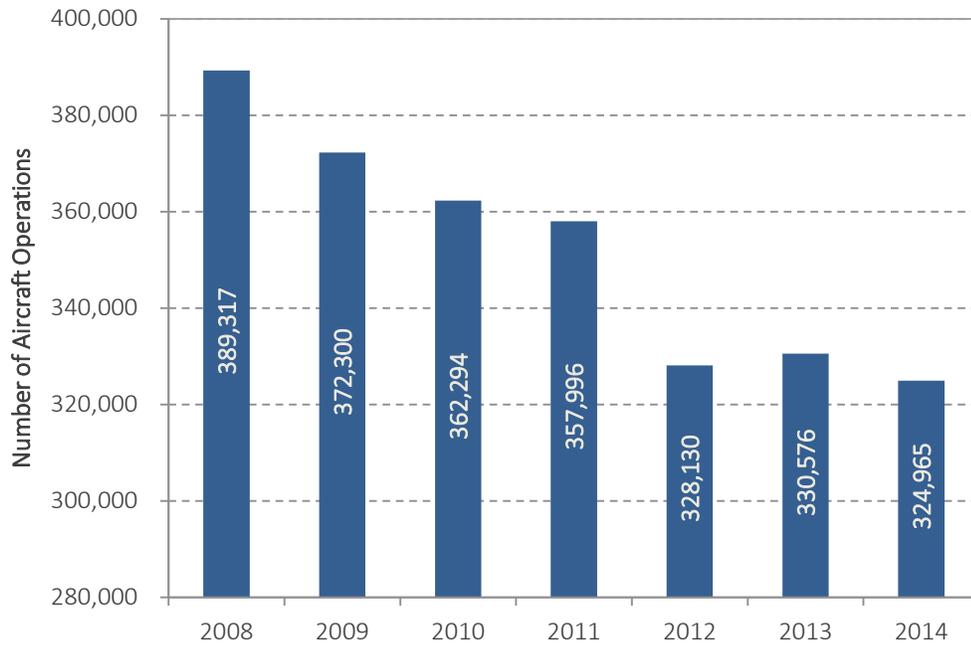
Note: Deplaned passengers disembark aircraft at SLC, and Enplaned passengers board aircraft at SLC. Includes both domestic and international passengers.

Aircraft operations (landings and departures) at SLC have been steadily declining since 2008. The overall decline in aircraft operations reflects the nationwide economic recession of 2008, continued reduction of capacity (seats) by airlines, and an airline industry trend toward larger aircraft. Between 2008 and 2013, aircraft operations at SLC decreased more than 15 percent; however, the load factors have increased. There were 324,965 aircraft operations in 2014, or approximately 890 per day.⁷ Figure 3-2 depicts total aircraft operations between 2008 and 2014.

⁶ FAA. 2015. 2013 Air Carrier Activity Information System (ACAIS) data. http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/. Accessed March 9, 2015.

⁷ Salt Lake City Department of Airports (SLCDA). 2014. Summary Statistics, 2008-2014.

FIGURE 3-2: TOTAL AIRCRAFT OPERATIONS (2008-2014)

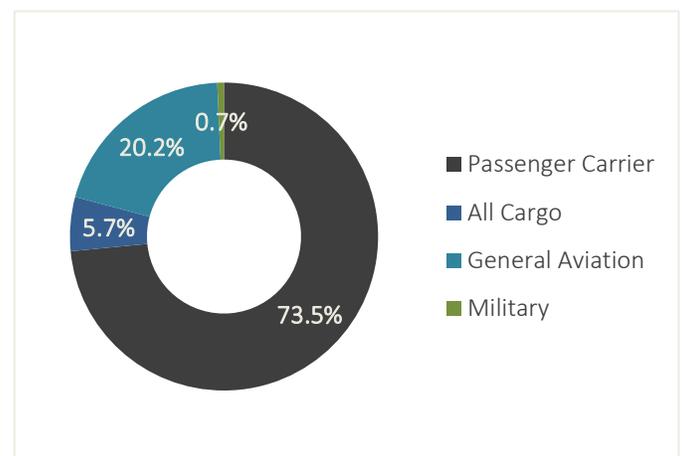


Source: SLCD, 2014.

In 2014, passenger carrier operations represented the majority (73.5 percent) of the total operations at the Airport (Figure 3-3). During the same period, general aviation (local and transient) accounted for 20.2 percent, cargo operations accounted for 5.7 percent, and military aircraft operations accounted for less than 1 percent.⁸

FIGURE 3-3: 2014 AIRCRAFT OPERATIONS BY TYPE

Seven passenger airlines, not including their regional affiliates, operate out of SLC. The carriers include Alaska Airlines, American Airlines/US Airways,⁹ Delta Air Lines, Frontier Airlines, JetBlue Airways, Southwest Airlines, and United Airlines. SLC is a hub for Delta Air Lines, which means that the airline and its regional affiliates (Delta Connection, operated by SkyWest, Mesaba, and Compass Airlines), use the Airport as a connection point for flights from all over the country, and has a market share of 74 percent (based on total enplanements) at SLC. Delta's hub operation increases the number of aircraft



Source: SLCD, 2015.

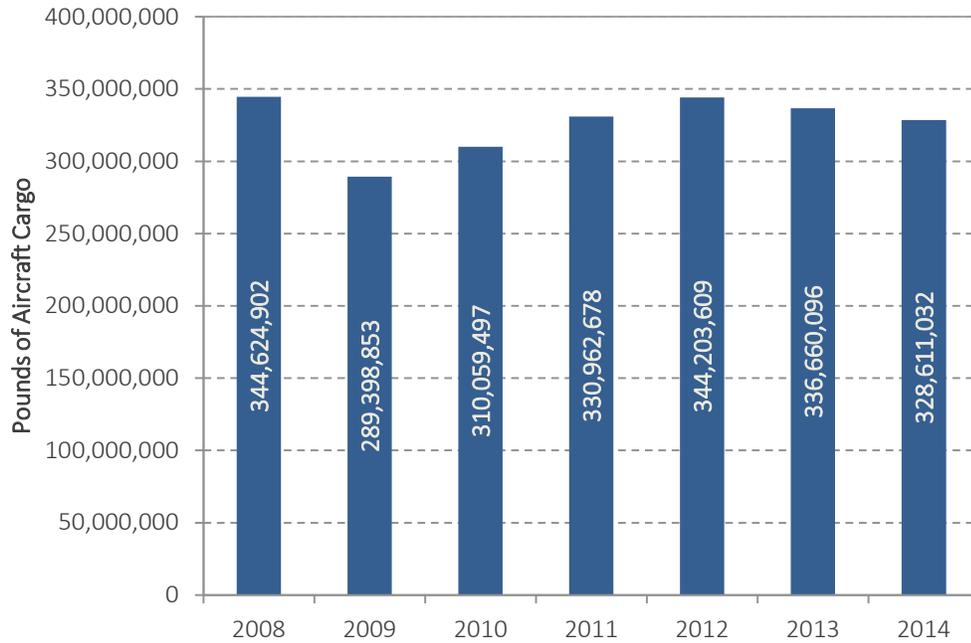
⁸ SLCD. 2015. Summary Statistics for 2014.

⁹ American Airlines and US Airways merged on December 9, 2013, creating the American Airlines Group, Inc.

operations and connecting passengers at the airport, which affects airfield capacity and passenger terminal efficiency, respectively.

Air cargo (pounds) at SLC has steadily increased since 2009, with a slight drop since 2012. Between 2009 and 2012, air cargo weight at SLC increased nearly 20 percent. Figure 3-4 depicts air cargo activity between 2008 and 2014.

FIGURE 3-4: AIRCRAFT CARGO, POUNDS (2008-2014)



Source: SLCD, 2015.

Markets/ Destinations

Airline operators at SLC offer non-stop flights to more than 89 domestic and international cities.¹⁰ Table 3-1 depicts the top ten destination airports (as of September 2014) in the United States that originate from SLC. Non-stop international destinations include:

- Canada
 - Calgary (SkyWest Airlines)
 - Vancouver (SkyWest Airlines)
- Mexico
 - Cancun (Frontier Air Lines)
 - Los Cabos (Delta Air Lines)

¹⁰ SLCD. 2013. *SLC Fast Facts*. <http://www.slairport.com/slc-fast-facts.asp>. Accessed September 16, 2013.

- Puerto Vallarta (Delta Air Lines)
- Paris, France (Delta Air Lines)

TABLE 3-1: TOP 10 DESTINATION AIRPORTS IN THE U.S. FROM SLC (DEC. 2013 – NOV. 2014)

U.S. DESTINATION AIRPORTS	PASSENGERS (THOUSANDS)
1. Denver, CO: DEN	754
2. Phoenix, AZ: PHX	622
3. Los Angeles, CA: LAX	552
4. Atlanta, GA: ATL	494
5. Seattle, WA: SEA	465
6. Las Vegas, NV: LAS	450
7. Dallas/Fort Worth, TX: DFW	360
8. New York, NY: JFK	292
9. Portland, OR: PDX	289
10. Minneapolis, MN: MSP	257

Source: BTS, 2014: *Top 10 Destination Airports* for December 2013–November 2014, retrieved March 5, 2015 from <http://www.transtats.bts.gov/airports.asp?pn=1>.

Access and Ground Transportation

SLC is accessible from Interstate 80 (I-80), Interstate 215 (I-215), State Route 154, and the Bangerter Highway. Ground transportation serving SLC includes rental cars, taxi service, public transportation, and shuttle services.¹¹

The Utah Transit Authority (UTA), the regional provider of public transportation, offers multiple ways of getting to and from the Airport. Recently opened in April 2013, the new light rail link (TRAX) connects Downtown Salt Lake City and surrounding communities to the Airport providing passengers and employees another convenient and inexpensive mode of transportation to and from the Airport. The TRAX stops at the south end of Terminal One every 15 minutes on weekdays and every 20 minutes on weekends. The addition of TRAX serves as an important link in the public transportation network allowing passengers and employees to connect to other public transit in the City. Other public transit serving the Airport includes bus service (Routes 453 and 454) available outside the Welcome Center at the south end of Terminal One; however, there is no service on weekends or holidays. UTA Flex Trans, a Para-transit service, is available for passengers with disabilities.

¹¹ SLCDA. 2013. *Ground Transportation*. <http://www.slairport.com/ground-transportation.asp>. Accessed September 26, 2013.



Fast-Track to Ticketing

TRAX ticket locations are conveniently located within Terminal One for easy access by passengers leaving the Terminal. The station is located within walking distance of the Terminal.

Rental car services are primarily located on the ground floor of the short-term parking garage and include Advantage, Alamo, Avis, Budget, Dollar, Enterprise Rent-A-Car, Fox Rent A Car (off-site), Hertz, National, and Thrifty.

Four operators provide taxi service at SLC: City Cab, Ute Cab, Yellow Cab, and Yellow Cab of Park City.¹² Taxis are available outside Door #7 in Terminal One and Door #11 in Terminal Two. Local hotels offer “Courtesy Cars” to and from the Airport, and are available from both Terminal One and Terminal Two. Onsite shuttle companies, such as limousine and motor coach services, are also available.

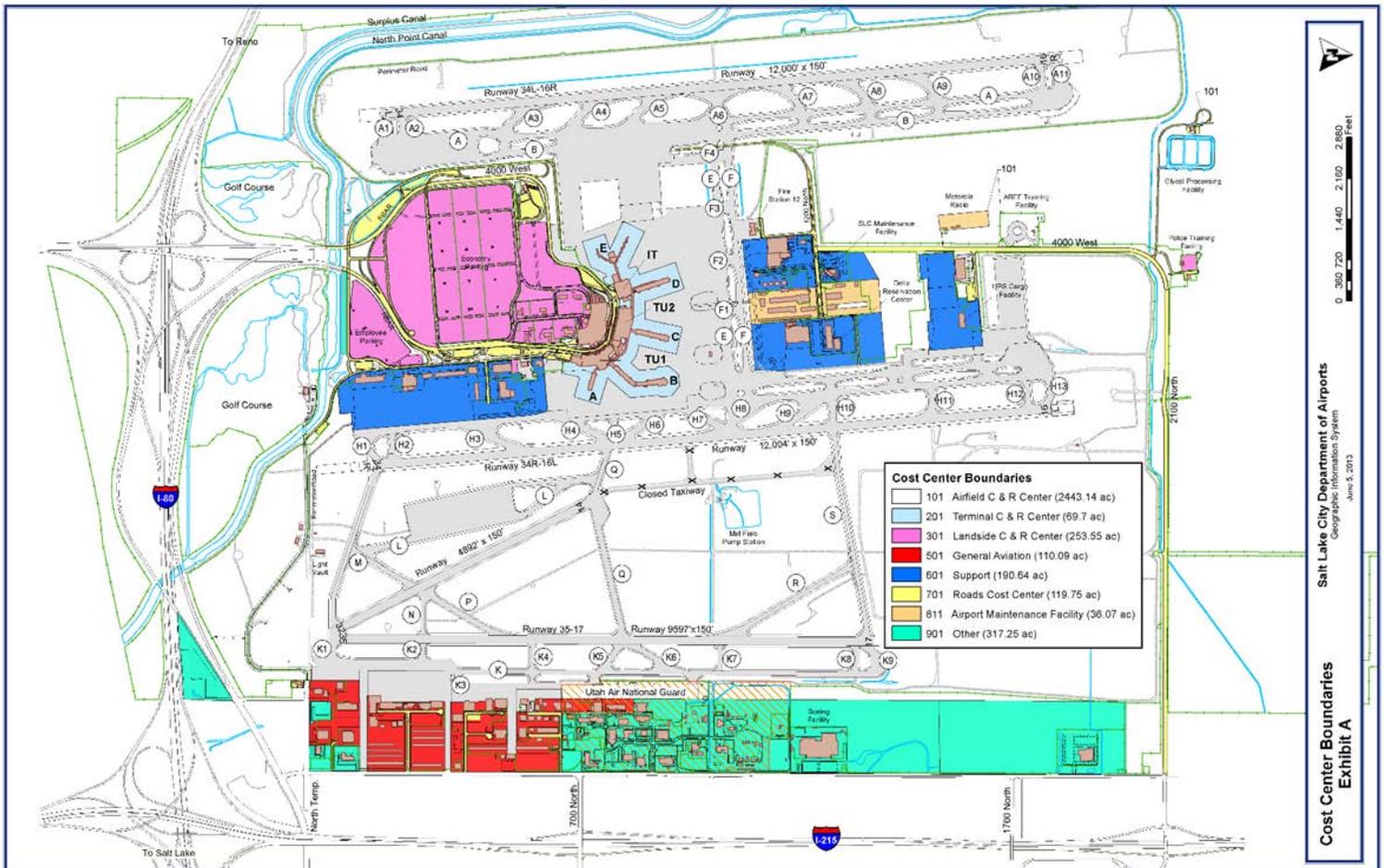
Airport Facilities

Figure 3-5 depicts existing facilities at SLC along with the location of some of the Airport’s “cost centers.” Cost centers are sections of the Airport to which energy and water costs are charged for accounting purposes. Performance evaluations and strategy recommendations are made by cost center in this plan to remain consistent with current SLCDCA accounting practices. A list of the cost centers and a list of the water meters by cost center (some cost centers have multiple meters) are summarized in Chapter 4, *Baseline Assessment*, Table 4-5.

¹² SLCDCA. 2013. *Parking and Transportation: Taxis*. <http://www.slcairport.com/taxis.asp>. Accessed September 26, 2013.



FIGURE 3-5: AIRPORT FACILITIES AND COST CENTERS



Source: SLCD, 2013.

Tenants

As previously noted, SLC is served by seven air carriers, not including regional affiliate airlines. There is one fixed-base operator (FBO), TAC Air. SLC has the following tenant types:

- Air carriers
- Concessionaires (e.g., HMS Host, car rentals, newsstands, retail stores, and restaurants)
- Cargo carriers (e.g., ABX Air (DHL), Aero Charter & Transport, Air Transport International, Airnet Systems, Ameriflight, Corporate Air (Billings), Empire, FedEx, UPS, and Western Air Express)¹³

¹³ SLC Airport, "Air Traffic Statistics and Activity Report," October 2014. http://www.slcairport.com/cmsdocuments/2014_10.pdf. Accessed January 5, 2015.

- Charter flight services (e.g., American Trans Air, Aviation Services International, and Casper Air Service)
- Corporate tenants (e.g., Boeing Corporation and Boise Cascade)
- The Utah Air National Guard (serves an air refueling mission with the KC-135-Stratotanker, as the primary aircraft)
- Corporate hangar tenants (e.g., LynxJet and Civil Air Patrol)
- Aviation training tenants (e.g., Flight Safety International)
- Aviation support services (e.g., baggage handling, disability services, and flight kitchen)
- Banks and ATMs (in passenger terminal areas)
- Wireless communications providers (e.g., Nextel Communications)
- Farmland lease
- Wingpointe,¹⁴ an 18-hole golf course operated by the Salt Lake City Golf Division (part of the Public Services Department of Salt Lake City), is located on the south end of the Airport
- The Airport and Salt Lake City Fire Department operate an Aircraft Rescue and Fire Fighting (ARFF) Training Center, which opened in 1997, located on the Airport. The Training Center has been used to train and certify over 10,000 firefighters from departments all over the world.¹⁵
- In addition to the 328-foot tall Air Traffic Control Tower and Terminal Radar Control are located on the Airport, the Salt Lake Air Route Traffic Control Center (ARTCC) is located adjacent to the Airport. The Salt Lake ARTCC covers the largest geographical area in the continental United States and controls airspace as far north as the Canadian border.

Airlines at SLC

- Delta Air Lines/SkyWest Air Lines
- Alaska Airlines
- Frontier Airlines
- JetBlue Airways
- Southwest Airlines
- United Airlines
- American Airlines/US Airways

Additional information on tenants is provided in Chapter 4, *Baseline Assessment*.

Current Airport Governance Structure

In order to achieve a truly sustainable organization, sustainability principles must be integrated into the “thinking, planning, and doing” processes. However, organizations often address sustainability as an accessory or afterthought to its typical structure and procedures. The current governance structure, organizational capacity, and procedures of SLCDCA were evaluated in support of this SMP. This helped identify potential opportunities to integrate sustainability into

¹⁴ <http://www.slcc-golf.com/wingpoint.html> retrieved January 5, 2015.

¹⁵ SLC ARFF “Salt Lake City ARFF Training Center,” <http://www.slcarff.com/program-overview.htm>, accessed January 5, 2015.

existing processes and procedures, without creating additional, resource-consuming requirements, and employ an organizational commitment to the Airport's goals and objectives, ensuring continued success.

The Sustainability Planning Project Team identified opportunities related to SLCDCA's organization process to integrate a sustainability perspective and developed recommendations for employee, tenant, and passenger engagement, which are detailed in Chapter 9, *Organizational Engagement*, of this SMP.

Existing Organizational Structure

SLCDA is a department of the municipality of Salt Lake City. In addition to SLC, SLCDCA operates GA facilities at South Valley Regional Airport in West Jordan and Tooele Valley in Erda. The Mayor, City Council, and a nine-member advisory board of volunteers oversee the airport. The Mayor of Salt Lake City appoints the Executive Director of SLCDCA, who leads the airport management staff along with eight division directors. The directors oversee the following divisions:

- Planning and Programming;
- Engineering;
- Maintenance;
- Finance and Accounting;
- Administration/Commercial Services;
- Public Relations and Marketing;
- Operations; and
- Information Technology.

SLCDA employs approximately 490 full-time equivalent (FTE) employees across all airports under its jurisdiction, which includes three employees at South Valley Regional Airport.¹⁶ Figure 3-6 illustrates the organization of SLCDCA. The Airport has no outstanding debt and is financially self-sustaining with revenue generated from airline and passenger fees, concessions, vehicle parking, fuel, and leases for office and hangar space.

¹⁶ FTE = 40 hours per week

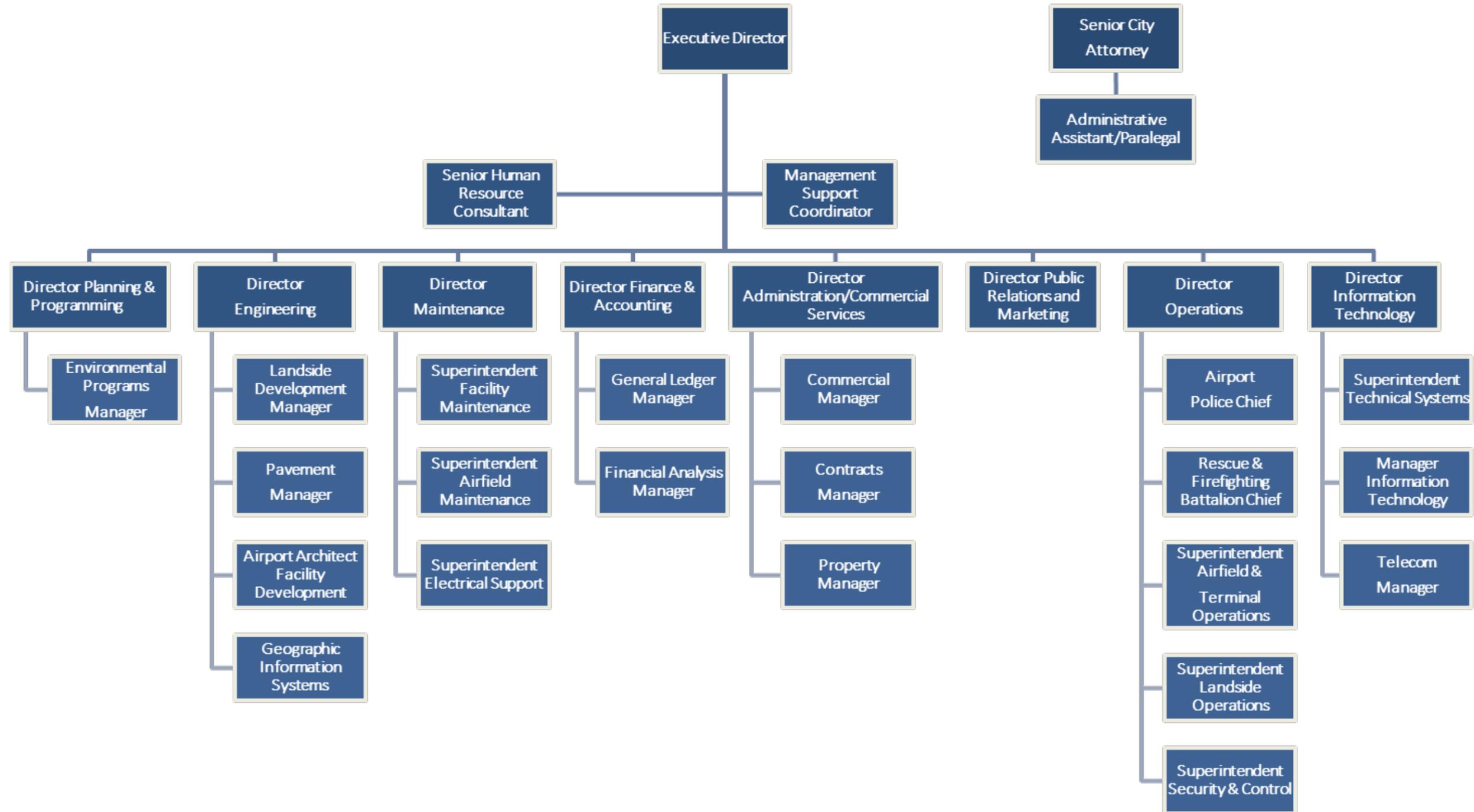


Salt Lake City
International Airport

Sustainability Management Plan

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FIGURE 3-6: SLCDA ORGANIZATIONAL CHART



Source: VHB, 2013.

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4 | Baseline Assessment

The Salt Lake City Department of Airports (SLCDA) has committed to a long-term, comprehensive, and integrated approach to sustainability that considers economic viability, operational efficiency, natural resource conservation, and social responsibility (EONS), described in more detail in Chapter 1, *Introduction to Sustainability*. The baseline for this project was 2012 because this project was started in 2013, therefore the latest full-year worth of data is from 2012. This chapter documents baseline sustainability performance and activities, and informs the development of sustainability goals and initiatives. The focus areas of the baseline assessment were selected by the SLCDA Project Management Team because of their relevance to Salt Lake City International Airport’s (SLC’s or the Airport’s) and the City’s sustainability priorities and consistency with past sustainability evaluation efforts. The focus areas of the baseline assessment, which cover all aspects of EONS, are shown in Figure 4-1.

FIGURE 4-1: BASELINE INVENTORY TOPICS BY EONS CATEGORY



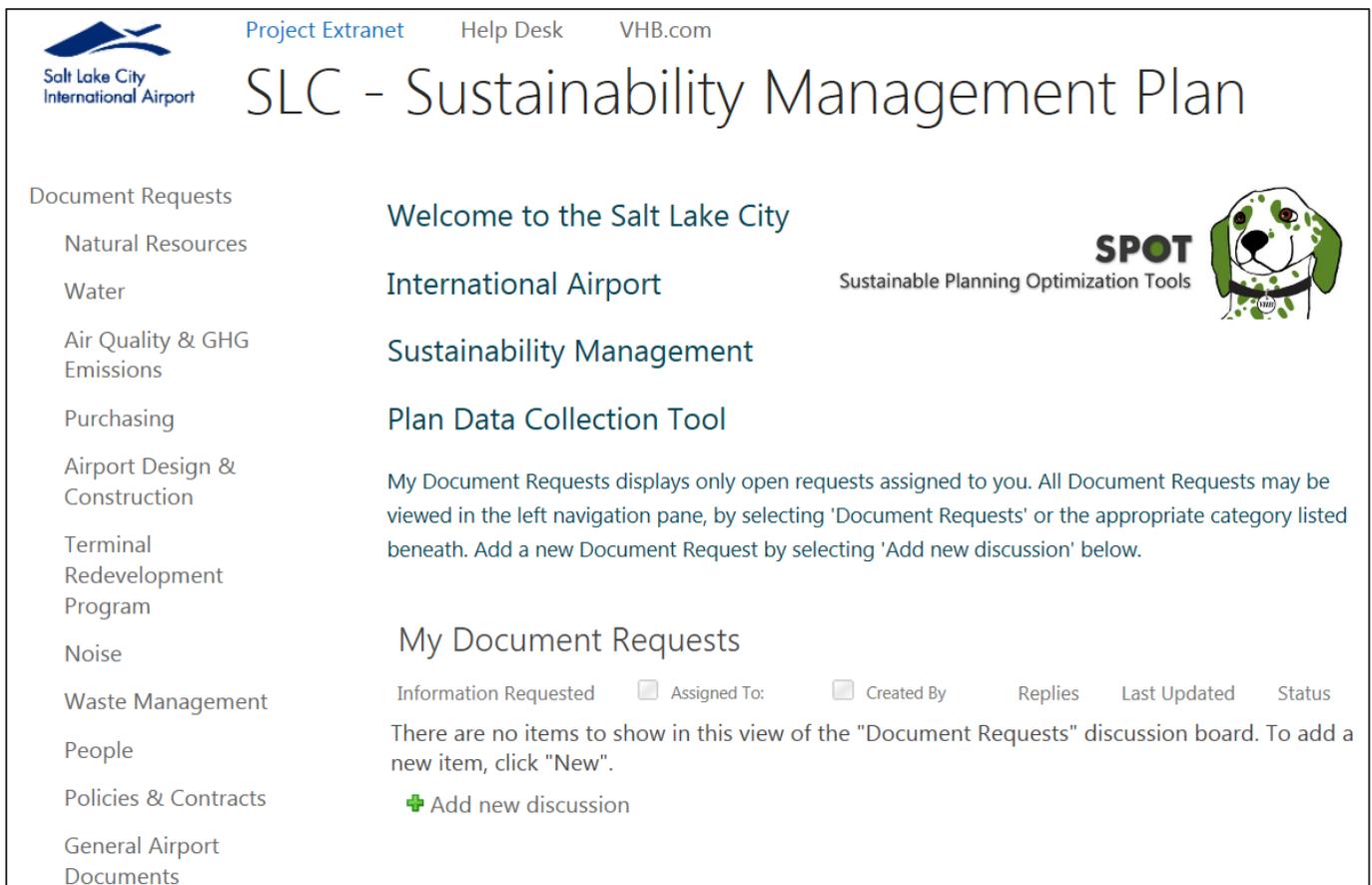
Source: ACI-NA. <http://www.aci-na.org/> VHB, 2013.

In addition to the broad baseline review, the Sustainability Planning Project Team conducted the following focused specialized studies as part of the plan either to augment existing available information, or to respond to Federal Aviation Administration (FAA) planning guidance, and are provided as appendices:

- Appendix E, *Air Quality and Greenhouse Gas (GHG) Assessment*
- Appendix F, *Waste Management and Recycling Audit* (including a waste audit)
- Appendix G, *Energy Evaluation*

SPOT: The Collector™

The SLC SMP Project Team developed the Collector™ to assist with data collection efforts associated with the baseline assessment. This tool provides a repository for sustainability baseline information and has the potential to be used by SLCDCA in the future to store related performance data. The Collector™ is part of a suite of Sustainability Planning Optimization Tools (SPOT) that also includes the Selector™, the Tracker™, the Implementer™, and the Reporter™.



The screenshot shows the Collector™ homepage. At the top, there are navigation links for 'Project Extranet', 'Help Desk', and 'VHB.com'. The main header reads 'SLC - Sustainability Management Plan'. On the left is a vertical navigation menu with categories like 'Document Requests', 'Natural Resources', 'Water', 'Air Quality & GHG Emissions', 'Purchasing', 'Airport Design & Construction', 'Terminal Redevelopment Program', 'Noise', 'Waste Management', 'People', 'Policies & Contracts', 'General Airport Documents', and 'Documents'. The main content area features a 'Welcome to the Salt Lake City International Airport Sustainability Management Plan Data Collection Tool' message. Below this, there is a section for 'My Document Requests' with a table header including 'Information Requested', 'Assigned To', 'Created By', 'Replies', 'Last Updated', and 'Status'. A message states 'There are no items to show in this view of the "Document Requests" discussion board. To add a new item, click "New".' and a green plus icon with the text 'Add new discussion' is visible. On the right side of the main content, there is a logo for 'SPOT Sustainable Planning Optimization Tools' featuring a cartoon dog.

The homepage of the Collector™

Community (Employees, Tenants, and Passengers)

SLC's surroundings consist primarily of vacant and industrial lands far from residential areas. SLC is part of an airport community that consists of airline passengers, and SLCDCA and tenant employees. SLCDCA values its community and recognizes the importance of travelers, employees, and tenant partners to the Airport's advancement of sustainability. This section provides an overview of the SLC community, including the Airport's economic impact on the region.

Regional Economic Impact

SLC has a considerable economic benefit to Utah's overall economy by providing access to goods, creating jobs, and generating operating revenues. According to an economic impact study commissioned by SLCDCA, approximately \$1.1 billion in wages/income are distributed amongst 35,290¹⁷ full-time employees at the Airport. Further, the Airport contributes approximately \$1.8 billion to the gross domestic product (GDP) and has a total economic output of \$3.4 billion.¹⁸

Passenger Experience

SLC prides itself on its superior facilities that provide a welcoming environment to ease the passenger experience. As part of the Airport Council International (ACI) Airport Service Quality survey (ASQ) initiative, SLCDCA conducted an ASQ survey in 2012 that gauged customer satisfaction.¹⁹ This survey initiative started in 2006 and has become "the world's leading airport passenger satisfaction benchmark."²⁰ ACI conducts the survey annually by airports across the nation and world. Each participating airport can select up to 16 peer airports against which to be benchmarked. In 2013, SLC came in fourth place for the Best Airport by Size for 15-25 million passengers.²¹

The results indicated that the Airport was performing well in the following areas:

- Providing comfortable waiting areas,
- Helpful staff,

¹⁷ Includes all on-Airport employees such as airline and tenant employees.

¹⁸ SLCDCA. 2013. *Elevations, Salt Lake City Department of Airports*. Summer 2013. http://www.slcairport.com/cmsdocuments/Elevations_Summer13.pdf. Accessed October 29, 2013.

¹⁹ Airport Service Quality Annual Results 2012 Priority Analysis, © ACI 2013.

²⁰ ACI. *Airport Service Quality Awards*. <http://www.aci.aero/Airport-Service-Quality/ASQ-Awards/About-the-ASQ-Awards/About-the-ASQ-Awards>. Accessed October 22, 2014.

²¹ ACI. *Airport Service Quality Awards, 2013 Winners, Best Airports by Size, 15-25 million passengers*. <http://www.aci.aero/Airport-Service-Quality/ASQ-Awards/2013-Winners/Best-Airport-By-Size/15-25m>. Accessed October 22, 2014.

- Clean and available washrooms, and
- Efficient arrivals processing and passport inspection.

The ASQ results also indicated that there were areas that SLCDCA could enhance:

- Ambience,
- General cleanliness,
- Business lounges and bank facilities, and
- Customs inspections.

Many of the areas needing improvement will be addressed when a new terminal complex is designed and constructed under the Terminal Redevelopment Program (TRP). Current services and amenities in the terminal complex include:

- Outstanding concession options
- Free Wi-Fi
- Banking services
- Pet areas
- Therapy animals
- Shoe shine
- Photocopying and fax services
- Language translation services
- In-seat power station for power cords and USB cables, as well as a charging bar with both standard outlets and USB ports
- Art program displaying local, regional, and national exhibits
- Variety of lounges
- Spa and massage therapy
- Convention and tourist information booths



Paintings by Willamarie Huelskamp.

SLC Art Program

SLCDA has been collecting art since 1977, which is displayed throughout the Airport.

The multimedia collection creates ambiance for passengers, employees and other airport users.

The art is periodically rearranged to accommodate the evolving demands on airport space creating a movable visual feast.

Passengers also benefit from having access to a variety of transportation modes to the Airport. To better support alternative transportation modes, SLC offers:

- Smart Bus system with Global Positioning System (GPS) to streamline operations and electronic signs with next arrival time for passengers
- Bike racks (primarily used by employees)
- Utah Transit Authority (UTA) light rail (TRAX) station at Terminal One, which connects the Airport to downtown Salt Lake and in surrounding communities (see *Access and Ground Transportation* in Chapter 3)

TRAX not only provides convenient access to the Airport, it is considerably more affordable than driving to the Airport and parking. An average four-day trip would cost approximately \$32 dollars in parking and gas compared to \$5 using TRAX to get to the Airport from downtown Salt Lake City.²²

²² TRAX based on \$2.50 one-person fare each way using TRAX. Parking based on Economy Parking lot at \$9/day and \$4 for gas.

Employee Well-Being



Employee Country of Origin Map

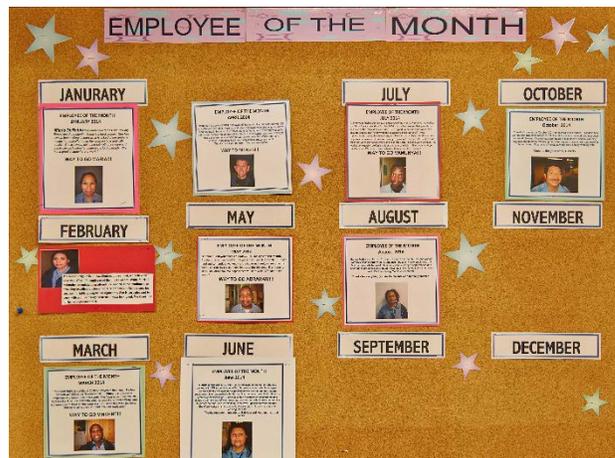
SLC is an international airport with employees hailing from around the world.

To reinforce the diversity of its workforce, SLCDCA keeps a map with markers noting employees' countries of origin.

Employee recognition is important at SLC. SLCDCA's employee recognition program was transformed over the last three years to create a merit-based, transparent award program utilizing peer and manager review with monthly awards given for various categories.

Highlights of the Program include:

- Employees are recognized by their peers on merit in eight categories (Acts of Heroism, Consistently Exceeding Job Expectations, Contribution to Quality Improvement, Customer Service, Innovations/Savings, Safety/Security, Teamwork, and Sustainability). Between four and five employees are randomly selected and given \$25 gift cards each month.
- In 2012, 330 employees received recognition
- The *Connections* employee newsletter highlights employee recognition



Employee Recognition

The Janitorial Services Department has its own employee recognition program, which selects an employee each month to highlight and describe their special contributions.

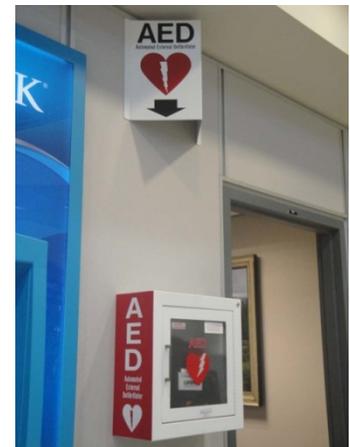
In addition to comprehensive FAA-compliant airside safety program, SLCDCA's extensive safety program ensures that both passengers and employees receive immediate care should a medical emergency occur. The SLCDCA Safety Committee (managed by the Airport Safety Program Operations Manager) meets monthly and conducts a thorough review of how each event was handled and how procedures might be enhanced in the future.

