



## Chapter 7: Sustainability



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## 7 SUSTAINABILITY INITIATIVES

### 7.1 Introduction

Airport Sustainability Practice is a broad term that encompasses the breadth of management of airports. The term refers to specific efforts that ensure protection of the environment, including conservation of natural resources; operational efficiencies; social progress that recognizes the needs of all stakeholders, and maintenance of high and stable levels of economic growth and employment.

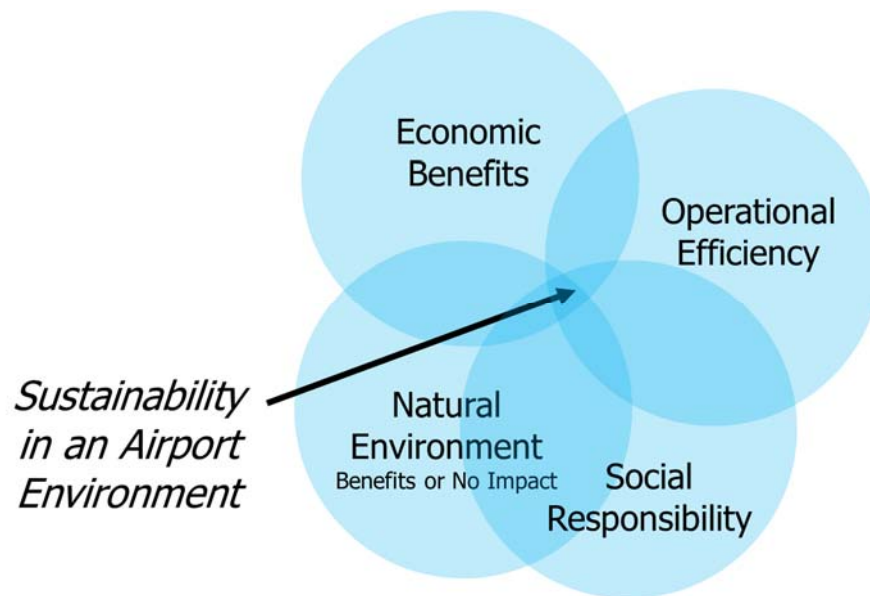
This chapter is designed to provide a framework for a future Sustainability Plan for Austin Bergstrom International Airport (ABIA). Included are recommended sustainability initiatives that support and advance ABIA and City of Austin (COA) goals, targets, and mandates for sustainability.

#### 7.1.1 Definition of Sustainability

The common definition of sustainability is the “Triple Bottom Line,” or balance of environmental, financial, and social goals. In an airport environment, it is important to also consider the critical fourth category of operational efficiency, as shown in **Exhibit 7.1-1**.

This approach was developed by Airports Council International (ACI) and is commonly referred to as “EONS,” (economic viability, operational efficiency, natural resource conservation and social responsibility), which stands for a balance of:

- Economic benefits
- Operational efficiency
- Natural environment benefits (or no impact)
- Social responsibility

**Exhibit 7.1-1 EONS Approach to Airport Sustainability****7.1.2 The Evolution of Sustainability within the Airport Industry**

Green and sustainable practices are measures incorporated into projects that are designed to produce balanced operational, environmental, social, and financial benefits. Sustainable practices mitigate negative environmental impacts by reducing the use of raw or material resources (materials, fossil fuels, energy consumption, etc.), reducing emissions, waste, and water pollution, mitigating increased flooding from storm water runoff, and providing other environmental benefits. Thoughtful and early planning to incorporate green and sustainable practices helps to reduce impacts while also create financial and operational benefits.

Airports throughout the world are challenged to look ahead and meet projected increases in demands for capacity and service demand. In order to preserve economic viability and address potentially formidable constraints to growth, airports need strategies that allow for sustained aviation growth while controlling costs and pursuing a goal of reducing environmental impacts over time.

Managing operating costs and capacity, reducing environmental risks and liability, and ensuring customer and employee satisfaction, while demonstrating a commitment to the health and vitality of their communities is the new order of business. Sustainability programs combine operational, ecological, social, and economic concerns into a balanced approach to meeting the unique challenges facing airports today.

Sustainability goals and strategies have achieved priority at global levels as more airports in more countries are realizing the benefits of striving for, and achieving, efficiency in all aspects of airport management and operations. Indeed, airports at the forefront of sustainability are given a prominent place on the “aviation global stage” and are viewed as world leaders in operational

efficiency. Moreover, efficient operating practices and reduced operations costs are major draws to airline partners.

### 7.1.3 Sustainability Benefits

There are opportunities for applying principles of sustainability in all areas of airport operations - airside, landside, terminals, and hangars, just to name a few. New buildings, runways and taxiways, and maintenance facilities should be designed with sustainable principles in mind. Sustainability can also be applied as a component of retrofit and repair activities. The most beneficial opportunities for employing sustainable principles are during the initial planning and design phases of an airport development project, but there may be even more opportunities to consider in facility replacement and maintenance.

There are challenges to implementing sustainable initiatives beyond identifying appropriate processes or technologies. Throughout a facility's design and construction phases, decisions are made based on the goals of the project team, which are usually total cost and time to completion. Once the facility is turned over to begin routine operations, however, the operating department has different cost concerns and goals driving its decisions such as monthly or yearly operating costs. In most cases, the majority of the cost of facility ownership occurs after design and construction and the operating departments must live with decisions made by the capital project team.

To ensure their success, sustainability programs must begin during planning and design and continue through construction and operation/maintenance, as well as decommissioning and demolition. This approach takes into account the lifetime impacts of processes and equipment and minimizes not only total costs but also lifetime environmental impacts.

The expense of "green" technologies, which may often be perceived as a detriment to implementation due to higher upfront costs compared to traditional systems, often produce lower life-cycle costs as compared to traditional systems; and in some cases, significant cost savings can be generated when sustainable practices are incorporated instead of traditional practices.

Sustainability programs make good business sense by providing:

- Greater asset utilization
- Reduced costs of asset management and asset development
- Reduced life-cycle costs
- Optimization of new and better technologies
- Improved work environment for employees leading to higher productivity
- Benefits to local communities and the environment
  - Reduced environmental footprint
  - Improved benefits to and greater support from the community

## 7.2 Sustainability Overview

### 7.2.1 Sustainability at the COA

The cultural identity of Austin is deeply rooted in environmental consciousness and valuing the unique natural features of the area; however, the most significant developments in policy and regulations related to sustainability at the COA have occurred relatively recently. Early efforts primarily gained steam in the early 1990s, when the COA created the first municipal green building ratings system in the country, known as the Austin Energy Green Building (AEGB) Program. The AEGB Program is still a widely used benchmark for development throughout Austin and is now considered one of the nation's most successful sustainable building programs.<sup>1</sup> In 1992, the Save Our Springs (SOS) Ordinance was passed to address development and ultimately curtail water quality degradation in the Barton Springs Segment of the Edwards Aquifer Recharge Zone. While watershed protection ordinances in Austin extend back to the 1970s, the SOS Ordinance was the first citizen-led initiative that resulted in laws aimed to protect sensitive water resources.<sup>2</sup>

In 2000, COA passed Resolution No. 000608-43, which required all future municipal buildings to be constructed in accordance with the Leadership in Energy and Environmental Design (LEED) United States Green Building Council (USGBC) guidelines for LEED Silver. In 2007, this policy was expanded upon in Resolution No. 20071129-045 through establishment of more stringent criteria for new municipal building projects. In the same year, one of the most significant developments in sustainability in Austin occurred when the Austin City Council unanimously passed a resolution that established the Climate Protection Program (Resolution No. 20070215-023). Aimed at making Austin “the most livable city in the country,” the resolution established goals that included city-wide carbon neutrality by 2020; reduction of total energy use and increased reliance on renewable energy; enforcement of energy efficiency codes on existing and new development; and development of an inventory of community greenhouse gas emissions, among others.<sup>3</sup> Initially part of Austin Energy, the Climate Protection Program moved to the newly formed COA Office of Sustainability in 2010. As a result of efforts stemming from the resolution, Austin has been recognized as the largest local government in the country to subscribe to 100-percent renewable energy to power all COA buildings and facilities through Austin Energy's GreenChoice Program. The Climate Protection Program (now the Climate Program) continues to lead COA efforts to address challenges related to climate change in Austin.

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<sup>1</sup> Austin Energy Green Building Program. About AEGB. Available at: <https://greenbuilding.austinenergy.com/aegb/about>. Accessed April 10, 2019.

<sup>2</sup> Save Our Springs (SOS) Water Quality Initiative. COA Watershed Protection Department. Available at: <https://www.austintexas.gov/faq/save-our-springs-sos-water-quality-initiative>. Accessed April 12, 2018.

<sup>3</sup> COA Resolution No. 20070215-023. Adopted February 15, 2007. Available at: [http://austintexas.gov/sites/default/files/files/Sustainability/ACPP\\_resolution\\_20070215-023.pdf](http://austintexas.gov/sites/default/files/files/Sustainability/ACPP_resolution_20070215-023.pdf). Accessed April 2, 2018.



In 2012, Austin became a pilot community for the STAR Community Ratings System, which provides a framework for evaluation of a community's current level of sustainability and aids in setting sustainability goals and strategizing planning efforts for the future.<sup>4</sup> Other major accomplishments in sustainability by the COA over the last several years include the goals outlined in the 2011 *Austin Resource Recovery Master Plan*, including the COA Zero Waste goal for 2040 (originally established in 2005 in Resolution No. 20050519-44);<sup>5</sup> becoming the first city in the state to receive LEED for Existing Buildings Gold Certification for the Austin Convention Center in 2012;<sup>6</sup> and unanimously passing the Single-Use Carryout Bag Ordinance (the “bag ban”) in 2013.<sup>7</sup> In 2014, Resolution No. 20140410-024 established the COA's goal of achieving net-zero community-wide greenhouse gas emissions by 2050.

Today, sustainability goals in Austin are principally guided by the COA's *Imagine Austin Comprehensive Plan*. The plan, originally approved in 2012 and updated in 2016, focuses on how to create a sustainable city and offers a set of performance indicators designed to cultivate a city that is livable; natural and sustainable; creative; educated; mobile and interconnected; prosperous; and a community that values and respects people.<sup>8</sup> To ensure progress toward the community vision laid out in the original 2012 *Imagine Austin Comprehensive Plan*, the COA released a five-year progress report in 2017 focusing on the eight priority programs outlined in the 30-year comprehensive plan. These programs are centered on promotion of the health of Austinites; a creative economy; a compact and connect transportation system; CodeNEXT (an initiative to revise the Land Development Code); water conservation and watershed health (see Exhibit 7.2-1 for watersheds, waterways, and Critical Water Quality Zones in the vicinity of airport property); urban and natural ecosystem management; affordable housing; and a widely skilled workforce.<sup>9</sup> Also guiding current sustainability efforts at the COA is the 2015 *Austin Community Climate Plan*, which outlines the Office of Sustainability's three main goals: attaining carbon neutrality for COA by 2020; achieving net-zero community-wide greenhouse gas emissions by 2050; and developing effective strategies for resilience in response to climate-related threats.<sup>10</sup> The Office of Sustainability provides semi-annual reports to the City Council regarding implementation of the various actions and strategies laid out in the plan.

