Fresno Yosemite International Airport Sustainability Management Plan

Final Report

June 2012

FAA AIP No. 3-06-0081-62-10

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

prepared by

C&S COMPANIES®

in association with:

ESA Airports

Synergy Consultants

Blair, Church & Flynn

Sustainability Management Plan

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Prepared for

Fresno Yosemite International Airport

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Section 1

Introduction

Section 1—Introduction

1.01—Sustainability Management Plan Background

The City of Fresno and Fresno Yosemite International Airport have long been committed to making their facilities and operations more sustainable. The airport has an impressive track record of environmental projects, including the largest airport solar farm in the United States.

When the Federal Aviation Administration (FAA) initiated a pilot program for airport sustainability programming, it was a natural fit for the airport. In December of 2009, Fresno was selected by the FAA as one of just 10 airports nationwide to participate in the program. On May 27, 2010, the FAA issued a memorandum to FAA regional airports division managers providing preliminary guidance on airport sustainability planning and to outline the plan for implementing a pilot program to help further define sustainability planning principles. In October 2010, the City of Fresno selected C&S Companies as the prime consultant for developing the sustainability management plan for the airport. Subconsultants to C&S include ESA Airports; Synergy Consultants; and Blair, Church & Flynn.

The foundation of the sustainability management plan rests on defining what "sustainability" means to the airport and stakeholders. In order to establish realistic, attainable, and measurable goals for sustainability, all parties must be on the same page from day one. The decision was made to collect baseline data prior to an initial goal-setting meeting so that participants would have a realistic picture of the airport's existing conditions and would be able to generate more specific and attainable goals.

For the initial workshop, the consultant team will engage the applicable city and airport personnel in a one-day charrette/meeting that will solidify the city's definition of sustainability, reach a collective understanding of and commitment to the project, set goals, and develop a mission statement. At the conclusion of the charrette, the group will have a:

- Clear definition of sustainability
- Listing of general goals and priorities to be achieved by the sustainability plan
- Mission statement that reflects the city's goals

These commitments will serve as the basis for all of the other elements of the sustainability management plan.

In the published report, "The City of Fresno's Strategy for Achieving Sustainability," the city describes its goals of sustainability by saying that "Sustainable development balances economic development and environmental stewardship with innovative business enterprises that focus on the 'triple bottom line' of providing economic, environmental and social benefits." Several airport representatives are part of the Fresno Green Team that is moving the city toward its

goal of being a sustainable city by 2025. Fresno has defined a green city as one that:

- Protects urban forests
- Promotes smart growth
- Buys locally
- Harnesses solar energy
- Provides bike and pedestrian trails
- Leads by example
- Rethinks, reduces, reuses, and recycles

This airport sustainability management plan will contribute greatly to achieving the city's goal. Lessons learned from this project, along with the recommended policies and actions, will also be applicable to Fresno Chandler Executive Airport, streamlining future efforts to increase sustainability. Because the airport has already engaged in so many green projects, this plan is the next step in moving the airport forward on the road to sustainability. The plan addresses and quantifies the benefits already gained from existing initiatives and projects and builds upon those efforts.

The ultimate goal of this project is to continue to find ways for Fresno's airports to be greener in the way they serve the community and the travelling public. Buildings and infrastructure use the majority of the energy humans expend. Fresno is committed to continuing on the path to sustainability in the built environment by integrating sustainable principles into every project undertaken and procedure employed. This approach to sustainability has the unique opportunity to show airports across the country how Fresno chose to make a significant difference by operating facilities in ways that are healthier for both the planet and the people who use them.

1.02—Airport History

The passenger terminal building, previously known as Fresno Air Terminal (FAT), opened in 1962. (The official FAA designation remained FAT, but the airport is commonly known as FYI and is referred as such throughout this report) At that time, the facility included a one-level building housing ticketing and baggage claim operations and a remote, ground-level concourse building that was accessed via a below-grade pedestrian tunnel. Since its opening, the terminal building has undergone several expansions and renovations. The first expansion enclosed the open-air building concourse building in 1978. What is now the baggage claim area was enclosed and updated in 1987. Six years later the central lobby area of the terminal underwent a remodeling, including construction of a ground-level connection between the terminal building and the concourse, replacing the below-grade pedestrian tunnel.

The road system in front of the terminal building was reconfigured in 2001 and 2002, providing additional traffic lanes, which included separate lanes and curbside for public transportation, as well as curbside canopies along the terminal and public transportation areas. 2002 also brought a significant addition to the concourse building, consisting of a second-level holdroom facility with six aircraft gate positions, four of which were equipped with passenger boarding bridges and a ground-level area including additional boarding gates for airline and airport operations. The concourse extension included stairs, escalators, and an elevator to transport passengers to the new second-level facilities. Additionally, locations were set aside in 2002 for two future loading bridges that were added in 2007, bringing the total to six second-level holdrooms/gates. There have been additional construction and renovation projects at FYI in recent years, including runway and taxiway resurfacings, construction of a Federal Inspection Station (FIS), construction of the consolidated rental car facility, construction of a remain overnight ramp (to accommodate a relocation of in air cargo operators to the north side of the airfield), and installation of a solar farm.

1.03—FAA Pilot Program

Sustainability is a growing movement in the aviation community and has become a focus for the FAA. The groundbreaking sustainable master plan that C&S developed for Ithaca Tompkins Regional Airport in Ithaca, NY, helped the FAA recognize the value of sustainability planning. In 2010, the agency announced a national pilot program for airport

Figure 1.1—FAA Pilot Program Airports

① Fresno Yosemite Int'l, CA
② Denver Int'l, CO
③ Hartsfield-Jackson Atlanta Int'l, GA
④ Nashville Int'l, TN
⑤ Newark Liberty Int'l, NJ
⑥ Newport News/Williamsburg Int'l, VA
⑦ Newton City-County, KS
⑧ Outagamie County Regional, WI
⑨ Renton Municipal, WA
⑩ Teterboro, NJ

sustainability planning and awarded funding to ten airports ranging in size from large hub to general aviation to conduct studies. The results will help the FAA develop guidance and regulations for airport sustainability planning moving forward. According to FAA, "the pilot program will include initiatives for reducing environmental impacts and achieving economic benefits while increasing integration with local communities."

The pilot program gives airport operators the option of preparing either a sustainability management plan or sustainable master plan. There are key differences between these two types of sustainability planning efforts.

Both a sustainability management plan and sustainable master plan gather baseline information such as energy consumption, solid waste and recycling, water consumption, and many more categories. With baselines established, goals and reduction targets are established and milestones set for achieving each goal. A sustainability report card then helps the airport track progress on each goal using predetermined metrics.

A sustainable airport master plan goes a step further, taking all of the elements of a sustainability management plan and integrating it with a traditional airport master plan. This more holistic look at how airports are planned takes into account sustainability goals, targets, and metrics when considering the 20-year development plan for an airport.

When sustainability is an integral part of the planning process, it can facilitate better planning decisions about development. Using a sustainability decision tree in concert with sustainability guidelines and recommendations, an airport can make projects as sustainable as possible. The process focuses on maximizing existing assets before resorting to new construction and ensuring that any new construction is as green as possible.

Both types of sustainability planning are valuable and each will further the goal of making airports more sustainable. According to the FAA, the pilot program will be complete by late 2012. Lessons learned will aid the FAA in developing national program guidance on sustainability.

1.04—Sustainability Management Plan Approach

It is important to establish a context for the manner in which the airport is approaching this management plan. As mentioned in Section 1.01, in the published report "The City of Fresno's Strategy for Achieving Sustainability," the city describes its goals of sustainability by saying that "sustainable development balances economic development and environmental stewardship with innovative business enterprises that focus on the 'triple bottom line' of providing economic, environmental and social benefits."

This management plan covers the areas of study required by FAA as part of the pilot program. In all, 12 wide-ranging areas of sustainability were studied. Areas that will have the most impact on the airport's overall sustainability, such as air emissions and energy and water usage, were considered in greater detail. Because this is the airport's first sustainability management plan, the approach focuses more heavily on environmental elements and less on social and financial aspects. Making significant progress on the environmental elements was determined to be the best use of the available funds for this study. Socioeconomic concerns are included in the baseline, goals, and implementation plan, but the level of analysis is lower than that for environmental. A financial and economic baseline assessment and analysis is not covered in this study in detail, again because of interest in making significant progress on the environmental elements.

On future management plan updates, the airport is encouraged to consider broadening the plan to include more analysis of social and financial elements. Lessons learned from the airport's first sustainability management plan can be incorporated in future updates, ensuring the triple bottom line concept is ultimately achieved.

FRESNO YOSEMITE
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Section 2

Sustainable Initiatives at Fresno

Section 2—Sustainable Initiatives at Fresno

Over the last decade Fresno's Department of Airports has taken numerous important steps toward becoming more sustainable:

- The 2002 terminal/concourse facility boiler upgrade replaced the antiquated traditional boiler system (tank storage) with 10 Low-NO_x pulse boilers, which are non-storage type heating systems where the number of boilers in-use is controlled by demand. These new boilers are exempt from the San Joaquin Valley Air Pollution Control District regulations due to their lower emissions. A comparison of the pulse boiler manufacturer data indicated an estimated 30 percent annual savings in natural gas demand as compared to a traditional large storage tank boiler system.
- The 2002 storm water systems improvement upgraded storm drain lines, increased the capacity of storm water drainage basin, installed a new pump system with back-up power, and added oil/water separators for the entire system.
- In 2003 the airport provided four passenger loading bridges and an additional two in 2006, which included pre-conditioned air (PCA) and 400 Hz power. This eliminated the need for airlines to use diesel-generated ground support equipment (GSE) or aircraft engines to power the necessary functions on-board aircraft while deplaning and enplaning.
- In 2004 the new cargo ramp was constructed for air cargo operations. It provides in-ground electrical hook-ups, thereby eliminating use of emission-emitting GSE. The location of the new ramp also reduces taxi distances by 13 percent for all cargo aircraft. (The current average taxi distance is 9,585 feet, while the previous taxi distance was 11,030 feet.) The project also included the addition of a storm water oil/water separator.
- The reconstruction of the airport taxiways from 2007 to 2010 included 100 percent recycling of existing material on-site and replacement of quartz lighting with light emitting diode (LED) lighting. This represents a 56 percent reduction in lighting load (from 30 watts to 13 watts). The useful life of the LED fixture is estimated at 10 times higher than the quartz fixture.
- Utilization of all-green cleaning materials for all airport-controlled facilities including restrooms, carpet and hard flooring, walls and other surfaces.
- Use of no or low impact/maintenance landscaping where applicable. Most recently the Department of Airports installed synthetic grass in an isolated small triangular street island (Ashley/Clinton Way) to reduce landside maintenance and irrigation.

FYI's solar panels generate 4.2 million kilowatts of power annually.


Continuous energy savings data are presented online.

- The 2009 solar panel installation provides 60 percent of FYI's power consumption and generates 4.2 million kilowatts of power. The project, which takes advantage of otherwise unusable land, supplies the airport with less expensive power than the local electric utility, PG&E, and will potentially save the airport $19 million over 25 years. A continuous presentation of the savings provided by this project can be found at: http://webkiosk.mypvdata.net/c/fresno_airport/.
- The Consolidated Rental Car Facility (CRCF), completed in 2009, reduced the need for excessive vehicle shuffling and passenger shuttle buses, thus reducing emissions. The project replaced inefficient (energy and operational) facilities. Because the CRCF is located adjacent to the terminal there is no need for busing activities, which has also resulted in reduced emissions.
- The Department of Airports actively participates in the City of Fresno's recycling program, including construction-related recycling.
- The 2010 renovation of the terminal/concourse facility included a complete rehabilitation of the ticketing and outbound checked baggage wing, the expansion of the baggage claim area and a new security checkpoint. The project incorporated the following components:
- Project goal was to rehabilitate the terminal in order to provide a minimum 20-year life span with little to no building expansion.
- Provided shared-use airline check-in system to maximize space utilization. The Department of Airports expects the useful life of the passenger processing facility to be extended well beyond 20 years based on projected growth without the need to further expand the facility.
- Incorporated passive solar design elements such as automated sun shades and light colored finishes.
- Replaced all antiquated air handlers in the affected areas.
- Used light colored roofing materials for all replaced roofs.
- Replaced inefficient recessed lighting with indirect lighting to reduce heat and lighting loads.
- Provided infrastructure for future charging capabilities of GSE.
- Replaced all 50-year-old electrical switchgear equipment and transformers.

The consolidated rental car facility reduced excessive rental vehicle shuttling and busing.

Section 3

Baseline Assessment

Section 3—Baseline Assessment

The purpose for baseline assessments is to establish a starting point for implementing future sustainable practices. In order to set realistic goals, it is important to understand the existing character of the airport. This section includes data collected for each area for which goals and targets were set. 2010 was chosen as the baseline year because it included the most available data and is a complete representation of the airport's annual activities. Due to the significant amount of progress made by the airport since 2005, certain categories include data from that year to illustrate FYI's achievements.

As part of the sustainability management plan, operational data from 1990 will be consolidated to evaluate reductions in greenhouse gas emissions. This information will also assist in determining compliance with the California Global Warming Solutions Act (AB-32).

Each of the 12 areas explored in the baseline assessment is directly related to the number of aircraft operations at the airport. For example, as the number of aircraft operations increases, the amount of energy used at airport facilities will also increase. Therefore, it is important to begin with a breakdown of aircraft operations at Fresno Yosemite International Airport.

The Department of Airports provided C&S with a detailed itemization of monthly operations by airline and aircraft type for the years 1990, 2005, and 2010. In addition, the airport supplied data from a 12-month period beginning in September 2009 and ending on September 30, 2010, for general aviation and military operations. The data include aircraft operations from based and itinerant aircraft and can be found in Table 3.1.

Figure 3.1 shows the history of aircraft operations at FYI. The more significant peaks and valleys presented in the graph are likely attributed to new airlines initiating service at the airport or, in some cases, airlines leaving the airport.

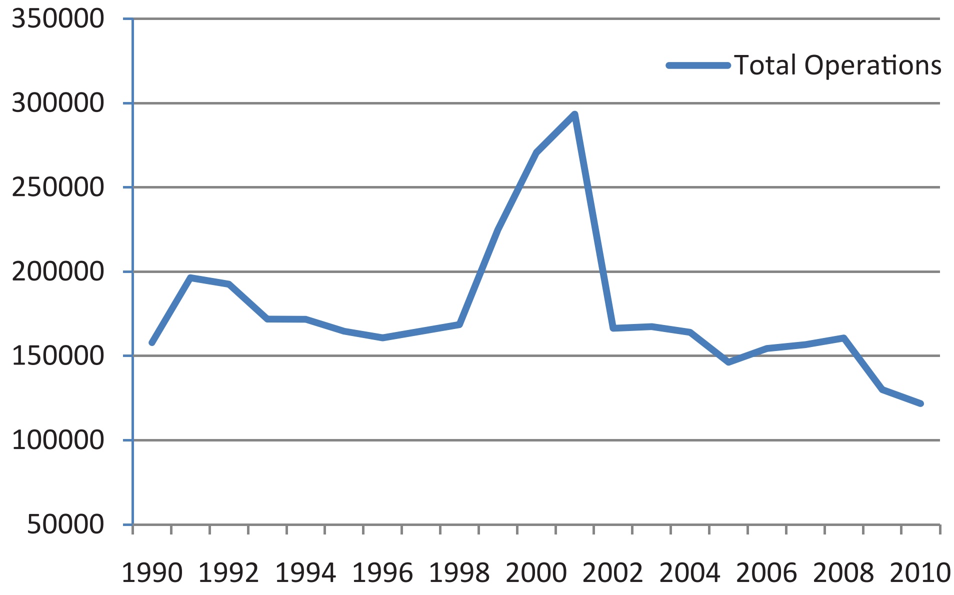
Another important component of the sustainable management plan is employee participation and input. Their participation is essential to achieving success with this sustainability management plan. As part of the baseline assessment, all employees working for the airport or 13 tenants were asked to com-

Table 3.1—FYI Flight Operations September 2009–September 2010

Type of Operations	Number of Operations
Air Carrier/Taxi/Commuter	31,176
General Aviation	79,480
Military	10,988
Total:	**121,644**

Source: FYI

Figure 3.1—Total Operations at FYI

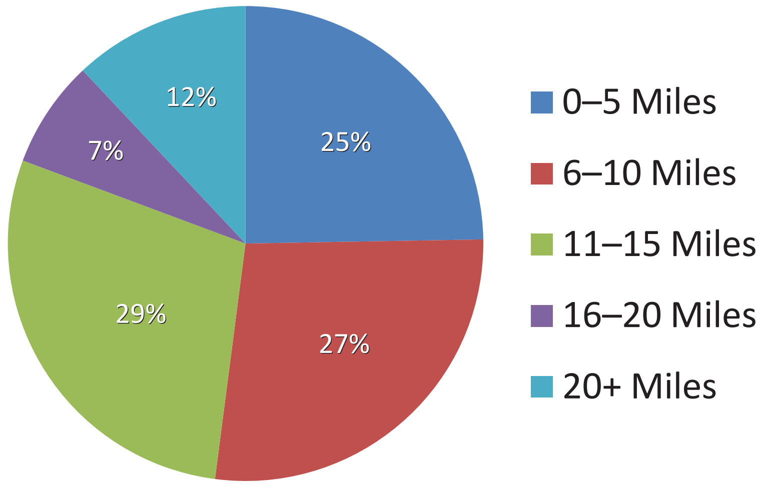


Source: FAA 2010 TAF for FYI. Accessed June 2011.

plete a brief online survey regarding their experience at the airport. More than 150 survey responses were received; a detailed breakdown of results can be found in Appendix B—Airport Survey Results. Some highlights from the survey include the following:

- More than 60 percent of employees surveyed work in the terminal area. Of that 60 percent, one third of respondents work in the front lobby where the ticket counters are located.
- 80 percent of employees surveyed work five days per week.
- The majority of employees surveyed work Monday through Friday; shifts vary by departments/facilities.
- Only 8 percent of employees surveyed work split shifts, meaning their work schedule is split into two or more segments. For example, an employee might work from 5 a.m. until 9 a.m., have a break, and return to work at 2 p.m. to finish his or her workday. Since most employees would likely leave their work site during the extended break, vehicle emissions would increase with this type of schedule.
- More than half of the employees leave the airport property during their breaks. On average, employees travel approximately eleven miles roundtrip to either their homes or restaurants/stores during these breaks.
- Nearly 97 percent of employees surveyed drive alone to work; the remaining employees either carpool or use public transit. None of the employees surveyed walk or bike to work; nor do any telecommute.
- 80 percent of employees surveyed live within 15 miles of the airport. See Figure 3.2.
- Employees rarely travel to other airport facilities/buildings during the workday for work related or non-work related activities. For those who do travel to other areas of the airport, the most common destination is the terminal.
- 90 percent of respondents did not know of any employer incentives for the use of alternative modes of transportation.
- When asked to rank alternative modes of transportation that employees would be willing to use, 54 percent listed carpooling as their first choice over telecommuting, public transit, biking and walking.
- A third of employees surveyed responded that they are unwilling to walk, bike, telecommute or use public transit.
- When asked if sustainability is a consideration in their workplace, 80 percent of employees surveyed responded positively. Nearly all of the positive responses cited recycling as a sustainability measure in their workplace. Also mentioned were water conservation, solar power, occupancy sensors for lights, recycling of e-waste, and the use of green chemicals.
- Employees were asked what their workplace is currently doing well to promote sustainability. The majority of respondents named recycling as a successful initiative in their workplace.

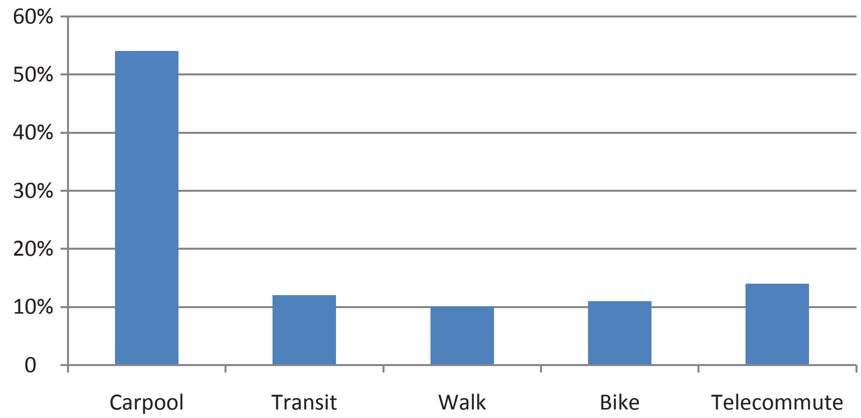
Figure 3.2—Employee Commutes to FYI (2011)



Source: C&S Companies

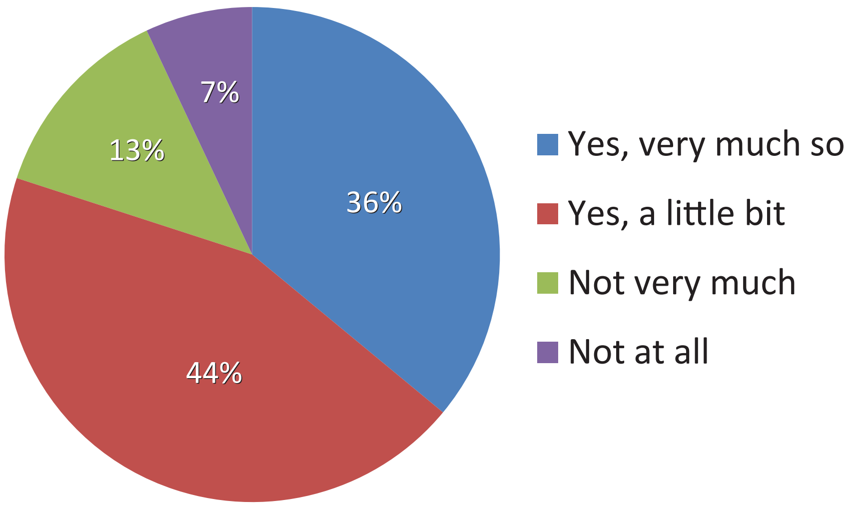
Notes: Employee commute distances refer to one-way commutes. Distances should be doubled to attain roundtrip numbers.

Figure 3.3—Employee's First Choice for Alternative Transportation (2011)



Source: C&S Companies

Figure 3.4—Is Sustainability a Consideration in Your Workplace? (2011)



Source: C&S Companies

- When asked what could be done to make their workplace more sustainable, the majority of respondents requested energy-saving initiatives like turning off lights or installing motion sensors.
- Employees were asked for additional comments regarding sustainability in their workplace or at the airport overall. One recurring suggestion was to conserve paper. This could be accomplished by encouraging paperless transactions or eliminating printers from individual desks.

This survey provides a useful measurement of the sustainability efforts already underway at the airport. Furthermore, it allows C&S to measure the employees' willingness and ability to participate in future initiatives.

3.01—Air Emissions

3.01-1—Introduction

This air quality baseline emissions assessment was prepared to document existing air quality conditions and levels of criteria pollutant and greenhouse gas (GHG) emissions generated by activities and facilities at Fresno Yosemite International Airport, located in Fresno County, California. Sources of criteria pollutant and GHG emissions at the airport include aircraft, ground support equipment (GSE), ground motor vehicles, and stationary sources (e.g., airport boilers and fuel storage tanks).

The United States Environmental Protection Agency (USEPA) has set National Ambient Air Quality Standards (NAAQS) for criteria pollutants such as carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and ozone (O_3). These pollutants, except ozone, are emitted from the combustion of fuel. Ozone is formed through a photochemical reaction between oxides of nitrogen (NOX) and volatile organic compounds (VOCs), in the presence of sunlight. Fresno County is currently designated as "non-attainment" with the NAAQS for the eight hour ozone standard and $PM_{2.5}$ as well as "maintenance" for carbon monoxide and PM_{10}. A "non-attainment" area is a geographical area that exceeds one or more of the NAAQS as designated by the USEPA, while a maintenance area was formerly designated non-attainment, but is currently meeting the applicable standards.

The accumulation of GHGs in the atmosphere has been linked to global climate change. GHGs are created through both man-made and natural processes. The primary cause of greenhouse gases is the combustion of fuel, which releases GHGs into the atmosphere. Once in the atmosphere, they absorb the sun's rays that have reflected from the ground, causing an increase in the earth's temperature. While GHGs are needed to retain temperature in the atmosphere in order to make Earth's climate habitable, the increased use of fossil fuels over the past several decades is believed to have warmed the atmosphere, causing a global impact. GHGs include carbon dioxide, methane, nitrous oxide, sulfuric oxide, hydrofluorocarbons and perfluorocarbons. Initial indications are that aviation contributes approximately three to four percent of the total greenhouse gas emissions in the United States.

This section describes the technical approach, calculation methods, and data gathered to conduct this inventory, as well as the results of modeling and calculations. It identifies the current emissions at FYI, including those associated with aircraft, auxiliary power units (APUs), GSE, stationary sources, and ground transportation.

Regulatory Overview

The assessment of the air quality impacts of criteria pollutants is typically conducted to demonstrate conformity with the State Implementation Plan (SIP) for projects at airports located in a non-attainment area. The analysis is performed in accordance with the guidelines provided in the FAA's 2004 Air Quality Procedures for Civilian Airports & Air Force Bases (referred to as the Airport Air Quality Handbook) and FAA Order 5050.4B, which, together with the guidelines provided in the FAA Order 1050.1E, Environmental Impacts: Policies and Procedure (March 20, 2005), constitutes the relevant provisions of the National Environmental Policy Act (NEPA), the Clean Air Act (CAA), and air quality regulations. The baseline air inventory for FYI was conducted in a manner consistent with these guidelines.

In addition to criteria pollutants, a GHG emission inventory was also developed. The GHG emission inventory was conducted in general conformance with the Airport Cooperative Research Program (ACRP) Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories (ACRP Report 11). Carbon dioxide is typically used as a method of measuring the contribution of GHG into the atmosphere. The different GHGs have a varied impact on the environment. Because of this, emissions are computed in "carbon dioxide equivalents," which can be obtained by multiplying GHG emissions by a global warming potential. The global warming potential, or GWP, is the ratio of heat trapped from one kilogram of a greenhouse gas to the heat trapped from one kilogram of CO_2 over a period of time (typically 100 years). As shown in Table 3.2, carbon dioxide serves as the reference gas, having a GWP of 1.

Table 3.2—Global Warming Potential (GWP) Conversion Factors

Greenhouse Gas	Formula	Atmospheric Lifetime (Years)	GWP
Carbon Dioxide	CO_2	50-200	1
Methane	CH_4	12 ± 3	25
Nitrous Oxide	N2O	120	298
Sulfur Hexaflouride	SF_6	3,200	22,800

Source: IPCC Fourth Assessment Report: Climate Change 2007

Emissions Inventory Methodology

FYI consists of a terminal building, a new concourse (referred to as the "pod"), an ARFF building, FAA air traffic control tower, a rental car facility, along with other services at the airport. The sources of emissions at the airport include stationary sources, aircraft, GSE, APUs, as well as ground access vehicles (GAV). Electricity usage also causes GHG emissions, not at the airport, but at the utility generating the power. Table 3.3 describes the sources of emissions. The majority of the sources are not owned or controlled by the Department of Airports.

Table 3.3—Sources of Airport Criteria Pollutant and GHG Emissions

Sources	Characteristics of Emissions
Aircraft	Exhaust products of fuel combustion that vary depending on aircraft engine type, fuel type, number of engines, power setting and time-in-mode, and amount of fuel burned.
Ground Support Equipment (GSE)	Exhaust products of fuel combustion from aircraft service trucks, baggage tugs, belt loaders, deicers and other portable equipment.
Auxiliary Power Units (APU)	Emissions are also emitted by auxiliary power units used to provide power to aircraft when the main engines are off.
Ground Access Vehicles (GAV)	Exhaust products of fuel combustion from airport owned vehicles, passenger vehicles, employee and cargo motor vehicles approaching, departing, and moving about the airport site. The emissions from this source vary from the type of vehicle (automobiles, vans, trucks and busses), type of fuel, and the amount of fuel consumed. Modes of transportation include bus routes, taxis, rental cars, hotel shuttles and personal vehicles.
Stationary sources and fuel facilities	Exhaust products of fossil fuel combustion in boilers for space heating and emergency generator units. The release of refrigerants also contributes to greenhouse gas emissions.
Electrical Consumption	Emissions are associated with the production of electricity at off-site utilities that use coal, oil, or natural gas.

Source: C&S Companies

To estimate emissions from the various sources, available information was obtained from the airport, tenants, and other sources. Various approaches, including modeling, emission factors, and calculations were used to determine baseline emissions. Table 3.4 describes the source of the information as well as the basis for the calculations.

3.01-2—Summary of Data

Criteria Pollutant Emission Calculations

The inventory of annual aircraft emissions required identification and characterization of the aircraft fleet currently operating at FYI. As illustrated in Table 3.4, the EDMS—5.1 model was primarily used to determine the emissions of criteria pollutants associated with the airport. The aircraft fleet is specific to the aircraft operating at FYI. Representative engine types were assigned to each unique aircraft type, and the number of annual operations by aircraft type was used. Using the EDMS database, matching aircraft types and engine assignments were made for each aircraft. In cases where an exact match was not available in the EDMS database, a substitute aircraft/engine combination was made.

The calculation of emissions from aircraft requires the operating time per landing/takeoff (LTO) cycle for each aircraft type in various modes such as takeoff, approach, climb out, and idle, where idle is defined as time that aircraft spend taxiing and in departure queues. The average taxi time per LTO depends on an airport's physical characteristics, such as taxiway distance and the location of terminals, hangars, and tie-down areas, etc. The average departure queue time per LTO is mostly a function of an airport's operational characteristics, such as the annual number of aircraft operations. Approach and climb out times also depend on the meteorological conditions, as well as aircraft type. The EDMS-supplied International Civil Aviation Organization (ICAO)/USEPA default times-in-mode for approach, takeoff, and climbout were used for each aircraft type for the various scenarios. Because commercial aircraft have electrification and PCA available, the APU use time was taken as seven minutes. Table 3.5 summarizes the landings (as provided by FYI) and operations for the airport for year 2010.

Note that each aircraft landing or takeoff is considered an operation. Therefore, the aircraft operations figures were calculated by multiplying the landings by two.

In addition to the annual aircraft emissions, which account for emissions during takeoff, climbout, ap-

Table 3.4—Input Data and Information Summary

Sources	Parameter—Source of Data and Information
Aircraft	2009–2010 air carrier/taxi/commuter, general aviation, and military operations data were provided by FYI. Fleet mix data from 2006 FYI master plan were used to estimate military and general aviation operations. • Emission Dispersion and Modeling System—EDMS 5.1.3 • Criteria pollutant emission factors EDMS 5.1.3 • Aircraft/engine combinations—EDMS 5.1.3 Default Values • Times-in-mode—EDMS 5.1.3 default • Mixing height—3,000 feet (criteria pollutants and GHG Emissions)
Ground Support Equipment (GSE)/ Auxiliary Power Units (APU)	Information was obtained from airlines and tenants as well as EDMS defaults. GSE fleet mix, operating times and purchased fuel records were approximated by airport vendors. • Emission Dispersion and Modeling System—EDMS 5.1.3 • Criteria pollutant emission factors—EDMS 5.1.3 • APU types and operating times—EDMS 5.1.3 Default data
Ground Access Vehicles (GAV)	Airport owned vehicles—Emissions determined by 2010 airport fuel and utility records. Airport owned vehicles fueled exclusively by purchased fuel. Employee and passenger VMT—discussions with airports and tenants and 2006 airport master plan. Emission Dispersion and Modeling System—EDMS 5.1 • Criteria pollutant emission factors—EDMS 5.1 GHG emission factors from Energy Information Administration, EPA, and ACRP Guidebook
Stationary sources	Boilers, heaters, generators (natural gas)—Calculated emissions based on airport records of purchased natural gas Criteria pollutant emission factors—AP-42 GHG emission factors from Energy Information Administration and EPA
Electrical Consumption	Electrical consumption—Airport records Emission factors—eGrid Version 1.0 (2010) values

Source: C&S Companies

Table 3.5—Landings/Operations by Source

Source	Landings	Operations
Air Carrier/Taxi/ Commuter	15,588	31,176
General Aviation	39,740	79,480
Military	5,494	10,988

Source: FYI data, September 2009–September 2010

proach, and taxiing, auxiliary power units on board specific aircraft during boarding and deboarding can also generate emissions of criteria pollutants. The use of APUs is a function of weather conditions, length of time of boarding and deboarding, and safety considerations. The EDMS default values for APUs per aircraft type and time of APU operation were used in this calculation. The default operating time for APU usage is 26 minutes.

The emissions associated with stationary sources were determined by fuel usage provided by the airport and the AP-42 emission factors. A detailed summary of natural gas and electrical usage is provided in Section 3.02—Energy Inventory beginning on page 3-12.

As described in further detail in Section 3.10—Surface Transportation beginning on page 3-35, the estimated total number of vehicle miles traveled is 23,101,903. The FAA-approved EDMS Model was

Table 3.6—Baseline (2010) Criteria Pollutant Emission Inventory in Metric Tons per Year

Source	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO_X)	Sulfur Oxides (SO_X)	Particulate Matter (PM_{10})	Particulate Matter ($PM_{2.5}$)
Aircraft	1220.253	60.996	115.249	16.99	0.879	0.879
GSE	120.197	4.706	20.7	0.399	0.841	0.811
APUs	1.864	0.139	2.026	0.271	0.231	0.231
Roadways	185.351	14.813	25.098	0.199	0.939	0.577
Stationary Sources	0.25	0.02	0.29	0.00	0.02	0.02
Total	1528.870	80.674	164.363	17.859	2.909	2.517

Source: C&S Companies

used to calculate criteria pollutant emissions associated with vehicular traffic. The emissions associated with all transportation were determined by EDMS, using a sum of the vehicle miles traveled by vehicles from general aviation and commercial passengers, employees, and the transit bus line.

Based on the methodology described in this analysis, the estimated total criteria pollutant emissions at FYI for the baseline year are presented in Table 3.6.

Greenhouse Gas Emissions

The calculation of greenhouse gas emissions for FYI was accomplished using methods recommended in the ACRP Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories. In accordance with the guidebook, the inventory was divided into three sections, or scopes. Scope 1, or direct emissions, include emissions associated with fuel necessary to power airport-owned vehicles on and off the airport and airport-owned combustion facilities. Scope 2, or indirect emissions, are emissions resulting the generation of electricity. Scope 2 emissions are not owned, but are controlled by the airport through electricity consumption. Scope 3 emissions include sources not owned or controlled by the airport, such as aircraft emissions, public ground travel on and off the airport property, and airport employee commute emissions.

Table 3.7—FYI Fuel Consumption (2010)

Fuel Type	Units	Consumed
Gasoline (Airport Vehicles)	Gallons	1,129.00
Diesel (Airport Vehicles)	Gallons	2,847.00
Natural Gas	1,000 ft^3	6,498.90

Source: FYI

Scope 1 Emissions

Scope 1 emissions consist of fuel consumption necessary to power airport owned vehicles and facilities. It includes the combustion of natural gas, unleaded gasoline, fuel oil or other petroleum sources. Emissions from boilers, unit heaters, emergency generators, and airport owned vehicles fall under scope 1 emissions. In addition, the type and estimated amount of refrigerants released would be categorized as Scope 1.