SLCDCA's safety and wellness program also goes beyond emergencies to foster a healthy working environment by offering free physical therapy on the job for SLCDCA employees three days a week by appointment. This unique program has already shown benefits from reduced doctor appointments, sick days, and reduced need for workers compensation.

Safety and Wellness Program Highlights include:

- Regular Training for employees includes cardiopulmonary resuscitation (CPR) and use of automated external defibrillator (AED). Over 200 people or 45 percent of SLCDCA staff is now trained in CPR and/or AED use.
 - Twenty-nine defibrillators are located throughout the terminal, concourses, parking structure, and airport support structures with an additional eight in airfield operations and police vehicles
 - Recently improved signage for AEDs was installed to enhance visibility
 - When training is completed, each employee is given an Airport identity card with a location map of all AEDs
- Physical Therapy program is offered to all employees by WorkAbility Centers (<http://www.workabilitycenters.com/Services.html>).
- Post-offer employment test or POET (physical demand test) is available for all employees.
- Employees are eligible to use Airport exercise facilities and equipment.

Table 4-1 provides a representative list of community- related initiatives. Since SLC is located far from residential areas, the Airport community consists of airline passengers and SLCDCA and tenant employees.



Automated External Defibrillators (AEDs)

AEDs are positioned throughout the terminal complex, and have saved lives every year since their installation.

TABLE 4-1: EXISTING AIRPORT COMMUNITY INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
SLCDA Art Program	Supports local artists and enhances the visual environment for passengers.	S
Bicycle racks to encourage bicycle riding to or around the airport	Supports bicycling as a viable means of transportation for employees and passengers.	E, O, N, S
Free TRAX light rail, bus, and Fronrunner fare for all SLCDA employees (all City employees)	Increases use of public transit, which helps reduce traffic and associated emissions.	E, O, N, S
Bike path around the south side of airport	Encourages exercise and alternative transportation mode that does not contribute to emissions.	E, N, S
Walking path from Economy Parking lot to passenger terminal buildings	Encourages exercise.	S
Foreign Object Debris (FOD) walks. FOD can be any object on runways that could be ingested into aircraft engines or damage tires	Enhances safety of runway operating environment and promotes exercise.	O, S
Designated, airport-proximate parking stalls for employees that carpool	Helps reduce traffic and associated emissions.	E, O, N, S
Tuition Aid Reimbursement Program to help employees continue their education	Encourages employees to gain new skills that will ultimately help improve efficiency and operations at SLC.	O, S
Internships for local college students by department, dependent upon funding and need	Supports the community and SLCDA employees.	O, S
Free fitness facility (Airport Police and North Support facilities) available to all Airport employees	Improves the health and well-being of SLCDA employees.	S
Employee training offered for safety and emergency awareness, customer service, harassment prevention, software training, and American Disabilities Act procedures	Improves the operations and safety of the Airport.	O, S
Employee, merit-based recognition program based on peer and manager review	Supports employee development and rewards employee initiative.	O, S
Disabled community event – an airport orientation for disabled members of the community	Supports the needs of the local disabled population and eases the travel experience by providing an orientation to the travel process.	O, S
Use of non-toxic and environmentally friendly cleaning products	Choosing less hazardous products that have positive environmental attributes reduces exposure and can minimize harmful impacts to custodial workers and building occupants, improve indoor air quality, and reduce water and ambient air pollution. (United States Environmental Protection Agency, http://www.epa.gov/epp/pubs/cleaning.htm)	E, O, N, S

Note: 1 - EONS = Economic viability, (E) Operational efficiency, (O) Natural resource conservation, (N) and Social responsibility (S)
Source: SLCDA; Compiled by VHB, 2014.

TABLE 4-1: EXISTING AIRPORT COMMUNITY INITIATIVES (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS1)
On-site physical therapy available to all Airport employees	Improves the health and well-being of SLCDCA employees.	O, S,
Healthy Utah Wellness Program	Improves the health and well-being of SLCDCA employees.	S

Note: 1 - EONS = Economic viability, (E) Operational efficiency, (O) Natural resource conservation, (N) and Social responsibility (S)
Source: SLCDCA; Compiled by VHB, 2014.

Natural Resources

SLC is located on the eastern shore of the Great Salt Lake. The Jordan River, which flows into the Great Salt Lake, runs south to north less than one mile east of the airfield. There are two canals that transect the property boundaries of SLC the Surplus Canal and the North Point Consolidated Canal (NPCC). The Surplus Canal crosses Interstate 80 (I-80) just south of the airfield; it then runs along the southern boundary of SLC until it reaches the western boundary of the airfield, at which point it runs north along SLC’s western boundary until it courses westward across from Taxiway F. The NPCC parallels the Surplus Canal until the Surplus Canal deviates to the west; the NPCC continues north until it wraps around and continues along SLC’s northern boundary for irrigation purposes and to manage wetlands.²³ The Surplus Canal is also used for stormwater discharge.

Wetlands

According to the 2005 Wetlands Delineation Report, approximately 1,184 acres of wetlands are within SLC property boundaries.²⁴ This represents 15 percent of the 7,697 acres the Airport owns. Wetlands at SLC are largely concentrated to the west and north of the airfield. The largest type of wetland at SLC is the Playa Lakes. Table 4-2 depicts the types and amount of existing wetlands at SLC.

TABLE 4-2: WETLANDS WITHIN SLC PROPERTY BOUNDARIES

WETLAND TYPE	ACRES
Canal	83.9
Ditch	1.8
Emergent Marsh	222.9

Source: SLCDCA, 2004 SLCDCA Airport Wetland Delineation USACE-verified Results

²³ Salt Lake City Department of Airports (SLCDA). August 22, 2012. *Salt Lake City International Airport Terminal Redevelopment Program*. Prepared by CH2MHILL. Report.

²⁴ SLCDCA. August 3, 2005. 2004 SLCDCA Airport Wetland Delineation USACE-verified Results. Prepared by SWCA. Map.

TABLE 4-2: WETLANDS WITHIN SLC PROPERTY BOUNDARIES (CONT.)

WETLAND TYPE	ACRES
Open Water	57.5
Playa Lakes	412.4
Scrub Shrub	25.3
Scrub Shrub/Wet Meadow	41.6
Wet Meadow	338.7
Total	1,184.1

Source: SLCD, 2004 SLCD Airport Wetland Delineation USACE-verified Results

Included in Table 4-2, SLCD manages approximately 450 acres of wetlands west of the airfield.²⁵ SLCD worked with local environmental and regulatory groups to design and create this site to compensate for natural wetlands impacted by runway construction during the early 1990s. Typical management practices in the dedicated wetlands areas include monitoring water levels, monitoring and replacing wetland plants, as needed, controlling invasive species, removing trash and debris, and protecting the property from trespassing and hunting.

Stormwater

SLCD maintains a stormwater discharge permit under the Utah Pollutant Discharge Elimination System (Permit Number UT0024988), in compliance with the Utah Water Quality Act. Drainage infrastructure at SLC includes catch basins, manholes, trunk line and lateral pipes, ditches and swales, detention ponds, pump stations, sub-drains, diversion and overflow structures, and outfalls.²⁶ There are five regulated points of discharge (outfall points) at SLC. Under normal conditions, four of these outfall points discharge to the Surplus Canal, while the remaining one discharges to the City Drain located east of the airfield.²⁷ SLCD requires its tenants and contractors to operate under the 2014 Stormwater Pollution Prevention Plan. Measures and controls outlined in this plan include:

- Good housekeeping;
- Preventative maintenance;
- Spill prevention and response procedures;
- Source reduction;

²⁵ SLDA. 2007. *Making the Business Connection to Airport Sustainability*. Prepared by Carter & Burgess. Report.

²⁶ SLCD. August 22, 2012. *Salt Lake City International Airport Terminal Redevelopment Program*. Prepared by CH2MHILL. Report.

²⁷ *Ibid.*

- Management of runoff;
- Inspections;
- Pollution prevention training;
- Recordkeeping and internal reporting measures;
- Non-storm water discharges; and
- Sediment and erosion control.²⁸

De-icing Practices

The Airport is constructing the third of four end of runway deicing pads. The pad drainage systems are designed to collect residual deicing fluid as it is applied to aircraft. The location of the pads will reduce taxi times and enhance efficiency by applying deicing fluid just prior to departure. Aircraft deicing fluid is collected from the pads, and processed and resold. In 2002/2003, SLC started recycling glycol and recovered 142,000 gallons, which was then sold on the secondary market. The sales helped to offset the operation and maintenance costs of the deicing fluid reclamation plant. To improve deicing fluid reclamation in 2003/2004, SLC purchased a glycol recovery vehicle to gather further fluid from the de-icing pads.²⁹ Additionally, in February 2014, the Elevations newsletter reported that the Airport recycles 70,000 gallons of glycol per year on average.³⁰ In 2012, the Airport sold over 92,000 gallons of glycol.

Landscaping

The *Zoning Ordinance of Salt Lake City, Utah* requires landscaping features at SLC to include plant species that are drought-tolerant, and irrigation systems that are designed for the efficient use of potable water.³¹ Further details of SLC's low water landscaping are provided in the *Water Use and Conservation* section of this chapter.

Wildlife

In keeping with safe operations at SLC and in accordance with the FAA safety requirements, SLCDA developed a Wildlife Hazard Management Plan (WHMP).³² As outlined in the 2007 WHMP, the primary wildlife management techniques employed at SLC includes:

²⁸ SLCDA. May 1, 2009. *Storm Water Pollution Prevention Plan*. Report.

²⁹ SLCDA. 2007. *Making the Business Connection to Airport Sustainability*. Prepared by Carter & Burgess. Report.

³⁰ SLCDA. February 2014. *Elevations*. http://www.slcairport.com/cmsdocuments/Elevations_Feb14.pdf. Accessed October 23, 2014.

³¹ Salt Lake City. 2007. Title 21A: Zoning, 21A.34.040: *AFPP Airport Flight Path Protection Overlay District*. http://www.sterlingcodifiers.com/codebook/index.php?book_id=672. Accessed August 15, 2013.

³² SLCDA. 2007. *Wildlife Hazard Management Plan*. Revised. April 2. Report.

- Daily patrols of runways, taxiways, and associated areas for wildlife inspections and control management;
- Habitat modification, including the removal of attractants such as food sources and nesting areas followed by their replacement with materials that are unattractive to wildlife; and
- Hazing, including the use of sirens and pyrotechnics to scare wildlife away from the airfield.



Asphalt Millings Replace Wildlife Attractants

SLCDA repurposes asphalt milling, which reduces construction and demolition waste, as infill between taxiways and runways, in part, for wildlife management purposes. Asphalt millings replace grasses that can be a wildlife attractant.

In certain situations, bird and animals are trapped and relocated away from the airfield. Airport Operations officers currently live trap and remove problem species that include raptors (e.g., Ferruginous Hawk and Northern Harrier), American White Pelicans, Black-billed Magpies, Canada Geese, European Starlings, House Sparrows (also known as English Sparrows), and Rock Doves (also known as Common Pigeons). Other problem species at or near SLC include ducks, California and Franklin's Gulls, the White-faced Ibis, Barn and Cliff Swallows, and Horned Larks.

SLCDA also employs lethal control; however, this wildlife management technique is conducted only after all other methods have proven ineffective. Lethal control at SLC is performed in accordance with United States Fish and Wildlife Service and Utah state depredation permits.



Wildlife Hazard Management

SLCDA places traps for different bird species near the airfield. Birds and animals are relocated to reduce the potential for hazards to aircraft at the Airport.

SLCDA records the types and numbers of aircraft collisions with birds and animals at SLC. In 2008, approximately 390,000 aircraft operations (takeoffs and landings) took place at the Airport. Among these operations, SLCDA recorded 69 bird strikes, two percent of which resulted in significant damage to aircraft.³³

To manage pest populations at SLC, SLCDA implements a procedure known as Integrated Pest Management (IPM), an effective and environmentally sensitive approach to pest control. IPM balances the use of non-chemical strategies with the prudent use of pesticides to achieve pest control results with the least possible hazard to people, property, and the environment.³⁴ Further, SLCDA collaborates with the state entomologist at the Utah Department of Agriculture and Food to develop spraying regimes on the airfield to control insect populations that are an attractant to certain species of birds.

SLCDA has developed several partnerships with local, state, and federal organizations and agencies to enhance wildlife management at and near SLC. Current partnerships maintained by SLCDA include:

- In May 2008, SLCDA contracted with the United States Department of Agriculture (USDA) Wildlife Services to provide a full-time, FAA-certified wildlife biologist. The USDA wildlife biologist is responsible for:
 - Identifying wildlife species, their preferred nesting areas and food sources;
 - Elimination of food sources, nesting areas and deployment of other practices aimed at keeping the bird population low;
 - Conducting bird count surveys taken at 13 sites to monitor activity.
- Utah Division of Wildlife Resources assists SLCDA in trapping and relocating Canadian Geese and American White Pelicans.
- USDA and other agencies are supporting SLCDA in the relocation of an existing, hazard-creating bird habitat to the Airport's wetlands mitigation area on the west side of the property.
- With the cooperation of local duck clubs, SLCDA chemically treats ponds near the airfield to discourage waterfowl foraging.

In addition to the aforementioned partnerships, SLCDA collaborates with the State of Utah, USDA, as well as other airports and aviation industry organizations on an ongoing basis to stay up-to-date on the latest and best wildlife management practices.³⁵ Table 4-3 provides a representative list of existing natural resources.

³³ Salt Lake City International Airport (SLC). 2013. *Environment*. <http://www.slcairport.com/environment.asp>. Accessed August 17, 2013.

³⁴ United States Environmental Protection Agency (USEPA). 2013. *Integrated Pest Management (IPM) Principles*. Accessed August 17, 2013.

³⁵ SLC. 2013. *Environment*. <http://www.slcairport.com/environment.asp>. Accessed August 17, 2013.

TABLE 4-3: EXISTING NATURAL RESOURCES INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Wetlands. SLCDA created and maintains approximately 450 acres of wetlands west of the airfield	Preserves and enhances natural resources.	O, N, S
Water Efficient Landscaping. SLCDA has transitioned from lawn-based landscaping to xeriscaping	Limits the amount of irrigation and fertilizer needed and encourages the use of native and adaptive plants.	E, O, N, S
On-Airport Greenhouse. SLCDA operates a greenhouse to grow landscaping materials	Limits the amount of irrigation and fertilizer needed and encourages the use of native and adaptive plants as well as reduces transportation costs.	E, O, N
Wildlife Hazard Management Plan. SLCDA (in collaboration with USDA) performs daily wildlife patrols, hazing, and habitat modification	Enhances safety of aircraft operations, reduces need for other wildlife control measures.	O, N, S
Pavement Millings Reuse. SLCDA repurposes asphalt millings as infill between taxiways and runways	Replaces grasses with material that is unattractive to wildlife and reduces transportation and disposal costs.	E, O, N
Integrated Pest Management. SLCDA combines non-chemical strategies with the prudent use of pesticides to control the pest population at SLC	Decreases the use of harmful chemicals, limiting associated hazards to people, property, and the environment.	O, N, S

Note: 1 - EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDA; Compiled by VHB, 2014.

Noise

Aircraft noise is typically the greatest concern the public has with airport development and operations. Noise from aircraft operating at airports is regulated by 14 CFR Part 150 (Part 150), Airport Noise Compatibility Planning, and the FAA Advisory Circular (AC) 150/5020, Noise Control and Compatibility Planning for Airports. Table 1 in Appendix A of 14 CFR Part 150 depicts compatible land use guidelines for several land uses as a function of annual day-night average sound level (DNL) values. DNL is the 24-hour average sound level, in decibels (dB), derived from an average of all aircraft operations, and adds a 10 dB noise penalty to each aircraft operation occurring during nighttime hours (10:00 PM to 6:59 AM). The nighttime penalty compensates for people’s heightened sensitivity to noise during this period. According to 14 CFR Part 150, the exposure of individuals to aircraft noise must be established in terms of DNL. Residential land uses are considered incompatible with aircraft noise exposure levels of 65 DNL or greater.

SLCDA is committed to reducing the impacts of aviation noise, and works with the communities surrounding SLC to reduce these concerns. SLCDA completed a Part 150 Study in 1998. The Part

150 Study, which also included temporary noise monitoring in certain areas, was designed to analyze existing and future aircraft noise levels, develop operational noise abatement procedures, and to identify compatible and non-compatible land uses within the noise contours. As part of this program, SLCDCA published Noise Exposure Maps (NEMs) identifying areas exposed to noise equal to or greater than 60 decibel (dB) DNL from aircraft operating at SLC. The NEMs are available on SLC's website (<http://www.slcairport.com/environment.asp>), and are presented to the public for disclosure purposes. The noise contours presented on SLC's website were developed for its 1998 Master Plan/Part 150 Study and represent 1998 and forecast 2003 conditions. Existing operations are less than the approximately 450,000 annual operations forecasted for 2003.³⁶ New aircraft technology employed in current fleets has resulted in an overall decrease in noise emissions.

Part 150 Noise Compatibility Program

The Part 150 Noise Compatibility Program (NCP) includes SLCDCA-prepared recommendations intended to balance the continued use of SLC with improving compatibility between aircraft operations and noise-sensitive land uses surrounding the Airport. Elements of the Part 150 NCP include noise abatement measures, land use measures, and continuing program measures that are documented in FAA's Record of Approval on September 3, 1999.

Measures that were approved by FAA included:

- Preferential/Alternating arrival and departure flow;
- Maximize north flow departures and south flow arrivals between 11:00 PM and 6:59 AM (Nighttime Operations);
- Runways 16R, 16L, and 17 (south) Noise Abatement Departure Flight Tracks;
- Runways 34R, 34L, and 35 (north) Noise Abatement Departure Flight Tracks;
- Runways 34R, 34L, and 35 (north) Noise Abatement Arrival Flight Tracks;
- Stage I Aircraft Operating Restriction; and
- Voluntary Turbojet Use of Distant Noise Abatement Departure Procedures.

To influence land development and mitigate the impact of noise on non-compatible land uses, SLCDCA recommended the following land use measures:

- Comprehensive planning;
- Capital improvements planning;
- Environmental review;
- Airport zoning/overlay districts; and

³⁶ SLCDCA. 1998. *Master Plan Update and F.A.R. Part 150 Study Update: Airport Master Plan*. Report.

- Land acquisition and relocation.

To implement and update the Part 150 NCP, SLCDCA recommended the following continuing program measures:

- Noise abatement personnel;
- Noise Abatement Committee;
- Airport noise and operations monitoring; and
- Periodic evaluation of noise exposure, noise exposure map, and noise compatibility program revision.

The *Part 150: Records of Approval* for SLC provides detailed information on the aforementioned measures, and is available on FAA's website.³⁷

Land Use Compatibility

SLC is predominantly surrounded by industrial (heavy and light), open space, and commercial land uses. All of these land uses are considered compatible with SLC operations based on FAA standards.³⁸ During the 1980s, SLCDCA purchased land within the 65 DNL contour using federal grants. The forecast 2003 conditions NEM depicts only one non-compatible land use within the 65 dB DNL contour. This non-compatible land use was a residential property located to the northeast of the airfield, at the intersection of W 2100 N and 2200 W.

Salt Lake City, West Valley City, and Salt Lake County have all adopted an airport overlay district in accordance with the land use policy plan set forth by SLCDCA at SLC. Each airport overlay district restricts non-compatible land uses from developing in noise-impacted areas.³⁹

The Airport Flight Path Protection Overlay District (AFPP), part of the *Zoning Ordinance of Salt Lake City, Utah*, establishes four Airport Influence Zones (AIZ): "A," "B," "C," and "H" (Figure 4-2).⁴⁰ Each AIZ has land use controls designed to minimize hazards, including noise-related impacts, associated with aircraft operations at SLC. AFPP also requires that developers and landowners within the AIZs acknowledge the prescriptive aviation easement as a condition of new development.

³⁷ FAA. 1999. *Part 150: Records of Approval*. http://www.faa.gov/airports/environmental/airport_noise/part_150/states/media/roa_utah_090399.pdf. Accessed August 20, 2013.

³⁸ FAA. August 16, 2013. *Part 150—Airport Noise Compatibility Planning*. <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=44fb7ed6bee65430ad245a9c5ae49582&rgn=div5&view=text&node=14:3.0.1.3.21&idno=14>. Accessed August 20, 2013.

³⁹ FAA. September 3, 1999. *Part 150: Records of Approval, Salt Lake City International Airport, Salt Lake City Utah*. http://www.faa.gov/airports/environmental/airport_noise/part_150/states/media/roa_utah_090399.pdf. Accessed September 11, 2013.

⁴⁰ Salt Lake City. 2007. Title 21A: Zoning, 21A.34.040: AFPP Airport Flight Path Protection Overlay District. http://www.sterlingcodifiers.com/codebook/index.php?book_id=672. Accessed August 15, 2013.

Associated noise levels and land use controls for each AIZ are:

- **Airport Influence Zone “A.”** Exposed to very high aircraft noise. AIZ “A” permits industrial and commercial uses with adequate sound attenuation. Specific height restrictions apply.
- **Airport Influence Zone “B.”** Exposed to high aircraft noise. AIZ “B” permits industrial and agricultural uses. Residential uses are allowed in conjunction with agricultural zoning; however, sound attenuation is required. Specific height restrictions apply.
- **Airport Influence Zone “C.”** Exposed to moderate levels of aircraft noise. AIZ “C” allows residential uses, but sound attenuation measures, such as air circulation systems, are required. Specific height restrictions apply. The Part 150 Study recommends the extension of this zone into an area west of the airfield, an area that is subject to continuous overflights by both arriving and departing air traffic.⁴¹
- **Airport Influence Zone “H.”** Land use controls within AIZ “H” are the same as the underlying zoning; however, additional height restrictions apply.

Aircraft Operational Measures

Effective March 1, 2011, SLCDA entered into an agreement with the FAA regarding flight procedures coming into and out of SLC. The provisions of the agreement are outlined in the *Preferential Runway Use Program Letter of Agreement*.⁴² The Preferential Runway Use Program includes the noise abatement measures outlined under the discussion of the Part 150 NCP above, plus restrictions concerning runway conditions, crosswinds, and temperature.

Airport Construction Noise

According to the *Salt Lake City International Airport Construction Safety and Security Compliance Manual*, SLCDA advises all contractors to “take any and all preventative measures to curtail the noise level at all times.”⁴³

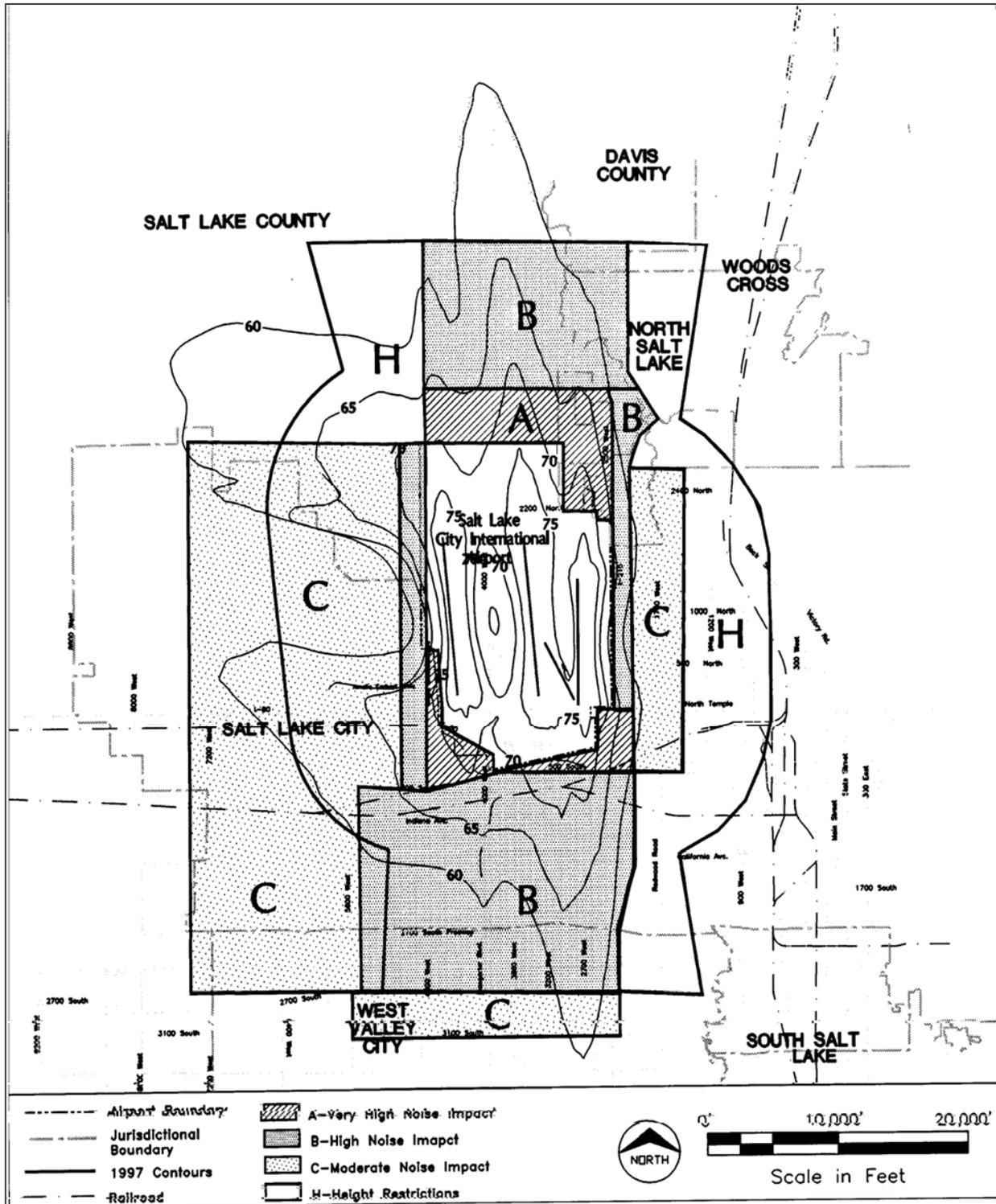
⁴¹ SLCDA. 2006. *Salt Lake City International Airport: Airport Master Plan and F.A.R. Part 150 Study*. Prepared by HNTB Corporation. Report.

⁴² SLCDA. 2000. *Letter of Agreement: Preferential Runway Use Program*.

⁴³ SLCDA. July 2012. *Salt Lake City International Airport Construction Safety and Security Compliance Manual*. http://www.slcairport.com/cmsdocuments/Construction_Safety_Manual.pdf. Accessed August 20, 2013.



FIGURE 4-2: AIRPORT FLIGHT PATH PROTECTION OVERLAY DISTRICT



Source: Salt Lake City, 2007.

Noise Complaints

Annually, SLCDCA receives approximately 20 noise complaints associated with air traffic operations at SLC. A telephone hotline operator is available to receive noise complaints between 8:00 AM and 4:30 PM, and a voice message system is available 24 hours per day, seven days per week.

Noise complaints at SLC are relatively minimal compared to other airports with a similar number of operations. In 2012, Washington Dulles International Airport had 312,070 operations, while SLC had 328,130 operations;⁴⁴ however, Dulles received 274 noise complaints in 2012.⁴⁵ This is most likely a reflection of the lack of residential land uses surrounding SLC relative to other major U.S. airports like Dulles.

Table 4-4 details existing noise-related initiatives that have been implemented by SLCDCA at SLC.

TABLE 4-4: EXISTING NOISE ABATEMENT INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Preferential Runway Use Program. SLCDCA established preferred arrival and departure procedures for aircraft	Reduces noise impacts to residential populations.	O, S
Zoning for Land Use Compatibility. SLCDCA works with local jurisdictions to minimize noise hazards to surrounding communities and offers a noise complaint telephone number: 801-575-2824	Reduces noise impacts to residential populations and non-compatible land use.	O, S
Noise Monitoring. SLCDCA provides a noise complaint telephone number on their website for the surrounding communities: 801-575-2824	Increases Airport awareness of noise issues on the surrounding communities. Minimizes noise hazards to the surrounding communities.	S

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDCA; Compiled by VHB, 2014.

Water Use and Conservation

The Airport is located in a region with a sub-humid climate and average annual rainfall of 16.2 inches.⁴⁶ Given the region’s drier climate and the increased variability of weather

⁴⁴ Airports Council International (ACRP). 2012. *2012 North American (ACI-NA) Top 50 Airports (includes Passenger, Cargo and Movements)*. <http://www.aci-na.org/content/airport-traffic-reports>. Accessed October 29, 2013.

⁴⁵ Metropolitan Washington Airports Authority. 2012. *2012 Annual Aircraft Noise Report for Washington Dulles International Airport (IAD) and Ronald Reagan Washington National Airport (DCA)*. http://www.mwaa.com/file/noise_report_2012.pdf. Accessed October 24, 2013.

⁴⁶ Weather.com, “Average Weather for Salt Lake City International Airport,” www.weather.com/weather/wxclimatology/monthly/graph/SLC:9

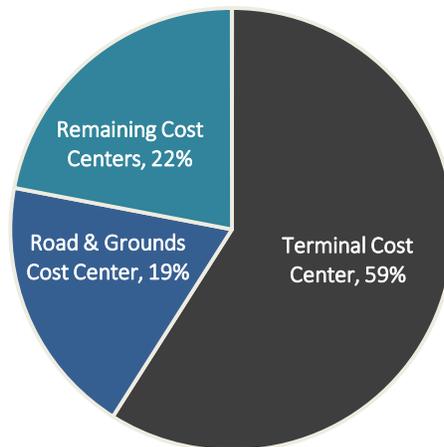
patterns resulting from climate change, it is important that SLCDAs act as a good steward of water resources by minimizing water use through conservation efforts. Water quality protection and stormwater management also are good practices that the Airport should adopt. These are addressed in more detail in the Natural Resources section.

There are many benefits to improved water conservation, including reduced utility costs, energy savings from reduced hot water use (e.g., hand-washing sinks), and protection of a scarce natural resource in the region. As the region continues to experience increased variability in precipitation as a result of climate change, these benefits will become more significant. Just in the past few years, as water utility rates have increased, the Airport has realized significant benefits from its irrigation and end-use fixture upgrades.

In 2012, 133 million gallons (Mgal) of water were consumed at the Airport resulting in a cost of almost \$286,000. Water use at the Airport is metered among 13 separate “cost centers.” A map of the SLC’s cost centers is included in Chapter 3, *Airport Profile* (Figure 3-5).

Historically, the majority of water is consumed in the Terminal (terminal and concourses) and Road and Grounds cost centers (landscaping only), which combine for 78 percent of total water consumption at the Airport. As shown in Figure 4-3, almost 60 percent of water consumed at the Airport was used by the Terminal cost center, which is largely restroom and heating, ventilation, and air conditioning (HVAC) uses. The Road and Grounds cost center consumes almost 20 percent of water use at the Airport, primarily for landscape irrigation. The remaining 11 cost centers combine to consume the last 22 percent of the water. None of these remaining cost centers consumes more than the four percent of total water use.

FIGURE 4-3: AVERAGE WATER USE BY COST CENTER

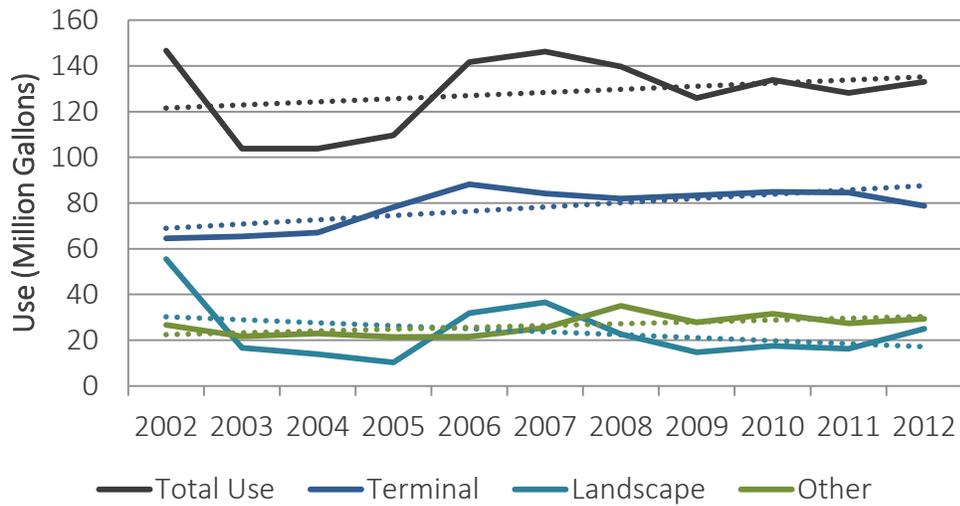


Source: SLCDAs; Compiled by Brendle Group, 2013.

As shown in Figure 4-4, since 2002, water use in the Terminals cost center has trended upward, which is the primary driver in an overall upward trend in total water use for the

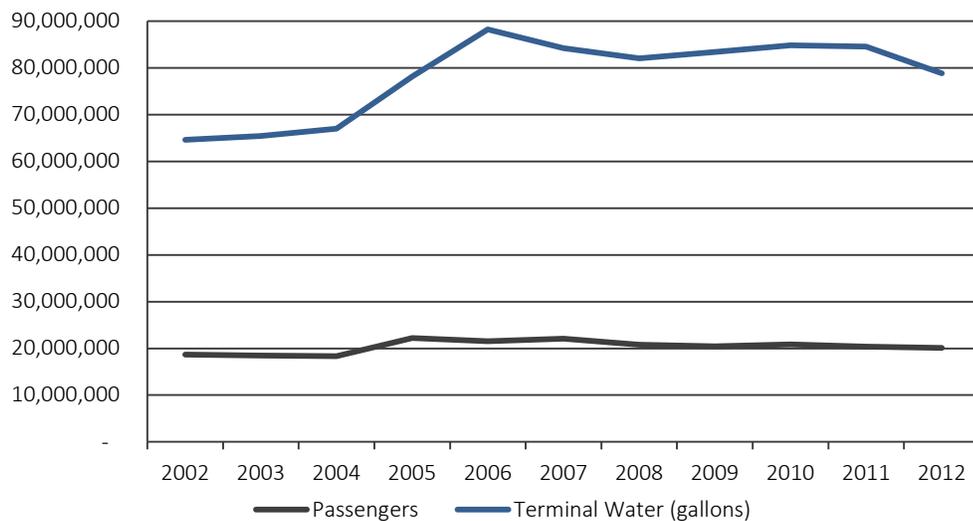
Airport (the dotted lines in the figure represent the average trend for each category). Figure 4-5 illustrates that passengers fluctuated between 2002 and 2012 and water use fluctuated in the same direction as the passengers and at generally the same time but did not change as drastically as passengers did. On the other hand, water use in the Road & Grounds cost center, which is largely landscape irrigation, has trended downward slightly since 2002. Water use for the remaining eleven cost centers has trended upwards along with Terminal use, but their combined, relative impact is much smaller.

FIGURE 4-4: WATER USE AND TREND LINES, 2002-2012



Source: SLCD; Compiled by Brendle Group, 2013.