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<sup>4</sup> STAR Communities. Our Framework. Available at: <http://www.starcommunities.org/about/framework/>. Accessed April 10, 2018.

<sup>5</sup> COA Austin Resource Recovery. Zero Waste by 2040. Available at: <https://austintexas.gov/zerowaste>. Accessed April 12, 2018.

<sup>6</sup> COA Sustainability Achievements July 2012 Highlights. Available at: [http://austintexas.gov/sites/default/files/files/Sustainability/Sustainability\\_Achievements\\_-\\_July\\_2012.pdf](http://austintexas.gov/sites/default/files/files/Sustainability/Sustainability_Achievements_-_July_2012.pdf). Accessed April 12, 2018.

<sup>7</sup> COA Austin Resource Recovery. Single-Use Carryout Bag Ordinance. Available at: <http://austintexas.gov/bags>. Accessed April 12, 2018.

<sup>8</sup> COA. 2012. *Imagine Austin Comprehensive Plan*. Adopted in 2012. Amended in 2016. Available at: [ftp://ftp.ci.austin.tx.us/npzd/IACP\\_amended2016\\_web\\_sm.pdf](ftp://ftp.ci.austin.tx.us/npzd/IACP_amended2016_web_sm.pdf). Accessed April 2, 2018.

<sup>9</sup> COA Imagine Austin. Year 5 Progress Report. September 26, 2017. Available at: <http://austintexas.gov/imagineaustin/progressreport>. Accessed April 10, 2018.

<sup>10</sup> COA Office of Sustainability. 2015. Community Climate Plan. Available at: [http://austintexas.gov/sites/default/files/files/Sustainability/OOS\\_AustinClimatePlan\\_032915\\_SinglePages.pdf](http://austintexas.gov/sites/default/files/files/Sustainability/OOS_AustinClimatePlan_032915_SinglePages.pdf). Accessed April 6, 2018.



**Exhibit 7.2-1 Watersheds, Waterways, and Critical Water Quality Zones in the Vicinity of Airport Property**

## 7.2.2 Sustainability at ABIA

ABIA uses the following sustainability pillars as a tool to determine if a project, program, initiative or operational directive is truly sustainable for overall airport operations. The pillars are customer and community value; operational excellence; economic sustainability; and environmental stewardship. In theory, all pillars are equally weighted and all must be considered. Being truly sustainable means that the resources must be available to support the initiative and the remaining pillars must not be negatively impacted by the final decision. Embracing this philosophy will support ABIA's vision of being the airport of choice for Central Texas.

ABIA staff works closely with the COA to ensure that efforts at the airport align with and support the sustainable policies and initiatives in place at the city level. The COA monitors day-to-day municipal operations, including those at ABIA, and evaluates the performance of operations using a set of key performance indicators to determine whether targets set for specific issues (carbon emissions, economic, operational, green building, energy, zero waste, etc.) are being met. ABIA tracks and reports performance indicators driven by COA policies. The airport also reports global report initiative (GRI) performance measures in its annual Sustainability Report.

In terms of airport-specific sustainability efforts, ABIA has developed a broad range of sustainability programs and policies to support the vision of Austin as “the most livable city in the country.” From the day the airport opened, ABIA has implemented recycling programs, used alternative fuels, worked to reduce electricity and water consumption, and used recycled materials to build the facility.<sup>11</sup>

Some of the most recent initiatives that have been adopted at ABIA include partnering with nearby Del Valle Independent School District (ISD) to mentor and provide supplies for students; working with concessionaires to donate unsold foods from concessions to local non-profit Keep Austin Fed; and receiving LEED Gold certification for its taxi staging area and driver facility.<sup>12</sup>

To further enhance ABIA's waste management and recycling programs, a new Waste Policy is currently in development, as well as a series of procedures and training materials to support the existing program(s), with an anticipated focus on terminal concessionaire tenant activities in the near-term, and other areas/activities in future phases.<sup>13</sup>

An overview of current sustainability programs, policies, and initiatives in place at ABIA is included in Table 2.12-1 in Chapter 2.

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<sup>11</sup> ABIA Environmental Responsibility. Environmental Responsibility. Available at: <http://www.austintexas.gov/department/environmental-responsibility>. Accessed April 12, 2018.

<sup>12</sup> ABIA 2017 Aviation Sustainability Report. Available at [https://issuu.com/austin-bergstrom-international/docs/abia-sust-rpt-2017\\_nospread\\_final](https://issuu.com/austin-bergstrom-international/docs/abia-sust-rpt-2017_nospread_final). Accessed April 12, 2018.

<sup>13</sup> ABIA Draft Waste Policy scope is currently in development and is anticipated to be executed within 2018. Sources: ABIA and Mead & Hunt, July 27, 2018.

## 7.3 Sustainability Initiatives

### 7.3.1 Methodology for Developing Sustainability Initiatives

The methodology to develop a framework of Sustainability Initiatives integrates three principle lines of research: 1) an assessment of ABIA's current sustainability framework, 2) a review of the sustainability frameworks already in use by the COA, and 3) a review of global best practices.

The performance categories expand from ABIA's current sustainability efforts to include an ambitious set of values reflective of both the prevailing sustainability ethos of Austin, as well as new standards within the aviation industry. To ascertain the sustainability frameworks currently in use in Austin, the methodology looked at both the performance metrics of the *Imagine Austin Comprehensive Plan* (2012) and the performance indicators currently tracked by the COA Office of Sustainability. Global best practices were analyzed through a literature review that considered airport case studies across a wide range of sustainability initiatives, see **Appendix 7.1**. From this, the analysis identified both industry leaders and opportunities for ABIA to innovate. Ultimately the proposed sustainability initiatives offer a framework that builds on capacity COA sustainability goals, advances key opportunities for Austin to set new standards within the aviation industry, and most importantly generates measurable change in airport functionality and experience.

### 7.3.2 Recommended Sustainability Initiatives

The preliminary recommendations of sustainability initiatives for consideration at ABIA are presented by category, on the following pages within this section. These recommendations are designed to enhance and support existing ABIA sustainability programs and initiatives and to advance ABIA's efforts to meet City of Austin sustainability goals and targets.

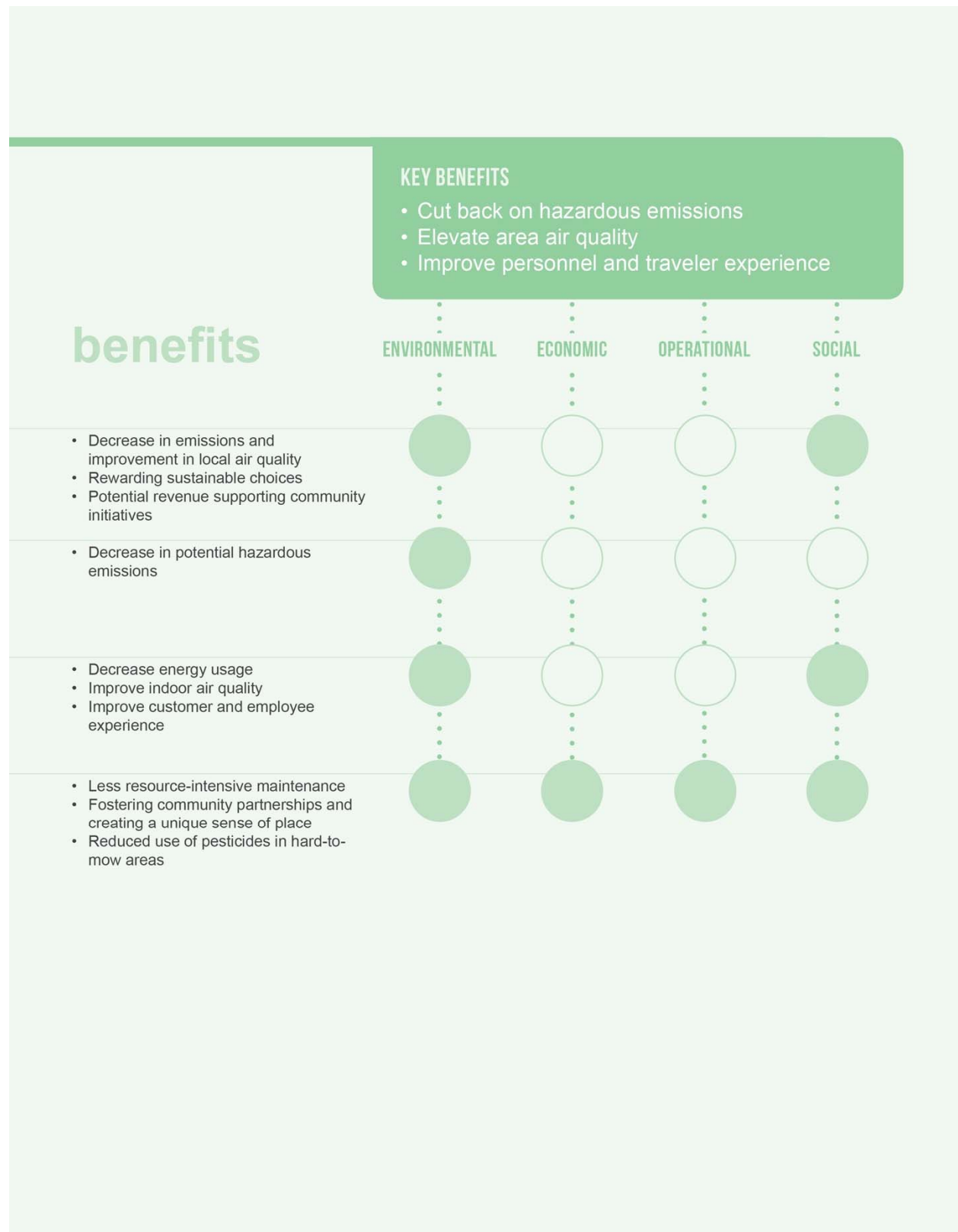


## AIR & GREENHOUSE GAS EMISSIONS

Reduce air emissions, specifically greenhouse gas emissions, to maintain air quality standards

### initiative + resource needs

- |  |   |
|--|---|
| <b>A</b> Expand available parking and charging network for electric vehicles     | <ul style="list-style-type: none"><li>• ABIA Staff to determine optimal placement/scale</li><li>• Dedicated space within existing and future parking structures</li><li>• Installation of new charging stations</li></ul> |
| <b>B</b> Reduce or eliminate CFC- and HCFC-based refrigerants in HVAC components | <ul style="list-style-type: none"><li>• ABIA Staff to determine where CFCs and HCFC refrigerants are still used</li><li>• Installation of new systems or components</li></ul>   |
| <b>C</b> Control air infiltration through all exterior openings                  | <ul style="list-style-type: none"><li>• ABIA Staff/contractor for retrofit</li></ul>  |
| <b>D</b> Consider grazing herd to replace traditional mowing systems             | <ul style="list-style-type: none"><li>• Feasibility study recommended</li><li>• Partnership with local ranchers</li></ul>   |