Based on airport records, the fuel consumption values used to calculate scope 1 emissions for 2010 are provided in Table 3.7.

The total amount of natural gas, unleaded gas, and diesel fuel consumed at the airport was converted to metric tons of CO_2e emitted into the atmosphere. The emission conversion factors utilized were obtained from both the Department of Energy's Energy Information Administration (EIA) website and the Environmental Protection Agency (EPA) website. Using standard conversion factors provided, the

Table 3.8—Total Scope 1 Greenhouse Gas Emissions (2010)

Source	Units	Consumed	CO_2 Emissions (lb CO_2)	N_2O Emissions (lb N_2O)	CH_4 Emissions (lb CH_4)	CO_2e Emissions (lb)	CO_2 Emissions (metric ton)
Gasoline	gals	1,129	22,094	0.23	0.62	22,177	10.06
Diesel	gals	2,847	63,719	0.54	1.52	63,919	28.99
Natural Gas—Terminal	1,000 ft^3	5571.9	651,968	12.26	12.82	655,941	297.53
Natural Gas—Airport Administration	1,000 ft^3	680.9	79,672	1.50	1.57	80,158	36.36
Natural Gas—Maintenance Office	1,000 ft^3	244.8	28,644	0.54	0.56	28,818	13.07
Total			**846,097**	**15.06**	**17.09**	**851,013**	**386.01**

Source: C&S Companies

recorded consumption was converted to metric tons of CO_2.

Along with carbon dioxide conversion, it is necessary to calculate emissions of methane (CH_4) and of nitrous oxide (N_2O), since these gases are also emitted during fuel consumption. Methane and nitrous oxide emissions were converted to “carbon equivalents.” The example calculation that shows how emissions were calculated for the amount of diesel used in the 2010 is presented in Appendix C. The CO_2 equivalents from scope 1 components are presented in Table 3.8.

Figure 3.5—eGrid 2007 Regions

Source: Environmental Protection Agency

Scope 2 Emissions

Scope 2 emissions are indirect emissions associated with electrical usage. Electrical use data for the airport (i.e., electric and gas bills) and emission factors contained in eGrid 2010 Version 1.0 and from the utility were used to determine the scope 2 emissions. Electricity usage information was provided by the Department of Airports. Figure 3.5 illustrates the eGrid regions. For the air emissions baseline, the electrical usage shown for the terminal building includes the FAA tower, and rental car areas and ready return lot, which are submetered to the terminal, but are not operated by the airport. These areas were included in the 2010 baseline for consistent comparison to 1990 and 2005 inventory.

The State of California obtains electrical power from coal, oil, gas, nuclear, hydro and wind energy. Since each of these sources emits different levels of emissions, the impact on the environment would be dependent upon their percentage of use. Pacific Gas and Electric provided emission factors for 2010 non-residential electricity use. The airport has an emission rate of 559 lbs CO_2/MWh.

Table 3.9—Electricity Emissions for 2010 Baseline

Building	Consumed (KWH)	CO_2 Emissions (lb CO_2)	N_2O Emissions (lb N_2O)	CH_4 Emissions (lb CH4)	CO_2e Emissions (lb)	CO_2 Emissions (metric tons)
Airline Office Building	880	492	0.01	0.02	494	0.22
Fresno Airport	2,811	1,571	0.02	0.08	1,579	0.72
Four 100W Clearance Lights	1,464	818	0.01	0.04	822	0.37
Sprinkler Control	0	0	0.00	0.00	0	0.00
Administrative Offices	473,920	264,921	2.95	13.41	266,136	120.72
Maintenance Office	106,240	59,388	0.66	3.01	59,661	27.06
Drainage Pump	2,144	1,198	0.01	0.06	1,204	0.55
Airport Department	8,400	4,696	0.05	0.24	4,717	2.14
Office/ Warehouse	19,440	10,867	0.12	0.55	10,917	4.95
Fire Pumps-A 1	400	224	0.00	0.01	225	0.10
Basin Pump Station	41,364	23,122	0.26	1.17	23,229	10.54
Airplane Clear LTS	1,224	684	0.01	0.03	687	0.31
Air Terminal**	1,915,793	1,070,928	11.94	54.20	1,075,840	487.99
Total	**2,574,080**	**1,438,911**	**16.04**	**72.82**	**1,445,510**	**655.67**
Emissions offset by photovoltaic solar panels*						
	4,877,737	2,726,655	30.39	138	2,739,160	1,242.46

* The numbers shown indicate how much electricity FYI's solar photovoltaic panels have produced, directly reducing the airport's need to purchase electricity from the utility company. The solar PV panels prevented 1,242.46 metric tons of CO_2e emissions. **Air terminal includes submetered electrical data for FAA tower, and rental car areas and ready return lot.

Source: C&S Companies

The emission rate was then multiplied by the recorded usage values for the baseline year, and converted to metric tons of CO_2 for each year. To account for the climate impact from methane and N_2O emissions, eGrid also provides emission factors for these two gases for each region. The CAMX region emission rates for methane and N_2O are 28.29 lb/GWh and 6.23 lb/GWh, respectively. These emission rates and the global warming potentials of each gas were used to calculate the carbon equivalents for the year's energy consumption, as presented in Table 3.9.

As mentioned earlier, the Department of Airports installed solar panels at the airport between July 2009 and July 2010. These panels annually produce 4,877,737 kWh of electricity that was used by facilities located at the airport. This amount of electricity translates to 1,242.5 metric tons of CO_2e that were not released into the atmosphere. Calculation of scope 2 emissions arranged by greenhouse gas is presented in Appendix C.

Scope 3 Emissions

Scope 3 emissions are those associated with, but not owned or operated by the Department of Airports. These include emissions from aircraft, tenants, transportation to the airport by employees and passengers, and other outsourced activities.

Aircraft, APU, and GSE Emissions

Greenhouse gas emissions from aircraft were calculated using aircraft make and models data provided by the Department of Airports, with EDMS 5.1.3 default engine types, and EDMS 5.1.3 emission conversion factors, as recommended in ACRP guidebook. To calculate the emissions from APU and GSE associated with each aircraft, default values were used in EDMS. The EDMS model calculates CO_2 emissions from landing and takeoff cycles (LTO). The results from this calculation are shown in Table 3.10. An EDMS report detailing assumed values and final results of the model is presented in Appendix C.

Ground Access Vehicles—Bus Line

The Fresno Area Express (FAX) provides bus routes (Routes 26 and 39) that travel to the airport with stops around Fresno. The vehicle miles traveled (VMT) for the busses on these routes were calculated as 481,656 miles in the surface transportation section of this report. Emissions from this source were calculated using the total miles driven for the year (as presented in the transportation analysis), an assumed 4 miles per gallon for the shuttle busses, and appropriate emission conversion factors for diesel fuel. An example calculation detailing emissions from bus travel is presented in Appendix C. A summary table for the emissions from the FAX routes is presented in Table 3.11.

Table 3.10—Aircraft GHG Emissions

Aircraft Type	CO_2 Calculated from EDMS (metric tons)	CO_2e (metric tons)
Air Commuter/ Taxi	17,130.27	17,251
General Aviation	12,185.63	12,272
Military	12,172.96	12,259
Total	41,488.86	41,782

Source: C&S Companies

Ground Access Vehicles—Employee and Passenger Travel

Emissions in associated with employee and passenger travel were calculated based on estimated vehicle miles traveled, and estimated fuel economy. The VMT was developed in the traffic analysis of the airport master plan. Since there was no information detailing how many passengers use cars, vans, trucks, or SUVs, it was assumed that each passenger VMT was traveled in a vehicle with a fuel economy of 19.7 mpg, which is the average fuel economy of vehicles in the United States, according to the EPA. The total employee and passenger VMT was determined in the transportation analysis as 3,422,027 for employees, 17,767,620 for commercial passengers and 1,430,600 for general aviation passengers. The VMT was divided by the fuel economy in order to determine gallons of fuel consumed. The gallons were then converted to pounds of CO_2, CH_4 and N_2O to determine the total amount of carbon equivalents. It was assumed that all vehicles were fueled by gasoline. An example calculation detailing emissions from passenger VMT is presented in Appendix C. A summary of these emissions is presented in Table 3.12.

Greenhouse Gas Emissions Results

The results of the GHG emissions inventory are expressed in units of metric tons per year for each emission source (fuel use, GSE, aircraft, etc) and scope (1, 2 or 3). These results have been converted

Table 3.11—Summary of FAX Route Emissions (2010)

Fuel Source	Total Distance (miles)	CO_2 Produced (lb CO_2)	N_2O Emissions (lb N_2O)	CH_4 Emissions (lb CH_4)	CO_2e Emissions (lb)	CO_2 Produced (metric tons)
Diesel	158,946	889,465	7.55	21.22	892,245	405
Natural Gas	317,893	1,512,090	12.83	36.07	1,516,816	688
Totals Emissions						1,093

Source: C&S Companies

Table 3.12—Summary of Emissions from Employee and Passenger Travel (2010)

Traveler Type	VMT Per Traveler Type	Gallons of Fuel	CO_2 Produced (lb CO_2)	N_2O Emissions (lb N_2O)	CH_4 Emissions (lb CH_4)	CO_2e Emissions (lb)	CO_2e Produced (metric tons)
Employees	3,422,027	173,705.95	3,398,402.85	34.74	95.54	3,411,144.26	1,547.26
Commercial Passengers	17,767,620	901,909.64	17,644,960.29	180.38	495.05	17,711,115.36	8,033.58
General Aviation Passengers	1,430,600	72,619.29	1,420,723.78	14.52	39.94	1,426,050.40	645.84
Total Emissions =							10,227.69

Source: C&S Companies

Table 3.13—2010 Baseline GHG Emission Results

Source	CO_2e Emissions (metric tons)
Scope 1	
Fuel use—airport vehicles	39
Natural gas consumption	347
Scope 2	
Total electricity consumption	1,898
Reduction from photovoltaic facility	1,242
Net electricity usage	656
Scope 3	
Aircraft Emissions	41,783
Ground Access Vehicles	11,320
Total GHG Emissions =	54,144

Source: C&S Companies

to CO_2 equivalents using the global warming potential values, as discussed previously in Section 3.01-2. Table 3.13 presents the baseline greenhouse gas emissions inventory results for FYI.

Aircraft emissions are the largest source of GHG emissions associated with the airport, containing over 75 percent of the estimated total. Airport-owned or controlled emission sources (scopes 1 and 2) comprise 2.19 percent of the estimated total.

3.01-3—Strong Points

The following are some of the strong points that the Department of Airports has taken in regard to air quality.

- The facility operates a photovoltaic facility that generates approximately 4.8 megawatts per hour of electricity per year. This eliminates approximately 1,242 metric tons in carbon dioxide equivalent, resulting in a 65% reduction in purchased electricity.
- The facility uses gate electrification and preconditioned air units, which reduce the use time for auxiliary power units an estimated 19 minutes for commercial aircraft. This reduces the amount of oxides of nitrogen and volatile organic compounds by 2.24 and 0.34 metric tons per year, respectively. Between 2005 and 2010, there was a 7.6 percent reduction in GHG emissions.
- The airport has electrification hook-ups for the cargo operators, but those emission reduction improvements are not currently being used.
- The consolidated rental car facility is attached to the terminal, eliminating the need for shuttles transporting passengers to the rental car facility.
- The airport has a cell phone lane to minimize vehicle miles traveled on airport by customers/visitors waiting for passengers.
- FYI is converting to electric GSE.

3.01-4—Opportunities for Improvement

- There is electric ground support equipment at the airport, minimizing fuel usage. However, FYI should continue to work with the airlines to install electric chargers to use more electric GSE at the airport.
- Minimize aircraft movements to reduce taxi and queue times for aircraft.
- Promote employee use of public transportation or carpooling.
- Implement alternative fuels or hybrids for taxis.
- Convert City of Fresno vehicles to alternative fuels.

3.02—Energy

3.02-1—Introduction

Energy consumption is one of the largest expenditures an airport will have. Energy conservation initiatives that can feasibly and economically be undertaken have a considerable positive financial impact to the competitiveness of the airport.

The main energy user on airport owned property by far is the terminal building. In addition to the terminal, a number of smaller support buildings contribute to the airport's energy consumption. The largest worth mentioning is the airport administration building. These two buildings show the greatest opportunities for energy conservation, and are the main focus of the energy inventory and study.

3.02-2—Summary of Data

Terminal Building

Over the years, the terminal building has been added onto multiple times and, as a result, has several different mechanical systems of different ages and types. The long corridor that leads to the main concourse is commonly referred to as "the spine." The spine and parts of the main lobby are the oldest portions of the terminal building and conditioned by five air handling units (AHUs) from 1976, two newer roof top units (RTUs) that were installed in 1993, and one AHU at the security checkpoint that was installed in 2010. The central lobby area was constructed in 1959 and is conditioned by two large AHUs located in the basement. The Valley Grill and Sports Bar area was added in 1993 and is served by three RTUs. The baggage claim area (which also contains the rental car counters) was rehabilitated in 1986 and is served by two AHUs in rooftop penthouses and an RTU that date to 1986. This area was again renovated and a new AHU was installed in 2010. The ticketing area is served by four AHUs, two of which were installed during a 2002 renovation. The other two were installed in 2010. The two-story concourse (commonly referred to as "the pod") was built in 2000 and is served by three large AHUs. In addition there are six small RTUs that serve the jetways attached to the pod. The newest section of the terminal building is the federal inspection station (FIS). The FIS was built in 2007 and is served by six air-to-air heat pumps. Most of the AHUs at the terminal have VAVs with reheat, but some of the smaller ones are single zone without VAVs. Chilled water is provided by two 450-ton water cooled chillers located in the concourse basement mechanical room, installed during the 2003 terminal expansion. Hot water is provided by 10 gas-fired pulse boilers, also installed as part of the 2003 terminal expansion.

Lighting throughout the terminal building is varied and of different vintages, however the majority of the building is lit by T8 fluorescent bulbs. There are a few areas with T12s; restaurants, gift shops, and other vendors have some incandescent lighting.

Although many areas of the terminal building are unoccupied at night, the majority of the mechanical equipment is left on 24/7 and does not set back. Building controls are a mix of pneumatic and some newer direct digital control (DDC); only the pod, the ticketing area, and part of the baggage claim area have air handlers that are controlled by a building control system (the boilers and chillers are also on a building control system). The rest of the equipment is locally controlled.

Airport Administration Building

The airport administration building was originally constructed as a bank in 1986, and has since been

Table 3.14a—2010 Energy Usage

Service ID Number	Description	Usage	Period Start	Period End
Natural Gas Usage (in therms)				
254940005	Airline company	13	3/10/2010	3/9/2011
3786170005	Terminal	55,719	3/9/2010	3/10/2011
6452858005	Airport administration	6,809	3/9/2010	3/10/2011
6936703064	Maintenance office	2,448	3/9/2010	3/9/2011
Total Natural Gas Usage		**64,989 therms**		
Electricity Usage (in kWh)				
588274005	Airline OFC building	880	3/9/2010	3/10/2011
3886089461	FYI	2,811	2/25/2010	2/25/2011
3994504005	four 100W clearance lights	1,464	3/9/2010	3/9/2011
4478973005	Sprinkler control	0	2/24/2010	2/24/2011
6536191005	Admin offices	473,920	3/9/2010	3/10/2011
6936703559	Maintence office	106,240	3/9/2010	3/10/2011
7075327005	Drainage pump	2,144	3/2/2010	3/2/2011
7109321905	Airport department	8,400	3/9/2010	3/9/2011
7109321948	OFC / WHSE	19,440	3/10/2010	3/10/2011
7137188005	Fire pumps-A 1	400	3/9/2010	3/10/2011
7158661005	VASI/barrier lights/air-port	19,426	3/2/2010	3/2/2011
8713272005	Basin pump station	41,364	3/9/2010	3/10/2011
8754939005	Airplane clear lights	1,224	3/9/2010	3/9/2011
8963272406	Air terminal	1,915,793	2/28/2010	2/28/2011
Sub-meters to terminal building electric meter; these areas are not operated by the airport.	Service facilities (rental car companies)	41,966	1/1/2010	1/1/2011
	Common use	75,672	1/1/2010	1/1/2011
	FAA tower	683,054	1/1/2010	1/1/2011
	Ready return lot	65,200	1/1/2010	1/1/2011
Subtotal (sub-meter usage removed)		1,727,614 kWh		
	Solar produced	4,877,737 kWh	7/31/2009	6/30/2010
Total Electricity Use		**6,605,351 kWh**		

Source: FYI

Table 3.14b—2005 Energy Usage

Service ID Number	Description	Usage	Period Start	Period End
Natural Gas Usage (in therms)				
254940005	Airline company	13	3/10/2010	3/9/2011
3786170005	Terminal	55,719	3/9/2010	3/10/2011
6452858005	Airport administration	6,809	3/9/2010	3/10/2011
6936703064	Maintenance office*	2,448	3/9/2010	3/9/2011
Total Natural Gas Usage		**64,989 therms**		
Electricity Usage (in kWh)				
588274005	Airline OFC building	40,800	1/10/2005	1/10/2006
3886089461	FYI*	4,281	4/1/2006	3/29/2007
3994504005	four 100W clearance lights	1,464	1/10/2005	1/10/2006
4478973005	Sprinkler control	0	12/28/2004	12/28/2005
6536191005	Admin offices	445,280	1/10/2005	1/10/2006
6936703559	Maintence office	98,720	9/4/2009	9/9/2010
7075327005	Drainage pump	4,071	2/2/2005	2/2/2006
7109321905	Airport department	56,400	1/11/2005	1/10/2006
7109321948	OFC / WHSE	29,880	9/11/2009	9/9/2010
7137188005	Fire pumps-A 1	80	1/10/2005	1/10/2006
7158661005	VASI/barrier lights/air-port	29,916	1/3/2005	1/4/2006
8713272005	Basin pump station	16,623	1/10/2005	1/10/2006
8754939005	Airplane clear lights	1,224	1/10/2005	1/10/2006
8963272406	Air terminal	7,153,200	1/10/2005	1/10/2006
Sub-meters to terminal building electric meter; these areas are not operated by the airport.	Service facilities (rental car companies)*	41,966	1/1/2010	1/1/2011
	Common use*	75,672	1/1/2010	1/1/2011
	FAA tower	604,871	1/1/2005	1/1/2006
	Ready return lot*	65,200	1/1/2010	1/1/2011
Total Electricity Use		**7,094,230 kWh**		

Source: FYI

*Electric usage for these meters was not available for 2005, approximate available data was used instead converted to office space. It is served by nine packaged rooftop units and a small boiler, also located on the roof (all of which date to the 1986 construction of the building).

Most of the fixtures in the building are T-12 fluorescent; however, there are a few new T-8 fixtures as well.

All of the units are locally controlled and use pneumatic controls. It is believed that these units also run 24/7.

Energy Usage Summary

Table 3.14a summarizes the 2010 energy usage available from Pacific Gas & Electric (PG&E) and includes all the available active meters at FYI. This is the most recent available data and serves as the baseline energy usage. The terminal building electric meter has a few sub-meters that track the electricity usage of the control tower and other non-airport operated facilities. This usage is excluded from the baseline.

Most of the energy usage at the airport is from the terminal building and, to a lesser extent, the airport administrative office building. The solar energy the airport purchases is used entirely at the terminal building; therefore, the actual amount of electricity the terminal building uses annually is closer to 6,605,351 kWh.

Table 3.14b shows the energy usage from 2005. This data was provided from PG&E; however, not all of the meters date back as far as 2005. When usage was not available for a specific meter from the 2005 timeframe the most relevant data was chosen and put in its place. The photovoltaic array was installed in 2009, which explains the much higher electric usage on the terminal building in 2005.

When comparing the usage from 2005 to the usage from 2010 a few changes stand out. The electrical usage decreased by 488,879 kWh, or 7%. This shows good progress, especially considering the FIS was added during this time period and is heated by air-to-air heat pumps (these units do not use natural gas, but electricity to provide heat to the space). The natural gas usage, increased by 6,342 therms or nearly 11%. The terminal building's natural gas usage increased by 8,621 therms or more than 18% (the administration building's gas usage actually decreased by a significant amount over this time period). It is unclear why this would occur as there were no major changes to the terminal building during this time period that would cause this kind of an increase in natural gas consumption.

3.02-3—Strong Points

- Photovoltaic array.
- High energy costs (make for quicker paybacks).
- Plan to update control system in the future.

3.02-4—Opportunities for Improvement

- Control system needs upgrading and newer more aggressive control strategy (retro-commissioning is highly recommended).
- Lighting in the airport administrative building.
- Demand-controlled ventilation (DCV) is an excellent opportunity for energy savings on a number of the air handlers (already implemented on the AHUs serving the pod).

3.02-5—Summary

The airport has been expanded a number of times over the years. By taking a holistic approach to energy conservation at the terminal building, a large percentage of the energy used by FYI can be saved. This will reduce both operating costs and the facility's carbon footprint.

3.03 —Water Conservation

3.03-1—Introduction

Potable water is a finite resource; although approximately 70% of the earth's surface is covered by water, less than 1% is available for human use. California's population is growing and fresh water consumption is increasing as the supply of this precious commodity becomes scarcer and more expensive. Water use in buildings increases maintenance and life-cycle costs and increases the demand on municipal supply and treatment facilities.

3.03-2—Summary of Data

Irrigation water use is discussed in Section 3.06—Landscape Management on page 3-23.

Utility records for the 2010 fiscal year (July 1, 2009–June 20, 2010) indicate that the airport used 9,416,228 gallons of water at the terminal building during that billing cycle. Combined with associated sanitary sewer treatment costs, water costs were $40,688, or approximately $0.004 per gallon. To estimate the amount of water being used by plumbing fixtures, in January 2011, C&S collected information about water fixtures and building occupants at each airport building.

Evaluation Criteria

The water fixtures were evaluated in three ways.

- Fixture family (toilets, urinals, lavatory sinks, and showers were evaluated)
- Fixture type (based on level of performance)
- Fixture age

The number of full-time building occupants and visitors was evaluated to quantify the number of times each fixture is used.

Analysis

An analysis of the plumbing fixture types was prepared for each of the buildings on the airport property. The annual water consumption per fixture type was calculated based on the building's number of full-time employees, number and type of visitors, and annual days of operation. The number of daily uses is calculated and multiplied by flush and flow rates. A 50/50 gender ratio is assumed. Default values for flush and flow fixture daily use rates are shown in Table 3.15.

Observations

A performance case was prepared using existing fixture flush and flow rates. A target performance case was prepared showing water savings that could be achieved with upgraded low-flush and low-flow

Table 3.15—Flush and Flow Fixture Daily Use

Fixture Type	Full-Time Employees	Visitors
Toilets: Females	3	0.5
Toilets: Male	1	0.1
Urinals	2	0.4
Lavatories (15 seconds)	3	0.5
Showers (300 seconds)	0.1	0

Source: C&S Companies

Table 3.16—Flush and Flow Rates

Building	Toilets			Urinals			Lavatories			Showers		
	Qty.	Gallons per min.		Qty.	Gallons per min.		Qty.	Gallons per min.		Qty.	Gallons per min.	
		Existing	Target		Existing	Target		Existing	Target		Existing	Target
ARFF	3	1.6	1.28	2	1	0.5	12	2	1.5	3	2.5	2
Administration Bldg.	3	1.6	1.28	0	N/A	N/A	6	2	1.5	0	N/A	N/A
Airport Maintenance Building	5	1.6	1.28	2	1	0.5	5	2	1.5	2	2.5	2
Parking Lot Office	1	1.6	1.28	0	N/A	N/A	1	0.5	0.5	0	N/A	N/A
Terminal	76	1.6	1.28	25	1	0.5	81	0.5	0.5	2	2.5	2
Terminal—FIS Area	0	N/A	N/A	0	N/A	N/A	9	2.2	1.5	0	N/A	N/A

Source: C&S Companies

Table 3.17a—2010 Calculated Water Usage—Performance Case

Building	Total Full-Time Employees	Total Daily Visitors	Toilet Daily Total	Urinal Daily Total	Lavatory Daily Total	Shower Daily Total	Total Daily Water Use (Gallons)	Operating Days	Annual Water Use (Gallons)
ARFF	11.0	0.0	35.2	11.0	9.9	13.8	69.9	365	25,514
Admin. Bldg.	38.0	0.0	182.4	0.0	34.2	0.0	216.6	260	56,316
Airport Maintenance Bldg.	4.0	0.0	12.8	4.0	3.6	5.0	25.4	260	6,604
Parking Lot Office	14.0	0.0	67.2	0.0	3.2	0.0	70.4	365	25,696
Terminal	354.0	3,245.0	2,690.0	354.0	79.7	442.5	3,566.2	365	1,301,663

Source: C&S Companies

Table 3.17b—2010 Calculated Water Usage—Target Case

Building	Total Full-Time Employees	Total Daily Visitors	Toilet Daily Total	Urinal Daily Total	Lavatory Daily Total	Shower Daily Total	Total Daily Water Use (Gallons)	Operating Days	Annual Water Use (Gallons)
ARFF	11.0	0.0	28.2	5.5	7.4	11.0	52.1	365	19,017
Admin. Bldg.	38.0	0.0	145.9	0.0	25.7	0.0	171.6	260	44,616
Airport Maintenance Bldg.	4.0	0.0	10.2	2.0	2.7	4.0	18.9	260	4,914
Parking Lot Office	14.0	0.0	53.8	0.0	3.2	0.0	57.0	365	20,805
Terminal	354.0	3,245.0	2,152.0	177.0	79.7	354.0	2,762.7	365	1,008,386

Source: C&S Companies

fixtures. The data for each building are shown in tables 3.16, 3.17a, and 3.17b.

3.03-3—Strong Points

- All fixtures meet UPC and IPC standards.
- The five car washers at the rental car facility recapture nearly 100% of water for recirculation.

3.03-4—Opportunities for Improvement

- Many existing water fixtures could be replaced with more efficient, water-conserving fixtures, such as those certified with the U.S. Environmental Protection Agency's WaterSense label.
- Opportunities exist to reduce potable water consumption, which is currently used for irrigation, vehicle washing, and toilets. A program to collect and recycle non-potable water could significantly reduce use of potable water.

3.03-5—Summary

Opportunities exist for the airport to reduce water consumption by replacing various plumbing fixtures in the buildings managed by the airport administration with high-efficiency fixtures. Reductions can also be achieved in other buildings located on the airport used by tenants. Additionally, it may be possible to harvest rainwater and other runoff to use as a non-potable source of water for irrigation and plumbing, such as toilet flushing.

3.04 —Water Quality

3.04-1—Introduction

The City of Fresno historically receives fewer than 12 inches of rainfall a year (see Table 3.18). In the arid and semi-arid regions of the southwestern United States, groundwater sources comprise approximately 55 percent of the water supply (US EPA, 2010). The City of Fresno operates approximately 250 municipal wells within the Kings sub-basin, which is part of the greater San Joaquin Valley groundwater basin, and until 2004, relied solely on pumped groundwater to supply the water demands of the region. At the same time, due to increased urbanization and increased water demand, groundwater levels have declined by an average of 1.5 feet per year since 1990 according to the City of Fresno Urban Water Management Plan from 2008.

Stormwater management practices that increase groundwater recharge could provide significant cost savings by averting increased pumping costs or increased water imports. In addition, it has been estimated that municipal water/wastewater treatment facilities account for up to 50 percent of the electricity consumed by municipal entities in the United States. Capturing, treating, and reusing runoff on a site can reduce the amount of potable water consumed by a facility, which will reduce the amount of energy expended (and related cost) for pumping, cleaning, and processing water to potable standards.

Decreasing runoff into traditional stormwater conveyance systems will also reduce overloading of combined sewer overflows, which will in turn reduce water quality degradation and damage to aquatic habitats that can occur during major storm events when treatment facilities are bypassed.

The goal of a sustainable stormwater management strategy is to maximize the capture, treatment, and reuse of stormwater runoff through replicating the hydrologic condition (infiltration, runoff, and evapotranspiration) of the site based on historic, natural, and undeveloped ecosystems in the region. The benefits of such an approach are not only environmental, but also economic and social.

The City of Fresno has engaged in a proactive strategy of enhancing groundwater recharge through a series of groundwater recharge basins located throughout the area. However, only about 85 to 90 percent of the groundwater being pumped out annually is

Table 3.18—Fresno Monthly Rainfall, 2000–2010 (inches)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2000	3.15	6.12	1.35	1.16	0.05	0.56	0	T	0.32	2.45	0.01	0.07	15.24
2001	2.66	2.22	0.96	1.87	0	0	0.08	0	T	0.29	1.99	1.95	12.02
2002	0.76	0.4	0.95	0.21	0.38	0.02	0	0	T	0	1.78	2.25	6.75
2003	0.4	1.22	0.63	2.84	0.68	0	T	0.04	T	T	0.4	2.93	9.14
2004	0.88	1.69	1.54	0.03	0.07	0	0	0	0	2.45	0.81	3.16	10.63
2005	2.42	2.3	2.51	0.56	1.62	0.01	0	T	0.04	0.05	0.17	2	11.68
2006	3.4	0.54	4.73	3.27	0.36	0	T	0	0	0.08	0.23	1.33	13.94
2007	0.59	2.29	0.97	0.49	0.05	0	T	0.02	0.02	0.2	0.09	2.31	7.03
2008	3.32	2.12	0.02	T	0.3	0	0.01	0	0	0.23	1.37	1.09	8.46
2009	1.02	2.43	0.24	0.72	0.46	0.2	0	T	0.01	1.39	0.2	2.41	9.08
2010	2.05	2.94	0.96	2.19	0.21	0	T	0	0	0.44	1.8	5.92	16.51
Historical average	2.16	2.12	2.2	0.76	0.39	0.23	0.01	0.01	0.26	0.65	1.1	1.34	11.23

T=trace amount; Source: National Weather Service being replaced through recharge (City of Fresno Urban Water Management Plan, 2008).

It is important to note that stormwater management practices in the airport environment must be carefully selected and designed to minimize the creation of elements that attract wildlife—a hazard to airport operations. Such elements may include standing water, plants with high food value, or attractive habitats.

3.04-2—Summary of Data

Methodology

In order to evaluate the current stormwater conditions at the airport and the impact of future improvements projected in the master plan document, and to set goals for the future, it is necessary to develop a means to quantify the most important variable in stormwater management: runoff. Typically, hydrologic models are used by site designers to understand site hydrodynamics in order to properly design and size appropriate runoff management systems. The most accurate method of doing this is with continuous simulation modeling. However, the complexity and detailed data requirements of a hydrologic continuous simulation model are beyond the scope of this study. In order to provide a reasonable yardstick for evaluating the impact of stormwater management approaches, a new methodology has been developed by the Sustainable Sites Initiative, that utilizes the widely accepted Natural Resources Conservation Service (NRCS) TR-55 Runoff Curve Number as a measurement of the water storage capacity of a given site.

The object of these analyses is to determine the baseline water storage capacity of the site and to identify stormwater management strategies and practices which maintain and enhance this storage capacity. Water storage capacity is defined as the capacity of a landscape or site to temporarily store and release water through infiltration, evapotranspiration, and harvesting/reuse. For the purposes of this analysis, the water storage capacity of the site can be represented by the TR-55 curve number (CN). Higher CNs indicate lower storage capacity (e.g., a flat roof with virtually no capacity to absorb water has a CN of 98), and low CNs indicate higher storage capacities (e.g., a sand dune has an estimated CN in the low 30s).

The CN method is based on two factors, land cover type and NRCS Hydrologic Soil Group. TR-55 assigns a CN for a given area based on these two variables. TR-55 land cover types are summarized below:

Hydrologic soil group is a classification that rates the relative runoff potential of a given soil type in four categories, A, B, C, and D. Hydrologic soil groups as defined by the Natural Resources Conservation Service (NRCS) are summarized below. CNs for these groups are shown in Table 3.19:

Figure 3.6—Map of Existing Pervious Surfaces and Soil Groups on Airport Property

Table 3.19—Selected Runoff Curve Numbers for Urban Areas

Cover description & condition	Hydrologic Soil Group A	Hydrologic Soil Group B	Hydrologic Soil Group C	Hydrologic Soil Group D
Open space, Poor condition (grass cover < 50%)	68	79	86	89
Open space, Fair condition (grass cover 50% to 75%)	49	69	79	84
Open space, Good condition (grass cover > 75%)	39	61	74	80
Paved parking lots, roofs, drive-ways, etc.(excluding right-of-way)	98	98	98	98
Paved; curbs and storm sewers (excluding right-of-way)	98	98	98	98
Paved; open ditches (including right-of-way)	83	89	92	93
Gravel (including right-of-way)	76	85	89	91
Dirt (including right-of-way)	72	82	87	89

Source: Natural Resources Conservation Service (NRCS) TR-55, Table 2-2a

HSG A = (Low runoff potential) Soils having low runoff potential and high infiltration rates, even when thoroughly wetted. They consist chiefly of deep, well- to excessively drained sands or gravels, and have a high rate of water transmission (greater than 0.30 in/hr).

HSG B = (Moderately low runoff potential) Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep to deep, moderately well- to well-drained soils, with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15–0.3 in/hr).

HSG C = (Moderately high runoff potential) Soils having low infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine textures. These soils have a low rate of water transmission (0.05–0.15 in/hr).

HSG D = (High runoff potential) Soils having high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential; soils with a permanent high water table; soils with a hardpan or clay layer at or near the surface; and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0–0.05 in/hr).

Observations

A baseline analysis of the existing land cover types based on NRCS TR-55 categories and hydrologic soil groups was prepared for the airport property. Based on NRCS soils maps, the airport property primarily consists of sandy loam soils, mainly HSG B, with a few smaller areas of A soils. The contiguous areas of land cover type and HSG were tabulated and a composite CN for the existing airport property was calculated using WinTR-55 software and is shown on Table 3.20.

3.04-3—Strong Points

- HSG A and B soils have low to moderate runoff potential, and lend themselves to green infrastructure stormwater management practices, where on-site infiltration is a key component of the system.
- Infiltration practices help recharge groundwater, which is especially important in an arid climate. Many areas of the airport site could take advantage of soils and drainage patterns to maximize groundwater recharge.

Table 3.20—Existing Conditions: Sub-Area Land Use and Curve Number Details (area in acres)

Zone	Impervious area	Pervious area (HSG A)	Pervious area (HSG B)	Total Pervious	Total Area	% Impervious	Weighted CN
Zone A—Terminal	38.306	0.000	14.506	14.506	52.812	73%	90
Zone B—CANG South	58.925	0.000	23.403	23.403	82.328	72%	90
Zone C—Maintenance	44.302	0.000	22.736	22.736	67.038	66%	88
Zone D—CANG North	70.540	1.855	97.242	99.097	169.636	42%	81
Zone E—Airfield	323.511	38.399	373.281	411.680	735.190	44%	87
Zone F—Non-aviation	36.727	4.263	18.868	23.131	59.858	61%	85
Total	572.310	44.516	550.035	594.552	1166.862	49%	86

Source: C&S Companies

- The airport site contains many curbed landscape islands located in parking areas and along roadways. While these areas are generally not currently designed to collect stormwater, many could be retrofitted for this purpose.
- The city already has a proactive program of groundwater recharge facilities and understands the importance of this issue.