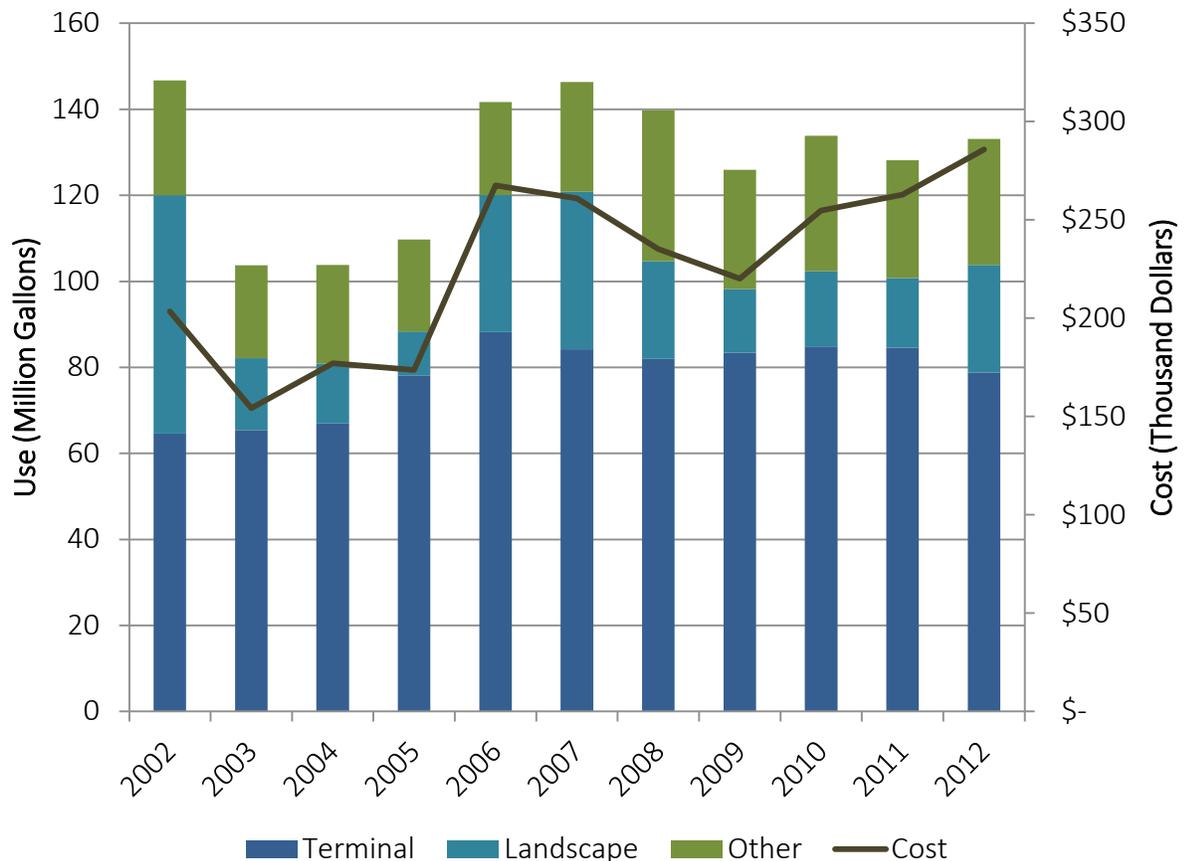
FIGURE 4-5: WATER USE AND PASSENGERS, 2002-2012



Source: SLCD; Compiled by Brendle Group, 2013.

Water utility costs at the airport have trended upward at a steeper rate than use as the unit cost of water increased from an average \$1.38 per thousand gallons in 2002 to \$2.11 per thousand gallons in 2012, a 53 percent increase. Figure 4-6 shows annual use and cost trends since 2002.

FIGURE 4-6: HISTORIC WATER USE & COST, 2002-2012



Source: SLCDCA; Compiled by Brendle Group, 2013.

Terminals Cost Center Water Use

Restrooms and HVAC equipment make up the majority of the water use at the Airport and the vast majority of use in the Terminal cost center category. Most restrooms are equipped with 1.5-gallons-per-minute (GPM) urinals and 1.0-GPM faucet aerators. Newer toilets are rated at 1.6 gallons per flush (GPF) while older toilets are 3.5 GPF.

There is a central Boiler Plant with six chillers and four boilers that provide heating and cooling to the majority of the Airport. The central plant currently shares a water meter with the Airport Terminal making it difficult to determine HVAC's contribution to overall water use at the Airport.

Terminals Cost Center

The following water meters are located within the Terminal Cost Center:

- Terminals and Boiler Plant
- Concourse D/E/IAB
- Concourse B (Lower)

Road and Grounds Cost Center Water Use

Within the Road and Grounds cost center, there is one water meter that is used for landscaping irrigation. There are 33 total landscaped acres at the Airport, or 0.4 percent of the 7,697 acres within its boundaries. More than 90 percent of the landscaped areas, or 30.2 acres, use low water xeriscaping practices. The remaining three acres are turf landscape.

SLCDA has demonstrated leadership in the design and maintenance of low water landscaping for a majority of its landscaped areas. Drawing inspiration from the natural landscape of the Salt Lake City region, SLCDA landscape designers and airfield staff have successfully transitioned from traditional, water-consumptive lawn-based landscaping to xeriscaping, which includes native and/or adaptive plantings, rock cover, rock swales, and mulches.

The Airport began converting to low water landscaping in 2001, resulting in substantial decreases in irrigation water use. Though precipitation patterns cause fluctuation in irrigation water use from year to year, average annual irrigation water use dropped from 91 million gallons (Mgal) per year from 1997 to 2001 to 24 Mgal from 2002 to 2012, a decrease of 74 percent. Two zoning ordinances in 2003 and 2007 codified requirements for low water use landscapes at the Airport,^{47,48} and included requirements for use of drought-tolerant plant species and irrigation systems that are designed for the efficient use of potable water.



Xeriscaping

Examples of the low water landscaping practiced throughout the Airport.

⁴⁷ *Creating an Airport Landscaping Overlay District and Adopting Related Changes to the City Code.* www.slcfdbase.com/Ord_by_Chron_2000-2009/default.htm#!Documents/ordinance70of2003.htm

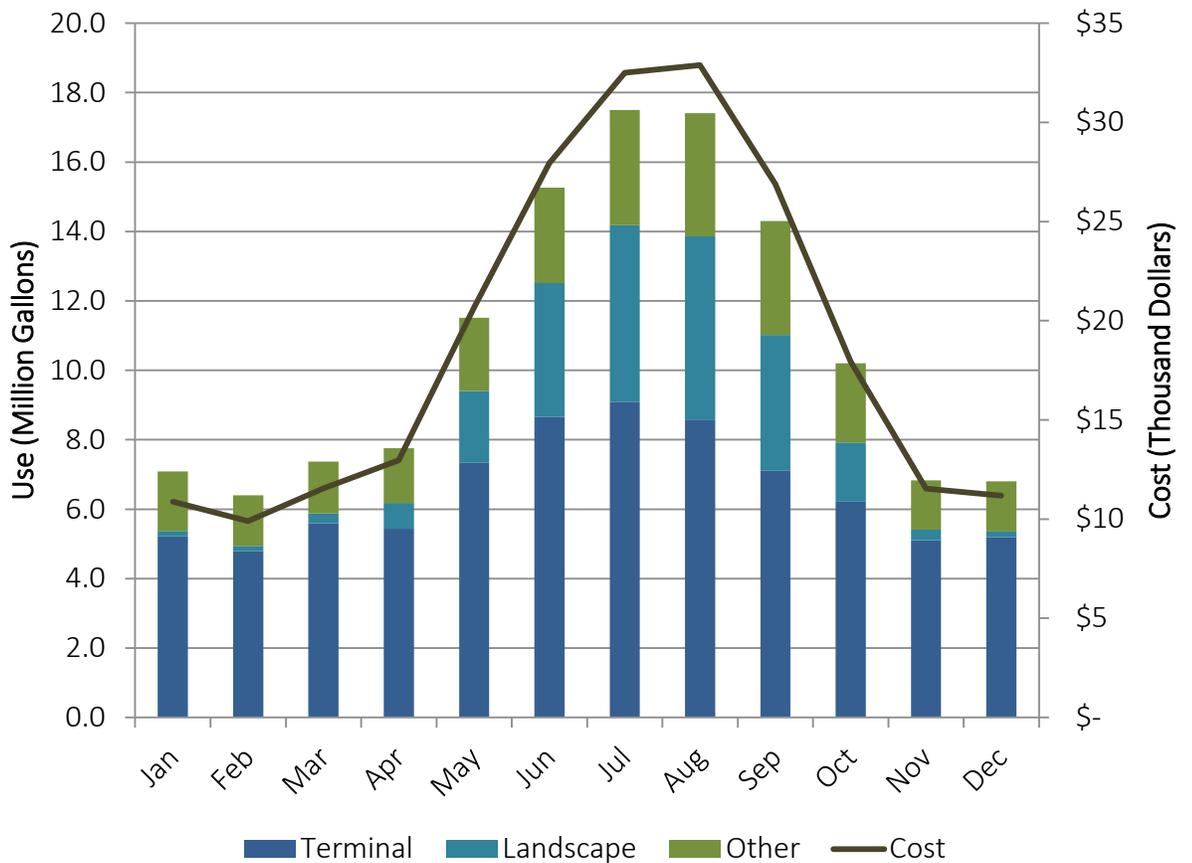
⁴⁸ Salt Lake City. 2007. Title 21A: Zoning, 21A.34.040: AFPP Airport Flight Path Protection Overlay District. http://www.sterlingcodifiers.com/codebook/index.php?book_id=672. Accessed August 15, 2013.

The small amount of turf grass that remains at the site is connected through the xeriscape areas and provides a desired aesthetic quality. Currently, there are no plans to convert additional turf to xeriscape.

In addition to low water landscaping, SLCDCA has installed an integrated, high-efficiency irrigation system to further reduce water use. This system connects all irrigated landscapes to one centralized control point that is connected to a weather station measuring wind, rain, humidity, and temperature. The irrigation system takes this data to measure the evapotranspiration factor each day to determine the watering needs of specific landscapes.

Water use spikes at the Airport during the summer months are primarily from landscape irrigation, though there are also monthly fluctuations in other Airport water uses (Figure 4-7). Drip irrigation is used for low water landscapes, which are typically watered one day per week, while spray heads are used for turf landscapes that are watered three days a week.

FIGURE 4-7: AVERAGE MONTHLY WATER USE & COST TRENDS, 2002-2012

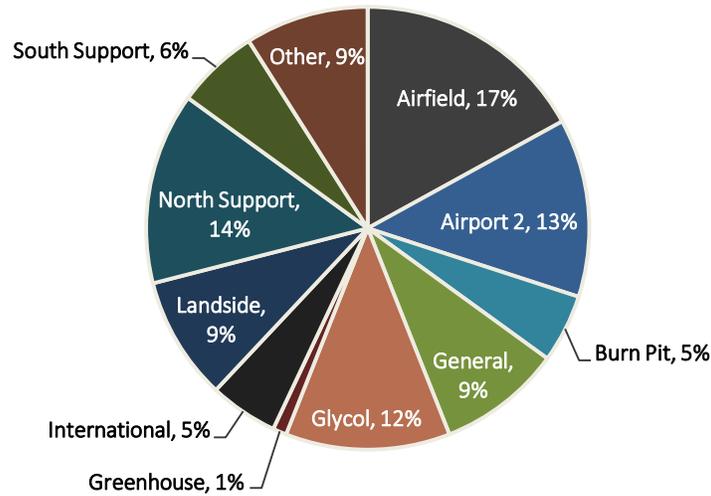


Source: SLCDCA; Compiled by Brendle Group, 2013.

Other Cost Centers Water Use

Figure 4-8 outlines how the 22 percent of water not used by the Terminal or Road and Grounds cost centers is broken up between the remaining eleven cost centers. For the remaining cost centers with multiple meters, Table 4-5 summarizes the distribution of use among the multiple meters based on 2012 water use data. Some of the larger sources of water use among the 11 cost centers in this ‘Remaining Cost Centers’ category include glycol operations, vehicle washing, and restroom facilities.

FIGURE 4-8: AVERAGE ANNUAL DISTRIBUTION OF WATER USE IN OTHER COST CENTERS (EXCLUDING TERMINAL AND ROAD & GROUNDS COST CENTERS), 2002-2012



Note: Airport 2 is South Valley Regional Airport
Source: SLCD; Compiled by Brendle Group, 2013.

TABLE 4-5: 2012 DISTRIBUTION OF WATER USE IN REMAINING COST CENTERS (EXCLUDING TERMINAL AND ROAD AND GROUNDS COST CENTERS) WITH MULTIPLE METERS

COST CENTER	COST CENTER METERS	PERCENT OF TOTAL COST CENTER USE
Airfield	Airfield Lighting Vaults	1%
	Airfield Operations Building CB2	3%
	Airplane	<1%
	South Glycol Tanks	2%
	Fire Station # 12	23%
	Batch Plant	22%
	Airport Batch	6%
	Delta Airline's Glycol	34%
	Aircraft De-icing Facilities	8%
	Airport Snow Equipment Storage Bldg.	<1%
General Aviation	Executive Terminal	31%
	Barken Aviation	2%
	Tree Farm	67%
International (Intl.) Center¹	Intl. Center Radix Plaza	41%
	Intl. Center Office	58%
	Intl. Center Warehouse	1%
Landside	Parking Structure	55%
	Airport Police Training Facility	34%
	Airport Police Station	6%
	Parking Administration Building/ Culinary	5%
	Taxi Cab Plaza	1%
North Support	Car Wash/Roads & Grounds	46%
	Roads & Grounds	16%
	Warehouse & Shops	19%
	Preventative Maintenance (PM) Facility	7%
	Airfield Maintenance Building	5%
	Technical Support Building - North Temple Street	7%
South Support	Delta Airlines Cargo	66%
	Joint Cargo #1	15%
	Joint Cargo # 3	12%
	Joint Cargo #2 (SkyWest)	7%
Other	FAA Building	13%
	Airport Ground Transportation Building East Side	34%
	National Weather Service (NWS) Building	51%
	USAC Aviation Hangar & Lawn	2%

Note: 1 - The International Center is an area of office, industrial, hotel and restaurant development west of the Airport area and north of I-80 that is owned by SLCDA.

Source: SLCDA, 2013.

Table 4-6 details existing water use and conservation initiatives that have been implemented by SLCDCA.

TABLE 4-6: EXISTING WATER USE AND CONSERVATION INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Low water landscaping and xeriscaping on 90% of landscaped area	Reduces water use during peak water consumption times in the summer and reduces fertilizer application and contamination.	E, O, N, S
Drip irrigation for low water landscaped and xeriscaped areas	Reduces water use during peak water consumption times in the summer.	E, O, N
Low-flow toilets in some restrooms (also piloted some waterless urinals)	Reduces water use year round in the Terminal cost center.	E, O, N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDCA; Compiled by VHB, 2014.

Air Quality and Climate Change

Air quality can potentially correlate with almost any other sustainable category. The incorporation of sustainability into the management of SLC will reduce emissions as well as positively impact the air quality of the area. For example, an increase in energy efficiency through terminal upgrades will reduce natural gas usage for heating of the buildings and electricity usage associated with building cooling. Additionally, water conservation programs reduce electricity demands associated with pumping, and use of public transportation decreases fuel usage associated with vehicles. Any reduction in natural gas, fuel, water, or electricity usage decreases the amount of criteria pollutants and GHGs emitted at the Airport or the utility company provider.

Sources of both criteria pollutants and GHGs at SLC include aircraft, ground support equipment (GSE), boilers, generators, transportation vehicles, and maintenance activities. Some of the sources are directly managed by SLCDCA, while other emission sources such as aircraft, GSE, and ground transportation are controlled by others (e.g., airlines, concessions and other tenants).

The air quality baseline inventory was based on 2012 data, unless otherwise noted. This section only addresses the emissions of criteria pollutants and GHGs to the outdoor atmosphere associated with SLC operation sources. Monitored results of indoor air quality (inside the terminals, concourses, or other buildings owned and operated by the SLCDCA) are not available and are not addressed in this Air Quality section.

Criteria Air Quality Pollutants

Criteria pollutants are compounds that affect human health and the environment. The United States Environmental Protection Agency (USEPA) has set National Ambient Air

Quality Standards (NAAQS) for criteria pollutants such as carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and ozone (O₃). These pollutants, except O₃, are emitted from the combustion of fuel. Ozone is formed through a photochemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight. A “non-attainment” area is a geographical area that exceeds one or more of the NAAQS as designated by the USEPA, while a maintenance area was formerly designated non-attainment but is currently meeting the applicable standards.

SLC is located in Salt Lake County, which is designated as a non-attainment area for particulate matter less than ten microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and SO₂, and a maintenance area for O₃ and CO. (It should be noted that a request for re-designation to attainment was submitted to the USEPA for SO₂ in 2005.) In addition, the Salt Lake City area is prone to temperature inversions in the winter months, which trap a dense layer of cold air and pollutants under a layer of warm air. Temperature inversions during the winter of 2012 to 2013 created such poor air quality in the area that Salt Lake City received national exposure through media reports describing the severity of the problem.

The impact’s assessment of criteria pollutants is typically conducted to demonstrate compliance with the State Implementation Plan (SIP) for projects at airports located in a non-attainment area. An analysis is performed in accordance with the guidelines provided in the FAA 2004 *Air Quality Procedures for Civilian Airports & Air Force Bases* (Airport Air Quality Handbook), FAA Order 5050.4B, and FAA Order 1050.1E, constitute the relevant provisions of the National Environmental Policy Act, the Clean Air Act, and other applicable regulations. As part of the SLC SMP, the baseline air inventory was conducted in a similar manner as these guidelines.

Sources of emissions at SLC include stationary sources, aircraft, GSE, auxiliary power units (APUs), as well as vehicle traffic. Electricity usage also causes emissions, not at the Airport, but at the utility generating the power. Table 4-7 describes the sources of emissions as well as the method used for the baseline calculations. It should be noted that there are significant emission sources, such as aircraft, GSE, and public transportation that are not owned and controlled by the SLCDA.

To estimate emissions from the various sources, information was obtained from the SLCDA, tenants, and available sources. Similarly, various approaches including modeling, emission factors, and calculations were used to determine baseline emissions.

TABLE 4-7: SOURCES OF EMISSIONS AT SLC

SOURCES	CHARACTERISTICS OF EMISSIONS AND METHOD FOR BASELINE CALCULATIONS
Stationary Sources	The primary stationary sources at SLC are boilers and emergency generators that exhaust products of fossil fuel combustion. Other sources include the burn pit, incinerator, paint booths, and the carpenter shop vacuum system. Emission calculations were based on information provided by the SLCDCA, including the 2012 GHG Inventory and the 2011 Annual Emission Inventory for the Utah Division of Air Quality (UDAQ). It should be noted that the release of refrigerants were also considered in calculating SLC GHG emissions.
SLC Off-Road Vehicles	Exhaust is produced by fuel combustion from SLCDCA-owned off-road vehicles. These include mowers, tractors, sweepers, AARF vehicles, All-terrain vehicles, etc. The expected emissions were calculated based on fuel usage, detailed in the 2012 GHG inventory, multiplied by applicable emission factors for the off road vehicles.
Aircraft	Exhaust is produced by fuel combustion from aircraft, but varies depending on aircraft engine type, fuel type, number of engines, power setting and time-in-mode, and amount of fuel burned. The FAA’s Emission Dispersion Modeling System (EDMS) Version 5.1.4 was used to calculate emissions for aircraft. The modeled scenarios were based on information provided by the SLCDCA, such as the monthly Airport Schedule Reports and the 2012 Environmental Assessment (EA). The aircraft emissions account for the complete landing and takeoff cycle to an elevation of 3,000 feet above ground level.
Ground Support Equipment (GSE)	Exhaust is produced by fuel combustion from aircraft service trucks, baggage tugs, belt loaders, deicers and other portable equipment, used by the airlines and fixed- based operators (FBO). EDMS defaults were used to calculate emissions for GSEs based on aircraft operations, provided by the SLCDCA, such as the monthly Airport Schedule Reports and the 2012 EA.
Auxiliary Power Units (APU)	Emissions are also emitted by APUs used to provide power to aircraft when the main engines are off. Since all of the commercial gates at Concourses A, B, C, and D have gate electrification and pre-conditioned air (PCA) available, the EDMS default of seven minutes per landing/takeoff cycle was used to account for APU emissions.
On-Road Vehicles	Exhaust is produced by fuel combustion from SLCDCA-owned vehicles, passenger vehicles, employee and cargo motor vehicles approaching, departing, and moving about SLC. The emissions from this source vary from the type of vehicle (automobiles, vans, trucks, and busses), type of fuel, and the amount of fuel consumed. The EDMS default for fleet mix was used to estimate emissions from surface vehicles. The default fleet mix including all vehicle types, fuels, and ages are assumed to represent the distribution of surface traffic at SLC. The 2012 traffic volume was obtained by proportioning the 2009 vehicle miles traveled (VMT) used in the EA by the difference in enplanements between the two years.
Electrical Consumption	Emissions are associated with the production of electricity at off-site utilities that use coal, oil, or natural gas. Since emissions do not occur at the Airport, electricity usage is only accounted for in GHG emission calculations. Electricity usage information was provided by the SLCDCA.

Source: C&S Engineers, Inc., 2013.

Table 4-8 provides a summary of emission sources and the applicable throughput used for the baseline inventory, while Table 4-9 summarizes the criteria pollutant emissions by source. SLCDCA-owned and operated sources of criteria pollutants, which comprise of less than seven percent of particulate matter emissions associated with SLC, oxides of nitrogen comprise of approximately 2.5 percent, while carbon monoxide, volatile organic compounds, and sulfur oxides are one percent or less.

TABLE 4-8: SOURCES INCLUDED IN THE BASELINE EMISSION INVENTORY

SOURCES	CONTROLLING ENTITY (GHG SCOPE)	THROUGHPUT	UNITS
Heat Plant - 4 Boilers	SLCDA (Scope 1)	70,449	million British Thermal Units (BTUs) of natural gas
Heat Plant - 4 Boilers	SLCDA (Scope 1)	2,155	gallons of diesel fuel
Other Boilers/Combustion Sources	SLCDA (Scope 1)	28,031	million BTUs of natural gas
Generators	SLCDA (Scope 1)	2,563	gallons of diesel fuel
Burn Pit	SLCDA (Scope 1)	130,069	gallons of propane
Incinerator ^{1,2}	SLCDA (Scope 1)	19,800	cubic feet of natural gas
Spray Booths ¹	SLCDA (Scope 1)	144	gallons per year
Fuel Tanks ¹	SLCDA (Scope 1)	58,000	total gallon tank capacity
Carpenter Shop Vacuum ¹	SLCDA (Scope 1)	75	pounds particulates captured/week
Off-Road Vehicles	SLCDA (Scope 1)	NA	varies by fuel
Natural Gas Combustion – Tenants	Tenants (Scope 3)	12,122	million BTUs of natural gas
Commercial Airline Operations	Airlines (Scope 3)	117,874	Landing Takeoff Cycles (LTOs)
General Aviation (GA) Operations	Airlines (Scope 3)	48,545	LTOs
GSE	Airlines/FBOs (Scope 3)	EDMS Default	based on number LTOs
APUs	Airlines (Scope 3)	7 Minute	default of 7 minute/LTO Cycle
On-Road Vehicles	Public (Scope 3)	21,999,059	VMT per year

Notes: 1. These values were based on 2011 data in Utah Division of Air Quality Emission Inventory
 2. At this time, the incinerator is only used periodically for wildlife management operations.
 NA = Not Applicable

Source: C&S Engineers, Inc., 2013.

TABLE 4-9: CRITERIA POLLUTANT EMISSIONS

SOURCE	NOX (TONS/YR.)	CO (TONS/YR.)	VOC (TONS/YR.)	SOX (TONS/YR.)	PM _{2.5} (TONS/YR.)	PM ₁₀ (TONS/YR.)
SLCDA-Owned and Operated Sources						
Heat Plant - 4 Boilers	6.01	0.85	0.19	0.02	0.27	0.27
Other Boilers/Combustion Sources	2.38	0.34	0.08	0.01	0.11	0.11
Generators	0.66	0.15	0.04	0.03	0.03	0.03
Burn Pit	0.41	2.20	0.83	0.00	0.00	0.00
Incinerator	0.00	0.00	0.00	0.00	0.00	0.00
Off-Highway Vehicles	15.83	10.24	1.56	1.34	1.29	1.29
Spray Booths	NA	NA	0.38	NA	NA	NA
Fuel Storage Tanks	NA	NA	0.52	NA	NA	NA
Vacuum Equipment	NA	NA	NA	NA	0.03	0.03
Total SLCDA-Owned Emissions	25.29	13.78	3.60	1.40	1.73	1.73
Other Sources						
Natural Gas Combustion –Tenants	1.03	0.15	0.03	0.00	0.05	0.05
Commercial Airline Operations	724.46	1039.52	126.09	89.98	11.90	11.90
Commercial GSE	65.90	676.94	22.30	1.75	1.87	1.96
Commercial APUs	9.60	13.58	1.00	1.48	1.47	1.47
GA Operations	184.12	527.13	223.76	22.13	6.51	6.51
GA GSE	21.71	189.33	6.66	0.47	0.74	0.77
GA APU	1.00	0.98	0.06	0.13	0.08	0.08
On-Road Vehicles	23.30	232.31	14.02	0.21	0.90	0.52
Total Emissions - Other Sources	1031.12	2679.94	393.92	116.15	23.52	23.26
TOTAL EMISSIONS	1056.41	2693.72	397.52	117.55	25.25	24.99

Notes: NA = Not Applicable
Source: C&S Engineers, Inc.

Regional Air Quality Monitoring

The SLCDA does not monitor regional air quality. However, periodic stack testing is performed on the airport boilers to document compliance with facility permits.

The Utah Department of Environmental Quality maintains the Air Monitoring Center (AMC), which is responsible for operating an ambient air-monitoring network that protects the health and welfare of the citizens of Utah. The AMC provides air pollution information for the daily air quality, health advisories, winter season wood burn conditions, and summer season. The NWS also provides an Air Quality/Smoke Dispersal Index to provide information for regulators decisions on open burning and air quality. This information is readily available at the following website: www.wrh.noaa.gov/slc/projects/ifp/html/clrindx.php

Greenhouse Gas (GHG) Emissions

Greenhouse gases (GHGs) are pollutants such as carbon dioxide (CO₂), methane, nitrous oxide, and refrigerants that trap heat and radiation in the earth’s atmosphere causing climate change. Unlike criteria pollutants, GHG emissions do not directly affect the regional air quality, but contribute to climate change, which results in an increased frequency of storms and global temperature. GHGs are typically measured in carbon dioxide equivalents (CO_{2e}), which accounts for the different global warming potential of the various GHGs.

The baseline GHG emissions for SLC were calculated using the information contained in the 2012 GHG Inventory, prepared by the SLCDCA, as well as procedures outlined in the Airport Cooperative Research Program (ACRP) *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories*. In accordance with the guidebook, the baseline inventory was segregated into three sections, or scopes. Scope 1 (direct emissions), include emissions associated with fuel necessary to power SLCDCA-owned vehicles on and off the Airport and SLCDCA-owned combustion facilities. Scope 2 (indirect emissions) include purchased electricity. Scope 3 emissions include sources not owned or controlled by the SLCDCA such as aircraft emissions, public ground travel on and off the Airport, and Airport employee commute emissions.

Greenhouse Gas (GHG) Emissions: “Scopes”

Airport industry guidance for developing GHG emissions inventories divides results into the controlling entities, or scopes:

- Scope 1 - direct emissions; SLCDCA-owned and operated sources.
- Scope 2 - indirect emissions; includes purchased electricity.
- Scope 3 - sources not owned or controlled by the SLCDCA.

Scope 1 Emissions

Scope 1 emissions consist of fuel consumption necessary to power SLCDCA-owned vehicles and facilities. It includes the combustion of natural gas, diesel fuel, unleaded gasoline, compressed natural gas, and other petroleum sources. These emissions from SLCDCA-owned and operated boilers, emergency generators, fire pit, incinerator and SLCDCA-owned vehicles fall under Scope 1 emissions. In addition, the type and amount of refrigerants released are also categorized as Scope 1. Table 4-10 summarizes the Scope 1 emissions by type of fuel combusted or refrigerant released, while Figure 4-9 depicts the percentage of each

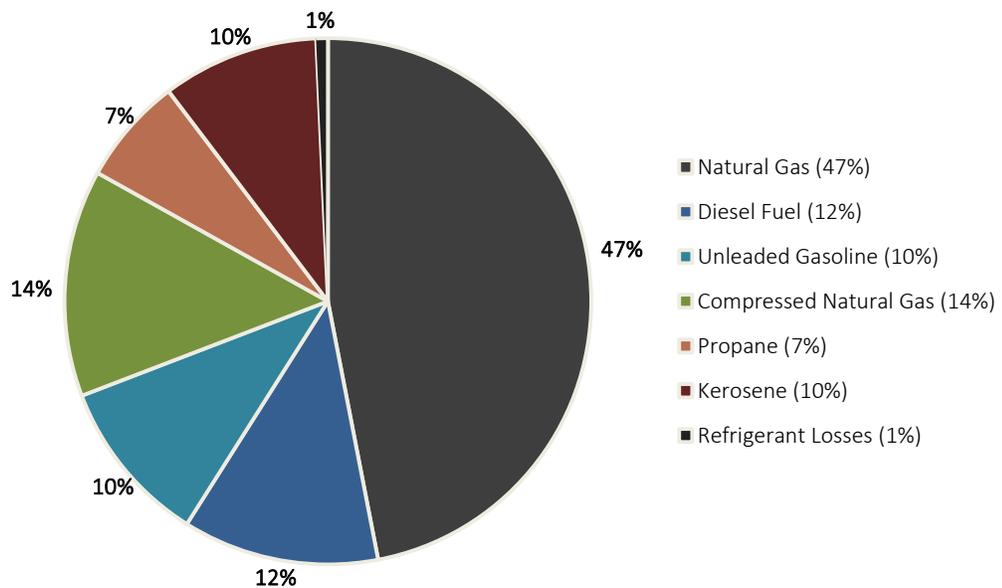
category. The combustion of natural gas for heating provides the highest GHG emissions of any fuel type used by the SLCD.

TABLE 4-10: SCOPE 1 GREENHOUSE GAS EMISSIONS

TYPE OF FUEL	ANNUAL USAGE (volume/year)	GHG EMISSIONS (metric tons CO _{2e} /year)
Natural Gas	98,480 decatherms	5,241
Diesel Fuel	130,992 gallons	1,344
Unleaded Gasoline	128,747 gallons	1,137
Compressed Natural Gas	224,055 gallons	1,556
Propane	130,069 gallons	734
Kerosene	110,000 gallons	1,073
Refrigerant HFC 134a Losses	60 pounds	35
Refrigerant R410A	30 pounds	24
Coolant R407C	30 pounds	21
TOTAL SCOPE 1 EMISSIONS		11,165

Source: C&S Engineers, Inc., 2013.

FIGURE 4-9: SCOPE 1 PERCENTAGES OF GREENHOUSE GAS EMISSIONS



Source: C&S Engineers, Inc., 2013.

Scope 2 Emissions

Scope 2 emissions are indirect emissions associated with electrical usage. As illustrated in Table 4-11, electrical use data for the SLCD facilities, concessions/airlines, and other tenants as well as GHG emission factors were used to determine carbon dioxide equivalents for the Scope 2 emissions. It should be noted that the tenant electricity usage is not owned and operated by the SLCD. The GHG emissions of 14,646 metric tons of CO_{2e} by the SLCD exceed the Scope 1 emissions total.

TABLE 4-11: SCOPE 2 GREENHOUSE GAS EMISSIONS

OWNER AND OPERATOR	ELECTRICITY USAGE (volume/year)	GHG EMISSIONS (metric tons CO _{2e} /year)
SLCDA	39,202,923 KW-hours/year	14,646
Concessions/Airlines	10,483,987 KW-hours/year	3,918
Parking/Cargo/Other Tenants	3,198,769 KW-hours/year	1,195
TOTAL SCOPE 2 EMISSIONS	52,885,679 KW-hours/year	19,759

Source: C&S Engineers, Inc., 2013.

Scope 3 Emissions

Scope 3 emissions are those associated with SLC, but not owned or operated by the SLCD. These include emissions from tenant-owned facilities, aircraft, GSE, as well as transportation vehicles used by employees, passengers, and others traveling to the Airport. The majority of Scope 3 GHG emissions are associated with aircraft operations. Table 4-12 summarizes the Scope 3 emissions by source.

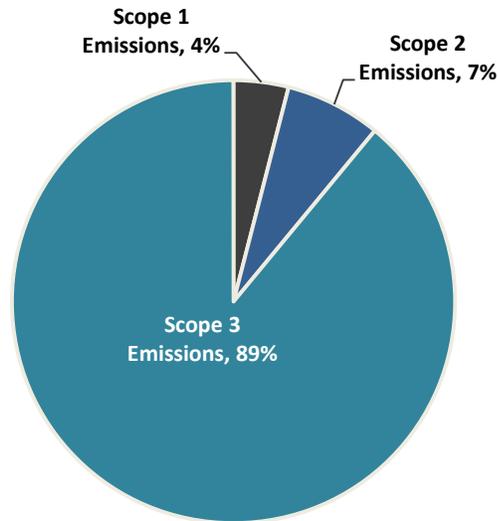
TABLE 4-12: SCOPE 3 GREENHOUSE GAS EMISSIONS

SOURCE	ANNUAL USAGE (volume/year)	GHG EMISSIONS (metric tons CO _{2e} /year)
Natural Gas – Tenants	12,122 decatherms	645
Commercial Airline Operations	117,874 LTOs	199,335
GA Operations	48,545 LTOs	49,030
Ground Support Equipment	EDMS Default	3,846
On-Road Vehicles	21,999,059 VMT	9,947
TOTAL SCOPE 3 EMISSIONS		262,803

Source: C&S Engineers, Inc. 2013.

Scope 3 emissions comprise approximately 89 percent of the GHG emissions at SLC, while aircraft operations (commercial and GA) alone comprise 85 percent. Figure 4-10 provides a graphical illustration of a comparison between Scope 1, 2, and 3 GHG emissions.

FIGURE 4-10: GREENHOUSE GAS (GHG) EMISSIONS BY SCOPE



Source: C&S Engineers, Inc., 2013.

Climate Change

Salt Lake City has developed the *Sustainable Salt Lake –Plan 2015*, which provides the City’s agenda to address climate change, protect resources, enhance assets, and establish a path toward greater resiliency and vitality for every aspect of the community. The SLCDCA has established goals and initiatives in the SMP to reduce emissions of air pollutants and climate-changing greenhouse gases. The Planning Director and the Environmental Manager from SLCDCA actively participate on the Mayor’s Climate Adaptation Steering Committee.

SLC is StormReady®

The National Weather Service has recognized SLC as a StormReady site – only the tenth airport in the U.S. – for SLCDCA’s strong commitment to implement the infrastructure and systems needed to save lives and protect property when severe weather strikes.

<http://www.stormready.noaa.gov/>

Adaptation to a changing climate also needs to be considered during capital projects at SLC. The majority of adaptation measures involve infrastructure improvements to accommodate higher intensity storms or redundancy to minimize utility shutdowns.

In 2012, the SLCDCA participated on the Salt Lake City Mayor’s Climate Adaptation Steering Committee. The committee met as a group and identified 81 possible climate related impacts that could affect City operations in the future. These potential impacts were identified as possible scenarios that the City may face if the region sees temperature increases, more frequent droughts, loss of snow pack, and an increased frequency of severe weather events.

Of the 81 impacts considered, 23 potential impacts were identified as posing a high risk to the manageability and sustainability of City operations, and to community welfare and quality of life.

In 2014, the Steering Committee met again to further discuss the 23 high-risk impacts and give direction on how to incorporate climate adaptation planning into all levels of city planning. Individual departments and divisions will develop climate adaptation policies, which describe how they will mitigate the effects of climate change on all impacts identified by the Steering Committee. The Steering Committee also discussed current and future mitigation efforts, which will be included in adaptation policies to be developed by the individual departments.

SLCDA has already incorporated a number of air quality and GHG emissions reduction at the Airport. For more information, the Air Quality and Greenhouse Gas Assessment is located in Appendix E, *Air Quality and Greenhouse Gas Assessment*. Table 4-13 details existing initiatives that have been implemented by the SLCDCA at SLC.

In addition to the above measures conducted by the SLCDCA, several airlines are implementing emission reduction initiatives, such as:

- Single-engine taxi when appropriate
- Conversion of GSE to electric or alternative fuels
- Turning off GSE to minimize idling
- Solar fuel carts
- Aircraft weight reduction programs to conserve fuel

TABLE 4-13: EXISTING AIR POLLUTANT AND GHG REDUCTION INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
The SLCDCA installed electrification and PCA at commercial gates on Concourses A, B, C, and D	Reduces use of jet fuel to power aircraft APU and associated emissions.	O, N
The SLCDCA uses natural gas shuttle buses to transport employees and passengers to the employee and long-term parking lots, respectively. Currently, 47% of the fuel use for the Airport fleet is compressed natural gas	Natural gas is a cleaner burning fuel and less costly than diesel or gasoline. Use of natural gas reduces NOx emissions and operating costs.	E, N
The SLCDCA-owned fleet consists of 82 alternative-fuel vehicles, including electric, biofuels, hybrids, and CNG, with propane-operated specialty equipment	Increases fuel efficiency and reduces criteria pollutant and GHG emissions.	E, N
The SLCDCA provides public access to the natural gas fueling station	Promotes the purchase of natural gas vehicles by companies and individuals.	N, S
Public transportation is provided to the Airport via (UTA TRAX), bus, and Frontrunner as well as free ridership for employees	Reduces emissions and traffic congestion near the terminal.	N, S
Salt Lake City has a “No Idling Policy” for vehicles operating at the Airport	Reduces emissions and provides better air quality near the terminal.	N, S
The SLCDCA specified the use of hybrid vehicle technology for taxi cab operators in the latest Request for Proposals (RFP)	Increases fuel efficiency and reduces criteria pollutants and GHGs in the region.	N
The SLCDCA installed bicycle racks for employees and passengers	Reduces emissions associated with vehicle trips to the Airport.	N, S
The SLCDCA offers preferred parking for employees carpooling to the Airport	Reduces emissions associated with vehicle trips to the Airport.	N, S
The SLCDCA has conducted several energy audits to increase energy efficiency of facilities	This reduces operating costs, fuel and electricity usage as well as associated emissions at the airport.	E, O, N
The SLCDCA implemented a Building Automation System (BAS) to increase energy efficiency at SLC	This reduces both electricity and natural gas usage as well as associated emissions.	E, O, N
The SLCDCA has incorporated particulate matter control language in SLCDCA construction specifications	Particulate matter control assists UDAQ in achieving better air quality in the region since Salt Lake County is in non-attainment for particulate matter; it also improves regional air quality.	N, S

Notes: 1- EONS = Economic viability, (E) Operational efficiency, (O) Natural resource conservation, (N) and Social responsibility (S)
Source: SLCDCA; Compiled by VHB, 2014.