## ENERGY

Reduce annual energy-use per passenger and increase the amount of energy use from renewable sources

### initiative + resource needs

A

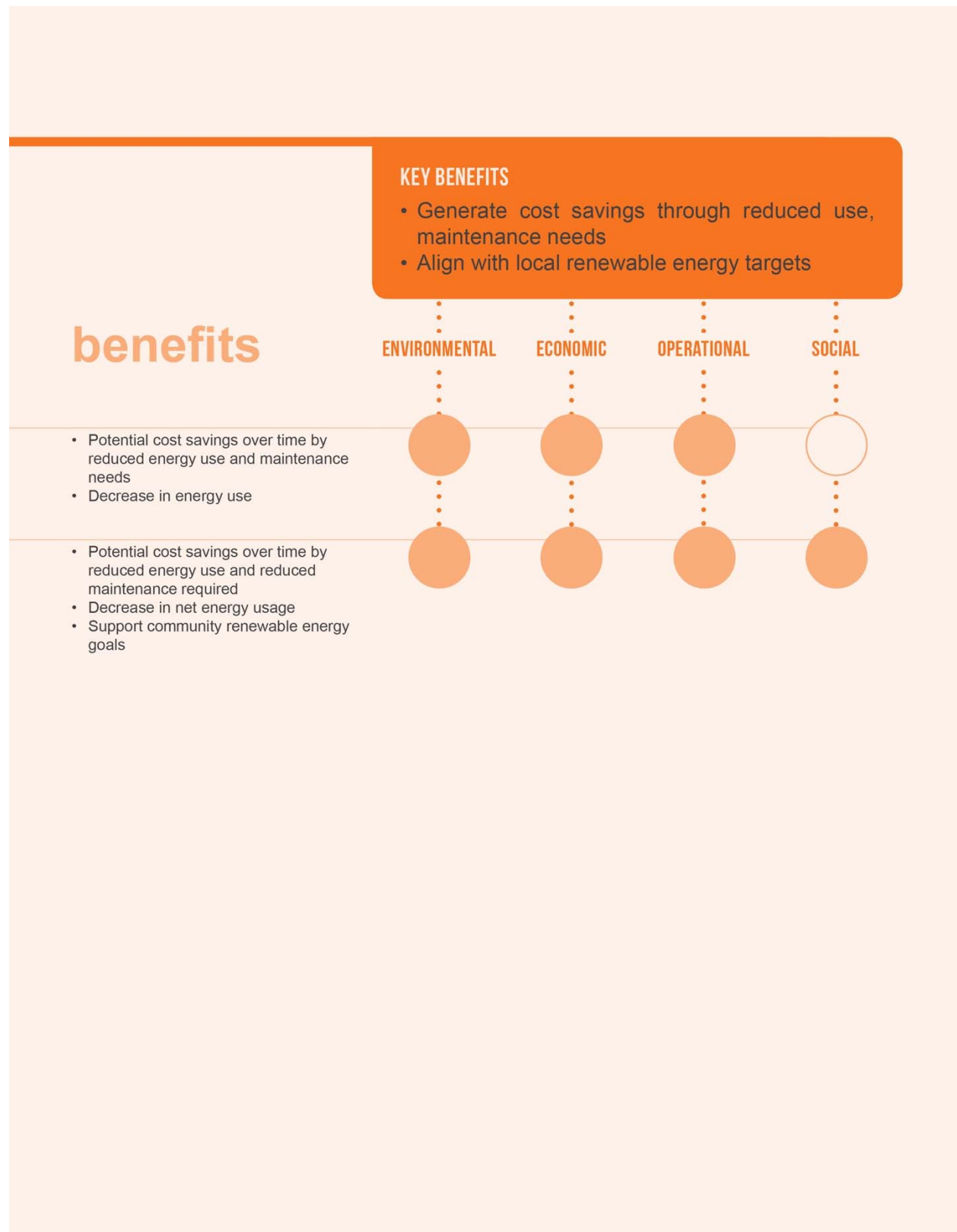
Develop and Implement a Master Lighting Plan

- ABIA Staff time for creation and enforcement/monitoring
- Potential need for 3rd party consultant

B

Reduce overall energy use in buildings and mechanical equipment and increase energy creation by expanding use of solar technology

- ABIA Staff for policy creation, enforcement, and monitoring
- ABIA Staff commissioning agent and contractor for solar panel installation
- Need for 3rd party consultant







## WATER

Reduce annual water use per passenger

### initiative + resource needs

A

Audit Design and Development  
Guide and establish new goals  
for water tracking and usage on  
site

- ABIA Staff
- Commissioning agent
- Potential need for 3rd party consultant

B

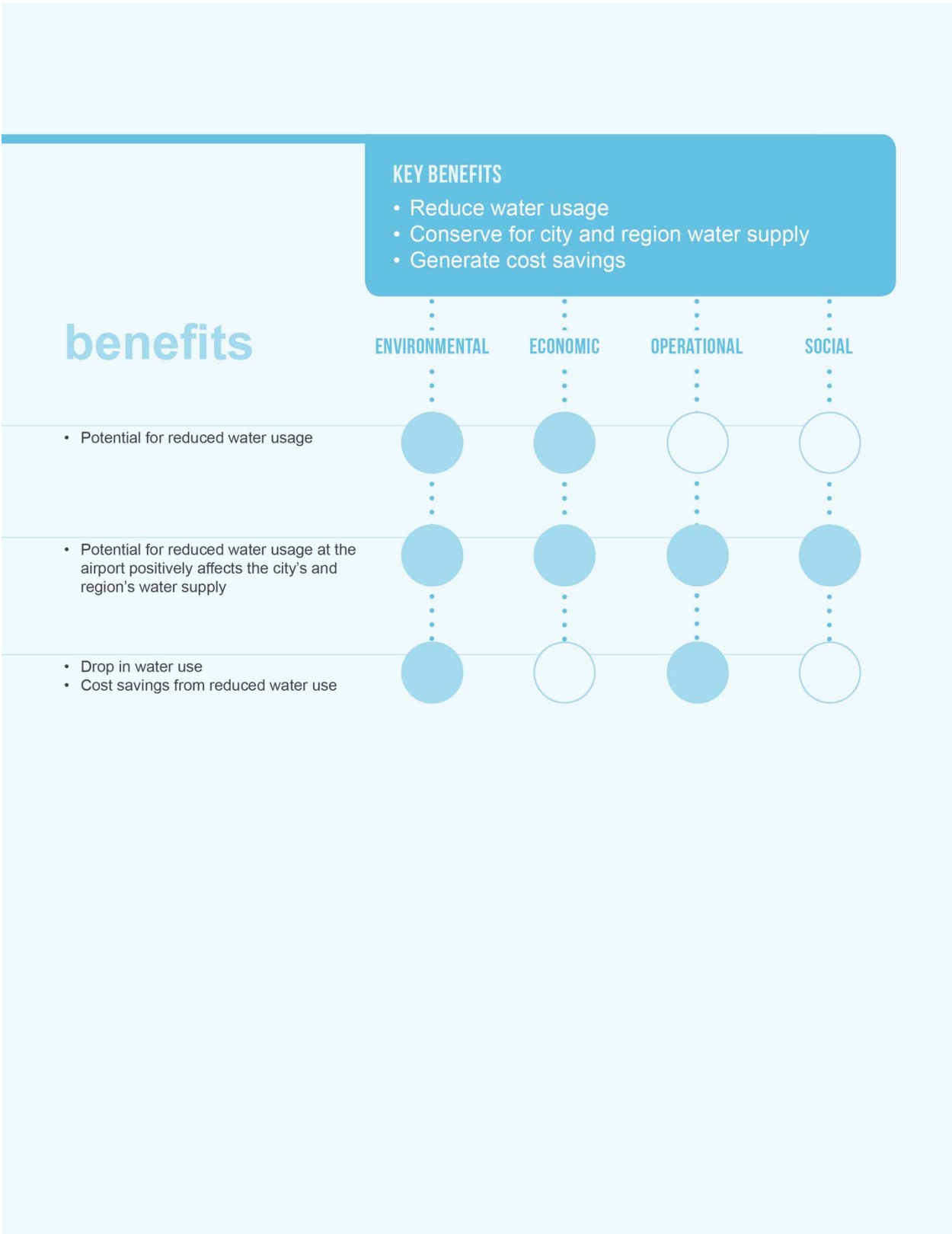
Audit irrigation system  
efficiencies

- ABIA Staff
- Potential need for 3rd party consultant

C

Audit indoor water use and  
identify opportunities to save  
water and develop staff water  
conservation training

- ABIA Staff time to identify opportunities to save water and develop policy
- Training
- Replacement of sub-optimal fixtures



