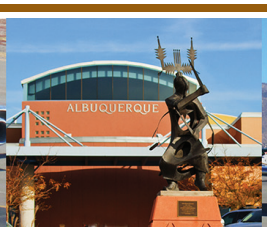
Chapter Three

SUSTAINABILITY BASELINE ASSESSMENT



Chapter Three

SUSTAINABILITY BASELINE ASSESSMENT

The Baseline Assessment provides an inventory and review of Albuquerque International Sunport's (ABQ or Sunport) current sustainability performance as determined by its related activities, policies, and procedures. This evaluation is an important first step in the development of the Sunport's long-term sustainability strategy that will support the economic vitality of the Sunport, ensure the efficient use of limited resources, reduce negative environmental impacts, and enhance the social well-being of the community. It will also enable the Sunport to measure, through existing and new metrics, its overall sustainability performance over time as well as the impact of individual initiatives.

SUSTAINABILITY AND THE SUNPORT

How an organization is structured and managed can have the most substantial impact on the success of sustainability integration. If there is no buy-in to sustainability practices at the highest levels of management, it is likely that the organization will not achieve its greatest potential. In November 2008, Jacobs Consultancy prepared a Sustainability Management System (SMS) intended to develop a management system for the City of Albuquerque Aviation Department that incorporates sustainability into daily business decisions. The stated goal of the Aviation Department in this document is to operate the "greenest" airport system (including both the Sunport and Double Eagle II Airport) in the country. It should be noted that this SMS document was prepared approximately two years prior to the

FAA's issuance of a memorandum that announced the Airport Sustainable Master Plan Pilot Program[1]. This indicates the progressive attitude of the Department and how it has been at the forefront of the airport sustainability movement.

An important first step to implementing a sustainability strategy into an organization is to adopt a sustainability mission or policy statement. Policy statements provide meaning to an organization's existence and summarize the aims and values of the organization. The Department has adopted the following sustainability policy statement:

> "The City of Albuquerque Aviation Department will be increasingly sustainable with regard to natural resource conservation, economic strength and community contributions.
>
> We will:
> - Establish and meet sustainability targets.
> - Continually improve our sustainability approach and results.
> - Make informed business decisions that incorporate sustainability factors."

Priorities have been established by the Department to increase its emphasis on sustainability efforts to protect the natural environment and resources of the City of Albuquerque. The sustainability priorities include:

- "The Department will achieve its transportation and economic mission in a manner that demonstrates responsible stewardship with a focus on water conservation, minimizing greenhouse gas emissions and innovation.
- As it implements proactive sustainable management and practices that continually improve the environment, the Department will contribute to the economic, social and environmental well-being of the City of Albuquerque and the region.
- The Department will fully comply with all applicable environmental laws, regulations and other requirements and will exceed legal and regulatory standards where appropriate.
- The Department will influence tenants to encourage active participation in the sustainability efforts."

The Department actively approaches environmental stewardship and sustainability using the following principles:

- "Establish Environmental Goals and Targets: using innovative technologies and best management practices, the Department will develop, monitor and regularly review specific activities and programs that improve environmental performance.
- Achieving Continual Environmental Improvement: The Department will strive to continually reduce the impacts of operations so that it preserves and protects surrounding natural resources through cost effective energy use, recycling, water conservation, waste reduction, pollution prevention activities and procurement of green materials.

[1] FAA Memorandum – *Airport Sustainability Master Plan Pilot Program*, Issued May 27, 2010.

- Using Sustainability in Business Decisions: The Department will seek to enhance the sustainability of its airports by incorporating sustainability into daily business decisions."

The SMS document does not prescribe how business decisions will address sustainability, but instead prescribes the methodology for making sure that sustainability is a factor in business decisions. The SMS document is included as **Appendix C** to this Master Plan.

TENANT SUSTAINABILITY QUESTIONNAIRE

As part of the Baseline Assessment, a questionnaire was distributed to Sunport tenants (e.g., airline/airline-support operators, concessionaires, fixed base operators, specialty operators, air cargo operators, and aircraft owners). The purpose of the questionnaire is to supplement the sustainability baseline effort with tenants' sustainability efforts and priorities for future sustainability development at the Sunport. The questionnaire also serves to engage the tenants in the Sunport's sustainability programs and raise awareness of the Sustainable Master Plan project.

The questionnaire was emailed to approximately 50 tenants and 12 responses were submitted for a response rate of 24 percent. The following bullets summarize the responses received:

- Respondent organizations/businesses employ a combined 557 full-time employees at the Sunport.

- Respondents were asked to rate their facilities in terms of condition. Of the 13 facilities rated, only one (an aircraft storage hangar) was rated as being in fair condition (moderate updates needed). All other facilities were rated as being in good (minor maintenance needed) or excellent (recently updated/no maintenance necessary) condition. No facilities were rated in poor (major renovation/updated needed) condition.

- Five respondents indicated that their organization/business had a formal sustainability program/policy.

- Existing sustainability initiatives that have been implemented by the respondent organizations/businesses include:
    - Paper recycling – 7 respondents
    - Plastics recycling – 6 respondents
    - Glass recycling – 1 respondent
    - Metals recycling – 3 respondents
    - Electronics recycling – 5 respondents
    - High-efficiency water fixtures – 2 respondents
    - High-efficiency (LED) lighting – 2 respondents
    - Local procurement policies – 3 respondents
    - Employee training programs – 5 respondents

  - On-site renewable energy generation (PV solar panels or other) – 1 respondent
  - Low-emission (hybrid/electric/CNG) fleet vehicle(s) – 1 respondent

- Most of the respondents indicated that their sustainability initiatives have been implemented within the last five years. Four respondents indicated their organization/business has conducted sustainability initiatives for more than six years. Two respondents do not currently participate in any sustainability initiatives.

- When asked how their organization/business monitors its sustainability practices, most indicated they have no monitoring program in place. Three respondents indicated they monitor their programs by reviewing monthly utility/waste removal invoices.

- Respondents indicated future plans for their organization/business, including implementing recycling programs, high-efficiency water fixtures, local procurement policies, on-site renewable energy generation, and reducing material use.

- Respondents were asked to rank sustainability initiatives based upon their priority for implementation at the Sunport. The results are as follows (1 = highest priority 7 = lowest priority):
  - 1 – Waste Management & Recycling Initiatives
  - 2 – Energy Efficiency/On-site Generation Initiatives
  - 3 – Water Conservation & Water Quality Initiatives
  - 4 – Air Quality & Greenhouse Gas Emissions Reduction Initiatives
  - 5 – Natural Resource Management Initiatives
  - 6 – Surface Transportation Initiatives
  - 7 – Social and Community Oriented Initiatives

BASELINE ASSESSMENT CONTENTS

At the onset of the project, it was determined that the sustainability baseline assessment would focus on six categories. In accordance with FAA guidelines, three categories were predetermined during the project scoping process to involve detailed studies including:

- Waste management and recycling
- Energy
- Air quality and greenhouse gas (GHG) emissions

Three additional categories were selected based upon discussions with Aviation Department staff. The selected additional categories include:

- Water conservation and water quality
- Surface transportation
- Natural resource management

This baseline assessment will present current emission/consumption data and relevant information related to each category as well as an initial list of potential improvement opportunities. Listed opportunities in this chapter should be considered a starting point for discussions and are not final. A final list of recommendations and initiatives will be identified and evaluated later in the Sustainable Master Plan process after thorough consideration by the Aviation Department, Technical and Advisory Committees, tenants, and the public.

WASTE MANAGEMENT AND RECYCLING

New Mexicans spent $51 million dollars to bury $168 million worth of recycled materials.

BACKGROUND

According to a report funded by the U.S. Department of Energy and released by the New Mexico Recycling Coalition (NMRC) in 2010, New Mexicans buried $168 million worth of valuable material in landfills instead of recycling it. The average cost to dispose of solid waste was found to be $31.29 per ton. At this rate, it is estimated that New Mexicans spent $51 million dollars to bury that $168 million worth of recycled materials. These statistics highlight the potential benefits recycling offers in reducing disposal costs and potential revenue.

The City of Albuquerque offers numerous programs to promote City-wide recycling and beautification projects and maintains trash and recycling drop-off sites throughout the City. Other recycling benefits promoted by the City include preserving natural resources and protecting the air, soil, and groundwater. As an example, the production of an aluminum can from recycled metal uses 95 percent less energy than a can produced from raw aluminum.

Section 133 of the *FAA Modernization and Reform Act* established that airport master plans must address certain issues related to solid waste recycling at airports. The issues to be addressed include:

a) The feasibility of solid waste recycling at the airport;
b) Minimizing the generation of solid waste at the airport;
c) Operation and maintenance requirements;
d) A review of waste management contracts; and
e) The potential for cost savings or the generation of revenue.

The Environmental Protection Agency (EPA) has developed a multi-step program for establishing a successful airport recycling program:

- Obtain commitment from upper management;
- Organize a green team/recycling coordinator;
- Identify types and sources of waste;
- Asses current waste collection contracts;
- Develop a plan;
- Educate staff and customers;

- Monitor and refine the plan;
- Measure performance;
- Promote successes; and
- Expand the program.

Management support is crucial to developing and sustaining the recycling program since management must authorize team members' time commitment, responsibilities, and financial investment. The Aviation Department has adopted and published a Recycling Program manual, updated in May 2009, to assist and educate Sunport employees in ways to help reduce waste and increase the amount of recyclable waste diverted from landfills. The Recycling Program includes a description of the material that can be recycled (paper, plastics, and aluminum) as well as a discussion with energy and cost savings on why diverting recyclable material from the landfill is a wise choice.

As part of this Sustainable Master Plan, a waste assessment for the Sunport will be conducted to provide qualitative and quantitative data and a baseline to measure progress in future years. Specifically, it will help answer the following questions:

- What areas on the airport generate waste;
- What recyclable material is generated;
- What type of waste is generated in each area;
- How much waste is generated; and
- What are the costs for trash and recycling containers, hauling, and disposal.

The waste assessment is scheduled for late summer 2015, and its findings will be incorporated into this Sustainable Master Plan.

SOLID WASTE

The Aviation Department implemented a recycling program at the Sunport in 2007. The Aviation Department collections are deposited in waste bins located north of the A Concourse. Pick up of the Aviation Department recycle collection bins (two bins) occurs three times per week. A special pick up, typically once per quarter, collects cardboard material from Southwest Airlines (SWA). SWA also has a recycling program that collects recyclable material from aircraft at the gates and deposits it in waste bins near the SWA provisioning building. The SWA recycle bins are picked up separately from the Aviation Department bins two times per month.

The recycle collection bins located at the SWA Provisioning are provided by the Aviation Department.

The Sunport generates approximately 2.9 tons of mixed solid waste per day including trash and recyclable materials.

The other signatory airlines and terminal tenants at the Sunport do not have recycling programs operating with separate collection bins at the Sunport. They are allowed to use the Aviation Department's recycle collection bins located north of the A Concourse. There is no documentation or separate data collection for recyclables collected by the other airlines or tenants. The Aviation Department has reached out to each of the airlines advising them that the City's bins are available for their use; however, the only use appears to be for the removal of solid waste from aircraft. Several airlines have inquired whether the Aviation Department would provide janitorial trash service with recyclable material sorting in the airlines' office and operations areas. Due to security concerns, probable cost, and labor expenses that would occur, those requests have not been granted.

The Sunport generates approximately 2.9 tons of mixed solid waste per day including trash and recyclable materials, not including green waste. In 2007, at the onset of the program, data collected by the City of Albuquerque and SWA indicated that approximately 5.32 tons of paper, plastics, and aluminum were collected and recycled per month. The most recent data indicates that the Sunport collected an average of approximately 5.7 tons per month of recyclable waste in the program (for the period January through May 2015, as reported by the City of Albuquerque Solid Waste Department from scaled weights). Data between November 2011 and January 2015 did not include the recyclable waste picked up from the Aviation Department's bin. At that time, the City was constructing a new recycling sort facility and the data was not available. During that period, the SWA Provisioning bins were collected by private contractors, either Waste Management, Inc or MCT Industries, and scaled weights provided by the contractors. In January 2015, the City of Albuquerque has started providing and hauling the bins located at the SWA Provisioning Bldg. and is providing the weight data to the Aviation Department from weigh scales. A summary of solid waste and recycled waste data from 2007 to 2015 (January through May) is provided in **Table 3A**.

The Aviation Department encourages the traveling public to participate in the recycling program by providing 16 stainless steel recycling containers co-located with trash receptacles within the terminal including at the bag claims, along the ticketing level and along the concourse level near the gates. Recycle receptacles have also been placed in all Aviation Department employee break rooms, near copying machines and at various points in the administrative offices to encourage the employees to participate in the program. The custodial staff has been trained to separate the refuse from the recycle receptacles from the trash receptacles and to place in the appropriate bins for pick up.

TABLE 3A
Solid Waste and Recycling Data (Aviation Department and SWA Bins)
Albuquerque International Sunport

	2007	2008	2009	2010	2011	2012[a]	2013[a]	2014[a]	2015[b]
Total Mixed Solid Waste (tons)	1,730	1,572	1,447	1,385	1,376	1,268	1,110	1,047	28.85
Total Recycled Waste/year (tons)	47.90	59.01	57.12	49.87	49.35	26.8	22.36	17.45	N/A
Monthly Average Recycled Waste (tons)	5.32	4.92	4.76	4.16	4.11	2.23	1.86	1.45	5.77
Average Recycled Waste per Enplaned Passenger (lbs./passenger/year	0.029	0.036	0.039	0.034	0.034	0.020	0.018	0.014	0.086

[a] Data includes measured tonnage only for SWA Provisioning bins obtained from Waste Management or MCT Industries. City of Albuquerque collections were not measured from December 2011 to December 2014. City of Albuquerque collections began again in January 2015 and include the SWA Provisioning bins.
[b] Data available for January through May 2015.
N/A – Not Available
Source: City of Albuquerque Aviation Department

GREEN WASTE

The Sunport has large landscaped areas, and green waste is generated throughout the year including grass clippings, tree trimmings and dropped leaves. Data was collected by the City of Albuquerque Parks and Recreation Department from 2008 through 2013 for green waste collected from the Sunport landscape maintenance operation. The data indicates that approximately 260 cubic yards per year of green waste was delivered to the Parks and Recreation Department for composting. The Aviation Department hired a private firm for the Sunport campus landscape maintenance operation in 2014 replacing the City Parks and Recreation crews, and subsequently, data has not been collected on the green waste produced at the Sunport since that change.