Waste Management and Recycling

The management and disposal of solid waste have considerable impacts on an airport's finances, operations, environmental well-being, and relationship with the community. Its significance has been identified by the FAA and incorporated into recent regulations. Section 133 of the *FAA Modernization and Reform Act of 2012* requires airports with a master plan to complete a recycling plan that includes/addresses:

- A solid waste audit
- Feasibility of solid waste recycling
- Minimization of solid waste generation
- Operation and maintenance requirements
- Review of waste management contracts
- The potential for cost savings or the generation of airport revenue⁴⁹

In order to assist airports in the development of these recycling programs, the FAA recently issued a memorandum document titled *Guidance on Airport Recycling, Reuse, and Waste Reductions Plans*.⁵⁰ This memorandum offers direction on preparing airport recycling, reuse, and waste reduction plans as part of a sustainability plan or within a master plan. The seven sections that should be part of an airport recycling, reuse, and waste reduction plan identified by the FAA include:

- Facility Description and Background
- Waste Audit
- Review of Recycling Feasibility
- Operation and Maintenance Requirements
- Review of Waste Management Contracts
- Potential for Cost Savings or Revenue Generation
- Plan to Minimize Solid Waste Generation

Consistent with the sources identified in *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document*,⁵¹ the Airport generates the majority of its waste from terminals, airfields, aircraft maintenance hangars, cargo hangars, flight kitchens, offices, and airport construction projects. SLCDCA has made considerable efforts to minimize waste generation and maximize diversion rates within these source areas.

⁴⁹ Federal Aviation Administration (FAA). *FAA Modernization and Reform Act of 2012*.

⁵⁰ Federal Aviation Administration (FAA). September 30, 2014. *Guidance on Airport Recycling, Reuse, and Waste Reductions Plans*.

⁵¹ Federal Aviation Administration (FAA). April 24, 2013. *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document*.

Collection Process and Recycling Rates

Waste is collected in several different manners across the Airport. Descriptions of the waste collection procedures are listed in Table 4-14 by waste source (terminal, airfield, concessions, etc.).

TABLE 4-14: WASTE MANAGEMENT PROCEDURES AT SLC

WASTE SOURCE	WASTE MANAGEMENT PROCEDURES
Terminals—Pre-Security (excluding concessions)	No recycling; trash is transported by the janitorial service (ISS Facility Services) to pick-up sites, where it is then hauled away by Waste Management (WM) to the Salt Lake County disposal facility. ⁵²
Terminals—Post-Security (excluding concessions)	Individual sterile trash bins are interspersed with recycling stations consisting of separate bins for paper and plastics recycling and trash. Waste and recyclables are transported by the janitorial service (ISS Facility Services) to pick-up sites (separate dumpsters for recycling and trash), where it is then hauled away by WM. Trash is taken by WM directly to a Materials Recovery Facility (MRF) while all recyclables are brought to WM’s West Jordan MRF. There it is sorted first through automated processes and then by hand (estimated capture rate is 98%). Deplaned waste (excluding international waste) is handled privately by the airlines (refer to Table 4-15 for additional information).
Concessions	Waste from concessionaire activities is not handled by the SLCDCA. However, approximately 66% of concessionaires ⁵³ recycle at the Airport and many recycle waste cooking oil through the services of Renegade Oil (refer to Table 4-15). Approximately 25% of concessionaires reported using the City’s curbside recycling program.
Airfield	Landscaping waste (e.g., trees, shrubs, grass mowings, leaves, weeds, etc., generated through landscaping activities) is typically reused or recycled (e.g., mulching) by the SLCDCA. Scrap metal generated on the airfield is stored for recycling and glycol is collected from de-icing operations and sold by the SLCDCA.
Aircraft Maintenance Hangars	Collection tanks are provided by the SLCDCA for used oil generated during engine maintenance.
Cargo Hangars	Tenants are required to manage their own waste and recyclables. DHL Express’ trash and recyclables generated throughout its office and warehouse are collected by its janitorial service (currently Wingfoot). Trash and recyclables are placed into separate bags and disposed of appropriately in a four-yard trash dumpster or eight-yard recycling dumpster, which are picked up by WM. United Postal Service (UPS) also contracts with WM for its trash disposal but does not currently recycle municipal solid waste (everyday items used and discarded such as newspapers, food scraps, product packaging, etc.). UPS does, however, recycle steel and other metals, as well as used oil, antifreeze, and oil filters (aircraft oil is recycled through Skydrol; antifreeze and other lubricants are recycled through the services of Thermo Fluids).

Source: SLCDCA, 2013; Concessionaire Survey Result, 2013.

⁵² Waste is picked up five times per day (twice per eight-hour day shift [two day shifts] and once per eight-hour night shift [one night shift]).

⁵³ Based on survey provided to Airport concessionaires as part of the Sustainability Management Plan.

TABLE 4-14: WASTE MANAGEMENT PROCEDURES AT SLC (CONT.)

WASTE SOURCE	WASTE MANAGEMENT PROCEDURES
<p>Flight Kitchens</p>	<p>LSG Sky Chef removes international waste from planes, stores it in designated containers until the waste is hauled away for incineration.⁵⁴ Domestic airlines use the Airport’s cardboard compactors and comingled waste systems (janitorial staff [ISS Facility Services] will pick up and remove this waste) or their own contracted services. Almost 90% of airlines operating at SLC recycle (see Table 4-15) and more than 55% of them participate in the City’s curbside recycling program.⁵⁵</p>
<p>Offices</p>	<p>Each individual SLCDCA office has small containers for comingled recycling (i.e., all recyclable materials including paper, plastics, metals, etc., are combined into one container and sorted after collection at the recycling facility). These recyclables are transported by individuals to a 90-gallon container in a common area and then taken curbside by Airport Maintenance personnel (pick-up occurs each Friday). Office trash is picked up once daily by the SLCDCA’s janitorial service.</p>
<p>Airport Construction Projects</p>	<p>The majority of airfield construction materials are stored and reused on site (as shown in the photo) by the SLCDCA. Additionally, some projects have an on-site concrete crushing operation. Plantings removed during construction are either saved and replanted elsewhere on the Airport or shredded and used as mulch. Landside construction material and any remaining airside construction material that is not salvageable are collected by WM.WM’s staff sorts through the materials for potential recyclables prior to landfill delivery.</p> 
<p>Airport-Wide</p>	<p>The SLCDCA offers open-top waste removal to tenants and the public once a year, accepting anything from furniture to electronics.</p> <p>The SLCDCA encourages tenants to participate in the City’s curbside recycling program. Greenhouse staff, Building Automation System staff, and other Airport workers outside of the terminal area also use the curbside program.</p> <p>The SLCDCA offers several specialty recycling collection services (batteries, tires, electronics, etc.) for its operations, which are returned to suppliers for recycling.</p> <p>Landscaping waste is generally either relocated to another site on the Airport or shredded and used as mulch.</p> <p>The SLCDCA operates several cardboard compactors for recycling.</p> <p>Used motor oil and antifreeze generated during vehicle maintenance is stored and recycled.</p> <p>Old equipment, vehicles, furniture, and other items are auctioned off to the public through a third party.</p>

Source: SLCDCA, 2013; Concessionaire Survey Result, 2013.

⁵⁴ This process is consistent with federal regulations.

⁵⁵ Based on survey of airlines as part of the Sustainability Management Plan.

There are two major recycling providers in operation at the Airport— WM Contractors and Salt Lake City Curbside Recycling. Both accept the following recyclable materials:

- Recyclable metal (aluminum and steel cans / containers, etc.)
- Newspaper
- Magazines/catalogs
- Office paper, junk mail, receipts, etc.
- Cardboard and paperboard
- Styrofoam (only City curbside program)
- Recyclable plastics (#1 through #7)

Glass is not currently recycled by the SLCDCA; however, both of the recycling providers currently offer this service as an option. To recycle glass through WM, the Airport would require additional bins that would need to be maintained separately because this material stream is transported to a different recycling facility than comingled material. As part of its curbside recycling program, the City of Salt Lake recently partnered with a private company to collect glass recyclables. This also requires a separate container and additional fee.



Waste Management Dumpsters at SLC

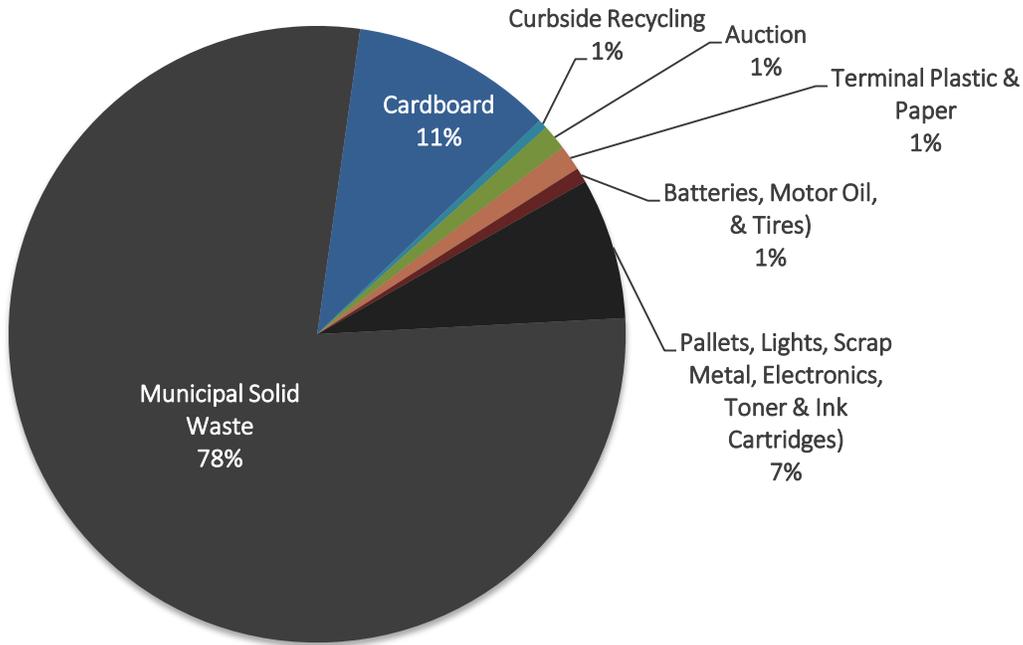
In 2012, the Airport disposed of approximately 0.27 pounds of solid waste per passenger and recycled approximately 0.07 pounds of material per passenger. As shown in Figure 4-11, approximately 22 percent of the Airport’s manageable waste (excluding construction, demolition, landscape waste, and glycol [omitted because of its measurement in gallons rather than tons]) was recycled/salvaged in 2012.

As shown on Figure 4-12, the recycling rate per passenger has significantly increased since 2009, partially because of the initiation of curbside, fluorescent bulb, and pallet recycling, as well as a significant increase in scrap metal recycling. Additional metrics express the progress that the Airport has made since 2003:

- Solid waste generation per passenger has decreased by 13 percent
- The amount of recycling (excluding construction and demolition waste) has nearly tripled
- The SLCDCA has received more than \$131,000 in cardboard recycling rebates over the past 10 years

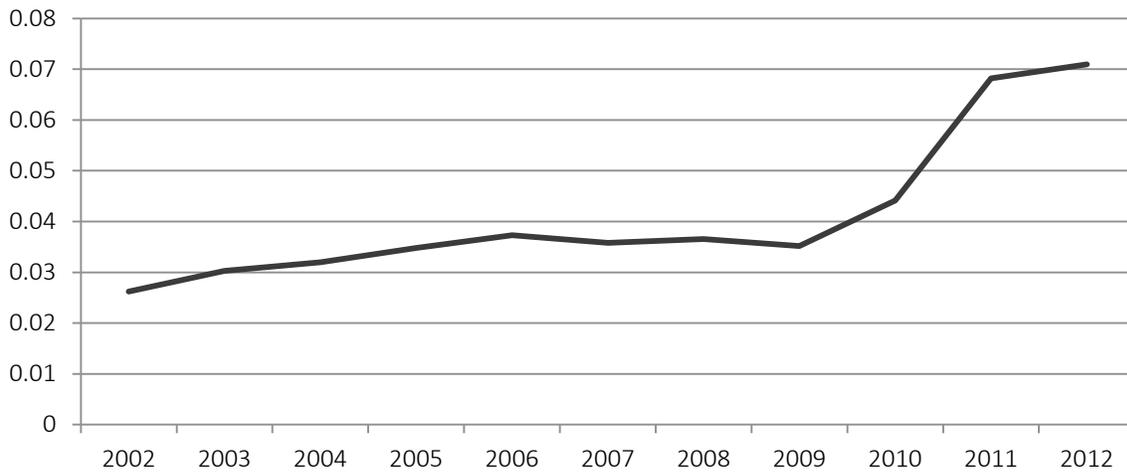


FIGURE 4-11: COMPOSITION OF WASTE AT SLC IN 2012



Source: SLCD, 2012.

FIGURE 4-12: HISTORICAL RECYCLING RATES (POUNDS OF MATERIAL RECYCLED PER PASSENGER) AT SLC



Source: SLCD, 2012.

Education and Promotional Initiatives

The Airport is equipped with water bottle filling stations post security throughout the terminal concourses, which allow passengers to easily refill containers instead of purchasing single-use water bottles. Each unit includes an electronic tracker tallying the number of disposable plastic bottles saved (i.e., each refill tracks one bottle). Although there is no signage directing passengers to these units, the use of graphics on the units themselves promote their use and educate passengers.

Sixty-seven recycling stations post-security are positioned so that they are visible to passengers seated at any gate. Additionally, the bright-colored labels are aesthetically pleasing and attention grabbing. Also within the Airport terminal is a sustainability display that includes a panel (with limited text) on waste management and recycling efforts.



Post-Security Recycling Stations

The post-security passenger areas include individual trashcans as well as recycling stations, which offer plastic recycling, paper recycling and trash disposal. This photo depicts not only the bin labels, but also the shaped slots that influence the types of materials disposed of in each bin.

Airfield Materials Salvaging

Salvaging of construction materials is promoted through designated and labeled areas according to material types (areas for concrete and metals shown below).



Waste Audit

An audit of Airport waste from the passenger and administrative areas was conducted on September 18, 2013 (Appendix F, *Waste Management and Recycling Audit*). This audit was conducted in order to identify the following:

- What percentage of waste is being diverted from landfills through recycling?⁵⁶
- What percentage of the recycling stream comprises non-recyclable items (i.e., placed incorrectly in recycling bins)?
- What percentage of the waste stream includes items that could have been recycled?
- What is the general composition of the materials being discarded?

This audit also assists SLCDCA in meeting FAA requirements for considering waste management and recycling in the master planning process, as set forth in Section 133 of the *FAA Modernization and Reform Act of 2012* and *FAA's Guidance on Airport Recycling, Reuse, and Waste Reduction Plans (2014)*.

Audited waste streams included pre-security trash from blast-resistant bins, post-security trash from individual units, post-security trash from recycling stations, post-security paper recycling, post-security plastic recycling, concessions trash (from food court areas, only), curbside recycling bins in administrative areas, and desk-side trash bins (very limited). Each waste stream was sorted separately and materials were separated according to the following categories:

- Recyclable metal (e.g., aluminum cans and containers, steel)
- All other metal (e.g., electronics)
- Newspaper
- Magazines / catalogs
- Office paper, junk mail, receipts, etc.
- Paper products (e.g., paper towels, napkins, tissues,)
- Other paper (e.g., soft or hard cover books)
- Cardboard (e.g., cardboard boxes, shoe boxes, paper tubes, cereal boxes)
- Recyclable glass bottles and jars
- All other glass (e.g., light bulbs, windows, dishes, ceramics)
- Styrofoam
- Recyclable plastic (#1 through 7)
- All other plastic (e.g., plastic toys)

⁵⁶ Supplemental information from Airport records was used to determine diversion rates.

- Wet Waste (e.g., food scraps, coffee grounds, plate scrapings)
- Batteries
- Toner
- Mixed material (e.g., plastic, bound documents)
- All other



Photo Credit: C&S Companies, 2013.

SLC Waste Audit

On September 18, 2013, SLCDA staff assisted in an audit of passenger and administrative waste and recycling. This effort covered a representative sample of waste collected over 24 hours throughout the Airport.

Below are several key observations/results from this audit.⁵⁷

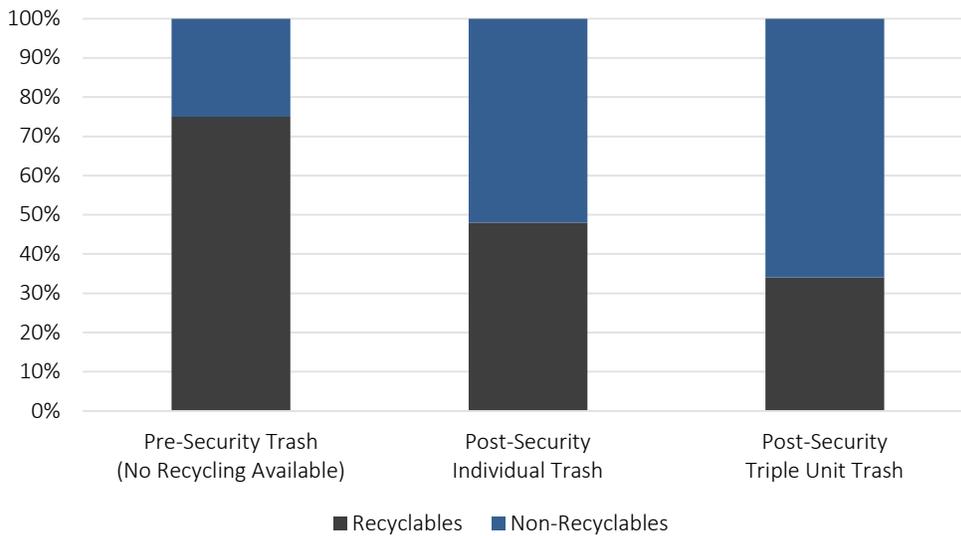
Waste Audit Observations

- *More than 86 percent of materials in paper recycling bins were correctly discarded.*
- *Minimal glass was observed, so there would be little value in implementing Airport-wide glass recycling because of the additional bin needs and potential cost increases. However, this audit did not cover concessionaires' internal operations, which may justify glass recycling because of alcohol bottles, glass food containers, etc.*
- *Non-recyclable items found in recycling bins primarily included hot beverage containers, paper products (e.g., napkins, tissues), and mixed plastic waste.*
- *Trash containers included many recyclable items especially paper (e.g., paper bags, paper scraps), plastic beverage containers (often filled with liquid), metal containers, etc.*
- *Concessions waste (in food courts) had a high amount of recyclables in the trash receptacles because of the lack of recycling containers in that area.*

⁵⁷ The waste audit measured items by weight, and not by volume. Therefore, items that weigh more, such as food waste and plastics, appear as greater percentages of overall waste than lighter items such as paper products and styrofoam. When possible, volumes of each item were noted anecdotally.

Figure 4-13 depicts the impact of placing recycling bins adjacent to trash receptacles as reported in the waste audit. Recycling is not available in the pre-security trash bins, and 75 percent of this waste was recyclable, representing the greatest percentage in any of the audited trash streams. The post-security trash bins are located individually (not collected with recycling bins), and recyclables drop to half of the total materials. The amount of recyclables found in trash bins decreases further in the recycling station trash receptacles, where paper and plastic recycling is available directly adjacent to the trash bins.

FIGURE 4-13: PERCENT OF RECYCLABLE MATERIAL DISCARDED IN PASSENGER-AREA TRASH BINS



Source: Waste Audit at SLC, September 18, 2013.

Table 4-15 details the existing waste management and recycling initiatives that have been implemented by the SLCDCA.

TABLE 4-15: EXISTING WASTE MANAGEMENT AND RECYCLING INITIATIVES

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Terminals		
The SLCDCA has installed 15 water bottle filling stations throughout the Airport	Discourages single-use containers and presents a benefit to passengers. So far, the water bottle filling stations have saved approximately 700,000 plastic bottles since their installation.	N, S
The Maintenance Division began using color-coded plastic liners in trash and recycling bins	Prevents co-mingling thus yielding higher diversion rates, bridges the language barrier for employees, and simplifies the collection process.	O, N, S
The Maintenance Division began using reduced-thickness plastic liners	Reduces material needs and costs.	E, N
The SLCDCA installed recycling stations post-security, which are visible at every gate and consist of paper and plastic recycling, and trash all adjacent to each other	Raises passenger awareness, increases diversion rate by decreasing the effort needed to recycle, and minimizes inaccurate disposal.	O, N, S
The janitorial service (ISS Facility Services) uses repurposed buffing pads as filters in janitorial closet drains	Reduces need (and associated costs) for virgin materials to be used as filters and reduces water quality impacts.	E, N
Concessions		
World Duty Free Group (WDFG)/ HMSHost, McDonald's, Salt Lake Brewing Co., LLC, and others use the SLCDCA-run cardboard recycling program	Increases diversion rate and provides financial gain for the Airport, which receives rebates for cardboard recycling.	O, N
The majority of concessionaires recycle. Approximately 66% of concessionaires ⁵⁸ recycle at the Airport, though the types and extent of materials recycled range significantly. Approximately 25% of concessionaires reported using the City's curbside recycling program. HMSHost initiated a glass bottle recycling program, which several other tenants have joined	Increases diversion rate of materials from landfills.	N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDCA; 2012 Southwest Airlines One Report; The Grove, Inc. (TGI), *Green Initiatives*; 2013 Concessionaires Survey Results; and 2013 FBO/Airline Survey Results.

⁵⁸ Based on survey provided to Airport concessionaires as part of the Sustainability Management Plan.

TABLE 4-15: EXISTING WASTE MANAGEMENT AND RECYCLING INITIATIVES (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS1)
Concessions (Cont.)		
Starbucks and Millcreek Coffee Roasters compost coffee grounds	Diverts coffee grounds from landfills, limits new material needs and associated costs, and educates staff on composting.	E, N, S
All concessions are required to install grease traps as specified in their lease agreements and the Airport’s Rules and Regulations and several recycle their waste vegetable oil ⁵⁹	Diverts oil from reaching the storm drain system, which used to occur at the Airport. The grease traps minimize work involved with disposing of this oil.	O, N
The Grove, Inc. (TGI), launched a Green Concessions Action Plan that prohibits the following for consumer packaging: Styrofoam, petroleum-based plastic bags, and petroleum-based plastic consumer containers and utensils	Prevents landfill pollution and space demands associated with these products, and the material needs, energy demands and air quality impacts associated with their manufacturing by replacing them with biodegradable substitutes.	N
TGI’s plan includes a surplus food donation plan for pre-packaged food	Minimizes waste going to landfills (and associated hauling costs) and benefits the community.	E, N, S
Salt Lake City Brewing Co., LLC, converts its fryer oil into fuel for their delivery truck	This closed loop system minimizes waste going to landfills (and associated hauling costs), benefits air quality through use of alternative fuel, and reduces the need for non-renewable fuel (and associated costs).	E, N
Salt Lake City Brewing Co., LLC, provides spent grain from the brewing process to local farmers to feed their livestock	Minimizes waste going to landfills (and associated hauling costs), benefits the community, and decreases the need for virgin materials.	E, N, S
Airfield		
The SLCDCA recycles glycol from de-icing operations at the Airport	Reclaimed Deicing Fluid is sold and the revenue returned to the Airport (since 2007 the SLCDCA has received over \$1.6 million in the sale of glycol to local secondary markets). The new deicing pads make glycol collection efficient and operationally effective. Capturing this glycol prevents stormwater pollution and its recycling prevents use of virgin materials.	E, O, N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
 Source: SLCDCA; *2012 Southwest Airlines One Report*; The Grove, Inc. (TGI), *Green Initiatives*; 2013 Concessionaires Survey Results; and 2013 FBO/Airline Survey Results.

⁵⁹ Concessionaires previously hauled their grease to the docks, where the open containers would overflow and leak into the storm drains. Lease agreements and the Airport’s Rules and Regulations now require its collection, though neither specify that the waste oil must be recycled.

TABLE 4-15: EXISTING WASTE MANAGEMENT AND RECYCLING INITIATIVES (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS1)
Airfield (Cont.)		
Landscaping waste is typically left in place, reused, or recycled (e.g., mulching) by the SLCDCA	Increases diversion rate, limits the need for virgin materials, and reduces hauling costs. Additionally, leaving grass mowings in place presents an operational benefit by decreasing the amount of effort/time needed to dispose of this material.	E, O, N
Aircraft Maintenance Hangars		
Collection tanks are provided by the SLCDCA for used oil generated during engine maintenance, which is then recycled. Southwest Airlines locally recycles both used oil and oil filters from maintenance activity through the Safety Kleen program	Prevents water quality impacts from release of used oil into the storm drain system; recycling limits the need for virgin materials (and associated costs), increases the diversion rate, and benefits the local economy by use of local programs.	E, N, S
Cargo Hangars		
DHL Express currently recycles paper, plastics, cardboard/paperboard and metals through WM	Increases diversion rate of materials from landfills.	N
UPS privately recycles steel and other metals, as well as used oil, antifreeze, and oil filters (aircraft oil is recycled through Skydrol; antifreeze and other lubricants are recycled through Thermo Fluids)	Increases diversion rate of materials from landfills.	N
Flight Kitchens		
Several airlines collect and recycle paper, plastic, aluminum, and/or magazines	Increases diversion rate and limits the need for virgin materials.	N
Southwest Airlines promotes recycling to employees and customers through education	Increases diversion rate and limits the need for virgin materials. Educating customers and employees encourages them to recycle both at home and while traveling/working.	N, S
Southwest Airlines uses recycled-content paper as part of its corporate policy	Reduces the need for virgin materials.	N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDCA; 2012 Southwest Airlines One Report; The Grove, Inc. (TGI), *Green Initiatives*; 2013 Concessionaires Survey Results; and 2013 FBO/Airline Survey Results.

TABLE 4-15: EXISTING WASTE MANAGEMENT AND RECYCLING INITIATIVES (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS1)
Offices		
The SLCDCA is implementing new software to track TRP finances; all billings will be submitted online	Reduces paper needs (and associated costs), increases efficiency of tracking finances, and simplifies process for employees.	E, O, N, S
Recycling bins provided in office areas	Increases diversion rate and limits the need for virgin materials.	N, S
Construction Projects (airfield and buildings)		
Contractors are encouraged to recycle construction materials locally. The Airport reuses concrete, asphalt and fill from construction projects when possible	Diverts material from landfills; reduces air emissions and costs from the transportation of this material to off-site disposal facilities; reduces the need for virgin materials on future construction projects, which also reduces future costs; and increases efficiency of construction projects. It is estimated that diversion of construction materials from landfills has saved an estimated \$55,000,000 since 2002.	E, O, N
Construction contractors routinely install on-site concrete crushing facilities for airfield construction materials		
Airfield asphalt millings are repurposed by the SLCDCA as infill between taxiways and runways for wildlife management. Millings are also used for road building to provide an adequate surface for driving and to control fugitive dust	Reduces the potential for wildlife hazards, increasing operational safety. Reduces air emissions, energy needs, and costs associated with transporting the materials off-site. Reduces costs by avoiding purchasing of new materials for this infill. Minimizes maintenance needs associated with mowing.	E, O, N, S
As of 2006, all construction/major renovations of City buildings more than 10,000 square feet must be built to Leadership in Energy and Environmental Design (LEED) Silver standards. LEED for New Construction and Major Renovations includes a credit for construction waste management that involves development of a construction waste management plan and diversion (through recycling or salvaging) of at least 50% (one point) or 75% (two points) of materials	Diverts material from landfills; reduces air emissions and costs from the transportation of material; potentially reduces the need for virgin materials on future construction projects, which also reduces future costs; and increases efficiency of construction projects if material can be reused on-site.	E, O, N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
 Source: SLCDCA; 2012 Southwest Airlines One Report; The Grove, Inc. (TGI), *Green Initiatives*; 2013 Concessionaires Survey Results; and 2013 FBO/Airline Survey Results.

TABLE 4-15: EXISTING WASTE MANAGEMENT AND RECYCLING INITIATIVES (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS1)
Airport-Wide		
The SLCDCA recycles batteries, fluorescent bulbs, tires, pallets, steel, glycol, etc.	Reduces the need for virgin materials, increases the diversion rate, prevents pollution, and provides a benefit to employees by simplifying their disposal process. Additionally, the SLCDCA may receive revenue from the sale of some materials.	E, O, N, S
The SLCDCA repurposes and/or relocates equipment whenever possible (asset management)	Reduces the need for virgin materials (new equipment), saves costs, and prevents unnecessary waste.	E, N
Mowings are left in place by the SLCDCA to biodegrade back into the ground	Prevents unnecessary waste (and associated costs of hauling), helps maintain a soil moisture, and simplifies the landscaping process.	E, O, N
Cardboard compactors are used by the SLCDCA and many tenants	Increases the diversion rate and minimizes the need for virgin materials. Reduces the number of pick-ups necessary, decreasing costs, air emissions from vehicles, and the demand for fuel. Finally, the Airport has received more than \$131,000 in cardboard recycling rebates since 2003.	E, O, N

Notes: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
 Source: SLCDCA; 2012 Southwest Airlines One Report; The Grove, Inc. (TGI), *Green Initiatives*; 2013 Concessionaires Survey Results; and 2013 FBO/Airline Survey Results.

Energy Evaluation

Because of the type and scale of operations at the facility, SLC is a significant consumer of energy. The primary component of this energy consumption is fossil fuels, the combustion of which

contributes to air pollution and GHGs. In addition to the environmental detriments, energy consumption and demand represents a substantial cost to SLCDCA and its tenants.



Glycol Plant at SLC

To avoid duplicating efforts with the TRP, the study area for this assessment focuses on non-TRP cost centers.⁶⁰ The select cost centers included in this analysis are Airfield, Burn Pit, Glycol, Greenhouse, and North Support shown previously in Figure 3-5. Each of the sites within these cost centers is equipped with electric and natural gas meters, with no sub-meters. Rocky Mountain Power (RMP) provides electricity to the Airport, while Questar (distributor and supplier) and BP (supplier) provide natural gas. Table 4-16 depicts the select cost centers as well as the sites within these cost centers and their respective utilities.

In certain instances, RMP charges the Airport for demand based on its peak usage. The Airport has ten meters that are subject to time-of-use charges (Rate Schedule 6A).⁶¹ All but one of these meters are located at the Airfield, and are predominantly associated with the airfield lighting vaults and stormwater pump stations. The remaining time-of-day metering equipment is located at the glycol treatment facility. Table 4-17 denotes the rate schedules and applicable charges of the select cost centers at the Airport.

TABLE 4-16: SELECT SLC COST CENTERS AND UTILITIES

COST CENTER	SITES WITHIN COST CENTER	UTILITY
101: Airfield	Airfield Lighting Vaults	Electric
	Fire Station 12	Electric, Natural Gas
	Pump Stations Stormwater	Electric
	Airfield Operations Building CB2	Electric, Natural Gas
	Fire Station 11 (East)	Electric, Natural Gas
	West Airfield Pump House	Electric
	Airplane De-icing Facilities	Electric
	Lift Stations	Electric
	Incinerator	Natural Gas
	East Side Oil Separator	Electric
	Noise Monitoring (4)	Electric
130: Burn Pit	ARFF Training Facility	Electric
150: Glycol	Glycol Treatment Facility	Electric, Natural Gas
702: Greenhouse	Greenhouse	Electric, Natural Gas

Source: SLCDA, 2013.

⁶⁰ Cost centers are sections of the Airport to which energy and water costs are charged for accounting purposes.

⁶¹ RMP. 2013. *Electric Service Schedule No. 6A*. https://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/About_Us/Rates_and_Regulation/Utah/Approved_Tariffs/Rate_Schedules/General_Service_Energy_Time_of_Day_Option.pdf. Accessed April 15, 2014.



TABLE 4-16: SELECT SLC COST CENTERS AND UTILITIES (CONT.)

COST CENTER	SITES WITHIN COST CENTER	UTILITY
811: North Support	Warehouse, Shops, Roads, and Grounds	Electric, Natural Gas
	PM Facility	Electric, Natural Gas
	Airport Facilities Maintenance Cold Storage	Natural Gas
	Technical Support Building North Temple	Electric, Natural Gas
	Airfield Maintenance Building	Electric, Natural Gas
	Radio Communications Building, NS12	Electric
	PM Facility Cold Storage	Natural Gas
	Warm Storage (6 Bays)	Natural Gas
	Warm Storage (7 Bays)	Natural Gas
	Sewer Lift Station @ 1200	Electric

Source: SLCDA, 2013.

TABLE 4-17: RATE SCHEDULES AT THE SELECT COST CENTERS

COST CENTER	RATE SCHEDULE ¹	\$ PER KWH	PEAK HOUR CHARGES	
			\$ per on-peak kWh	\$ per off-peak kWh
101: Airfield	23	0.107	NA	NA
	6	0.035	NA	NA
	6A	NA	0.098	0.03
130: Burn Pit	6	0.035	NA	NA
150: Glycol	23	0.107	NA	NA
	6	0.035	NA	NA
	6A	NA	0.098	0.03
702: Greenhouse	23	0.107	NA	NA
811: North Support	23	0.107	NA	NA
	6	0.035	NA	NA

Note: NA = Not Applicable

1- (a) [Rate Schedule 23](#) is Distribution Voltage – Small Customer

(b) [Rate Schedule 6](#) is General Service – Distribution Voltage

(c) [Rate Schedule 6A](#) is General Service – Energy Time-of-Day Option

Source: SLCDA, 2013.

None of the electricity that SLCDCA currently consumes derives directly from renewable sources (e.g., solar, wind). RMP does offer its customers the option of purchasing renewable energy in 100 kilowatt-hour (kWh) increments through the Blue Sky renewable energy program. In turn, RMP purchases renewable energy certificates on the customer's behalf. Since 2000, the Blue Sky renewable energy program has supported more than 156 community-based renewable energy projects - all wind generation facilities - in Wyoming, Utah, Idaho, Washington, Oregon, Montana, and Colorado.⁶²



Boiler at SLC

Energy Use

Boilers and chillers located in the boiler plant currently provide the sources of heating and cooling for the heating, ventilation, and air conditioning (HVAC) systems in the terminal buildings, and represent the largest energy end-use at the Airport. As part of the TRP, however, a new central-utility plant (CUP) will replace the boiler plant and service the new terminal complex. The decommissioning of the boiler plant and construction of the CUP and subsequent new equipment will produce significant energy savings for SLCDCA.

In 2012, SLCDCA used approximately 187,500 MMBTU (one million British thermal units) (55 million kWh) of electricity and 113,400 MMBTU, 1.1 million CCF (one hundred cubic feet) of natural gas at the Airport. Compared to 2011, this represents an increase of 3.6 percent in electricity consumption and a decrease of 16.9 percent in natural gas consumption. However, as shown in Figures 4-14 and 4-15, use of electricity and natural gas at the Airport has fluctuated since 2006.