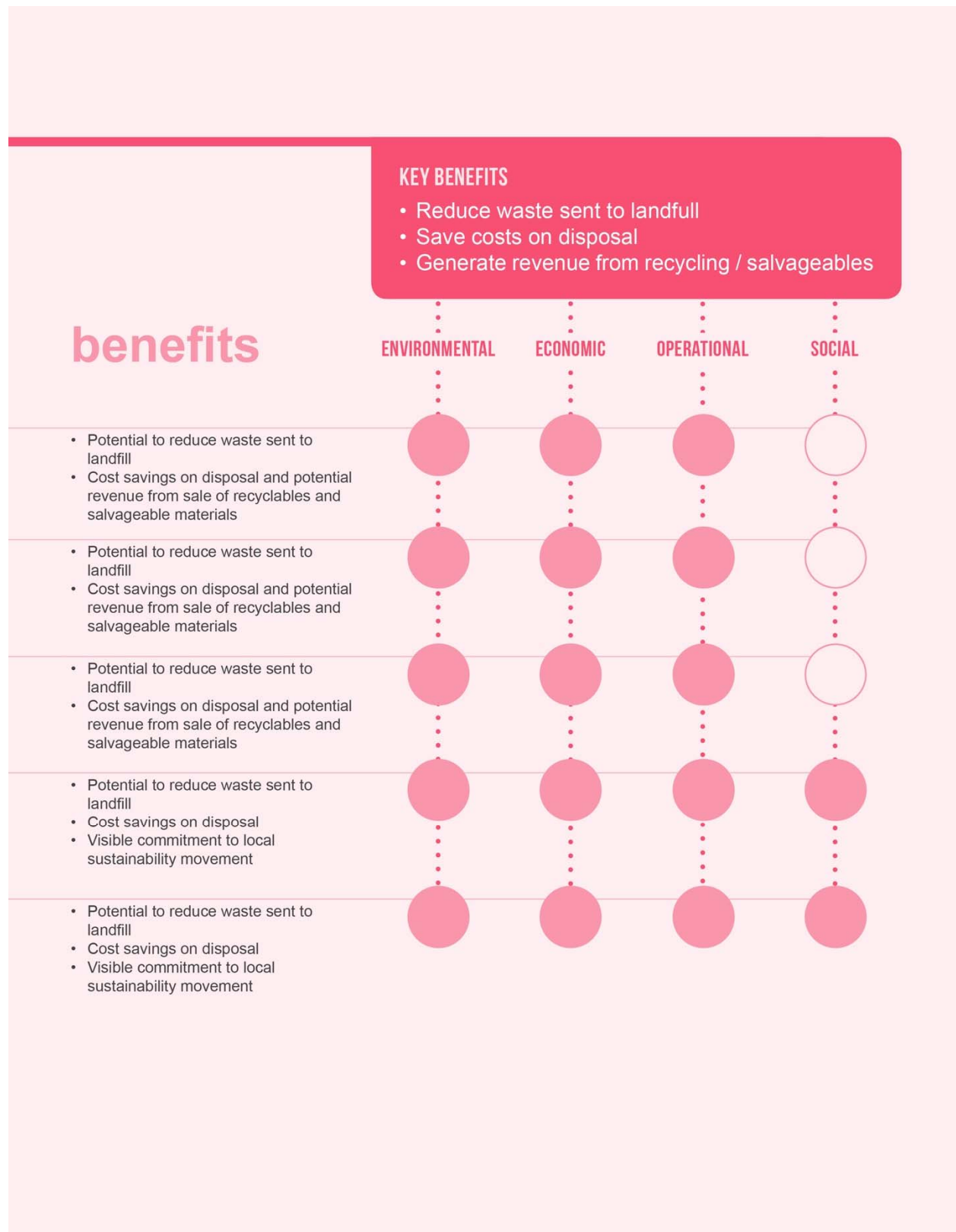


## WASTE

Reduce annual amount of waste sent to landfill

### initiative + resource needs

- |   |   |
|---|---|
| <b>A</b> Evaluate waste stream audit to establish baseline or types/amount of waste by weight or volume   | <ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Potential need for 3rd party consultant</li></ul>  |
| <b>B</b> Develop waste management policy and program for ABIA terminals and new buildings   | <ul style="list-style-type: none"><li>• ABIA Staff review existing waste management practices to develop new policy and program</li><li>• Potential need for 3rd party consultant</li></ul> |
| <b>C</b> Identify opportunities for increased recycling and waste diversion   | <ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Potential need for 3rd party consultant</li></ul>  |
| <b>D</b> Encourage or require use of compostable containers, utensils, bags, and other packaging offered to passengers and limit or ban single-use plastics | <ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Potential need for 3rd party consultant</li></ul>  |
| <b>E</b> Enhance Food Donation Program currently in place   | <ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Potential need for 3rd party consultant</li></ul>  |



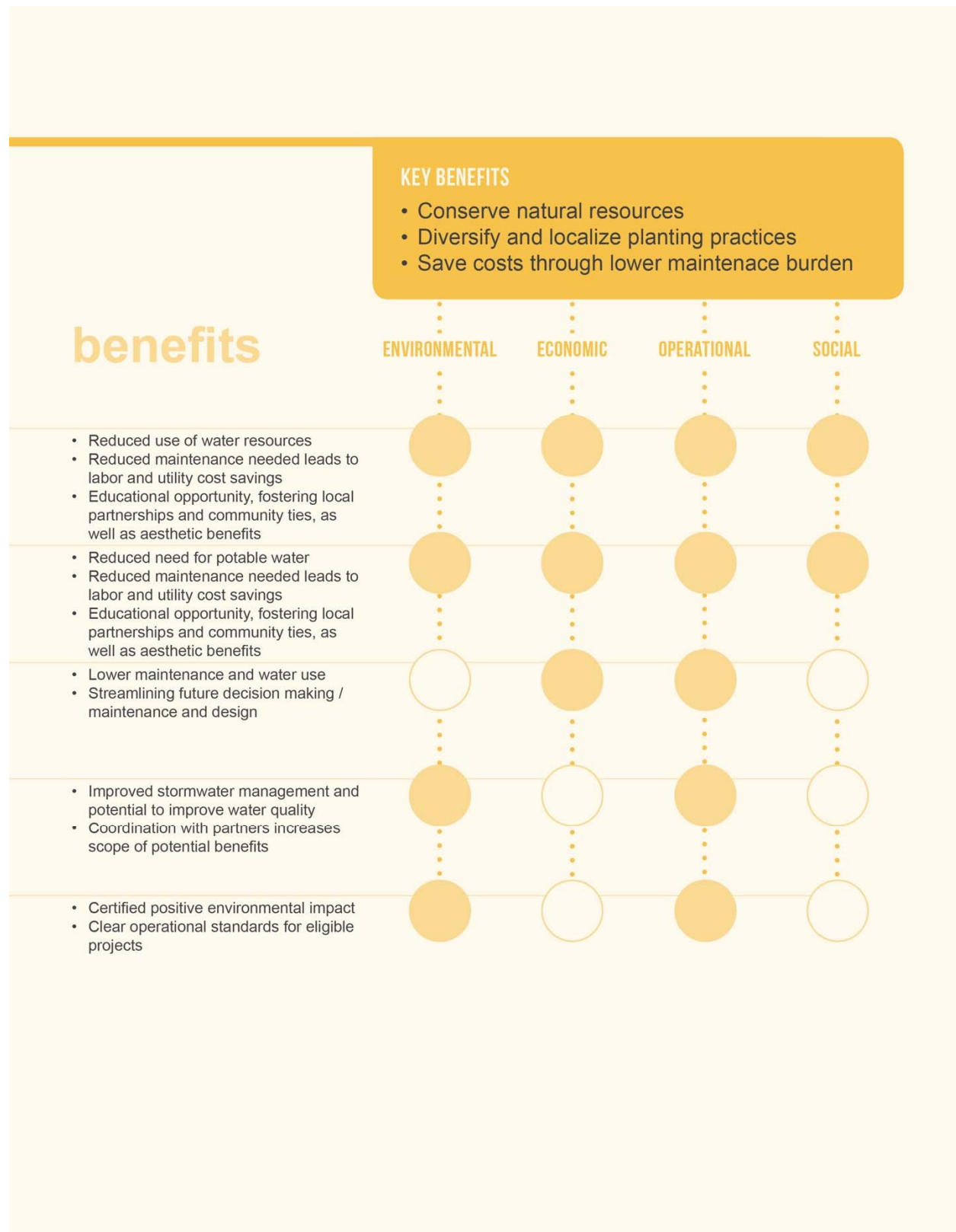


## SITE ECOLOGY & LAND MANAGEMENT

Preserve and enhance site ecology

### initiative + resource needs

- |   |  |
|---|--|
| <p><b>A</b> Develop low-impact landscape management plan to further enhance existing native landscaping practices</p>                             | <ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential need for 3rd party consultant</li> </ul>  |
| <p><b>B</b> Expand existing rain gardens and expand interpretive signage program</p>  | <ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential need for 3rd party consultant</li> </ul>  |
| <p><b>C</b> Adopt COA-approved native plant list for all new planting</p>   | <ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Opportunity to partner with the Grow Green program and use the Native and Adapted Landscape Plants publication</li> </ul>   |
| <p><b>D</b> Develop habitat management plans that align with goals and management strategies for the Onion Creek and Colorado River corridors</p> | <ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential need for 3rd party consultant</li> <li>• Potential partnerships with local landowners, conservation, and planning agencies, as well as the COA Watershed Protection Department</li> </ul> |
| <p><b>E</b> Explore requirement for new landscape projects of 2,000 total sq. ft. or greater to attain SITES Silver certification by USGBC</p>    | <ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential need for 3rd party consultant</li> </ul>  |







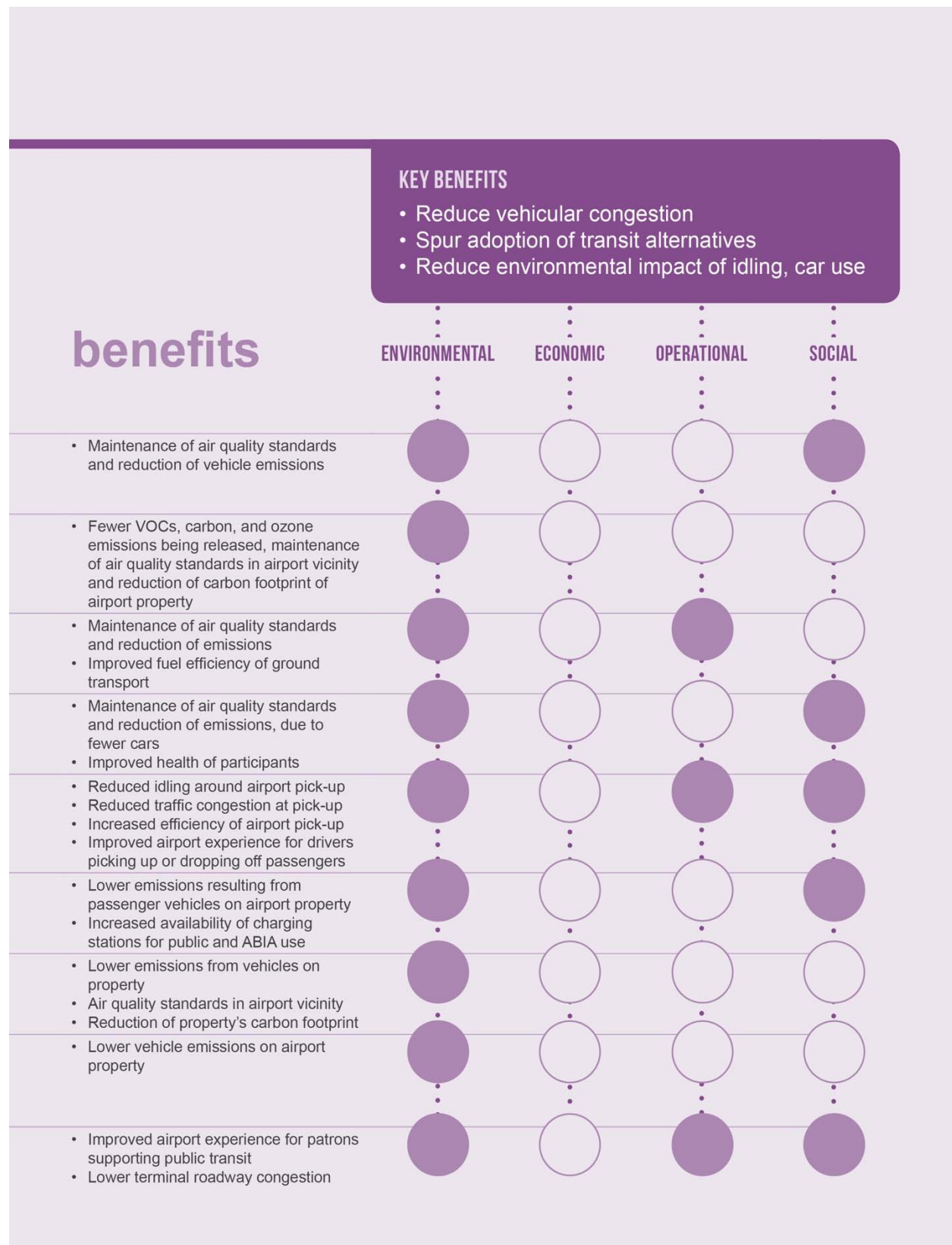
## SURFACE TRANSPORTATION

Establish surface transportation and mobility goals to reduce air emissions, particularly greenhouse gases