Beginning in the spring of 2015, the Aviation Department started an on-site composting operation for green waste collected from the Sunport landscaping. The volume of the green waste delivered to the composting operation has not been measured or recorded to date; however, it is anticipated that the first compost produced at the Aviation Department's on-site facility will be ready for use on the Sunport landscape in the fall of 2015. The Aviation Department anticipates that all of the composted material produced by the green waste composting operation will be used on the Sunport's landscaping.

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

The Aviation Department has opportunities to enhance recycling at the Sunport including, but not necessarily limited to, the following:

- Expand recycling marketing and promotion efforts within the terminal.
- Engage tenants and airlines to ensure their involvement in the recycling program.
- Incorporate recycling initiatives into tenant contracts.
- Collaborate with the City's Solid Waste Management Department on expanding the Sunport's recycling program.
- Explore composting opportunities for food waste from on-site restaurants.
- Conduct regular (annual/semi-annual) waste assessments to monitor solid waste and recycling rates.
- Periodic P.A. announcements about recycling and other programs.
- Learn about recycling and other programs at green kiosks throughout terminal.

ENERGY

BACKGROUND

The State of New Mexico has been a leader in the advancement of solar energy projects. According to a study[2] prepared for the Environment New Mexico Research & Policy Center[3], the state has the potential to produce more than 1,000 times as much electricity from solar photovoltaic (PV) and concentrating solar power (CSP) installations as the state consumes each year.

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The City of Albuquerque has made major strides towards clean/renewable energy. Numerous City programs are available to promote and support efforts to make energy efficient upgrades and to install renewable energy generating systems. The Aviation Department has contributed towards these efforts by installing on-site PV and CSP systems. All airfield lighting at the Sunport has been upgraded to more efficient light-emitting diode (LED) bulbs that are expected to provide a 70 percent energy reduction from conventional technologies. Additional energy conservation efforts undertaken by the Aviation Department include replacing lights in the airfield maintenance facility to low-energy T8 lamps, replacement of exit signs with LED fixtures, and installing motion detecting timer switches in break rooms, the men's restroom and the Airfield Manager's office.

[2] *Star Power - The Growing Role of Solar Energy In New Mexico* - http://www.environmentnewmexico.org/sites/environment/files/reports/NM_Star_Power.pdf

[3] For more information: http://www.environmentnewmexicocenter.org/

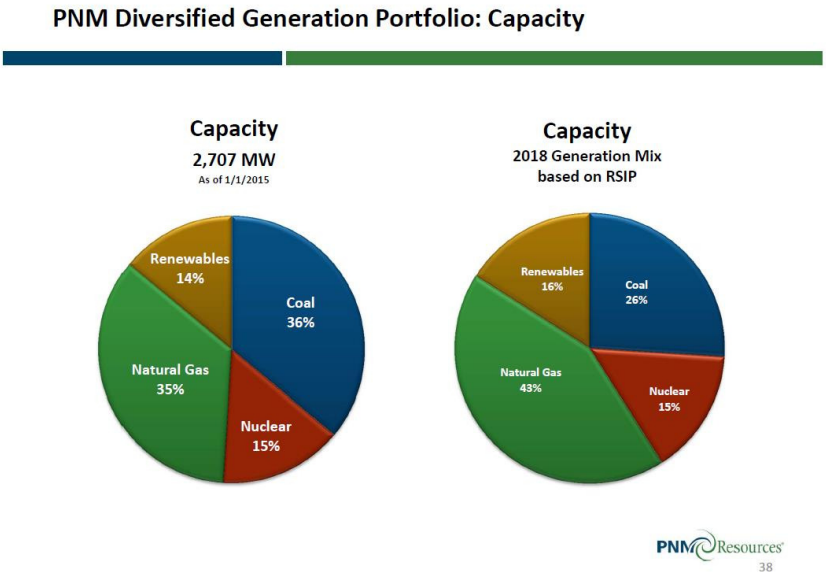
Even with these energy conservation efforts, the majority of the energy consumed at the Sunport (electric and gas utilities) is purchased from energy service providers. This section provides a summary of the electric, natural gas, renewable energy generation currently on the site.

ELECTRIC UTILITY DATA

Electricity is provided to the Sunport by Public Service Company of New Mexico (PNM), which relies on a diverse portfolio of energy sources as outlined in the chart below.

Name	Location	Year Fully Completed	Fuel	Capacity (MW)	PNM's Share of Capacity	Operator
San Juan Generating Station	Waterflow, NM	1982	Coal	1,646	783	PNM
Four Corner Power Plant	Navajo Nation	1970	Coal	1,478	200	Arizona Public Service Co.
Palo Verde Nuclear Generating Station	Near Phoenix, AZ	1986	Nuclear	2,628	268	Arizona Public Service Co.
Reeves Generating Station	Albuquerque, NM	1962	Natural Gas	154	154	PNM
Afton Generating Station	Near Las Cruces, NM	2007	Natural Gas	230	230	PNM
Luna Energy Facility	Near Deming, NM	2006	Natural Gas	570	185	PNM
Lordsburg Generating Station	Lordsburg, NM	2007	Natural Gas	80	80	PNM
New Mexico Wind Energy Center	Near House, NM	2003	Wind	200	200	Third-party owner/operator
Valencia Energy Facility	Near Belen, NM	2008	Natural Gas	145	145	Third-party owner/operator
Delta-Person Generating Station	Albuquerque, NM	2001	Natural Gas	132	132	Third-party owner/operator
Demand-response programs (PNM Power Saver/PNM Peak Saver	n/a	n/a	n/a	57	57	
PNM Solar Energy Facilities	Various locations throughout NM	2011	Solar Photovoltaic	22.5	22.5	PNM
Customer Solar Program (Distributed Solar PV Facilities)	PNM Customer sites (most often roof-top panel arrays)	n/a	Solar PV	22	22	Various (customer-owned generation)

PNM's energy capacity, as of January 1, 2015, consists primarily of coal and natural gas, which represents 71 percent of their capacity. Remaining capacity is made up of nuclear (15 percent) and renewables (14 percent). By 2018, PNM projects their renewable capacity to grow by two percent and natural gas to grow by eight percent. Nuclear capacity is projected to remain static, and coal capacity is projected to decline by ten percent.



In terms of energy production as of the end of 2014, PNM produces 54 percent of its energy from coal, 31 percent from nuclear, nine percent from natural gas, and only five percent from renewables. By 2018, PNM projects renewable energy production to increase by seven percent, natural gas to grow by two percent, nuclear to grow by two percent, and coal to decrease by eight percent.

According to Aviation Department records, electric meters are located at 18 different locations at the Sunport. **Table 3B** provides total electrical kilowatt-hours (kWh) consumption for the period 2012 through 2014. Records show annual electric consumption on these meters has decreased from 17.1 million kWh in 2012 to 14.9 million kWh in 2014, a 13.4 percent reduction. The decrease is likely due, in part, to the reduction in the number of flights due to the expiration of the Wright Amendment as well as implementation of energy efficiency measures in Sunport facilities.

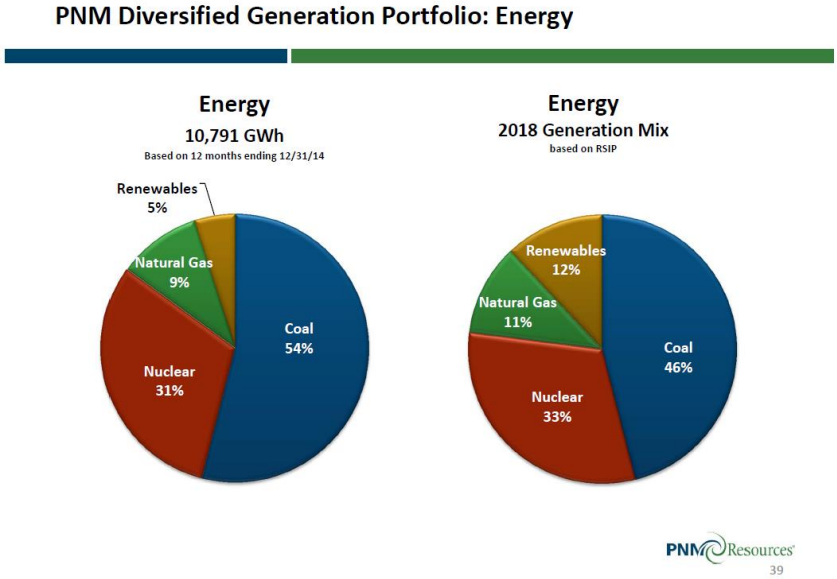


TABLE 3B
Electric Usage (kWh)
Albuquerque International Sunport

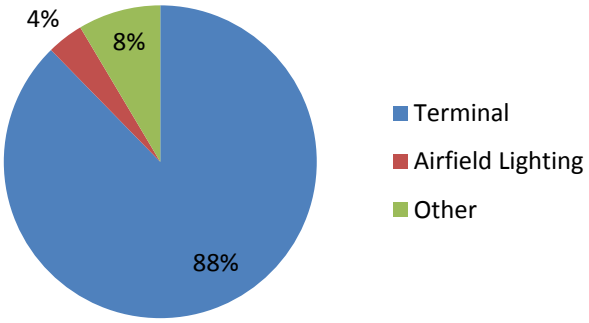
Meter Address	2012	2013	2014	2 Year % Change
Terminal Meters				
2200 Sunport Blvd SE	2,471,173	2,277,298	2,144,338	-13.2%
2200 Sunport Power Center 1 SE	88,017	89,824	86,251	-2.0%
2200 Sunport Power Center 2 SE	4,072,228	3,865,372	3,238,094	-20.5%
2200 Sunport Power Center 3 SE	1,991,800	2,093,520	1,975,400	-0.8%
2200 Sunport Power Center 4 SE	2,407,400	2,337,600	2,168,400	-9.9%
2200 Sunport Power Center 5 SE	3,081,964	2,923,928	2,756,748	-10.6%
2200 Sunport Power Center 6 SE	998,000	907,000	656,000	-34.3%
Terminal Subtotal	**15,110,582**	**14,494,542**	**13,025,231**	**-13.8%**
Non-Terminal Meters				
Sunport Airfield Lighting	588,216	583,436	559,478	-4.9%
1820 Randolph Rd SE – Aviation Dept.	102,160	-	-	-100.0%
2220 Kirtland Dr SE – Freight Bldg.	216,940	234,293	224,663	3.6%
2400 Sunport SE – Parking Admin.	148,501	155,867	145,205	-2.2%
2440 Clark Carr Loop SE – Skyrunners Hangar	13,611	10,274	6,267	-54.0%
2460 Clark Carr Loop SE – Six T-Hangar	1,789	1,330	1,309	-26.8%
2500 George SE – Aviation Dept.	23,008	28,258	26,105	13.5%
2615 Clark Carr Loop SE – Aviation Dept.	31,440	31,080	30,240	-3.8%
2700 Yale Blvd SE – Aviation Dept.	180	180	180	0.0%
2801 Girard Blvd SE – Aviation Dept.	18,331	16,430	27,824	51.8%
2920 Yale Blvd SE – Aviation Dept.	312,960	262,480	252,320	-19.4%
3113 Yale Blvd SE – SW Airlines	50,365	43,839	54,221	7.7%
3302 Yale SE – Aviation Dept.	3,616	3,818	3,480	-3.8%
3601 Access Road C SE – Aviation Dept.	161,119	140,229	139,448	-13.5%
3621 Access Road C SE – Aviation Dept.	31,676	28,307	29,068	-8.2%
3720 Access Road D SE – Aviation Dept.	39,980	35,550	32,863	-17.8%
3720 Spirit Dr SE – Aviation Dept.	290,917	306,075	297,169	2.1%
Non-Terminal Meters Subtotal	**2,034,809**	**1,881,446**	**1,829,840**	**-10.1%**
Total Sunport Electricity Usage	**17,145,391**	**16,375,988**	**14,855,071**	**-13.5%**

Source: Aviation Department

The Sunport passenger terminal building is by far the largest consumer of electricity, accounting for 88 percent of consumption.

The pie chart on the following page summarizes electrical consumption by facility. The Sunport passenger terminal building is by far the largest consumer of electricity, accounting for 88 percent of consumption. Other facilities on the Sunport (all other meters excluding the terminal and airfield lighting) accounted for eight percent of consumption, and airfield lighting accounted for the remaining four percent of consumption.