3.04-4—Opportunities for Improvement

A sustainable stormwater management strategy requires consideration of all components of the hydrologic cycle (evapotranspiration, runoff, and infiltration) in design. The following approaches should be incorporated in the design of future improvements to the airport facilities:

- Minimize unnecessary impervious cover, and maximize cover of pervious or semi-pervious surfaces that allow water to infiltrate into soil.
- Use green infrastructure methods, such as compost-amended soil, green roofs, or bioretention facilities to capture, slow, and treat runoff.
- Where infiltration is not desirable because of pollutant loadings, use other techniques (e.g., rainwater harvesting, green roofs, or bioretention) to reduce runoff from the site.
- Attempt to replicate frequency, timing, and locations of runoff patterns and discharge points into receiving waters.
- Grade to encourage sheet flow and lengthen flow paths.
- Maintain natural drainage divides to keep flow paths dispersed.
- Disconnect impervious areas such as pavement and roofs from the storm drain network, allowing runoff to be conveyed over pervious areas instead.
- Preserve the naturally vegetated areas and soil types that slow runoff, filter out pollutants, and facilitate infiltration.
- Direct runoff into or across vegetated areas to help filter runoff and encourage groundwater recharge.
- Carefully select and design stormwater management practices so as not to include attractants to hazardous wildlife, such as standing water or vegetation with high food and/or habitat value.

3.04-5—Summary

By using stormwater management techniques that infiltrate, evapotranspire and/or reuse stormwater, the airport can improve water quality and enhance groundwater recharge. By tracking the runoff curve number of the airport property as new development occurs, the airport can measure progress toward sustainable stormwater management. The calculated base line curve numbers for the six airport zones analyzed will provide the basis for this comparison and the evaluation of the impact of future development activities.

3.05—Noise

3.05-1—Introduction

The impact of noise levels is typically described through the use of the day-night average sound level (DNL) methodology, an official system for determining cumulative exposure of individuals to noise. DNL is the 24-hour average sound level in decibels (dB). This average is derived from all aircraft operations during a 24-hour period that represents an airport's average annual operational day.

DNL is the standard method of evaluating transportation noise sources. FAA Orders 1050.1E and 5050.4B require the use of the DNL metric in assessing aircraft noise exposure in environmental assessments of federal actions. However, the FAA recognizes the community noise equivalent level (CNEL) as an alternative metric for the State of California. The California Department of Health Services defines CNEL as "the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7 p.m. to 10 p.m. and after addition of 10 decibels to sound levels in the night from 10 p.m. to 7 a.m." This method takes into account the increased annoyance of noise during the night. According to FAA Order 1050.1E, a significant noise impact occurs when noise sensitive areas at or above DNL 65 dB noise exposure experience an increase in noise of DNL 1.5 dB or more as a result of a proposed action (FAA Order 1050.1E, 2006).

3.05-2—Summary of Data

The final environmental assessment/environmental impact report for improvements to FYI dating 2011 and the 2006 airport master plan are the primary sources of data for the noise baseline assessment.

Noise contours were established based on the Integrated Noise Model (INM), Version 6.2A. CNEL contours of 60, 65, 70 and 75 dB were developed for 2004 existing condition aircraft noise and were then superimposed over the land use base map. See Appendix C for the affected environmental section of the EA/EIR. Through GIS analysis, it was determined that 2,650.5 acres of land fall within the CNEL 65 dB CNEL contour, including 871 acres on airport property and 1,779.5 acres off-property. This area includes noise-sensitive land uses including residences, schools, and churches. The off-airport portion includes 323.5 acres of residential uses within the 65 dB CNEL and greater noise contour. The FAA has developed guidelines for compatible land use in aircraft exposure areas based on various noise levels. These guidelines are listed in Table 3.31 on page 3-45 in Section 3.12—Sustainable Site and Land Use Compatibility, which provides a detailed analysis of land use compatibility around Fresno Yosemite International Airport. Residential land uses are incompatible at 65 dB CNEL or more. The community may determine that these uses are allowed, but should incorporate mitigation measures. GIS analysis also determined that there are 2,446 households and 6,584 people residing in the 65 dB CNEL or greater noise contour for the 2004 existing conditions. Schools and churches are conditionally acceptable at 65–70 dB CENL, meaning aircraft noise will cause interference with activities, but noise attenuation via standard construction methods should suffice.

Certain land uses and community services in the vicinity of the airport experience indirect noise effects caused by aviation activities. The airport has implemented numerous mitigation measures aimed at reducing noise impacts to these areas. Some of the efforts and accomplishments are listed below.

3.05-3—Strong Points

- All aircraft must abide by specific traffic pattern altitudes.
- Flight paths and aircraft procedures are periodically reviewed and modified to reduce the impact of aircraft noise from commercial, cargo and military aircraft.

- Intersection takeoffs from Runway 29L are prohibited. Intersection takeoffs from Runway 29R are only permitted from Taxiway B2. Exceptions are made during single-runway capability operations.
- Alternative flights, such as test-flights, practice landings, low approaches, and touch-and-go operations, are only allowed between 7 a.m. and 10 p.m. Monday through Saturday, and between 10 a.m. and 6 p.m. on Sundays.
- Engine maintenance run-ups are permitted between 5 a.m. and 10 p.m. on the Taxiway B2 run-up pad only, unless other time periods and/or locations have been authorized by airport management.
- Following takeoff, small single-engine and multi-engine airplanes must climb on runway heading until passing 850 feet mean sea level (MSL) for single-engine or 1,000 feet MSL for multi-engine. The airport recommends initial climbout at best rate-of-climb (Vy) for safety and noise abatement.
- Prior to entering Class C airspace, all aircraft must communicate with the air traffic controller.
- During VFR test or training-flights and all approaches to Runway 11L, aircraft must remain at or above 2,000 feet MSL until established on a 5 nautical mile (localizer DME) final. A normal approach path should be flown on final. There are no practice missed-approaches or go-arounds to Runway 11L.
- As long as Runway 29R is in use, opposite direction approaches to Runway 11L are not authorized.
- While Runway 29R is in use, large turbojet aircraft will obtain an air traffic control (ATC) clearance for an opposite-direction takeoff on Runway 11L, as long as safety and weather permit, between the local hours of midnight and 5 a.m.
- Following takeoff, climb on runway heading
    until at or above 2,000 feet MSL, as quickly as possible.
- Fresno's Sound Mitigation Acoustical Remedy Treatment (SMART) Program under the approved FAR Part 150 Airport Noise Compatibility Program establishes sound attenuation standards for homes within the airport vicinity that are affected by the highest levels of aircraft noise, those in noise contours 75 to 65 dB CNEL.
    - FYI accepts noise complaints from Fresno residents and maintains an internal log of this data.
    - Sound mitigation measures include attic insulation, acoustic doors/windows, vent baffles, fireplace doors and chimney dampers.
    - The federal government funds 95 percent of the program via grants awarded by the FAA; Measure C or the airport match 5 percent.
    - With 2,500 eligible homes in the area, the program could take up to 20 years to reach and treat all of the homes.

3.05-4—Opportunities for Improvement

- There is no noise complaint monitoring system. The Department of Airports may want to consider establishing such a system.

3.05-5—Summary

FYI is a contributor of aircraft noise in the Fresno County region. Areas northwest and southeast of the airport are most affected by noise and fall within the 75 to 65 dB CNEL contours. These areas contain some residential, educational, and religious facilities. The City of Fresno has established policies aimed at limiting development of non-compatible land uses near the airport. The city enforces stringent noise-reducing building requirements for construction in noise-sensitive areas. The final EA/EIR for improvements at Fresno Yosemite International Airport dated 2011 presents documentation supporting the City of Fresno's assurance under 49 USC 47107(a)(10) that the city would take appropriate action to limit the use of land near FYI to airport-compatible activities. The airport has implemented numerous mitigation measures aimed at reducing noise impacts to areas around FYI.

3.06—Landscape Management

3.06-1—Introduction

The trees and shrubs of an airport facility are not only an aesthetic amenity, but serve a variety of important environmental functions. The benefits trees provide include carbon sequestration, air pollution reduction, reduced energy costs, increased stormwater infiltration, and psychological benefits for the airport and surrounding community. However, in an arid region such as Fresno, conventional landscaping typically requires supplemental irrigation to survive. Aviation safety is the top priority for the airport. The runway ends and tower to end-of-runway line of sight must be kept clear of all obstructions, including trees. Plantings also have the potential to create habitat for wildlife, which is a hazard to aviation safety. The benefits of the airport's landscape must be balanced with the costs.

Environmental Context

In January 2011, a total of 1,123 individual trees were inspected in six separate zones on airport property. The zones identified in the inventory were:

- Zone 1: Airport terminal & parking lot
- Zone 2: Air traffic control tower
- Zone 3: Administration building & maintenance building
- Zone 4: Rental car facility
- Zone 5: Air attack building & hangars
- Zone 6: East Airways Blvd.

Figure 3.7 shows the landscape management zones on the airport property.

The inventoried trees were located approximately on the airport layout plan (ALP using aerial photography; trees missing from the aerial images were added to the ALP.

2.3 acres of irrigated lawn and planting beds surrounding the terminal parking lot (zone 1) and the rental car facility (zone 4) were also inspected.

Evaluation Criteria

The inventoried trees were evaluated in three ways:

- Genus and species were identified.
- A measurement of diameter at breast height (DBH) was taken. This measurement is based on the circumference of the tree at a height of 4.5 feet divided by 3.14.
- A condition assessment of good, fair, poor, or dead or dying was given based on the overall condition of the foliage and woody (structural) parts of the plant.
- The water use rating according to the Water Use Classification of Landscape Species (WUCOLS) was assigned to each species.

The lawn and planting beds in zones 1 and 4 were evaluated in three ways:

- The general condition of lawn, shrubs & mulch in planting areas was observed.
- The water use rating according to WUCOLS was assigned to each shrub species.
- The method of irrigation was identified.

Analysis

Trees were assigned ID numbers and located on the ALP. This survey is included in hard copy form in Appendix C. In addition, the data collected for the 1,123 individual trees included in the inventory was loaded into iTree Streets software. iTree Streets is an adaptation of the Street Tree Resource Assessment Tool for Urban Forest Managers (STRATUM), which was developed by a team of researchers at the US Department of Agriculture (USDA) Forest Service, Pacific Southwest Research Station. iTree Streets allows managers of urban forests to calculate cost/benefit relationships, analyze tree population characteristics, and manage maintenance priorities. The data tables and charts generated by iTree listed below are included in Appendix C (descriptions, except Water Usage, are taken from the iTree Users Manual, v3.0):

- Population Summary—The population summary report includes summary tables and complete lists of inventoried species, their total numbers, num-

Figure 3.7–Landscape Management Zones

bers by tree type, and numbers by default DBH size classes. This report provides a basic understanding of species frequencies by DBH size class.

- Species Distribution—The species distribution reports present data on species composition in the form of pie charts and tables for the 10 most common species, displayed in percentage of total numbers. These reports are helpful for understanding species dominance.
- Relative Age Distribution—Tree age data, presented in terms of DBH size class, is given in chart and table form for the 10 most common species, displayed in percentage of total numbers. These reports are important for determining current management needs as well as anticipating how needs will change based on total numbers and aging of individual species. The distribution of ages within a tree population influences present and future costs as well as the flow of benefits. An uneven-aged population allows managers to allocate annual maintenance costs uniformly over many years and assure continuity in overall tree canopy cover. An ideal distribution has a high proportion of new transplants to offset establishment-related mortality, while the percentage of older trees declines with age.
- Condition—Condition of the wood and foliage of the trees is presented in pie chart and table form for the most prevalent species, displayed in percent of total numbers. Tree condition indicates both how well trees are managed and their relative performance given site-specific conditions.
- Benefits Summary—The summary report presents the annual total of energy, stormwater, air quality, carbon dioxide, and aesthetic/other benefits as calculated by the software model from certain baseline assumptions. Values are dollars per tree or total dollars.

- Importance Values—Importance values are displayed in table form for all species that make up more than one percent of the population. The importance value calculated by iTree Streets is the mean of three relative values (percentage of total trees, percentage of total leaf area, and percentage of canopy cover) and can range from 0 to 100 with an importance value of 100 suggesting total reliance on one species. Importance values offer valuable information about a community's reliance on certain species to provide functional benefits. For example, a species might represent 10 percent of a population, but have an importance value of 25 percent because of its great size, indicating that the loss of those trees due to pests or disease would be more significant than their numbers suggest.
- Replacement Values—Replacement values are estimates of the full cost of replacing trees in their current condition, should they be removed for some reason. Species ratings, replacement costs, and basic prices were obtained for each species in each reference city from regional appraisal guides. Because of the approximations used in these calculations, replacement values are first-order estimates for the population and are not intended to be definitive on a tree-by-tree basis.
- Water Usage—The WUCOLS is a guide which helps landscape professionals identify the irrigation water needs of landscape species. It was initiated and funded by the Water Use Efficiency Office of the California Department of Water Resources and work was directed by the University of California Cooperative Extension. The third edition was funded by the Bureau of Reclamation and was completed in 1999. WUCOLS III plant category designations were used to assign a value of High, Medium, Low, or Very Low to each species. Fresno is located in WUCOLS III Region 2: Central Valley.

3.06-2—Summary of Data

Observations

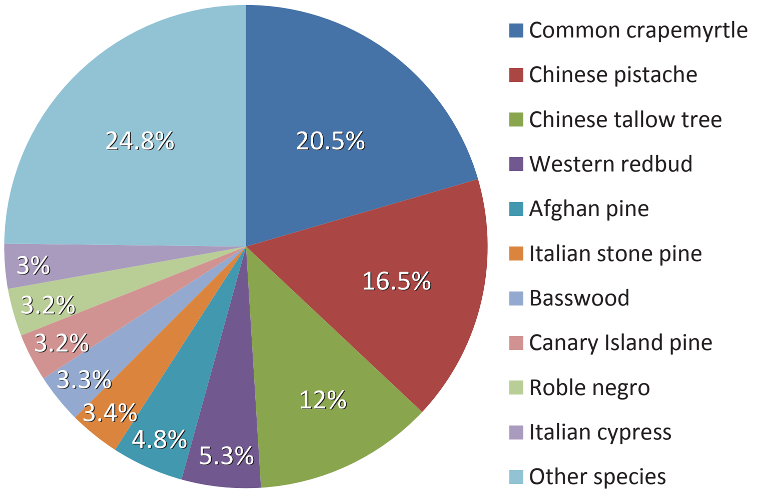
Species Diversity

Diversity is a sign of a healthy urban forest. Urban foresters typically recommend that one species should not comprise more than 10 percent of a population. A total of 36 different tree species were identified in this inventory, indicating a moderate level of diversity. Analysis shows that crapemyrtle, Chinese pistache and Chinese tallow tree are above the 10 percent level of the entire population. Figure 3.8 illustrates the overall species diversity. At the terminal (zone 1), crapemyrtle, Chinese pistache and Chinese tallow tree are each above the 20 percent level with western redbud very close to the 10 percent level. At the rental car facility (zone 4), Afghan pine is above the 30 percent level, and black tupelo, Chinese pistache, and basswood (littleleaf linden) are above the 10 percent level. It is recommended to plant other species until these percentages drop.

Native Species

Only seven of the thirty-six tree species identified on the airport property are species native to California—sweetgum, hackberry, white alder, western redbud, coast redwood, Arizona cypress and incense cedar—and these make up a relatively small percentage of the overall population. Western redbud is the most abundant native tree (5.3 percent); each other

Figure 3.8—Species Distribution of Trees



species makes up fewer than three percent of the total population.

Diameter Distribution

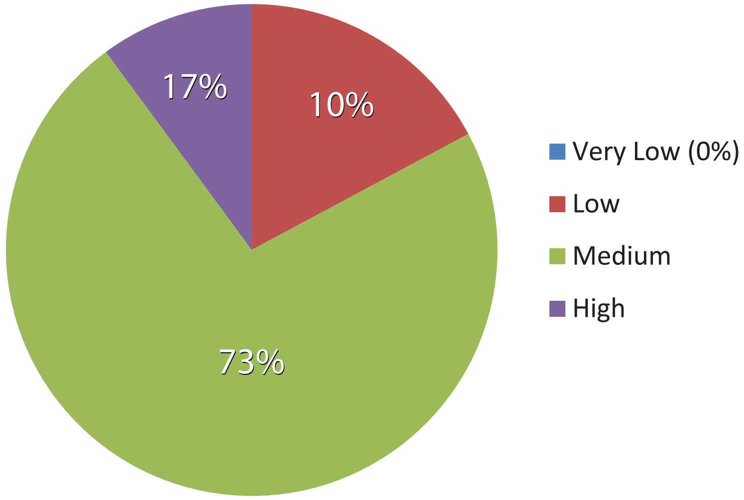
The diameter distribution curve gives an indication of the relative age of a tree community. Care should be taken to replace trees that have been removed and supplement the existing stock to ensure a healthy distribution of trees of varying ages on the airport property. Maintain a diameter distribution curve with a sufficient quantity of younger trees to offset the rate of decline and mortality of older trees through regular maintenance and planting efforts.

Water Use

As shown on Figure 3.9, of the entire tree population, 17 percent have low water requirements, 73 percent have medium water requirements and 10 percent have high water requirements. There are no inventoried trees that have a very low water requirement. At the terminal, 94 percent of the trees have medium water requirements, with the remaining 6 percent being low. At the rental car facility, 40 percent of the trees have medium water requirements, with the balance being split between low (30 percent) and high (30 percent)

In the terminal and rental car facility planting areas (zones 1 & 4 combined), of the 17 shrub and groundcover species in the planting palette, 8 have medium and 9 have low water requirements.

Figure 3.9—Water Requirements of Inventoried Tree Population



Both planting areas are irrigated with similar systems. Lawns are irrigated with impact rotors, shrub beds are irrigation with spray heads and trees are irrigated with bubblers. Irrigation controllers are set to water plants regularly in the summer and fall months, and provide a small amount of supplementary water in winter. No drip irrigation was used in any areas. Estimated annual water use (EAWU) was calculated using the following formula:

EAWU (in gallons) = (ETo) (0.62) [(PF × HA)/IE]

- ETo is reference evapotranspiration (51.1 inches for Fresno)
- PF is plant factor—water requirements
- HA is hydrozone area in feet
- IE is irrigation efficiency (0.71)

Water use and cost data for the two areas were taken from utility bills in the 2010 fiscal year. Of the bills reviewed, FY 2010 appears to have been slightly lower than average in water use. Table 3.21 shows the landscape area types and EAWU in Zone 1 and Zone 4. It also shows actual water consumption and cost based on utility bills from fiscal year 2010.

Landscape Management

The planting areas at the terminal (installed in 2001) had weed barrier fabric visible on the surface in many areas and little or no organic mulch. The planting areas at the rental car facility (installed in 2007) did not have weed barrier fabric, but also had little or no mulch. Studies have shown that mulch retains soil moisture and cools the soil, reducing irrigation water requirements. One study, titled *Water Retention and Evaporative Properties of Landscape Mulches*" found that the use of three-inch of bark mulch in a drought-tolerant landscape could reduce irrigation water requirements by more than 50 percent (David Shaw, 2005). The original construction details for both areas required mulch in all new planting beds and tree rings. A mulch layer two to three inches thick should be continuously maintained in these areas.

Table 3.21—Water Usage

	Terminal & Parking Lot (Zone 1)	Rental Car Facility (Zone 4)
Lawn areas	147,850 square feet	26,130 square feet
Lawn irrigation	Impact rotors	Impact rotors
Plant factor	High (0.8)	High (0.8)
Estimated lawn water use	**5,277,953 gallons**	**932,781 gallons**
Shrub beds	104,120 square feet	39,815 square feet
Shrub irrigation	Spray heads	pray heads
Plant factor	Medium-low (0.4)	Medium-low (0.4)
Estimated shrub water use	**1,858,439 gallons**	**532,986 gallons**
Total estimated annual water requirement	7,136,392 gallons	1,465,767 gallons
Actual water use: 7/1/09–6/30/10	10,367,572 gallons	3,742,259 gallons
Irrigation and sanitary sewer costs: 7/1/09–6/30/10	$11,296	$4,503

Source: C&S Companies

Many planting areas in zones 1 & 4 had large areas of bare earth, with plants apparently missing according to the original construction drawings. Also, this amount of exposed earth is compounded by the tightly sheared shrubs, which if allowed to grow larger (and closer to their natural form) would provide more cover over the ground and would require less frequent maintenance with trimming equipment. Hand-held, gas powered landscape equipment tends to have relatively high GHG emissions.

Root barriers were installed and visible around trees that were installed after 2000 in zone 1, per the original planting details. Such devices are unattractive when visible, ineffective in the long term and only prevent a barrier to quick establishment of newly transplanted trees. Trees in zone 4 were improperly staked. Wires or ties should intersect with the lower half of the tree to allow movement and proper trunk taper development. Also, many of these recently planted trees appeared to be damaged and/or to have poor structure.

At the time of this report, a wildlife hazard assessment and management plan are currently being performed by a certified wildlife biologist to identify wildlife attractants on and around the airfield and reduce hazards to aircraft. At this time there is no regulation that specifies a required height for grass, but when considering wildlife concerns, a good guideline for airports is to maintain the grass at a level between 7 inches and 14 inches and to prevent the grass from setting seeds. In general, trees and shrubs that do not have fruits that are attractive to birds and mammals should be selected for planting in the landscape. The wildlife hazard assessment and management plan will reveal additional information that may warrant additional and/or modified recommendations.

3.06-3—Strong Points

- The existing trees and shrubs provide environmental benefits and are an attractive component of the landscape.
- Generally, the turfgrass areas appeared to be lush and green.

3.06-4—Opportunities for Improvement

- Current plantings, particularly in the terminal and rental car facility areas rely heavily on a few species. New plantings should promote species diversity and low water using and native species.
- Planting beds should be maintained with a continuous layer of organic mulch, two to three inches thick to control moisture loss and weeds, and to improve the landscape aesthetic.
- Climate-based irrigation scheduling would reduce over-watering, especially for the turfgrass areas.
- The planting areas with sparse density are particularly suited for a retrofit to drip or low volume point irrigation.

- Visual observation of some of the operating turfgrass sprinklers revealed overspray, which can be reduced by adjusting and/or changing heads/nozzles (assuming spacing is adequate).
- Most of the shrub/ground cover areas are sparsely vegetated with missing plants (especially the terminal parking lot islands) with large areas of bare ground and/or exposed geotextile fabric that are unattractive. This might be the result of either the irrigation not working properly, the valves purposefully being shut down to save water, failure to replace plants that have died, or some combination of these factors.

3.06-5—Summary

The majority of trees inventoried were rated as being in good condition (95 percent). The existing maintenance program has been successful in supporting the health of the trees on the property. The numerous trees on the airport property contribute to both the health of the environment and the aesthetic value of the facility. Overall there is fairly good species diversity, although species tend to be concentrated in different zones.

There are opportunities for reducing irrigation water usage in the planting beds by maintaining mulched beds, which would also improve the aesthetics of the planted areas.

3.07—Solid Waste and Recycling

3.07-1—Introduction

A baseline assessment was completed to evaluate the current waste generation and recycling programs at certain facilities at the airport. Data was collected from the terminal, both landside and airside facilities, and areas owned by the airport's fixed-base operators (FBOs). Information from the FBOs was limited, as their records are separate from the City of Fresno. The goal of the assessment was to determine the amount of material the airport currently recycles and the amount it could potentially recycle. This data was then analyzed to determine feasible strategies that would reduce the amount of solid waste disposal, increase recycling, and minimize waste generation in general.

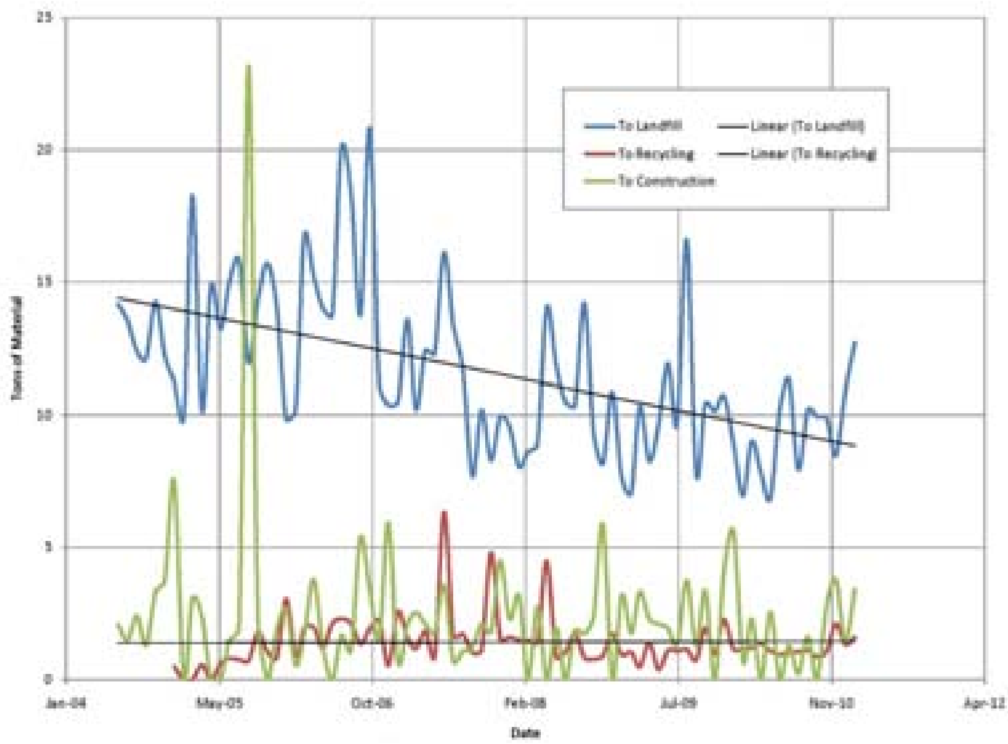
3.07-2—Summary of Data

Solid waste generation at an airport is directly related to the number of passenger enplanements. In 2010, there were nearly 600,000 enplanements at the airport. Passengers, airport customers, tenants, and others that pass through the airport terminal currently produce between 13 and 18 tons of solid waste per month, with the passenger terminal being the largest contributor of waste at the airport. In 2010, the airport terminal generated 142.5 tons of waste. Approximately 25 percent of this was diverted from landfills and sent to construction or recycling facility. Figure 3.10 illustrates the trends in solid waste generation/disposal at the terminal and highlights the airport's success in diverting waste from the landfill. FYI is encouraging recycling of consumer products and construction materials.

The primary sources of waste are:

- Waste bins provided for the traveling public throughout the terminal
- Restaurants (includes food waste and food packaging)

Figure 3.10—Terminal Building Solid Waste Inventory



Source: Blair, Church & Flynn Consulting Engineers

- Tenants (airline and rental car counters)
- Airplanes (waste coming off incoming flights)

There are designated areas for trash receptacles at the airport; from there the waste material is hauled off-site to local disposal facilities by the City of Fresno Solid Waste Management Division. The trash is collected three days per week, (Monday, Wednesday, and Friday), and is then delivered to one of three landfills; the Orange Avenue Landfill, Sunset Fresno Recycling, or the West Coast Waste Landfill.

Airport customers make an effort to segregate their waste between the available trash and recycling bins. According to the airport, the majority of recycled material includes plastics and aluminum. Approximately half of the paper materials discarded at the passenger terminal end up in the trash; 100 percent of this could be recycled.

Trash and recycling inside the passenger terminal are collected by the custodians every hour and a half during business hours. Individual airlines handle most of the waste generated at the airline ticket counter.

Waste Assessment

Representatives of Blair, Church & Flynn Consulting Engineers (BC&F), a subconsultant to C&S, joined two City of Fresno employees to perform a waste assessment at FYI. A waste assessment is done to establish the current recycling and waste management practices of a business in order to determine ways to reduce waste and adopt more environmentally friendly practices.

During the assessment, BC&F went through a questionnaire with city officials to get a general idea of the current waste habits of the airport. After discussing the questionnaire, they completed a walk-through of the airport to observe the recycling and waste habits in place.

Waste Characterization

According to the waste assessment, the typical content of the trash bins at the airport are:

- Corrugated cardboard—recycled
- Newspaper—recycled
- Office paper (computer, copier, ledger, stationary)—recycled
- Mixed paper (glossy inserts, junk mail, etc.)—recycled
- Glass containers—recycled
- Other glass (window, laboratory, light bulbs, etc.)—recycled
- Metal food and beverage cans—recycled
- Scrap metal (ferrous and non-ferrous)—recycled
- Plastic containers (#1–#7 type bottles and jugs)—recycled
- Other plastic (stretch wrap, strapping, etc.)—recycled
- Yard waste (leaves, grass clipping, brush)—recycled
- Food waste—generated

A number of negatives and positives were recorded during the assessment and at other site visits.

3.07-3—Strong Points

- The Department of Airports and airport tenants actively participate in the City of Fresno's recycling program, including construction-related recycling.
- The reconstruction of the airport taxiways from 2007 to 2010 included 100 percent recycling of existing material on-site.
- Customers have been successful at separating their own waste into recycling and trash bins.
- The airport maintenance office is using reusable cloth towels and ceramic mugs.
- The airport maintenance office encourages and practices bulk purchasing of materials, limiting waste from packaging.
- In purchasing goods, maintenance considers remanufactured/recycled options and/or durable goods whenever possible.
- Batteries and leftover airfield paint are recycled.
- The following environmentally friendly products are currently used:

  - Recycled office paper (20 percent recycled)
  - Recycled file folders
  - Recycled envelopes
  - Non-toxic cleaners
  - Recycled pens/pencils
  - Recycled paper towels
  - Recycled toilet paper
  - Rechargeable batteries
- Asphalt, concrete and electrical wires are reused during construction projects
- The airport recycles signs, lights, and other similar equipment/products.
- Pallets used for packaging are recycled.

3.07-4—Opportunities for Improvement

- There is no recycling program for airlines; therefore all recyclables from aircraft go into the trash.
- The cafeteria sells a large amount of plastic, metal, and glass containers. Much of that waste could be eliminated if people could get beverages in reusable containers, especially water.
- Fountain beverages sold in compostable or biodegradable cups could also minimize trash waste.
- There is no composting system in place at the airport so all food waste goes directly into the trash stream. A covered composting system would divert a large amount of waste from landfills.
- Trash is not separated on international flights. (This is a federal requirement that FYI does not have control over and cannot change).
- Airport maintenance purchases and receives goods that are packaged inefficiently. They do not receive any goods in reusable crates; most of the received goods are packaged with cardboard cartons, stretch wrap, and bucket strapping.
- Approximately half of the paper materials discarded at the passenger terminal end up in the trash; 100% of this could be recycled.

3.07-5—Summary

FYI has a good recycling program in place. Recycling bins accompany a good fraction of the trash cans located throughout the terminal. Employee and visitor awareness of this program would increase the amount of material that is siphoned out of the waste stream and into recycling containers. Opportunities exist for minimizing waste generation through the use of reusable materials. The airport has previously reused and recycled construction materials and equipment. This effort could have a very positive impact if implemented on a large scale.

3.08—Indoor Environmental Quality

3.08-1—Introduction

Indoor environmental quality encompasses the basic surroundings in which people are present, including air, noise levels, lighting, life safety, drinking water, ergonomics, etc. The focus for the indoor environmental quality section of the sustainability management plan is the potential emissions associated with off-gassing of materials such as office furniture, carpets, and cleaning materials.

3.08-2—Summary of Data

The Department of Airports has a green purchasing program for cleaning products that are less toxic and have less off-gassing than traditional products. In addition, the paints and glues used by the airport have little or no low-volatile organic compounds (VOC).

As part of construction of the new pod and remodeling of the ticketing counter, the airport used reflective finishes and solar shading to promote natural lighting, while an energy management system regulates temperatures for employee and passenger comfort. Low-VOC materials are included in FYI's specifications. Smoking is also prohibited in all FYI buildings. In addition, there are interactive connections to assist passengers with access to appropriate ticket counters and a connected rental car facility to reduce emissions associated with shuttles.

3.08-3—Strong Points

- The Department of Airports is implementing a green purchase program.

- The Department of Airports uses low-VOC paints and adhesives. These are primarily used as maintenance items at the airport.
- The Department of Airports incorporates employee and passenger comfort in the design of buildings.

3.08-4—Opportunities for Improvement

- New construction should attempt to exceed industry standards for building ventilation.
- A policy should be in place to address complaints regarding odors or off-gassing within airport owned and operated buildings.
- Although smoking is prohibited inside buildings, FYI could designate smoking areas away from highly traveled areas and areas that could easily transmit smoke into the building.

3.09—Hazardous Materials

3.09-1—Introduction

A hazardous material is typically defined by Occupational Safety and Health Administration (OSHA) regulations as a chemical which represents a physical or health hazard.

3.09-2—Summary of Data

The hazardous materials present at the airport are consistent with other airports across the country. Bulk materials include aircraft fuel, diesel and gasoline for vehicles and ground support equipment, deicing fluid, as well as paints and herbicides for maintenance. Other materials, stored at the airport in smaller quantities, include oils, adhesives and cleaning supplies. The Department of Airports has implemented a green purchasing program for cleaning materials in order to obtain less toxic products. Table 3.22 provides a listing of the bulk materials stored by the City of Fresno, the capacity of the containers, and the general location of storage.