### initiative + resource needs

<b>A</b>	Promote public transportation, commuting, and carpooling	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential need for 3rd party consultant</li> <li>• Coordinate with CapMetro to increase transit ridership</li> <li>• Negotiate with Rideshare companies</li> </ul>
<b>B</b>	Enforce anti-idling policy on airport property to extent practicable	<ul style="list-style-type: none"> <li>• ABIA Staff (+ those with Austin-Round Rock Metropolitan Statistical Area Ozone Advance Program Plan experience)</li> <li>• Potential partnerships with DOT, CTRMA, CAMPO, and COA Staff working on Regional Transportation Plan</li> <li>• Work with Taxicab providers, shuttle operators, Lyft, etc.</li> </ul>
<b>C</b>	Promote employee and/or passenger rideshare to reduce SOVs on airport property	<ul style="list-style-type: none"> <li>• ABIA Staff to organize vanpools, incentive program, and informational e-mails</li> <li>• ABIA could partner with CapMetro (vanpool and Guaranteed Ride Home programs)</li> </ul>
<b>D</b>	Promote employee bike share program using new shared-use paths on airport property	<ul style="list-style-type: none"> <li>• ABIA Staff/local partners to provide bicycles and necessary infrastructure</li> <li>• ABIA staff to create incentive program to drive participation</li> </ul>
<b>E</b>	Increase use of cell phone lots	<ul style="list-style-type: none"> <li>• ABIA Staff/ to create promotional materials</li> <li>• Partner with local sustainability newsletters from City of Austin, Austin Eco-Network, etc., to further promote the cell phone lots.</li> </ul>
<b>F</b>	Install additional public-use electric vehicle charging stations	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• 3rd party contractor to install and maintain</li> <li>• Potential partnership with energy companies that construct and manage charging stations, such as NRG</li> </ul>
<b>G</b>	Further encourage use of alternative fueled vehicles (CNG, ethanol, biodiesel, etc.)	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• ABIA tenants</li> </ul>
<b>H</b>	Implement vehicle-to-grid pilot for electric vehicles in long-term parking	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Designer</li> <li>• Contractor</li> <li>• Feasibility study</li> </ul>
<b>I</b>	Reconfigure drop-off/pick-up lanes to prioritize transit access to terminal	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Designer</li> <li>• Contractor</li> </ul>







## DESIGN & CONSTRUCTION BMPS

Establish sustainable design and construction practices for all new projects and continue to implement COA LEED certification requirements

### initiative + resource needs

A

Develop Sustainable Design and Construction Manual to guide all new projects that specify the following (to greatest extent possible, as applicable to projects)

- *Develop a program for project teams on how to incorporate material reuse/ salvage practices into construction projects in order to reduce waste and demand for virgin materials, and increase use of salvaged materials (beams, flooring, paneling, etc.)*
- *Specify use of local materials*
- *Establish required minimum use of recycled content for materials*
- *Require Envision certification for civil engineering projects*
- *Prioritize use of warm-mix asphalt for road repair*
- *Require clean fuel / low-emission construction vehicles*
- *Require construction equipment maintenance specifications*
- *Require Construction Activity Pollution Prevention practices*
- *Require alternative material conveyance during construction*
- *Require balanced earthwork plan to reduce haul-on / haul-off truck trips (subject to availability for on-site stockpiles)*
- *Establish minimum levels of aggregate reuse*
- *Require Construction Noise Reduction/Abatement Plan*
- *Specify use of Rapidly Renewable Materials*

- ABIA Staff
- Potential 3rd Party Contractor for planning, implementation, and tracking services





## LOCAL & COMMUNITY PARTNERSHIPS (1 OF 2)

Expand local community partnership and outreach initiatives

### initiative + resource needs

<b>A</b> Establish a Community Partnership Plan	<ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Consult with city and local organizers and community leaders</li></ul>
<b>B</b> Increase community participation in programs such as Climate Resilience Action Plan, and Food Donation Program	<ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Potential partnerships with local environmental publications and newspapers such as Austin Eco-Network, etc.</li></ul>
<b>C</b> Establish ABIA Public Art Master Plan	<ul style="list-style-type: none"><li>• ABIA Staff</li><li>• Existing Public Art Master Plan Consultants, local artists, and installation crew</li><li>• Funding: Capital improvement project budgets</li></ul>



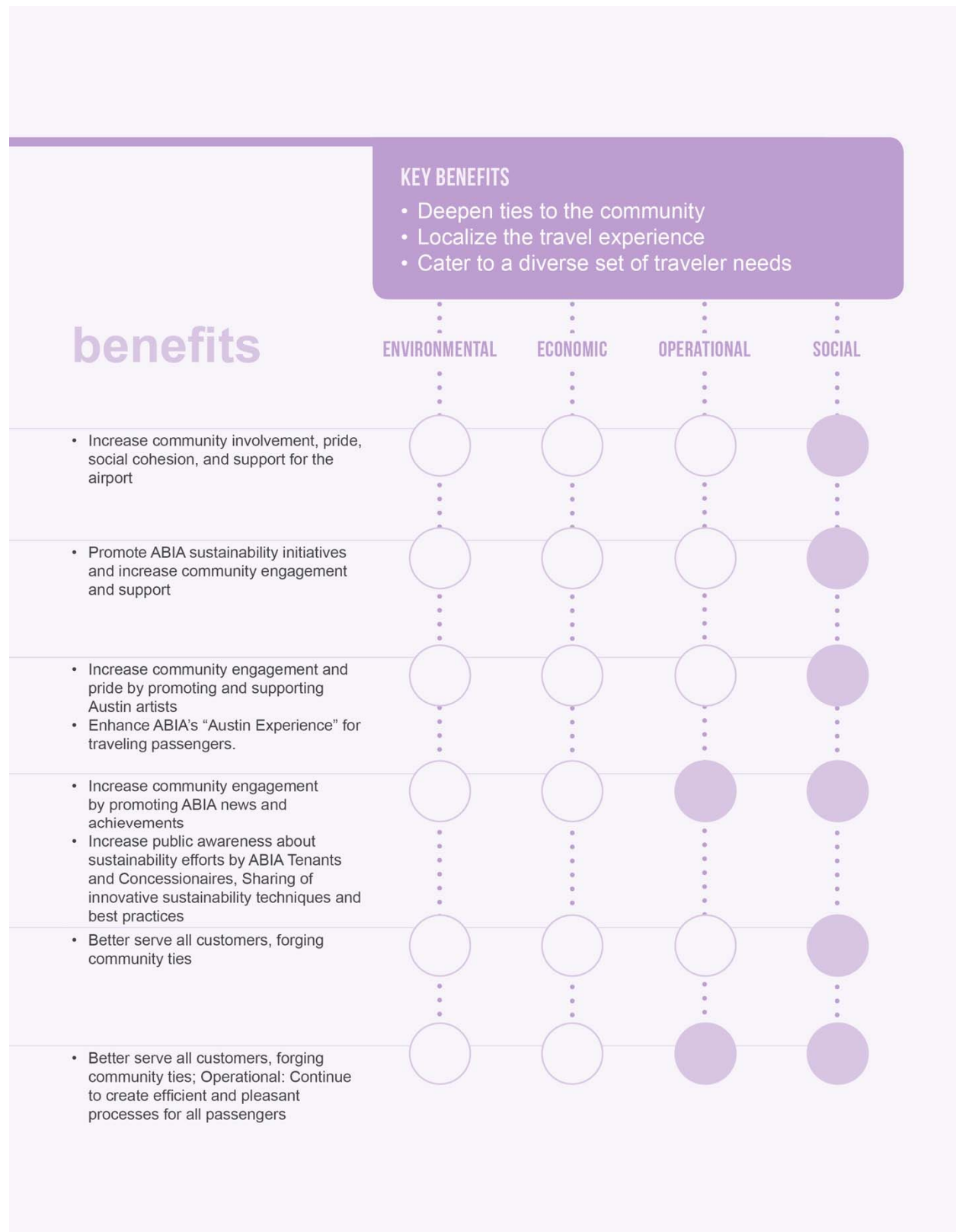


## LOCAL & COMMUNITY PARTNERSHIPS (2 OF 2)

Expand local community partnership and outreach initiatives

### initiative + resource needs

<p><b>A</b> Formally support and promote apiary on ABIA land</p>	<ul style="list-style-type: none"> <li>• ABIA Staff to maintain and promote</li> <li>• 3rd party consultant to support as necessary</li> <li>• Potential partnerships with local agencies and organizations</li> </ul>
<p><b>B</b> Aeroponic garden</p>	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential 3rd party consultant</li> <li>• Potential partnership with concessionaire to install and maintain</li> <li>• Feasibility study recommended</li> </ul>
<p><b>C</b> Grazing herd to replace traditional mowing practices</p>	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• 3rd party contractor</li> <li>• Potential partnership with local community organizations</li> </ul>
<p><b>D</b> Further promote and expand annual ABIA Sustainability Report; formalize into fully developed Sustainability Plan</p>	<ul style="list-style-type: none"> <li>• ABIA Staff</li> </ul>
<p><b>E</b> Create task force to address accessibility and universal design</p>	<ul style="list-style-type: none"> <li>• ABIA Staff</li> </ul>
<p><b>F</b> Create program for passengers with special needs and disabilities to better navigate the airport by practicing the procedures that would be followed with an actual flight</p>	<ul style="list-style-type: none"> <li>• ABIA Staff; Potential partnership with Tenant Airlines; Potential partnership with local organizations</li> </ul>