Electrical Consumption (kWh)
by Use
Albuquerque International Sunport



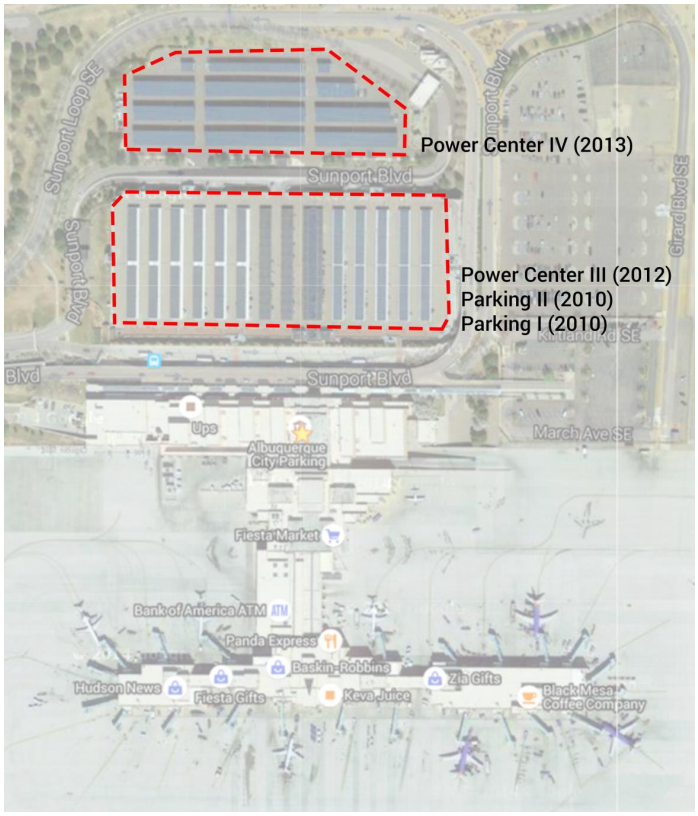
NATURAL GAS

In total, there are 20 individual gas meters on the Sunport managed by the Aviation Department. **Table 3C** provides total natural gas consumption in therms (1 therm is equal to 100,000 British thermal units [Btus] or 100 cubic feet of natural gas) from 2012 through 2014. Most of the meter identifications are somewhat vague and lack location information. This data will be further explored to provide more detailed descriptions of the meters.

TABLE 3C
Natural Gas Usage (therms)
Albuquerque International Sunport

Meter ID	2012	2013	2014	2 Year % Change
Terminal Building	256,500	286,790	235,040	-8.4%
Rental Car Center	19,980	27,070	20,750	3.9%
Aviation Airport 1	17,020	16,450	17,700	4.0%
Aviation	14,010	16,170	13,690	-2.3%
Aviation Airport 2	5,490	3,920	3,920	-28.6%
Aviation Airport 3	3,000	3,460	3,000	0.0%
AFSS Building Aviation	890	1,730	2,420	171.9%
Aviation Airport 5	1,660	2,180	2,180	31.3%
Misc. Gas 18	1,700	1,700	1,460	-14.1%
Aviation Freight Bldg.	1,310	1,540	1,450	10.7%
Aviation Airport 4	590	800	1,310	122.0%
Aviation Airport 6	-	90	1,310	--
Misc. Gas 15	1,090	1,010	1,100	0.9%
ABQ Aviation	840	520	940	11.9%
Aviation Flame of Hope	880	880	920	4.5%
Aviation 1	1,860	200	470	-74.7%
Aviation Admin	210	220	180	-14.3%
Aviation 2	-	10	10	--
Aviation Parking	30	-	-	-100.0%
Total Natural Gas Usage	**327,060**	**364,740**	**307,850**	**-5.9%**

Source: Aviation Department



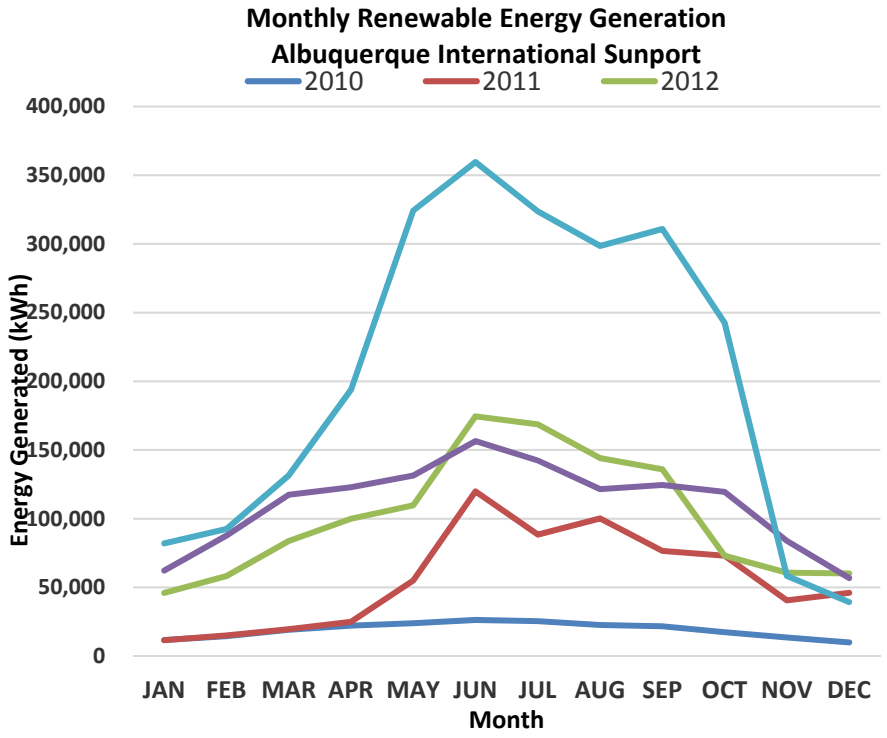
The data indicates that the terminal building is by far the largest consumer of natural gas, accounting for approximately 76 percent of total Sunport usage. The next largest user is the rental car center at seven percent of total usage. Since 2012, the terminal has reduced its natural gas consumption by 8.4 percent, again likely due to efficiency upgrades. Overall, total Sunport natural gas consumption has declined by 5.9 percent since 2012.

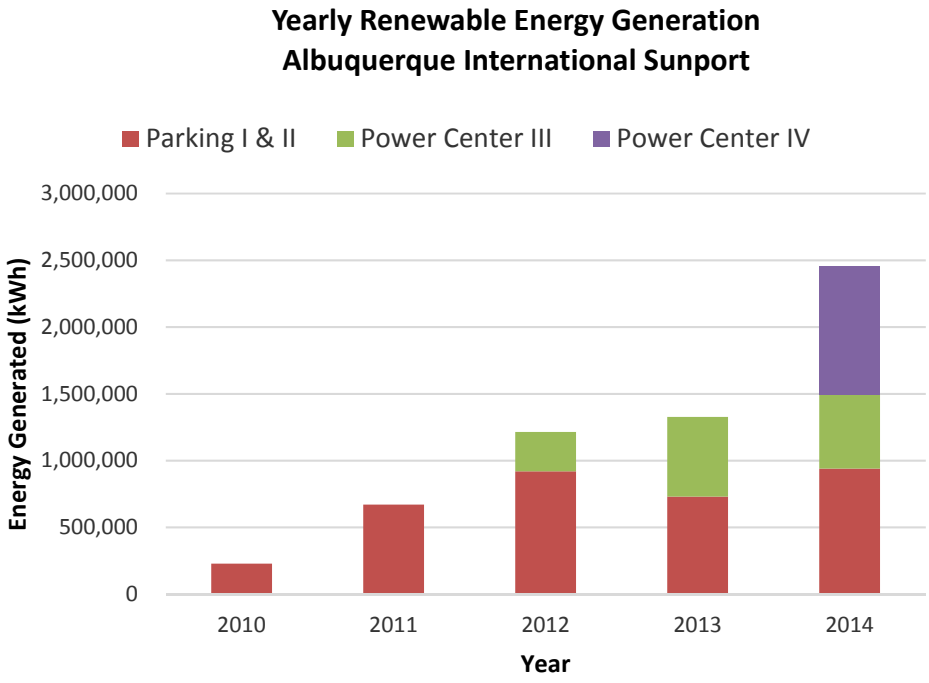
RENEWABLE ENERGY

The Sunport's existing PV systems, identified in the adjacent map, were installed over the period from 2010 to 2013. The original PV system (Parking I & Parking II) had a capacity of 146 kilowatts (kW) and consisted of 480 panels covering the eight western-most canopies of the Sunport's terminal parking structure. The PV expansion in 2012 (Power Center III), funded by the FAA's Voluntary Airport Low Emissions (VALE) grant, added 440 kW of capacity with 2,016 new panels. In 2013, another VALE grant allowed the Aviation Department to add 411 kW of capacity to the parking structure PV system (Power Center IV). The electricity generated by this system powers the parking structure with excess power used in the terminal building. In the 2014 calendar year, the PV systems produced approximately 2.5 million kWh of electricity. This represents approximately 16 percent of the overall electric usage for Aviation Department operated facilities.

In 2008, the Landside Operations Division (parking) acquired a Miles EV to assist staff with their everyday vehicle needs. On a full charge, the EV can be driven up to eight hours at a maximum speed of 25 mph. In 2011, the Sunport also installed a 24-panel 20kW ground-mounted concentrator photovoltaic (CPV) tracking system to provide electricity primarily to recharge the EV, making it a zero emissions vehicle. When the CPV system generates excess electricity, it is used to reduce energy costs and consumption for the parking office.

The following graphs depict the output from the solar systems from 2010 through 2014 on a monthly and yearly basis. The total output is as high as 350,000 kWh in the summer months of fiscal year 2014. Over this period (2010 – 2014), the renewable energy systems have generated almost 5.9 million kWhs of electricity and the Aviation Department has saved approximately $573,585 in energy expenses.





In addition to the solar PV system on the parking structure, a tracking solar hot water system is installed at the rental car center. This system was designed to produce hot water, which served an absorption chiller to provide cooling to the facility. Unfortunately, due to maintenance and reliability issues, this system is no longer operating. The next phase of the study will investigate the potential of converting this system to either a direct heating system (winter) or adding PV capacity and converting it to a tracking solar electric photovoltaic system.

The Aviation Department's maintenance technicians have received training from the Photovoltaic Academy offered by Central New Mexico Community College (CNM) Workforce Training Center. This training allows the technicians to obtain a North American Board of Certified Energy Practitioners (NABCEP) license.

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

The baseline utility assessment indicates where there may be opportunities for improvement in all the buildings. The terminal building reflects the majority of the energy consumption in terms of both electric and natural gas and, therefore, the greatest potential for energy savings. To this end, a detailed energy model has been developed for the facility. This model is calibrated and used as the basis for calculating energy savings opportunities in the next phase of the study. The results of the energy model are presented in Volume 3, Section 3 of this master plan.

AIR QUALITY AND GREENHOUSE GAS (GHG) EMISSIONS

BACKGROUND

GHGs include those gases, generated through human activities and natural processes, which absorb infrared radiation in the earth's atmosphere. Accumulation of GHGs increases the amount of energy held in the atmosphere, which has been linked to changes in the earth's climate. Consistent with Executive Order 13514 *Federal Leadership in Environmental, Energy, and Economic Performance*, GHGs for the purposes of this discussion include:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Sulfur hexafluoride (SF_6);
- Hydrofluorocarbons (HFC); and
- Perfluorocarbons (PFC).

Regarding airport activities, the primary source of GHGs is from the combustion of fuels, which primarily generates CO_2. Relatively small amounts of CH_4 and N_2O are also generated during combustion. These emissions result from the operation of aircraft, vehicles used for transporting passengers to and from airports, ground support equipment, airport maintenance and operations vehicles, and through use of utilities such as natural gas and electricity. Fluorinated compounds (SF_6, HFC, PFC) are typically generated through industrial activities and are considered less significant within the realm of aviation.

On both the global and national scale, the aviation sector is a relatively small contributor of GHGs. The International Civil Aviation Organization (ICAO) estimates that aviation accounts for two percent of total global CO_2 emissions.[4] In comparison, within the United States, the General Accounting Office reports that, based on available U.S. Environmental Protection Agency (EPA) data, domestic aviation contributes approximately three percent of total carbon dioxide emissions, and the remainder of the transportation sector contributes approximately 20 percent of carbon dioxide emissions.

As stated in the FAA's Interim Guidance for *Considering Greenhouse Gases and Climate Under the National Environmental Policy Act (NEPA)*, FAA seeks to clarify the role that commercial aviation plays in GHG emissions and climate by participating in multiple research initiatives. In conjunction with other participating federal agencies (e.g., NASA, NOAA, EPA, and DOE), the FAA has worked with the U.S. Global Change Research Program to develop the Aviation Climate Change Research Initiative (ACCRI) to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for Air Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. The ICAO is examining similar research topics at the international level.

Commercial service airports, such as the Sunport, connect to the local and national transportation systems and have many stakeholders (e.g., passengers, users, tenants, and staff) to consider when evaluating GHG emissions. To maintain a consistent evaluation of GHG emissions, the World Resources Institute and the EPA recommend consideration of the organizational and operational boundaries to establish the context for GHG inventories. The organizational structure is generally determined by ownership and, by extension, any associated legal agreements. For the purposes of this baseline report, the organizational boundary includes the City of Albuquerque Department of Aviation and any tenants or leaseholders that have entered into a legal agreement with the Department of Aviation.

As outlined in the Airport Cooperative Research Program's *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories (Guidebook)*, emissions associated with operations are designated within three categories to establish the operational boundaries for the inventory. The three categories include direct emissions (Scope 1), indirect emissions (Scope 2), and indirect and optional emissions (Scope 3). Each of the Scopes is further defined in the *Guidebook* as follows:

- Scope 1: Direct emissions are from sources that are owned and controlled by the reporting entity (e.g., on-airport emissions from combustion in owned and controlled boilers, furnaces, vehicles, etc.). For an airport, the Scope 1 emissions would be those associated with fuel-powered vehicles owned and operated by the Aviation Department, as well as stationary sources owned and operated by that entity. For instance, the Aviation Department owns maintenance equipment and ground vehicles that burn fuel to service the Sunport, as well as the terminal heating system or generators that may burn heating oil.

[4] International Civil Aviation Organization Environmental Report 2013, http://cfapp.icao.int/Environmental-Report-2013/files/assets/common/downloads/ICAO_2013_Environmental_Report.pdf

- Scope 2: Indirect emissions are those from the generation of purchased electricity consumed by the entity. This would represent the electricity acquired to power airport facilities. Tenant-purchased electricity would not be Scope 2, but Scope 3.

- Scope 3: Indirect and optional emissions are a consequence of the activities of the entity, but occur at sources owned and controlled by another party. Scope 3 would be the largest quantity of emissions at an airport, because they would include aircraft-related emissions, emissions from all tenant-related activities (including aircraft operations and the associated ground support activities), as well as the public's ground travel to and from the Sunport.