Table 3.22—Bulk Hazardous Materials

Responsible Party	Capacity (gal)	Product Stored	Type of Storage	Location
COF- Maintenance Station	2,000	Unleaded	AST	ARFF station
COF- Maintenance Station	1,000	Diesel	AST	ARFF station
COF- Generator – 600 kW	1,000	Diesel	AST	Terminal, next to rental car lot
COF- Generator —750 kW	1,000	Diesel	AST	Terminal pod, next to rental car lot
COF- Generator —125 kW	150	Diesel	AST	Portable
COF- Generator —200 kW	1,000	Diesel	AST	Airfield
COF- Generator —200 kW	Included above	Diesel	AST	Airfield
COF- Generator —80 kW	150	Diesel	AST	Ponding basin
COF- Generator	150	Diesel	AST	ARFF station
COF SkyWatch—Trailer	1,000	Jet A	AST	SkyWatch
COF	120	Herbicide (Accord XRT II)	AST	Paint storage area
COF	Less than 500 gallons in five-gallon pails	Water-Based Paints (Ennis Traffic Safety Solution)	AST	Paint storage area

AST=Aboveground Storage Tank; Source: C&S Companies

Table 3.23—Bulk Containers Owned by Others

Responsible Party	Capacity (gal)	Product Stored	Type of Storage	Location
FAA—Generator—100 kW	500	Gasoline	AST	Tower
FAA—Generator—135 kW	1,000	Diesel	AST	ASR—11
FAA—Generator—175 kW	2,000	Diesel	AST	Approach lights
RAC	20,000	Unleaded gasoline	UST	RAC
CANG	TBD	Jet fuel	UST	CANG
CANG	TBD	Diesel	UST	CANG
CANG	160,000	Unleaded gasoline	UST	CANG
Ross Aviation—corporate	80,000	Jet fuel	UST	Ross Aviation
Ross Aviation—corporate	20,000	Unleaded gasoline	UST	Ross Aviation
Ross Aviation—tanker	37,000	Jet fuel	Tanker	Ross Aviation
Ross Aviation	60,000	Jet fuel	AST	Ross Aviation
Ross Aviation	12,000	Unleaded gasoline	AST	Ross Aviation
Ross Aviation—tanker	26,000	Jet fuel	Tanker	Ross Aviation
Ross Aviation—tanker		Unleaded gasoline	Tanker	Ross Aviation
Signature Aviation	60,000	Jet fuel	AST	Signature Aviation
Signature Aviation	10,000	Unleaded gasoline	AST	Signature Aviation
Signature Aviation—tanker	20,000	Jet fuel	Tanker	Signature Aviation
Signature Aviation—tanker	10,000	Unleaded gasoline	Tanker	Signature Aviation
CHP—trailer	500	Jet A	Trailer	
SkyWest	300	A/G (used oil); oil/ fuel/hydraulic	AST	On asphalt, near deicing fluid storage area
SkyWest	275	Octaflo EF dilute, SAEI AMS 1424 Type I, aircraft wing deicer	AST	On asphalt; aircraft deicing fluid storage area
SkyWest	275 (4 totes)	Octaflo EF dilute	AST	On asphalt; aircraft deicing fluid storage area
SkyWest	275 (3 empty totes)	Octaflo EF dilute	AST	On asphalt; aircraft deicing fluid storage area
UPS	500	Diesel	AST	UPS area
UPS	500	Unleaded	AST	UPS area
American Airlines	275	SAE 1424—Type I, UCAR PG ADF concentrate	AST	On asphalt; aircraft deicing fluid storage pad
US Airways	1-275	Safewing MP 1938 Eco	AST	On asphalt; aircraft deicing fluid storage pad
US Airways	1-55	Octaflo EF	AST	On asphalt; aircraft deicing fluid storage pad

UST=Underground storage tank; AST=Aboveground storage tank. Source: C&S Companies

Table 3.23 provides a listing of the bulk containers storing hazardous materials at the airport that are owned and operated by others. These containers are owned and used by outside entities stationed at the airport including the FAA, the California Air National Guard, Ross Aviation, Signature Aviation, and UPS. It should be noted that the majority of bulk containers owned by others were based on information supplied by the Department of Airports and were not independently verified. However, it was observed during our site visit that the deicing chemical storage area did not have secondary containment.

It should be noted that the airport maintenance building has various materials, primarily paints in one- to five-gallon containers, stored on pallets. It is our understanding that airport personnel bring the materials back to the building at the conclusion of a project. The intent is to continue to use any viable product during future work at the airport.

The Department of Airports does not currently have a tracking system to document the quantity and location of bulk hazardous materials, especially by tenants.

3.09-3—Strong Points

As mentioned in Section 3.08—Indoor Environmental Quality on page 3-32, the facility is implementing a green purchasing program for cleaning products, as well as paints and glues that contain no or low levels of volatile organic compounds (VOC).

3.09-4—Opportunities for Improvement

- The Department of Airports should develop a tracking system to log the bulk storage of materials by tenants at the airport.
- The deicing fluid storage area does not have secondary containment.
- A hazardous material approval program should be developed to research available alternatives to toxic materials.

3.10—Surface Transportation Management

3.10-1—Introduction

The surface transportation sustainability baseline includes an inventory of existing airport policies and the calculation of the annual vehicle miles traveled (VMT) by airport employees, commercial service passengers, and general aviation passengers. VMTs associated with other airport users, such as the military, are not included as part of this baseline assessment. These VMT values are used to calculate GHG emissions as noted in Section 3.01 starting on page 3-7.

3.10-2—Summary of Data

Inventory—Access, Circulation & Parking Access

The airport is bounded by East Dakota Ave./East Airways Blvd. to the north, East McKinley Ave./East Clinton Way to the south, North Chestnut Ave./North Winery Ave. to the west and North Clovis Ave. to the east. Access to the airport administration building, terminal buildings, parking areas and consolidated rental car facility are provided via East Clinton Way. There are a number of roadways and access drives that service the rest of airport property from the above mentioned surrounding roadways. Figure 3.9 shows the airport and the surrounding area.

Directions on the airport's website direct traffic from California Highways 41, 99, 168 and 180 to East McKinley Avenue or North Peach Avenue, which turns into East Clinton Way at East McKinley Avenue. There are numerous directional and wayfinding signs with the airport international symbol or text along these highways and roadways.

Transportation to and from the airport is primarily provided by autos, including personal vehicles, taxi, rental cars, buses, and shuttle services. While there are no shuttles operated by the airport or contracts with specific taxi companies, the airport's website lists a number of taxi/limousine service companies that serve the airport. There are also a number of hotels in the area that provide a shuttle for their customers, but no information was available from the hotels on how many trips are made. There is a taxi queuing area located at the east (departure) end of the terminal and signs at the arrival end that indicate where taxis and shuttles can be retained.

There are six rental car companies with counters in the baggage claim area of the terminal—Avis, Budget, Dollar, Enterprise, Hertz and National/Alamo. The rental cars are located at the consolidated rental area just west of the terminal and accessed from baggage claim or North Ashley Way off East Clinton Way. Together, the six rental car companies serviced more than 400,000 transactions during 2010 with an average of 3,300 to 7,800 transactions per month per company as shown in Table 3.24.

Table 3.24—Rental Car Agency Transaction Data

Rental Car Agency	Total Calls 2010	Monthly Average 2010
1	55,445	4,620
2	40,747	3,396
3	78,489	6,541
4	44,815	3,735
5	88,452	7,371
6	94,572	7,881
Total	**402,520**	

Note: Data shown generically to keep specific company data anonymous.

Source: FYI

Ground transportation is also provided by Fresno Area Express (FAX), the City of Fresno's bus transit service. Currently, Routes 26 and 39 serve the airport. Route 26 travels between River Park and the airport via North Palm Avenue, East Butler Avenue and North Peach Avenue. The same bus then continues from the airport along Route 39 via East Clinton Avenue to North Brawley Avenue. A bus arrives at the airport approximately every 30 minutes from 6 a.m. to 1 p.m. during the week. On weekends, service is provided from 7:45 a.m. to 7:25 p.m. with stops approximately every 60 minutes. There is a signed bus stop with benches and shelter under the canopy of the curbed high-occupancy vehicle island at the departure end of the terminal. There is also a covered bus shelter in front of the administration building on East Clinton Way. A number for FAX is provided on the airport's website and a general FAX information brochure can be found at the information desk in the terminal.

Sidewalks throughout airport property and on the surrounding roadways provide access. There are a few breaks

Bicycle lane

Bicycle racks

in available sidewalks: on Fine Avenue approaching the Operations/Maintenance Building, no sidewalk along East Anderson Avenue. There are painted crosswalks and pedestrian indications at nearby intersections. The parking areas at the terminal contain raised and island separated walkways.

There are four major crosswalks in front of the terminal which are striped with detectable warning surfaces for the blind/visually impaired and signed such that vehicles are to yield for pedestrians.

There are designated bicycle lanes along East Clinton Way, East Dakota Avenue and East Airways Boulevard. There are three bicycle storage racks on airport property: two at the terminal and one at the administration building. There is a rack in front of the Federal Inspection Services portion of the terminal, one at the west end of the terminal just outside the access to the consolidated rental car area can hold seven bicycles, and one just outside the back entrance of the administration building. The racks are in good shape, but according to the 2010 *Bicycle Parking Guidelines* by the Association of Pedestrian Bicycle Professionals, they are not in the correct orientation for proper use. The racks are currently positioned such that bicycles would be forced to park perpendicular to the rack, which does not support the bicycle in two places, making them more likely to fall over. None of the racks are covered and there are no locker rooms or showers to accommodate those that ride bikes to work.

Circulation

The terminal is accessed via a one-way, counterclockwise roadway called Kerry Cooper Drive that starts from East Clinton Way near East McKinley Avenue and ends back at East Clinton Way across from North Gateway Boulevard. The posted speed limit on this roadway is 15 miles per hour and there are a number of LED indicators that show a vehicle's speed and pavement markings to remind drivers to follow the limit.

Before reaching the terminal, signage directs buses, taxis, and vehicles heading for the cell phone lot and metered employee parking area to stay to the right. The vehicles heading to the main parking area are directed left to a dedicated lane to access the long- then short-term parking areas.

The terminal frontage area is divided by a raised, covered median. Near the terminal there is a curbside lane for immediate loading and unloading and two travel lanes—one signed for departures and one for arrivals.

The curbside areas are patrolled to monitor usage, ensuring vehicles do not loiter for an extended period of time or double park and block through traffic. On the other side of the median, there is a curbside lane for loading and unloading, buses, shuttles and taxis, one travel lane and one lane dedicated to parking area access. The entrances to the long- and short-term parking areas are located before the terminal at the departure end and also at the arrival end. The lanes merge at the arrival end of the terminal into three lanes that intersect East Clinton Way. Those that want to circle back to the terminal are directed left and the consolidated rental car area is to the right. There are also directions to highways 41, 99, 168 and 180.

Airport exit signage

The terminal roadway can also be accessed via East Clinton Way approximately 0.2 miles northwest of the main access near East McKinley Avenue. This is the only entrance to the employee parking area and the only exit from the entire parking area. All three access points along East Clinton Way are signalized with pedestrian accommodations.

Parking

As shown on Figure 3.11, there are four different controlled parking areas near the terminal: short-term, long-term, employee, and a controlled employee lot. There is also a cell phone parking area and the consolidated rental car facility. The number of available spaces at each parking area is shown on Table 3.25.

The short- and long-term facilities are operated by Standard Parking through an agreement with the city. The parking fees, shown on Table 3.26, are noted on the airport's website and marked on all entrance gates.

Table 3.25—Parking Facilities

Parking Area	Available Spaces
Short-term	296
Long-term	1630
Employee	267
Controlled Employee	95
Total	2,288

Source: FYI

Table 3.26—Parking Fees

Parking Area	Length of Stay	Cost
Short-term	Every 20 min, up to 4 hours	$1 per 20 minutes
Short-term	4 hours to max daily rate	$12 per day
Long-term	Daily	$8 per day

Source: FYI

Information provided by Standard Parking indicated that the average monthly occupancy (number of vehicles parked) in 2010 for the short-term and long-term parking areas were 63 and 784, respectively. Assuming these lots are considered full at 90 percent of their total supply, these lots are 24 percent (short-term) and 53 percent (long-term) utilized based on monthly averages. Based on the data provided, the peak month of occupancy was found to be October while the peak week occurred between December 23 and December 28. The peak day was Christmas with a 77 percent utilization between the two public parking areas.

Employees that work at the terminal pay $15-25 per month for parking permits to park in the lot adjacent to the public long-term parking area. The city issues the employee parking permits. In 2010, the average number of parking permits sold per month was 552. The number of permits sold is higher than the number of available spaces because air crew personnel are allowed to buy monthly permits for when they are at the airport, but these are not used every day. The controlled employee parking area is also controlled by the city and the spaces are reserved for mangers of the airlines and concessions within the terminal. These managers can approve an employee to park in this lot, but the city monitors and badges users for security purposes. These permits are $17 per month and an average of 52 of these permits were purchased per month in 2010.

Based on the occupancy information of the public parking lots, there is adequate parking to accommodate existing demands. While occupancy data is not available for the employee lots, the airport indicated that existing employee lots adequately accommodate existing demands.

Airport Policies

The Department of Airports and airport tenants currently do not have any policies in place to encourage the use of alternative modes of transportation or reduce the emissions associated with employee and passenger ground transportation.

Table 3.27—Total Annual Employee VMT Calculation

Length of Commute	% of respondents	Roundtrip Miles	Weekly VMT by Length of Commute
0–5 miles	25%	10	7,050
6–10 miles	27%	20	15,228
11–15 miles	29%	30	24,534
16–20 miles	7%	40	7,896
20+ miles	12%	50	16,920
Total # of employees = 564			
Days/week worked = 5			
Total weekly VMT = 71,628			
Commute weeks = 49			
Mode share reduction=87,745			
Total annual employee VMT = 3,422,027			

Source: Employee survey conducted by C&S Companies

Employee Vehicle Miles Traveled

The VMT calculation for airport employees is shown on Table 3.27. The data are based on the following:

- Total number of employees
- Mode share information
- Number of days worked
- Average commute length

Employees

Employee data was provided by the airport in terms of full-time employee (FTE) equivalents for the terminal (including tenants), administration building and a number of other buildings included in this plan. A total of 564 FTEs were noted and the breakdown of the employees by place of business is provided in the VMT calculation in Appendix C.

Mode Share

A mode share reduction takes into consideration the fact that not all employees drive themselves in a personal vehicle every day. Mode share data for employees was gathered through the employee survey conducted by C&S. Based on the survey results, the employee mode share used for VMT calculations is as follows:

- Drove alone = 96 percent
- Carpool = 3 percent
- Public Transit = 1 percent

Days Worked

It was assumed that all FTEs commute to work five times a week for 49 weeks out of the year which accounts for vacation, holiday, and sick time.

Commute Length

The roundtrip commute length of employees was gathered through the employee survey and separates the commute length into five-mile increments up to twenty miles.

The number of employees, number of days worked per week per year, and the round trip commute length were multiplied and then adjusted by the mode share reduction to determine the total annual VMT for airport employees. A summary of the employee VMT calculation is shown below:

Passenger Vehicle Miles Traveled

The passenger VMT calculations were separated for commercial and general aviation services. Commercial passenger VMT was determined based on the following:

- Number of enplanements
- Average vehicle occupancy ratio
- Average passenger trip length
- Mode share information

A passenger survey was not conducted, therefore, data for the passenger VMT calculation is estimated or assumed based on existing available resources.

Enplanements

2010 enplanement data was provided by the airport—592,254.

Vehicle Occupancy

The 8th Edition of the Institute of Transportation Engineers' Trip Generation Manual (Trip Generation, 8th Edition, Institute of Transportation Engineers, Washington D.C., 2008) provides a vehicle occupancy ratio (the average number of passengers that arrive in the same vehicle) range of 1.8 to 2.4 for commercial airports. For the purposes of this calculation, a 2.0 vehicle occupancy was assumed.

Trip Length

The airport's 2006 master plan indicated that its service catchment area spans six counties, or over 18,000 square miles. Based on the size and location of the closest airports to FYI (Merced, Bakersfield, Burbank, etc), it was assumed that a reasonable average trip length for passengers is 20 miles or 40 miles round trip.

Mode Share

Passenger mode share information was gathered through research conducted on other airports. The information was not available for this airport and a passenger survey was not conducted. ACRP 10-06 *A Handbook to Assess Impacts of Constrained Airport Parking* conducted and summarized passenger surveys at 14 study airports, including medium and small sized airports. This document summarized the ground access mode to airport split for medium and small sized airports as the following:

- Drove and parked = 42 percent
- Drove and dropped off = 50 percent
- Taxi, limo and rental car = 4 percent
- Transit and shuttle = 4 percent

Since FYI is similar in size, use and availability of mass transit, this mode share is assumed for the passengers at this airport.

By applying the mode share percentages to the total number of enplanements for 2010, dividing by the vehicle occupancy ratio and multiplying the assumed round trip length, the VMT associated with commercial service excluding transit operations was calculated. Commercial services VMT are shown on Table 3.28.

General aviation passenger VMT is estimated based on the number of general aviation operations divid-

Table 3.28—Total Annual Commercial Service VMT

Mode of Transportation	Mode Share % Based on ACRP 10-06	# of Enplanements	Vehicle Occupancy Ratio	Trip Length (roundtrip-miles)	Annual VMT
Personal Vehicle	42%	248,747	2	40	4,974,940
Drop-off	50%	296,127	2	80	11,845,080
Taxi/Limousine	4%	23,690	2	80	947,600
Total Annual Commercial Service VMT					17,767,620

Source: C&S Companies

ed by two (to account for the fact that an operation is a take-off or a landing maneuver) then multiplied by the assumed round trip passenger length.

Table 3.29—VMT Associated with General Aviation

# of Operations (not including Touch & Go)	# of Trip Generating GA Flights	Trip Length (roundtrip-miles)	Annual VMT
71,530	35,765	40	1,430,600

Source: C&S Companies

2010 general aviation operations data was not available, but the airport provided 12 months worth of operations data ending with September 2010. According to the airport, there were 79,478 total general aviation operations from October 2009 through September 2010.

General aviation operations include touch and go operations, which do not generate vehicular miles. The number of touch and go operations, present or historical, is not documented for the airport. Based on FAA AC 150/5060-5, the percentage of general aviation operations that are touch and go can be estimated anywhere between zero and 40 percent. Due to the lack of any information other than the knowledge that touch and go operations do occur, it was assumed that 10 percent of all general aviation operations are touch and go and these operations were removed from the VMT calculation.

The average passenger round trip length is assumed to be the same as those documented for commercial passengers: 40 miles. It is assumed that 100 percent of general aviation passengers drive and park at the airport. Based on this, the VMT associated with general aviation activity is summarized on Table 3.29.

Transit Vehicle Miles Traveled

The vehicle miles associated with transit (FAX) were calculated separately since they are based on the route and schedule, opposed to the number of passengers or employees that use the service. Since the airport is a stop on routes that serve other areas, the actual VMTs associated with the airport alone is cannot be estimated accurately. To be conservative, the length of the entire route is used in the transit VMT calculations. Route 26 is approximately 35 miles long round trip while Route 39 is approximately 21 miles long. According to the most recent route schedule, there are 28 or 30 trips during each weekday on Routes 26 and 39, respectively, and 12 on both routes on the weekends. The VMT associated with these bus routes is 481,656 VMT.

Vehicle Miles Traveled Summary

The total vehicle miles travelled associated with the employees and passengers at the airport is summarized on Table 3.30 (see Appendix C for detailed VMT calculations and assumptions). These VMT values were used to estimate greenhouse gas emissions in Section 3.02 on page 3-12.

Table 3.10—Total annual vehicle miles traveled

Category	Annual VMT
Employee	3,422,027
Commercial Service	17,767,620
GA Service	1,430,600
Transit	481,656
Total Annual VMT	23,101,903

Source: C&S Companies

3.10-3—Strong Points

The strengths associated with the airport's surface transportation system are summarized below:

- There is available parking capacity to accommodate passengers that could drive themselves and park at the airport versus being dropped-off/ picked-up.
- The enforcement of the immediate loading/unloading curbside zones and the availability of a cell phone lot help to reduce curbside dwell times and repeat circulation through the terminal area.
- There are continuous pedestrian accommodations throughout the terminal area, parking areas and on the surrounding roadways.
- There are bike racks available at the terminal and administrative building.

3.10-4—Opportunities for Improvement

The opportunities for improvements associated with the airport's surface transportation system are summarized below:

- Passenger mode share information is unknown at the time, but based on the low utilization of the parking areas, it is assumed that the passenger drop-off/pick-up percentages are high which result in high vehicle miles traveled for the airport.
- Few transit routes currently serve the airport.
- The bike racks are incorrectly positioned for optimum capacity and bike protection and they are not covered
- There is no preferred parking for low emission/ green vehicles.
- There is a lack of transportation demand management programs or incentives to encourage the use of alternative modes of transportation by airport employees or passengers.

3.10-5—Summary

Opportunities exist to both minimize VMT and increase parking revenues by discouraging trips where a passenger is dropped off and then picked up later and encourage passengers to instead drive themselves and use the long- or short-term parking areas. The promotion of shuttles (private or airport sponsored) can help to reduce passenger VMT. The Department of Airports can also minimize the impact that employees have on the VMT by establishing incentives and providing the accommodations to promote carpooling, the use of transit, walking or biking to work.

3.11—Socioeconomic Benefits and Community Outreach

3.11-1—Introduction

FYI continues to be a catalyst for positive economic development by ensuring that airport activities do not disproportionately impact any one population, regardless of race, age, color, national origin or income is the focus of this baseline assessment.

3.11-2—Summary of Data

Socioeconomic Benefits

In 1994, Executive Order 12898 was issued to address environmental justice in minority populations and low-income populations. It is intended to ensure that each federal agency conducts its programs, policies, and activities that substantially affect human health or the environment in a manner that does not exclude persons or populations from participation, does not deny benefits, and does not subject to discrimination because of race, color, or national origin. Ensuring greater public participation and access to information by minority and low-income populations is part of the environmental justice strategy.

The final EA/EIR for improvements at Fresno Yosemite International Airport explored the socioeconomic character of the region. Using a six-county socioeconomic study area (including Fresno, Kings, Madera, Mariposa, Merced, and Tulare), the study yielded positive results. On average, the area has experienced considerable population growth over the past 40 years and has avoided large poverty increases. From 1990 to 2000, the County of Fresno saw a 19.8 percent increase in population. The area around the airport is predominantly white but has seen more diversity over recent years.

The airport plays a key role in the area of economics. While its flights and services are an obvious source of income and jobs, the airport also indirectly stimulates economic development by making Fresno accessible to travelers and businesses, as well as improving the quality of life for residents. The 2004 economic impact study estimated that FYI creates 9,182 jobs, contributes $857 million to the regional economy, and earns $270 million annually.

FRESNO YOSEMITE INTERNATIONAL AIRPORT

SUMMER 2011

AIRPORTS DEPARTMENT

Summer Travel heats up at FYI!

Where are all the Mexico passengers coming from?

"Although we have no hard evidence, conversations with our concessionaires and rental car companies, indicate that passengers are coming from everywhere!

The fares are so inexpensive now that people are flying from Mexico to Fresno, renting cars and driving to Los Angeles and San Francisco (and elsewhere) and driving back to Fresno to leave.

Of course, some of this will disappear when new cities are opened and we have to compete with other airports for that passenger.

But until then, we have all of this to ourselves and we are enjoying it."

Russ Widmar
Director of Aviation

Re-establishing international air service at Fresno Yosemite International Airport (FYI) has proven an economic success in the first three months of operation, and FYI officials are hopeful this trend will continue. However, one factor that may have an impact on passenger loads later this month is when Aeromexico begins service to Mexico from Sacramento. This new service is scheduled to begin in late July, and airport officials will be watching to see its effect on Fresno ridership.

But for now, FYI and its concession partners have gained notable revenue totals, while travelers are benefiting from competitive airfares stimulated by AeroMexico and Volaris airlines.

Within the first two months of operation, competition between Aeromexico and Volaris resulted in nearly a $4 million savings in airfare-booked out of FYI.

Attractive airfares continue to be available through both airlines with one-way rates ranging from $139-$210 for Fresno to Guadalajara.

"Although it's hard to be overly optimistic that the low fares will continue with the continual rise in jet fuel prices and the prospect of new service out of Sacramento, when we look at the passenger numbers, we are continuing to see summer traffic as very strong, and we couldn't be happier with the huge return we are seeing on our investment," stated **Russ Widmar, Director of Aviation** at FYI. June load factors prove his statement to be true with Aeromexico flying at 96% capacity; and Volaris at 83%

Total passenger statistics for FYI peaked back in 2007 with 1,318,000 passengers flying in and out of FYI; and air travel has been on a steady decline ever since.

This year, in April 2011, passenger numbers were higher than any other April going back to 2004. If you annualize the numbers, FYI projects that 2011 could equal or exceed the peak year of 2007.

AIRPORTS DEPARTMENT

Airports Department Newsletter, Summer 2011

Community Outreach

The Department of Airports makes a significant effort to involve the community in its events and milestones. Two key components of this are television advertisements and the airport's website, www.flyfresno.com. The website is easily navigable and offers several opportunities to learn about the airport and take part in its events. These features include a tool to share your vacation photographs and electronic press releases issued by the airport to keep the community aware of and interested in current issues/developments.

www.flyfresno.com

FYI recently launched an Airports Newsletter that features aviation milestones, events at FYI, and an "Employees of the Quarter" section. The newsletter will keep neighbors and travelers aware of current happenings at the airport and provide a sense of community for those in the area. The Spring 2011 issue requested donations for a local youth diagnosed with leukemia. By reaching out to the community in this way, FYI brings people together and positively impacts the lives of local residents.

Like the Department of Airports the City of Fresno values community involvement. The city council holds meetings several times a month and publishes the agenda and minutes online. The city has also learned the value of social media. In addition to its presence on Facebook and Twitter, Fresno began a YouTube video channel in 2010 in order to "keep the public informed about local issues and to share its stories with others around the globe."

3.11-3—Strong Points

- Electronic press releases and newsletter on website.
- Sharing of travelers' vacation photographs on website.
- Updated and user-friendly website.
- City council meetings; agenda and meeting minutes posted online.
- Local and regional television advertising.

3.11-4—Opportunities for Improvement

- Although the City of Fresno has developed a strong presence in social media, the airport itself is not yet involved in Facebook, Twitter, or YouTube. These sites offer great opportunities to connect with the community, receive feedback, and share information.

3.11-5—Summary

The Department of Airports has made measured progress over the years to be a good neighbor and at the same time provided a facility that contributes to the economic development of the region. The airport takes an active role in the community.

3.12—Sustainable Site and Land Use Compatibility

3.12-1—Introduction

The compatibility of existing and planned land uses in the vicinity of an airport is typically determined by the safety and noise impacts associated with the airport. The FAA has developed guidelines for compatible land use in aircraft exposure areas based on various noise levels and safety criteria. These guidelines are listed in tables 3.31 and 3.32 and provide a basis for assessing noise compatibility and allocating federal funding for compatibility programs.

3.12-2—Summary of Data

The City of Fresno's Airport Land Use Commission is in the process of adopting the FYI Airport Land Use Compatibility Plan, which was last updated on May 1, 2011, and is an amendment to the existing 1997 FYI Airport and Environs Plan. (Refer to Appendix C for the compatibility plan and its figures.) Required by the State Aeronautics Act (Public Utilities Code, Section 21,670 et seq.), a land use compatibility plan should allow for growth of a public airport and the surrounding area within the Airport Land Use Commission's jurisdiction and maintain the welfare of the local residents and the public in general.

The noise component of the compatibility plan aims at preventing the establishment of new noise-sensitive land uses and the exposure of the users to disruptive aircraft noise. Table 3.31 shows the land use noise compatibility criteria that were used to evaluate the area surrounding FYI, in terms of the CNE) as defined in Title 21, Subchapter 6, of the California Code of Regulations. According to the FAA, 65 dB CNEL is the threshold for acceptable noise exposure in residential areas; this is the baseline criterion for determining other land use noise compatibilities.

The final EA/EIR for improvements to Fresno Yosemite International Airport superimposed the 2004 existing condition noise contours onto the land use base map of the airport and surrounding area, (see Appendix C). From this analysis it was deter-

Table 3.31—Land Use Compatibility with Yearly Day-Night Average Sound Levels

Land Use Category	Exterior Noise Exposure (CNEL)		
	60–65	65–70	70–75
Residential, Lodging, and Care			
*Residential (including single-family, multi-family)	o	-	-
Retirement homes, residential support facilities, hospitals, nursing homes, large child day care centers, adult day care facilities	o	o	-
*Hotels, motels, other transient lodging	o	o	-
*Mobile Homes	o	-	-
Public and Institutional			
*Schools, libraries	o	o	-
*Places of worship, auditoriums, concert halls, theaters, indoor arenas	o	o	-
Cemeteries, Parking	+	+	o
Commercial and Industrial			
Offices, service commercial, retail, shopping centers, restaurants	+	o	-
Wholesale, warehousing, research and development, light industrial	+	+	o
Extractive industry, industrial, manufacturing, utilities	+	+	o
Agricultural and Recreational			
Cropland	+	+	+
Nature preserves, livestock breeding, zoos	o	o	-
Regional parks, athletic fields, golf course, outdoor spectator sports, water recreational facilities, horse stables	+	o	o
Amphitheaters	o	-	-

Symbol	Land Use Acceptability	Interpretation/Conditions
+	Compatible	The activities associated with the specific land use may be carried out with essentially no interference from aircraft noise.
o	Conditional	The indicated noise exposure will cause interference with the activities. Building structure must be capable of attenuating noise to the indoor acceptable CNEL, standard construction methods will normally suffice. Indoor Uses: Noise exposure may cause moderate interference with indoor activities, extensive construction features required to make the indoor environment acceptable. Outdoor Uses: CNEL is acceptable for outdoor activities, although some noise interference may occur, caution should be exercised with regards to noise-sensitive uses.
-	Incompatible	Unacceptable noise interference upon these activities will occur indoor and outdoor. Adequate structural noise insulation is not practical under most circumstances. Severe noise interference makes outdoor activities unacceptable.
*	Acoustical Analysis Required	An acoustical analysis shall be performed by an individual or firm experienced in Acoustical Engineering.

Source: FYI Airport Land Use Compatibility Plan, last updated May 1, 2011 mined that 2,650.5 acres of land fell within the 65 dB CNEL contour, which includes noise-sensitive land uses such as residential, schools and churches. According to the guidelines presented in Table 3.31, residential land uses are incompatible at this noise exposure level. However, the community may decide to allow these land uses but should incorporate mitigation measures. Schools and churches are conditionally acceptable, meaning aircraft noise will cause interference with activities but noise attenuation via standard building construction methods should suffice. Within the 70–75 dB CNEL contour, 2004 existing condition land uses include Agriculture, Parks and Recreation, and (predominantly) Airport. Agriculture and Parks and Recreation land uses are either compatible or conditionally compatible depending on the specific types. Given the Department of Aviation's efforts toward noise mitigation, these land uses do not represent significant issues.

In addition to noise, the FYI Airport Land Use Compatibility Plan addresses land use safety compatibility in order to reduce risks resulting from off-airport property aircraft accidents or emergency landings. The safety compatibility criteria are presented in Table 3.32. Zone designations were based on FYI's runway configuration, aircraft operational procedures, and aircraft accident location data included in the California Airport Land Use Planning Handbook. (See Appendix C for safety zoning.)

The FYI Airport Land Use Compatibility Plan states that land uses with the potential to affect safe air navigation or attract hazardous wildlife may be incompatible with the airport and should be avoided in FYI's vicinity. Examples of land uses that may attract hazardous wildlife include landfills and bodies of standing water. FAA Advisory Circular (AC) 150/5200-33 – Hazardous Wildlife Attractants On or Near Airports should be considered when determining a project's land use safety compatibility.

3.12-3—Strong Points

- Fresno's Sound Mitigation Acoustical Remedy Treatment (SMART) Program under the approved FAR Part 150 Airport Noise Compatibility Program establishes noise mitigation measures in homes within the airport vicinity that are affected by the highest levels of aircraft noise, those in noise contours 75 to 65 dB CNEL.
- The FYI Airport Land Use Compatibility Plan, which addresses both safety and noise compliance with land uses surrounding the airport.
- Land uses that attract wildlife that could be hazardous to aviation operations are avoided.
- Flight paths and aircraft procedures are periodically reviewed and modified to reduce the impact of aircraft noise on surrounding areas. (See Section 3.05–Noise for more additional information.)
- Land uses or land use characteristics with the potential to jeopardize the safety of air navigation may be incompatible with the airport and are avoided in the vicinity of FYI.

3.12-4—Summary

Certain land uses and community services in the vicinity of the airport experience indirect noise effects caused by aviation activities. The City of Fresno, (along with Fresno County and the City of Clovis), has established policies aimed at reducing construction of non-compatible land uses near the airport. The 2011 EA/EIR presents documentation supporting the City of Fresno's assurance under 49 USC 47107(a)(10) that the city would take appropriate action to limit the use of land near FYI to airport-compatible activities. The Department of Airports has implemented numerous mitigation measures aimed at reducing noise impacts to areas around FYI.

Table 3.32—Airport Land Use and Safety Compatibility Criteria

Land Use Characteristic	Safety Zones					
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Residential Uses	-	(A)	(B)	(C)	-	+
Other Uses in Structures	-	(D,E)	(E)	(E)	-	+
Other Uses Not in Structures	(D,F)	(D)	+	+	-	+
Special Characteristics (In or Outside of Structures)						
Distracting Lights or Glare	-	-	-	-	-	+
Sources of Smoke or Electrical Interference	-	-	-	-	-	+
Attractor of Birds	-	-	-	-	-	+

Notes:

1. See Safety Compatibility Zones Figure in Appendix C
2. See Safety Compatibility Zones Dimensional Layout in Appendix C.

Symbol	Land Use Acceptability	Interpretation/Conditions
+	Compatible	Use is acceptable with little or no risks.
o	Conditional	Land use proposals that fall within this category must be reviewed on a case-by-case basis by commission or jurisdiction having authority. The commission or jurisdiction having authority may determine the use to be acceptable under conditions cited below: A. Density no greater than one dwelling unit per three acres. B. Density no greater than two dwelling units per acre. C. Density no greater than five dwelling units per acre. D. No uses attracting more than 10 persons per acre. E. No schools, hospitals, nursing homes, or similar uses. F. Characteristic cannot reasonably be avoided or located outside the indicated safety zone.
-	Incompatible	Use is unacceptable due to associated high risks.

Source: FYI Airport Land Use Compatibility Plan, last updated May 1, 2011

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

C&S COMPANIES

Section 4

Goals

Section 4—Goals

On August 15, 2011, members of the consultant team conducted a goals and target setting meeting with airport staff and community members at the airport administration building. During this meeting, the consultant team led a discussion about recommended initiatives that the airport could undertake to improve sustainability in each baseline category. The attendees collaborated on developing a vision statement and mission statement that encompass not just the sustainability management plan, but how the airport operates every day. Based on discussions about each baseline category, airport staff and community members made suggestions for goals in each area. These ideas were collected and consolidated by the consultant team into one overarching goal for each category and a series of sub goals that contribute to achieving the overall goal.

4.01—Vision and Mission Statements

Vision Statement

"Be the aviation industry leader in all that we do and be the premier choice for air travel."

Mission Statement

Plan, develop, manage, and operate safe, sustainable, cost-effective, and attractive aviation facilities; provide exceptional services; and promote the economic interests of the San Joaquin Valley.

4.02—Goals

4.02.1—Air Emissions

Air Emissions Goal

Reduce air emissions from airport-controlled sources and work with tenants and stakeholders to reduce non-airport-controlled emissions.

Air Emissions Sub Goal 1

Meet the requirements of California Assembly Bill 32 (AB-32) reducing emissions by 2020 to 1990 levels.

Description

AB-32 requires the state to reduce greenhouse gas emissions to 1990 levels by 2020. With the installation of the photovoltaic system, the airport has reduced the amount of electricity that is purchased from Pacific Gas & Electric (PG&E) by approximately 65 percent and is currently meeting the AB-32 GHG emission reduction requirements.

Timeframe for implementation

The year to meet this goal is 2020.

Air Emissions Sub Goal 2

Maintain or decrease scope 1 and 2 emissions from 2010 levels.