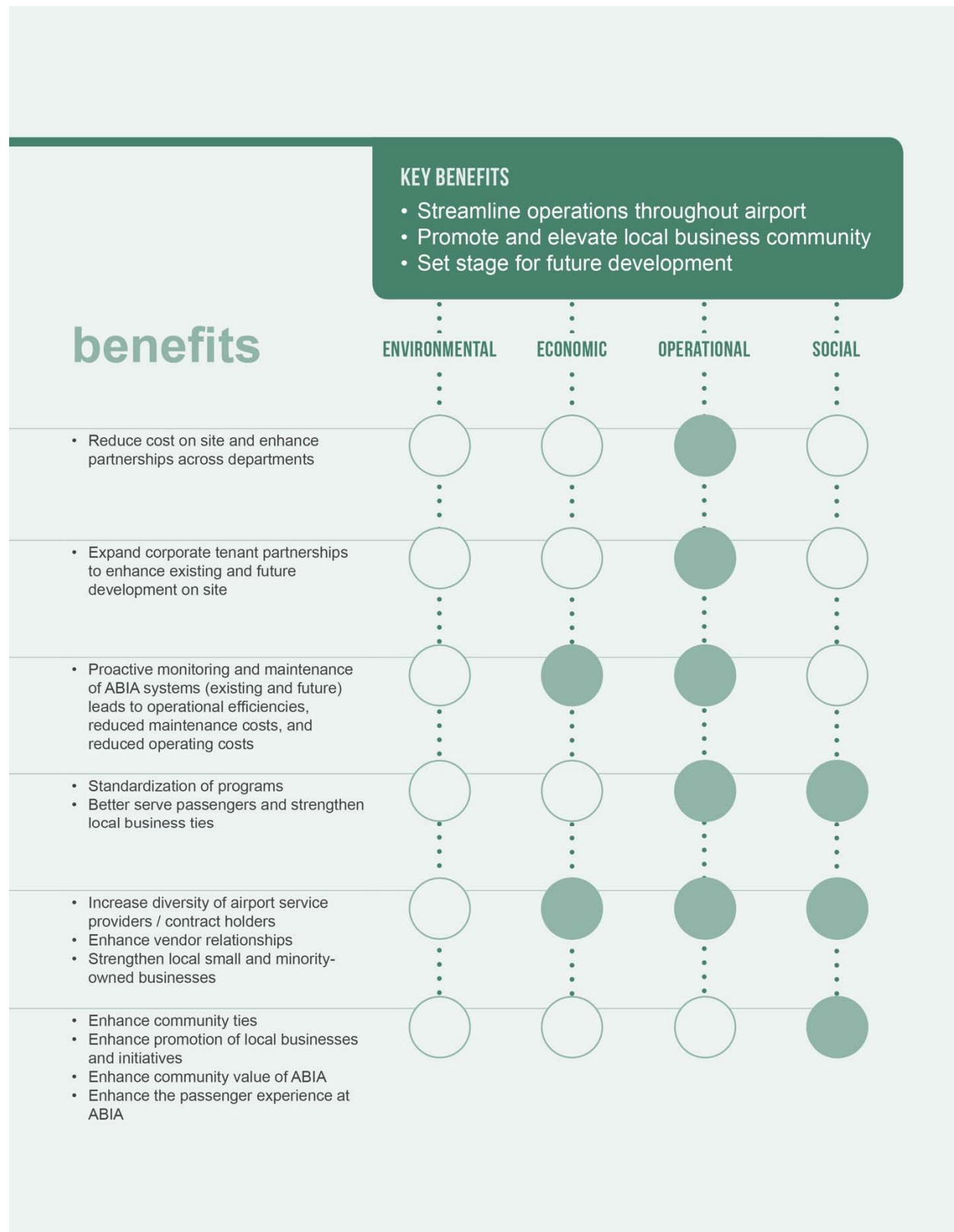


## REVENUE

Set goals to increase revenue from non-aeronautical sources

### initiative + resource needs

<b>A</b>	Explore opportunities to establish cost-sharing partnerships with other public agencies and City departments	<ul style="list-style-type: none"> <li>• ABIA Staff</li> </ul>
<b>B</b>	Provide incentives for increased corporate activity at the airport	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• 3rd party contractor</li> <li>• Feasibility study/market research recommended</li> </ul>
<b>C</b>	Further develop and monitor Asset Management Program through implementation of commissioning and efficiency audits	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential 3rd party contractor (Retro-Commissioning and/or Commissioning Agents)</li> </ul>
<b>D</b>	Standardize and promote local business vendor program	<ul style="list-style-type: none"> <li>• ABIA Staff</li> </ul>
<b>E</b>	Enhance guidance program for minority and small businesses in contracting with ABIA	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Partnership with COA Small and Minority Business Resources</li> </ul>
<b>F</b>	Promote environmental organizations, community organizations, and small businesses	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Partnerships with local organizations</li> </ul>



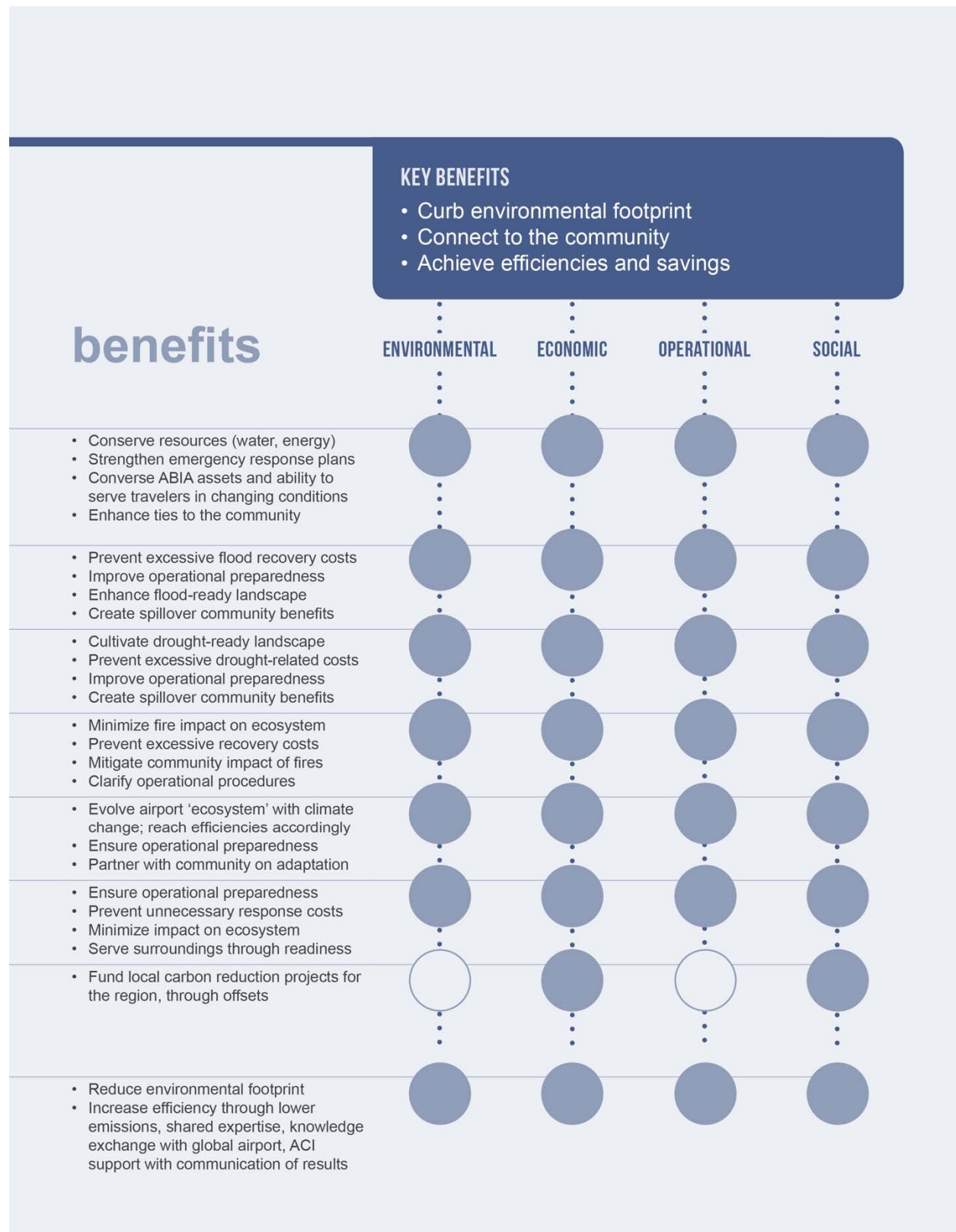


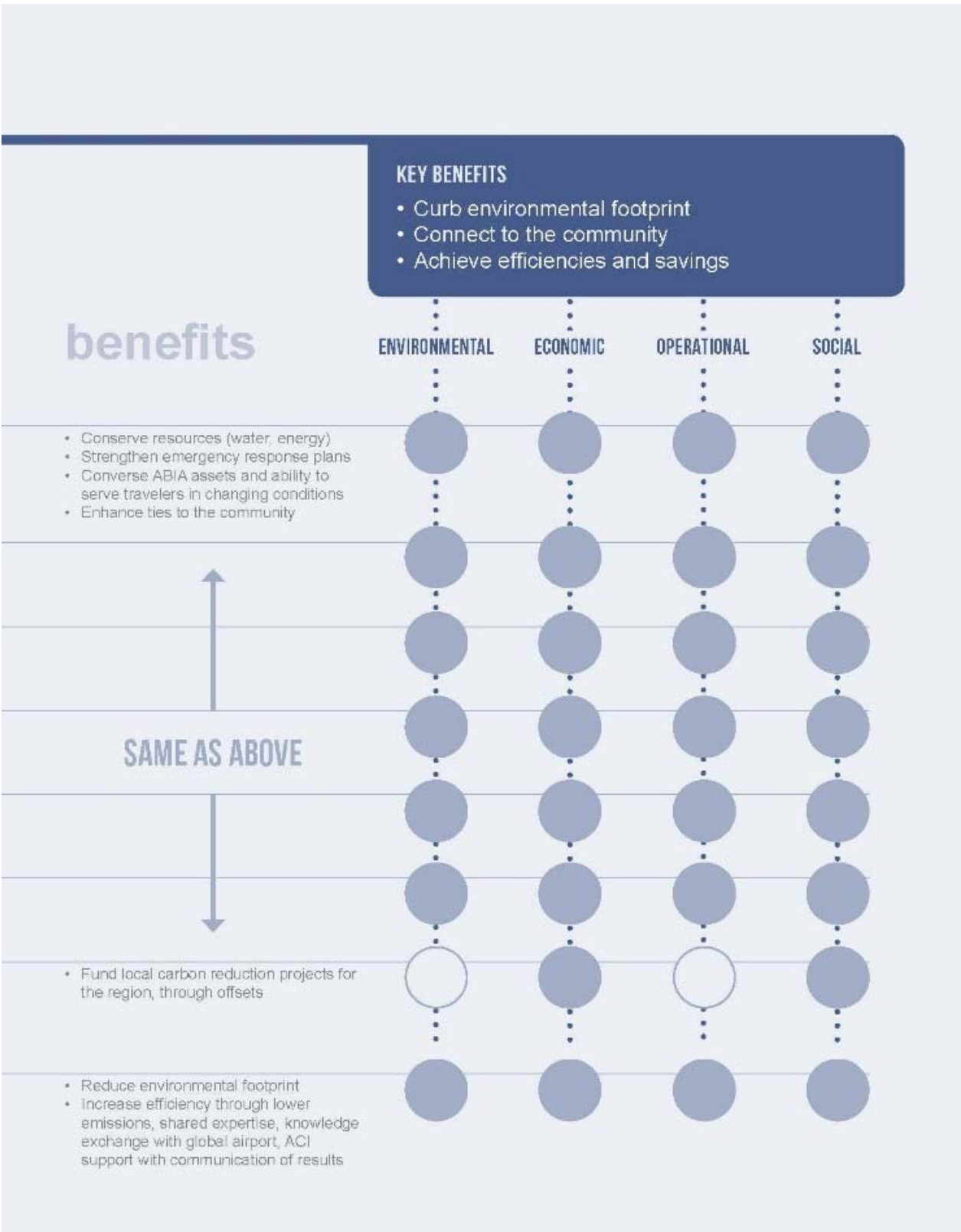
## RESILIENCY

Set goals for working toward carbon neutrality, which serves toward meeting goals established in the COA 2015 Community Climate Plan, and 2018 Climate Resilience Action Plan.