CURRENT PERFORMANCE/BASELINE INFORMATION

The purpose of a GHG emissions inventory is to quantify GHG emissions emitted into the atmosphere from the sources within the organizational and operational boundaries described above. This information can be used to achieve several tasks:

- Identify the sources and activities within the Aviation Department's jurisdiction responsible for GHG emissions;
- Establish a basis for developing a GHG reduction plan; and
- Establish a basis to track GHG emissions.

Methodology

The GHG emissions inventory uses the Airport Carbon and Emissions Reporting Tool Version 3.0 (ACERT) developed by the Airports Council International (ACI). ACERT inputs include the following information and relevant emissions factors to quantify GHGs:

- Total aircraft, passenger, and cargo operations;
- Fuel use by airport and tenant vehicles;
- Electricity purchased by the airport operator and tenants;
- Aircraft taxi and APU usage times and engine run-ups;
- Glycol (deicing fluid) use; and
- Landside traffic estimates of passenger and staff ground access.

Based on the inputs above, ACERT outputs GHG emissions totals categorized by the previously discussed GHG protocol Scopes (direct, indirect, and indirect and optional). For the purposes of this analysis, the most recent information available was used, as discussed below. Information was collected through interviews with Aviation Department staff and tenants.

TABLE 3D
Baseline Operational Fleet Mix
Albuquerque International Sunport

Aircraft	Number of Operations
Airbus 300	1,518
Airbus 310	18
Airbus 319	132
Airbus 320	1,076
Airbus 321	18
Beech 1900D	113
Beech Super King 200B	746
Boeing 717	2
Boeing 737 (300-500)	27,258
Boeing 737 (600-900)	828
Boeing 757	1,094
Boeing 767-300	1,492
C-130 Hercules	6,211
Cessna 208B	10,447
Cessna 402	2,646
Cessna 525	2,269
Cessna 560XL	421
Cessna 680	200
Cessna 750	163
CL604	5,965
CRJ200	3,680
CRJ700	3,586
CRJ900	4,924
Dash 8-400	1,688
DHC-6 Twin Otter	278
Eclipse 500	1,837
EMB 135/145	2,926
EMB 170	1,096
Falcon 50	4
Fokker F100	141
Gulfstream V	135
Learjet 45	3,877
Learjet 60	169
MD11	204
MD83 (80-87)	4,952
MD95	1,254
Piper PA31 Cheyenne	3,052
Subtotal	**69,883**
Generic Aircraft	
1-eng piston aircraft	5,281
1-engine helicopter	26
2 turboprop aircraft	10,086
2-eng piston aircraft	9,522
2-engine helicopter	791
No Suitable Substitute	7,943
Subtotal	**52,243**

Source: Consolidated flight schedule; FAA Air Traffic Activity System (Calendar Year 2014); Coffman Associates analysis

Aircraft Operations

Table 3D summarizes the annualized operational fleet mix for the Sunport. These totals are based on the consolidated flight schedule for commercial operations and a review of FAA's Air Traffic Activity System (ATADS) for general aviation operations. ACERT includes emissions factors that comprise all phases of operation (run up, taxi, takeoff and landing) for 136 fixed wing and helicopter aircraft. Of the available aircraft, 127 are current aircraft in the U.S. fleet such as the Boeing 737, Learjet 45, and Cessna 182. For cases when an aircraft is not available in ACERT, ACI recommends selecting a comparable aircraft. Additionally, nine generic aircraft (examples include one engine helicopter or two-engine piston) are available to the user. The number of operations (one takeoff or one landing) is multiplied by the corresponding emission factor to calculate the GHG emissions associated with aircraft operations. A limitation of the ACERT model is the absence of emissions factors for military aircraft which operate at the Sunport such as C-17 Globemaster, F-15 Eagle, and F-18 Hornet. As noted in **Table 3D**, 7,943 of the 130,069 operations were performed with aircraft for which there is no suitable substitute within ACERT. Based on ACERT guidance, the total operations input should be within 10 percent of the stated operations total. The modeling assumptions presented in **Table 3D** are compliant with this guidance and are considered to adequately represent aircraft emissions for the purposes of this inventory.

Non-Aviation Fuel Use

Non-aviation fuel use includes fuels, such as gasoline and diesel, available for vehicles that are primarily used on the Sunport, such as those used for airport maintenance and airline service. This fuel is not available for commercial sale and does not include fuel purchased for vehicle trips to or from the Sunport. **Table 3E** summarizes the non-aviation fuel use assumptions.

TABLE 3E
Non-Aviation Fuel Source
Albuquerque International Sunport

	Aviation Department	Tenant	Total
Gasoline (liters)	22,113	149,379	171,492
Diesel (liters)	62,741	624,390	687,131
Natural Gas (GJ)	567,481	149,422	716,903

Source: Aviation Department records

Electricity

Electricity purchased by the Aviation Department for airport use includes the administrative and common portions of the terminal, airside and landside lighting, maintenance areas, and support facilities. Total electricity consumption in 2014 totaled 14,855,071 kWhs. Additional information pertaining to electricity purchased by tenants was not available for this analysis.

Although not included within the ACERT modeling, it should be noted that ABQ owns and operates a photovoltaic array, which was constructed with FAA grant money through the Voluntary Airport Low Emissions (VALE) Program. The panels, which were installed on the roofs of the long-term parking shade structures, generate approximately one megawatt during peak periods. Based on airport records, the system produced 2.5 million kWh during 2014.

Deicing Fluid Use

Propylene glycol, commonly referred to as glycol or deicing fluid, is a liquid that is combined with water and applied during winter months at airports to remove ice or snow from aircraft or airport pavement surfaces to enhance operational safety. ACERT includes an emissions factor for GHG emitted through the deicing process. This is calculated in accordance with the quantity of glycol dispensed at the Sunport during a year. Based on information available from the Sunport's 2013 Stormwater Pollution Prevention Plan, up to 50,000 gallons of propylene glycol is used for deicing aircraft annually.

Landside Traffic Estimates

Within ACERT, landside traffic estimates are based on the number of Sunport and tenant employees and the estimated number of deliveries per day to each tenant. Based on the Sunport's organizational chart, the number of airport employees used for this analysis is 280, which includes 272 full time employees and eight part time employees. Based on a report titled *Economic Impacts of Albuquerque Airport System on the New Mexico Economy*, a total of 2,373 workers were employed by Sunport tenants such as commercial and cargo airlines, airfield based companies, tenants, and federal and state employees. ACERT accepts input expressed as visits per tenant per day. The number of visits to each tenant was assumed to be ten per day.

Baseline GHG Emissions Inventory by Scope and Source

The greatest source of emissions results from operation of aircraft and APUs, which accounts for approximately 84 percent of overall GHG emissions.

Based on federal GHG protocols, GHG emissions are expressed as metric tons of carbon dioxide equivalent (MT CO_{2e}). As previously discussed, combustion is the primary GHG producing activity at airports, and CO_2 is the GHG emitted in the largest portion from combustion. Therefore, protocol states that the remaining combustion-related GHG be converted to MT CO_{2e}, which is accomplished within ACERT. Based on the assumptions and methodology discussed above, a baseline GHG emissions inventory for the Sunport was prepared.

Using the previously defined Scopes, **Table 3F** summarizes the distribution of direct (Scope 1), indirect (Scope 2), and indirect and optional (Scope 3) GHG emissions. As indicated in the table, Scope 3 sources account for the largest percentage of emissions, followed by Scope 2 and Scope 1. The greatest source of emissions results from operation of aircraft and APUs, which accounts for approximately 84 percent of overall GHG emissions. This is followed by Sunport electricity use at nine percent. The next largest sources are tenant airside vehicles, natural gas consumption, and tenant staff and visitor vehicles each at approximately two percent.

TABLE 3F
Greenhouse Gas Inventory Summary
Albuquerque International Sunport

Entity	Source	Scope	CO_2	CH_4	N_2O	CO_{2e}	CO_{2e} %
Aviation Department	Airside Vehicles	1	218	0.0176	0.0136	222	0.21%
Aviation Department	Buildings (gas/oil/coal)	1	1,822	0.0325	0.0032	1,823	1.72%
Subtotal	**Airport Scope 1**		**2,039**	**0.0501**	**0.0168**	**2,046**	**1.93%**
Aviation Department	Electricity purchased	2	9,775	0.0	0.0	9,775	9.22%
Subtotal	**Airport Scope 2**		**9,775**	**0.0**	**0.0**	**9,775**	**9.22%**
Aviation Department Subtotal						**11,820**	**11.15%**
Tenant	Aircraft (LTO)	3	87,001	2.9438	0.0	87,062	82.16%
Tenant	Aircraft APU	3	2,430	0.0764	0.0	2,432	2.29%
Tenant	Aircraft De-icing	3	164	0.0	0.0	164	0.16%
Tenant	Airside Vehicles	3	2,005	0.1381	0.1370	2,050	1.93%
Tenant	Staff/visitor Vehicles	3	1,856	0.3700	0.1589	1,913	1.80%
Aviation Department	Employee Vehicles	3	209	0.0425	0.0179	216	0.20%
Tenant/off-site/Staff Subtotal						**93,837**	**88.55%**
Ground Access	Cars, taxi	3	37	0.01	0.00	38	0.04%
Ground Access	Bus, shuttles	3	271	0.01	0.02	278	0.26%
Public Subtotal						**316**	**0.30%**
Subtotal	**Airport Scope 3**		**93,972**	**4**	**0**	**94,153**	**88.85%**
Total CO_{2e} emissions (tons)			**105,786**	**4**	**0**	**105,973**	**100.00%**

Source: Coffman Associates analysis
Note: Subtotals and totals may not add up due to rounding.

Federal Criteria Pollutants Emissions Inventory

In addition to GHGs, for which no federal standards for aviation-related emissions have been adopted, an emissions inventory for federal criteria pollutants has also been prepared. Federal criteria pollutants are regulated under the National Ambient Air Quality Standards (NAAQS) and include carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). An operational emissions inventory was conducted using the FAA's Emissions and Dispersion Modeling System (EDMS), Version 5.1.4.1. It calculates emissions of pollutants associated with an airport, including aircraft, ground support equipment, and automobiles. For the purposes of evaluating pollutants, the fleet mix summarized in **Table 3D** was used in EDMS. Based on these operations, the annualized emissions, expressed in tons, is summarized in **Table 3G**. It should be noted that ozone and lead emissions are not calculated by EDMS; however, volatile organic compounds (VOC) and nitrogen (NO_X) are precursors to ozone. Ground-level ozone is not emitted directly into the air, but is created by chemical reactions between oxides of NO_X and VOCs in the presence of sunlight. As a result, VOC and NO_X emissions are used to estimate ozone emissions.

TABLE 3G
2014 Emissions Inventory (Tons per Year)
Albuquerque International Sunport

Pollutant[1]	Existing Condition
CO	2,494.58
VOC	394.09
NO_X	607.33
SO_X	74.37
PM_{10}	19.98
$PM_{2.5}$	19.57

[1] EDMS does not calculate emissions for lead
Source: Coffman Associates analysis.

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

As previously discussed, airports have no authority to reduce aircraft emissions; however, other opportunities exist to reduce emissions from vehicles, airside facilities, and buildings. The opportunities listed below will be further evaluated, along with other sustainability initiatives that will be later identified as part of a subsequent task in the sustainability master planning process.

- Continue to replace incandescent and quartz airfield lighting fixtures with LED fixtures to reduce energy consumption;
- Consider installation of pre-conditioned air at each aircraft boarding gate. These systems heat or cool air, depending on the season, that is delivered directly to aircraft during boarding and deplaning. These systems can reduce fuel use, which in turn reduces emissions;
- Promote the reduction or elimination of idling by automobiles in an around the Sunport. Voluntary idling results in unnecessary carbon emissions;

- As vehicles and equipment in the Sunport and tenant fleet are retired, promote purchase of replacement units powered with alternative fuels such as compressed natural gas (CNG); and
- Create an energy audit program for tenants to identify opportunities for energy use reductions.

WATER CONSERVATION AND WATER QUALITY

BACKGROUND

Fresh water is a precious resource in high demand. Population growth coupled with changing weather patterns has forced government agencies to seek out methods to preserve and improve the efficiency of the water supply for future generations. This issue is particularly important in New Mexico, where in 1996, Governor Gary Johnson created the New Mexico Drought Task Force (DTF) by Executive Order. The purpose of the DTF is to assess drought impacts and implement strategies for managing problems that occur in New Mexico due to persistent drought conditions. For example, in the April 2015 monthly drought status report, it was reported that statewide precipitation was below normal, with a statewide average of 89 percent of normal. Severe drought was reported to cover 19 percent of the State and moderate to severe drought covered 62 percent of the State.

Severe drought was reported to cover 19 percent of the State and moderate to severe drought covered 62 percent of the State.

The Albuquerque Bernalillo County Water Utility Authority (ABCWUA) supplies water and wastewater services to the greater Albuquerque metropolitan area. The Authority has prepared a *Water Resources Management Strategy*[5], with the stated purpose of providing a safe and sustainable water supply for the metropolitan area by: (1) determining and utilizing the existing water resources owned by the Authority and (2) planning and making the best choices for future supplies and management. A part of the ongoing strategy is to shift from sole reliance on aquifer-sourced water to renewable supplies, including the San Juan-Chama Drinking Water Project. This project was completed in 2008 and transports surface water from the Colorado River basin.

In 1995, the City of Albuquerque City Council adopted a water conservation ordinance intended to reduce overall per capita water use in the city, and in particular, by large water users. This ordinance aimed to reduce per capita water usage from 250 to 175 gallons per person per day and to require development, adoption, and implementation of water conservation plans for customers using large amounts of water through a cooperative process with the City. A large water user is defined as a City water system customer that used or uses in excess of 50,000 gallons per day (gpd). The Sunport is classified as a large water user.