Overview

Scope 1 and 2 emissions represent the emissions and energy consumption associated with sources owned and controlled by the airport. These sources include: fleet vehicle fuel use, natural gas, and stationary source energy use (purchased electricity). Scope 1 and 2 emissions are those that AB-32 requires be less than 1990 levels by 2020. A review of scope 1 emissions indicates that fuel consumption associated with airport fleet vehicle and natural gas consumption, if considered independently relative to the AB-32 goal, have the potential to exceed the goal. In addition, increased activity levels in the future are likely to result in an increase in Scope 1 and 2 greenhouse gas emissions. The FAA estimates that activity at FYI could increase by approximately 15% increase in passengers and 7% increase in operations. Without additional greenhouse gas emission reduction initiatives, scope 1 and 2 emissions would likely be greater than 2010 levels.

Timeframe for implementation

This goal will be met by 2020.

Air Emissions Sub Goal 3

Help tenants and employees reduce scope 3 emissions from 2010 levels.

Description

Scope 3 emissions represent the emissions and energy consumption associated with sources that are not owned or controlled by the airport. These sources include, but are not limited to, aircraft, airline ground service equipment (GSE), rental vehicles, and employee travel. The baseline inventory shows that approximately 98% of airport-related emissions are generated by sources not controlled by the airport. Unlike scope 1 and 2, scope 3 emissions increased from 1990 levels due to the increase in aircraft operations. The airport has already implemented gate electrification and pre-conditioned air at the boarding bridges to reduce both criteria pollutants and greenhouse gases.

Timeframe for implementation

This goal will be met by 2020.

Air Emissions Sub Goal 4

Promote the conversion of airport-owned vehicles to alternative fuel or hybrid vehicles. By 2020, 50 percent of the vehicles owned and operated by the City of Fresno and used at the airport would be alternative fuel vehicles or hybrid vehicles.

Description

This goal is consistent with the ACI-NA environmental goals of striving to convert airport-owned and operated ground vehicles and ground service equipment (GSE) to low-emission vehicles with an industry-wide average goal of 50 percent vehicle conversion by 2019. The challenge of this goal is that vehicles operating on the airside be capable of the power demands for lights and associated safety equipment.

Timeframe for implementation

The year to meet this goal is 2020.

Air Emissions Sub Goal 5

Provide infrastructure and work with airlines to install electric chargers so 50 percent of the GSE used at the airport are electric vehicles by 2020.

Description

This goal is consistent with ACI-NA environmental goals and promotes cooperation with airlines to convert airline owned GSE from conventional fuels to electric vehicles. The city would seek commitments from the airlines to convert their GSE to electric vehicles if the city installs the supporting infrastructure. This effort will reduce emissions of both criteria air pollutants and greenhouse gases associated with airport operations. Funding may be available through the FAA's Voluntary Airport Low Emission (VALE) program.

Timeframe for implementation

The year to meet this goal is 2020.

Air Emissions Sub Goal 6

Develop a program encouraging taxi and rental car companies operating at the airport to increase the number of hybrids and/or alternative fuel vehicles in their fleets.

Description

ACI-NA has an environmental goal to "implement an incentive program to encourage taxi, shuttle, limo, and rental car companies to use low-emission vehicles." Although financial incentives cannot be offered, potential initiatives could include front of the line privileges and education to transport companies for alternative fuel or hybrid vehicles. Emissions of both criteria air pollutants and greenhouse gases associated with airport operations would be reduced.

Timeframe for implementation

The incentive program would be developed by 2015.

4.02.2—Energy

Energy Goal

Reduce energy consumption at airport-owned and operated facilities.

Energy Sub Goal 1

Reduce electricity consumption by 26 percent and natural gas usage by 15 percent.

Description

Reduce electrical usage by 26 percent and natural gas usage by 15 percent of 2005 levels at airport facilities controlled by the airport. Approximately $250,000 in annual operating costs will be saved by this reduction. The airport's carbon footprint would be reduced by approximately 630 metric tons of CO_2.

Timeframe for implementation

Ongoing. A 26 percent reduction in electric and 15 percent reduction in natural gas usage by 2020.

Energy Sub Goal 2

Increase the capacity of the photovoltaic array.

Description

Continue to increase capacity of the photovoltaic array, by encouraging developers to construct more panels. By increasing the size of the solar array, more of the electricity consumed by the airport will be from a carbon-neutral source, reducing the carbon footprint of the airport. In addition the airport purchases this electricity at a fixed rate, which will not increase over the term of the power-purchase agreement.

Timeframe for implementation

Ongoing. Many elements related to achieving this goal are based on outside factors (energy prices, solar panel prices, incentives, etc.). By 2020, the solar panel array will be expanded to meet total on-site electricity generation.

4.02.3—Water Conservation

Water Conservation Goal

Reduce potable water consumption at airport-owned and -operated facilities.

Water Conservation Sub Goal 1

Install low-flow, high-efficiency fixtures.

Description

Specify high-efficiency fixtures labeled with the U.S. Environmental Protection Agency's (EPA) Water Sense Label for all new projects. If all current inventoried fixtures were changed to Water Sense-labeled fixtures, the airport could save approximately 293,307 gallons of water annually, or 23 percent of the current water use for these fixtures. However, retrofitting is not considered to be cost effective. Therefore, future projects should take advantage of high-efficiency, high-performing fixtures.

Timeframe for implementation

Ongoing. Incorporate the requirement for Water Sense-labeled fixtures into all design projects by the end of 2012.

Water Conservation Sub Goal 2

Reduce water use for landscape maintenance.

Description

See Landscape Management sub goals 2, 3, and 4.

Timeframe for implementation

Ongoing.

4.02.4—Water Quality

Water Quality Goal

Reduce stormwater runoff volume, rate, and duration from the airport site.

Water Quality Sub Goal 1

Implement low-impact development practices in future development projects.

Description

The management of stormwater runoff has become one of the largest environmental management issues in California. While current runoff management strategies have been effective in developing systems for flood control, they have not historically been designed to enhance water quality. Current estimates of pollutant loads from stormwater runoff rival those of traditional point sources for many constituents, and conventional systems send these pollutants directly to receiving waters. By reducing the volume, rate, and duration of stormwater runoff leaving the airport site, the movement of pollutants that are collected by stormwater from impervious surfaces is reduced. Further, the recharge of groundwater aquifers is an important result of sites that area able to infiltrate stormwater.

To achieve this goal, the airport should encourage the use of low impact development (LID) practices such as pervious pavements, vegetated swales, filter strips, and rainwater harvesting in future development projects, in addition to conventional practices such as oil/water separators. These practices increase the reuse, infiltration, and/or evapotranspiration of stormwater on site and also filter pollutants from stormwater. Practices should be selected that do not create hazardous wildlife attractants, such as ponding water.

To measure progress toward this goal, the airport site should strive to achieve a target runoff curve number of 85. The runoff curve number is an index of how much stormwater falling on a site leaves the site as runoff instead of being infiltrated. A high number is representative of a site with low permeability and high runoff. A target curve number of 85 has been suggested by the Sustainable Sites Initiative for sites located in the arid Southwest as goal for sustainable stormwater management. The airport currently has a composite curve number of 86, which is close to the target number. This means that future projects, which will likely increase impervious surfaces at the airport, should employ measures that will result in an overall reduction in the imperviousness of the airport site.

Timeframe for implementation

The timeframe for implementing this goal is dependent on the pace and scale of development projects at the airport. Measures to reach the target curve number should be built in to individual projects and once the target curve number is reached, maintenance of this level of performance will be an ongoing effort.

4.02.5—Noise

Noise Goal

Minimize disruption to the community from noise generated by airport activities.

Noise Sub Goal 1

Continue the Sound Mitigation Acoustical Remedy Treatment (SMART) program to help mitigate aircraft noise.

Description

The SMART program is a recommended noise mitigation measure in the airport's FAR Part 150 Noise Compatibility Program (NCP). Through the SMART program the City of Fresno Department of Airports provides sound attenuation to homes within the vicinity of the airport that are affected by significant levels of aircraft noise as defined in the NCP. Residents near the airport with homes located in the community noise equivalent level (CNEL) 65 dB to 75 dB aircraft noise exposure contour receive considerable quality of life benefits since SMART program measures reduce interior noise levels to 45 dB.

Timeframe for implementation

Ongoing

Noise Sub Goal 2

Continue to work with airport tenants, including the California Air National Guard's 144th Fighter Wing, to implement the airport's noise abatement programs codified in FAA Tower Order FATZ 7110.8D.

Description

Noise abatement measures described in the City's 2008 FAR Part 150 Noise Compatibility Program (NCP) help reduce noise levels in areas developed with noise-sensitive land uses, including single-family and multi-family homes. This goal could potentially reduce the number of homes located in the CNEL 65 dB to 75 dB aircraft noise exposure contour.

Timeframe for implementation

Ongoing

4.02.6—Landscape Management

Landscape Management Goal

Maintain landscape features on airport property that contribute to biodiversity and reduce use of water, chemicals, and energy.

Landscape Management Sub Goal 1

Increase species diversity in landscape plantings.

Description

Do not plant species that already comprise more than 10 percent of the overall population. Consult the wildlife hazard management plan before approving any species to be planted around the airport. Many pests and diseases affect only one or a few species. By maintaining species diversity, the overall health of the urban forest canopy is protected against devastation because if an infestation occurs on one species, there will be many other unaffected species that continue to thrive.

Timeframe for implementation

Ongoing. Review all proposed planting plans to ensure that species diversity is maintained.

Landscape Management Sub Goal 2

Reduce irrigation water consumption.

Description

Increase low-water-use plants and decrease water-thirsty plants in new landscape plantings. For all new planting projects, require a minimum of 50 percent low-water-use plants and a maximum of 25 percent high-water-use plants, including lawns. Low-water-use plants require 75 percent less irrigation water than high-water-use plants. No turf should be planted in areas less than approximately eight feet wide.

Require climate-based irrigation controllers for all new projects and replacements for existing controllers. Climate-based irrigation controllers allow for more accurate, customized irrigation by automatically adjusting the schedule and amount or water based on changing weather conditions.

Timeframe for implementation

Ongoing. Review all proposed planting plans to ensure that the planting design and plan palette meet the goals. Require climate based irrigation controllers for all new projects and replacements for existing controllers.

Landscape Management Sub Goal 3

Install landscape mulch.

Description

Install & maintain landscape mulch in all existing and future planting beds. Mulching plant beds with three-inch organic mulch reduces evapotranspiration rates, reducing irrigation water demands by up to 50 percent as compared to bare earth. Additionally, mulch decomposes into the soil, adding nutrients and organic matter, reducing the need for synthetic fertilizers.

Timeframe for implementation

Install mulch in all existing shrub beds by the end of 2012.

Landscape Management Sub Goal 4

Reduce inputs (water, labor, chemicals, and fuel) required to maintain landscape plantings and retain soil moisture.

Description

Install shrub species that are the appropriate size for their location and do not require regular pruning to keep them small. Avoid planting vegetation that requires regular maintenance with chemical fertilizers or pesticides. Low-maintenance, drought-tolerant plantings will allow the airport to reduce labor, water, energy, and chemical inputs to maintain the landscape. Allowing the existing shrubs to grow naturally will shade the ground beneath them, conserving soil moisture.

Timeframe for implementation

Ongoing. Review all proposed planting plans to ensure that low-maintenance plants are specified for future planting. Revise landscape maintenance operations to reduce the amount of pruning by the end of 2012.

4.02.7—Solid Waste and Recycling

Solid Waste and Recycling Goal

Reduce the volume of solid waste generated by the airport and increase the amount of material diverted to recycling.

Solid Waste and Recycling Sub Goal 1

Promote recycling by travelers, employees, and vendors at the airport.

Description

Increase awareness and involvement in recycling among employees, tenants, and travelers at the airport by inviting the City of Fresno's (COF) recycling division to host education programs at FYI and posting informational signage and recycling bin labels. Prominent, clear signs that promote recycling will help inform visitors at the airport about which materials are recyclable, avoiding confusion and increasing recycling percentages. Providing education about what can and cannot be recycled and how to reduce the generation of waste will help the City of Fresno meet established diversion and reduction goals.

Timeframe for implementation

Begin education program and post new signage and recycling bin labels by the end of 2012.

Solid Waste and Recycling Sub Goal 2

Strive to align the airport's waste diversion goals with the City of Fresno's Zero Waste Strategic Plan and "Fresno Green" by diverting 75 percent of the waste stream generated from offices and the passenger terminal facilities by 2016.

Description

Divert 75 percent of the waste stream generated from offices and in the passenger terminal facilities by 2016. This gives the airport five years to reach COF's 2012 diversion goal. Waste diversion will reduce the stress on local landfills while increasing the recycling stream. Recycled items also reduce the need for virgin materials.

Timeframe for implementation

Achieve 75 percent waste diversion by 2016.

Solid Waste and Recycling Sub Goal 3

Encourage restaurants and food vendors at the airport to participate in a local, off-site composting program.

Description

The ultimate goal of recycling is to achieve 100 percent diversion from landfills. The City of Fresno's Zero Waste Strategic Plan and Strategy #17 of "Fresno Green" aim for 100 percent diversion rates. This cannot be achieved without food composting.

Timeframe for implementation

This objective is ongoing. If there are no local composting facilities established at this time, the airport can revisit the idea in the future.

Solid Waste and Recycling Sub Goal 4

Reduce the total generation of solid waste from the airport terminal and administration building.

Description

In order to reduce the total amount of solid waste generated by the airport, FYI should practice and encourage source reduction, reuse of materials, and recycling in airport operations, tenant activities, and construction projects. In addition to the environmental benefits, reducing the generation of waste would lower tipping fees and decrease the effort needed for waste pickup at the airport.

Timeframe for implementation

The success of this goal will be measured on a yearly basis. The airport is already tracking solid waste generated by the terminal, so monitoring will require little additional effort. Without a baseline for the amount of waste generated by the administration building, it is difficult to quantify progress. Tipping fees can be monitored over time to ascertain whether volume of waste is increasing, decreasing, or remaining steady.

Solid Waste and Recycling Sub Goal 5

Follow the City of Fresno's green purchasing policy.

Description

Continue to adhere to the City of Fresno's purchasing policy and encourage airport and janitorial staff to procure products and materials that use minimal packaging and have a high recycled content, reducing waste and the need for virgin materials. The airport should also spread awareness at the airport regarding the city's purchasing policy and encourage tenants to participate.

Timeframe for implementation

This is an ongoing goal.

4.02.8—Indoor Environmental Quality

Indoor Environmental Quality Goal

Maintain healthy indoor environmental quality by minimizing the use of materials that are damaging to the environment and human health.

Indoor Environmental Quality Sub Goal 1

Continue with green purchasing program and low-VOC paints and glue policy.

Goal Description

The airport has already implemented a green purchasing program and a policy to use low- or no-VOC paints and glues. These programs and policies should be evaluated and revised periodically as newer environmentally friendly/less-toxic products become available.

Timeframe for implementation

The green purchasing program and low-VOC policy should be updated at least every three years.

Indoor Environmental Quality Sub Goal 2

Develop a policy to work with tenants to use green products within airport-owned and -operated buildings.

Description

The airport has a green purchasing program as well as a policy to use low- or no-VOC paints and glues. The airport should work with tenants to ensure similar procedures are implemented in cleaning and renovating areas.

Timeframe for implementation

The policy to have tenants use green products at the airport should be in place by 2015.

Indoor Environmental Quality Sub Goal 3

Develop standard specifications for the use of green construction methods, compared to traditional means.

Description

Several organizations publish green methods of construction to promote a better indoor environment. Such standards will not only promote energy efficiency, emission reductions and better ventilation, but also provide building occupants with a more environmentally friendly workplace. In addition, the specifications can require sequencing details for the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard. Green construction methods can reduce energy requirements and emissions as well as provide a higher degree of human comfort in the terminal.

Timeframe for implementation

The standards specifying green construction methods should be in place by 2015.

Indoor Environmental Quality Sub Goal 4

Designate smoking areas at an outdoor location away from building entrances.

Description

Secondhand smoke has documented health effects on individuals. The airport currently bans smoking in FYI buildings. Smoking areas will be desginated away from building entrances or sources of ventilation.

Timeframe for implementation

The designated outdoor smoking area located away from doorways will be in place by 2015.

4.02.9—Hazardous Materials

Hazardous Materials Goal

Ensure that hazardous materials are properly stored and handled and do not pose a threat to the environment or human health.

Hazardous Materials Sub Goal 1

Develop a tracking system for bulk material storage (including tenants) at the airport by 2015.

Description

The airport does not currently have requirements for tenants to report their bulk storage of hazardous materials, including but not limited to, jet fuel, diesel, and deicing fluids. This goal would provide the City of Fresno with a greater understanding of the types of hazardous materials that are present at the airport. The airport will work with Fresno County Health Department and tenants to develop a list of permanent storage tanks greater than 55 gallons, and notify the airport prior to installation of any new bulk storage tanks. The development and enforcement of this goal would provide information to airport personnel of potential hazards at the airport. This could also reduce the City of Fresno's liability from potential hazardous material discharges to the environment by tenants.

Timeframe for implementation

The tracking program will be developed by 2015.

Hazardous Materials Sub Goal 2

Reduce number of spills by 25 percent by 2015.

Description

This goal is consistent with the ACI-NA environmental goal of striving to reduce spills by 25 percent from 2005 levels by 2015, with no releases of petroleum-based spills. Due to existing training and pollution prevention plans, there were no reportable spills in 2010. The goal would involve facilitating awareness of proper storage and handling procedures for hazardous materials, standard investigations into spills, and annual reviews of existing plans. With the limited number of spills currently occurring at the airport, the reporting time period for the 25 percent reduction may need to be increased to 5-year periods. An annual training program should reduce the potential for any spills as well as the airport's liability from potential hazardous material discharges to the environment. The airport already conducts pollution prevention training for applicable airport personnel.

Timeframe for implementation

An applicable year prior to 2010 could be used as a baseline for spill tracking. The airport would record and lists spills on an annual basis. Training would need to be provided to applicable airport employees, starting in calendar year 2012.

4.02.10—Surface Transportation

Surface Transportation Goal

Reduce vehicle miles traveled by passengers and employees.

Surface Transportation Sub Goal 1

Establish a transportation demand management program.

Description

Implement a transportation demand management (TDM) program for employees and passengers to educate and encourage the use of alternative modes of transportation. TDM strategies/tools will help contribute toward Surface Transportation Sub-Goal 2 by providing the infrastructure and incentives to encourage employees to carpool, walk/bike, or use public transportation to get to work. Strategies/tools can include providing preferred parking spaces for alternative fuel vehicles/carpool vehicles, subsidized parking for carpool vehicles, subsidized transit passes, improved bicycle/pedestrian facilities such as covered parking, racks, showers and lockers, etc., as well as promoting telecommuting when possible.

Timeframe for implementation

A TDM program will be established within one year of finalizing the sustainability management plan, but the individual strategies, tools and improvements will be implemented within the next five years.

Surface Transportation Sub Goal 2

Reduce employee 'drive alone' mode share.

Description

The current employee drive alone share is 96 percent, and employee vehicle miles traveled account for 15 percent of the airport's total. Reducing employee drive alone mode share by 10 percent will be more comparable with the drive alone share for the City of Fresno, Fresno County, and the State of California. This shift in mode share will result in lower parking demand for employees, increasing available supply for customers; improve the health of those that choose to walk/bike to work; and reduce vehicle miles traveled and CO_2 emissions.

Timeframe for implementation

Employee drive alone mode share will be reduced by 10 percent over a five-year period.

Surface Transportation Sub Goal 3

Improve regional planning coordination.

Description

Improve coordination and involvement in regional surface transportation planning efforts. The airport can stay informed on regional plans, programs, and studies, provide/obtain information relevant to their facility/operations and determine how the airport can be a part of the overall sustainability efforts of the region. Other regional planning efforts may help the airport to reduce passenger and employee VMT.

Timeframe for implementation

This is an ongoing goal that should be implemented based on regional planning studies and their schedules currently and in the future.

4.02.11—Socioeconomic and Community Outreach

Socioeconomic and Community Outreach Goal

Continue to serve as a community asset and involve residents and visitors in airport decisions and operations.

Socioeconomic and Community Outreach Sub Goal 1

Connect with local residents through newsletters, television, and the airport's website.

Description

Look for new opportunities to use the airport's newsletter to reach new audiences. Consider making it available in additional formats, such as e-newsletters and PDF downloads. Publish content that effectively communicate's the airport's message. Investigate opportunities to use other media, such as television and the web to connect with the community.

Timeframe for implementation

The airport will re-visit their process annually to make any needed adjustments.

Socioeconomic and Community Outreach Outreach Goal 2

Create an interactive multimedia display that engages and educates travelers about the airport's sustainability goals and accomplishments.

Description

Increase the use of electronic messaging and public displays in the passenger terminal. The public will better understand the progress the airport is making to be more sustainable and how it is improving the public's traveling experience.

Timeframe for implementation

The airport will re-assess how electronic messaging is used in the terminal on an annual basis. Also, re-assess how and to what extent public displays are used.

Socioeconomic and Community Outreach Sub Goal 3

Use social media to increase communication between the airport and the community.

Description

The airport currently collaborates with the City of Fresno Communications Office to share information through the city's Twitter and Facebook accounts. However, the airport could activate its own Twitter and Facebook accounts to make the community aware of flight deals and sustainability initiatives at the airport. Facebook and Twitter would allow the airport to connect with a younger generation and increase "real-time" involvement with the community.

Timeframe for implementation

Set up accounts on Facebook and Twitter by the end of 2012 and assign an individual or group of people to post updates relevant to the airport on a regular basis.

4.02.12—Sustainable Site and Land Use Compatibility

Sustainable Site and Land Use Compatibility Goal

Develop on-airport lands in ways that support airport activities

Description

Develop lands within the airport property that are compatible with aviation activities, e.g., are not noise-sensitive and do not attract wildlife that could be hazardous at an airport. Special attention is needed during any future master planning effort to ensure that on and off-airport lands are developed compatible with airport activities.

Timeframe for implementation

This is a continuous initiative.

Section 5

Gap Analysis

Section 5—Gap Analysis

A gap analysis is a process of determining how an organization can make progress on achieving its stated goals and objectives given its current situation. More simply, the core of a gap analysis is answering the questions "where is the airport now?," "where do we want to be in the future?," and "what will it take to get from the current conditions to the future goals?" A gap analysis also identifies the pace in which change needs to occur and defines the types of steps required to achieve that change.

Section 3—Baseline Assessment includes opportunities for improvement within each category. These opportunities were used to generate the recommended initiatives within the sub goals. This section presents a "big picture" view of the steps required to achieve each of the goals identified in Section 4—Goals. It lays out the basics of the recommended initiatives, the financial resources necessary, and how the recommended strategies will impact environmental, economic, and social factors. Section 6—Sustainability Management Plan presents a detailed implementation strategy on how each initiative should be undertaken and goes into greater depth on the types of individual projects that can lead to achievement of the goals. The baseline year for each category is 2010. The timeframe for implementing each goal is 2020 in most cases, but may differ for some categories.

Capital expenses for labor were calculated using an average hourly rate of $40.32 (2012 dollars), which was provided by the airport. This labor rate represents the anticipated labor categories expected to perform the work. Labor is broken out by estimated hours required to perform the work and by total annual cost based on hourly rates. This cost can either represent work performed by airport staff or the cost to hire temporary employees or a consultant to do the work. Adjustments to the hourly rate will need to be taken into consideration in future years to reflect changes in the average hourly rate.

At the end of each baseline category in this section is a table comparing each of that category's sub goal in a qualitative and quantitative manner. The table presents a ranking for relative ease of implementation and for social and environmental impacts. The table also includes the estimated costs (in 2012 dollars) of implementing each sub goal. The costs are meant to indicate a budgetary level of detail and are not meant to represent an in-depth cost analysis. Anticipated labor hours of airport personnel represent a suggested level of engagement and are not based on in-depth labor projections.

Weighing each sub goal's initiatives against their environmental, social and economic impacts is a fundamental part of a sustainability management plan. The tables compare how each sub goal contributes toward environmental, social, and economic impacts with a rating scale of low, medium, or high. A low ranking indicates that the sub goal has value and will contribute minimally toward the overall goal. A medium ranking indicates that the sub goal contributes in a more meaningful way, i.e., the cost, or the return on investment may be greater. A high ranking indicates that the sub goal significantly contributes towards the overall goal.

There is also an environmental impact associated with every dollar earned by the airport. Knowing how much energy the airport uses on an annual basis and comparing that to the revenue generated we are able to draw some conclusions about the viability, or the environmental benefit factor of certain initiatives. This methodology contributes to the ranking of the environmental benefits discussed in this section. For the purpose of this study we used the annual revenue for the baseline year of 2010.

We recommend that future updates to this plan use data and revenue for the year in which the initiative will be implemented to get a more accurate viewpoint for weighing the environmental benefits. For example, if airport revenue increases over time and the energy consumption decreases, then there may be a greater net environmental benefit to implementing a particular initiative that reduces energy consumption even more. This approach can aid the airport in the decision-making process about certain initiatives such as air quality and energy. It shouldn't be used as the sole metric, but rather can contribute to the decision making process.

The implementation level of effort was arrived at by projecting the amount of time or capital that would be required to achieve each sub goal's initiative. For example, an initiative that would require one staff person to spend a few hours ordering new signage and installing it in designated locations would be a low level of effort. An initiative that requires more considerable investment of time and capital costs, such as major infrastructure improvements or retrofits, would be a high level of effort.

Overall, the ranking of each sub goal is subjective and is meant to serve as a guide for implementation. The airport should give equal consideration to goals that have high rankings in different criteria, not just ones that score well in each area. A sustainability management plan needs to implement initiatives that make meaningful positive contributions economically, environmentally, and socially.

5.01—Air Emissions

Air Emissions Goal

Reduce air emissions from airport-controlled sources and work with the tenants and stakeholders to reduce non-airport-controlled emissions.

Air Emissions Sub Goal 1

Meet the requirements of California Assembly Bill 32 (AB-32) reducing emissions by 2020 to 1990 levels.

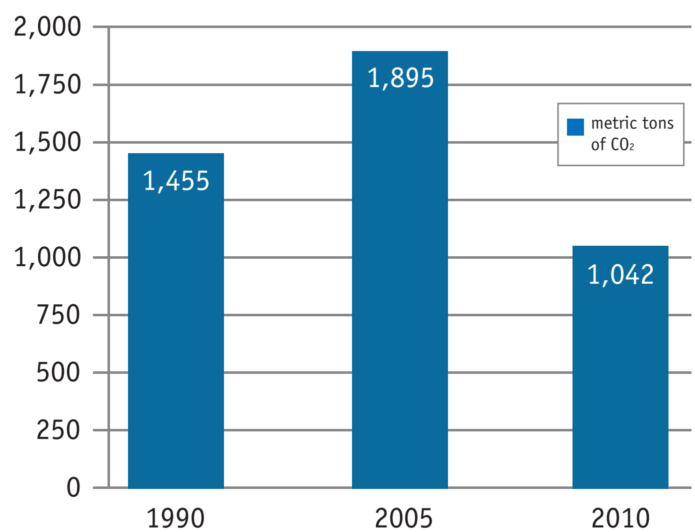
Overview

Reducing exhaust emissions from the combustion of fuel will not only assist in improving the air quality in the San Joaquin Valley, but also reduce the airport's impact on global warming. As described in Section 4, goals have been developed to reduce the combustion of fuel, which will minimize the airport's impact on the environment. The reduction of combustion from petroleum-based fuels from stationary sources, vehicles, and GSE will reduce not only greenhouse gases, but criteria pollutants, which affect local air quality. The airport has already undertaken significant projects, such as the development of the solar array and gate electrification, over the past five years to reduce emissions.

Section 3 presents the airport's baseline scope 1 and 2 emissions for 2010. The airport's scope 1 and 2 greenhouse gas (GHG) emissions for the three years of the baseline analysis (1990, 2005, and 2010) are shown on Figure 5.1. Emissions in 1990 were estimated because they represents the baseline of AB-32, which the airport has voluntarily committed to meet. The year 2005 was also estimated and can represent the baseline associated with the Western Climate Initiative (the WCI has a goal of reducing emissions by 15 percent in 2020 relative to 2005 levels), which the State of California also participates in.

As this analysis shows, actual GHG emissions in 2010 were 28 percent below 1990 levels, indicating that the airport is already achieving its AB-32 goals. However, the FAA estimates that activity at FYI could increase to about 127,030 operations by 2020, with 666,500 enplaned passengers (based on the FAA's Terminal Area Forecast). Relative to 2010 activity levels, this would be a 15 percent increase in passengers and nearly 7 percent increase in operations. With no other initiatives implemented, a gradual increase in greenhouse gas emissions associated with electrical purchases and increased airport fleet vehicle fuel use would be expected. It is estimated that 2020 GHG emissions would be 18 percent

Figure 5.1—Total GHG Emissions (Scope 1 and 2)



lower than 1990 levels. Relative to 2005 levels, the scenario for 2020 indicates that emissions would be 37 percent below 2005 levels and achieve the WCI goals.

The ability of the airport to achieve AB-32 is largely due to the success associated with reducing electrical consumption and the installation of the airport's solar farm, an indication of how the airport is already leading the aviation industry.

Timeframe for implementation

This goal will be met by 2020.

Implementation strategy

Based on emissions from 1990 and 2010 as well as the projected increase in operations, it is anticipated that the airport will achieve this goal with no further actions. To continue to improve the sustainability of FYI, reduce costs, and further reduce air emissions, the airport must continue its existing strategies. The following initiatives are designed to address other goals of the sustainability plan and further reduce greenhouse gas emissions:

- Plan and install additional photovoltaics for electrical power.
- Plan and install infrastructure for alternative fuel/electric vehicle conversion.
- Continue to track energy and fuel usage as well as greenhouse gas emissions from the airport on an annual basis, incorporating plans for airport modifications if emissions begin to increase.

An updated airport-wide greenhouse gas inventory will be prepared every two to three years to enable tracking greenhouse gas emissions.

If scope 1 and 2 emissions approach 1990 levels by less than 10 percent, the airport should implement projects that reduce greenhouse gases from sources owned and operated by the airport.

Monitoring

Airport staff will collect annual energy use by scope 1 and 2 sources and report this information annually. An updated airport-wide greenhouse gas inventory will be prepared every two to three years to enable tracking greenhouse gas emissions.

Estimated costs

- Internal Labor Time—60 labor hours/year to track fuel usage, electric and water bills.
- Outside Third Party Cost—$20,000/3 years to update air emission/GHG inventory.
- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—Additional photovoltaics and infrastructure for natural gas or electric vehicles is included in Energy goals and Air Emissions sub goal 4.

Summary

With continued implementation of current energy efficiency actions, the airport is expected to achieve this goal. The airport should consider preparation of an annual greenhouse gas inventory. Because of the cost of such evaluations, airport staff could track electricity and fuel usage, using the data presented in Section 3, as a surrogate for tracking emissions.

Air Emissions Sub Goal 2

Maintain or decrease Scope 1 and 2 emissions from 2010 levels.

Overview

Scope 1 and 2 emissions represent the emissions and energy consumption associated with sources owned and controlled by the airport. These sources include fleet vehicle fuel use, natural gas, and stationary source energy use (purchased electricity). Scope 1 and 2 emissions are those that AB-32 requires be less than 1990 levels by 2020.

As noted in the discussion of Air Emissions sub goal 1, scope 1 and 2 emissions associated with FYI already achieve the AB-32 goals and are expected to remain in compliance with that goal even with the anticipated increases in activity due to the benefits of the airport's solar farm. However, a review of scope 1 emissions indicates that fuel consumption associated with airport fleet vehicles and natural gas consumption (if considered independently relative to the AB-32 goal) have the potential to exceed the goal. Increased activity levels are likely to result in an increase in greenhouse gas emissions that would be offset by reductions achieved due to the solar farm. The FAA estimates that passengers at FYI could increase by approximately 15 percent and operations by 7 percent. Without additional greenhouse gas emission reduction initiatives, it is possible that 2020 scope 1 and 2 emissions could be greater than 2010 levels. Therefore, the airport needs to plan and evaluate measures designed to reduce emission of scope 1 sources.

Timeframe for implementation

This goal will be met by 2020.

Implementation strategy

The airport will monitor fuel and electricity usage on an annual basis and update the greenhouse gas inventory for FYI on an annual basis. Without additional greenhouse gas emission reduction initiatives, it is possible that 2020 scope 1 and 2 emissions could be greater than 2010 levels because of increased passengers and operations. If the greenhouse gas emission levels increase with operations, the airport should consider the following initiatives:

- Develop a plan to further reduce scope 1 and 2 emissions, including projects, schedule, costs, and greenhouse gas reductions.
- Plan and install infrastructure for alternative fuel vehicle conversion.
- Implement projects that increase the energy efficiency of buildings and combustion equipment to reduce fuel and electricity usage.

Monitoring

Airport staff will collect annual energy use by scope 1 and 2 sources and report this information annually. An updated airport wide greenhouse gas inventory will be prepared every 2-3 years to enable tracking greenhouse gas emissions of scope 1 and 2 emissions.

Estimated costs

- Internal Labor Time—80 labor hours to develop schedule, estimated costs, and funding sources.
- Outside Third Party Cost—None quantified at this time.
- Labor Budgetary Capital Estimate—$3,225.60
- Non-Labor Budgetary Capital Estimate—Improvements for buildings, higher-efficiency combustion installations, and infrastructure for natural gas vehicles included in Air Emissions Sub Goal 4 and the Energy goals.

Air Emissions Sub Goal 3

Help tenants and employees reduce scope 3 emissions from 2010 levels.

Overview

Scope 3 emissions represent the emissions and energy consumption associated with sources that are not owned or controlled by the airport. These sources include, but are not limited to, aircraft, airline ground service equipment (GSE), rental vehicles, and employee travel. The baseline inventory shows that approximately 98 percent of airport-related emissions are generated by sources not controlled by the airport. The airport has already implemented gate electrification and pre-conditioned air at the boarding bridges to reduce both criteria pollutants and greenhouse gases.

The airport is committed to work with its tenants to identify opportunities to reduce fuel consumption associated with tenant activities. Potential opportunities include electric charging stations, conversion to alternative fuels, and promotion of hybrids and more fuel efficient vehicles operating at the airport.

Timeframe for implementation

This goal will be met by 2020.

Implementation strategy

Airport staff will consolidate information associated with scope 3 sources, such as aircraft operations, miles traveled and fuel usage of GSE, use of hybrids, alternative fuels and public transportation and report this information annually. With the additional aircraft operations expected to occur, it is likely the scope 3 emissions levels will increase. However, the airport should strive to minimize emissions of airline and cargo GSE, airport employees' modes of transportation, and the rental car vehicle fleet.

The airport should consider the following initiatives:

- Educate and coordinate with airport tenants to identify facility and operational procedures that would assist with reducing scope 3 emissions.

- Plan and install infrastructure for alternative fuel/electric vehicle conversion for both airlines and cargo.
- Work with the airlines to institute a program to convert GSE to electric.
- Work with rental car companies to expand the percentage of alternative fuel vehicles.
- Develop programs to promote alternative fuel vehicles or public transportation for employees.