### initiative + resource needs

<b>A</b>	Assess overall vulnerability of airport to climate change effects	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential 3rd party contractor</li> <li>• Partnerships with COA Office of Sustainability, and with local county, state, and federal agencies</li> </ul>
<b>B</b>	Develop flood risk / flood hazard mitigation plan specific to ABIA	<div>SAME AS ABOVE</div>
<b>C</b>	Develop drought contingency plan specific to ABIA	
<b>D</b>	Develop fire hazard mitigation plan specific to ABIA	
<b>E</b>	Develop a short-term and long-term adaptation plan	
<b>F</b>	Strengthen emergency response efforts at ABIA	
<b>G</b>	Continue membership in The Good Traveler Program; enhance passenger awareness	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Partnerships with COA Office of Sustainability and Airline Tenants</li> </ul>
<b>H</b>	Continue participation in ACI's Carbon Accreditation program; Achieve and maintain carbon neutrality through ACI	<ul style="list-style-type: none"> <li>• ABIA Staff</li> <li>• Potential 3rd Party Contractor</li> <li>• ACI staff</li> </ul>







## AIR & GREENHOUSE GAS EMISSIONS

Reduce air emissions, specifically greenhouse gas emissions, to maintain air quality standards.

### KEY BENEFITS

- Cut back on hazardous emissions
- Elevate area air quality
- Improve traveler experience

### 7.3.2.1 Air & Greenhouse Gas Emissions

The challenges of improving air quality at ABIA are significant as a growing airport generates emissions through numerous sources. This performance category grapples with both stationary and non-stationary sources, such as facilities and vehicles, some of which are not managed by ABIA. With a city government focused on climate neutrality and with ambitious citywide plans in place, including the COA Community Climate Plan which sets a goal of citywide net-zero emissions by 2050, ABIA is in a position to become a leader in this area. Air and Greenhouse Gas Emissions initiatives should endeavor to achieve and maintain carbon neutrality through Airports Council International.

Recommended initiatives include:

- Expand available electric vehicle parking and charging network
- Reduce or eliminate CFC-based refrigerants in HVAC components
- Control air infiltration through all exterior openings
- Consider grazing herd to replace traditional mowing systems





## ENERGY

Reduce annual energy-use per passenger and increase the amount of energy use from renewable sources.

### KEY BENEFITS

- Generate cost savings through reduced use, maintenance needs
- Align with local renewable energy targets

### 7.3.2.2 Energy

Increasing ABIA's energy sustainability can be accomplished by decreasing energy usage via energy efficiency increases and expanding the portion of energy usage from renewable sources. One hundred percent of ABIA's energy usage is currently supplied via Austin Energy's GreenChoice renewable energy program, the majority of the sustainable energy gains and the reduction of carbon output to be made center around decreasing overall energy consumption.

In terms of a reduction of energy use, striving for efficiency in building design, predominately via the U.S. Green Building Council's LEED program, has recently become the industry standard (ABIA has three LEED certified building to date). ABIA has several high impact energy-saving measures in place, including using thermal energy storage. Consequently, reductions in energy usage going forward are likely to be gained incrementally, in smaller steps, and will require coordination with airlines and concessionaries. ABIA may incorporate the LEED framework for Building Operations and Maintenance to ensure coordination and support in the future.

Another way to decrease net energy consumption would be to start generating energy onsite. Federal agencies such as the National Laboratory for Renewable Energy, as well as the Federal Aviation Administration and Department of Defense and Department of Homeland Security are actively promoting installation of solar technologies at airports. Airports provide a large quantity of land that requires low-profile use types--a perfect match for solar photovoltaics. While ABIA currently has a small number of solar panels installed around several facilities, ABIA could evaluate the feasibility of using a larger portion of its grounds for solar energy production.

Recommended initiatives include:

- Develop and implement a Master Lighting Plan
- Reduce overall energy use in buildings and mechanical equipment and increase energy creation by expanding use of solar technology





Reduce annual water use per passenger.

#### KEY BENEFITS

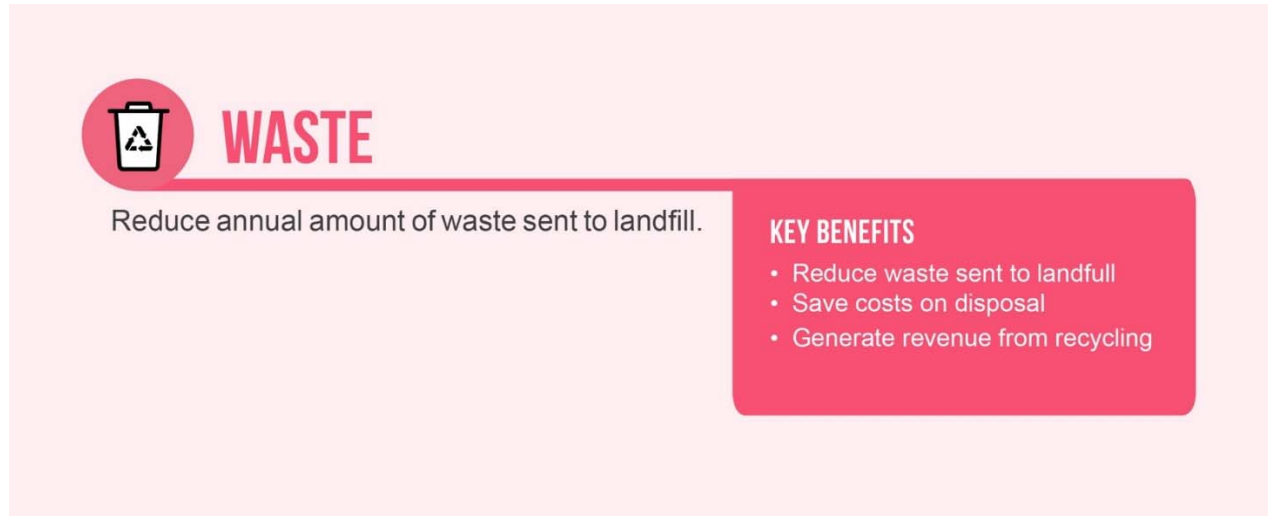
- Reduce water usage
- Conserve for city and region water supply
- Generate cost savings

### 7.3.2.3 Water

This performance category includes the consumption of water for all airport needs both indoor and outdoor, management of stormwater onsite, actions that the airport can take to meet broader watershed goals. ABIA has made significant strides in this performance category in recent years with a large reclaimed water system used for landside irrigation, the largest ongoing planting project in Austin of native drought-tolerant species, and a variety of other stormwater management best practices employed across the entire airport grounds. ABIA can improve in this performance category in the extent of area managed: more landscapes and buildings designed for rainwater capture and reuse, fewer impervious surfaces, and more attention to the broader Onion Creek watershed around the airport which is heavily impacted by ABIA's activities.

Recommended initiatives include:

- Audit Design and Development Guide and establish new goals for water tracking and usage on site.
- Audit irrigation system efficiencies
- Audit indoor water use and identify opportunities to save water and develop staff water conservation training



**WASTE**

Reduce annual amount of waste sent to landfill.

**KEY BENEFITS**

- Reduce waste sent to landfill
- Save costs on disposal
- Generate revenue from recycling

#### 7.3.2.4 Waste

COA has become a leader in this area with its sophisticated Austin Resource Recovery Center, Dillo Dirt processing from sanitary waste, numerous proactive waste reduction ordinances (including one focused on meeting a zero-waste goal), and a successful municipal composting program in its pilot phase. ABIA can collaborate with COA to become a zero-waste airport over a series of years. This begins with an audit of existing procedures and a plan for meeting the ambitious goal through phases that will address how to integrate and standardize waste processing procedures for all airport vendors, expand and streamline recycling programs, as well as expand and streamline composting programs.

Recommended initiatives include:

- Evaluate waste stream audit to establish baseline types and amounts of waste by weight or volume
- Develop waste management policy and program for ABIA terminals and new buildings
- Identify opportunities for increased recycling and waste diversion
- Encourage or require use of compostable containers, utensils, bags, and other packaging offered to passengers and limit or ban single-use plastics
- Enhance food donation program currently in place



## SITE ECOLOGY & LAND MANAGEMENT

Preserve and enhance site ecology.

### KEY BENEFITS

- Conserve natural resources
- Diversify and localize planting practices
- Save costs through lower maintenance burden

### 7.3.2.5 Site Ecology & Land Management

Airports have historically viewed wildlife habitat as a problem and not an asset - wildlife strikes are a serious safety issue for airports. Making airports too desirable for wildlife, especially for large birds, risks increasing strike rates. However, the aviation industry has gradually come to the understanding that preventing bird strikes does not require the wholesale erasure of natural areas or wildlife habitat. Small, targeted land and vegetation management strategies can allow for the best of both worlds: minimizing strike risk while benefitting from the host of ecosystem services that plant and animal species can provide.


While several ecosystem services can be gained by greenspace, the ability of vegetation and trees to lower temperatures on a microclimate scale are of particular interest to ABIA, especially in the context of climate change and extreme heat risks. For these reasons, ABIA could prioritize the maintenance and development of vegetated areas throughout its landholdings. This could work in conjunction with the goal of reducing ABIA's water consumption through the ongoing use of native and drought tolerant vegetation in airport's landscaping.

ABIA is also close to a number of ecologically important corridors, including Onion Creek, the Colorado River, and Hornsby Bend Bird Observatory. Coordination with the relevant stakeholders for these sites will be important going forward. Additionally, the Sustainable USGBC SITES standards, co-developed by the Lady Bird Johnson Wildflower Center for landscape projects, will become increasingly relevant and ABIA is ideally situated to become the first airport to embrace these new standards.

Recommended initiatives include:

- Develop low-impact landscape management plan
- Adopt COA-approved native plant list for all new planting

- Develop habitat management plans that align with goals and management strategies for Onion Creek and Colorado River ecological corridors
- Explore requirement for new landscape projects of 2,000 square feet or greater to attain SITES Silver certification by USGBC



## SURFACE TRANSPORTATION

Establish surface transportation and mobility goals to reduce air emissions, particularly greenhouse gases.

### KEY BENEFITS

- Reduce vehicular congestion
- Adoption of transit alternatives
- Reduce environmental impact of idling, car use

### 7.3.2.6 Surface Transportation

Ground transportation is an increasingly complex area of airport operations, as the industry looks to increase efficiency and reduce emissions. Most airports, including ABIA, have made considerable headway improving on-site vehicle fuel efficiency; ABIA's gasoline consumption is trending down, thanks in part to the airports increased use of biodiesel and ethanol. As high-fuel efficiency vehicles become the industry standard for airport vehicles, the aviation is increasingly looking to ground transportation to and from the airport.

The dramatic growth of rideshare companies in recent years has created an opportunity for the aviation industry to rethink its ground transportation approach. The data gathered by these services provides the potential for evaluating rideshare companies' efficiency in aggregate, and for granular tracking of vehicle and trip efficiency. This data could be considered a key resource to improving ground transportation operations going forward.

Public transportation is an important component of any airport ground transportation or mobility plan. Public transportation is a key component of any holistic ground transportation program. CapMetro's Connections 2025 plan proposes a 15-minute frequency Airport Flyer route to downtown (Route 20 - eventually graduating to a 10-minute frequency), which would be a major improvement from the current half hour frequency. Eventually, Route 20 will become high-capacity route 820. Any programs to increase transit ridership to the airport should address airport-specific considerations, such as passengers carrying luggage.