In response to the ordinance, the Sunport has prepared a *Water Use Report and Conservation Plan*, first prepared by the Water Utility Authority and CH2MHill in 2004 and updated by CDM Smith in September 2014. As stated in the plan, "water conservation is a critical and effective component of reducing water use to ensure a future water supply for the City of Albuquerque. The City of Albuquerque

[5] More information: http://www.abcwua.org/uploads/files/Your%20Drinking%20Water/WRMS_Update_101207.pdf

Aviation Department's environmental sustainability priorities intend to contribute to the well-being of the City by achieving their transportation and economic mission: using responsible planning and re-source management to conserve water." Several charts and figures from the plan include water use data through 2013. They have been included in the sections below, but have been updated to include 2014 water use data. The plan is included as **Appendix D** to the Master Plan.

Landscape Management Plan

A *Landscape Management Plan – Landscape and Irrigation for the Albuquerque International Sunport and Double Eagle II Airport* (Landscape Management Plan), was prepared for the Aviation Department by Sites Southwest in January 2013. The purpose of this plan was to facilitate the maintenance and operations of the landscape and irrigation system for both airport facilities. This plan was designed to conform with the standards and goals of City ordinances, specifically the City of Albuquerque Waste Water Conservation Ordinance.

The Landscape Management Plan identified means for the Sunport to convert to non-potable re-use water for landscape irrigation. This conversion included four major components:

A. Substitute low water use plants for moderate and high water use plants wherever feasible.
B. Repair and upgrade the current irrigation to work with the new planting and to increase water savings in areas not being re-landscaped.
C. The creation of retaining walls and swales to facilitate the harvesting of stormwater so it can be used to augment the irrigation.
D. The use of non-potable water for irrigation.

To date, none of the irrigated areas of the Sunport have been converted to non-potable re-use water. Prior to any conversion, a new pump station is required, and additional coordination is needed with the Water Authority.

Stormwater Pollution Prevention Plan

The Sunport has a Stormwater Pollution Prevention Plan (SWPPP), which was prepared on April 9, 2012. The SWPPP is meant to protect water quality and comply with requirements of the Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity. This document identifies potential pollutant sources on the Sunport and includes a log of recent spills and leaks of hazardous materials. Control measures are also outlined in the form of Best Management Practices (BMPs) designed to reduce the potential for stormwater pollution. The SWPPP is currently in the pro-cess of being updated to meet new requirements of the EPA's 2015 MSGP.

Spill Prevention, Control, and Countermeasure Plan

The Sunport also has a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan), that was most recently revised in January 2014. The purpose of the SPCC Plan is to describe measures implemented

by the Aviation Department that together form a comprehensive spill prevention program minimizing the potential for discharges of oil from Sunport facilities; to prepare Department personnel to respond to spills in a safe, effective, and timely manner; and to mitigate the impacts of a discharge.

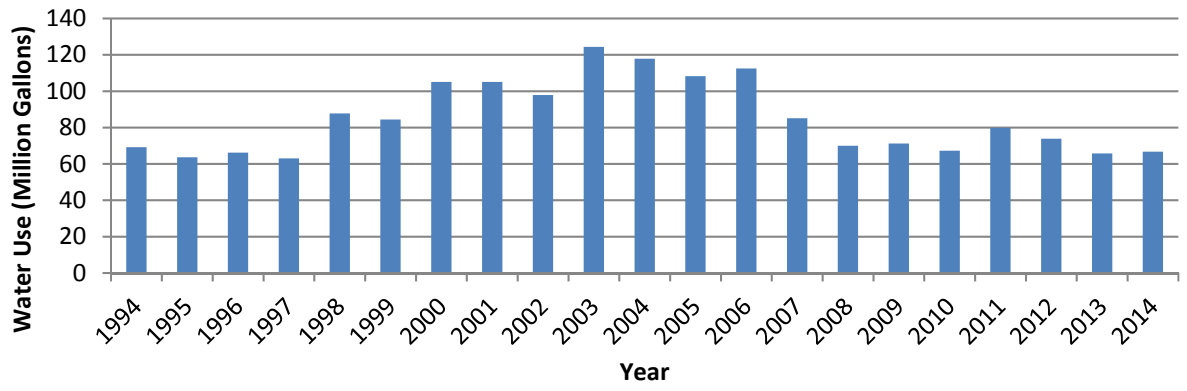
According to this plan, the Sunport has 13 fixed oil storage containers for material, such as diesel fuel, oil, waste oil, unleaded fuel, gear oil, and kerosene with a combined storage capacity of 22,810 gallons. As of the date of the plan (January 2014), only one documented spill had occurred in the previous 12-month period, which involved approximately 30 to 50 gallons of diesel fuel spilled when the fueling agent was transferring fuel from one tank to another. No significant spills that would require the notification of the U.S. EPA Regional Administrator occurred during the same period. The SPCC is currently in the process of being updated and will include an updated list of documented spills at the Sunport.

CURRENT WATER USE

The Aviation Department is currently invoiced for 38 water accounts that can be categorized as being either active building, active landscape, mixed, or inactive. Building or indoor use includes meters serving buildings and seasonal water use associated with cooling systems. Landscape or outdoor use includes seasonal landscape irrigation. Mixed-use meters serve both indoor and outdoor purposes. Each account is monitored by a water meter located on the Sunport. **Exhibit 3A** depicts the locations of the active domestic (building), active landscape (irrigation), and active mixed-use meters.

A 20-year history of the total water use at the Sunport is depicted on the following chart. This data combines all Sunport water usage, including landscape meters, building meters, and mixed-use meters. The chart shows the Sunport's water use grew substantially from 1994 (69.2 million gallons [mg]) to 2003 when it reached its peak water usage at over 124 million gallons (mg). Much of this increase in water usage can be attributed to the development of new Sunport facilities and expanded landscape irrigation demands. Water use has steadily declined since 2003, reaching its lowest point since 1995 in 2013 with 65.7 mg of water used. This is a water use reduction of 47 percent in only a 10-year period. In 2014, water use rose by 1.6 percent over the previous year to 66.7 mg of water consumed.

Total Water Use 1994-2014
Albuquerque International Sunport



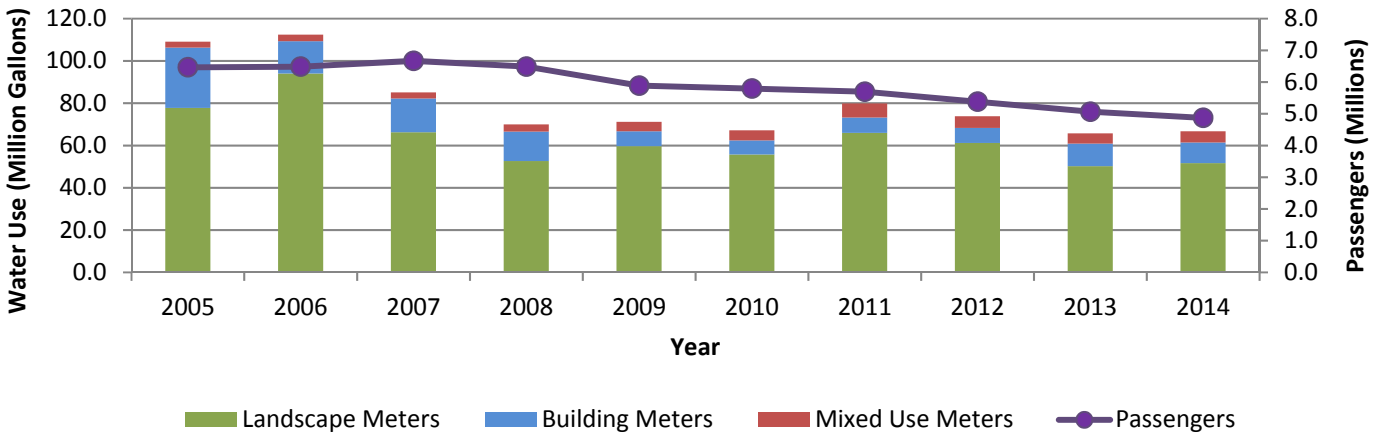
Source: ABQ Water Consumption Data Records

Source: CABQ Aviation Department – Water Use Report and Conservation Plan Update, September 2014.

Exhibit 3A
WATER METER LOCATIONS

The next chart provides this water use breakdown by meter type since 2005, which is when the Department began categorizing its water meters. It is evident from the chart that landscaping accounts for the vast majority of water use at the Sunport, averaging almost 80 percent of metered water use over the ten-year period. For the same period, buildings on average accounted for 15 percent and mixed-uses accounted for five percent. This chart also compares water use alongside total passengers (enplanements and deplanements) indicating that the reduction in water consumption does not correlate entirely with commercial passenger travel.

Cumulative Annual Landscape, Building, and Mixed Water Consumption 2005-2014
Albuquerque International Sunport



Sources: ABQ Water Consumption Data Records and Passenger Records

Water use charges vary by the type of water meter. Rates include irrigation water institutional, irrigation water commercial, water commercial, and water institutional rate. **Table 3H** provides a summary of the rates charged for each category and the total 2014 charges. As expected, irrigation water accounts for the majority of the water used and charges at the Sunport. The Sunport was charged over $206,500 for water used in 2014.

TABLE 3H
Water Rates and Charges
Albuquerque International Sunport

Water Rate Category	2014 Rate*	Water Used (gallons)	2014 Charges (dollars)
Irrigation Water Commercial	$0.007/gallon	41,888	$295.04
Irrigation Water Institutional	$0.003/gallon	53,931,548	$135,861.12
Water Commercial	$0.028/gallon	70,312	$1,946.25
Water Institutional	$0.005/gallon	12,853,632	$68,458.63
Total		**66,897,380**	**$206,561.04**

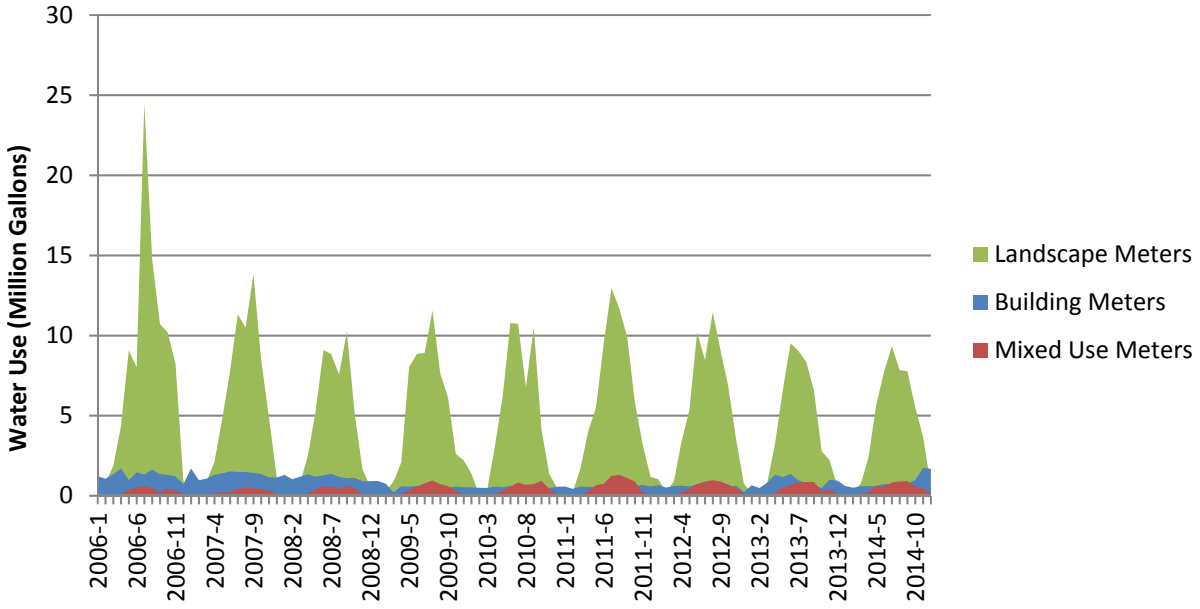
*Rates are rounded and were calculated by dividing total charges by gallons used.
Source: ABQ Water Consumption Data Records

The next chart presents a monthly breakdown of water use by meter type. As might be expected, water use fluctuates throughout the year with peaks during the summer months due to landscape irrigation demands. Landscape improvements along Sunport Boulevard and other areas surrounding the Sunport were completed in 2006 resulting in a decrease in outdoor water use as observed through 2008. Improvements included xeric landscaping that uses less water, the capture of stormwater by creating swales in terrain, and the installation of computer-controlled irrigation systems that provide for more efficient water use. The Sunport Boulevard landscape design received an award for water conservation from the New Mexico Chapter of the National Association of Industrial & Office Properties. Since 2008, the Sunport has sustained between 50 and 66 mg of landscaping water use. A slight uptick in landscaping water use was experienced during the summers of 2011 and 2012 when drought conditions were experienced.

The Sunport currently irrigates approximately 75.1 acres of landscaping. The ABCWUA has established a landscape irrigation water budget based upon total area irrigated. The initial budget was set at 34.5 mg a year but was raised to 56.3 mg in 2010. As of 2014, the Sunport's landscape irrigation use was at 51.7 mg or 92 percent of the budget.

Building water usage has experienced a significant decline over the years. From 2006 to 2008, buildings averaged 10.4 mg of water use each year. Upgrades to water fixtures in the terminal restrooms and in kitchen facilities resulted in an overall reduction to where buildings averaged only 8.1 mg of water use from 2009 to 2014.