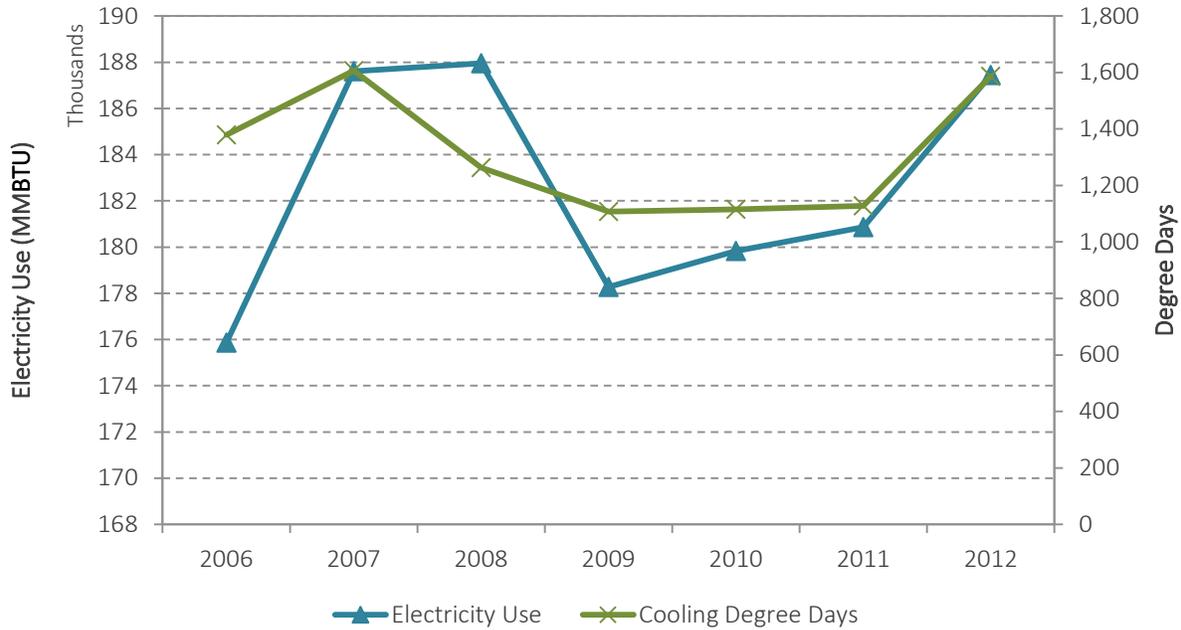
Fluctuations in electricity and natural gas consumption are relatively consistent with annual changes in local cooling degree-day (CDD) and heating degree-day (HDD) counts, respectively. Exceptions to this correlation exists between 2007 and 2008, when an increase in electricity consumption was accompanied by a decrease in CDD, and between 2009 and 2010, when an increase in natural gas consumption was accompanied by a decrease in HDD. The increase in electricity consumption between 2007 and 2008 is at least partially attributable to the ramp up of the explosive detection system in Terminal 2, while the increase in natural gas consumption between 2009 and 2010 is largely attributable to the construction of vestibules (passenger holding points) at Concourse E for Delta Air Lines.⁶³

⁶² RMP. 2013. *Renewable Energy Facilities Blue Sky Supports*. <https://www.rockymountainpower.net/env/bsre/bses.html>. Accessed January 17, 2014.

⁶³ Staples, Kevin. (2014, April 8). Telephone Interview.

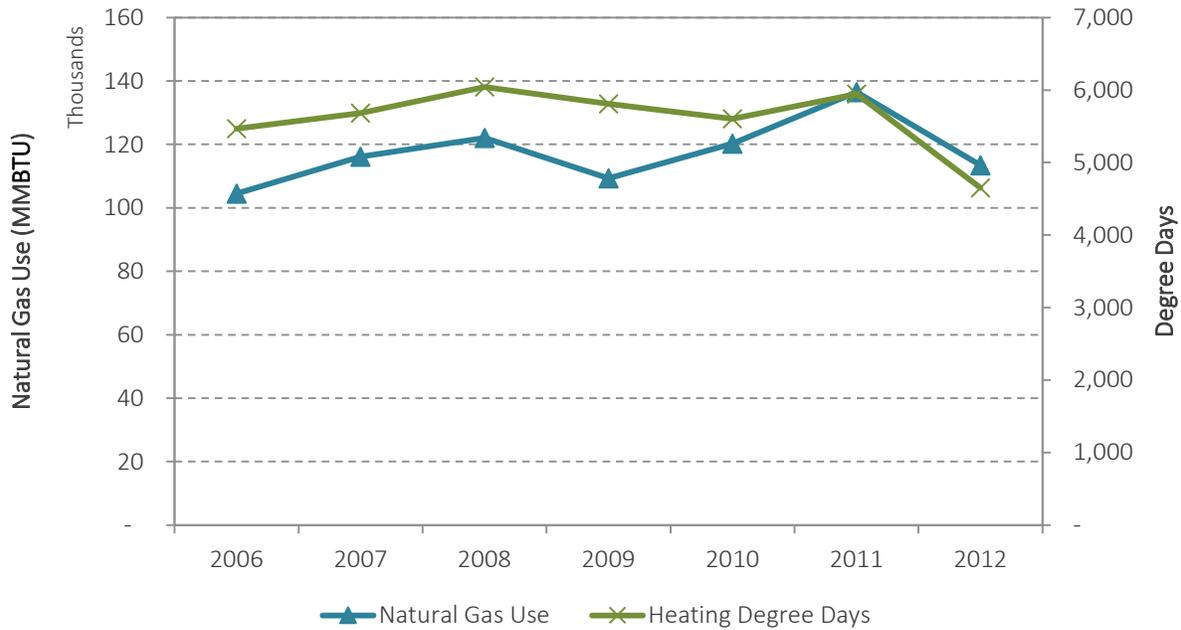


FIGURE 4-14: AIRPORT-WIDE ELECTRICITY USE AND COOLING DEGREE DAYS (2006 – 2012)



Source: SLCD; Salt Lake City NWSFO, Utah. 2013. *Monthly Total Cooling Degree Days*. <http://www.wrcc.dri.edu/cgi-bin/cliMONtcdd.pl?ut7598>. Accessed April 1, 2014.

FIGURE 4-15: AIRPORT-WIDE NATURAL GAS USE AND HEATING DEGREE DAYS (2006 – 2012)



Source: SLCD; Salt Lake City NWSFO, Utah. 2013. *Monthly Total Heating Degree Days*. <http://www.wrcc.dri.edu/cgi-bin/cliMONthdd.pl?ut7598>. Accessed April 1, 2014.

In conjunction with the overall increase in total energy use, total utility costs (electricity and natural gas) at the Airport have also risen in recent years (Table 4-18). Between 2006 and 2012, total utility costs climbed 24.5 percent, including a 46.0 percent increase in electricity costs and a 37.9 percent decrease in natural gas costs. The significant cost reduction for natural gas during this period, despite an overall increase in use, is the result of price fluctuations. Between 2005 and 2006, high natural gas prices increased further in the aftermath of Hurricanes Katrina and Rita, which disrupted the production and delivery of natural gas in the Gulf of Mexico.⁶⁴ Post-2006 decreases in natural gas costs incurred at the Airport reflect, to some extent, price normalization.

TABLE 4-18: HISTORICAL AIRPORT-WIDE UTILITY COSTS (2006 – 2012)

YEAR	ELECTRICITY	PERCENT OF TOTAL	NATURAL GAS	PERCENT OF TOTAL
2006	\$2,947,283.90	74.3	\$1,018,600.62	25.7
2007	\$3,413,921.30	78.8	\$919,859.29	21.2
2008	\$3,418,893.60	80.0	\$853,326.49	20.0
2009	\$3,474,558.90	79.5	\$895,891.73	20.5
2010	\$3,632,129.00	80.9	\$857,989.90	19.1
2011	\$3,909,578.50	81.1	\$913,054.72	18.9
2012	\$4,304,400.35	87.2	\$632,364.33	12.8

Source: SLCDA, 2013.

Between 2006 and 2012, SLCDA paid an annual average of \$0.07 per kWh (\$0.02 per kBTU) for electricity and \$0.75 per therm (\$0.01 kBTU) for natural gas. As shown in Table 4-18, electricity has constituted an increasing majority of the Airport’s utility costs since 2006. In 2012, electricity accounted for 87.2 percent of total utility costs, while natural gas accounted for 12.8 percent.

The Airport is located within the Western Electricity Coordinating Council Northwest eGRID sub-region, which had a 2010 total output emission rate of 846.97 lbs. CO₂e/MWh.⁶⁵ Commercial Sector emission factors for natural gas are:

- 66.83 kg CO₂ per MMBTU;
- 0.005 kg CH₄ per MMBTU; and
- 0.0001 kg N₂O per MMBTU.⁶⁶

⁶⁴ MGE Energy. 2006. *Understanding Natural Gas Prices*. <http://www.mge.com/images/PDF/Brochures/Residential/UnderstandingGasPrices.pdf>. Accessed January 21, 2014.

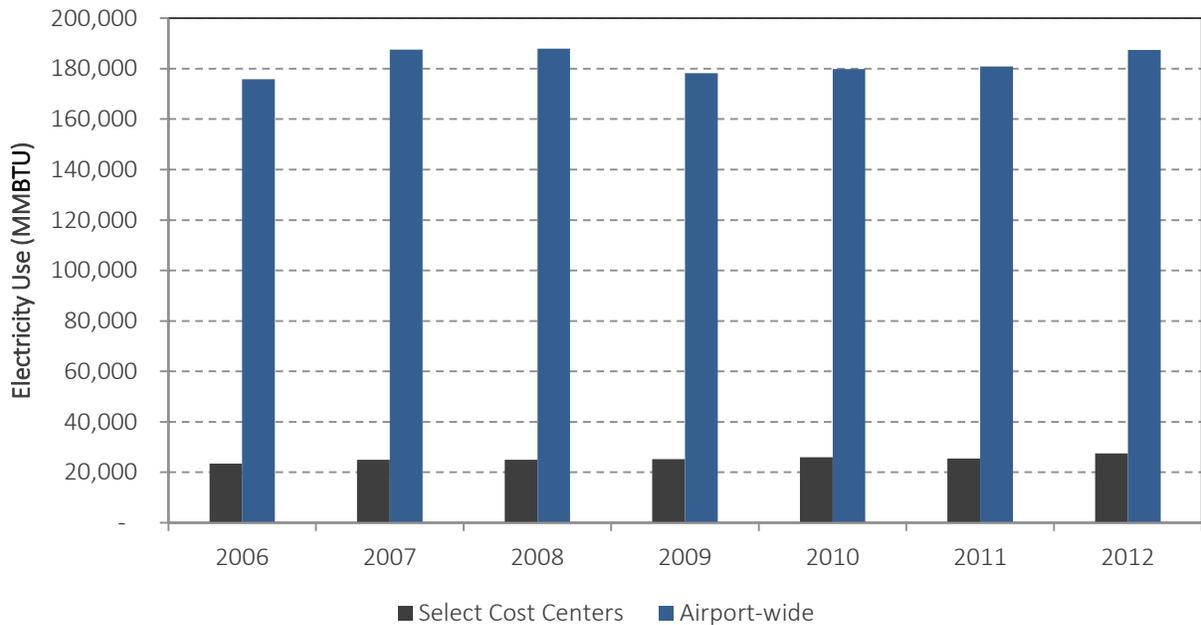
⁶⁵ Environmental Protection Agency. 2014. *eGrid 9th Edition Version 1.0; Year 2010 Summary Tables*. http://www.epa.gov/cleanenergy/documents/egridzips/eGRID_9th_edition_V1-0_year_2010_Summary_Tables.pdf. February 2014. Accessed April 17, 2014.

⁶⁶ The Climate Registry. 2010. *Local Government Operations Protocol*. <http://www.theclimateregistry.org/downloads/2010/05/2010-05-06-LGO-1.1.pdf>. Accessed April 17, 2014.

Summary of Energy Usage for Select Cost Centers

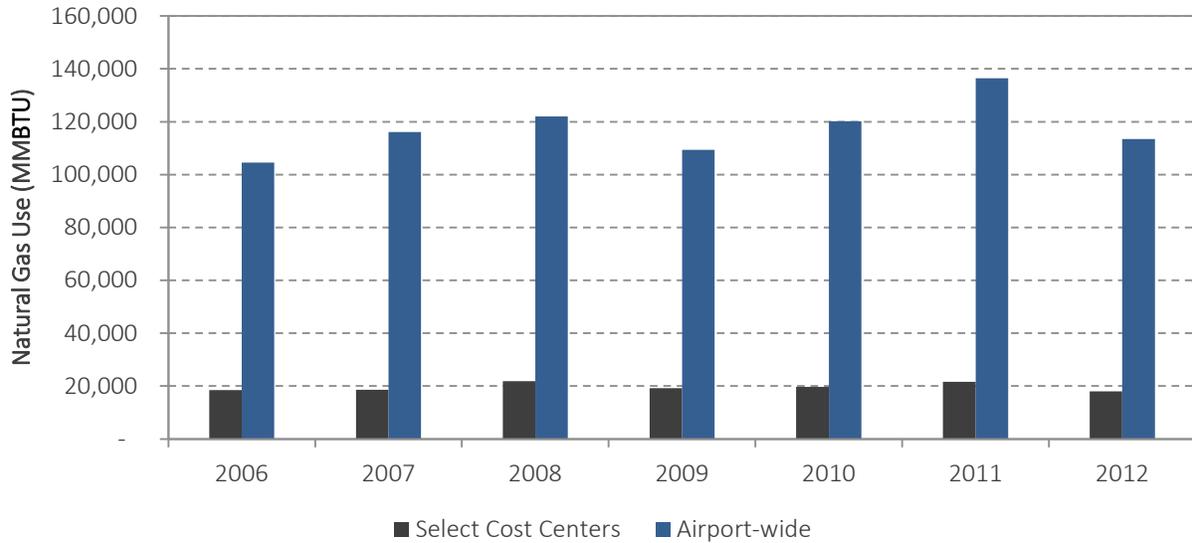
Similar to the Airport as a whole, total energy use for the select cost centers (i.e., Airfield Burn Pit, Glycol, Greenhouse, and North Support) has increased since 2006 (Figures 4-16 and 4-17). Between 2006 and 2012, total energy consumption at the select cost centers increased 8.4 percent; electricity consumption increased 17.1 percent, while natural gas consumption decreased 2.5 percent. In 2012, the select cost centers collectively accounted for approximately 15.1 percent of the total energy consumed at the Airport (Table 4-19).

FIGURE 4-16: TOTAL ELECTRICITY USE (MMBTU) FOR THE AIRPORT AND THE SELECT COST CENTERS (2006 - 2012)



Source: SLCD, 2013.

FIGURE 4-17: TOTAL NATURAL GAS USE (MMBTU) FOR THE AIRPORT AND THE SELECT COST CENTERS (2006 - 2012)



Source: SLCDA, 2013.

TABLE 4-19: TOTAL MMBTU FOR THE SELECT COST CENTERS (2006 – 2012)

YEAR	ELECTRICITY (MMBTU) (Percent of Airport-wide Total)	NATURAL GAS (MMBTU) (Percent of Airport-wide Total)	TOTAL (MMBTU) (Percent of Airport-wide Total)	YEAR-TO-YEAR CHANGE (Percent)
2006	23,418.9 (13.3)	18,518.5 (17.7)	41,937.4 (15.0)	--
2007	24,996.5 (13.3)	18,585.6 (16.0)	43,582.1 (14.3)	3.9
2008	24,983.9 (13.3)	21,804.9 (17.9)	46,788.8 (15.1)	7.4
2009	25,248.5 (14.2)	19,178.8 (17.5)	44,427.3 (15.4)	-5.0
2010	25,929.5 (14.4)	19,634.1 (16.3)	45,563.6 (15.2)	2.6
2011	25,454.5 (14.1)	21,614.1 (15.8)	47,068.6 (14.8)	3.3
2012	27,430.0 (14.6)	18,049.5 (15.9)	45,479.5 (15.1)	-3.4

Note: Cost Centers include Airfield (101), Burn Pit (130), Glycol (150), Greenhouse (702), and North Support (811)

Source: SLCDA, 2013.

Table 4-20, depicts annual electricity costs for the select cost centers between 2006 and 2012. Between 2011 and 2012, SLCDCA managed to decrease overall energy consumption at the select cost centers by 3.4 percent. This is likely due, at least in part, to energy efficiency improvements implemented at these facilities. A later section of this chapter entitled “Current Sustainability Initiatives” details some of these improvements.

TABLE 4-20: ANNUAL ELECTRICITY COST (USE AND DEMAND) FOR THE SELECT COST CENTERS (2006 – 2012)

	2006	2007	2008	2009	2010	2011	2012
Airfield							
Use	\$255,902	\$287,759	\$303,480	\$310,055	\$346,921	\$357,447	\$387,979
Demand	\$86,825	\$99,789	\$94,651	\$94,619	\$108,975	\$104,207	\$111,326
Burn Pit							
Use	\$11,156	\$12,965	\$13,398	\$16,630	\$16,420	\$16,861	\$17,213
Demand	\$6,257	\$7,913	\$8,283	\$10,301	\$9,987	\$10,197	\$10,764
Glycol							
Use	\$97,401	\$98,961	\$98,090	\$126,631	\$136,947	\$106,475	\$183,995
Demand	\$55,274	\$52,576	\$47,912	\$66,719	\$75,417	\$51,034	\$102,699
Greenhouse							
Use	\$55	\$83	\$86	\$87	\$100	\$116	\$126
Demand	-	-	-	-	-	-	-
North Support							
Use	\$128,133	\$142,223	\$144,189	\$149,254	\$150,937	\$165,696	\$164,593
Demand	\$55,551	\$61,390	\$62,672	\$64,364	\$65,428	\$69,319	\$72,475
Total							
Use	\$492,647	\$541,991	\$559,243	\$602,657	\$651,325	\$646,595	\$753,906
Demand	\$203,907	\$221,668	\$213,518	\$236,003	\$259,807	\$234,757	\$297,264

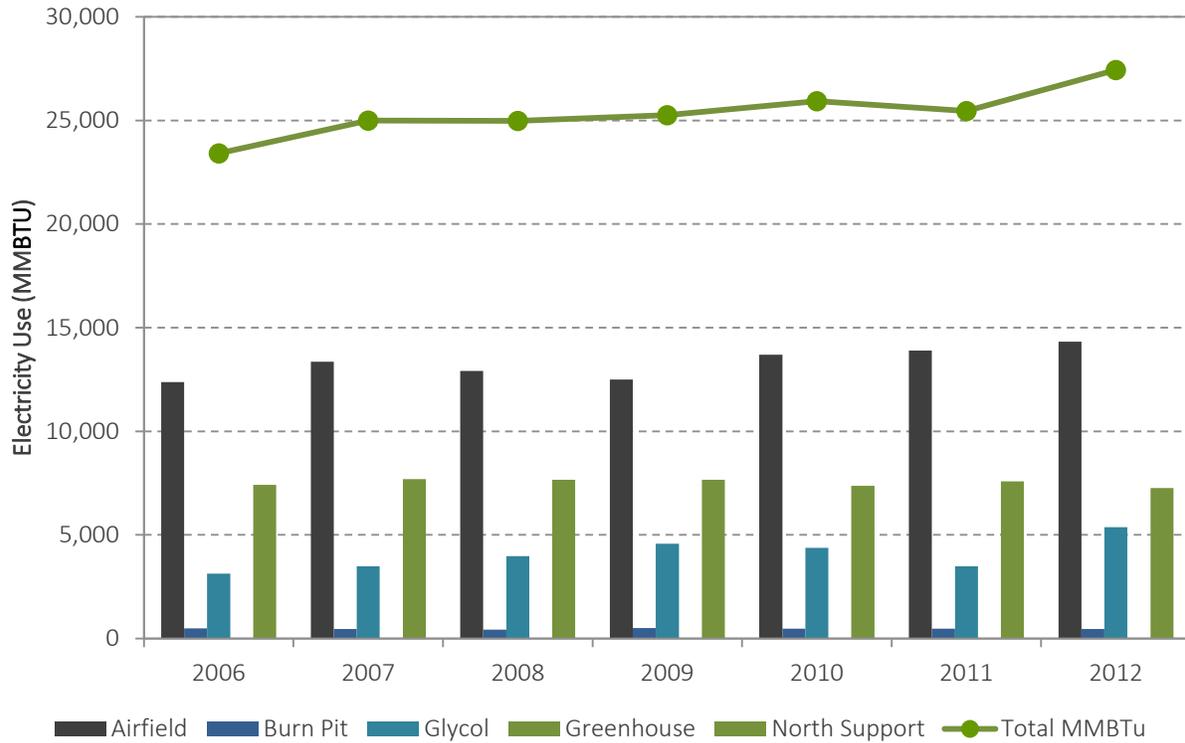
Source: SLCDCA, 2013.

In 2012, total electricity **use** attributable to the select cost centers was greater than 27,400 MMBTU (8.0 million kWh). This represents increases of 17.1 percent from 2006 and 7.8 percent from 2011. Typical uses of electricity at the sites within the select cost centers include HVAC and lighting as well as process loads of the sites listed in Table 4-16. Among the select cost centers, the Airfield cost center consumed the most electricity (52.2 percent) followed by North Support (26.5 percent). Electricity use at the Glycol cost center increased noticeably between 2011 and 2012 (54.0 percent). This upsurge is attributable to the installation of several high-energy turbo-fans for glycol processing.⁶⁷

⁶⁷ Staples, Kevin. (2014, January 28). Telephone Interview.

Figure 4-18 depicts electricity use by cost center compared to the total electricity used at the select cost centers between 2006 and 2012.

FIGURE 4-18: ELECTRICITY USE (MMBTU) FOR THE SELECT COST CENTERS (2006 - 2012)

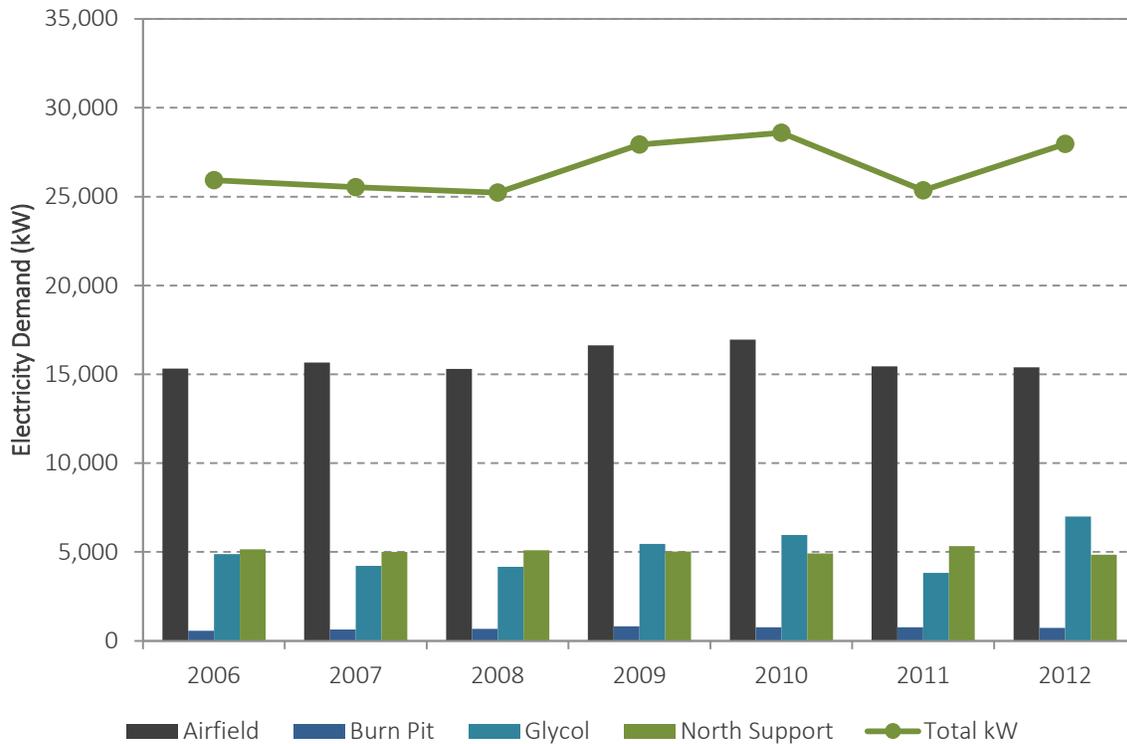


Source: SLCD, 2013.

In 2012, total electricity **demand** among all of the select cost centers was greater than 186,000 kW. This represents increases of 7.9 percent from 2006 and 10.3 percent from 2011. Among the select cost centers, the Airfield cost center registered the highest demand (55.1 percent) followed by Glycol (25.0 percent). The green house facility cost center does not use enough electricity to register a demand. Figure 4-19 depicts electricity demand by cost center compared to the total demand at the select cost centers between 2006 and 2012.



FIGURE 4-19: ELECTRICITY DEMAND (kW) FOR THE SELECT COST CENTERS (2006 - 2012)



Note: Electricity demand for the Greenhouse facility cost center not available
Source: SLCDA, 2013.

In 2012, total electricity costs among the select cost centers were approximately \$753,900 for consumption and \$297,300 for demand. This equates to increases of 16.6 percent for consumption and 26.6 percent for demand since 2011, and the largest year-over-year increase since 2006.

For the Airfield, Greenhouse facility, Glycol, and North Support cost centers combined natural gas use in 2012 was greater than 24,000 MMBTU (approximately 233,000 CCF). Of this total, North Support consumed 54.3 percent, Glycol consumed 25.0 percent, Airfield consumed 17.8 percent, and Greenhouse consumed the remaining 2.9 percent. HVAC represents the largest use of natural gas at these locations; the incinerator at the Airfield uses natural gas as a supplemental fuel.

Figure 4-20 depicts annual natural gas use for the Airfield, Greenhouse facility, Glycol, and North Support cost centers between 2006 and 2012. The Burn Pit cost center does not use natural gas.

FIGURE 4-20: NATURAL GAS USE (MMBTU) FOR THE SELECT COST CENTERS (2006 - 2012)



Notes: 1 - The Burn Pit does not consume natural gas.
 2 – Prior to 2012, the Environmental Quality Company (EQ), a subcontractor to SLCDCA, operated the glycol treatment facility. SLCDCA took over operations of this facility once its contract with EQ expired.
 Source: SLCDCA, 2013.

Energy Assessments and Audits

In recent years, the SLCDCA has commissioned various Airport facilities energy evaluations. This includes an assessment by Siemens Building Technologies in 2008 and an audit sponsored by RMP in 2009.

Preliminary Feasibility Assessment

In 2008, Siemens Building Technologies completed a walk-through of several SLCDCA facilities as part of the *Preliminary Energy Feasibility Assessment*. The purpose of the assessment was to “identify the feasibility of potential facility improvement measures (FIMS) funded partially or fully by energy and operational cost savings.”⁶⁸ The facilities included in this report were:

⁶⁸ Siemens Building Technologies. 2008. Preliminary Energy Feasibility Assessment, Revision 1: Salt Lake City International Airport. October 15, 2008. Report.

- North Support Maintenance Buildings
- New Parking Administration (including pay booths)
- Fire Station 12
- Fire Station 11
- ARFF Training Center
- Police Training Center
- Shuttle Building
- South Airfield Lighting Vault
- North Airfield Lighting Vault
- Glycol Recycle Building (main floor and mezzanine)
- Taxi Starter Building
- NS12 Radio/Fiber Hub Building
- South Runway Deice Chemical Storage
- T Hangars 15, 21, and 28
- Shade Hangars 11 and 12
- Fuel Island Canopy

Among the recommendations, the only measure that SLCDCA implemented was the replacement of T12 (tubular shaped bulb that is 1.5 inches in diameter) fluorescent lighting, an old lamp that is being phased out, with T8 (tubular shaped bulb that is 1 inch in diameter) fluorescent lighting, that is newer and more energy efficient.⁶⁹ The *Preliminary Energy Feasibility Assessment* included the overarching recommendation for a comprehensive investment grade audit to explore the recommended FIMS in detail.

Rocky Mountain Power (RMP) Recommissioning Program – Verification Activities

In 2009, the Airport underwent verification activities related to three implementation measures performed on the mechanical and electrical systems in Terminal One and Concourses A and B (Phase 1)⁷⁰ as well as Terminal Two, Concourse C, and Car Rental (Phase 2).⁷¹ The implementation measures and subsequent verification activities were part of the RMP Recommissioning Program. The objective of the RMP Recommissioning Program is to “identify low cost and no cost opportunities to improve the efficiency of major mechanical and electrical systems, and reduce energy costs without adversely affecting facility comfort or system operations.”⁷² Table 4-21 provides the reported annual energy and cost savings by implementation measure. The implementation measures had an average simple payback of less than one year.

⁶⁹ Clayson, Eddie. (2014, April 22). Telephone Interview.

⁷⁰ Nexant, Inc. and Engineering Economics, Inc. 2009. *Verification Report, Salt Lake City International Airport – Phase 1*. RMP. July 20, 2009. Report.

⁷¹ Nexant, Inc. and Engineering Economics, Inc. 2009. *Verification Report, Salt Lake City International Airport – Phase 2*. RMP. July 20, 2009. Report.

⁷² *Ibid.*

TABLE 4-21: VERIFICATION REPORT SAVINGS SUMMARY (2009)

	ANNUAL ELECTRIC ENERGY SAVINGS (kWh/year)		ANNUAL ELECTRIC ENERGY COST SAVINGS (\$/year)	
	Phase 1	Phase 2	Phase 1	Phase 2
Reduced Supply Air Temperature	172,201	141,151	2,505	8,312
Static Pressure Reset	144,565	142,363	911	4,957
Air Handling Unit Scheduling	73,877	130,111	6,553	3,511
Total	390,643	413,626	9,968	16,780

Source: Nexant, Inc. and Engineering Economics, Inc. 2009.

Further detailed descriptions regarding the BAS and energy conservation program may be found in Appendix G, *Energy Evaluation*.

Table 4-22 summarizes the existing energy initiatives at the Airport, implemented by SLCDA, by sustainability benefit and EONS applicability.

TABLE 4-22: EXISTING ENERGY INITIATIVES AT SLC

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Reduced Supply Air Temperature	This adjusted supply air temperature based on outside air temperature to achieve energy/cost savings.	E, O, N
Static Pressure Reset	This adjusted static pressure setpoints based on outside air temperature to achieve energy/cost savings.	E, O, N
Air Handling Unit Scheduling	This aligned AHU scheduling to reflect unoccupied periods to achieve energy/cost savings.	E, O, N
BAS	This computerized system promotes operational efficiencies and increases energy savings/reduces energy costs.	E, O, N
Energy Conservation Program	This reduced energy use and costs. It included corporate-wide integration of conservation principles and practices, and maintenance of high customer service standards.	E, O, N, S
Lighting retrofits and use of Light-emitting diode (LEDs)	Various LED installations throughout SLC will result in cost savings and a return on investment through reduced energy consumption and maintenance.	E, O, N
New facility buildings designed, constructed, and operated to LEED certification standards	This reduced energy use and costs, enhanced occupant health, and increased employee productivity.	E, O, N, S

Note: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDA; Compiled by VHB, 2014.

TABLE 4-22: EXISTING ENERGY INITIATIVES AT SLC (CONT.)

INITIATIVE	SUSTAINABILITY BENEFIT(S)	APPLICABLE SUSTAINABILITY CATEGORIES (EONS ¹)
Chiller Variable Speed Drives	This retrofit reduced chiller energy consumption and provided savings of \$60,400 in one summer season.	E, O, N
Parking Structure Chiller Replacement	SLCDA replaced an existing chiller model with a more efficient version to provide long-term cost savings.	E, O, N
Annual investigation and research on potential energy conservation opportunities	This reduced energy use and costs and displayed commitment to sustainability.	E, O, N
Environmental Management Procedures	This reduced energy use and costs and provided integration of conservation principles and practices into management activities.	E, O, N
Utility Bill Auditing	This ensures SLCDA is not overcharged for its utility usage and offers options for better utility rates, as available, to realize cost savings.	E, O
Energy Management Plan	The SLCDA is one of the first City divisions to conduct an Energy Management Plan under an Executive Order from the Mayor. This plan will develop a tool to conduct economic analyses to support goal setting and strategy prioritization for the Airport.	E, O, N, S

Note: 1- EONS = Economic viability (E), Operational efficiency (O), Natural resource conservation (N), and Social responsibility (S)
Source: SLCDA; Compiled by VHB, 2014.

Beyond the improvements implemented by SLCDA, the Airport’s tenants have implemented the following initiatives:

- Squatter’s Brew Pub uses off-site WindStar electrical power exclusively, maintaining its corporate commitment to only using electrical power generated by wind turbines located in Wyoming.
- The baggage system used by SkyWest Airlines is shut down at night and in between flight banks to minimize power consumption; and

Squatters Pub Brewery’s Sustainability Philosophy

Squatters Pub Brewery operates under a triple bottom line philosophy, which includes people, planet, and profit. Practices associated with this approach include:

- *Recycling fry oils and using them as biodiesel for company vehicles*
- *Using biodegradable post-consumer packaging and tableware*
- *Installing waterless urinals*
- *Administering its own glass recycling program*
- *Purchasing renewable energy credits from Rocky Mountain Power Blue Sky*
- *Supporting TapIt™, a water bottle refilling network*

- Delta Air lines has an Environmental Management System tailored to the Airport, including its ground service equipment shop, line maintenance, and customer service.
- Boeing’s Salt Lake Facility recently received a LEED Silver certification for their 35,000 square foot painting facility. The building installed 3,600 rooftop solar tubes that help heat water for the paint curing process. The Salt Lake facility is one of Boeing’s six zero-solid-waste-to-landfill sites.

Tenant Sustainability

Like many commercial service airports, the Airport has tenants that include airlines, concessionaires (restaurants and shops), FBOs, and the military. Major tenants at the Airport responded to a survey on sustainability practices sent from SLCDCA to indicate what sustainability initiatives they were implementing or planning to implement at SLC. The purpose of the survey was to solicit general sustainability-related information relating to:

- Existing sustainability policies;
- Existing and/or planned sustainability initiatives; and
- Suggestions for enhancement of sustainability initiatives at SLC.

Twenty-six tenants responded to the survey, including 12 airlines and FBOs and 14 concessionaires. The results of the survey indicated the following:

- Less than half of respondents have a formalized sustainability program
- Most tenant respondents recycle to some degree; please refer to the Waste Management section for additional information. Commonly recycled materials include:
 - Paper and cardboard
 - Aluminum cans
 - Plastic and glass bottles
 - Batteries
 - Lighting products



Squatters Pub Brewery at SLC

- Six airlines are implementing air quality or GHG emission reduction initiatives at SLC that include:
 - Promoting single-engine aircraft taxiing
 - Connecting to gate electrification/PCA
 - Converting GSE to electric or alternative fuel
 - GSE idling policies
 - Optimal thrust for take-offs
- Use of green cleaning products
- Purchasing recycled paper
- Alternative waste management strategies, such as:
 - Use of fryer oil to fuel fleet vehicles
 - Recycling spent grain for use by local farmers
- Buying employees TRAX passes
- Use of energy efficient lighting

When asked how SLCDCA could support tenant initiatives, the following responses were provided:

- Provide assistance with glass recycling, waterless urinals, a composting program for coffee grinds and clean green waste, and a newspaper re-purpose program for travelers
- Communicate what sustainability activities are available, who the direct contact is, and what type of compliance timeline is being enforced
- Launch programs that would not only be sustainable, but would actually keep costs in line or even reduce them
- Encourage UTA to offer discounts to tenant employees commuting on TRAX
- Provide sufficient recycling receptacles, and strategically place them in terminal areas
- Hold “waste drives” to give employees the opportunity to recycle household items
- Make the current paper-recycling program easier

The majority of tenants surveyed indicated that they would like to be involved in or kept informed of sustainability initiatives at SLC. SLCDCA and its tenants will continue to coordinate and communicate to further sustainability at the Airport.

Respondents that provided more detailed information about existing sustainability programs are highlighted in the following sections.

Delta Air Lines

The Airport is a connecting hub of Delta Air Lines, the westernmost hub for the company in the United States. Delta accounts for approximately 67 percent of passengers at the Airport, not including its affiliates. The airline operates out of Terminals One and Two. In addition to passenger operations, Terminal Two also contains Delta office space and conference rooms, a credit union, a club lounge, and a group room. Terminal Two is used exclusively by Delta and its regional affiliate, SkyWest Airlines.

Delta facilities at the Airport also include hangar space, a reservations center, and a cargo building. The hangar space and reservations center are located in the North Support Area, while the cargo building is located south of Terminal One in the South Support Area. Delta Dash, Delta’s small package express service, operates out of the cargo facility.

Current corporate-wide sustainability initiatives at Delta include improving fuel efficiency of aircraft and GSE, assessing the feasibility of alternative fuels, waste diversion and recycling, and offering commuting options to its employees. At SLCD, Delta recycles domestic in-flight waste and provides discounted UTA passes to some employees.

HMSHost

HMSHost operates a number of food and beverage and retail concessions in more than 100 airports around the world. HMSHost is the largest concessionaire at the Airport, and operates national chains, such as Starbucks Coffee, and local eateries, such as Market Street Grill, Café Rio, and Greek Souvlaki. HMSHost has a corporate sustainability policy called *startsomewhere*[®], which focuses on three major areas: the environment, nutrition and wellness, and community partnerships. *Startsomewhere*[®] was presented the 2012 Airport Going Green Award for Excellence in Sustainability Efforts.

The Grove Inc. (TGI)

The Grove Inc. (TGI) is another concessionaire with multiple enterprises at the Airport. TGI operates more than 50 stores in 11 airports, such as Auntie Anne’s, Fresh Market, On-The-Go, and Jamba Juice at the Airport. TGI has a corporate sustainability policy named *Eco Effort*, whose vision statement is to “Foster a business approach that embraces our



Several new restaurants offer a variety of cuisines to passengers



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physical, social, and ecological environments while simultaneously creating a corporate culture that advocates for a better, cleaner, and greener planet.” TGI’s Green Concessions Action Plan includes numerous sustainability initiatives, such as educating corporate and operational staff on green issues, incentives, and goals; replacing Styrofoam and petroleum-based consumer packaging with biodegradable products; procuring green cleaning supplies; and source-separating all solid waste refuse into recyclable, compostable, and non-recyclable waste types.