Monitoring

Airport staff will consolidate information associated with scope 3 sources and report this information annually. The information gathered will include, but may not be limited to, the type and number of aircraft operations, miles traveled and fuel usage from airline GSE, employee use of public transportation or car pooling. An updated airport-wide greenhouse gas inventory will be prepared every two to three years to enable tracking greenhouse gas emissions of scope 1, 2, and 3 emissions.

Estimated costs

- Internal Labor Time—80 labor hours per year assuming 20 hours per quarter for education of tenants
- Outside Third Party Cost—$15,000 for external development of promoting use of public transportation and alternative fuel vehicles.
- Labor Budgetary Capital Estimate—$3,225.60
- Non-Labor Budgetary Capital Estimate—A natural gas fueling infrastructure typically varies depending upon the size of the system. Budget estimate for a natural gas fueling station is $500,000.

In determining the environmental benefit of this sub goal, consideration was given to the fact that the projected cost of $518,225 is 3.2% of the airport's annual revenue of $16,010,067. This initiative that would provide considerable environmental benefits and the low comparative cost makes the environmental benefits more worthwhile in the short term. Therefore, this goal scores higher when it comes to potential environmental benefits.

Air Emissions Sub Goal 4

Promote the conversion of airport-owned vehicles to alternative fuel or hybrid vehicles. By 2020, 50 percent of the vehicles owned and operated by the airport will be alternative fuel vehicles or hybrid vehicles.

Overview

Table 5.1 lists airport-owned and -operated vehicles in the 2010 baseline year.

Table 5.1—Airport-owned and operated vehicles in baseline year 2010

Vehicle Type	Number of Vehicles
Patrol units	3
Trucks/vans/SUVs	26
Tractor/sweepers/dump trucks	6
Fork Lift	1
AARF crash rigs	2
Total vehicles	**38**

Source: C&S Companies

Timeframe for implementation

This goal will be met by 2020.

Implementation strategy

Airport staff will collect fleet vehicle information, identifying the number of vehicles powered by various fuel types on an annual basis. In addition, the airport will track the fuel usage and compare the correlation between using hybrid and alternative fuel vehicles with diesel and gasoline purchases.

The airport should evaluate the technical and economic feasibility of using hybrid and alternative fuel vehicles (natural gas, propane, or electricity). In addition, funding sources that can offset the cost of converting vehicles and developing alternative fuel infrastructure should be researched. To achieve this goal, the airport should implement the following initiatives:

- Update baseline of vehicle information and tracking of fuel usage.
- Evaluate the capability of hybrid and alternative fuel (natural gas, propane, or electricity) vehicles in meeting the needs of the airport. Currently, there are manufacturers selling hybrid vehicles for police use that could potentially meet the needs of administrative and non-maintenance vehicles for the airport.
- Conduct a feasibility analysis, including obtaining funding through the FAA VALE (Voluntary Airport Low Emission) Program and other programs, to develop alternative fuel infrastructure as well as vehicle conversions/replacement to reduce emissions of particulate matter, oxides of nitrogen, and volatile organic compounds. VALE will pay for 95 percent of the cost of the infrastructure as well as the incremental additional cost of vehicles.
- As airport-owned vehicles approach the end of their useful life, consider replacement with hybrids or alternative fuel vehicles. Additionally, consider replacing current vehicles with vehicles in a smaller class that produce fewer emissions and get more miles per gallon (for example, replacing a truck or SUV with a car).

Monitoring

Airport staff will collect fleet vehicle information, identifying the number of vehicles powered by various fuel types on an annual basis. In addition, the airport will track the fuel usage and compare the correlation between utilizing hybrid and alternative fuel vehicles with diesel and gasoline purchases.

Estimated costs

- Internal Labor Time—40 labor hours per year to obtain and consolidate information, 40 labor hours to evaluate capability of hybrids, and 40 labor hours per year to evaluate the benefits of converting to hybrids or alternative fuel vehicles.
- Outside Third Party Cost—$15,000 for feasibility analysis of alternative fuel infrastructure and vehicles.
- Labor Budgetary Capital Estimate—$4,838.40
- Non-Labor Budgetary Capital Estimate—There are no non-labor capital costs associated with performing a feasibility analysis. However, the incremental cost for a hybrid vehicle could potentially range between $5,000 and $10,000 per vehicle. This cost difference could be partially offset through savings in fuel.

Summary

The airport should evaluate the technical and economic feasibility of using hybrid and alternative fuel vehicles. In addition, funding sources that can offset the cost of converting vehicles and developing alternative fuel infrastructure should be researched. For example, the FAA VALE Program provides funding for 95 percent of the cost of the infrastructure as well as the incremental cost of vehicles at small hub airports. With the infrastructure in place, the dairport can purchase alternative fuel vehicles when the existing vehicles are at the end of their useful life.

Air Emissions Sub Goal 5

Provide infrastructure and work with airlines to install electric chargers so 50 percent of the GSE used at the airport are electric vehicles by 2020.

Overview

Table 5.2 summarizes airline-owned GSE currently operating on gasoline, diesel, or electric in 2010. Approximately 16 percent of airline GSE currently use electric vehicles with the remaining being powered primarily by diesel fuel (53 percent) or gasoline (31 percent).

Table 5.2—Ground service equipment (2010)

Airline	Diesel GSE	Gasoline GSE	Electric GSE
Allegiant/ Horizon	2	3	1
American Airlines	9	1	3
Mesa	4	5	3
Skywest	8	2	4
FedEx	7	7	NA
UPS	6	3	NA
Total GSE	**36**	**21**	**11**

Timeframe for implementation

This goal will be met by 2020.

Implementation strategy

Airport staff will collect GSE information from the airlines, identifying the number of vehicles powered by various fuel types on an annual basis. The goal to have 50 percent of the airline's GSE be electric by 2020, means that 34 vehicles/equipment should be electric by 2020. To achieve this goal, the airport staff should implement the following initiatives.

- Update baseline of GSE information and tracking of fuel usage.
- Work with the airlines to institute a program to convert GSE to electric.
- Plan and implement the electric infrastructure and associated charging stations.
- Research funding opportunities for conversion costs, including FAA'S VALE program.

Monitoring

Airport staff will collect from the airlines GSE information, identifying the number of vehicles powered by various fuel types on an annual basis.

Estimated costs

- Internal Labor Time—40 labor hours per year to obtain and consolidate information from airlines and FBOs, 40 labor hours per year to work with airlines, and a one-time estimate of 80 labor hours per year to research funding opportunities.
- Outside Third Party Cost—$0 external costs for this goal. However, design of infrastructure may require outside assistance.
- Labor Budgetary Capital Estimate—$6,451.20
- Non-Labor Budgetary Capital Estimate—Electric charging infrastructure costs vary depending on the size of the system and other variables. Typical costs for electric charging station can range between $40,000 and $50,000. For 20 stations, the cost would be approximately $1,000,000.

In determining the environmental benefit of this sub goal, consideration was given to the fact that the projected cost of $1,006,451 is 6.2% of the airport's annual revenue of $16,010,067. This initiative would provide some environmental benefits. The cost makes the environmental benefits more of a financial challenge in the short term. Therefore, this goal scores lower when it comes to potential environmental benefits.

Summary

The airport should evaluate the technical and economic feasibility of providing the infrastructure for electric charging stations at the airport. In addition, funding sources should be researched. For example, the FAA VALE Program will provide funding for 95 percent of the cost of the infrastructure as well as the incremental cost of electric GSE. With the infrastructure in place, airlines should use electric GSE at the airport. Additional photovoltaics can offset the additional electric demand associated with the charging stations.

Air Emissions Sub Goal 6

Develop a program encouraging taxi and rental car companies operating at the airport to increase the number of hybrids and/or alternative fuel vehicles in their fleets.

Overview

Currently, there are no known taxis or rental cars operating on alternative fuels such as natural gas, propane or electricity at the airport. Rental car companies use hybrids as part of their fleet, but the percentages vary by company.

Timeframe for implementation

The program will be implemented by 2018.

Implementation strategy

To achieve this goal, the airport will track the number of hybrids and alternative fuel vehicles on in the rental car fleet on an annual basis. In addition, the following initiatives will be implemented.

- Explore funding sources to assist tenants with vehicle conversions and other incentives to achieve conversions.
- Initiate discussions with taxi and rental car companies regarding the conversion to hybrids or alternative fuel vehicles.

- Develop a program that encourages the use of more hybrid or alternative fuel vehicles at the airport.
- Provide potential non-revenue incentives such as front of the line privileges for taxis.

Implementation of this goal will be more voluntary in nature as the airport can't control the types of vehicles used by taxi and rental car companies. Although, when leases are due for renewal, the airport should consider adding language requiring taxi and rental car companies to provide alternative fuel vehicles in their fleets.

Monitoring

Airport staff will collect information from the rental car companies on the total number of vehicles in their fleet, the number of hybrids, number of alternative fuel vehicles on an annual basis. The airport will calculate the percentage of vehicles that are hybrid or alternative fuel for each company as well as total for the airport.

Estimated costs

- Internal Labor Time—20 hours to explore funding opportunities, 40 hours per year for working with rental car companies to convert to hybrids or alternative fuel vehicles, and one time estimate of 80 labor hours to develop program with rental car companies. If a third party develops the program, the cost is approximately $10,000.
- Outside Third Party Cost—If a third party develops the program for rental car companies, the cost is approximately $10,000.
- Labor Budgetary Capital Estimate—$4,838.40
- Non-Labor Budgetary Capital Estimate—This goal assumes that Air Emissions Sub Goal 5 has already been accomplished, so the required infrastructure is already in place and no additional capital costs are required to achieve this goal.

Summary

Taxi and rental cars are not under the direct control of the airport and are considered scope 3 emissions. However, the airport wants to provide education and opportunities for these entities to help reduce the overall carbon footprint at the airport. The airport should meet with taxi and rental car companies to develop a program that will assist in the conversion of vehicles operating at the airport to hybrids or alternative fuels.

Air Emissions Goals Assessment

Table 5.3 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

Table 5.3—Air Emissions Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$22,419.20	Easy	Medium	Medium	Medium
2	$3,225.60	Easy	Low	Low	Low
3	$518,225.60	Hard	High	Low	Medium
4	$16,838.40	Medium	Medium	Medium	Low
5	$1,006,451.20	Medium	Medium	Low	Low
6	$14,838.40	Medium	Medium	Low	Medium

5.02—Energy

Energy Goal

Reduce energy consumption at airport-owned and -operated facilities.

Energy Sub Goal 1

Reduce electricity consumption by 26 percent and natural gas usage by 15 percent.

Overview

In 2010, airport-owned and -operated facilities consumed a total of 6,605,351 kWh of electricity. 4,877,737 kWh was produced by the on-airport solar array. The other 1,727,614 kWh was provided by PG&E. At current usage levels, 74% of the electricity the airport uses is generated by the solar array (See Figure 5.2). The goal of this measure is to eliminate the 26% of the electricity purchased from the utility. The measures used to accomplish this will also organically reduce natural gas use by 15% by 2020.

Energy conservation will provide an economic benefit by reducing the amount of energy purchased by the airport. There are additional environmental benefits to energy conservation as well. By reducing the amount of electricity purchased from non-renewable sources, the greenhouse gases and other pollutants created during the generation of that electricity is eliminated. Decreased heating demands translate directly to reduced use of natural gas and the byproducts of its combustion (greenhouse gases and other pollutants).

Timeframe for implementation

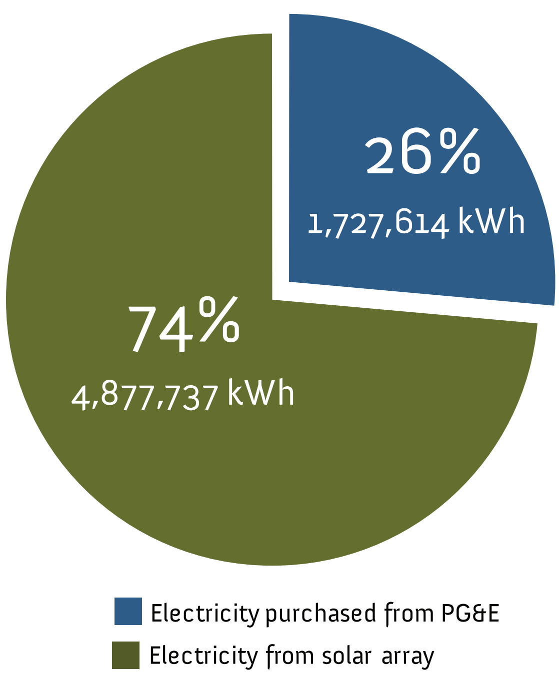
Ongoing. 2020 is a milestone date for a 26 percent reduction in electrical usage and a 15 percent reduction in gas usage.

Implementation strategy

If the airport can reduce energy use by 26 percent (~1.73 million kWh), all of the electricity used by airport-owned and -operated facilities will be generated on site by the PV array. This will contribute significantly to carbon neutrality because it will eliminate emissions related to electrical consumption. The initiatives suggested below will have the ancillary effect of reducing natural gas usage by 15 percent (9,748 therms). This natural gas savings will add to the carbon dioxide and annual energy expenditure savings. Approximately $250,000 in annual operating costs will be eliminated by this reduction.

- Implement a control systems upgrades to the passenger terminal building, concentrating on updating sequences of operation, reducing equipment run times, and ensuring the amount of outdoor air brought into the facility is at code levels. This initiative includes adding the majority of the HVAC equipment to a single DDC (direct digital control) system, which will be capable of operating individual units on individual schedules, making sure they are not calling for heating or cooling when spaces are unoccupied. The system will also be able to modify setpoints based on time schedules so that spaces will not be heated and cooled to the same levels when unoccupied. The airport should install CO_2 sensors to implement demand control ventilation wherever feasible as part of this upgrade.
- Upgrade lighting in the airport administration building. Currently, the majority of lighting in the airport administration building is older T-12

Figure 5.2—2010 Electricity Consumption



lamps, which are inefficient. A lighting replacement project to high efficiency T-8 bulbs and electronic ballasts would reduce energy usage but maintain lighting levels.

- Upgrade site lighting and airfield lighting. As the FAA updates its policy on acceptable airfield lighting, the airport should use newer, more-efficient lighting technologies (e.g., LED runway lights). FAA is currently reviewing their policy for LED lighting and it is expected that they will be approved long enough before 2020 that a lighting upgrade could be implemented.

Monitoring

The airport will monitor and track their electric and natural gas usage on a monthly basis. As different projects are completed their impacts should be noticeable in the monthly bills. Airport involvement will be needed to ensure that the energy projects are implemented in such a way that they achieve the energy savings intended by the measures outlined above. Using the EPA portfolio manager tool to keep track of usage over time would provide additional insight. Employing the services of an outside energy advisor may be desirable to assist in these efforts.

Estimated costs

- Internal Labor Time—12 hours: assumes an hour a month to analyze bills and enter this data into a spreadsheet, or possibly into the EPA portfolio manager tool.
- Outside Third Party Cost—(Optional) $25,000 (one-time cost) for an energy advisor to assist with project implementation
- Labor Budgetary Capital Estimate—$483.84
- Non-Labor Budgetary Capital Estimate—Control system upgrades: $250,000; lighting at airport administration building: $40,000; runway lighting to LED: $500,000

In determining the environmental benefit of this sub goal, consideration was given to the fact that the projected cost of $815,483 is 5% of the airport's annual revenue of $16,010,067. This initiative would provide considerable environmental benefits. The cost makes the environmental benefits more financially challenging in the short term, but the net environmental benefits are considerable. Therefore, this goal scores higher when it comes to potential environmental benefits.

Summary

By implementing energy conservation measures such as control system upgrades, interior lighting upgrades, and runway lighting upgrades the airport will be able to reduce their electrical consumption by 26 percent and their natural gas consumption by 15 percent. These savings will reduce greenhouse gas emissions and contribute to other sustainability goals. These energy projects are cost effective and will result in very high paybacks for the airport. In fact, if the control system is upgraded, lighting at the airport administration building is updated, and runway lighting is updated to LED, the estimated annual savings would be approximately $250,000 a year. This is a payback period of only 3.3 years on the initial investment. If only one or two of these projects are accomplished, the payback period will fluctuate.

Energy Sub Goal 2

Increase the capacity of the photovoltaic array.

Overview

Currently a very large 2.4 megawatt single-axis tracking solar array is located on the airport property. The airport purchases the majority of their electricity through a power purchase agreement with the owners of the PV array.

Timeframe for implementation

Ongoing. Many elements related to achieving this goal are based on outside factors (energy prices, solar panel prices, incentives, etc.). By 2020, the solar panel array could be be expanded to meet total on-site electricity generation requirements.

Implementation strategy

Increasing the PV array by 33 percent would be the high limit of the effectiveness of this goal, because 74 percent of current energy usage is generated by the existing solar array.

- Continue to encourage development of solar panels in at the airport by making it as attractive

Table 5.4—Energy Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$815,483.84	Medium	High	High	Medium
2	N/A	Medium	High	Low	Medium

an investment option as possible.

- Continue to reserve land areas for future development, including areas near the existing array.

By increasing the size of the solar array, more of the electricity consumed by the airport will be from a carbon-neutral source, reducing the carbon footprint of the airport. In addition the airport purchases this electricity at a fixed rate, which will not increase over the term of the power purchase agreement.

Monitoring

The output of the solar array is currently being monitored and should continue to be monitored by airport personnel. Airport staff should periodically (annually) re-evaluate the cost of solar panels and their efficiency and continue to advertise the airport as a viable site to install solar panels in the future.

Estimated costs

- Internal Labor Time—No additional time is required—airport staff currently works towards this goal
- Outside Third Party Cost—None
- Labor Budgetary Capital Estimate—$0
- Non-Labor Budgetary Capital Estimate—To be determined. Due to the cost variation associated with expanding the photovoltaic array, it is not practical to estimate the cost at this time. The airport will need to undertake a cost-benefit analysis in the future to assess the financial viability of expanding the array.

Summary

By increasing the size of the solar array on the airport property more electricity can be purchased from renewable sources at a set flat rate. As the airport already produces 74 percent of its electricity through the existing array, increasing the size of the array by more than 33 percent would create more electricity than the airport could currently use on-site.

Energy Goals Assessment

Table 5.4 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

5.03—Water Conservation

Water Conservation Goal

Reduce potable water consumption at airport-owned and -operated facilities.

Water Conservation Sub Goal 1

Install low-flow, high-efficiency fixtures.

Overview

In 2010, most existing water fixtures met the UPC and IPC standards, but not the more-efficient standards of the USEPA's Water Sense Label. It is estimated that in 2010, buildings at the airport used approximately 1,301,663 gallons of potable water for plumbing fixtures.

Timeframe for implementation

Incorporate the requirement for Water Sense labeled fixtures into all construction specifications by the end of 2012.

Implementation strategy

When new projects are built or when existing buildings are renovated, install high-efficiency plumbing fixtures. For each Water Sense-labeled fixture in-

Table 5.5—Water Conservation Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$4,112.80	Easy	Medium	Medium	Low
2	N/A (See Landscape Management sub goals 2, 3, and 4.				

stalled, the airport would see a minimum 20 percent water use reduction compared to UPC/IPC compliant fixtures.

- Specify high-efficiency fixtures labeled with the U.S. Environmental Protection Agency's (EPA) Water Sense label for all new projects.
- Install automatic sensors on toilets, urinals, and faucets and install dual-flush toilets.

Monitoring

The airport should review development proposals to evaluate water consumption impacts and encourage the incorporation of water efficient fixtures. The airport should update the water usage baseline on an annual basis to evaluate the impact of any new project or improvements on water consumption.

Estimated costs

- Internal Labor Time—40 hours (plan review)
- Outside Third Party Cost—$2,500 (update of water usage baseline)
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

Summary

If all current fixtures were changed to Water Sense-labeled fixtures, it is estimated that the airport could save approximately 323,553 gallons of water annually, or 23 percent of the current water use for these fixtures. The airport pays approximately $0.004 per gallon for potable water used in the buildings. Saving 323,553 gallons of water annually would provide a savings of approximately $1,300 per year. Retrofitting existing fixtures is not considered to be cost effective. Priority should be given to using high-efficiency, high-performing fixtures for new construction projects or fixture upgrades. Low-flow fixtures that meet the EPA Water Sense standards do not typically cost more than standard fixtures, although sensors for dual-flush toilets will cost an additional $600 to $800 each.

Water Conservation Sub Goal 2

Reduce water use for landscape maintenance.

Description

See Landscape Management sub goals 2, 3, and 4.

Timeframe for implementation

Ongoing.

Water Conservation Goals Assessment

Table 5.5 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

5.04—Water Quality

Water Quality Goal

Reduce stormwater runoff volume, rate, and duration from the airport site.

Water Quality Sub Goal 1

Implement low-impact development practices in future development projects.

Overview

Based on land cover and soil types, the airport currently has a composite curve number of 86, which is close to the target number. This means that future projects, which will likely increase impervious surfaces at the airport, should employ measures that will result in an overall reduction in the imperviousness of the airport site. The runoff curve number is an index of how much stormwater falling on a site leaves the site as runoff instead of being infiltrated. A high number is representative of a site with low permeability and high runoff. A target curve number of 85 has been suggested by the Sustainable Sites Initiative for sites located in the arid Southwest as goal for sustainable stormwater management.

Timeframe for implementation

The timeframe for implementing this goal is dependent on the pace and scale of development projects at the airport. Measures to reach the target curve number should be built in to individual projects and once the target curve number is reached, maintenance of this level of performance will be an ongoing effort.

Implementation strategy

To achieve this goal, the airport should encourage the use of low impact development (LID) practices such as pervious pavements, vegetated swales, filter strips, and rainwater harvesting in future development projects, in addition to conventional practices such as oil/water separators. These practices increase the reuse, infiltration, and/or evapotranspiration of stormwater on site and also filter pollutants from stormwater. Practices should be selected that do not create hazardous wildlife attractants, such as ponding water.

To measure progress toward this goal, the airport site should strive to achieve a target runoff curve number of 85. As mentioned above, the airport currently has a composite curve number of 86, which is close to the target number. Recommended initiatives include:

- Incorporate appropriate LID best practices into design standards and guidelines for development of airport property.
- Review impact of proposed development projects on runoff curve number.

Monitoring

The airport should review development proposals to evaluate water quality impacts and encourage the incorporation of LID practices. The airport should update the land cover baseline map on an annual basis to evaluate the impact of any new development or other land cover changes to the runoff curve number.

Estimated costs

- Internal Labor Time—40 hours (plan review)
- Outside Third Party Cost—$2,500 (land cover map update)
- Labor Budgetary Capital Estimate—$1,612.80
- Budgetary Capital Estimate—$0

Summary

By using stormwater management techniques which infiltrate stormwater on site, the recharge of groundwater aquifers can be enhanced. Further, by reducing the movement of stormwater runoff off the site, the movement of pollutants that are collected by stormwater from impervious surfaces is also reduced.

Water Quality Goals Assessment

Table 5.6 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

Table 5.6—Water Quality Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$4,112.80	Easy	High	Low	Medium

5.05—Noise

Noise Goal

Minimize disruption to the community from noise generated by airport activities.

Noise Sub Goal 1

Continue the Sound Mitigation Acoustical Remedy Treatment (SMART) program to help mitigate aircraft noise.

Overview

The SMART program is a recommended noise mitigation measure in the airport's FAR Part 150 Noise Compatibility Program (NCP). Through the SMART program, the City of Fresno provides sound attenuation to homes that fall within the 75 to 65 dB CNEL noise contours and are affected by significant levels of aircraft noise as defined in the NCP. There are approximately 2,500 eligible homes located within the FAA approved 65 CNEL SMART program eligibility boundary.

Timeframe for implementation

Because of the large number of eligible residences, it may take until approximately 2030 to complete this goal.

Implementation Strategy

The airport should proceed with the program until all of the eligible homes have been completed.

- Sound mitigation measures generally include attic insulation, acoustic doors/windows, vent baffles, fireplace doors and chimney dampers.

Monitoring

On an annual basis the airport will document the number of homes receiving Sound Mitigation Acoustical Remedy Treatment.

Estimated costs

- Internal Labor Time—40 hours
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

Summary

Residents near the airport with homes located in the CNEL 65 dB to 75 dB noise contour should receive considerable quality of life benefits from the noise reduction measures.

Noise Sub Goal 2

Continue to work with airport tenants, including the California Air National Guard's 144th Fighter Wing, to implement the airport's noise abatement programs codified in FAA Tower Order FATZ 7110.8D.

Overview

As of 2011, there were approximately 2,500 homes eligible for noise mitigation measures as part of the SMART Program under the Federal Aviation Regulation (FAR) Part 150 Airport Noise Compatibility Program.

Timeframe for implementation

This is an ongoing goal.

Implementation Strategy

Reduce the number of homes located within noise-sensitive contours by adhering to aircraft noise mitigation measures.

- Pilots should be sensitive of the timing of their flights to avoid excess noise during early morning, night-time and late evening hours.
- Aircraft should follow flight paths and height restrictions designated by the FAA during approach to the airport.

Monitoring

On an annual basis the airport will document the number of coordination meetings or discussions held with tenants to discuss the noise abatement programs. This continued attention will help contribute to further noise reduction to the surrounding communities.

Estimated costs

- Internal Labor Time—40 hours
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

Table 5.7—Noise Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$1,612.80	Easy	Medium	Low	High
2	$1,612.80	Easy	Medium	Low	High

Summary
Maintaining the current level of noise mitigation efforts will reduce the number of homes impacted by high aircraft noise exposure.

Noise Goals Assessment

Table 5.7 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

5.06—Landscape Management

Landscape Management Goal

Maintain landscape features on airport property that contribute to biodiversity and reduce use of water, chemicals, and energy.

Landscape Management Sub Goal 1

Increase species diversity in landscape plantings.

Overview
In 2010, several tree species each made up more than 10 percent of the overall tree population: crapemyrtle, Chinese pistache, and Chinese tallow tree. In individual zones, certain species comprise more than 20 percent of the tree population in that area.

Timeframe for implementation
Ongoing effort required during review of future proposed landscape plans.

Implementation strategy
By planting species that are not already over-represented, the airport will see an increase in diversity, commensurate with the increase in the tree population.

- Do not plant species that already comprise more than 10 percent of the overall population. Review the existing and proposed planting plans to ensure that species diversity is maintained. Consult the wildlife hazard management plan before approving any species to be planted around the airport.

Monitoring
The airport should review all landscape development proposals to evaluate species diversity. The airport should update the iTree landscape inventory on an annual basis to evaluate the impact of any new planting or removals on species diversity and distribution.

Estimated costs
- Internal Labor Time—40 hours (plan review)
- Outside Third Party Cost—$2,500 (inventory update)
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

Summary
Many pests and diseases affect only one or a few species. By maintaining species diversity, the overall health of the urban forest canopy is protected against devastation because in the case that an infestation occurs on one species, there will be many other unaffected species that continue to thrive.

Landscape Management Sub Goal 2

Reduce irrigation water consumption.

Overview
In 2010, 17 percent of the entire tree population had low water requirements, 73 percent had medium water requirements and 10 percent had high water requirements. In the terminal and rental car facility planting areas, 36 percent of the area was

lawn with high water requirements and 64 percent was shrub beds with medium-low water requirements. No irrigation controllers were climate-based. According to the EPA, as much as 50% of irrigation water is wasted as a result of inefficiencies in irrigation methods and systems that cause overwatering. Currently, the airport's irrigation controllers are set to water plants regularly in the summer and fall months, and provide a small amount of supplementary water in winter.

Timeframe for implementation

Ongoing. Review all proposed planting and irrigation plans to ensure that the goals are met.

Implementation strategy

By developing new areas of landscape with lower water use requirements, the airport will see a decrease in water consumption per square foot of landscaping, compared to the existing landscape. If no new areas of landscape are developed, but existing irrigation controllers are replaced with climate-based controllers, the airport will see a decrease in water consumption used for the existing landscaping.

- Increase low-water-use plants and decrease water-thirsty plants in new landscape plantings. For all new planting projects, require the following: minimum 50 percent low-water-use plants; maximum 25 percent high-water-use plants, including lawns. No turf should be allowed in areas less than eight feet wide. Review all proposed planting plans to ensure that the planting design and plan palette meet the goals.
- Separate plants into zones based on their water needs so that each zone can be irrigated with the least amount of water required for healthy plant growth.
- Require EPA Water Sense labeled, climate-based irrigation controllers for all new projects and as replacements for existing controllers.
- Install high-efficiency irrigation systems that use slow drip or micro irrigation.

Monitoring

The airport should review all irrigation proposals to evaluate water usage impacts and encourage the incorporation of low water use plants and irrigation equipment. The airport should review irrigation practices on an annual basis to ensure that best practices are being followed by maintenance staff.

Estimated costs

- Internal Labor Time—60 hours (plan review and staff training)
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—$0

Summary

Low-water-use plants require 75 percent less irrigation water than high-water-use plants. Climate-based irrigation controllers allow for more accurate, customized irrigation by automatically adjusting the schedule and amount or water based on changing weather conditions. In fiscal year 2010, 10,367,572 gallons of water were used to irrigate the landscape around the terminal and parking lot, which cost $11,296. The calculated water use requirement for the same area was 7,136,392 gallons, which indicates a potential water (and cost) savings of 31% if smart controllers and moisture-retaining mulch were used in this area. In the same fiscal year, 3,742,259 gallons of water were used to irrigate the landscape around the rental car facility, which cost $4,503. The calculated water use requirement for the same area was 1,465,767, which indicates a potential water (and cost) savings of 61% if smart controllers and moisture-retaining mulch were used in this area.

Landscape Management Sub Goal 3

Install landscape mulch.

Overview

In 2010, there was little or no mulch in the planting beds observed on airport property. Mulching plant beds with three-inch organic mulch reduces evapotranspiration rates, reducing irrigation water demands. Additionally, mulch decomposes into the soil, adding nutrients and organic matter, reducing the need for synthetic fertilizers.

Timeframe for implementation

Install mulch in all shrub beds by the end of 2012.

Implementation strategy

By installing and maintaining mulch in the existing landscape beds, the airport will be able to reduce the amount of applied irrigation water. While one study showed that mulch can reduce irrigation requirements by up to 50 percent, the specific water savings of this site will be determined based on Fresno's climate and the species in each planting area.

- Install and maintain landscape mulch in all existing and future planting beds.
- Recalibrate the irrigation system.

Monitoring

The airport should review all landscaping proposals to evaluate soil quality and moisture impacts and encourage the incorporation of mulch The airport should review landscape practices on an annual basis to ensure that mulching recommendations are being followed by maintenance staff.

Estimated costs

- Internal Labor Time—60 hours (Plan review and staff training)
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20
- Budgetary Capital Estimate—$46,694 (includes mulching all planting beds in terminal & parking lot [Zone 1] and rental car facility [Zone 4].

For the purpose of determining the environmental benefit of this sub goal, it was considered that given the projected cost of $49,113 when compared to the annual revenue of the airport of $16,010,067, or approximately .3% of annual revenue. This initiative would provide considerable environmental benefits. The cost makes the environmental benefits somewhat financially challenging in the short term, but the net environmental benefits are considerable. Although it is difficult to quantify, the water savings will offset a large portion of the costs of this initiative. Therefore, this goal scores higher when it comes to potential environmental benefits.

Summary

Studies show that mulching plant beds with three inches of organic mulch reduces evapotranspiration rates, reducing irrigation water demands by up to 50 percent as compared to bare earth. Mulch decomposes into the soil, adding nutrients and organic matter, reducing the need for synthetic fertilizers.

Landscape Management Sub Goal 4

Reduce inputs (water, labor, chemicals, and fuel) required to maintain landscape plantings and retain soil moisture.

Overview

A significant amount of energy is expended in supplying fertilizers, water and pesticides to landscape plantings to promote growth. When plant species are selected that naturally reach sizes that are greater than the available space in the planting areas, regular pruning is required, which also requires input of energy in both labor and fuel. Many landscape plantings observed at the airport in 2010 require frequent pruning to maintain the desired size. Plants that naturally maintain an appropriate size and are allowed to take their natural form are not using resources to generate excess growth which must be removed and disposed of.

Timeframe for implementation

Ongoing. Review all proposed planting plans to ensure that low-maintenance plants are specified for future planting. Revise landscape maintenance operations to reduce the amount of pruning by the end of 2012.

Implementation strategy

By planting species which are appropriately sized for their location, the airport will see a reduction in inputs required to prune the shrubs in the landscape. Also, allowing shrubs to shade out the ground beneath them retains soil moisture.

- Install shrub species which are the appropriate size for their location, and do not require regular pruning to keep them small. Also, avoid planting vegetation which requires regular maintenance with chemical fertilizers or pesticides.
- Train landscape maintenance staff to allow shrubs to grow naturally so that they shade out the ground beneath them, which reduces evaporation.

Table 5.8—Landscape Management Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$4,112.80	Easy	Medium	Low	Low
2	$2,419.20	Easy	Medium	Medium	Low
3	$49,113.20	Easy	High	Medium	Low
4	$2,419.20	Easy	Medium	Medium	Low

Monitoring

The airport should review all landscaping proposals to evaluate water and energy impacts and encourage the incorporation of best practices. The airport should review maintenance practices on an annual basis to ensure that pruning, fertilizing, and watering practices are being followed by maintenance staff.

Estimated costs

- Internal Labor Time—60 hours (plan review and staff training)
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—$0

Summary

Low-maintenance, drought-tolerant plantings will allow the airport to reduce labor, water, energy, and chemical inputs to maintain the landscape. Allowing the existing shrubs to grow naturally will shade out the ground beneath them, conserving soil moisture.

Landscape Management Goals Assessment

Table 5.8 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

5.07—Solid Waste and Recycling

Solid Waste and Recycling Goal

Reduce the volume of solid waste generated by the airport and increase the amount of material diverted to recycling.

Solid Waste and Recycling Sub Goal 1

Promote recycling by travelers, employees, and vendors at the airport.

Overview

In 2010, the terminal generated 142.5 tons of waste. Approximately 25 percent of this was diverted from landfills and sent to construction or domestic recycling facilities. Labeled recycling containers are located throughout the terminal.

Timeframe for implementation

The implementation strategy will be initiated within one year of finalizing the sustainability plan.

Implementation strategy

In order to increase recycling efforts at the airport, new bin labels and signage will be posted, a tenant survey will be conducted to develop a snapshot of tenant recycling habits and capabilities, and a recycling education/awareness program for employees and vendors will be initiated.

- Learn about tenant recycling habits by conducting a tenant survey regarding recycling capabilities and habits, including their existing sustainable practices, their willingness and capability to increase sustainable efforts, and their suggestions for airport-wide sustainable measures.

- Work with the City of Fresno Recycling Division on a no-cost recycling education program for airport employees and tenants.
- Encourage passenger participation in the terminal's recycling program via signage and bin labeling.
- Encourage recycling at the security checkpoint where passengers discard plastic beverage containers and other recyclables. Place recycling bins in accessible and convenient locations.