Landscape, Building, Mixed Use Monthly Water Use 2006-2014
Albuquerque International Sunport

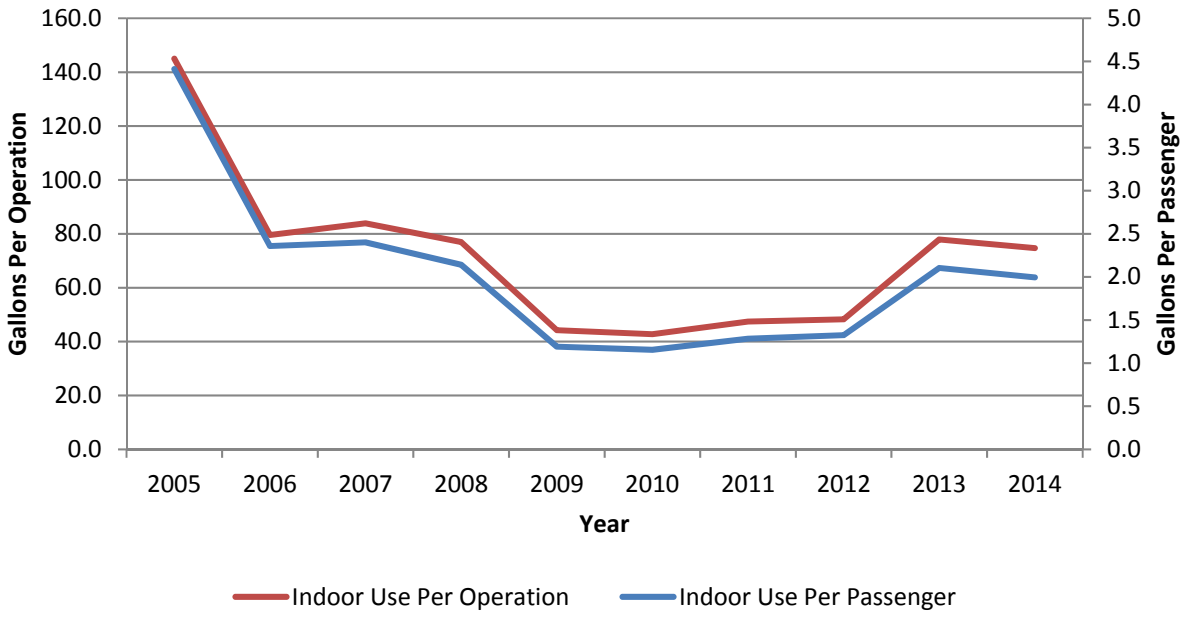


Source: ABQ Water Consumption Data Records

To account for fluctuations in Sunport activity, indoor water usage (building meters) was compared to two key performance indicators (total passengers and total operations) for the period 2005-2014. This comparison is displayed on the following chart. Water use per passenger declined from a high of 4.4 gallons per passenger (gpp) in 2005 to a low of 1.15 gpp in 2010 and averaged 2.04 gpp over the period. While 2014 had a below average consumption rate of 1.99 gpp, it was still a slight uptick from that experienced from 2009 to 2012. According to the Water Use Report and Conservation Plan, a study on water use at international airports indicates that indoor consumption per passenger ranges from 3.0 to 5.0 gpp. The Sunport's 2014 figure (1.99 gpp) is 34 percent below the international range.

The comparison with total operations accounts for the other operational segments that occur at the Sunport, including air cargo and general aviation (military activity was not included as it is associated with Kirtland Air Force Base and does not significantly contribute towards Sunport water usage). This comparison resulted in a high of 145.0 gallons per operation (gpo) in 2005 to a low of 42.7 gpo in 2010. This figure has grown in recent years to 74.7 gpo in 2014. The average gpo over this period is 74.1 gpo; however, the previous five-year period averaged 58.2 gpo.

Indoor Water Use Per Operation and Passenger
Albuquerque International Sunport



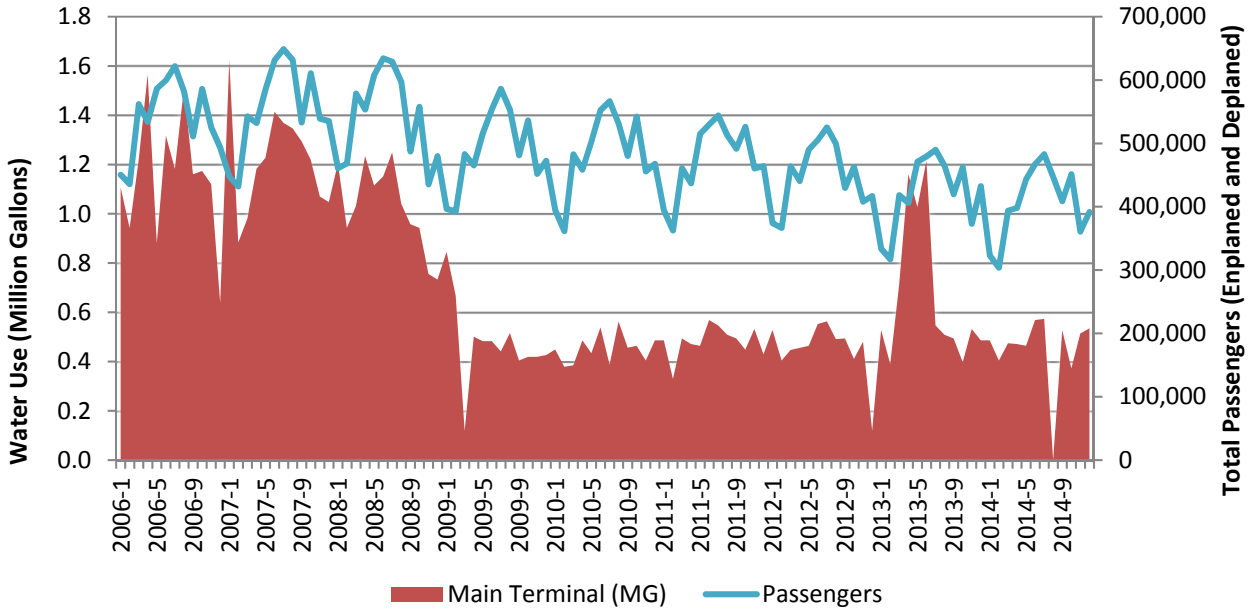
Sources: ABQ Water Consumption Data Records; FAA Operations Network (OPSNET); Sunport Passenger Records

The passenger terminal building is by far the largest building water consumer with 55.4 percent of all building consumption in 2014.

The passenger terminal building is by far the largest building water consumer with 55.4 percent of all building consumption in 2014. The next chart presents a monthly comparison of the passenger terminal meter water use to total passengers from 2006 to 2014. This chart shows the seasonal fluctuation in passenger travel at the Sunport and the correlating

water use, which also shows slight seasonal fluctuations. Over this period, passenger traffic peaks during the summer months with July averaging 9.7 percent of passengers, followed by June with 9.5 percent. June is the peak usage month on average at 10.2 percent followed by April at 9.8 percent. Strangely, January is the third highest average water use month at 9.5 percent, even though it is the second lowest average month for passenger traffic at 6.8 percent. The four-month period (March through June) in 2013 saw an unusually high amount of water use when compared to the recent history. During that period, water use reached a peak of 2.86 gpp. That same four-month period experienced a peak of 1.22 gpp in 2014 and 1.09 gpp in 2012. An explanation for this substantial increase in water use in 2013 could not be found in the available data.

Main Terminal Water Use and Total Passengers
Albuquerque International Sunport



Sources: ABQ Water Consumption Data Records; Sunport Passenger Records.

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

The Water Use Report and Conservation Plan made several recommendations for consideration to further reduce water consumption and save the Aviation Department on water use fees. These recommendations include:

- Expand fixture replacement to all outdated fixtures.
- Install sub-metering for concessionaires, cooling equipment, restrooms, and irrigation on mixed-use meters to provide information for better measurement and management of water usage.

- Convert to reclaimed water for irrigation use (cost of reclaimed water is 80 percent of potable water). An existing reclaimed water pipeline is located next to or within 500 feet of nine irrigation meters.
- Convert cool season turf (high water user) areas to more efficient warm season turf.
- Implement both low impact development (LID) and green infrastructure techniques. LID techniques include: curb cutting between paved and landscaped areas, infiltration trenches, stormwater harvesting, and reuse. These will result in improved stormwater runoff quality as well as reduced water use for landscape irrigation.
- Disconnect unused water meters. Five meters are currently unused and accrue over $4,800 in fees each year.

SURFACE TRANSPORTATION

BACKGROUND

As a multi-modal transportation hub, airports connect air transport with various surface transportation modes. Sustainable surface transportation modes, such as bicycle, alternative fuel vehicles, and public transportation need to be a priority in any long-term plan to address air quality issues and natural resource consumption. This section will examine the available surface transportation modes available at the Sunport and surrounding area and identify regional planning efforts to expand alternative surface transportation infrastructure that could benefit users of the Sunport.

Existing Transportation Plans/Programs

- *2035 Metropolitan Transportation Plan* (MTP): The MTP is a long-range planning document adopted by the Metropolitan Transportation Board (MTB) on April 15, 2011 and amended most recently on May 16, 2014. One of the key strategies identified in the MTP is to develop programs that encourage and educate people about walking, bicycling, and taking public transit. The MTP contained data pertaining to the number of people commuting to work by walking and bicycling. The data showed that the percentage of commuters in the City of Albuquerque walking to work dropped to 2.1 percent (2005-2009 estimate) from 2.7 percent (2000 Census). The number of people commuting by bicycle grew in the City of Albuquerque from 1.1 percent (2000 Census) to 1.2 percent (2005-2009 estimate).

  Future study projects identified in the MTP include a modern rail system for a streetcar line that could serve the Sunport; however, a detailed description of this project was not provided in the plan. Another project identified is the extension of Sunport Boulevard from Broadway Boulevard to Interstate 25, Exit 221. This project would include a new 4-lane divided facility with bike lanes. The MTP also proposes to improve bikeways/trails in the vicinity of the Sunport by adding paths leading to the Sunport on University Boulevard from Gibson Boulevard to Sunport Boulevard and from 2nd Street to Broadway Boulevard.

- *Clayton Heights Metropolitan Redevelopment Area Plan*: This plan, prepared for the Albuquerque City Council and adopted on June 7, 2010, examined strategies for revitalization of the Clayton Heights area, a neighborhood located immediately north/northwest of the Sunport. This plan identified that the City is studying the feasibility of a streetcar system to provide service between the Sunport and the downtown Rail Runner station. A proposed routing would utilize Yale Boulevard in both travel directions south of Avenida Cesar Chavez. Proposed stops along this route would be located at approximately ¼-mile intervals and occur along Cesar Chavez at University, at the University of New Mexico Football stadium, and at the Veloport. Stops along Yale Boulevard would be located at Cesar Chavez, Kathryn, Ross and north of Gibson.

- Clear the Air Challenge: The City of Albuquerque has implemented this citywide program to improve regional air quality by promoting the use of alternative transportation, such as walking, biking, carpooling, and taking the bus.

- The City of Albuquerque has a program to ensure commuters who regularly use alternative modes of transportation instead of single-occupancy vehicles (SOV) can make it to their destination in emergency situations. People who choose to carpool/vanpool, ride the bus, bike, or walk at least three times a week can call in emergency situations and have a driver sent to get you to your destination. The program covers trips within the ABQ RIDE bus route service area. The City implemented this program to make alternative transportation modes a safer and easier option to SOVs.

- *Bikeways & Trailways Facilities Plan*: This plan was adopted by the Albuquerque City Council on May 18, 2015. This plan was prepared to promote a well-connected, enjoyable and efficient, non-motorized transportation and recreation system throughout the metropolitan area. The vision statement of this plan was to, "provide access for cyclists, pedestrians, and trail users to all areas of Albuquerque to encourage cycling and walking as viable transportation options and to provide recreation opportunities, which result in an improved quality of life in the Albuquerque Metropolitan Area." Goals of this plan included: 1) Improve and enhance cycling and pedestrian opportunities. 2) Develop a continuous, interconnected, and comprehensive system of bikeways and trails. 3) Enhance maintenance of all bikeways and trails. 4) Increase use of the bikeway and trails network. 5) Increase public awareness and education related to bikeways and trails. 6) Recognize and leverage the bikeway and trail network as an integral part of economic development and quality of life in Albuquerque. 7) Streamline administrative practices and coordination. At the time of this plan, the City's bikeway system consists of 480 miles of on-street bicycle facilities and multi-use trails.

TRANSPORTATION MODES

Bus/Commuter Rail

The City's ABQ RIDE bus system consists of over 40 bus routes, three of which serve the Sunport. The bus route system in the vicinity of the Sunport is depicted on **Exhibit 3B**. The Sunport passenger terminal bus stop is located on Sunport Boulevard at the west end of the baggage claim area (level 1). The 250 Airport/Downtown route is a non-stop weekday only service between the Sunport and the downtown Alvarado Transportation Center (ATC). The Rio Metro Regional Transportation District funds this route. Route 50: Airport/Yale/Downtown provides service between the Sunport and the ATC making four stops between the two locations. Route 50 departs the Sunport every half hour beginning at 7:00 a.m. until 8:00 p.m. every weekday and every hour from 9:45 a.m. until 6:50 p.m. on Saturdays. Route 222 provides weekday service between Rio Bravo and Area 4 (Kirtland Air Force Base), which includes a stop at the Sunport passenger terminal building. A summary of the three routes is included in **Table 3J**.