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Following this meeting, the Project Team reviewed SLCDA materials and the City's sustainability program. At the second SAC meeting, the Committee drafted a primary sustainability goal.

At the third SAC meeting, the Project Team provided three options for the SLCDA's primary goal, based on the input from the previous meetings. The Team stressed that there are five essential questions the SAC members need to ask themselves when finalizing the primary goal:

1. Why are we here at the Airport?
2. What does the world need most that we are uniquely able to provide?
3. What are we willing to sacrifice?
4. What matters more than money?
5. Are we on this mission together?

SAC member input revealed the options that best reflected its primary goal. This input included important terms such as "promoting the responsible use of resources" to sustain the airport into the future; to get passengers efficiently to and from their destination; and preserving human resources (implies safety). The group also stressed that the primary goal needs to have a strong action verb like "to achieve" or "to lead," and to be a leader in the community. SLCDA's primary goal was confirmed at the fourth SAC meeting.

Our Primary Sustainability Goal

To be a leader in the community and airport industry by preserving and enhancing Salt Lake City Department of Airport's financial, human, natural, and energy resources.

City Sustainability Policies

SLCDA has aligned governance and operations at the Airport with the principles of Salt Lake City's sustainability program, Salt Lake City Green (SLCgreen). SLCgreen is the City's award-winning compilation of environmental programs and policies, which lays the framework for the conservation of resources, reduction of pollution, and deceleration of climate change to ensure a healthy and sustainable future for Salt Lake City.⁷³ *Sustainable Salt Lake – Plan 2015* is a major component of SLCgreen, and strives to make Salt Lake City "one of the greenest, most inclusive and economically viable municipalities in the country."⁷⁴

⁷³ Salt Lake City. 2013. SLCgreen. <http://www.slcgov.com/slcgreen>. Accessed September 24, 2013.

⁷⁴ Salt Lake City. 2013. *Sustainable Salt Lake – Plan 2015*. http://www.slcdocs.com/slcgreen/SustainableSaltLake_Plan2015.pdf. Accessed September 24, 2013.

The City Code of Salt Lake City includes a number of sustainability practices and principles that are applicable to the Airport, including a Leadership in Energy and Environmental Design (LEED) Silver certification requirement for city-funded construction and major renovations and the allowance of solar and wind generating systems in airport zoning districts.⁷⁵

As part of Salt Lake City's Code Revision Project, the city is further incorporating sustainability practices and principles into its development and operation. Some of the potential revisions to the City Code of Salt Lake City that are applicable to the Airport involve water efficient landscaping, recycling and waste reduction, transportation demand management, and outdoor lighting (<http://www.slcgov.com/slccgreen/coderevisionproject>).

Salt Lake City offers businesses, including those located at SLC, the opportunity to become members in the e2 Business Program. This program provides businesses with assistance in identifying opportunities for reducing overall operating costs and environmental impacts in energy and water usage, along with employee transportation and waste production. It also provides businesses with successful case studies from other member businesses, networking opportunities, a periodic program newsletter, and various advertising discounts.⁷⁶

SLCDA Sustainability Goals, Objectives, and Performance Targets

After the high-level primary goal is developed, various sustainability goals are identified, objectives are developed to meet each goal, and performance targets are established to ensure success. The following are definitions and examples of goals, objectives, and performance targets:

Goals are:

- Broad / general intentions or directions
- Abstract, hard to measure
- Typically have a long, ongoing time frame
- Example: Reduce the total energy use and demand of the airport and increase renewable energy generation on airport property.

Objectives are:

- Narrow / specific
- Concrete, easy to measure / assess
- Usually set for a shorter term
- Example: Complete energy efficiency projects to reduce energy use in airport facilities.

⁷⁵ Salt Lake City. 2013. Salt Lake City, Utah – City Code. http://www.sterlingcodifiers.com/codebook/index.php?book_id=672. Accessed September 24, 2013.

⁷⁶ Salt Lake City. 2013. SLCgreen – Become an e2 business. <http://www.slcgov.com/node/269>. Accessed October 7, 2013.

Performance Targets are:

- Measurable (qualitatively or quantitatively) with a set timeframe
- Specific to an objective
- Related to Performance Metrics (discussed further in Chapter 8, *Sustainability Performance Monitoring and Reporting*)
- Example: Decrease energy use in buildings and operations by 10 percent over a rolling 10-year average (2020 reduction from 2000-2010 average, then 2030 reduction from 2010-2020 average).

The SAC meetings were held in formats that provided information to inform the goals, objectives, and performance targets identified for the SMP. At the second SAC meeting, the Project Team reviewed planning tasks and gathered feedback from the SAC members in the following areas:

- Review of baseline assessment evaluations, including the waste audit, air quality/greenhouse gas (GHG) emissions inventory, and water use evaluation
- Tenant survey results
- Overview of Terminal Redevelopment Program (TRP) Coordination
- Draft primary goal, sustainability goals and objectives, including a focus on:
 - Energy
 - Air Quality and Climate Change
 - Recycling and Materials Management
 - Water Resources
 - Community Health and Safety

After this meeting, the Project Team reviewed the information from the SAC members, data available from the baseline inventory, and the *Sustainable Salt Lake - Plan 2015* Water Resources Goals etc. and other plans. The Project Team then developed draft goals and identified reasonable and achievable targets to present at the third SAC meeting.

The feedback from the second SAC meeting was reviewed in the third SAC meeting. The goals of this meeting were to:

- Select metrics to measure progress
- Identify successful sustainability initiatives
- Decide how to evaluate proposed initiatives

During a breakout group session, the SAC was asked to give feedback on goals, objectives, and performance targets. They were divided into three groups and each group received two different goal categories to discuss goal language, objectives, and performance targets.

As a result of this meeting, SLCDA's SAC identified appropriate goal categories that are consistent with the City goals, as well as objectives, that are measurable, and specifically designed to help the Airport achieve each goal.



Sustainability Action Committee Meeting #3

Figure 5-2 demonstrates the consistency among goal categories of the Airport and the *Sustainable Salt Lake - Plan 2015*. The City's plan includes 12 sustainability goal categories of which the Airport has adopted five, illustrated in blue, as well as an additional goal category illustrated in green; the other seven City goals are also shown. The Airport's goal categories were selected because of their relevance to SLC and its operating environment.

FIGURE 5-2: SUSTAINABLE SALT LAKE - PLAN 2015 AND AIRPORT SUSTAINABILITY GOAL CATEGORIES



Note: The Planning and Building goal category was identified by SLCDAs as a distinct sustainability goal category and is not included as a separate goal category by the City.

Based on input from senior leadership, the SAC, and in consideration of the City of Salt Lake City’s sustainability goals, Table 5-1 depicts the goals, objectives, and targets that will guide the implementation of the Sustainability Management Plan for SLC. Performance Metrics are covered in detail in Chapter 8, *Sustainability Performance Monitoring and Reporting*, but are included in this table to show the relationship between SLCDAs’s goals, objectives, and targets, and the performance metrics that can be used to measure success.

TABLE 5-1: PERFORMANCE METRICS AND KEY PERFORMANCE INDICATORS

SUSTAINABILITY CATEGORIES	GOAL	OBJECTIVE	METRICS	TARGET
Energy	Reduce the total energy use and demand of the airport and increase renewable energy generation on airport property.	Complete energy efficiency projects to reduce energy use in airport facilities.	Total energy use (MMBTu/year)*	Decrease energy use in buildings and operations by 10% over a rolling 10-year average (2020 reduction from 2000-2010 average, then 2030 reduction from 2010-2020 average).
			Total Electricity use per passenger (MMBTu/passenger)	
			Total Electricity demand per passenger (kW/passenger)	
			Total Natural gas use per passenger (MMBTu/passenger)	
			Total energy use by cost center (MMBTu/cost center)	
		Utility Costs (Electricity and Natural Gas)		
		Rate of energy use in De-icing Fluid Reclamation Facility*	Decrease rate of energy use in Deicing Fluid Reclamation Facility by 5% in five years.	
Increase renewable energy generation on airport property.	Renewable energy generated on property (kWh/yr)*			
	Percent of total electricity purchased from renewable sources			
Leverage people (energy users) to promote energy efficiency.	NA	Develop, incorporate, and distribute a comprehensive employee education and engagement program for energy conservation on a quarterly basis."		
	NA	Develop passenger education information through Wi-Fi dashboard or lobby dashboards.		
Air Quality and Climate Change	Reduce criteria air pollutants and greenhouse gas emissions to improve public health and reduce environmental impact.	Reduce regulated air pollutants and GHG emissions from airport operations (Scope 1 and 2).	NA	Create right-sizing program to encourage the right vehicle for the right use.
			Percent of alt-fuel/electric vehicles of total fleet vehicles*	Increase to 35% mix of alternative fuel/electric vehicles in 5 years.
			Conventional fuel use (diesel/gasoline) vs. alt-fuel (CNG) (gal/year)*	Develop and implement incentive program to reduce conventional fuel use by 5% over 5 years.
			NA	
		Scope 1 and 2 GHG emissions (tons/year) by scope per passenger*		
		Facilitate and encourage the reduction of Scope 3 GHG emissions.	Percent of tenant-owned GSE powered by electricity/alternative fuels	
Promote improvements in public health through air quality improvements.	Total ridership of Airport TRAX line			
Recycling and Material Management	Reduce waste generation and increase diversion from landfills.	Engage employees, passengers, and tenants in waste reduction and recycling efforts.	Recycling rate per passenger (lbs./passenger) (excludes construction and demolition waste)*	Increase recycling rate per passenger to 10% within 1 year and 15% goal within 5 years of new waste management contract.
			Solid waste disposal rate per passenger (lbs./passenger)*	
			Recycling percentage by commodity	
		Develop capacity for composting or recovering energy from food scraps and other compostables.	NA	
		Increase the landfill diversion.	Waste diversion (lbs.)*	Reduce waste to landfill by 10% during future phase of TRP implementation.
			Solid waste disposed vs. cardboard diverted (tons)	
	Construction and demolition reused material (tons)			
	Recovery rate of glycol used (%)	No specific target developed until SLCDCA-managed facility is operational for period of time.		

*Metrics in bold and denoted with an asterisk are KPIs

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TABLE 5-1: PERFORMANCE METRICS AND KEY PERFORMANCE INDICATORS (CONT.)

RESOURCE	GOAL	OBJECTIVE	METRICS	TARGET
Water Resources	Assist in the region's efforts to sustain its water resources for current and future generations.	Encourage efficient water use and reduce water waste.	Water use per passenger (gal/passenger)*	No specific target developed: SAC input to build process targets based on bottom up assessments. Consider process water targets folding into terminal target to streamline targets to just indoor versus outdoor use.
			Water use in landscape irrigation (gal/acre of landscaped area)*	
			Total potable water use (gal)	
			Acres of native, drought-tolerant landscaping or xeriscaping	
Community Health and Safety	Maintain a safe and healthy natural and human environment for passengers, Airport employees, and tenant employees.	Support employee and tenant programs that support health.	Percent of SLCDA staff participating in the city's employee wellness program(s)*	Increase percentage of SLCDA staff participating in City Employee Wellness program (need to establish baseline first year).
		Support the local and regional economy.	Percent of Airport project dollars (federally sourced) going to local, small, and DBE/WBE companies*	Increase amount of economic impact (\$) to community (need to establish baseline first year).
		Support community outreach and engagement activities that promote social, economic, and environmental sustainability.	Percent of employees participating in SLCDA-sponsored/supported volunteerism	Increase number of community events supported annually (need to establish baseline first year).
			Number of community events supported	
		Encourage concessionaries to buy and provide local food.	NA	Increase percentage of organic and/or local food products available in concessions (need to establish baseline first year).
		Encourage partnerships between tenants and the airport to support wellness initiatives.	NA	
	Number of noise complaints per individual per year			
Planning and Building Design	Promote Green Building, energy efficiency, and operational efficiency.	Ensure all new buildings and major renovations of 10,000 square feet or higher are LEED Silver-certified or higher.	Percent of new/renovated buildings with LEED Silver-certification or higher*	All new buildings and renovation of 10,000 square feet or higher are LEED Silver-certified or higher.
		Encourage tenants to incorporate sustainable building design measures for new construction and major renovations.	Percent of new/renovated buildings with LEED Silver-certification or higher*	All new tenant buildings and renovation of 10,000 square feet or higher are LEED Silver-certified or higher.
		Incorporate life cycle analysis into all Airport planning and operations.	NA	
		Incorporate appropriate resiliency features into future facility designs.	NA	

*Metrics in bold and denoted with an asterisk are KPIs

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6 Organizational Engagement

In order to achieve a truly sustainable organization, sustainability principles must be integrated into the “thinking, planning, and doing” processes. However, organizations often address sustainability as an accessory to its typical structure and procedures. Salt Lake City Department of Airports (SLCDA) has made great strides already in this regard with:

- The commissioning of a study on sustainability in 2007⁷⁷,
- Senior commitment to sustainability as evidenced in the current pursuance of Leadership in Energy and Environmental Design (LEED) for the Terminal Redevelopment Program (TRP),
- Implementation of a myriad of efforts to reduce energy consumption and improve operational efficiency,
- Securing of a grant for sustainability planning, and
- Designation of a Sustainability Coordinator.

Formalizing an organizational approach to sustainability will be the required next step for the successful implementation of the Sustainability Management Plan (SMP) recommendations and suggestions.

Organizational Framework

As part of the Salt Lake City International Airport (SLC or the Airport) SMP baseline assessment, the current governance, organizational capacity, and procedures of SLCDA were evaluated. This helped identify potential opportunities to integrate sustainability into existing processes and procedures. The intent of the SMP recommendations is to identify adjustments to existing processes and procedures that will not create additional, resource-consuming requirements.

⁷⁷ SLCDA. 2007. *Making the Business Connection to Airport Sustainability*. Prepared by Carter & Burgess. Report.

Organizational Role in Promoting Sustainability

Clear identification of SLCDCA employee roles is important to facilitate SLCDCA's overall sustainability program, and will be critical to employee, passenger, and tenant engagement. The following are the suggested roles for various levels of management and staff in the SLCDCA for promoting sustainability in the organization.

- **Senior Leadership** is responsible for promoting SLCDCA's sustainability program both internally and externally to SLCDCA. This includes creating a work environment that facilitates considering potential sustainability initiative suggestions from employees, as well as from passengers, tenants, and the community.
- The **Sustainability Coordinator** will continue to manage the sustainability program and implementation of initiatives. The Sustainability Coordinator will work with staff, managers, and senior leadership to ensure a comprehensive sustainability program is maintained at SLC. The role of the Sustainability Coordinator is detailed further in the following section.
- The **Sustainability Action Committee (SAC)** will continue to be led by the Sustainability Coordinator, and support SLC's sustainability program. A broad representation of SLCDCA staff is represented on the SAC. The group will assist with identifying and evaluating potential initiatives. Frequently, members of the committee will assist with identifying the appropriate managers and staff members that will be responsible for tracking and implementing initiatives. The SAC also includes "Sustainability Category Champions" that have an interest and background in one of the sustainability goal categories. The Sustainability Category Champions will assist the Sustainability Coordinator in their area of expertise to conduct initial screening of initiatives.
- **Managers** have multiple roles. First, they should ensure their staff has the necessary resources to continue to implement existing and proposed initiatives. Managers will be responsible for completing the Progress Reports (Tracker™) and providing feedback to the Sustainability Coordinator, as applicable. It is also anticipated that Managers may be the link between their staff and the SAC. Initiatives that their staff members recommend should be brought forward to the Sustainability Coordinator or SAC for consideration.
- The **Public Relations and Marketing** department is critical for ensuring that all employees, tenants, passengers, and the community are aware of SLCDCA's sustainability program. Internal and external (employee and general public) promotional activities will increase sustainability awareness and engagement at SLC.
- **Staff** members from all departments are the primary key to a successful sustainability program. These personnel are the ones that implement proposed initiatives, identify problems or conditions that reduce the anticipated performance of an initiative, and frequently are the primary group to identify new potential initiatives.



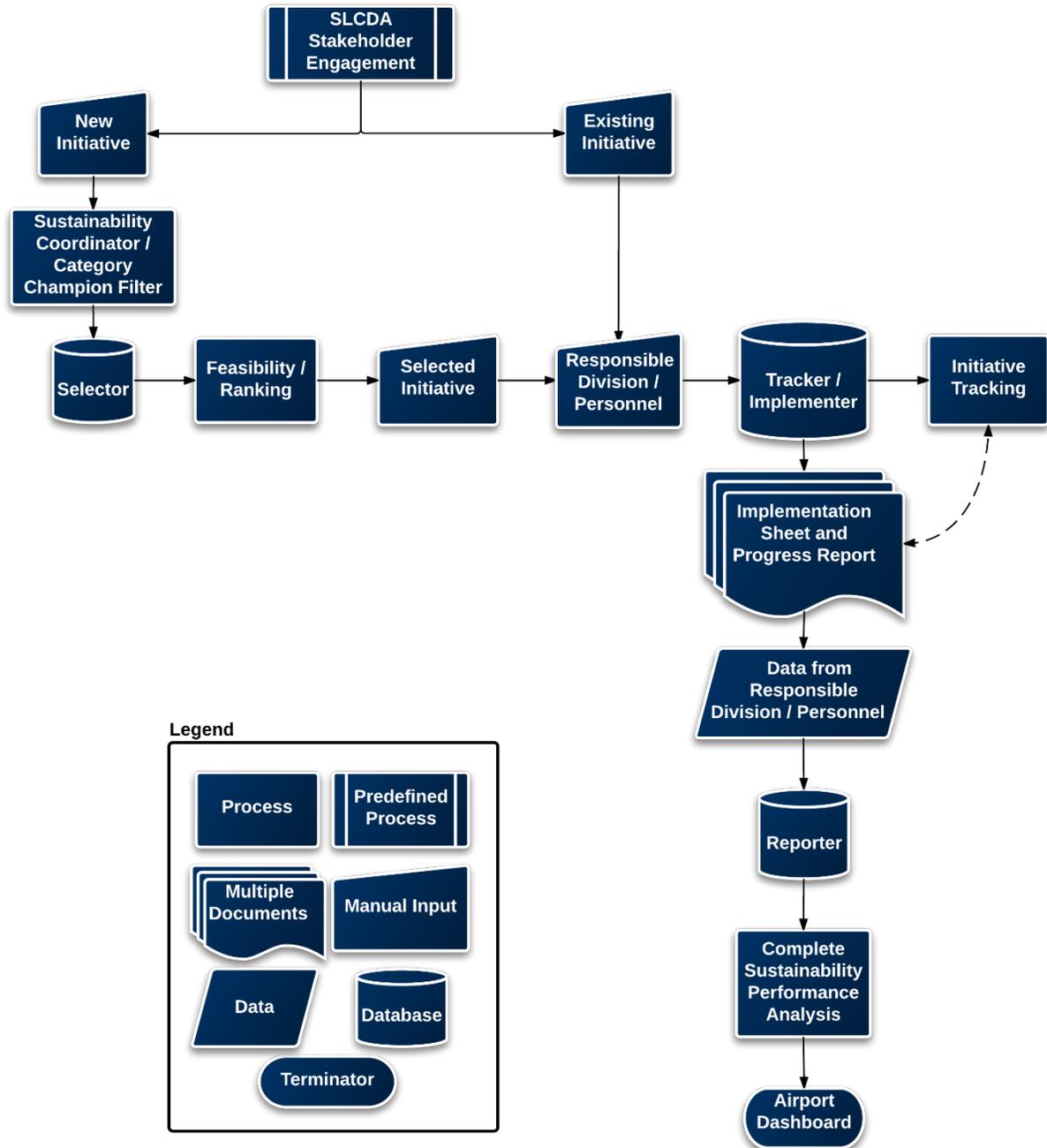
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Sustainability Coordinator and the Implementation Process

A successful sustainability initiative implementation process will require coordination across the organization. The sustainability implementation process will be facilitated by SLCDCA's Sustainability Coordinator, supported by the SAC and various staff across the organization.

Figure 6-1 shows the process that would be undertaken to either identify and implement a new sustainability initiative or document existing initiatives and track their implementation progress and performance.

FIGURE 6-1: SLCDA INITIATIVE IMPLEMENTATION PROCESS



Source: SLCD and VHB, 2014.

Identifying and Screening New Sustainability Initiatives

It is anticipated that potential initiatives will originate from a variety of sources, such as departments and staff members within SLCDCA, the SAC, passengers, and tenants, as well as from the community by innovative suggestions through the sustainability dashboard. Potential initiatives would be brought to the SLCDCA Sustainability Coordinator or Category Champion's attention to begin the evaluation and implementation process.

The Sustainability Coordinator will determine if the potential initiative(s) meets the sustainability program's goals. Detailed in Chapter 7, *Sustainability Initiatives*, the initial **screening process** evaluates the initiative's ability to meet the sustainability program goals, overall feasibility of implementation, cost-effectiveness, and associated sustainability benefits. If the initiative is not eliminated in the screening process, the Sustainability Coordinator or SAC **will assign the division and/or person responsible for** implementation of the new initiative.

Implementing and Tracking New Initiatives

Prior to implementing an initiative, an **implementation summary** would be developed to assist with initiative tracking/progress reporting. The implementation summary, described in Chapter 8, *Implementation Process*, will identify: steps needed for implementation, estimated staff time required, capital or operational and maintenance costs, recommended implementation timeframe, division/person responsible, implementation steps, funding resources, and relevant case studies/additional information. The division/person responsible should follow the implementation steps listed on the summary sheet to help successfully implement each initiative. For this SMP, the Sustainability Planning Project Team developed implementation summaries for the short-term initiatives that have been selected. In the future, the SLCDCA Sustainability Coordinator and identified Initiative leaders will develop Implementation Summaries for medium and long-term efforts and new initiatives.

Once initiatives are ready for implementation, the **tracking process**, also described in Chapter 8, would begin. Tracking an initiative allows the Sustainability Coordinator to collect pertinent information and helps track the progress of SLCDCA's sustainability program. To assist in tracking the progress of each initiative, a **progress report** is recommended and should be updated on a routine basis, to be determined by the Sustainability Coordinator/SAC. These progress reports should contain information such as current implementation status, percent of completion, number of labor hours required, issues or challenges, lessons learned, and recommended next steps. The responsible division/person should send the progress report to the Sustainability Coordinator.

The **reporting step** includes updating performance metrics and Key Performance Indicators (KPIs), which help to document SLCDCA's overall sustainability performance (see Chapter 9, *Sustainability Performance Monitoring and Reporting*). The results will typically be provided in a **Sustainability Report** and available for public review on the Airport's Dashboard.

Documenting and Tracking Existing Initiatives

SLCDA is already implementing a substantial number of sustainability initiatives in departments across the organization. Implementation of the sustainability program requires documenting these initiatives, confirming parties responsible for their implementation, and tracking initiative progress and performance. SLCDA should develop an implementation summary for each existing initiative, track the initiatives in the Tracker™, and report (using the Reporter™).

Organizational Processes and Procedures

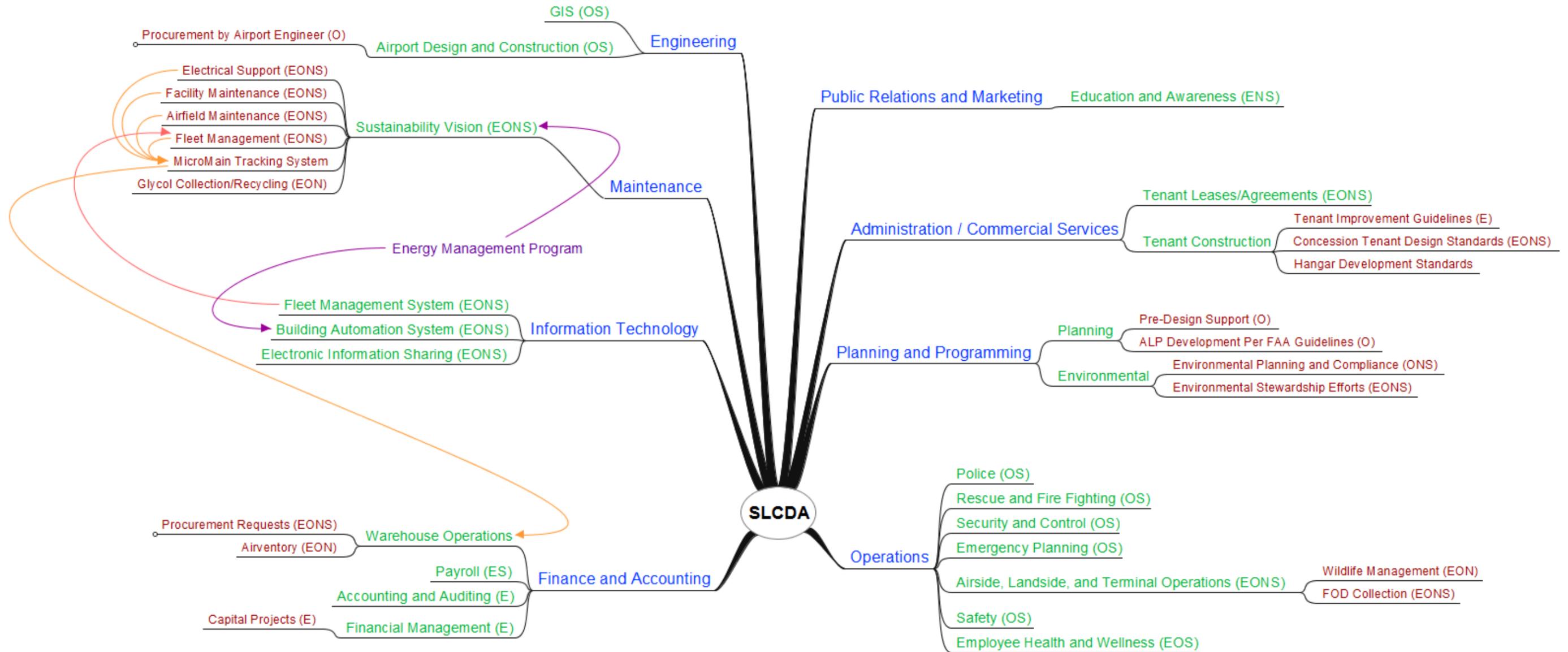
SLCDA has made significant progress in integrating sustainability into its existing processes, procedures and operation. Figure 6-2 depicts all of the Divisions within SLCDA and represents many processes and procedures that fall under each Division that could include sustainability components.

In addition, the City has developed several guidelines, policies, and plans that encourage sustainability within its departments, including SLCDA. These guidelines include:

- City Code of Salt Lake City
- Salt Lake City Corporation Executive Orders
- Salt Lake City Administrative Rules for Procurement
- Salt Lake City's Environmental Policy
- Sustainable Salt Lake – Plan 2015

The City is in the process of updating its Code and will further integrate sustainability into the revisions. These revisions have the potential to affect the Airport relative to water-efficient landscaping, recycling and waste reduction, transportation demand management, and outdoor lighting.

FIGURE 6-2: SLCDA SUSTAINABILITY PROCESSES AND PROCEDURES



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Opportunities to Integrate Sustainability Considerations

The processes and procedures currently in place at SLCDCA were reviewed for additional opportunities to incorporate sustainability. Recommendations have been identified that could assist in ensuring that the four pillars of airport sustainability, Economic viability, Operational efficiency, Natural resource conservation, and Social responsibility (EONS), are considered in decision-making across the organization and throughout its operation. The processes and procedures as well as opportunities identified to integrate sustainability are detailed in Table 6-1.

TABLE 6-1: SLCDCA DIVISIONS AND SUSTAINABILITY OPPORTUNITIES

PROCESSES AND PROCEDURES BY DIVISION	OPPORTUNITIES TO ENHANCE CURRENT PRACTICES
Sustainability Vision (All Divisions)	Develop Sustainability Vision for each Division - either adapting the SLCDCA Sustainability mission or developing one similar to the Maintenance Division.
Engineering	
Geographic Information System (GIS)	Consider Information Technology (IT) Opportunities to enhance integration of existing software programs, including GIS.
Maintenance Glycol Recovery	
Electrical Support	Identify opportunities to make the electrical maintenance system more efficient.
Facility and Airfield Maintenance	Develop integrated Work Order Management System. Consider IT Opportunities to enhance integration of existing software programs, including MicroMain.
MicroMain Tracking System	Use MicroMain tracking system to enhance operational efficiency.
Information Technology	
Electronic Information Sharing	<p>Integrate existing software programs (e.g., BAS, GIS, MicroMain, and Airventory) for better tracking and verification.</p> <p>For example, currently, when a SLCDCA employee reports a light outage in his or her office, MicroMain generates a work order that includes the office number, individual, etc. However, when the Maintenance staff obtains the replacement from the warehouse, Airventory requests only the cost center (e.g., Planning & Environmental) for which it is intended, therefore missing a tracking opportunity.</p> <p>If the existing BAS could alert MicroMain when there is a light outage, a work order could be generated automatically (and then verified by Maintenance personnel) and an accompanying list of equipment/material needs created for Airventory.</p> <p>This data could then be published on a GIS database with query capabilities. In addition to the tracking benefits, integration of these systems would also decrease staffing needs and efforts.</p>

Sources: C&S Companies and VHB, 2014.

TABLE 6-1: SLCD A DIVISIONS AND SUSTAINABILITY OPPORTUNITIES (CONT.)

PROCESSES AND PROCEDURES BY DIVISION	OPPORTUNITIES TO ENHANCE CURRENT PRACTICES
Information Technology (Cont.)	
Building Automation System (BAS)	Increase use of BAS to track energy use and resource consumption.
Finance and Accounting	
Standards of Practice for Finance Oversight Committee (Draft)	Consider Life Cycle Costing and other sustainability evaluation criteria in financial considerations.
Financial Management, including Capital Projects	Evaluate the success of new Capital Improvement Program and make adjustments if necessary. Include sustainability evaluation criteria in CIP process to be used by all involved divisions. (e.g., capital requests should document projects' contribution to items such as greenhouse gas (GHG) emissions reduction, energy use reduction, cost savings, water conservation).
Procurement Administration and Commercial Services	Establish sustainability criteria for material procurement that adheres to the City's Administrative Rules for Procurement and ensures that materials are contributing to the Airport's pursuit of EONS including criteria such as certified "green products," recycled content, office supplies, janitorial and chemical supplies, and packaging. Educate procurement staff on life cycle cost analysis and the importance of considering a product/material's entire life cycle. A life cycle cost analysis and/or return on investment approach should be taken when considering the acquisition of significant assets (from equipment to facilities).
Request for Proposals (RFPs) Administration and Commercial Services	Include option for responders to suggest the most sustainable option whether for product specification, a service process, or performance based functional specification.
Asset Management	Establish an organized and comprehensive asset management program to centralize ongoing efforts across the divisions and seek new opportunities for repurposing materials and equipment among the three airports. Additionally, increased focus on the management of assets would ensure that each purchase has been vetted and determined to be justified, needed at that time, and the best alternative (considering all elements of EONS).
Warehouse Operations	Require vendors to combine delivery trips where possible.
Payroll, Accounting and Auditing	Look for opportunities to make systems more efficient and integrated with other IT systems.
Airline Use and Lease Agreements Administration and Commercial Services	Opportunities include encouraging use of preconditioned air, ground service equipment, waste hauling, ticket counter allocation, gate electrification, common use equipment, participation in working groups, general maintenance services.

Sources: C&S Companies and VHB, 2014.



TABLE 6-1: SLCDA DIVISIONS AND SUSTAINABILITY OPPORTUNITIES (CONT.)

PROCESSES AND PROCEDURES BY DIVISION	OPPORTUNITIES TO ENHANCE CURRENT PRACTICES
Public Relations and Marketing	
Education and Awareness	<p>Increase awareness of the overall SLCDA sustainability mission, developed within this SMP) through the different divisions and across all levels. Similar to the Maintenance Division, encourage other areas to identify additional goals within their reach and collaborate with other divisions to increase effectiveness.</p> <p>Educate SLCDA employees and tenants on current and planned sustainability initiatives, consider using Social Media.</p>
Employee Health and Wellness Operations	Educate employees about how employee health and wellness contributes to the sustainability of the Airport.
Administration / Commercial Services	
Airport Rules and Regulations	<p>Incorporate additional sustainability requirements and recommendations into the Airport’s Rules and Regulations, which must be complied with by all Airport tenants and users.</p> <p>Reevaluate requirements for tenants considering the Airport as a whole system to determine if revisions would contribute to the Airport’s long-term sustainability. For example, tenants are currently required to handle their own waste and recycling. Although this may limit the SLCDA’s staffing needs and waste management costs, providing these services may result in increased and more accurate waste diversion from the Airport as a whole.</p>
Airport Design and Construction RFPs	Incorporate sustainability conditions or performance specifications into design and construction RFPs and contracts.
Hangar Development Standards	Incorporate sustainability conditions or performance specifications into design, construction (and operation) of hangars.
Tenant Improvement Guidelines	Encourage tenants to develop and implement their own sustainability programs, policies, or guidelines; support the Airport’s sustainability objectives; or better inform their employees of existing policies in place.
Concession Tenant Design Standards	Incorporate sustainability criteria into tenant design and construction guidelines.

Sources: C&S Companies and VHB, 2014.

TABLE 6-1: SLCD DIVISIONS AND SUSTAINABILITY OPPORTUNITIES (CONT.)

PROCESSES AND PROCEDURES BY DIVISION	OPPORTUNITIES TO ENHANCE CURRENT PRACTICES
Administration / Commercial Services (Cont.)	
Concessions and Vendor Contracts and Leases	Develop contract templates or standard contract/lease language that specifies sustainability criteria. Convene a multi-stakeholder committee to review contract and lease language and develop criteria to encourage sustainable practices including topics such as waste hauling, source reduction, programs to facilitate food quality/sourcing/recycling/composting, energy and water efficiency, packaging, sustainable design for tenant alterations, alternatively fueled rental cars. See Airport Cooperative Research Program (ACRP) Synthesis Report 42: Integrating Environmental Sustainability into Airport Contracts.
	Actively manage contracts to ensure sustainability requirements are being met - though scheduled inspections, spot-checking, monthly reports, or requests for information.
	Consider developing a sustainable food policy for food concessionaires including displays that promote healthy eating, visible food preparation areas, and appropriate portion sizes to support good health.
Planning and Programming	
Standards of Practice for Submittals to the Design Review Committee (Draft)	Include sustainability evaluation criteria in Design Review Committee process.
Planning	Incorporate sustainability into the alternatives analysis process of all future planning efforts. Consider development of sustainable planning guidelines similar to other airports such as San Francisco International Airport.
Environmental	Consider a requirement to achieve standards established by the Institute for Sustainable Infrastructure (ISI) Envision rating system for horizontal projects similar to the LEED Silver standard currently in place for vertical projects.
Organizational Policy: Construction Committee Special and General Conditions (for construction) (Draft)	Develop and implement sustainable design, construction, and operation guidelines that could be used for all projects similar to those established at other airports.
Operations	
Police, Rescue and Fire Fighting, Security and Control, Emergency Planning	Encourage operational efficiency in operations. Look for opportunities to make procedures and operations more streamlined. Integrate departments to the extent feasible.
Airside, Landside, and Terminal Operations, Including Wildlife Management, and FOD Collection	Look for opportunities to make operations more efficient. Consider procedures with dual benefits (e.g., using xeriscaping that reduces wildlife attractants).