Monitoring

The City of Fresno is responsible for hauling airport waste to one of three facilities, which include one landfill and two recycling facilities (construction materials and domestic recyclables). The city charges the airport by the amount of waste that is loaded. The costs are called "tipping fees" and provide a simple way to track waste reduction and recycling efforts at the airport. An airport employee can easily enter the data into a spreadsheet and generate a representative graph or chart to track progress. These data are already broken down by facility and date so additional efforts will be minimal. The information should be entered and reviewed quarterly to determine the effects of the airport's solid waste and recycling initiatives. Any resulting charts or graphs should be distributed to airport management and assessed to determine necessary changes to the program.

Estimated costs

- Internal Labor Time—200 labor hours for the first year to initiate the monitoring program, create and conduct the tenant survey, and coordinate marketing materials to promote recycling; 60 labor hours/year for subsequent years.
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$8,064
- Non-Labor Budgetary Capital Estimate—$5,000 for marketing materials and bin labels.

In determining the environmental benefit of this sub goal, consideration was given to the fact that the projected cost of $13,064 is .08% of the airport's annual revenue of $16,010,067. This is an initiative that would provide considerable environmental benefits. The cost makes the environmental benefits somewhat financially challenging in the short term, but the net environmental benefits are considerable. Therefore, this goal scores higher when it comes to potential environmental benefits.

Summary

Efforts to promote recycling should target airport employees, tenants, and travelers. The first step is providing education to employees regarding what can and cannot be recycled and how to reduce the generation of waste. The success of this initiative is highly dependent on employees' willingness to participate, (for the best results, training should take place during work hours). In order to reduce tenant waste and encourage them to recycle, additional data regarding their current recycling habits is needed. Travelers to and from Fresno spend limited time in the airport. Therefore, a recycling campaign in the terminal must be simple and targeted to showing which materials are recyclable.

Solid Waste and Recycling Sub-Goal 2

Strive to align the airport's waste diversion goals with the City of Fresno's Zero Waste Strategic Plan and "Fresno Green" by diverting 75 percent of the waste stream generated from offices and the passenger terminal facilities by 2016.

Overview

In 2010, the terminal generated 142.5 tons of waste. Approximately 25 percent of this was diverted from landfills and sent to construction or domestic recycling facilities.

Timeframe for implementation

Achieve 75 percent waste diversion by 2020.

Implementation strategy

Increased recycling and salvaging efforts will result in fewer products and materials ending up in landfills. Accomplishment of this goal will produce an increase in annual waste diversion of approximately 72 tons by 2020, (the airport terminal will aim to increase its diversion rate to 75 percent by 2020 and remain steady). This calculation assumes waste generation rates remain steady.

- Implement employee and tenant recycling education program provided by the COF Recycling Division.
- Increase signage to promote recycling. Add more visible and educational signs adjacent to or on recycling bins showing what products can be recycled.
- Increase the number of recycling bins throughout all occupied spaces in the airport.
- Remove unneeded/excessive trash bins to deter people from disposing of recyclable and/or reusable items.
- Continue to look for ways to reuse construction materials on- or off-site. FYI has historically practiced reuse of construction materials and debris, saving the airport money that would otherwise be spent on virgin materials.

Monitoring

See Monitoring section of Solid Waste and Recycling Sub Goal 1.

Estimated costs

- Internal Labor Time—60 labor hours for the first year to initiate the monitoring program; 40 labor hours/year for subsequent years.
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—$1,000

Summary

There are several possibilities for achieving waste diversion from landfills. By recycling and/or reusing paper products, metals, plastic containers, and construction materials, the airport removes these items from the waste stream that is directed toward landfills.

Solid Waste and Recycling Sub-Goal 3

Encourage restaurants and food vendors at the airport to participate in a local, off-site composting program.

Overview

There is currently no composting program at the airport. While on-site composting is not feasible because of the possibility of attracting wildlife, off-site facilities might be available to collect food waste generated at the airport and take it to their location.

Timeframe for implementation

This objective is ongoing. If there are no local composting facilities available at this time, the airport can revisit the idea in the future.

Implementation Strategy

Airport staff should research local composting programs and encourage food vendors to participate by distributing program descriptions, accepted food products, and directions to the facilities.

- Reach out to the City of Fresno's Recycling Division to learn more about composting facilities in the area.
- Work with restaurant tenants and food vendors to coordinate participation in the composting program.

Monitoring

Monitoring capabilities are very limited because of the tenant-airport relationship and contract.

Estimated costs

- Internal Labor Time—No hours required of airport staff
- Outside Third Party Cost—$0 (tenants would be responsible for costs).
- Labor Budgetary Capital Estimate—$0
- Non-Labor Budgetary Capital Estimate—$0 (tenants would be responsible for costs).

Summary

The ultimate goal of recycling is to achieve 100 percent diversion from landfills. The City of Fresno's Zero Waste Strategic Plan and Strategy #17 of "Fresno Green" aim for 100 percent diversion rates. This cannot be achieved without food composting. Unfortunately, composting is not yet a common practice among businesses so there will be a learning curve associated with this initiative.

Solid Waste and Recycling Sub-Goal 4

Reduce the total generation of solid waste from the airport terminal and administration building.

Overview

In 2010 the terminal building generated approximately 140 tons of waste. Waste collection for the administration building is expressed in tipping fees, (rather than volume or weight), so there is no baseline amount available for comparison.

Timeframe for implementation

The success of this goal will be measured on a yearly basis. Airport staff are already tracking solid waste amounts generated in the terminal. Monitoring will require little additional effort. Without a baseline for the amount of waste generated by the administration building, it is difficult to quantify progress. Tipping fees can be monitored over time to ascertain whether volume of waste is increasing, decreasing, or remaining steady.

Implementation Strategy

FYI will reduce the total amount of solid waste generated through source reduction, reusing of materials, and recycling in airport operations, tenant activities, and construction projects. The total amount of solid waste generated by the terminal should be reduced by five percent annually.

- Modify airport operations to reduce waste. Education and awareness programs can increase the amount of waste (from passengers and employees) being diverted from landfills.
- Work with tenants to increase recycling. Provide recycling containers in tenant spaces. Determine if new leases can be adjusted to encourage waste reduction and recycling.
- Implement waste reduction strategies for construction projects. Reuse/salvage construction materials both on-site and off-site and consider selling materials and debris that cannot be reused on-site. Use a public information website or FYI's website to list salvaged materials to offer for sale or donation. Aim to purchase construction materials with minimal packaging that and that generates the least amount of waste to produce.

Monitoring

See Monitoring section of Solid Waste and Recycling Sub Goal 1.

Estimated costs

- Internal Labor Time—60 hours for first year; 40 hours annually for subsequent years.
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—$1,000 for additional recycling containers.

Summary

Reusing materials and recycling waste will relieve stress on local landfills, reducing landfill emissions and emissions associated with transportation of waste from the airport. Source reduction also reduces the need for virgin materials and natural resources. In addition to the environmental benefit, reducing the generation of waste would lower tipping fees and decrease the effort needed for waste pickup at the airport.

Solid Waste and Recycling Sub-Goal 5

Follow the City of Fresno's green purchasing policy.

Overview

The airport adheres to the City of Fresno's purchasing policy, dictated city-wide through the Purchasing Division.

Timeframe for implementation

This is an ongoing goal.

Implementation strategy

Continue to adhere to the City of Fresno's green purchasing policy and encourage airport and janitorial staff to procure recycled content products and items requiring less packaging.

- Encourage airport and janitorial staff to procure products and materials that use minimal packaging and contain high recycled content.
- Spread awareness at the airport regarding the city's purchasing policy and encourage tenants to participate.

Table 5.9—Solid Waste and Recycling Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$13,064.00	Easy	High	High	Medium
2	$3,419.20	Medium	Medium	Low	Medium
3	$0	Easy	Easy	High	Medium
4	$3,419.20	Easy	High	High	Medium
5	$2,419.20	Easy	Medium	High	Medium

Monitoring
Product purchasing is difficult to monitor as invoices rarely reflect the environmental benefits or impacts associated with a product. However, choosing items with less packaging will decrease waste generation. This can be tracked using the program set forth in the Monitoring section of Solid Waste and Recycling Sub-Goal 1.

Estimated costs
- Internal Labor Time—40 labor hours for the first year; 20 labor hours/year for subsequent years.
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$2,419.20 (year 1); $806.40 (subsequent years)
- Non-Labor Budgetary Capital Estimate—$0 (buying in bulk may reduce costs).

Summary
Buying in bulk or choosing items with minimal packaging will decrease the amount of waste. Choosing materials with high recycled content decreases the need for virgin materials and results in less waste.

Solid Waste and Recycling Goals Assessment

Table 5.9 indicates how the costs of each goal compare in relative ease of implementing, along with the social and environmental benefits. This analysis will help guide the airport when allocating funds and resources to implementing the goals.

5.08—Indoor Environmental Quality

Indoor Environmental Quality Goal
Maintain healthy indoor environmental quality by minimizing the use of materials that are damaging to the environment and human health.

Indoor Environmental Quality Sub Goal 1
Continue with green purchasing program and low-VOC paints and glue policy.

Overview
The airport has already implemented a green purchasing program and a policy to use low- or no-VOC paints and glues.

Timeframe for implementation
The green purchasing program and low-VOC policy should be updated at least every three years, as new environmentally friendly products become available.

Implementation strategy
By updating these policies, the airport will incorporate the latest green technologies and products into airport facilities, while minimizing volatilization to the indoor environment. Recommended initiatives to achieve the desired goal include:

- Continue to track available environmentally friendly products, including low- or no-VOC products.

- At least every three years, review and amend the green purchase program and low or no VOC policy.

Monitoring

At least annually, the airport will research available materials used for cleaning airport buildings. The list of available products will be updated to reflect new products.

Estimated Costs

- Internal Labor Time—24 hours per year to track environmentally friendly products, and 60 hours every 3 years to amend green purchase program/ low VOC policy.
- Outside Third Party Cost—No capital costs at this time.
- Labor Budgetary Capital Estimate—$967.68
- Non-Labor Budgetary Capital Estimate—No capital costs at this time.

Summary:

By continuing to track the latest products and modifying policies every three years, the airport will minimize potential impacts to staff, passengers, and the environment.

Indoor Environmental Quality Sub Goal 2

Develop a policy to work with tenants to use green products within airport-owned and -operated buildings.

Overview

The airport has a green purchasing program and a policy to use low- or no-VOC paints and glues.

Timeframe for implementation

The policy to have tenants use green products at the airport should be in place by 2017.

Implementation strategy

This policy will minimize the off-gassing of volatile organic compounds and hazardous constituents utilized by tenants. Recommended initiatives to achieve the desired goal include:

- Set up meetings with tenants to discuss program and benefits.
- Develop contract language to incorporate into tenant contracts.

Monitoring

The airport will document meetings and correspondence with tenants to reduce off-gassing. The progress for tenants incorporating green purchasing programs will be consolidated on an annual basis.

Estimated costs

- Internal Labor Time—48 hours per year to plan and meet with tenants, and 80 hours to incorporate green language into contracts.
- Outside Third Party Cost—No capital costs at this time.
- Labor Budgetary Capital Estimate—$5160.96
- Non-Labor Budgetary Capital Estimate—No capital costs at this time.

Summary

The airport should work with tenants to ensure procedures are implemented in cleaning and renovating areas.

Indoor Environmental Quality Sub Goal 3

Develop standard specifications for the use of green construction methods, compared to traditional means.

Overview

The City of Fresno and the airport do not have a standard specification for green construction methods. However, sustainable practices are incorporated into the design of projects.

Timeframe for implementation

The standards specifying green construction methods should be in place by 2014.

Implementation strategy

Green construction methods can reduce energy requirements and emissions and improve human comfort in the terminal. Specifications should also require sequencing details for the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard.

- Organize a technical group responsible for developing the green construction method specification.
- Review published green methods of construction and sequencing details to promote a better indoor environment.
- Develop standard specifications and work with engineering groups for details.

Monitoring

At least biannually, the airport will research available materials and update the standard specifications for green construction methods. The list of available products will be updated to reflect new products.

Estimated costs

- Internal Labor Time—80 hours per year to investigate and develop standard specifications for green construction methods.
- Outside Third Party Cost—No capital costs at this time.
- Labor Budgetary Capital Estimate—$3,225.60
- Non-Labor Budgetary Capital Estimate—No capital costs at this time.

Summary

The development of green construction methods will not only promote energy efficiency, emission reductions and better ventilation, but also provide building occupants with a more environmentally friendly workplace.

Indoor Environmental Quality Sub Goal 4

Designate smoking areas at an outdoor location away from building entrances.

Overview

Secondhand smoke has documented health effects on individuals. The airport currently bans smoking in FYI buildings. Smoking areas will be designated away from building entrances or sources of ventilation.

Timeframe for implementation

The designated outdoor smoking area located away from doorways will be in place by 2014.

Implementation strategy

The airport will plan and implement a safe and accessible smoking area that keeps potential second hand smoke from entering buildings and affecting people accessing airport facilities.

Monitoring

The airport will designate and construct suitable non-smoking areas which meet this goal. Any incidents of smoking outside of designated areas should be reported to the management staff. The airport will track incidents on an annual basis.

Estimated costs

- Internal Labor Time—60 hours to plan and design a no smoking area away from the building.
- Outside Third Party Cost—No capital costs at this time.

Table 5.10—Indoor Environmental Quality Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$967.68	Easy	Medium	Medium	High
2	$5160.96	Easy	Medium	Low	High
3	$3,225.60	Hard	Medium	Low	High
4	$4,919.20	Easy	Low	Low	High

- Labor Budgetary Capital Estimate—$2,419.20
- Non-Labor Budgetary Capital Estimate—Budget of $2,500 for benches, cigarette depository, and other accessories.

Summary

By implementing this goal, smoking will only be permitted in designated areas away from potential infiltration into the building. This will enhance the air quality for non-smokers entering and leaving building.

Indoor Environmental Quality Goals Assessment

Table 5.10 indicates how the costs of each goal compare to the social and environmental benefits. This analysis will help guide the airport when allocating funds and implementing the goals.

5.09—Hazardous Materials

Hazardous Materials Goal

Ensure that hazardous materials are properly stored and handled and do not pose a threat to the environment or human health.

Hazardous Materials Sub Goal 1

Develop a tracking system for bulk material storage (including tenants) at the airport by 2014.

Overview

Tenants do not currently report their bulk storage of hazardous materials, including jet fuel, diesel, and deicing fluids, to the airport.

Timeframe for implementation

The tracking program would be developed by 2014.

Implementation strategy

The development and enforcement of this goal will provide valuable information to airport personnel about potential hazards at the airport. This could also reduce the airport's liability from potential hazardous material discharges to the environment by tenants.

- Develop a protocol for Fresno County Health Department to report new or modified bulk storage of hazardous materials at the airport.
- Designate responsible person to track the bulk storage at the airport.
- Provide guidance to tenants to potentially consolidate storage of materials or methods to minimize impacts to the environment.

Monitoring

Upon development of a tracking system, the airport will update the database of hazardous materials at the airport at least annually.

Estimated costs

- Internal Labor Time—80 hours per year to develop reporting system and provide guidance to tenants.
- Outside Third Party Cost—No capital costs at this time.
- Labor Budgetary Capital Estimate—$3,225.60
- Non-Labor Budgetary Capital Estimate—No capital costs at this time.

Summary

This goal will provide the City of Fresno with a greater understanding of the types of hazardous materials that are present at the airport. By working with the Fresno County Health Department and tenants, the airport can develop a current list of permanent storage tanks greater than 55 gallons. In addition, a notification system would be in place for the airport to be alerted of the installation of any new bulk tanks. The airport will update their records of hazardous materials annually.

Hazardous Materials Sub Goal 2

Reduce number of spills by 25 percent by 2014.

Overview

There were no known reportable spills associated with airport operations in 2010. However, spills by tenants at other portions of the airport are tracked only by the tenants. The airport already implements training and pollution prevention plans to minimize impacts to the environment.

Timeframe for implementation

An applicable year prior to 2010 can be used as a

Table 5.11—Hazardous Materials Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$3,225.60	Easy	Low	Low	Low
2	$322.56	Easy	High	High	Medium

baseline for spill tracking. The airport should record and lists spills on an annual basis. Additional training, if necessary, will need to be provided to applicable airport employees, starting in calendar year 2013. With the limited number of spills currently occurring at the airport, the reporting period for the 25 percent reduction may need to be increased to a five-year summary.

Implementation strategy

The training program, if not currently conducted for applicable airport personnel, should reduce the potential for any spills as well as the airport's liability from potential hazardous material discharges to the environment.

- Incorporate spill prevention into other environmental training mandated by existing spill plans.
- Track spills occurring at the airport.

Monitoring

The airport will report the number of spills, type of hazardous material, respective quantities released, and impact on the environment at the airport on an annual basis.

Estimated costs

- Internal Labor Time—8 hours per year to track spills occurring at the airport.
- Outside Third Party Cost—No capital costs at this time.
- Labor Budgetary Capital Estimate—$322.56
- Non-Labor Budgetary Capital Estimate—No capital costs at this time.

Summary

This goal is consistent with the ACI-NA environmental goal of striving to reduce spills by 25 percent from 2005 levels by 2015, with no releases of petroleum-based spills. The goal would involve providing additional training, if necessary, to facilitate awareness of proper storage and handling procedures for hazardous materials.

Hazardous Materials Goals Assessment

Table 5.11 indicates how the costs of each goal compare to the social and environmental benefits. This analysis will help guide the airport when allocating funds and implementing the goals.

5.10—Surface Transportation

Surface Transportation Goal

Reduce vehicle miles traveled by passengers and employees.

Surface Transportation Sub Goal 1

Establish a transportation demand management program.

Overview

Currently, there are no airport policies or programs in place to encourage use of alternative modes of transportation among employees.

Timeframe for implementation

A transportation demand management (TDM) program will be established within one year of finalizing the sustainability plan, but the individual strategies, tools, and improvements will be implemented by 2018.

Implementation strategy

TDM strategies/tools will also help to achieve Surface Transportation Sub Goal 2 by providing the infrastructure needed and incentives to encourage employees to carpool, walk/bike to work or use public transportation to work. Benefits include fewer vehicle miles traveled, reduction in greenhouse gas emissions, reduction in parking demands, improved employee health for those that walk/bike to work, and the creation of a more sustainable, livable community at and near the airport.

- Survey or interview airport employees, tenants, and passengers to determine which strategies will be most effective.
- Establish programs to reduce transportation demand, including providing infrastructure for employees to work from home, establishing preferred parking spaces, promoting transit use, establishing ride-sharing programs to encourage carpooling, and providing improved bicycle facilities.
- Educate and promote the programs to employees and passengers.
- Monitor and evaluate progress to determine what programs are working and what else could be implemented to achieve goals.

Monitoring

In order to efficient monitor progress once TDM strategies are implemented, a passenger survey needs to be conducted to establish a baseline. The employee survey that was conducted as part of this effort would be the baseline for airport employees. Then after a six month period (minimum), resurvey to determine if any reductions in employee drive alone or passenger drop-off and pick-up percentages have occurred. Individual strategies may be altered or discontinued based on results.

Estimated costs

- Internal Labor Time—120 hours for development and initiation of the three program components. 60 hours for monitoring and evaluation as they become more established.
- Outside Third Party Cost—If internal labor time was eliminated or significantly reduced, a consultant could assist the airport in developing implementing a TDM program for up to approximately $150,000 based on types and number of programs implemented. Otherwise, no third party costs if airport develops and implements programs.
- Labor Budgetary Capital Estimate—$7,257.60
- Non-Labor Budgetary Capital Estimate—$20,000–$120,000 based on types and number of programs implemented, some of which would be purchasing infrastructure that would be a one-time expense, but others may be recurring costs.

For the purpose of determining the environmental benefit of this sub goal, it was considered that given the projected cost of $277,000 when compared to the annual revenue of the airport of $16,010,067, or approximately 1.7% of annual revenue. This initiative would provide environmental benefits long term. The cost makes the environmental benefits financially challenging in the short term, but the net environmental benefits are worthwhile. Therefore, this goal scores lower when it comes to potential environmental benefits.

Summary

The development of a TDM program can be phased, with individual program initiatives being launched one at a time, or it can be developed and implemented as a complete program.

Surface Transportation Sub Goal 2

Reduce employee 'drive alone' mode share.

Overview

This goal is associated with Surface Transportation Sub Goal 1 but is separated since there is a specific reduction goal for the implementation of TDM strategies for employee drive-alone percentages. There are 564 full time employees working at the airport. Based on an employee survey, only 3 percent of employees carpool and 1 percent use public transportation while the remaining 96 percent drive their own vehicles to work.

Timeframe for implementation

Employee drive-alone mode share will be reduced by 10 percent over a five-year period in conjunction with the TDM program developed through Surface Transportation Sub Goal 1.

Implementation strategy

Recommended initiatives to achieve the desired goal include:

- Implement initiatives associated with Surface Transportation Sub Goal 1, including education and promotion.
- Monitor and evaluate progress after a certain amount of time from the start of implementation (6 months to a year) to determine if goal is being met.

Monitoring

This would be monitored in conjunction with Surface Transportation Sub Goal 1 with a survey after at least a six month period from implementing a TDM strategy aimed at reducing employee drive alone percentages.

Estimated costs

Costs in terms of labor time and monetary investment are included in the costs associated with Transportation Surface Transportation Sub Goal 1.

Summary

While employee transportation is not under the direct control of the airport and is considered Scope 3 emissions, this shift in mode share will result in less parking demands for employees, increasing available supply for visitors, improve the health of those that choose to walk/bike to work and reduce vehicle miles traveled and CO_2 emissions.

Surface Transportation Sub Goal 3

Improve regional planning coordination.

Overview

The airport is currently involved in many regional planning organizations and stays abreast of developments that may affect the airport.

Timeframe for implementation

This is an ongoing goal that should be implemented immediately based on regional planning studies and their schedules.

Implementation strategy

The airport should continue to work with regional planning organizations and look for opportunities to become involved in additional initiatives that could have an impact on the airport. The objective of this goal is to help the airport stay informed on regional plans, programs, and studies, provide/obtain information relevant to their facility/operations and determine how the airport can be a part of the overall sustainability efforts of the region.

- Initiate contact with planning agencies within the region to learn about current and upcoming planning efforts.
- Assign an airport staff member to be the point of contact for each planning effort. Report back to airport on relevant findings, recommendations and/or conclusions associated with each effort.
- Incorporate recommendations into airport initiatives that benefit the airport's other sustainability goals.

Monitoring

Maintain list of plans, programs or studies that the airport is a participant of and summarize the airport's role and any outcomes that may affect the vehicle miles traveled associated with the airport.

Estimated costs

- Internal Labor Time—Will vary depending upon the number of events taking place each year that the airport takes a role in. Assuming the one member of the airport staff would only play and steering committee or stakeholder member role in such projects, approximately 40 hours per project participated in could be expected per year.
- Outside Third Party Cost—N/A
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—Will be minor and may include only costs for reimbursable expenses such as mileage to attend project committee meetings.

Summary

This involvement will be an additional work-related task for staff member(s) assigned to this effort in order to coordinate with regional planning organizations and be involved in the processes (coordination, meetings, review of materials, etc.). They will need to have a general understanding of the planning

Table 5.12—Surface Transportation Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$27,257.60–$270,000	Medium	Medium	Medium	High
2	*	Medium	High	Medium	High
3	$1,612.80	Easy	Low	Low	Low

*Costs and labor hours associate with Goal 2 are included as part of Goal 1

effort they will be involved in so they will be able to determine how the airport would be affected or how they can contribute. This goal and its initiatives will have no direct costs associated with it, but will require staff time to be involved in the individual planning efforts and coordination.

Surface Transportation Goal Assessment

Table 5.12 indicates how the costs of each goal compare to the social and environmental benefits. This analysis will help guide the airport when allocating funds and implementing the goals.

5.11—Socioeconomic and Community Outreach

Socioeconomic and Community Outreach Goal

Continue to serve as a community asset and involve residents and visitors in airport decisions and operations.

Socioeconomic and Community Outreach Sub Goal 1

Connect with local residents through newsletters, television, and the airport's website.

Overview

The airport currently publishes electronic newsletters and press releases on its website.

Timeframe for implementation

The airport will re-visit their process annually to make any needed adjustments to how the messages are being communicated.

Implementation strategy

Leverage the use of electronic and print media to effectively and creatively communicate the airport's mission statement to the community.

- Re-evaluate the airport's newsletter format and content to ensure the airport's message is being communicated effectively.

Monitoring

On an annual basis, the airport staff will meet and review the effectiveness that the current outreach program is having on the community. A summary report/memo of the program's successes and areas for improvement will be prepared for benchmarking in subsequent years. As new ideas for outreach arise during the year, periodic meetings will take place to discuss specific outreach initiatives.

Estimated costs

- Internal Labor Time—40 hours
- Outside Third Party Cost—$5,000 to $10,000
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

In determining the environmental benefit of this sub goal, consideration was given to the fact that the projected cost of $16,120 is .1% of the airport's annual revenue of $16,010,067. This initiative would provide little environmental benefit. The cost makes the environmental benefits financially challenging in the short term. Therefore, this goal scores lower when it comes to potential environmental benefits.

Summary

As the use of media changes over time, the airport will benefit from keeping pace with the changes.

Socioeconomic and Community Outreach Sub Goal 2

Create an interactive multimedia display that engages and educates travelers about the airport's sustainability goals and accomplishments.

Overview

While the airport has several public displays throughout the terminal, including a walk-through sequoia forest, there are few messages/displays relating to FYI's sustainability achievements and current initiatives.

Timeframe for implementation

This goal will be implemented by 2015

Implementation strategy

Enhance electronic messaging and public displays in the passenger terminal.

- Install electronic messaging boards that can be remotely updated. This would require a significant up-front investment but would save on future temporary signs and presentation boards.
- Construct public displays throughout the terminal that promote airport initiatives.

Monitoring

The airport will re-assess how electronic messaging is used in the terminal on an annual basis.

Estimated costs

- Internal Labor Time—80 hours
- Outside Third Party Cost—$20,000
- Labor Budgetary Capital Estimate—$3,225.60
- Non-Labor Budgetary Capital Estimate—$5,000

Summary

The public will better understand the progress the airport is making to be more sustainable and how it is improving the public's traveling experience.

Socioeconomic and Community Outreach Sub Goal 3

Use social media to increase communication between the airport and the community.

Overview

The airport currently collaborates with the City of Fresno Communications Office to share information through the city's Twitter and Facebook accounts.

Timeframe for implementation

Set up accounts on Facebook and Twitter by the end of 2012 and assign an individual or group of people to post updates relevant to the airport on a regular basis.

Implementation Strategy

Increase social media efforts. Recommended initiatives and anticipated infrastructure to "close the gap" between baseline and goal:

- Open Twitter and Facebook accounts to make the community aware of flight deals and current events at the airport.
- Assign staff to post updates, travel deals, and community outreach messages on a regular basis.
- Be aware of up-and-coming social media networks that may provide a better avenue for reaching the target audience.

Monitoring

Once established, the airport will re-assess how social media is used on an annual basis.

Estimated costs

- Internal Labor Time—160 hours
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$6,451.20
- Non-Labor Budgetary Capital Estimate—$0

Summary

Facebook and Twitter would allow the airport to connect with a younger generation and increase "real-time" involvement with the community. Despite the consistent involvement these sites require, it takes very little time and effort to post meaningful updates.

Table 5.13—Socioeconomic and Community Outreach Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$16,120.80	Easy	Low	Low	High
2	$28,225.60	Easy	Low	Low	High
3	$6,451.20	Easy	Low	Low	High

Socioeconomic and Community Outreach Goal Assessment

Table 5.13 indicates how the costs of each goal compare to the social and environmental benefits. This analysis will help guide the airport when allocating funds and implementing the goals.

5.12—Sustainable Site and Land Use Compatibility

Sustainable Site and Land Use Compatibility Goal

Develop on-airport lands in ways that support airport activities

Overview

Encouraging and maintaining land uses that are compatible with aviation activities is very important for near-term and long-term planning of the airfield. It is in the airport's and community's best interest to make sure the land uses are and remain compatible. In 2011, FYI updated the Airport Land Use Compatibility Plan, which aims to prevent noise-sensitive and unsafe land uses around the airport.

Timeframe for implementation

This is a continuous goal.

Implementation strategy

To achieve this goal, the airport should implement the following initiatives:

- Continue with the adoption of the City of Fresno Airports Department Airport Land Use Compatibility Plan.

Monitoring

During all future planning studies, the airport will ensure that land uses are kept compatible with the airport's existing and planned operations.

Estimated costs

- Internal Labor Time—40 hours
- Outside Third Party Cost—$0
- Labor Budgetary Capital Estimate—$1,612.80
- Non-Labor Budgetary Capital Estimate—$0

Summary

Lands that are developed compatible with aviation activities will not require noise or safety mitigation. Special attention is needed during any future master planning effort to ensure that on and off-airport lands are developed compatible with airport activities.

Sustainable Site and Land Use Compatibility Goal Assessment

Table 5.14 indicates how the costs of each goal compare to the social and environmental benefits. This analysis will help guide the airport when allocating funds and implementing the goals.

Table 5.14—Sustainable Site and Land Use Compatibility Goals

Goal	Approximate Costs	Implementation Effort Level	Environmental Benefit	Economic Benefit	Social Benefit
1	$1,612.80	Easy	Low	Medium	High

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

C&S COMPANIES

Section 6

Implementation Plan

Section 6—Implementation Plan

For the airport to execute their sustainability management plan, it is critical to keep in mind the many factors that go into implementing a plan. It is very important to consider the context into which this plan has to fit. An airport has countless annual financial obligations that need to be considered when developing an implementation schedule for the proposed initiatives described in this plan. The study team has attempted to provide the airport with the information necessary to determine the timing and scope/scale of each initiative in terms of implementation requirements. The exception is initiatives that do not require outside funding and will be incorporated into existing practices and processes—not materially changing the day-to-day activities of the airport employees or impacting airport operations.

The airport currently has limited annual discretionary funds available to undertake many of the initiatives, although it remains fully committed to moving forward with as many as possible. The FAA has expressed a willingness to include sustainable components in AIP-eligible projects. They have acknowledged that if an AIP-eligible project includes certain sustainability components, than those are also eligible for funding.

Some initiatives identified in this study could be incorporated into future projects that are AIP eligible. On any upcoming project where the airport desires to incorporate a sustainable component that might not otherwise be eligible for FAA funding, we recommend that the airport discuss with FAA their ability to fund the proposed components.

The study team also looked at the projected return on investment for each sustainability initiative. It is important to note that the return on investment calculation is based on general information only. The scope of this study did not allow for an in-depth financial analysis or cost/benefit assessment.

Numerous initiatives do not have a financial return on investment because they are not driven by potential cost savings. However, these initiatives, which are driven by environmental or social benefits, are as valuable as those with demonstrated cost savings and should be given equal consideration. A meaningful sustainability management plan goes beyond looking for cost-saving measures and takes a more holistic look at how the airport functions, considering environmental, social, and economic/financial benefits.

Prior to implementing any of the initiatives that require a significant investment of funds—especially those that are beyond what the airport can financially support through their normal annual operating budget—there should be a thorough financial analysis performed to ensure a reasonable return on investment. Those initiatives not requiring a large up-front financial investment do not need a detailed financial analysis; however, they should be reviewed to make certain that available airport resources (i.e., staff) exist to implement, manage, and monitor those initiatives and report on the progress.

The data and assumptions used to determine the projected return on investment for this study may change over time and /or become obsolete. Therefore, a sustainability initiative that currently appears reasonable may not be implementable in the future.

The anticipated cost (in 2012 dollars) to implement the initiatives in this chapter of the sustainability management plan is $2,831,149. The sustainability management plan will be implemented in three phases. The cost for each phase is:

- Short Term: 2012–2014, $954,738.00
- Mid Range: 2015–2017, $1,564,899
- Long Term: 2018–2020, $311,512.00

6.01—Implementation Schedule

The implementation schedule presented in this study is meant to be a framework for the airport to use as they begin to implement the sustainability management plan. It is recognized that not every initiative will be implemented according to the planned schedule. This schedule is meant to be used as a tool to show the interrelationship of the various initiatives so the airport can make informed decisions.

The following table reflects the planned timing of the initiatives over the next 10 years. The initiatives were divided into three phases with a balance of initiatives (environmental, social and economic) in each phase. There are more initiatives planned earlier in the planning period than in the later phases recognizing that some may be delayed due to the reality of the airport's ability to implement them. Ultimately, the airport will decide which initiatives can be realistically implemented based on available funds and resources.

The costs shown on Table 6.1 are from Section 5—Gap Analysis and are meant to represent the lifetime cost (i.e., initial as well as re-occurring costs) for each imitative. The study team attempted to balance the costs associated with each phase to allow the airport time to explore ways to fund the more costly initiatives targeted for later years.

Table 6.1—Implementation Schedule

	Costs to Implement (in 2012 dollars)	Payback Period (Years)	Funding Source(s) Available
Short Term: 2012–2014			
Meet requirements of AB-32 (Air Emissions Sub Goal 1)	$22,419	TBD	VALE
Maintain or decrease scope 1 & 2 emissions (Air Emissions Sub Goal 2)	$3,225	TBD	VALE
Reduce electricity consumption by 26% natural gas by 15% (Energy Sub Goal 1)	$815,483	2 to 5	Yes
Reduce water use for landscape management (Water Conservation Sub Goal 2)	$0	1	No
Implement low-impact development practices (Water Quality Sub Goal 1)	$4,112	n/a	No
Continue SMART program (Noise Sub Goal 1)	$1,612	n/a	Yes
Reduce irrigation water consumption (Landscape Management Sub Goal 2)	$2,419	1	No
Install landscape mulch (Landscape Management Sub Goal 3)	$49,113	5	No
Reduce inputs required to maintain landscape (Landscape Management Sub Goal 4)	$2,419	n/a	No
Promote recycling (Solid Waste and Recycling Sub Goal 1)	$13,064	n/a	No
Follow City's green purchasing policy (Solid Waste and Recycling Sub-Goal 5)	$2,419	n/a	No
Continue green purchasing program (Indoor Environmental Quality Sub Goal 1)	$967	n/a	No
Standard specs for green construction methods (Indoor Environmental Quality Sub Goal 3)	$3,225	n/a	No
Designated smoking areas (Indoor Environmental Quality Sub Goal 4)	$4,919	n/a	No
Tracking system for bulk material storage (Hazardous Materials Sub Goal 1)	$3,225	n/a	No

Reduce spills by 25% (Hazardous Materials Sub Goal 2)	$322	n/a	No
Improve regional planning coordination (Surface Transportation Sub Goal 3)	$1,612	n/a	No
Connect with residents via newsletters, etc. (Socioeconomic and Community Outreach Sub Goal 1)	$16,120	n/a	No
Use social media (Socioeconomic and Community Outreach Sub Goal 3)	$6,451	n/a	No
Develop on-airport lands (Sustainable Site and Land Use Compatibility Goal)	$1,612	n/a	No
Total			**$954,738**
Mid Range 2015-2017			
Reduce scope 3 emissions (Air Emissions Sub Goal 3)	$518,225	TBD	TBD
Provide infrastructure for GSE (Air Emissions Sub Goal 5)	$1,006,451	TBD	VALE
Divert 75% of waste (Solid Waste and Recycling Sub-Goal 2)	$3,419	n/a	No
Encourage composting (Solid Waste and Recycling Sub-Goal 3)	$0	n/a	n/a
Reduce generation of solid waste from terminal and admin building (Solid Waste and Recycling Sub-Goal 4)	$3,419	n/a	No
Tenant policy for using green products (Indoor Environmental Quality Sub Goal 2)	$5,160	n/a	No
Create interactive multimedia display (Socioeconomic and Community Outreach Sub Goal 2)	$28,225	n/a	No
Total			**$1,564,899.00**
Long Term 2018-2020			
Promote conversion of vehicles (Air Emissions Sub Goal 4)	$16,838	TBD	No
Program to encourage taxi/rental car companies to offer hybrid vehicles (Air Emissions Sub Goal 6)	$14,838	TBD	No
Increase capacity of PV array (Energy Sub Goal 2)	$0	n/a	n/a
Install low-flow fixtures (Water Conservation Sub Goal 1)	$4,112	n/a	No
Continue to work with tenants (Noise Sub Goal 2)	$1,612	n/a	No
Increase species diversity (Landscape Management Sub Goal 1)	$4,112	n/a	No
Establish a TDM program (Surface Transportation Sub Goal 1)	$277,000	5	n/a
Reduce employee "drive alone" mode share (Surface Transportation Sub Goal 2)	$0	5	n/a
Total			**$311,512**
Overall Total			**$2,831,149**

6.02—Performance Monitoring Program Outline

A planned schedule for the monitoring of each initiative has been generated to guide the airport in monitoring progress. Monitoring will be done differently for many of the initiatives—monthly, quarterly, semi-annually or annually. The level of detail associated with each initiative will be different as well. Section 5 explains in more detail how each initiative should be monitored and what resource will be needed to complete the monitoring.