TABLE 3J
ABQ RIDE Routes Serving the Sunport

Route	Arrivals	Departures	Stops
250: Airport/Downtown	Weekday: 7:30a; 9:05a; 2:57p; 6:10p; 6:45p; 7:22p; 8:38p	Weekday: 9:10a; 4:01p; 6:10p	Non-stop to ATC
50: Airport/Yale/Downtown	Weekday: Every half hour beginning 6:58a until 7:58p. Saturday: Every hour beginning 9:40a until 6:45p.	Weekday: Every half hour beginning 7:00a until 8:00p. Saturday: Every hour beginning 9:45a until 6:50p	6
222: Rio Bravo – Sunport – Kirtland	Weekday: 6:23a; 7:10a; 7:19a; 2:21p 3:03p; 4:16p; 5:33p; 6:13p	Same as arrivals	8

Source: ABQ RIDE System Route Schedule; effective May 2, 2015

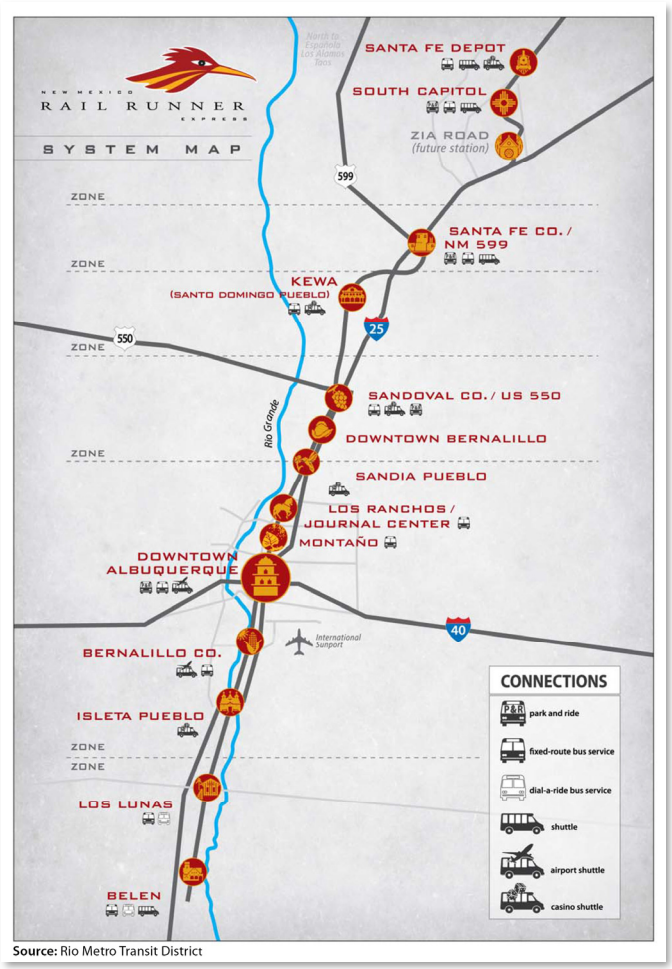
Records obtained from the City of Albuquerque and summarized in **Table 3K**, indicate that bus ridership at the Sunport grew to a five-year high of 40,416 in fiscal year 2014 with an average of 111 people utilizing buses to/from the Sunport daily. Over this five-year period, ridership at the Sunport has grown 11.2 percent. Total ABQ RIDE ridership over this same period has grown at 16.4 percent to over 13 million passengers in FY 2014. As a percentage of the total ABQ RIDE ridership over the past five years, the Sunport has maintained an average of 0.29 percent.

Bus ridership at the Sunport grew to a five-year high of 40,416 in fiscal year 2014.

TABLE 3K
ABQ RIDE Sunport Fixed Route Ridership

	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Sunport Ridership	36,335	33,977	35,708	34,478	40,416
Sunport Avg. Daily Ridership	100	93	98	95	111
Total ABQ RIDE Ridership	11,177,097	11,907,798	12,821,051	12,906,239	13,009,047
Sunport Ridership %	0.33%	0.29%	0.28%	0.27%	0.31%

Source: City of Albuquerque ABQ RIDE Records



Source: Rio Metro Transit District

Route 222 also provides service from the Sunport to a New Mexico Rail Runner Express station. The New Mexico Rail Runner Express is a commuter rail system administered by the New Mexico Department of Transportation (NMDOT) connecting multiple communities to the ABQ RIDE system, including: Santa Fe, Kewa Pueblo, Bernalillo, Sandia Pueblo, Los Ranchos, Belen, Los Lunas, and Isleta Pueblo to the City of Albuquerque. The rail system has 11 stations. Travelers going to the Sunport utilizing the rail system can utilize ABQ RIDE routes 250 and 50 from the downtown ATC station or Route 222 from the Bernalillo County station[6]. The same bus routes can be used for travelers coming from the Sunport to the rail system.

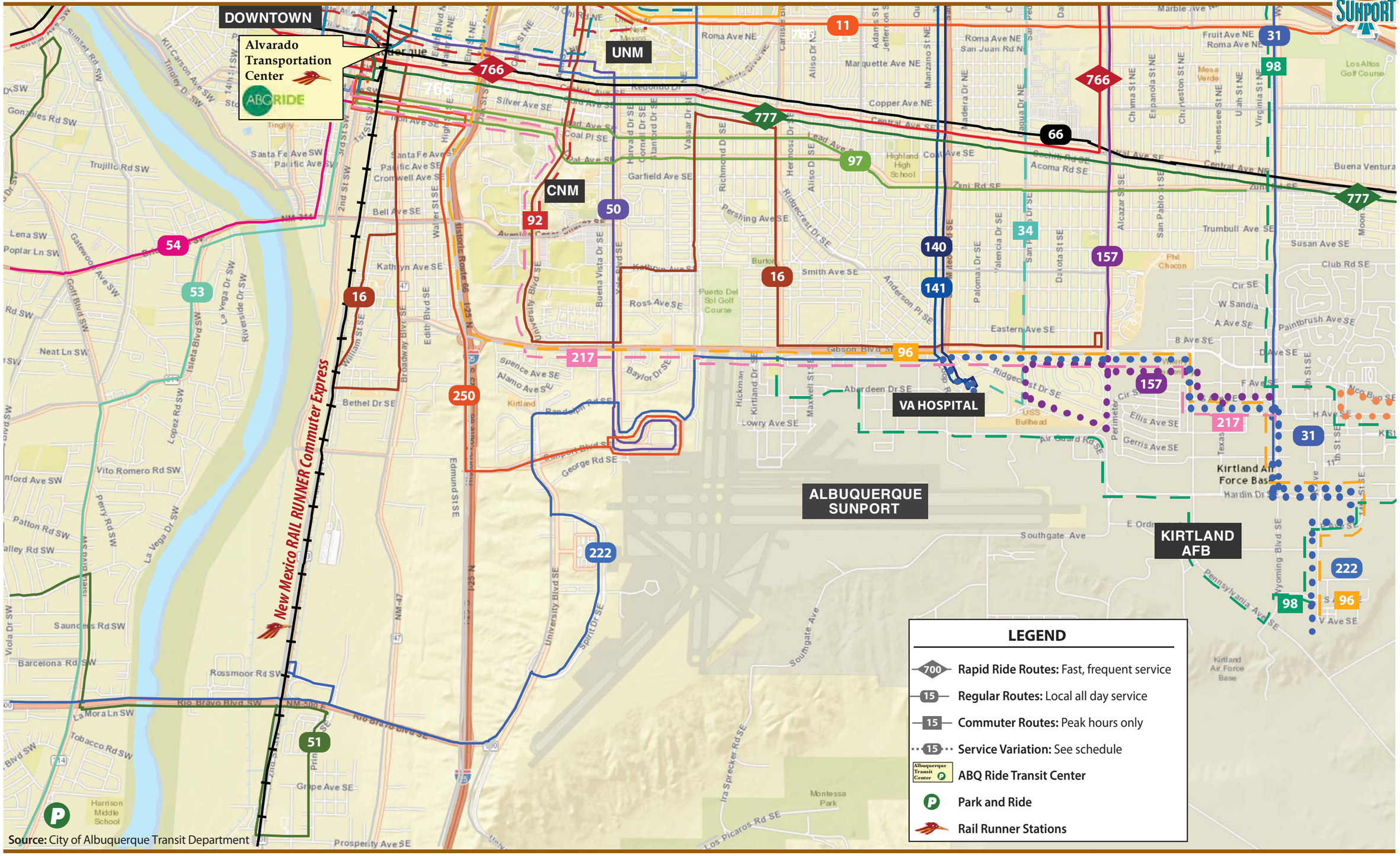
The downtown ATC station also serves as a connecting point to nationwide Amtrak rail service and Greyhound bus lines. Amtrak's Southwest Chief line makes one stop in each direction each day at the ATC station. The Southwest Chief line is a 2,265-mile route that connects Chicago and Los Angeles. Greyhound provides busing service from Albuquerque to St. Louis, Phoenix, Denver, and El Paso.

Bicycle/Pedestrian

The City of Albuquerque has made a commitment to expand the on-street bikeway and multi-use trail system to make bicycle commuting a viable transportation alternative. The City also promotes the use of the ABQ RIDE system for cyclists traveling in higher traffic areas by equipping public buses with bike racks. The bikeway system consists of the following bikeways:

- Multi-use Trail – a paved trail closed to automotive traffic
- Bicycle Lane – a portion of the street with a designated lane for bicycles
- One-way Bicycle Lane – single direction lane indicated by arrows
- Bicycle Route – cars and bicycles share the street
- Bicycle Boulevard – a shared roadway optimized by bicycle traffic
- Unpaved Multiple Use Trail – an unpaved trail, maintained and closed to automotive traffic

[6] More detailed route information available at: http://riometro.org/rio-metro-schedules/airport/going-to-the-airport.



Source: City of Albuquerque Transit Department

Exhibit 3B
BUS ROUTES NEAR SUNPORT

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Exhibit 3C depicts the Sunport vicinity bicycle route map. Gibson Boulevard north of the Sunport is equipped with both a multi-use trail and a bicycle lane that accesses the Sunport area from the citywide bikeway system. A multi-use trail runs parallel to Girard Boulevard south of Gibson Boulevard but does not extend to the Sunport passenger terminal. The passenger terminal building is not equipped with storage containers or lockers for public or employee use, but a bicycle rack is located at the east end of the arrival level of the facility. Data pertaining to the use of the bicycle rack is not collected; however, ABQ staff indicated that Sunport employees routinely utilize the bicycle rack.

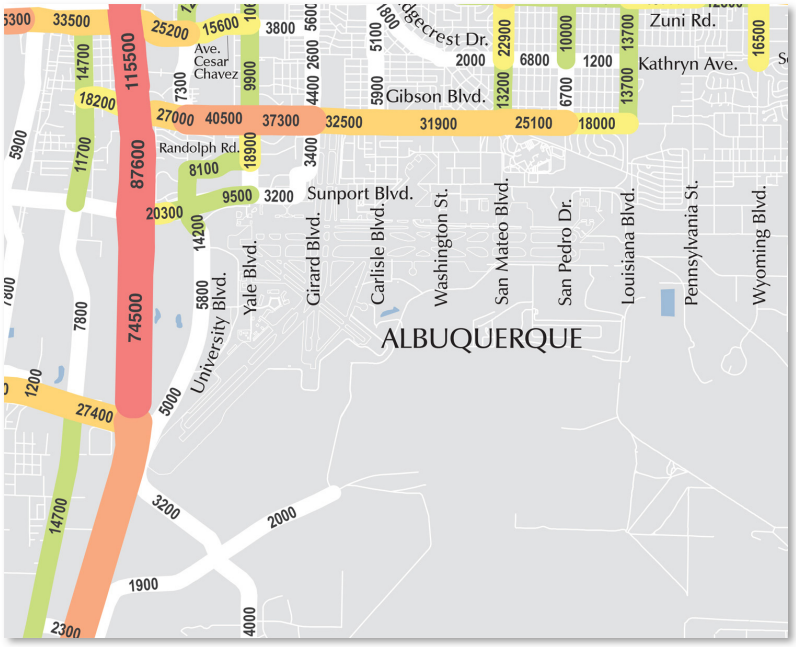
The City's Parks and Recreation Department operates the Esperanza Bicycle Safety Education Center, which promotes bicycle education to increase the safety, self-sufficiency and comfort of recreational, fitness, and utility riders. The Albuquerque Bike Share (BICI) project[7] is a pilot program initiated on May 15, 2015 (Bike to Work Day) by the DowntownABQ Main Street Initiative, the Mid-Region Council of Governments (MRCOG). The project provides 65 bicycles that are shared on a short-term basis by residents and visitors within the downtown area at 13 different locations. The one-year pilot project does not extend to the Sunport at this time, but has the potential to be expanded in the future.

The Albuquerque Aviation Police has developed a bicycle patrol program to improve response time and to detect criminal activity. These patrols have much smaller carbon footprints with zero emissions generated. The bike patrol also provides better speed and mobility than foot patrol and access to areas where patrol vehicles are often limited. Bike patrol areas include the terminal, parking structures, and the rental car facility.

Pedestrian sidewalks are available along many of the vicinity roadways, including the Sunport passenger terminal loop road. The sidewalks connect to the citywide network of sidewalks making it possible for passengers and employees to walk to the Sunport. The City promotes walking when possible for its health and environmental benefits; however, walking is not the primary surface transportation mode to access the Sunport for most travelers and workers.

Personal Vehicle

The primary surface transportation mode available to access the Sunport is vehicle roadways. Direct access to the passenger terminal loop is via Sunport Boulevard, Yale Boulevard, and Girard Boulevard. Traffic counts detailed on the graphic below indicate that in 2013 there was an average of 9,500 daily vehicles in and out of the Sunport via Sunport Boulevard and 3,400 from Girard Boulevard. Yale Boulevard is shown to have averaged 18,900 daily vehicles in 2013.



[7] More information at: http://zagster.com/abq/

Vehicle parking lots are available on- and off-airport providing 11,233 total parking spaces for both passengers and employees of the Sunport. None of the Sunport parking lots offer priority parking spaces for low-emission vehicles (electric vehicles [EV], hybrid, compressed natural gas [CNG], hydrogen, etc.), nor do the employee parking lots provide for priority parking spaces for carpool/vanpooling employees. The Sunport has a cell phone waiting lot with 54 spaces that allows greeters to wait temporarily in a free parking lot until an arriving passenger is ready for pickup. Cell phone lots are a benefit to airports by managing terminal curb congestion and deterring greeters from circling the terminal loop road. This reduction in vehicle circulation also lessens vehicle emissions, which has a cumulative positive impact on regional air quality.