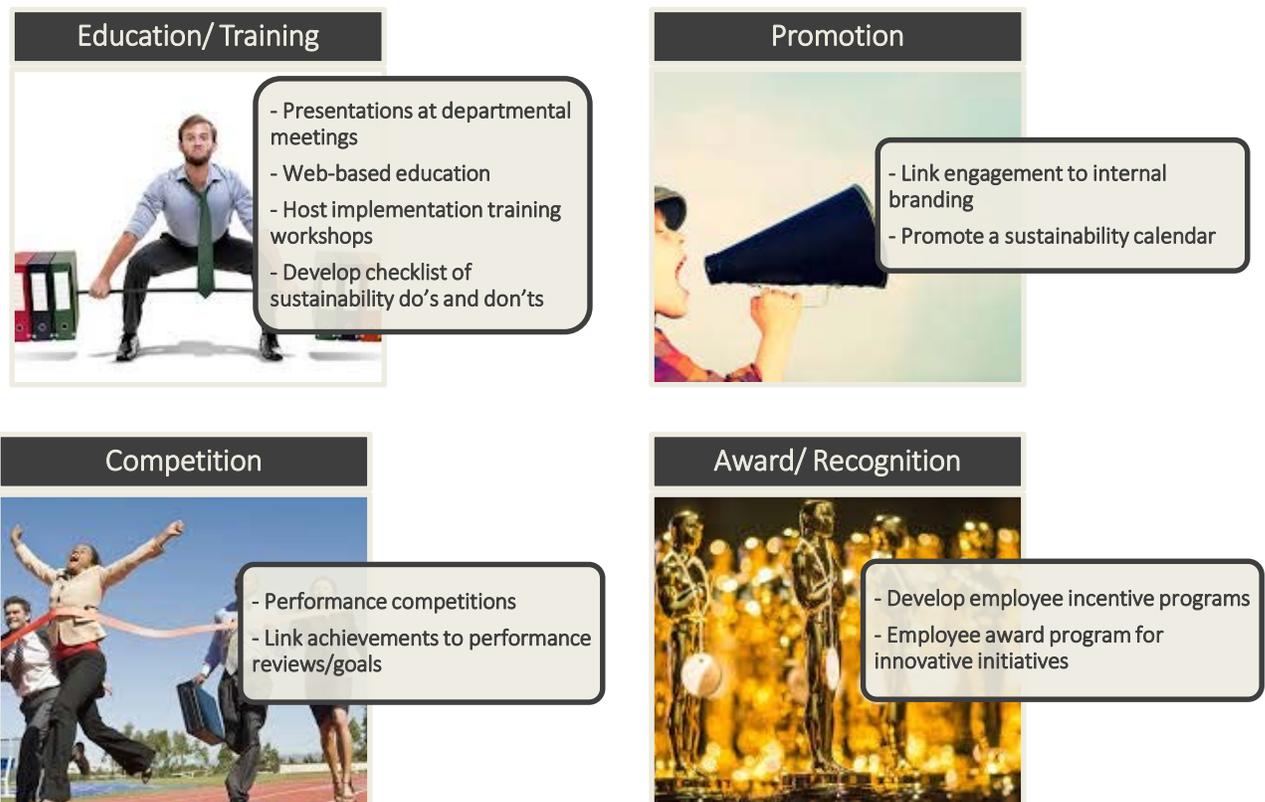
Sources: C&S Companies and VHB, 2014.

Employee, Passenger, and Tenant Engagement

The organizational engagement enhancements identified in this chapter build on existing opportunities to integrate sustainability considerations for SLCDCA employees and tenants, and to raise awareness of sustainability for passengers and other airport users.

A few engagement ideas are provided in Figure 6-3 and additional employee, tenant, and public engagement opportunities are identified below. Several of these recommendations are also short-term initiatives (see Chapter 7, *Sustainability Initiatives*).

FIGURE 6-3: HOW WILL YOU ENGAGE THE ORGANIZATION?



Source: SLCDCA, 2014.

Employee Engagement Opportunities

Opportunities to engage SLCDCA employees include:

- Develop a sustainability portal for plan input
- Educate SLCDCA employees on current and planned sustainability initiatives through training programs, newsletters, announcements on-line
- Consider promotional activities to improve internal engagement, such as:

- Kickoff event to launch SLC’s official sustainability program
- Sustainability calendar with monthly programming
- Interdepartmental games/competitions
- Rewards or other recognition program
- At-home sustainability challenges

Tenant Engagement Opportunities

Opportunities that can be used to engage some or all of SLC’s tenants include:

- Recognize and reward sustainability efforts of tenants
- Encourage tenants to develop and implement their own sustainability programs, policies or guidelines; participate in the Airport’s objectives; or better inform their employees of existing policies in place⁷⁸
- Incorporate sustainability into tenant design and construction guidelines
- Reevaluate requirements for tenants considering the Airport as a whole system to determine if revisions would contribute to the Airport’s long-term sustainability. For example, tenants are currently required to handle their own waste and recycling. Although this may limit the SLCDCA’s staffing needs and waste management costs, providing these services may result in increased and more accurate waste diversion from the Airport as a whole.
- Educate tenants on current and planned sustainability initiatives and how they can participate in the Airport’s program
- Invite tenants to participate in internal engagement efforts, such as:
 - Kickoff party to launch SLC’s official sustainability program
 - Rewards or other recognition program
 - At-home sustainability challenges

Passenger Engagement Opportunities

Opportunities to engage passengers and the public in SLC’s sustainability program include:

- Enhance awareness and education of SLC’s sustainable strategies through a public awareness campaign which should include social media and SLC’s website
- Create a multimedia display to showcase sustainability metrics and would provide an interactive platform to engage and educate visitors
- Develop an education program in the terminal as the TRP is developed

⁷⁸ Many of the respondents to the FBO/Airline Questionnaire were unsure if their companies had formal sustainability programs, policies, or guidelines in place.



- Conduct surveys to understand overall satisfaction level
- Incorporate environmental stewardship education into the Airport public art program
- Provide learning material related to sustainability and aviation for public schools

Many of the engagement opportunities identified in the sections above can be applied to more than that individual group of stakeholders. It will be up to the SAC and Sustainability Coordinator to evaluate the best use of funding, and consider activities that engagement more than one group of stakeholders.



Salt Lake City
International Airport

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7 Sustainability Initiatives

A key outcome of the Sustainability Management Plan (SMP) is the identification of sustainability initiatives that will meet the Sustainability initiatives are discrete actions that were identified during the planning process through the following sources:

- Opportunities identified through the baseline assessment process,
- Sustainability Action Committee (SAC) coordination,
- Sustainable Aviation Guidance Alliance (SAGA) database,
- Transportation Research Board (TRB) Airport Cooperative Research Program (ACRP) reports, and
- Project team expertise and experience at other airports.

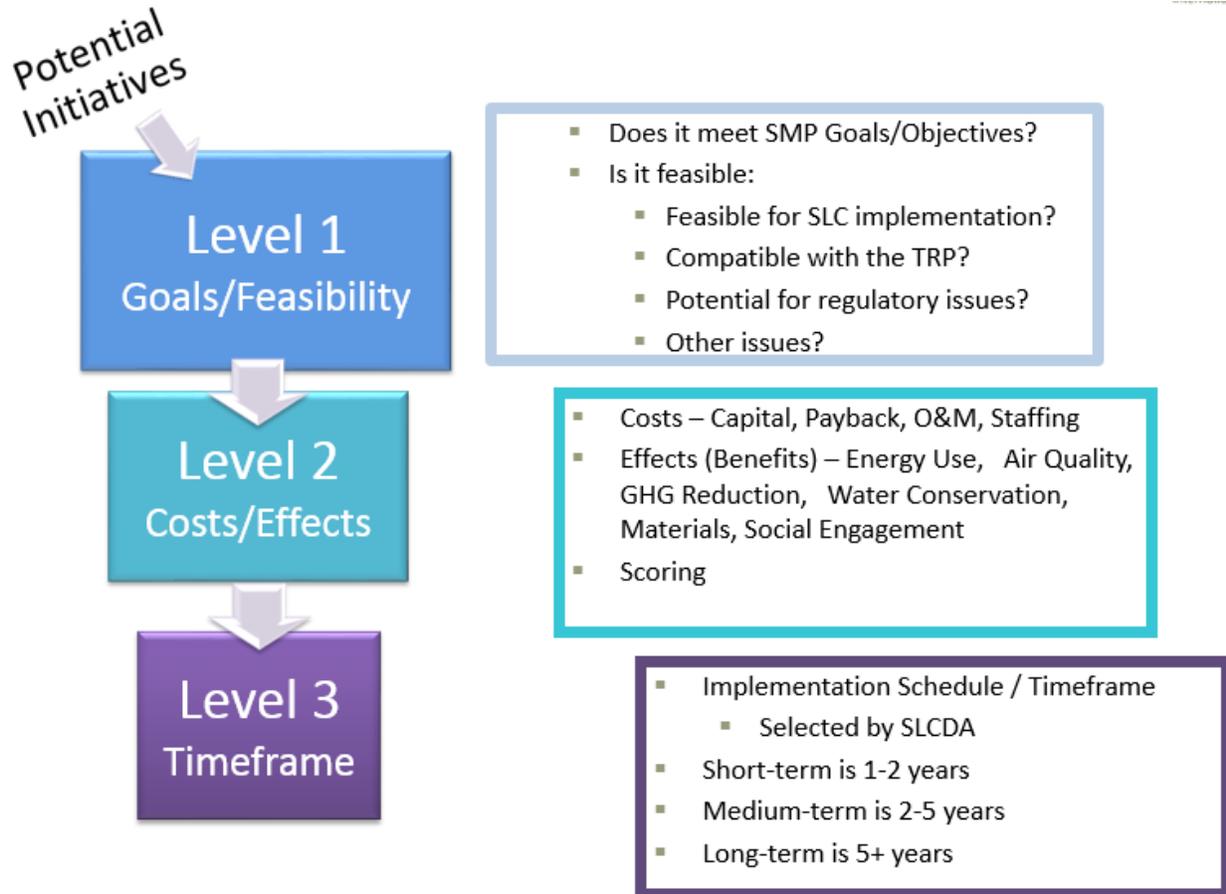
In all, over 200 initiatives were initially identified as candidates that could meet the Salt Lake City International Airport's (SLC's or the Airport's) goals and objectives. The Planning Team worked closely with SLCDCA in 2014 to review potential screening and feasibility criteria. The screening criteria outlined in this chapter were developed through an iterative process with SLCDCA. This also included meetings with the SAC and key departments to understand potential impacts and desired criteria. Before proceeding with the evaluation, SLCDCA staff agreed on the screening criteria. The screening process is transparent and compares candidate sustainability initiatives on a consistent basis, with criteria applied uniformly.

Initiative Screening Process

The candidate initiatives were screened according to their ability to meet SLCDCA's sustainability program goals, overall feasibility, cost-effectiveness, and associated benefits. Once the initiatives had been screened and selected, the final step in the process is to assign each initiative to an implementation timeframe: short, medium, or long.

The steps taken to screen and evaluate potential initiatives are shown in Figure 7-1 and described further.

Figure 7-1: Evaluation Criteria and Initiative Screening Process



Source: VHB, 2014.

Level 1: Goal Assessment

SLCDA’s sustainability program has six goals that relate to the priority areas of energy, air quality, waste management, community well-being, water use and conservation, and planning and building design. These goals are part of SLCDA’s Sustainability Vision, detailed in Chapter 5. The first screening step was to determine if the proposed initiative meets any of SLCDA’s goals, summarized below:

- Reduce the total **energy** use of the Airport and increase renewable energy generation on Airport property.
- Reduce criteria **air pollutants and greenhouse gas (GHG) emissions** to improve public health and mitigate climate change.
- Reduce **waste generation** and increase diversion from landfills.
- Assist in the region's efforts to sustain its **water resources** for current and future generations.

- Maintain a safe and healthy **natural and human environment** for passengers, Airport employees, and tenant employees.
- Promote green **building**, energy efficiency, and operational efficiency.

The more goals met, the higher an initiative will score in the screening process; in other words, an initiative that meets a high number of goals would be prioritized higher than one that only meets one goal. For example, an energy conservation initiative that would reduce the total **energy** use of the Airport could also reduce criteria **air pollutants and GHG emissions**, and promote green **building**, which results in advancing three sustainability goals.

Level 1: Feasibility Assessment

The Feasibility evaluation step determined if a sustainability initiative would be retained based on the practicability of implementing the initiative. If an initiative was feasible based on the following considerations, it was advanced for further consideration:

- No Regulatory Obstacles;
- Compatible with the Terminal Redevelopment Program (TRP); and
- Other (general challenges that SLCDCA felt would make this initiative not feasible at this time).

ID	Sustainability Initiatives	SLCDA Input	No Regulatory Issue	Compatible with the TRP	Other	feasibility
C-19	Provide bus transfers to employees to encourage the use of the TRAX system	Yes	Yes	Yes	Not Feasible	Not Feasible
C-20	Enhance awareness and education of sustainable strategies (for example, use social media to spread information more quickly)	Yes	Yes	Yes	Yes	Feasible

Example of Feasibility Columns and Initiative Elimination. The feasibility review helps to determine how practical it is to implement an initiative. If the initiative is not feasible, it is eliminated from further consideration.

Level 2: Estimated Costs

If an initiative met at least one of SLCDCA’s sustainability goals and was determined feasible, it moved forward in the screening process to estimate the costs associated with implementation. Four types of costs were considered in this evaluation step:

- Capital costs,
- Return on investment,
- Annual operations and maintenance, and
- Staffing.

Capital
0- Very Expensive: > \$100K
1- Moderately Expensive: \$50-\$100K
2- Low Cost: \$5-\$50K
3- Marginal Cost: 0 < \$5K

Example Scoring (Capital Costs)

Level 2: Effects

The Effects evaluation step determined the level of impact an initiative would have across sustainability issues. The criteria reflects the effects/impacts that are important to SLC, which include:

- Energy Use - impacts to energy consumption and the generation of renewable energy
- Air Quality - change in the amount of contaminants of concern/criteria pollutants emitted
- GHG emissions - change in the amount of GHGs emitted
- Water Conservation - impacts to water use and the use of reclaimed water
- Sustainable Materials - concentration of sustainable content such as recycled materials
- Materials Management - amount of materials recycled or diverted from solid waste landfills
- Social Engagement - level of stakeholder engagement necessary for initiative implementation

Energy Use
0 - Increase in energy consumption
1 - No effect on net energy consumption
2 - Small decrease (<5% below baseline) in energy consumption and/or generates renewable energy
3 - Large decrease (>5% below baseline) in energy consumption and/or generates renewable energy

Example Scoring (Energy Effects). Evaluation of the costs and effects identifies the level of impact an initiative will have on SLCDCA’s sustainability goals.

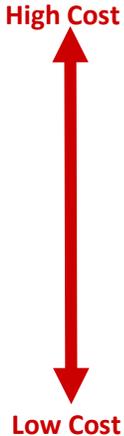
Scoring

After determining whether or not an initiative moved forward in the evaluation process based on its ability to meet at least one SLC sustainability goal and feasibility considerations, evaluation criteria were used to “score or rank” the initiatives based on costs and effects. Every cost or benefit was scored (see Appendix I, *SLC SPOT™ Users Guide*, for more scoring levels for all evaluation criteria) from a range of 0 to 3. For example, initiatives that had low



capital costs were considered more favorable than initiatives that had high capital costs. The cumulative result of this ranking system resulted in high scores for favorable (low cost / high benefits) initiatives and automatic elimination of initiatives that did not meet any sustainability goals or were not feasible. Figures 7-2 and 7-3 depict the scoring levels and explanation for the costs and benefits.

Figure 7-2: Evaluation and Scoring: Costs



Score	Capital Costs	O&M Costs	Pay Back Period	Staffing
0	> \$100,000	> \$100,000	> 10 Years	> 200 Hours per Month
1	\$50,000-\$100,000	\$50,000-\$100,000	5-10 Years	50-200 Hours per Month
2	\$5,000-\$50,000	\$5,000-\$50,000	2-5 Years	10-50 Hours per Month
3	< \$5,000	< \$5,000	0-2 Years	< 10 Hours per Month

Source: VHB, 2014.

Figure 7-3: Evaluation and Scoring: Effects (Benefits)



Score	Energy Use	Air Quality	GHG Emissions	Water Use	Sustainable Materials	Materials Mgmt.	Social
0	Increase in Energy Use	Net Decrease in Air Quality	Increase	Increase in Water Use	No Sustainable Content	No C&D reused / recycled	No Engagement
1	No Effect on Net Energy Use	No Net Effect on Air Quality	No Net Effect	No Impact	5-15% Sustainable Content	Up to 30% recycled, or < 3% decrease in MSW	Internal Only (SLCDA Employees)
2	< 5% decrease in Energy Use	Moderate Net Improvement in Air Quality	< 1,200 tons/year of CO _{2eq} decrease	< 5% decrease in Water Use	15-40% Sustainable Content	30-60% recycled, or 3-6% decrease in MSW	Full Internal and Limited External (e.g., Airlines and Tenants)
3	> 5% decrease in Energy Use	Significant Net Improvement in Air Quality	> 1,200 tons/year of CO _{2eq} decrease	> 5% decrease in Water Use	> 40% Sustainable Content	> 60% recycled, or > 6% decrease in MSW	Full Internal and External (Public)

Source: VHB, 2014.

Note: C&D is Construction and Demolition Waste. MSW – Municipal Solid Waste.

Level 3: Timeframe

Timeframe defines when the Airport should begin implementing the initiative. Timeframes were broken out by three time periods, which included:

- Short-term: 0-2 years
- Medium-term: 2-5 years
- Long-term: 5+ years



Timeframe for implementation is frequently determined based on the total score

Short-term initiatives were identified by having the highest scores based on the Level 1 and 2 screening. Medium and long-term initiatives had lower scores because of higher costs and/or fewer benefits. Coordination with the SAC was conducted to review and confirm the timeframes identified for each initiative. Initiatives that were screened during the planning process and identified for short-term implementation as well as those that are considered Existing – To Be Continued/Expanded are provided in Table 7-1.

Thirty short-term initiatives are recommended for implementation in the next two years, consisting of the following sustainability goal categories:

- Community (14 initiatives)
- Water Conservation (3 initiatives)
- Air Quality (1 initiative)
- Waste Management (6 initiatives)
- Energy (4 initiatives)
- Planning and Building (2 initiatives)

Implementation of these efforts will be the responsibility of a cross-section of SLCD staff in various departments. Instructions on how to implement the initiatives and to track and report their progress is described in the following chapters.

Because the medium- and long-term initiatives are not yet ready for implementation, a comprehensive implementation approach was not developed for each initiative (e.g., responsible person, steps for implementation, etc.). A complete listing of short, medium, and long-term initiatives is provided in Appendix H, *Sustainability Initiatives*.

SPOT: The Selector™

The Selector™ provides SLCD staff a transparent method to screen potential sustainability initiatives for feasibility and effectiveness and identify appropriate implementation timeframes. Various features/components the Selector™ were depicted throughout this chapter. This tool provides a thorough way to evaluate each initiative and assist with selecting the implementation timeframe based on costs and benefits. The Selector™ is summarized on the following page and additional information can be found in the *User's Guide*, provided in Appendix I, *SLC SPOT™ User's Guide*.

Initiatives

The short-term initiatives from the Level 3 screening analysis (identifying timeframe) are provided in Table 7-1. A detailed list of initiatives, which includes medium and long-term initiatives, is provided in Appendix H, *Sustainability Initiatives*.

Future Potential Initiatives

In the future, potential initiatives will be screened and evaluated in a transparent and consistent manner. It is recommended that evaluation criteria be re-evaluated after a period of time has passed to determine if any modifications should be made. Any changes to evaluation criteria or scoring should be documented for future users.

TABLE 7-1: SHORT-TERM SUSTAINABILITY INITIATIVES

INITIATIVE ID	SUSTAINABILITY INITIATIVES
Community	
C-8	Promote a "Take the TRAX" day on a regular basis to encourage employees to use TRAX when feasible (or alternative transportation day)
C-13	Specify healthy building materials that do not contain Environmental Protection Agency (EPA) "Chemicals of Concern" by project
C-16	Develop a sustainability portal for plan input from SLCDCA employees
C-17	Provide employee training and education on sustainability initiatives
C-20	Enhance awareness and education of sustainable strategies (for example, use social media to spread information more quickly)
C-22*	Enhance formal customer service training for SLCDCA employees
C-28	Increase plantings and natural plantings inside passenger and employee spaces (Biophilia)
C-35	Educate tenants regularly on SLC's sustainability efforts and how they can participate in the Airport's sustainability program
C-39	Host an annual airport health and wellness clinic/expo for employees and tenants that provides health screening, seminars, health and safety exhibits, flu shots, a workout pavilion, healthy cooking demos, green living ideas, exhibitors, financial health information, and more.
C-46	Continue regular meetings/ coordination with the SAC
C-47	Develop relationships with community groups and local businesses to advance common goals
C-48	Establish working relationships with the local community leadership to enable effective and efficient communication
C-50	Provide construction and related sustainability information at kiosks and information displays to be distributed throughout the terminal building and landside
C-53	Work with local radio affiliates to include construction updates during morning and afternoon traffic alerts. Announce construction traffic reports on local AM radio stations.
C-57	Continue to operate and maintain facilities in accordance with best Integrated Pest Management practices
Water	
W-13*	Continue to convert turf landscaping to native plantings
W-14*	Identify and repair leaks in the water conveyance system
W-16*	Install high-efficiency water conservation products.
W-17*	Conduct landscape irrigation audits regularly to ensure the irrigation system is performing properly and all irrigation schedules are appropriately set.

*Initiative ID's denoted with an asterisk are Existing – To Be Continued/Expanded initiatives

TABLE 7-1: SHORT-TERM SUSTAINABILITY INITIATIVES (CONT.)

INITIATIVE ID	SUSTAINABILITY INITIATIVES
Air Quality	
AQ-3*	Replace vehicles that are at the end of their useful life with alternative fuel, electric, or low-emission/zero-emission vehicles, while meeting the vehicle use requirements of SLCDCA.
AQ-15	Encourage airlines to park late aircraft close to the terminal core, so entire piers do not need to be "started up" late at night with heating, ventilation, and air conditioning (HVAC) and lighting.
AQ-21*	Require Construction Activity Pollution Prevention for all new construction projects
Waste Management	
WM-3	Place additional 90-gallon recycling bins throughout the Airport property (including near cargo operators) as part of the City's curbside recycling program.
WM-4	Strategically position trash and recycling receptacles adjacent to one another in passenger terminal.
WM-5	Provide recycling receptacles in pre-security and food court areas.
WM-12	Promote recycling reward days for passengers "caught" recycling.
WM-15*	Use multi-surface cleaners to reduce the number of cleaning agents.
WM-19*	Repurpose trees and plants for replanting elsewhere on Airport property or other locations.
WM-20	Utilize recycled concrete in new projects.
Energy	
E-4*	Incorporate any new air handlers systems into the Building Automation System (BAS)
E-5	Implement monitoring-based commissioning software in the BAS control scheme to monitor airport equipment and systems in near-real time.
E-14	Continually evaluate maintenance schedules to ensure peak efficiency
E-18*	Continue to upgrade to high efficiency light fixtures (i.e., light-emitting diode (LED))
E-34*	Utilize direct/indirect evaporative cooling from HVAC
E-39*	Continue to convert to LED airfield lighting
E-41	Improve efficiency of deicing fluid reclamation plant process flow
Planning and Building	
P&BD-16*	Design spaces to appropriate sizes to avoid increasing building footprint and initial resource use and energy and maintenance burden
P&BD-17	Encourage use of local materials airport-wide

*Initiative ID's denoted with an asterisk are Existing – To Be Continued/Expanded initiatives

Coordination with the Terminal Redevelopment Program

Throughout the development of the SMP, the Project Team collaborated with the TRP Team to consider potential sustainability initiatives for incorporation into the redevelopment process. All Sustainability Planning Project Team-TRP coordination materials are included in Appendix B, *Sustainability Planning Project Team and Terminal Redevelopment Program Meeting Materials*.

In the pursuit of LEED Gold certification, the TRP is focusing on the following initiatives:

- Centralized pre-conditioned air (PCA) which uses a central heating and cooling plant and a thermal energy storage system
- The Baggage Handling System (BHS) will use permanent magnetic motors instead of alternating current motors for conveyor drive systems
- BHS Logic which results in individual conveyor sections operating only if a bag is detected on or immediately upstream
- Building glazing reduced from 46 percent to 30 percent
- Radiant heating systems will be used in the gate lounge, main plaza, and pedestrian bridge
- Systems will slow escalators and moving walkways to 25 percent in public areas when not in use
- A photovoltaic (PV) array for onsite renewable energy generation
- Damper features in the proposed air handling units to minimize the heating energy use of the HVAC system
- Indirect direct evaporative cooling capabilities to pre-cool the supply air volume prior to the traditional cooling coil served by the electric chillers
- Improved energy-efficient lighting



SLCDA has embarked on an ambitious Terminal Redevelopment Program (TRP) that will enhance landside, terminal, and airside operations.

8 Implementation Process

The sustainability implementation framework is used to determine which initiatives are ready for implementation at SLC, periodically review potential initiatives, and monitor their implementation. The first step of the implementation process was undertaken as part of the Sustainability Management Plan (SMP) planning effort and serves as an example for future activities.

Initiative Implementation Guidance

Implementing initiatives is the next step in executing the SMP. An implementation summary sheet, included in the Implementer™, should be sent to the responsible party for each initiative. The summary sheet includes basic initiative information such as estimated staff time required, costs, and timeframe among other details:

- Start Date and Due Date
- Lead and Supporting Departments
- Responsible Party contact information
- Initiative Description
- Steps for Implementation
- Potential Funding Resources
- Helpful Resources and Case Studies

Initiative Summary	
Status:	Not Started
Staffing Hours:	Minimal: < 10 hrs per month
Social Engagement:	SLCDA employees
Timeframe:	Short-term: 0 - 2 years
Capital Costs:	Marginal Cost: 0 < \$5K
Annual O&M Costs:	Marginal Cost: 0 < \$5K
Payback Period:	Long: > 10 years

Example Initiative Summary from the Implementer™.

SPOT: The Implementer™

The Implementer™ was created to support Salt Lake City Department of Airports' (SLCDA's) initiative implementation. This tool provides a summary of the initiative, implementation steps, and helpful resources for all recommended short-term initiatives. The Implementer™ is depicted in this chapter, and the *User's Guide*, provided in Appendix I, *SLC SPOT™ User's Guide*, provides additional information.

Initiative Description

SLC should encourage reduced employee vehicle miles travelled by encouraging employees to ride TRAX for their daily commute. Promoting the use of TRAX on a regular basis will continue to encourage employee use. Emissions from employee commuting is one source of GHG emissions that SLC can help reduce. Employees that use the TRAX would not only lower the Airport's carbon footprint, but could also save money and improve

Implementation Steps

- 1) Develop the framework for a "Take the TRAX" program. Consider methods of marketing and the communication of the program's intent
- 2) If the "Take the TRAX" program includes events (e.g., fairs), then determine the event's focus, list of participants, venue, and schedule. As one event ends, plan for the next.
- 3) Provide route maps and information to employees to increase familiarity with Salt Lake City's TRAX, bus, and commuter rail systems
- 4) Identify additional ideas to encourage/motivate employee use of the TRAX system (e.g., provide rewards to employees that convert from private to public transportation or use public transportation for more than a given percentage of time).

Helpful Resources & Case Studies

Utah Transit Authority, About Trax:
<http://www.rideuta.com/mc/?page=TRAX-AboutUTATRAX>

Example Initiative Description, Implementation Steps, and Other Resources from the Implementer™. The Implementation Summary Sheet includes initiative-specific guidance to personnel responsible for implementing each initiative.

Initiative Tracking

Tracking initiatives involves monitoring the progress of initiative implementation. Each sustainability goal category should be tracked independently to determine progress in meeting each goal.

Progress Reports

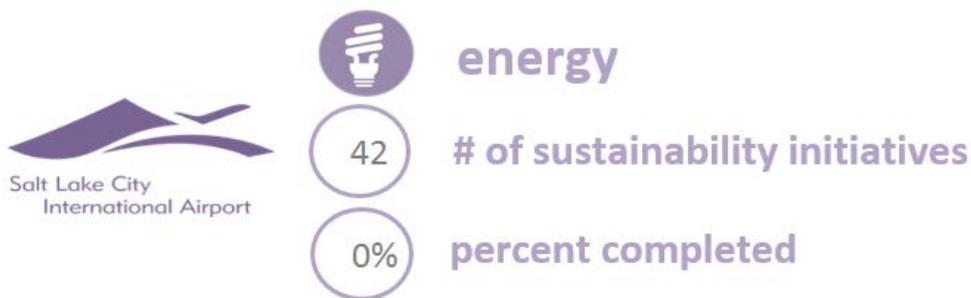
The Tracker™ tool is provided so that responsible parties easily fill in the required information on the progress of implementing an initiative in a consistent manner. Use of a progress report is recommended to collect and update information about an initiative's status. This progress report should be sent to the responsible department/contact, and can

be distributed quarterly or monthly depending on the implementation timeframe or type of initiative, and SLCDCA’s monitoring schedule. Prior to transmittal, the Sustainability Coordinator should identify the *Sustainability Initiative ID* and the *Progress Report Due Date*. The responsible department/contact should summarize and provide all supporting documentation on the progress report. It is anticipated that the person(s) responsible for filling out the progress report would send updated reports back to the Sustainability Coordinator based on a predetermined schedule.

In addition to tracking progress in implementing sustainability initiatives, it is also important for the SLCDCA to understand how cumulatively, the initiatives are contributing to achieving the overall sustainability goals, objectives, and targets identified in Chapter 5. *Chapter 8, Sustainability Monitoring and Reporting*, provides a framework for monitoring and reporting on overall sustainability performance.

SPOT: The Tracker™

The Tracker™ provides SLCDCA one location to track the progress of all sustainability initiatives, regardless of implementation timeframe. In addition to the progress report, this tool provides each initiative, implementation timeframe, status/progress, expected benefits, responsible departments, etc. The Progress Report is shown on the following page and additional information can be found in the *User’s Guide*, provided in Appendix I, *SLC SPOT™ User’s Guide*.



Example Energy Implementation Summary. The Tracker™ centrally manages information for those initiatives in the implementation process. Each sustainability goal category has its own Tracker™ and helps monitor the progress.



community well-being PROGRESS REPORT

C-8

Please complete the following information to update SLCDA's Sustainability Coordinator on the status of initiative implementation.

Name: Kevin Staples
Email: Kevin.Staples@slcgov.com
Phone: (801) 575 - 3470

Progress Report Request or Due Date: 00-00-0000

Current Initiative Status (Check One) Not Started In Progress Deferred Completed

Percent Completed: 10% - 20% 30% - 40% 50% - 60% 70% - 80% 90%+

Est. # of Hours Dedicated: > 200 hrs/mo. 50 - 200 hrs/mo. 10 - 50 hrs/mo. 0 < 10 hrs/mo.

Other _____

1. Were there implementation issues or challenges? (e.g., Additional staffing, funding needed, etc.)

2. If available, please describe realized benefits and outcomes:

3. If complete, please list lessons learned during implementation:

4. Please submit the following data at the completion of this initiative:

Describe any data that will support understanding of the initiative's success.

5. Please identify data appended to this transmittal:

Document Name and Type: _____

Method of Transmittal: _____

Additional Notes

If needed, please type additional notes, questions, or comments here.

Example Progress Report. The Progress Report accompanies the Tracker™, and allows the lead contact person to report on individual initiative implementation progress, and transfer any related data to the Sustainability Coordinator.

9 Sustainability Performance Monitoring and Reporting

Salt Lake City Department of Airports (SLCDA) has a track record of implementing sustainability measures at the Airport. One of the key motivators for preparing the Sustainability Management Plan (SMP) was to place these initiatives into an organized structure, so that the results of these initiatives could be tracked and monitored for their success. This SMP creates a framework of goals and objectives for SLCDA key priority areas, with associated targets and metrics to assess sustainability performance. These targets and metrics are intended to provide information to SLCDA on success of the sustainability program as a whole, and not individual initiatives.

Performance monitoring and reporting is vital to the successful implementation of the program. This is the “Monitor” phase depicted in Figure II-2. Performance metrics and key performance indicators (KPIs) are used to assist SLCDA in monitoring the effectiveness of SLC’s sustainability program and initiative implementation.

Performance Metrics, Key Performance Indicators, and Performance Targets

The selection of performance metrics and KPIs began during the fourth Sustainability Action Committee (SAC) meeting. The SAC broke into small groups in order to generate ideas for monitoring in reporting. Some key findings from the discussion included:

- Performance metrics should be tied to sustainability goals and objectives
- Data should be available for any metrics selected for the plan
- Metrics should be easy to understand for the general public
- Monitoring may include two different sets of data – one for internal tracking and others (KPIs) for communication to the senior SLCDA leadership and the public
- Metrics should be relatable/comparable to other airports as much as possible
- Tenant metrics should be reconsidered because it is difficult to gather and report tenant data

This chapter includes the performance metrics by goal category, as identified by SLCDCA, including existing performance metrics that are for future monitoring. These performance metrics are used internally by SLCDCA to track success and identify areas for improvement in each goal category. Some of the performance metrics in each goal category are used as KPIs to communicate sustainability progress externally. The performance metrics and KPIs are compared against performance targets that have been defined by SLCDCA as “achievement markers.” Table 9-1 lists each sustainability goal, objective, and corresponding performance metric (KPIs are identified with an asterisk) and performance target.

SUMMARY			
Reporting Year	2012		Select Performance Year
TOPIC AREA	Key Performance Indicator		
Energy	Total Energy Use	300,924	MMBtu
	Rate of Energy Use in De-Icing Fluid Reclamation Facility	0.00%	
	Renewable Energy Generated on Property	0.00	kWh
	<i><u>% of Total Electricity Purchased from Renewable Sources</u></i>	0.00%	
	<i>Select Cost Center</i>	-	MMBtu
	<i>Total Electricity Use</i>	9.32	% of Total
	<i>Total Electricity Demand</i>	6.26	MMBtu per 1,000 passengers
	<i>Total Natural Gas Use</i>	5.65	kW per 10k passengers
	<i>Utility Cost, Electric</i>	\$4,252,517	MMBtu per 1,000 passengers
	<i>Utility Cost, Natural Gas</i>	\$0	

Example KPI Summary. The Reporter™ provides a structured format to report on SLC’s performance metrics and KPIs.

Reporting on Sustainability Performance

The Sustainability Coordinator is responsible for collecting performance data and tracking performance against SLCDCA’s established targets. Performance reviews should be conducted on a quarterly basis. Current performance should be compared to previous quarters or years, and consideration should be given to seasonal variances. For example, terminal energy use will vary between winter and summer seasons, because of heating and cooling needs.

TABLE 9-1: PERFORMANCE METRICS AND KEY PERFORMANCE INDICATORS

RESOURCE	GOAL	OBJECTIVE	METRICS	TARGET
Energy	Reduce the total energy use and demand of the airport and increase renewable energy generation on airport property.	Complete energy efficiency projects to reduce energy use in airport facilities.	Total energy use (MMBTu/yr)*	Decrease energy use in buildings and operations by 10% over a rolling 10-year average (2020 reduction from 2000-2010 average, then 2030 reduction from 2010-2020 average).
			Total Electricity use per passenger (MMBTu/passenger)	
			Total Electricity demand per passenger (kW/passenger)	
			Total Natural gas use per passenger (MMBTu/passenger)	
			Total energy use by cost center (MMBTu/cost center)	
			Utility Costs (Electricity and Natural Gas)	
		Rate of energy use in De-icing Fluid Reclamation Facility*	Decrease rate of energy use in Deicing Fluid Reclamation Facility by 5% in five years.	
		Increase renewable energy generation on airport property.	Renewable energy generated on property (kWh/yr)*	
			Percent of total electricity purchased from renewable sources	
Leverage people (energy users) to promote energy efficiency.	NA	Develop, incorporate, and distribute a comprehensive employee education and engagement program for energy conservation on a quarterly basis."		
	NA	Develop passenger education information through Wi-Fi dashboard or lobby dashboards.		
Air Quality and Climate Change	Reduce criteria air pollutants and greenhouse gas (GHG) emissions to improve public health and reduce environmental impact.	Reduce regulated air pollutants and GHG emissions from airport operations (Scope 1 and 2).	NA	Create right-sizing program to encourage the right vehicle for the right use.
			Percent of alt-fuel/electric vehicles of total fleet vehicles*	Increase to 35% mix of alternative fuel/electric vehicles in 5 years.
			Conventional fuel use (diesel/gasoline) vs. alt-fuel (CNG) (gal/year)*	Develop and implement incentive program to reduce conventional fuel use by 5% over 5 years.
			NA	
		Scope 1 and 2 GHG emissions (tons/year) by scope per passenger*		
		Facilitate and encourage the reduction of Scope 3 greenhouse gas emissions.	Percent of tenant-owned GSE powered by electricity/alternative fuels	
			Total ridership of Airport TRAX line	
Promote improvements in public health through air quality improvements.	Percent SLCDCA employees walking, bicycling, or using HOV modes of transportation to access the Airport			
Recycling and Material Management	Reduce waste generation and increase diversion from landfills.	Engage employees, passengers, and tenants in waste reduction and recycling efforts.	Recycling rate per passenger (lbs./passenger) (excludes construction and demolition waste)*	Increase recycling rate per passenger to 10% within 1 year and 15% goal within 5 years of new waste management contract.
			Solid waste disposal rate per passenger (lbs./passenger)*	
			Recycling percentage by commodity	
		Develop capacity for composting or recovering energy from food scraps and other compostables.	NA	
			Waste diversion (lbs.)*	Reduce waste to landfill by 10% during future phase of TRP implementation.
		Increase the landfill diversion.	Solid waste disposed vs. cardboard diverted (tons)	
Construction and demolition reused material (tons)				
	Recovery rate of glycol used (%)	No specific target developed until SLCDCA-managed facility is operational for period of time.		

*Metrics in bold and denoted with an asterisk are KPIs

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TABLE 9-1: PERFORMANCE METRICS AND KEY PERFORMANCE INDICATORS (CONT.)