It is important to note that the goal of increasing efficiency in transportation can conflict with the strong incentive many airports have to generate revenue through onsite parking fees. Additionally, the projected rise in autonomous vehicles poses a long-term threat to this revenue source, as self-driving vehicles will not require onsite parking. For these reasons, innovative long-term approaches to airport surface transportation would consider the phasing out of parking structures for alternate uses.

Recommended initiatives include:

- Promote public transportation, commuting, carpooling, and bike use
- Enforce anti-idling policy on airport property to the extent practicable
- Promote employee and/or passenger ridesharing as a way of reducing Single Occupant Vehicles (SOV) on airport property
- Promote employee bike share program using new shared-use paths on airport property
- Increase use of cell phone lots
- Install additional public-use electric vehicle charging stations
- Further encourage use of alternative fuel vehicles (CNG, ethanol, renewable natural gas, biodiesel, etc.)
- Consider study and implementation of vehicle-to-grid pilot for electric vehicles in long-term parking
- Consider reconfiguration of passenger drop-off/pick-up lanes to prioritize terminal access for transit users





## DESIGN & CONSTRUCTION BMPS

Establish sustainable design and construction practices for all new projects and continue to implement COA LEED certification requirements

### KEY BENEFITS

- Environmentally friendly builds
- Save costs with reduced footprint
- Build bridges to local community

### 7.3.2.7 Design & Construction Best Management Practices

In the last ten years, ABIA has steadily expanded its attention to sustainable design and construction standards, with several recently completed facilities certified as LEED Silver or Gold - Terminal East Infill (LEED Silver), Rental Car Facility (LEED Silver), Ground Transportation Staging Area (LEED Gold), Hyatt Place Hotel (LEED Silver, pending), and projects under construction also slated to meet LEED Silver standard including a major Terminal Expansion. Additionally, the Hilton Hotel at ABIA is one of five hotels in Texas to meet the Green Seal standard. In keeping with the COA's requirement to achieve LEED Silver certification for all new city facilities, the message is clear that ABIA will consistently integrate sustainable design standards into all new building projects. ABIA can greatly benefit from establishing a program of sustainable design and construction standards, for all new projects at the airport, including occupied and unoccupied structures, as well as pavement and flatworks, using LEED standards as a reference, to be provided to all future project teams.

Recommended initiatives include:

- Establish sustainable design and construction practices for all new projects (occupied and unoccupied structures, pavement, and flatworks); and continue to implement COA's LEED certification requirements for occupied structures
- Develop a program for project teams on how to incorporate material reuse/salvage practices into construction projects in order to reduce demand for virgin materials, reduce waste, and increase use of salvaged materials (beams, flooring, paneling, etc.)
- Specify use of local materials
- Establish required minimum use of recycled content of materials
- Require Envision certification for civil engineering projects
- Prioritize use of warm-mix asphalt for road repair
- Require clean fuel/low-emission construction vehicles
- Require construction equipment maintenance specifications

- Require Construction Activity Pollution Prevention practices
- Require alternative material conveyance during construction
- Require balanced earthwork plan to reduce haul-on/haul-off truck trips
- Establish minimum levels of aggregate reuse
- Require Construction Noise Reduction/Abatement plans
- Specify use of Rapidly Renewable Materials



## LOCAL & COMMUNITY PARTNERSHIPS

Expand local community partnership and outreach initiatives, and consider land uses that create benefit for Austin community.

### KEY BENEFITS

- Deepen ties to the community
- Localize the travel experience
- Build awareness of ABIA sustainability efforts
- Cater to traveler needs

### 7.3.2.8 Local and Community Partnerships

ABIA has long prided itself on the experience it provides for local and visiting travelers.<sup>14</sup> A number of current programs showcase Austin's culture, talent and creativity, be it through the commitment to local vendors or live music performances in the main terminal.<sup>15</sup> While ABIA is frequently recognized as a leader in terms of overall passenger experience (with Airport Service Quality survey results on key metrics rising over the past few years<sup>16</sup>), other airports have begun focusing on enhancing visitor experience as well, in an effort to remain competitive. In order to ensure that ABIA remains a leader in this area, continual innovation and testing of new ideas will be necessary.

From a passenger perspective, one of ABIA's current strengths is that it has the benefits of being a relatively small airport, in that it doesn't feel particularly crowded, congested, or hard to navigate. Security checkpoints are efficient, with little wait time, and distances between any two points in the terminal are relatively short. As ABIA continues to grow, maintaining this ease of navigation should be a priority.

While ABIA is relatively easy to navigate for the majority of travelers, improvements could certainly be made for travelers who have mobility limitations or other special needs that make air travel particularly complex or burdensome. Addressing the unique needs of elderly travelers will become increasingly important as the Baby Boomers age in the coming years. Given that ABIA is currently a leader in visitor experience, it seems only natural that ABIA should also lead the way in designing more inclusive processes, as well as built elements, for travelers with special needs.

<sup>14</sup> ABIA Aviation Sustainability Report (2017)

<sup>15</sup> ABIA Aviation Sustainability Report (2017)

<sup>16</sup> ABIA Aviation Sustainability Report (2017)

ABIA already boasts many visible programs designed to foster community connections and improve the wellbeing of nearby residents, including a successful vendor program for small and minority-owned businesses, a school donation program with the nearby Del Valle Independent School District, a food donation program to local nonprofit Keep Austin Fed, promotion of local artists, and participation in a variety of community events. Even still, there is significant room for expansion of all existing programs and the addition of new initiatives. The goals for this performance category focus on ways that ABIA can better represent, contribute to, and participate in both adjacent communities and the broader city.

Recommended initiatives include:

- Develop community partnership plan geared toward both visitors and nearby communities
- Increase community participation in programs such as unsold food donation program
- Implement and fully fund the ABIA Public Art Master Plan
- Consider land uses that create benefit for Austin community while supporting the airport's core mission.
- Formally support and promote apiary onsite
- Establish aeroponic garden onsite
- Consider grazing herd to replace traditional mowing systems
- Further promote and expand annual Aviation Sustainability Report, including formalizing into fully developed Sustainability Plan, and increase public awareness about sustainability efforts at ABIA
- Create task force to address accessibility and universal design
- Create program of “test runs” for navigation of airport for passengers and families with special needs
- Create employee health and wellness program for airport staff and concessions staff



## REVENUE

Set goals to increase revenue from non-aeronautical sources.

### KEY BENEFITS

- Streamline operations
- Promote local businesses
- Set stage for future development

### 7.3.2.9 Revenue: Economic Responsibility

ABIA generates \$2.4 billion into the regional economy and supports over 40,000 jobs, 4,933 at the airport itself.<sup>17</sup> Its facilities are rapidly growing to accommodate steady passenger growth and new demand from carriers.<sup>18</sup> It is exceeding revenue projections while maintaining a consistent balance between airline and non-airline revenue.<sup>19</sup> All of these indicators suggest that ABIA is currently performing very strong in the Economic Viability performance category. As the airport continues to develop, the goals are oriented toward managing steady growth that does not come at the expense of environmental and human capital. ABIA must continue to invest its core assets in direct proportion to its growth and only by doing so will it achieve sustainability in this category.

Recommended initiatives include:

- Explore opportunities to establish cost-sharing partnerships with other public agencies and COA departments
- Provide incentives for increased corporate activity at the airport
- Emphasize proactive approach to marketing and branding
- Encourage cost efficiencies through enhanced asset management programs
- Standardize and promote local business vendor program
- Provide more guidance to minority and small businesses in contracting
- Expand visitor information program to include Austin area environmental organizations, community organizations, and small businesses

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<sup>17</sup> ABIA Aviation Sustainability Report (2017)

<sup>18</sup> ABIA Aviation Sustainability Report (2017)

<sup>19</sup> ABIA Aviation Sustainability Report (2017)



## RESILIENCY

Set goals for working toward carbon neutrality, which serves toward meeting goals established in the COA 2015 Community Climate Plan, and 2018 Climate Resilience Action Plan.

### KEY BENEFITS

- Curb environmental footprint
- Connect to the community
- Achieve efficiencies and savings

### 7.3.2.10 Resiliency: Climate Change and Resilience

The aviation industry has recently begun considering how the projected impact of climate change could impact airport operations, as one of the hallmarks of climate change is an increase in extreme events. A challenge of climate change is that impacts are highly location-specific, and difficult to predict. Some airports can expect to contend with extreme heat, others are bracing for projected increases in frequency of tropical storms, hurricanes or snowstorms, while others face rising sea levels directly adjacent to their runways. Since each airport has its own particular set of challenges, lessons learned at one airport rarely apply to those in other regions.

At ABIA's campus events that are likely to directly impact airport operations include electrical storms, floods, wildfires and droughts. The effects could include far-flung disruptions that have a more indirect impact on ABIA's operations, such as changes in human migration or travel patterns. As a vital part of national infrastructure, airports, ABIA included, have long planned for disruptions and risks. However, the increased likelihood of these extreme events requires that these plans be periodically updated and reworked, in order to ensure that they remain relevant as ABIA grows and as risks shift and change.

Recommended initiatives include:

- Assess overall vulnerability of airport to climate change effects
- Develop drought contingency plan specific to ABIA
- Develop flood risk/flood hazard mitigation plan specific to ABIA
- Develop fire hazard mitigation plan specific to ABIA
- Develop a short-term and long-term adaptation plan
- Strengthen emergency response efforts at ABIA
- Continue membership in The Good Traveler Program; enhance passenger awareness
- Continue participation in ACI's Carbon Accreditation program and achieve and maintain carbon neutrality



## 7.4 Potential Implementation Strategies

Once ABIA refines and finalizes the recommended sustainability initiatives, potential implementation strategies will be developed as part of the future Sustainability Plan for the airport. Sample implementation strategies for the list of recommended sustainability initiatives, as it stands today, are included in **Appendix 7.2**.

## 7.5 Next Steps and Conclusions

Next steps for ABIA include discussion of further development of sustainability initiatives in ABIA Sustainability Master Plan with emphasis on implementation, evaluation, and refinement of initiatives to best support sustainability goals of ABIA and COA.

To ABIA, *sustainability* means developing the airport in a way that meets the needs of the present without compromising the needs of future generations. Four key areas are identified as ABIA's foundation of sustainability: customer and community value, operational excellence, economic responsibility, and environmental stewardship.

This chapter was designed to provide a framework for a future Sustainability Plan for ABIA that will support and advance ABIA and COA goals, targets, and mandates for sustainability. The objective of developing a Sustainability Plan for ABIA will be to integrate sustainable practices and philosophy into all phases of airport project development and their associated activities (inception to every day operations and maintenance activities) in order to reduce environmental impacts while also creating operational, financial, and social benefits.

We view this future effort as resulting in a long-lasting, living, comprehensive guidance document outlining the overall sustainability mission statement for ABIA, as well as specific guidance for all phases of airport management, including planning, design, construction, operations and maintenance, for airport, concessionaires, and tenants projects. These actions will benefit ABIA's passengers and tenants, and the community it is proud to serve.