A search for EV charging stations on PlugShare.com[8] identified 26 EV charging stations in the Albuquerque area of which 13 are available for public use. The nearest EV charging station to the Sunport is the FastPark & Relax station at 2801 Yale Boulevard. There are no EV charging stations on Sunport property. A CNG station operated by Clean Energy is available on Sunport property at 2200 Sunport Boulevard. According to the U.S. Department of Energy's Alternative Fuels Data Center[9], there are no hydrogen vehicle fueling stations in the State of New Mexico. Biodiesel, liquefied natural gas (LNG), and liquefied petroleum gas (propane) stations are available at various locations in the State, but none are located on or adjacent to the Sunport.

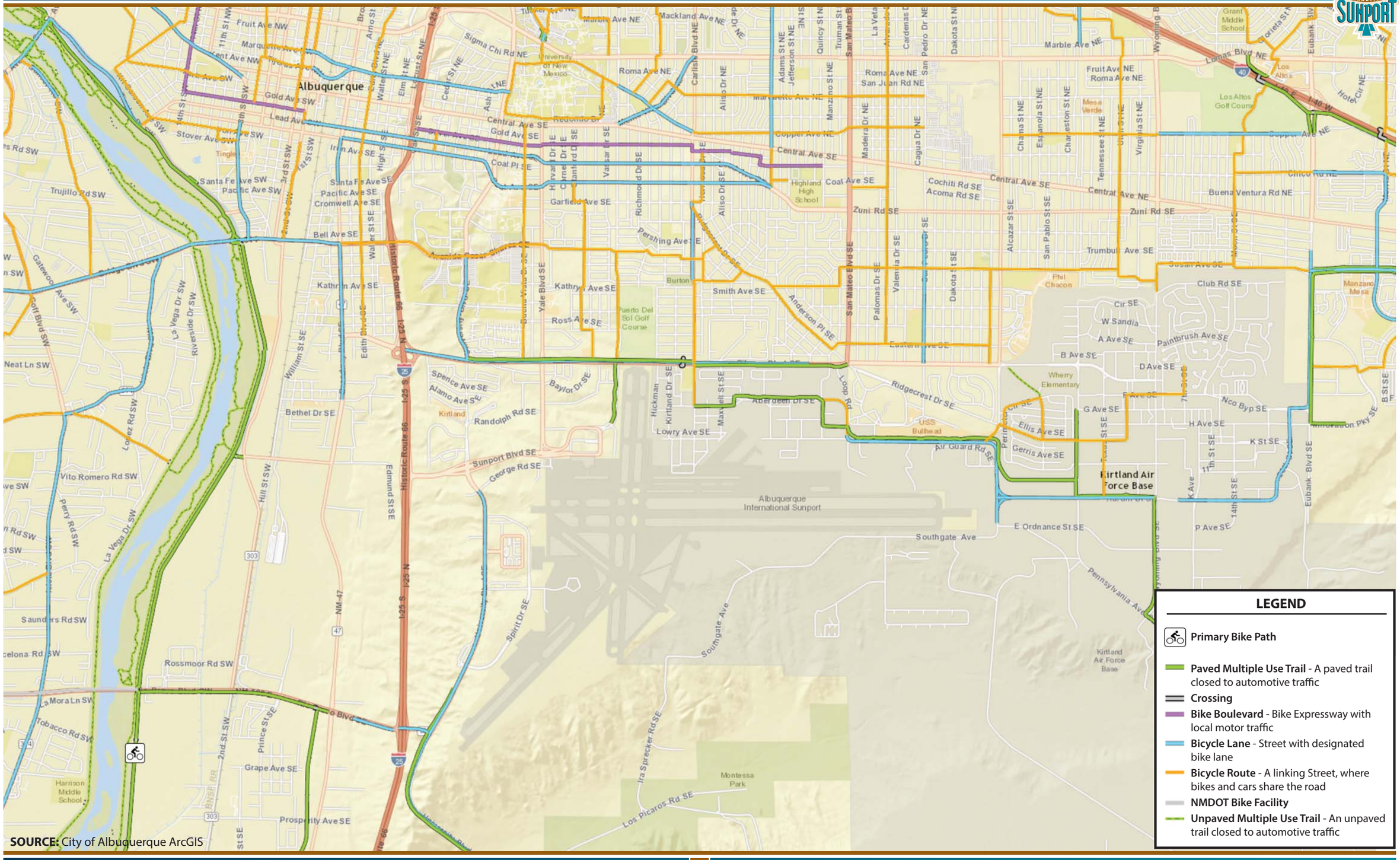
Carpooling or vanpooling is an alternative to using SOV that involves two or more commuters sharing an employee-owned vehicle. The City of Albuquerque maintains a free carpool matching service for residents. A program website[10] is available for people to sign-up and search for other commuters that live nearby and have similar schedules and driving preferences. This service is available for employees of the Sunport and its tenants.

Taxi/Shuttle/Rental Services

Several companies provide taxi/limousine/shuttle services to the Sunport, including: Albuquerque Cab Company; Yellow Cab Company; ABQ Green-Cab Company; American Limousine; Star Limo; Carey Southwest Limousine; Sunport Shuttle; Sandia Shuttle; and RoadRunner Shuttle & Charter. Current taxi rates from Albuquerque Cab Company include an initial drop charge of $2.50 and a per mile charge of $2.20. At this rate, a ride to downtown Albuquerque (approximately 3.3 miles) would cost $9.76.

Mobile app-based vehicle-for-hire options such as Uber are also available to travelers at the Sunport. Uber operates a ride-booking service, which utilizes smartphone applications to connect people seeking rides with drivers. Uber's website allows users to get fare estimates for travel within its market cities. A search for a fare estimate from the Sunport to downtown Albuquerque (approximately 3.3 miles) resulted in a range of $17 to $23.

[8] More information at: www.plugshare.com
[9] More information at: http://www.afdc.energy.gov/
[10] More information at: https://www.carpoolworld.com/cabq.html



SOURCE: City of Albuquerque ArcGIS

LEGEND

- **Primary Bike Path**
- **Paved Multiple Use Trail** - A paved trail closed to automotive traffic
- **Crossing**
- **Bike Boulevard** - Bike Expressway with local motor traffic
- **Bicycle Lane** - Street with designated bike lane
- **Bicycle Route** - A linking Street, where bikes and cars share the road
- **NMDOT Bike Facility**
- **Unpaved Multiple Use Trail** - An unpaved trail closed to automotive traffic

Exhibit 3C
BIKE PATHS NEAR SUNPORT

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In addition to taxi and shuttle services, ten companies provide rental car services at the Sunport, including:

- Hertz
- Alamo
- National
- Advantage
- Dollar
- Thrifty
- Enterprise
- Payless
- Budget
- Avis

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

The City has made it a priority to improve and promote alternative transportation modes available to commuters and visitors. The Aviation Department has numerous opportunities to contribute towards those efforts. Some opportunities for further enhancing alternative surface transportation at the Sunport include, but are not necessarily limited to, the following:

- Expand on-site bicycle facilities for public use and coordinate with the City to connect the terminal to the citywide bicycle trails and paths. Monitor the BICI pilot bike share project and promote the Sunport as a future expansion site. Promote bicycling to Sunport employees by providing end-of-trip facilities, including employee showers, lockers, and bicycle parking.
- Provide priority parking locations to carpools/vanpools and alternatively fueled vehicles. Promote the City's carpool matching service to employees and travelers on the Sunport website.
- Post no-idling signage at the terminal curb and in the cell phone waiting lot to reduce vehicle emissions.
- Incentivize employee use of public transit by subsidizing bus passes.
- Install on-site EV charging stations and explore adding an alternative fuel station (biodiesel, CNG, LNG, propane, hydrogen).
- Utilize social media and other public outlets and media to promote the use of public transit or cycling to/from the Sunport.

NATURAL RESOURCE MANAGEMENT

BACKGROUND

Airports by their nature require massive amounts of natural resources, from the construction of massive airfield and landside facilities to the materials purchased for everyday operation. In many cases, airports are one of the largest consumers of natural resources within a city government. Considering the significant amount of natural resources that go into an airport, it is important to consider how an airport sponsor manages those natural resources and the processes to ensure their efficient use.

This section will examine existing Department policies and practices that pertain to the natural resources that make up the Sunport, including the procurement of materials and supplies and construction management.

PROCUREMENT

The City's Central Purchasing Office (Purchasing Division) is the central purchasing authority for the Sunport. The Capital Implementation Program Division handles major construction and architectural and engineering services. Chapter 5, *City Property, Purchases and Sales*, of the City's Code of Ordinances, outlines the City's procurement requirements. Prospective vendors are required to register utilizing the Secure Internet Commerce Network (SicommNet) website[11]. Once registered, vendors can review available requests for quotes (RFQs), requests for bids (RFBs), and requests for proposals (RFPs).

The Aviation Department has the authority to expend up to $500, utilizing the Small Purchase Order system, without processing the requirement through the Purchasing Division. Procurements in excess of $500 and up to $10,000 require that oral quotations be obtained prior to making the procurement and the purchase must be processed through the Purchasing Division. Procurements in excess of $10,000 require a formal competitive process be followed.

The ordinance also outlines preferences for awarding resident, local, and small businesses, which are given a five percent preference for each to the amount bid or quoted or the proposal score. The City has also set a *Small Business Goal*, which aims to award small businesses with city purchases for goods and services equivalent to ten percent of the total value of said purchases for the prior fiscal year.

Procurement is addressed within the Sunport's SMS as well. The SMS contains a sustainability initiatives plan, which identifies an immediate action to establish "green" specifications for procurement and a paper conservation program (default all printers/computers to two-sided printing). Near-term actions identified in the SMS sustainability initiatives plan include modifying procurement specifications to require that computer purchases are Energy Star[12] compliant and to develop a procurement specification for green vehicles and submit a VALE[13] application to support the purchase.

GREEN CLEANING

The Aviation Department has received certification from the Green Clean Institute (GCI), which certifies healthier indoor environments, provides professional development education for frontline staff and promotes proactive best practices within environmental health services operations. All Sunport custodial supervisors have been trained and certified as green clean technicians. Aviation Department custodial staff receives GCI training each month to educate and inform of new standards. A Train the Trainer program has also been implemented where Certified Supervisors train staff from the Green Clean Technician 101 Training Manual. Each month one chapter is reviewed and questions are answered in a group setting, after which the staff applies their knowledge in the field.

[11] http://www.sicomm.net/vendor-login/

[12] Energy Star is a U.S. EPA voluntary program that certifies products that save energy without sacrificing features or functionality. For more information: http://www.energystar.gov/

[13] Voluntary Airport Low Emissions (VALE) Program – FAA program designed to reduce all sources of airport ground emissions. For more information: http://www.faa.gov/airports/environmental/vale/

The Aviation Department has received certification from the Green Clean Institute (GCI), which certifies healthier indoor environments, provides professional development education for frontline staff and promotes proactive best practices within environmental health services operations.

Aviation Custodial has eliminated the need for traditional chemical-based cleaners by using Activeion Ionator EXP devices[14], which utilizes tap water to clean and sanitize surfaces. Using this equipment creates a safer and more sustainable airport environment for travelers and Sunport employees. The use of this product also saves the Department money by eliminating the need to purchase multiple chemical-based surface cleaners. Another "green" initiative implemented by Aviation Custodial is the conversion to 100 percent recycled paper towels.

CONSTRUCTION MANAGEMENT

The City has adopted a Uniform Administrative Code of the City of Albuquerque (Code), which serve as minimum standards regulating construction. This Code incorporates numerous international, national, state, and city building codes and applies to construction projects at the Sunport. According to Aviation Department staff, the existing Code does not include specific "green" building practices or policies. However, it was indicated that contractors recycle materials, especially concrete and asphalt, when economically feasible.

The City does have in place a Green Path Program, which encourages, and facilitates, voluntary design and construction of energy efficient buildings that substantially exceed code minimum.

The City does have in place a Green Path Program, which encourages, and facilitates, voluntary design and construction of energy efficient buildings that substantially exceed code minimum. This program requires facilities to be LEED[15] Gold or Silver certified, which requires the incorporation of sustainable building strategies that will reduce waste, increase recycling, and incorporate the use of sustainable materials. An added incentive of the Green Path Program is that the City will expedite permitting and review times.

A search of the U.S. Green Building Council (USGBC) directory[16] identified 493 results for projects in the City of Albuquerque that either have received LEED certification or are in the certification process. The search identified one facility at the Sunport that is in the process of receiving LEED certification. The facility is identified as the Sunport Business Center I and is located at 3701 Spirit Drive SE, which is located adjacent to the Southwest Airlines Call Center building. No additional information on this facility or a timeline for completion was available.

[14] For a video explanation on how this equipment works, visit: https://www.youtube.com/watch?v=KIRoeO_uVDU
[15] Leadership in Energy and Environmental Design (LEED). For more information: http://www.usgbc.org/leed
[16] USGBC projects directory: http://www.usgbc.org/projects

POTENTIAL OPPORTUNITIES FOR PERFORMANCE IMPROVEMENT

The Sunport has already incorporated plans to address natural resource management within its SMS. Based upon available information, several of the action items from the SMS have not yet been incorporated or implemented. The immediate opportunities for improvement include the incorporation of these action items, as well as expanded efforts within the City to address resource conservation.

- Coordinate with the Purchasing Division to establish a "Green" Procurement Program. An emphasis should be placed on purchasing materials with recycled content and on locally sourced materials.
- Establish a paper conservation program within the Aviation Department.
- Modify procurement specifications to require equipment purchases are Energy Star certified when practicable.
- Utilize the FAA's VALE program to transition to low-emission fleet vehicles when practicable.
- Expand records to monitor expenses dispersed to locally based vendors and suppliers and for materials with recycled content. These are key performance indicators (KPIs) that should be monitored on a regular basis to track "green" procurement initiatives.
- Commit to the City's Green Path Program for future new construction and major renovations of Sunport facilities.