RESOURCE	GOAL	OBJECTIVE	METRICS	TARGET
Water Resources	Assist in the region's efforts to sustain its water resources for current and future generations.	Encourage efficient water use and reduce water waste.	Water use per passenger (gal/passenger)*	No specific target developed: SAC input to build process targets based on bottom up assessments. Consider process water targets folding into terminal target to streamline targets to just indoor vs. outdoor use.
			Water use in landscape irrigation (gal/acre of landscaped area)*	
			Total potable water use (gal)	
			Acres of native, drought-tolerant landscaping or xeriscaping	
Community Health and Safety	Maintain a safe and healthy natural and human environment for passengers, Airport employees, and tenant employees.	Support employee and tenant programs that support health.	Percent of SLCDA staff participating in the city's employee wellness program(s)*	Increase percentage of SLCDA staff participating in City Employee Wellness program (need to establish baseline first year).
		Support the local and regional economy.	Percent of Airport project dollars (federally sourced) going to local, small, and DBE/WBE companies*	Increase amount of economic impact (\$) to community (need to establish baseline first year).
		Support community outreach and engagement activities that promote social, economic, and environmental sustainability.	Percent of employees participating in SLCDA-sponsored/supported volunteerism	Increase number of community events supported annually (need to establish baseline first year).
			Number of community events supported	
		Encourage concessionaries to buy and provide local food.	NA	Increase percentage of organic and/or local food products available in concessions (need to establish baseline first year).
		Encourage partnerships between tenants and the airport to support wellness initiatives.	NA	
	Number of noise complaints per individual per year			
Planning and Building Design	Promote Green Building, energy efficiency, and operational efficiency.	Ensure all new buildings and major renovations of 10,000 square feet or higher are Leadership in Energy and Environmental Design (LEED) Silver-certified or higher.	Percent of new/renovated buildings with LEED Silver-certification or higher*	All new buildings and renovation of 10,000 square feet or higher are LEED Silver-certified or higher.
		Encourage tenants to incorporate sustainable building design measures for new construction and major renovations.	Percent of new/renovated buildings with LEED Silver-certification or higher*	All new tenant buildings and renovation of 10,000 square feet or higher are LEED Silver-certified or higher.
		Incorporate life cycle analysis into all Airport planning and operations.	NA	
		Incorporate appropriate resiliency features into future facility designs.	NA	

*Metrics in bold and denoted with an asterisk are KPIs

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SPOT: The Reporter™

The Reporter™ was developed to provide one tool that SLCDCA can use to update all performance metric data. The Airport's Sustainability Dashboard will utilize data from the Reporter™ to update the KPIs selected for public reporting. The Reporter™ is highlighted on the following page and described in more detail in the *User's Guide* in Appendix I, *SLC SPOT™ User's Guide*. The Sustainability Coordinator will be responsible for internal reporting. This may include sharing performance metrics and trends with SLCDCA leadership and the Sustainability Action Committee.

The Reporter™ provides a structured format for SLCDCA's Sustainability Coordinator to report on SLC's performance metrics and KPIs. The KPIs and related data will be in a format that can also be used on the Airport's online Sustainability Dashboard for public reporting. The Reporter™ is organized into the same categories as identified in the SMP and includes input tables/data and outputs/metrics. The first column shows what inputs go into, for example, the 'Greenhouse Gas' tab, that is then referenced as an input for various category outputs. The inputs section shows which tabs are used for the calculations that give the associated metrics (outputs) for the topic area (category).

The Reporter™ includes a 'Summary' tab that provides a snapshot of all activities in a given year as well as numerous charts to provide a visual display of the Reporter outputs. These charts provide a breakdown of where the largest resource consumers are as a function of each cost center and, with regards to waste, how much is recycled versus sent to landfills. Annual trend bar charts are also included for each activity area.

A key feature of the Reporter™ is its ability to calculate GHG emissions for the Airport, displayed on the 'Greenhouse Gas' tab. This tab is set up to reference the tool's other tabs for electricity, natural gas, fuel, and refrigerant use in order to provide greenhouse gas emissions.

The Reporter™ includes two additional tabs, 'Conversion Factors' and 'Normalizing Factors', for reference purposes. These tabs are used for metric calculations as well as applying the conversion factors to get the appropriate units for calculations. The Reporter is set up to automatically calculate results as data are entered.



					
<h2>THE REPORTER</h2>					
<h3>Electricity</h3>					
		<h2>2012</h2>			
		Consumption (kWh)	Demand (kW)	Demand Cost (\$)	Cost (\$)
AIRFIELD		4,197,979	1,608	\$111,325.58	\$387,979.03
BURNPIT		133,740	99	\$10,764.29	\$17,212.82
GLYCOL		1,577,239	688	\$102,699.11	\$183,994.62
TERMINALS		35,207,262	7,942	\$0.00	\$2,662,420.56
LANDSIDE		7,044,624	1,055	\$153,688.13	\$483,982.30
AIRPORT2		449,798	57	\$5,566.86	\$37,077.82
AIRPORT3		183,086	56	\$0.00	\$17,124.86
GENERAL		912,515	171	\$22,801.29	\$73,005.86
S.SUPPORT		1,200,612	207	\$32,629.44	\$94,270.00

Example Inputs (Energy Performance Metrics). Performance Metrics and Key Performance Indicators are used to ensure SLC continues to make progress towards achieving its sustainability goals. Graphics are created from these metrics, which can be used on the Airport's Sustainability Dashboard.

Airport Sustainability Dashboard

The Sustainability Coordinator will use the tracking sheets for internal reporting. This may include sharing performance metrics and KPIs, along with trends, with SLCDCA leadership and the Sustainability Action Committee (SAC). The Sustainability Coordinator will also be responsible for external coordination with the general public. An Airport Sustainability “Dashboard” has been established that mimics the City’s sustainability dashboard, which will share SLC’s KPI results with the public (Figure 9-1). It is recommended that the Airport Dashboard be updated annually, at a minimum.

FIGURE 9-1: AIRPORT SUSTAINABILITY DASHBOARD EXAMPLE



Source: SLCDCA Airport Dashboard, 2015.



Salt Lake City
International Airport

Sustainability Management Plan

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10 | Funding and Partnerships

According to the Airport Cooperative Research Program (ACRP) Synthesis 10 *Airport Sustainability Practices*,⁷⁹ a major reason many airports cannot implement a sustainability plan is because of lack of funding. Airports that receive funding for sustainability may have identified funding from state, federal, private or non-profit sources. Although funding is a challenge for many airports, sustainability is becoming more of a focus and many funding opportunities are available. This chapter summarizes traditional and non-traditional funding sources that may be available to the Salt Lake City Department of Airports (SLCDA) to fund its sustainability efforts. In addition to funding strategies, partnership opportunities can offer the means to accomplish initiatives that benefit multiple parties. Opportunities for strategic partnerships also are presented in this chapter.

Federal Funding Opportunities

The Federal Aviation Administration (FAA) and United States Environmental Protection Agency (USEPA) provide several funding options that SLCDA may be eligible to receive. Current federal funding opportunities are commonly for projects/programs that support energy and greenhouse gas reductions; therefore, most of the grants described in the section are related to those resources. However, USEPA has broader grant program and additional opportunities are identified below.

FAA Energy Efficiency of Airport Power Sources Program

The FAA is currently developing guidance for an Energy Efficiency of Airport Power Sources funding program. This program was authorized in Section 512 of the *FAA Modernization and Reform Act of 2012* and will promote comprehensive energy assessments of airport operations and provide funding for upgrades, including but not limited to, the following:

- Heating and cooling
- Base-load operations
- Back-up power

⁷⁹ ACRP Synthesis 10 \\KIRK\dept\EV\Sustainability Library\ACRP\Synthesis_010-Airport_Sustainability_Practices.pdf

- Power for on-road and off-road airport vehicles

As a result of the assessments, energy conservation measures (ECMs) must be identified that will reduce airport energy usage. These reduction measures may include photovoltaics, wind power, or other measures. Although guidance is expected to be released in Fall 2015, it is anticipated that assessments will be required to follow ASHRAE *Procedures for Commercial Building Energy Audits*. In addition, the guidance will include an energy project cost estimating tool and general information that can reduce the time and/or cost of an assessment.

The Energy Efficiency of Airport Power Sources program may be funded through Airport Improvement Program (AIP) entitlements or discretionary grants (i.e., there is no separate set-aside). Based on preliminary discussions, an ASHRAE Level 1 assessment, which can be performed by airport personnel with specialized training and tools, or energy assessors, will satisfy requirements and meet eligibility standards for funding if an airport is able to identify ECMs from its results. A more detailed Level 2 assessment, which may require more intensive analysis, will be evaluated for funding on a case-by-case determination.

FAA Voluntary Airport Low Emission (VALE) Program

The FAA's Voluntary Airport Low Emission (VALE) Program is a national program that provides funding for commercial airports located in a non-attainment or maintenance area for the National Ambient Air Quality Standards (NAAQS) to implement projects that reduce emissions and improve air quality in the region. The emission reduction projects must be both cost-effective and voluntary. In addition to funding, VALE projects will also have an assurance to grant emission reduction credits from state regulatory agencies, which may be used to meet future environmental obligations under the Clean Air Act, such as meeting General Conformity and New Source Review.

VALE grants are available for infrastructure modifications, low-emitting ground support equipment (GSE) and ground access vehicles (GAV), as well as other emission reduction projects for non-attainment and maintenance pollutants. Eligible infrastructure projects must reduce emissions by virtue of vehicle displacement, fuel conversion, and/or reduced fuel consumption at the airport. Typical examples of low-emission infrastructure include gate electrification and pre-conditioned air (PCA); higher efficiency or cleaner burning combustion sources including boilers; and recharging or refueling stations for alternative-fuel vehicles. VALE funding is typically through the FAA's Airport Improvement Program (AIP) Noise and Air Quality Set Aside, although Passenger Facility Charges (PFCs) can also be used.

The Salt Lake City area has been designated as non-attainment for particulate matter (both PM₁₀ and PM_{2.5}) and maintenance for ozone and carbon monoxide. Salt Lake City International Airport (SLC or the Airport) is eligible for VALE funding of up to 75 percent of the infrastructure cost and 75 percent of the incremental cost of vehicles associated with voluntary emission reduction projects. Draft VALE applications are due in January, while the final application and grant award will be issued by the end of the fiscal year.

In order to receive funding, the projects must be cost-effective for the non-attainment or maintenance parameters. The cost-effectiveness range is based on total project costs versus emission reductions over the useful life of equipment or vehicles. Cost effectiveness varies by parameter, ranging from \$100,000 to \$175,000 for particulate matter, \$10,000 to \$15,000 for carbon monoxide, and \$10,000 to \$30,000 for the ozone precursors of oxides of nitrogen and volatile organic compounds. In addition, the State of Utah Department of Environmental Quality, Division for Air Quality, would be required to provide a Letter of Assurance to issue Emission Reduction Credits (ERCs).

Additional information is available on the FAA website:
www.faa.gov/airports/environmental/vale/

FAA Zero Emissions Vehicle (ZEV) Program

The FAA Zero Emissions Airport Vehicle and Infrastructure (ZEV) Pilot Program provides Airport Improvement Program (AIP) funds for the acquisition of zero-emissions vehicles at an airport and for making infrastructure changes to facilitate the delivery of energy necessary for the use of these vehicles. The Program is only eligible for on-road vehicles (i.e., not airside ground support equipment) used exclusively on-airport for airport purposes, such as shuttle buses and security and maintenance vehicles. Any new vehicle and equipment purchased through the ZEV Pilot Program must be owned by the airport sponsor. Unlike the VALE Program, the ZEV Program does not include requirements for modeling emission reductions or obtaining a Letter of Assurance from the Utah Division for Air Quality.

The ZEV Pilot Program pays for 50 percent of the total infrastructure and vehicle costs. However, the vehicle must be entirely electric or hydrogen fuel cell, since any other fuel generates emissions SLC already has natural gas buses and infrastructure, but may consider the program for purchasing electric vehicles for airport vehicles.

The selection criteria used by the FAA for funding gives priority to airports located in non-attainment areas, then maintenance, with remaining airports in attainment being the last to be considered. In addition, the FAA grants funding to applications that demonstrate the greatest air quality benefits, based on a cost effective analysis specific to the ZEV Pilot Program.

Additional information is available at the following website:

http://www.faa.gov/airports/environmental/zero_emissions_vehicles/

USEPA Diesel Emission Reduction Act

The USEPA administers the Diesel Emission Reduction Act (DERA), which offers funding for vehicle and ground support equipment conversion from using diesel fuel. DERA provides grants for technologies including emissions and idle control devices, aerodynamic equipment, engine and vehicle replacements, and alternative-fuel options. The projects

must meet critical local air quality needs by deploying both proven and emerging technologies much earlier than would otherwise occur. Seventy percent of DERA funds are used for national competitive grants, with the remaining 30 percent allocated to the states to promote diesel emission reductions.

In addition to airport-owned vehicles, DERA grants are also available to airlines and fixed based operators operating at the airport. Reimbursement is 25 percent of the vehicle cost and can include retrofits, cleaner fuel combustion or engine upgrades. The State of Utah has already participated in the DERA program.

DERA grants are competitively bid against other organizations using diesel equipment, but airlines have received funding in the past. If interested in DERA funding, it may be advantageous to team with other diesel equipment users in the area to collaborate on a joint application, with larger diesel reductions.

Additional information is available at the following website:

<http://www.epa.gov/cleandiesel/grantfund.htm#dera>

[Other “Air Grants” related to air quality emissions, transportation, climate change, indoor air quality, etc. can be found at: http://www.epa.gov/air/grants_funding.html.](http://www.epa.gov/air/grants_funding.html)

USEPA Environmental Education Grants

USEPA is awarding grants to eligible applicants in support of environmental education projects that promote environmental awareness and stewardship, and will help provide people with the skills to take responsible actions to protect the environment. This grant program provides funding to support projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques. Several educational initiatives will likely be implemented in the short-term at SLCD, and may be eligible for funding through this program if a local or state education or environmental agency applies for the grant funding.

[Additional information can be found at: http://www2.epa.gov/education/environmental-education-ee-grants](http://www2.epa.gov/education/environmental-education-ee-grants)

Other USEPA Grants

USEPA provides many grant funding opportunities that include, but are not limited to:

- Brownfield Development
- Community Action for a Renewed Environment
- Environmental Information Exchange Network
- Pollution Prevention (matching funds for state programs)
- Water (potable and waste water, water pollution prevention, and wetlands protection)

Additional information is available at the following website:

<http://www2.epa.gov/home/grants-and-other-funding-opportunities>

State and Local Funding Opportunities

There are several state and local funding opportunities that SLCDCA may be eligible to apply and receive. Most of the opportunities identified in this section are focused on energy-related initiatives, but there are several that address the natural environment and community.

Utah Department of Environmental Quality Clean Fuels

The Utah Department of Environmental Quality has two programs to support clean fuels. More information is available at:

www.airquality.utah.gov/Planning/Mobile/cleanfuels/index.htm.

- Clean Fuel Vehicle Grant and Loan Program supports the purchase, conversion, or retrofit of clean fuel vehicles or the purchase of clean fuel refueling equipment. Funds of up to \$250,000 per year in grants or loans are available.
- The Utah Clean Diesel Program has grant funds available to support retrofits, purchases, etc. to improve the emissions of diesel vehicles and diesel fleets.

Utah Office of Energy Development U-Save Revolving Loan Fund

The U-Save Energy Fund finances energy efficiency retrofits of existing publicly-owned buildings. Low interest rate loans are provided to assist in financing energy related cost-reduction efforts. The program's revolving loan mechanism allows applicants to repay loans through the stream of energy cost savings realized from the projects. The program is currently closed to new applicants but is expected to issue another RFP for new projects. Check the website frequently for notice of a new RFP.

Additional information is available on the Utah Office of Energy Development website:

<http://energy.utah.gov/funding-incentives/energy-financing>

Rocky Mountain Power – Solar Incentive Program

Rocky Mountain Power (RMP) has a Solar Incentive Program, a utility rebate program that SLCDCA should be eligible to receive. The Solar Incentive Program has a total budget of \$50 million for calendar years 2013 through 2017. RMP will accept applications during the first two weeks of each program year. Winners will be selected via lottery. If there is remaining capacity available for a sector after the lottery, additional applicants will be awarded incentives on a first come, first served basis.

For large non-residential entities (25 kW to 1,000 kW) it offers up to \$800,000. Eligible systems must be net-metered and the maximum system size that RMP will allow is 2 MW, but the incentive will not exceed \$800,000.

Large non-residential applicants will receive their incentive in five annual installments, with the first installment coming within 60 days of the receipt of an approved incentive claim form. Large non-residential systems are also required to produce 85 percent of the expected output based on estimates from PVWatts. If the system produces less than expected, annual payments will be reduced proportional to the under-performance of the system.

Additional information is available on the Solar Incentive Program website:

http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=UT24F&re=0&ee=0

Rocky Mountain Power – Wattsmart Incentive Program

RMP's wattsmart incentive program is open to current electric utility customers. The wattsmart program provides incentives for energy efficiency upgrades and projects such as lighting, heating (electric) and cooling, electronically commutated (EC) motors, variable frequency drives (VFDs), building envelope, appliances, controls, recommissioning, energy manager co-funding, and other custom projects. RMP account representatives can be contacted for more information or the website is accessed at

www.rockymountainpower.net/bus/se/utah.html.

Rio Tinto Kennecott

Rio Tinto Kennecott (RTK) has both foundation and corporate giving initiatives. The corporate giving program is currently suspended because of a slide at its Bingham Canyon Mine in 2013. However, RTK has been very active in the regional community partnering with, and providing funding for, multiple organizations and initiatives. These include Kennecott Nature Center, Natural History Museum of Utah (\$15 million in support), Envision Utah, and The Nature Conservancy (\$300,000 in support for an education collaboration).

The Bingham Canyon Mine Visitors Center Charitable Foundation raises money for local charities through tax-deductible entrance fees to the Visitors Center. The next deadline is October 15. Additional information on all of RTK's charitable giving can be found at:

<http://www.kennecott.com/community>

The Community Foundation of Utah

The Community Foundation of Utah (CFU) has multiple avenues to support financial contributions. The Utah Fund was established to meet the Utah's emerging needs to catalyze change and fund innovative solution to the state's most challenging problems. Another avenue to attract philanthropic contributions is to establish a specific fund with the CFU. More information can be found at: <http://www.utahcf.org/>

George S. and Dolores Dore Eccles Foundation

George S. and Dolores Dore Eccles Foundation (EF) has a preservation and conservation grant area making gifts to charitable organizations that preserve and protect the natural environment. For example, the EF made an \$8 million, multi-year matching grant to The Nature Conservancy's Utah's Lasting Landscapes campaign.

Government units are eligible for funding. Organizations looking for funding need to request an application from at: <http://www.gsecclesfoundation.org/gsecclesForms/application.html>

Additional information can be found at:
<http://www.gsecclesfoundation.org/preservation/index.html>

Questar Gas

Questar Gas offers the ThermWise business incentive program for current customers. The ThermWise program provides incentives for the purchase of qualifying energy efficient equipment such as food service appliances, laundry clothes washers, gas heating equipment such as boilers, and building envelope weatherization for new or existing buildings. Contact information is available at the website:
www.thermwise.com/business/BusinessRebates.php.

Qualified Energy Conservation Bond

Qualified Energy Conservation Bond (QECB) is a low-cost bond available to local governments to help fund energy conservation projects. Funds can be used for qualifying projects that reduce energy consumption by at least 20 percent in publicly owned buildings and facilities. These funds can be used for energy efficiency and renewable energy (solar) projects. Salt Lake City received \$1.9 million from the state. SLCDCA may contact the SLC Office of Sustainability to discuss available funds.

Additional information is available on the Utah Governor's Office of Economic Development website: <http://business.utah.gov/programs/pab/energy-conservation-bonds/>.

Power Purchase Agreement

Power Purchase Agreements (PPA) are an avenue to consider for the purchase of solar PV systems. With a PPA, the solar PV system is financed and owned by a third-party and you pay them for the power produced much like you currently purchase electricity from RMP. In Utah, only government, non-profit, and public entities are able to use PPAs, which can be a way to purchase renewable energy with little to no upfront cost.

Additional information is available on the Solar Simplified (Utah Clean Energy) website:
<http://solarsimplified.org/incentives-financing/financing-options-programs>.

Private Funding Opportunities

Several private funding opportunities were identified and are described in this section. There are likely other private funding opportunities that SLCDCA would be eligible to receive, but private funding opportunities frequently vary from year to year. It is recommended that SLCDCA pursue these funds, as well as seek others, once initiatives are ready for implementation.

Surdna Foundation

The Surdna Foundation funds projects nationwide for three topic areas: sustainable environments, strong local economies, and thriving cultures. The Sustainable Environments Program seems to fit the best with an airport's needs. According to Surdna, this program:

“...works to overhaul our country's low performing infrastructure, much of it outdated and crumbling, with a new approach that will foster healthier, sustainable, and just communities. We believe in the potential of what we call “next generation infrastructure” to improve transit systems, make buildings more energy efficient, better manage our water systems and rebuild regional food systems.”

Within the Sustainable Environments Program, there are four paths:

- Sustainable transportation networks and equitable development patterns;
- Energy efficiency in the built environment;
- Urban water management; and
- Regional food supply.⁸⁰

The first option may be the most applicable to airports, which is described as the support of “...clean, affordable, equitable, high-quality and efficient transportation and land use development that better connects critical services, jobs, schools, housing and other regional destinations.”⁸¹

Energy Foundation

The Energy Foundation supports six main programs throughout the U.S. The programs and initiatives that may be eligible for funding include:

- Buildings – To support policies that improve energy efficiency of business and homes, and reduce carbon emissions and utility bills.
- Climate – To support policies to reduce greenhouse gas emissions and reduce impacts of climate change.

⁸⁰ All four options in detail: <http://www.surdna.org/what-we-fund/sustainable-environments.html>.

⁸¹ Guidelines for this option: <http://www.surdna.org/what-we-fund/sustainable-environments/4-what-we-fund-/what-we-fund-/480-sustainable-transportation-networks-a-equitable-development-patterns.html>

- Power – Provide cleaner sources of energy at more affordable rates.
- Public Engagement – Obtain support nationally and at a state-level for cleaner energy.
- Transportation – To promote cleaner fuels and more energy efficient vehicles.

SLCDA would likely be eligible to apply for the Power, Public Engagement, and Transportation funding programs. For more information on the Energy Foundation, visit the Programs page on the Energy Foundation Website: <http://www.ef.org/programs/>

The William and Flora Hewlett Foundation

The Hewlett Foundation offers an Environment Program that has three grants: Western Conservation, Energy and Climate, and Bay Area Communities. SLCDA may qualify for the Western Conservation and Energy and Climate grants.

The Western Conservation program focuses on areas in western North America that encompasses 12 states (including Utah) and three Canadian provinces. The Western Conservation grant would be suitable for SLCDA as one of the grant's four strategies includes increasing clean energy. The Energy and Climate grant focuses on clean power, clean transportation, and building broad support, which SLCDA has initiatives that could be funded with this grant.

Additional information about the Hewlett Foundation Grants can be found at: <http://www.hewlett.org/grants/grantseekers/environment-grantseekers>

Partnerships

Potential partners were identified at the state and local levels to advance sustainability with SLCDA. These potential partners were identified based on the unique attributes of SLCDA as well as this SMP and associated recommended sustainability initiatives. Several potential private partners were also identified, but this list provides a small selection, as many other potential partners exist.

Utah Recycling Alliance

The Utah Recycling Alliance (URA) is a non-profit organization focused on developing and promoting relationships, resources, and recycling programs throughout the State of Utah. Current sponsors of URA include a range of businesses and organizations including Waste Management, Varian Medical Systems, Ace Recycling & Disposal, Intermountain Healthcare, Track Your Truck, and Metech Recycling. Additional information can be found at: <http://utahrecyclingalliance.org/>

iUTAH

iUTAH is an interdisciplinary research project dedicated to preserving Utah's water resources and comprised of a vast network of researchers, universities, governmental agencies, industry partners, and non-profit organizations. More information can be found at: <http://iutahepscor.org/index.php>

Wasatch Front Regional Council

The Wasatch Front Regional Council (WFRC) consists of elected officials representing local governments from Salt Lake, Davis, Weber, Morgan, Box Elder, and Tooele counties working together to pursue common interests. The WFRC has a focus on transportation planning, but has a range of projects from air quality and bike planning to green infrastructure. Additional information can be found at: http://www.wfrc.org/new_wfrc/

Healthy Environment Alliance of Utah

Healthy Environment Alliance of Utah (HEAL) is a group focused on educating citizens on the problems people in Utah face, and work towards making Utah's environment healthy and safe for all. HEAL has focused on promoting participation in the democratic process that ensures fundamental changes in the way the people of Utah make decisions so a healthy environment can be enjoyed by the people of Utah. More information may be found at: <http://healutah.org/who/aboutus>

Utah Office of Energy Development

The Utah Office of Energy Development was formed in response to the Governor's 10-year Strategic Energy Plan, and has now been positioned as the primary resource for advancing energy development in Utah. Additional Information may be found at: <http://energy.utah.gov/about/>

Utah Energy Infrastructure Authority Board

The Utah Energy Infrastructure Authority (UEIA) was created by the Utah State Legislature in the 2012 General Session. The aim of the Authority is to utilize tax-free state bonds to advance energy infrastructure projects that facilitate responsible energy development in Utah. The Board is chaired by the Governor's Energy Advisor, and is composed of various energy experts, utility representatives, and government leaders, as outlined in statute. Additional information may be found at: http://le.utah.gov/~code/TITLE63H/pdf/63H02_020200.pdf

The Utah Generated Renewable Energy Electricity Network Authority (UGREEN)

The Utah Generated Renewable Energy Electricity Network Authority is an independent state agency that is tasked with the development of a master plan for renewable energy production and transmission infrastructure in the state of Utah. More information may be found at:

<http://wyia.org/wp-content/uploads/2010/09/utah-generated-renewable.pdf>

http://www.edcutah.org/files/Utah_Legislative_Changes_040909.pdf

Utah Department of Environmental Quality

The Utah Department of Environmental Quality's mission is to safeguard public health and our quality of life by protecting and enhancing the environment. We implement State and federal environmental laws and work with individuals, community groups, and businesses to protect the quality of our air, land, and water. More information may be found at:

http://www.deq.utah.gov/Admin/About_DEQ/index.htm

State of Utah Public Service Commission

The primary responsibility of the Commission is to ensure safe, reliable, adequate, and reasonably priced utility service. It conducts hearings and investigations of utility company operations in order to determine just and reasonable rates for service. The Commission strives to protect efficient, reliable, reasonably priced utility service for customers, and to maintain financially healthy utility companies. These goals are attained through the regulatory decisions the Commission makes and through rules it adopts. More information may be found at: <http://www.psc.state.ut.us/aboutus/history.html>

Utah Traffic Lab

The Utah Traffic Lab (UTL) is a University of Utah Advanced Transportation Systems facility that is associated with the Department of Civil & Environmental Engineering. The research emphasis of UTL is Adaptive Traffic Signal Control Systems. They are interested in Intelligent Transportation Systems (ITS), Traffic Operations Research, and Innovative Transportation Solutions with a focus on application-oriented research. UTL uses the latest technology to solve problems, validate and evaluate transportation systems and recommend solutions for technological applications. More information may be found at:

<http://www.trafficlab.utah.edu/>

Utah Clean Cities Coalition

Utah Clean Cities Coalition (UCCC) is one of the nearly 100 Coalitions that are part of the U.S. Department of Energy's Clean Cities Initiative, working to reduce our dependence on

foreign oil, develop regional economic opportunities, and improve air quality. As a non-profit organization, UCCC provides tools and resources for voluntary, community based programs to reduce consumption of petroleum-based fuels. Through our stakeholder partnerships, UCCC serves as a resource to promote and create alternative fuels, stations, and vehicles, as well as to promote clean strategies such as Idle Free Utah and the Clear the Air Challenge. UCCC has dual locations in Salt Lake City and St. George, which serve the entire state. More information may be found at: <http://utahcleancities.org/>

Institute for Clean and Secure Energy: University of Utah

The mission of Institute for Clean and Secure Energy (ICSE) is education through interdisciplinary research on high-temperature fuel utilization processes for energy generation, and associated environmental, health, policy, and performance issues. More information may be found at: <http://www.ices.utah.edu/about>

Utah Clean Energy

Utah Clean Energy is a non-profit, non-partisan public interest organization partnering to build the new clean energy economy. This organization is committed to creating a future that ensures healthy, thriving communities for all, empowered and sustained by clean energy. More information may be found at: <http://utahcleanenergy.org/>

Amaron Energy

Amaron Energy is a research and development firm focused on clean, renewable technologies for producing energy. More information may be found at: http://amaronenergy.com/Amaron_Energy/Amaron_Energy.html

Blu.

Blu. Is a total solution provider for Liquefied Natural Gas fueling application: trucking, mining, marine, railroad, industrial, and more. Their motivation is the fact that as fleets convert to natural gas, our air gets cleaner, companies cut costs, and we reduce our dependence on foreign energy. More information may be found at: <http://blulng.com/about-us-2/>

Wasatch Wind

Wasatch Wind is an independent wind developer focused on wind energy projects in the Intermountain West. They are motivated by being involved in the field of renewable energy and are enthusiastic about working with communities and governments to deliver the economic benefits that accompany the generation of homegrown, clean energy. More information may be found at: <http://www.wasatchwind.com/about-wasatch-wind>



Washakie Renewable Energy

Washakie Renewable Energy is a company that focuses on creating and producing high quality, renewable fuel to help ensure a greener tomorrow. More information may be found at: <http://wrebiofuels.com/about/>

These suggested funding and partnership opportunities will need to be evaluated on a case-by-case basis for each initiative as it becomes ready for implementation.



Salt Lake City
International Airport

Sustainability Management Plan

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11

SMP in Action

The Salt Lake City International Airport (SLC) Sustainability Management Plan (SMP) has a robust set of recommendations, suggestions, and directives. Key to the successful implementation of the SMP will be following a well laid out and organized framework, as described in Chapter 6, *Organizational Engagement*, and Chapter 8, *Implementation Process*, within a reasonable timeframe. Also important for successful implementation is the understanding and embracing of implementation roles and responsibilities within the organization, and that those responsible for implementation feel supported by the organization in their efforts.

This chapter lays out a high-level work plan for Salt Lake City Department of Airports (SLCDA) through mid-2016. Key considerations of this work plan include:

- Organizational readiness;
- Sustainability engagement;
- Identifying and implementing sustainability initiatives and projects; and,
- Developing a sustainability monitoring and reporting framework.

The Sustainability Coordinator at SLCDA, a staff member within the Planning Environment, will play a key role in the fulfillment of this work plan. The Sustainability Coordinator is dedicated to overseeing the SLC SMP as well as driving continuous improvement.

Organizational Readiness

Putting in place the organizational structure to implement the SMP will be one of the first tasks of the SMP. Continuation of the **Sustainability Action Committee (SAC)** will be an important step to provide input from various divisions within SLCDA during and after the implementation process. Senior leadership will select **Sustainability Category Champions** to represent each SMP goal category (energy, air quality and climate change, recycling and material management, water resources, and community health and safety, and planning and building design). The Sustainability Category Champions will be responsible for assisting in the identification and screening of initiatives within their areas of expertise. The Sustainability Category Champions will be appointed by the second quarter of 2015.

The Sustainability Coordinator will convene quarterly meetings with the SAC to update them on the overall progress of SMP implementation as well as consult with them regarding their specific SMP responsibilities. The SAC will be responsible for providing input on initiative screening and prioritization. Proposed agenda items for the quarterly SAC meetings are as follows:

AGENDA

Salt Lake City Department of Airports (SLCDA) - Sustainability Action Committee (SAC) Quarterly Meeting: Sustainability Initiative Identification, Evaluation, and Prioritization

Date: MM/DD/YYYY

Time: [Recommended to be no more than 1 hour]

Time	Item
8:00 AM – 8:05 AM	Welcome
8:05 AM – 8:20 AM	Identification of New and Existing Sustainability Initiatives
8:20 AM – 8:40 AM	Evaluation of Potential Sustainability Initiatives (Selector™)
8:40 AM – 8:55 AM	Prioritization of Sustainability Initiatives Ready for Implementation (Selector™)
8:55 AM – 9:00 AM	Closing Remarks and Meeting Adjournment

Sustainability Engagement

One of the cornerstones of a successful implementation strategy will be engaging SLCDA’s employees, tenants, as well as the travelling public. The SMP includes a comprehensive set of engagement instruments, as discussed in Chapter 6, *Organizational Engagement*. Table 11-1 reintroduces these instruments along with recommended timeframes for implementation.

TABLE 11-1: SUSTAINABILITY ENGAGEMENT INSTRUMENTS

ENAGEMENT INSTRUMENT	SUGGESTED TIMEFRAME
SMP Highlights Report	Completed in 2015 (by SMP team)
SLC Sustainability Dashboard	Launch in 2015
Brief FAA on SMP	Upon completion of documentation in 2015
Meet with SLCDCA Public Relations and Marketing staff	Develop plan for traditional and social media engagement quarterly beginning Q2 2015
Online Sustainability Suggestion Box – on SLCDCA Dashboard	Deploy Q3 2015; check regularly
Newsletter (Connections)	Quarterly Sustainability Feature article
Training Opportunities	Identify Q3 2015, Launch in 2016 on as needed basis
Annual Sustainability Awards Based on SMP Categories	Award on Earth Day
2016 Sustainable SLC Calendar	Planning to begin Q3 2015, Launch January 2016
Plan Review and Revision	Review process to begin in Q2 2016; Revisions defined and implemented by Q3 2016

Identifying and Implementing Sustainability Initiatives and Projects

Identifying sustainability initiatives and projects are part of the planning phase of the typical Plan-Do-Check-Act process. The process consists of engaging SLCDCA’s internal stakeholders to understand existing sustainability activities and achievements and identify new sustainability activities for evaluation and potential implementation. Existing initiatives have been identified through a review of existing projects as well as interdepartmental communications. New initiatives will be solicited through applicable methods of stakeholder engagement (e.g., employee/public Sustainability Dashboard Outreach Tools).

Guided by the Sustainability Coordinator, the Sustainability Category Champions will be responsible for providing input on initiative screening and prioritization. The Category Champions will support the implementation of initiatives by working with the Sustainability Coordinator to develop initiative-specific implementation plans, including implementation steps, persons responsible by task, and supporting documentation. They will also support initiative tracking by providing quarterly progress reports and initiative-level data at project closeout for determining realized sustainability benefits. Persons identified to carry out initiative implementation will provide feedback for initiative improvement.

This effort will be supported by the Selector™, a custom-designed Excel-based tool that provides the means for initiative screening based on sustainability evaluation criteria related to goal applicability, feasibility, estimated costs, and estimated effects. The screening process, to be conducted on a quarterly basis by the Sustainability Coordinator in

consultation with the Sustainability Category Champions, determines the cost-benefit of initiative implementation specific to the unique conditions at SLC.

Developing a Sustainability Tracking, Monitoring and Reporting Framework

Tracking, monitoring, and reporting performance is an important element of a sustainability implementation process. As described in Chapter 9, *Sustainability Performance Monitoring and Reporting*, reporting tools will be used to track implementation progress and gather importance performance data for use in metrics and key performance indicators.

The custom suite of Excel-based tools, together comprising SLC's Sustainable Planning Optimization Tool (SPOT™), supports this effort. Tools relevant to tracking, monitoring, and reporting include:

The Tracker™: Provides the framework to monitor the progress of SLC's sustainability program by initiative.

The Reporter™: Provides a structured format for SLC's Sustainability Coordinator to report on the Airport's performance metrics and key performance indicators (KPIs). The KPIs and related data will be in a format that can be used on a Sustainability Dashboard for reporting to senior leadership and the public.

Sustainability Dashboard: This tool will report on high-level sustainability performance at SLC in a visual, easily understood manner. The Sustainability Dashboard only includes KPIs, and as such, is representative of SLCDCA's sustainability priorities and not of the entire program. The Sustainability Dashboard can also be used as a sustainability engagement tool externally.

Chapter 9, *Sustainability Performance Monitoring and Reporting*, discusses these tools in detail.

Periodic Sustainability Management Plan Review and Revision

On an annual basis, SLC's Sustainability Coordinator will review the plan implementation and performance monitoring/tracking process with the SAC. The SAC will recommend any implementation procedure changes to enhance the program. Larger, systemic changes to sustainability management at SLC (i.e., changes to sustainability goals and objectives) identified by the Sustainability Coordinator and SAC on an annual basis will potentially require approval of the SLCDCA management team.

Conclusion

The SMP provides SLCDCA with a structured framework for the planning, implementation, tracking, monitoring, and reporting of a sustainability program at SLC. Through this SMP, senior leadership and staff have established a broad vision of sustainability within the organization that maintains its role as an innovative industry leader through continuous improvement in operational efficiency, facility design and construction, and environmental stewardship while engaging passengers, employees, and the community in a sustainable manner. SLCDCA's adherence to the SMP along with the realization of its sustainability mission and vision will contribute to the longevity of the organization.