Table 6.2 serves as an overall summary for the airport along with any specific or unique guidance associated with monitoring.

Section 5 also describes the level of effort and suggested record keeping practices associated with monitoring. As shown in the table, most of the monitoring is performed annually. Therefore, the airport should consider spreading out the reoccurring monitoring over the course of the year so as not overwhelm airport personnel all at one time.

6.03—Report Card

A sustainability report card template (included in Appendix D) provides the airport with the tools needed to monitor progress toward achieving the sustainability management plan goals and targets. In general, the report card shows each initiative and what information should be recorded to track progress. A report card for the baseline year is included as well as a blank template to use for future years.

Table 6.2—Performance Monitoring Program

Goal	Monitoring Schedule	Monitoring Metrics
Short Term: 2012–2015		
Air Emissions Sub Goal 1	Annually	All energy usage
Air Emissions Sub Goal 2	Annually	All energy usage
Energy Sub Goal 1	Monthly	Electric and natural gas usage
Water Conservation Sub Goal 2	Annually	Landscape and maintenance practices
Water Quality Sub Goal 1	Annually	Changes to runoff curve number
Noise Sub Goal 1	Annually	Number of homes being treated
Landscape Management Sub Goal 2	Annually	Landscape and maintenance practices
Landscape Management Sub Goal 3	Annually	Landscape and maintenance practices
Landscape Management Sub Goal 4	Annually	Landscape and maintenance practices
Solid Waste and Recycling Sub Goal 1	Quarterly	Tipping fees
Solid Waste and Recycling Sub-Goal 5	Quarterly	Tipping fees
Indoor Environmental Quality Sub Goal 1	Annually	Purchasing policy
Indoor Environmental Quality Sub Goal 3	Biannually	Construction documents

Indoor Environmental Quality Sub Goal 4	Annually	General observations
Hazardous Materials Sub Goal 1	Annually	Database tracking system
Hazardous Materials Sub Goal 2	Annually	Database Tracking system
Surface Transportation Sub Goal 3	Annually	Maintain database of ground transportation plans and evaluate impacts to VMT
Socioeconomic and Community Outreach Sub Goal 1	Annually	Memorandum
Socioeconomic and Community Outreach Sub Goal 3	Annually	Memorandum
Sustainable Site and Land Use Compatibility Goal	Ongoing	General planning
Mid Range 2015-2018		
Air Emissions Sub Goal 3	Annually	Memorandum
Air Emissions Sub Goal 5	Annually	Database tracking system
Solid Waste and Recycling Sub-Goal 2	Quarterly	Tipping fees
Solid Waste and Recycling Sub-Goal 3	Annually	General observation
Solid Waste and Recycling Sub-Goal 4	Quarterly	Tipping fees
Indoor Environmental Quality Sub Goal 2	Annually	Memorandum
Socioeconomic and Community Outreach Sub Goal 2	Annually	General observation and memorandum
Long Term 2018-2020		
Air Emissions Sub Goal 4	Annually	Collect fleet vehicle information
Air Emissions Sub Goal 6	Annually	Collect fleet vehicle information
Energy Sub Goal 2	Annually	Memorandum
Water Conservation Sub Goal 1	Annually	Construction documents
Noise Sub Goal 2	Annually	Memorandum
Landscape Management Sub Goal 1	Annually	Construction documents
Surface Transportation Sub Goal 1	Biannually	Passenger survey results
Surface Transportation Sub Goal 2	Biannually	Employee survey results

6.04—Best Management Practices

Leveraging best management practices is the best way to ensure the airport can implement the initiatives identified in this study in the most economical and sustainable manner. Numerous resources focused on sustainability are available to guide the airport and the city as the sustainability management plan is implemented.

Airport Cooperative Research Program

The Airport Cooperative Research Program (ACRP) is an industry-driven, applied research program managed by the Transportation Research Board of the National Academies and sponsored by the FAA. The ACRP has numerous recent studies and publications regarding sustainability, including *Synthesis 10: Airport Sustainability Practices*, a range of airport sustainability practices gathered from literature review and a web-based survey that is specifically targeted to airport operators; *Airport Energy Efficiency and Cost Reduction*; *Sustainable Airport Construction Practices*; and many more. Reports are available at www.trb.org/ACRP.

Sustainable Aviation Guidance Alliance

It is recommended that the airport consult the Sustainable Aviation Guidance Alliance (SAGA) database and use it as a tool in implementing sustainability initiatives. SAGA (www.airportsustainability.org) is a broad volunteer coalition of aviation interests formed in 2008 to assist airport operators of all sizes in planning, implementing, and maintaining a sustainability program. SAGA has undertaken an effort to consolidate existing guidelines and practices into a comprehensive, searchable resource that can be tailored to the unique requirements of individual airports of all sizes and locations.

Participants include representatives from Airports Council International-North America (ACI-NA), the Airport Consultants Council (ACC), the American Association of Airport Executives (AAAE), the Air Transport Association (ATA), the FAA, and consultants that represent the participating associations.

The Sustainable Airport Manual

In the fall of 2011, the Chicago Department of Aviation unveiled Version 2.0 their Sustainable Airport Manual (SAM) with the hopes of it becoming the global industry standard for sustainable planning, development and everyday functions at airports around the world. The manual is intended to be a living document, one that will continue to grow and develop, representing emerging new technologies state-of-the-art design and thought-provoking sustainable initiatives.

6.05—Conclusions

This chapter described how the airport can implement sustainability initiatives in a systematic way. The airport will face challenges with being able to fund many of these important initiatives. In the absence of FAA funding, some initiatives may be more of a challenge to achieve. The airport is encouraged to consider updating this plan by 2015 to account for the progress that will be made, and to re-visit the spectrum of sustainability goals and objectives. In the future, the airport should consider looking into even more areas including financial performance, airport operations, and expanded social interaction.

Given all of the initiatives presented in this study, the study team believes the categories the airport should focus on those initiatives with the highest value which are generally in the following categories:

- Air emissions
- Energy
- Landscape Management

The individual goals presented in these three categories will have the greatest impact and represent the largest steps that can be taken by the airport as it moves towards even greater sustainability.

These categories contain goals that will have the greatest contribution to reducing greenhouse gases, reducing energy costs, and reducing water consumption. The airport's vision to "be the aviation industry leader in all that we do and be the premier choice for air travel" will be realized through the efforts taken by this plan. The airport is truly a pioneer in the area of sustainability and has made tremendous progress over the past decade by installing one of the largest solar farms at an airport. This sustainability management plan will help guide the airport to even more meaningful steps.

This has truly been an exciting and unique opportunity for the airport, as well as for everyone who has played a role, including the consultant team. The airport has demonstrated great leadership participating in the pilot program and the consultant team appreciated the opportunity to be a part of the journey.

FRESNO YOSEMITE INTERNATIONAL AIRPORT

C&S COMPANIES

Appendix A

Glossary and Abbreviations

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GLOSSARY AND ABBREVIATIONS

-A-

A - WEIGHTED SOUND LEVEL - The sound pressure level which has been filtered or weighted to reduce the influence of low and high frequency (dBA).

AB-32 - Assembly Bill 32 or California Global Warming Solutions Act; a California state law created to fight climate change by reducing greenhouse gas emissions from all sources.

AC - Advisory Circular.

ACRP - Airport Cooperative Research Program sponsored by the Federal Aviation Administration and intended to address problems faced by airport operators.

AHU - Air Handling Unit.

AIR CARRIER - Aircraft operating under certificates of public convenience and necessity authorizing the performance of scheduled air transportation over specified routes and a limited amount of non-scheduled operations and having a seating capacity of more than 30 passengers.

AIR CARRIER AIRCRAFT - Any aircraft with a seating capacity of more than 30 passengers which is being operated by an air carrier.

AIR SPACE - Space above the ground in which aircraft travel; divided into corridors, routes and restricted areas.

AIR TAXI - Air taxi is an aircraft operation by the holder of an air taxi operating certificate which authorizes the carriage of passengers, mail, or cargo for revenue in accordance with FAR Part 135.

AIRPORT LAYOUT PLAN (ALP) - The current and planned airport development portrayal, which may be part of an airport master plan.

AIRPORT MASTER PLAN (AMP) - A long term development plan for an airport, adopted by the airport proprietor.

AIRPORT NOISE ABATEMENT PROGRAM - A program designed to reduce noise around an airport through changes in the manner in which aircraft are flown, or changes in the operation or layout of the airport.

AIRPORT NOISE COMPATIBILITY PROGRAM - A program developed in accordance with FAR Part 150, including measures proposed or taken by the airport operator to reduce existing incompatible land uses and to prevent the introduction of additional incompatible land uses within the area.

ALUC - Airport Land Use Commission. Pursuant to Section 21670 of the California Public Utilities Code, counties are required to establish ALUCs in order to “protect public health, safety, and welfare by insuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

APPROACH END OF RUNWAY - The approach end of runway is the near end of the runway as viewed from the cockpit of a landing airplane.

APPROACH SLOPE - Imaginary areas extending out and away from the approach ends of runways which are to be kept clear of obstructions.

APPROACH SURFACE - An element of the airport imaginary surfaces, longitudinally centered on the extended runway centerline, extending upward and outward from the end of the primary surface at a designated slope.

APU - Auxiliary Power Unit.

ATCT - Air Traffic Control Tower.

-B-

BASED AIRCRAFT - An aircraft permanently stationed at an airport, usually by some form of agreement between the aircraft owner and airport management.

-C-

CAA – Clean Air Act; legislation aimed at reducing airborne contaminants, smog and all air pollution.

CN - Curve Number.

COMMERCIAL SERVICE AIRPORT - A public airport which receives scheduled passenger service and enplanes annually 2,500 or more passengers.

COMMUTER AIRLINE - Commuter is an air carrier certified in accordance with FAR Part 135, air taxi operators and commercial operators, and authorized to provide air transportation of passengers or cargo pursuant to a published schedule of at least five round trips per week, between two or more points, or transports mail pursuant to a contract with the U.S. Postal Service.

CONTROL TOWER - A central operations facility in the terminal air traffic control system consisting of a tower cab structure (including an associated IFR room if radar equipped) using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of terminal air traffic.

-D-

DDC - Direct Digital Control.

DCV - Demand Controlled Ventilation.

DEICING EQUIPMENT - A unit designed to keep wings free of frost and ice.

DISTANCE MEASURING EQUIPMENT (DME) - An electronic installation established with either a VOR or ILS to provide distance information from the facility to pilots by reception of electronic signals. It measures, in nautical miles, the distance of an aircraft from a NAVAID.

DNL - Day-Night Average Sound Level; the 24-hour average sound levels, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. the following day.

-E-

EA - Environmental Assessment.

EAWU - Estimated Annual Water Usage.

EIA - Energy Information Administration.

EIR - Environmental Impact Report.

ENPLANEMENT - Any passenger boarding an aircraft at an airport. Can be either a local origination or a connecting passenger. Applies also to freight shipments.

EPA - Environmental Protection Agency.

ETo - Evapotranspiration.

-F-

FAA - Federal Aviation Administration.

FAR - Federal Aviation Regulations issued by the Federal Aviation Administration to implement the agency's statutory authority.

FAR PART 150 - A regulation establishing criteria for noise assessment and procedures and criteria for FAA approval of noise compatibility programs.

FAT - Fresno Air Terminal; original designation of Fresno Yosemite International Airport.

FAX - Fresno Area Express; City of Fresno’s public transit system.

FBO - Fixed Based Operator. A retail firm that is authorized by agreement with the airport to provide one or more of the following services at the airport: fueling; aircraft tie-down, hangaring, and parking; aircraft, avionics and/or instrument sales and service; flight training; air taxi service and charter flights; and aircraft exterior and/or interior modification.

FIS - Federal Inspection Station.

FLEET MIX - The proportion of aircraft types or models expected to operate at an airport.

FTE - Full-Time Employee.

FYI - Fresno Yosemite International Airport.

-G-

GAV - Ground Access Vehicle.

GENERAL AVIATION (GA) - Refers to all civil aircraft and operations which are not classified as air carrier.

GHG - Greenhouse Gas.

GSA - Generalized Study Area.

GSE - Ground Support Equipment.

GWP - Global Warming Potential.

-H-

HA - Hydrozone Area.

-I-

ICAO - International Civil Aviation Organization.

IE - Irrigation Efficiency.

INTEGRATED NOISE MODEL (INM) - A computer-based airport noise exposure modeling program.

IPC - International Plumbing Code.

ITINERANT OPERATION - All aircraft arrivals and departures other than local operations.

-L-

LARGE AIRCRAFT - A large aircraft is an aircraft of more than 12,500 pounds (5,700 kg) maximum certificated takeoff weight.

LEED - Leadership in Energy and Environmental Design.

LTO - Landing/Takeoff.

-M-

MASTER PLAN - Long-range plan of airport development requirements.

MILITARY OPERATION - An operation by military aircraft.

MISSED APPROACH - A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at an airport.

MSL - Mean Sea Level.

-N-

NAAQS - National Ambient Air Quality Standards, established by the United States Environmental Protection Agency for criteria pollutions such as carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and ozone (O_3).

NEPA - National Environmental Policy Act; a federal law that promotes the enhancement of the environment and established the President's Council on Environmental Quality.

NM - Nautical Mile.

NOISE ABATEMENT - A procedure for the operation of aircraft at an airport which minimizes the impact of noise on the environs of the airport.

NOISE CONTOUR - A noise impact boundary line connecting points on a map where the level of sound is the same.

NOISE EXPOSURE MAP - A scaled, geographic depiction of an airport, its noise contours and surrounding area.

NOISE LEVEL REDUCTION (NLR) - The amount of noise level reduction achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

NRCS - Natural Resources Conservation Service.

-O-

OPERATION - A takeoff, landing, low approach, or missed approach.

OSHA - Occupational Safety and Health Administration.

-P-

PCA - Pre-Conditioned Air.

PF - Plant Factor.

-R-

RTU - Roof Top Unit.

RUNWAY SAFETY AREA - An area symmetrical about the runway centerline and extending beyond the ends of the runway which shall be free of obstacles as specified.

RW and R/W - Runway.

-S-

SIP - State Implementation Plan.

SMALL AIRCRAFT - A small aircraft is an aircraft of 12,500 pounds (5,700 kg) or less maximum certificated takeoff weight.

SMART Program - Sound Mitigation Acoustical Remedy Treatment Program implemented by FYI under the approved FAR Part 150 Airport Noise Compatibility Program and establishes sound attenuation standards for homes within the airport vicinity that are affected by the highest levels of aircraft noise.

STRATUM - Street Tree Resource Assessment Tool for Urban Forest Managers.

-T-

TAF - Terminal Area Forecast.

TAXIWAY - A taxiway is a defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft.

TERMINAL AIRSPACE - The controlled airspace normally associated with aircraft departure and arrival patterns to/from airports within a terminal system and between adjacent terminal systems in which tower enroute air traffic control service is provided.

T-HANGAR - A T-shaped aircraft hanger which provides shelter for a single airplane.

TOUCH-AND-GO - An aircraft operation that includes a landing immediately followed by a takeoff.

TRAFFIC PATTERN - The traffic flow that is prescribed for aircraft landing at, taxiing on and taking off from an airport. The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg and final approach.

TRANSIENT OPERATIONS - An operation performed at an airport by an aircraft that is based at another airport.

TW and T/W - Taxiway.

-U-

UPC - Uniform Plumbing Code.

USDA - United States Department of Agriculture.

-V-

VFR - Visual Flight Rules that govern flight procedures in good weather.

VFR AIRCRAFT - An aircraft conducting flight in accordance with Visual Flight Rules.

VMT - Vehicle Miles Traveled.

VOC - Volatile Organic Compound.

-W-

WIND-CONE (WIND SOCK) - Conical wind direction indicator.

WUCOLS - Water Use Classification of Landscape Species.

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Appendix B

Airport Survey Results

Fresno-Yosemite International Airport Employee Survey

SurveyMonkey

1. Who is your employer?

		Response Percent	Response Count
City of Fresno		**32.6%**	**43**
County of Fresno		0.0%	0
FAA		0.0%	0
TSA		4.5%	6
Customs		5.3%	7
Rental car company		22.7%	30
Airline		**32.6%**	**43**
Concession		2.3%	3
		Other (please specify)	24
		answered question	**132**
		skipped question	**22**

2. Which building(s) do you work in?

	Response Percent	Response Count
Terminal	**63.2%**	**96**
Administration	18.4%	28
Operations/maintenance	8.6%	13
ARFF building	0.7%	1
Consolidated rental car building	13.2%	20
	Other (please specify)	8
	answered question	**152**
	skipped question	**2**

3. If you work in the terminal, where in the building do you primarily work? (Please describe the location using room numbers/names, describe location, which floor, etc.)

	Response Count
	99
answered question	**99**
skipped question	**55**

4. Typically, how many days a week do you work?

	Response Percent	Response Count
1	6.0%	9
2	2.0%	3
3	1.3%	2
4	8.7%	13
5	**80.0%**	**120**
6	1.3%	2
7	0.7%	1
	answered question	**150**
	skipped question	**4**

5. On which days of the week do you typically work? (check all that apply) (If the days you work are flexible, please choose which days you work most frequently)

	Response Percent	Response Count
Sunday	42.0%	63
Monday	82.0%	123
Tuesday	**87.3%**	**131**
Wednesday	86.0%	129
Thursday	84.7%	127
Friday	78.7%	118
Saturday	34.0%	51
	answered question	**150**
	skipped question	**4**

6. Please provide the start and end times of your typical daily shift (if you work a split shift, please provide both shift hours down).

	Response Count
	150
answered question	**150**
skipped question	**4**

7. If you work a split shift, where do you typically go between shifts?

	Response Count
	42
answered question	**42**
skipped question	**112**

8. If you leave the facility between shifts, how many miles on average do you drive round trip?

	Response Count
	50
answered question	**50**
skipped question	**104**

9. How do you typically get to work?

	Response Percent	Response Count
Drive alone	**96.6%**	**144**
Carpool	2.7%	4
Public Transit	1.3%	2
Walk	0.0%	0
Bike	0.0%	0
Telecommute	0.0%	0
	Other (please specify)	5
	answered question	**149**
	skipped question	**5**

10. How far away from work do you live?

	Response Percent	Response Count
0-5 miles	24.7%	37
6-10 miles	27.3%	41
11-15 miles	**28.7%**	**43**
16-20 miles	7.3%	11
20+ miles	12.0%	18
	answered question	**150**
	skipped question	**4**

11. How often do you travel to other airport facilities/buildings during your workday?

	Response Percent	Response Count
Almost never	**70.5%**	**105**
Once a day	11.4%	17
Twice a day	5.4%	8
Three times a day	2.7%	4
Four times a day	2.0%	3
Five + times a day	8.1%	12
	answered question	**149**
	skipped question	**5**

12. Which other building do you most frequently travel to during the workday?

	Response Percent	Response Count
Terminal	39.3%	48
Administration	9.0%	11
Operations	10.7%	13
None	**41.0%**	**50**
	Other (please specify)	19
	answered question	**122**
	skipped question	**32**

13. When you travel to another building during the workday, how do you get there?

	Response Percent	Response Count
Drive personal vehicle	36.0%	41
Drive work vehicle	**42.1%**	**48**
Public Transit	0.9%	1
Walk	32.5%	37
Bike	0.0%	0
Other (please specify)		3
answered question		**114**
skipped question		**40**

14. Do you know if your employer offers any incentives to encourage the use of alternative modes of transportation (for example public transit subsidies, preferred parking for carpoolers, etc)?

	Response Percent	Response Count
Yes	5.5%	8
No	**94.5%**	**138**
answered question		**146**
skipped question		**8**

15. If yes, what incentives are you aware of?

	Response Count
	31
answered question	**31**
skipped question	**123**

16. Rank the alternative modes of transportation you'd be willing to use instead of driving alone:

	Not willing	Not able to	1st choice	2nd choice	3rd choice	4th choice	5th choice	Rating Average	Response Count
Carpool	19.0% (27)	23.2% (33)	**42.3% (60)**	7.0% (10)	4.9% (7)	2.1% (3)	1.4% (2)	2.68	142
Transit	**31.1% (41)**	**31.1% (41)**	9.8% (13)	12.9% (17)	10.6% (14)	2.3% (3)	2.3% (3)	2.57	132
Walk	35.4% (46)	**40.8% (53)**	8.5% (11)	2.3% (3)	4.6% (6)	3.1% (4)	5.4% (7)	2.31	130
Bike	**33.3% (43)**	31.8% (41)	9.3% (12)	13.2% (17)	6.2% (8)	4.7% (6)	1.6% (2)	2.47	129
Telecommute	**31.7% (40)**	24.6% (31)	11.9% (15)	17.5% (22)	8.7% (11)	1.6% (2)	4.0% (5)	2.67	126
								answered question	**146**
								skipped question	

17. Is sustainability a consideration in your worklplace?

	Response Percent	Response Count
Yes, very much so	36.4%	51
Yes, a little bit	**43.6%**	**61**
Not very much	12.9%	18
No, not at all	7.1%	10
answered question		**140**
skipped question		**14**

18. Please list the sustainability measures you know about in your workplace (for example, recycling, energy saving measures, water saving measures, etc.).

		Response Count
		111
	answered question	**111**
	skipped question	**43**

19. What is your workplace doing well to promote sustainability?

		Response Count
		89
	answered question	**89**
	skipped question	**65**

20. What could your workplace do to become more sustainable?

		Response Count
		48
	answered question	**48**
	skipped question	**106**

21. What other thoughts or comments do you have on sustainability in your workplace or at the airport overall?

		Response Count
		35
	answered question	**35**
	skipped question	**119**

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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Appendix C

Sustainability Baseline Data

Appendix C - 1

Air Emissions Inventory

Appendix C.1 : Scope 1 Emissions Calculations

The example below shows how emissions were calculated by the amount of diesel used in the 2010 base year:

$$\text{CO}_2 \text{ Emitted} = 2{,}847 \text{ gal} \times \left(22.384 \ {}^{\text{lbCO}_2}/_{\text{gal}}\right) = 63{,}719.86 \text{ lbCO}_2$$

$$\text{CO}_2\text{e Emissions from N}_2\text{O} = 2{,}847 \text{ gal} \times \left(0.00019 \ {}^{\text{lbN}_2\text{O}}/_{\text{gal}}\right) = 0.54 \text{ lbN}_2\text{O}$$

$$\text{CO}_2\text{e Emissions from CH}_4 = 2{,}847 \text{ gal} \times \left(0.000534 \ {}^{\text{lbCH}_4}/_{\text{gal}}\right) = 1.52 \text{ lbCH}_4$$

$$\text{Total CO}_2\text{e Emissions, lb} = 63{,}719.86 \text{ lbCO}_2 \times 1\text{GWP} + 0.54 \text{ lbN}_2\text{O} \times 298\text{GWP} + 1.52 \text{ lbCH}_4 \times 25\text{GWP}$$

$$\text{Total CO}_2\text{e Emissions, lb} = 63{,}919.04 \text{ lbCO}_2\text{e}$$

$$\text{Total CO}_2\text{e Emissions, metric ton} = 63{,}919.04 \text{ lbCO}_2\text{e} \times \left(4.5359 \times 10^{-4} \ {}^{\text{metric ton CO}_2\text{e}}/_{\text{lbCO}_2\text{e}}\right)$$

$$\text{Total CO}_2\text{e Emissions, metric ton} = 28.99 \text{ metric ton CO}_2\text{e}$$

Appendix C.2 : Scope 2 Emissions Calculations

An example calculation using electricity usage from the terminal building is presented below.

$$CO_2\text{e Emissions from } CO_2 = 880 \text{ kWh} \times \left(559 \, {}^{\text{lbCO}_2}/_{\text{MWh}} \times {}^{1 \text{ MWh}}/_{1000 \text{ kWh}}\right) = 492 \text{ lbCO}_2$$

$$CO_2\text{e Emissions from } N_2O = 880 \text{ kWh} \times \left(6.23 \, {}^{\text{lbN}_2\text{O}}/_{\text{GWh}} \times \frac{1\text{GWh}}{1{,}000{,}000 \text{ kWh}}\right) = 0.01 \text{ lbN}_2\text{O}$$

$$CO_2\text{e Emissions from } CH_4 = 880 \text{ kWh} \times \left(28.29 \, {}^{\text{lbCH}_4}/_{\text{GWh}} \times \frac{1\text{GWh}}{1{,}000{,}000 \text{ kWh}}\right) = 0.02 \text{ lbCH}_4$$

$$\text{Total } CO_2\text{e Emissions, lb} = 492 \text{ lbCO}_2 \times 1\text{GWP} + 0.01 \text{ lbN}_2\text{O} \times 298\text{GWP} + 0.02 \text{ lbCH}_4 \times 25\text{GWP}$$

$$\text{Total } CO_2\text{e Emissions, lb} = 494 \text{ lbCO}_2\text{e}$$

$$\text{Total } CO_2\text{e Emissions, metric ton} = 494 \text{ lbCO}_2\text{e} \times \left(4.5359 \times 10^{-4} \, {}^{\text{metric ton CO}_2\text{e}}/_{\text{lbCO}_2\text{e}}\right)$$

$$\text{Total } CO_2\text{e Emissions, metric ton} = 0.22 \text{ metric ton CO}_2\text{e}$$

Appendix C.3 : Scope 3 Emissions Calculations

An example emissions calculation for Employee VMT is presented below.

$$\text{Employee VMT } CO_2 \text{ Emissions} = (3{,}422{,}027 \text{ miles}) \div 19.70 \frac{\text{miles}}{\text{gallon}} \times 19.564 \frac{\text{lb } CO_2}{\text{gal}}$$
$$= 3{,}398{,}402.85 \text{ lb}CO_2$$

$$CO_2\text{e Emissions from } N_2O = 173{,}706.95 \text{ gal} \times \left(0.0002 \, {}^{\text{lb}N_2O}/_{\text{gal}}\right) = 34.74 \text{ lb}N_2O$$

$$CO_2\text{e Emissions from } CH_4 = 173{,}706.95 \text{ gal} \times \left(0.00055 \, {}^{\text{lb}CH_4}/_{\text{gal}}\right) = 95.54 \text{ lb}CH_4$$

$$\text{Total } CO_2\text{e Emissions, lb}$$
$$= 3{,}398{,}402.85 \text{ lb}CO_2 \times 1\text{GWP} + 34.74 \text{ lb}N_2O \times 298\text{GWP} + 95.54 \text{ lb}CH_4 \times 25\text{GWP}$$

$$\text{Total } CO_2\text{e Emissions, lb} = 3{,}411{,}144.26 \text{ lb}CO_2\text{e}$$

$$\text{Total } CO_2\text{e Emissions, metric ton} = 3{,}411{,}144.26 \text{ lb}CO_2\text{e} \times \left(4.5359 \times 10^{-4} \, {}^{\text{metric ton } CO_2\text{e}}/_{\text{lb}CO_2\text{e}}\right)$$

$$\text{Total } CO_2\text{e Emissions, metric ton} = 1{,}547.26 \text{ metric ton } CO_2\text{e}$$

Summary of Aircraft Operations

Landing/Takeoffs by Aircraft				
AIR CARRIER/TAXI/COMMUTER				
ID	**# Type**	**Engine**	**Landings**	**Operations**
Allegiant Air Charter #1	Boeing MD-83	JT8D-219 Environmental Kit (E_Kit)	15	30
Allegiant Air Charter #2	Boeing MD-83	JT8D-219 Environmental Kit (E_Kit)	3	6
Allegiant Air Charter #3	Boeing MD-87	JT8D-209	3	6
Allegiant Airlines #1	Boeing MD-83	JT8D-219 Environmental Kit (E_Kit)	152	304
Allegiant Airlines #2	Boeing MD-88	JT8D-219 Environmental Kit (E_Kit)	49	98
Allegiant Airlines #3	Boeing MD-87	JT8D-209	14	28
Allegiant Airlines #4	Boeing MD-82	JT8D-217C Environmental Kit (E_Kit)	14	28
American Airlines #1	Boeing MD-83	JT8D-219 Environmental Kit (E_Kit)	124	248
American Airlines #2	Boeing MD-81	JT8D-217C Environmental Kit (E_Kit)	175	350
American Airlines #3	Boeing MD-81	JT8D-217C Environmental Kit (E_Kit)	425	850
American Airlines #4	Boeing 737-800 Series	CFM56-7B26	1	2
American Eagle	Embraer ERJ145	AE3007A1E Type 3	1953	3906
AmeriFlight	Piper PA-32 Cherokee Six	TIO-540-J2B2	5	10
AmeriFlight Cargo #1	Piper PA-31 Navajo	TIO-540-J2B2	507	1014
AmeriFlight Cargo #2	Piper PA-31 Navajo	TIO-540-J2B2	357	714
AmeriFlight Cargo #3	Fairchild SA-227-AT Expeditor	TPE331-10	7	14
AmeriFlight Cargo #4	Fairchild SA-227-AC Metro III	TPE331-10	44	88
AmeriFlight Cargo #5	Raytheon Beech 1900-C	PT6A-65B	32	64
AmeriFlight Cargo #6	Raytheon Beech 99	PT6A-36	39	78
CDF #1	Raytheon Beech 55 Baron	TIO-540-J2B2	3	6
CDF Other #1	Rockwell OV-10 Bronco	T76-G-12A	83	166

CDF Other #2	Lockheed P-3 Orion	T56-A-14	2	4
CDF Other #3	Grumman S-2E Tracker	TPE331-15AW	126	252
ID	**# Type**	**Engine**	**Landings**	**Operations**
CDF Other #4	Lockheed P-3 Orion	T56-A-14	6	12
CDF Other #5	Raytheon King Air 100	PT6A-28	2	4
CDF Other #6	Rockwell Commander 500	TIO-540-J2B2	6	12
Continental Charter #1	Boeing 737-800 Series	CFM56-7B26	1	2
Delta Charter #1	Boeing 757-200 Series	PW2037	2	4
Fed Ex #1	Boeing 727-200 Series	JT8D-15 Reduced emissions	87	174
Fed Ex #2	Airbus A300B4-600 Series	CF6-80C2A1	15	30
Fed Ex #3	Airbus A310-200 Series	CF6-80A3	135	270
Fed Ex #4	Airbus A310-300 Series	CF6-80A3	34	68
Horizon Air Industries #1	DeHavilland DHC-8-300	PW123	1	2
Horizon Air Industries #2	Bombardier CRJ-700	CF34-8C1	988	1976
Jet Blue Charter #1	Airbus A320-200 Series	V2527-A5	1	2
Mexicana Airlines #1	Airbus A318-100 Series	CFM56-5B8/P SAC	94	188
Mexicana Airlines #2	Airbus A319-100 Series	CFM56-5B6/P	77	154
Mexicana Airlines #3	Airbus A320-100 Series	CFM56-5-A1	49	98
Miami Air Charter #1	Boeing 737-800 Series	CFM56-7B26	3	6
SkyWest Delta #1	Bombardier CRJ-100	CF34-3A1 LEC II	975	1950
SkyWest Delta #2	Bombardier CRJ-700	CF34-8C1	5	10
SkyWest United #1	Bombardier CRJ-200	CF34-3B	67	134
SkyWest United #2	Embraer EMB120 Brasilia	PW118	4998	9996
SkyWest United #3	Bombardier CRJ-700	CF34-8C1	436	872
SkyWest United	Bombardier CRJ-100	CF34-3A1 LEC II	1373	2746

#4				
Southwest Charter #1	Boeing 737-800 Series	CFM56-7B26	2	4
Sun Country Charter #1	Boeing 737-700 Series	CFM56-7B22	1	2
TEM Enterprises Charter #1	Boeing 737-400 Series	CFM56-3	4	8
UPS #1	Boeing 757-200 Series	PW2037	225	450
US Airways #1	Bombardier CRJ-900	CF34-8C5 LEC	1332	2664
US Airways #2	Airbus A320-100 Series	CFM56-5-A1	3	6
US Airways #3	Bombardier CRJ-200	CF34-3B	339	678
US Airways #4	Airbus A319-100 Series	CFM56-5B6/P	135	270
US Airways #5	DeHavilland DHC-8-200	PW123	1	2
USA 3000 Charter #1	Airbus A320-200 Series	V2527-A5	1	2
USDA Other #1	Rockwell Commander 690	TPE331-10	35	70
USDA Other #2	Grumman S-2E Tracker	TPE331-15AW	11	22
USDA Other #3	Rockwell OV-10 Bronco	T76-G-12A	2	4
USDA Other #4	Lockheed P-3 Orion	T56-A-14	4	8
USDA Other #5	Lockheed P-3 Orion	T56-A-14	5	10

GENERAL AVIATION

ID	# Type	Engine	Landings	Operations
GA #1	Raytheon Beech Baron 58	TIO-540-J2B2	3172	6344
GA #2	Cessna 172 Skyhawk	IO-360-B	943	1886
GA #3	Cessna 208 Caravan	PT6A-114	7458	14916
GA #4	Cessna 441 Conquest II	TPE331-8	1279	2558
GA #5	Cessna 650 Citation III	TFE731-2-2B	2917	5834
GA #6	Cessna 650 Citation III	TFE731-3	129	258
GA #7	Cessna 750 Citation X	AE3007C Type 1	159	318
GA #8	Gulfstream V-SP	BR700-710A1-10	2917	5834
GA #9	Bombardier Learjet 25	CJ610-6	3076	6152
GA #10	Bombardier Learjet 35A/36A (C-21A)	TFE731-2-2B	676	1352

GA #11	Mitsubishi MU-300 Diamond	JT15D-4 series	159	318
GA #12	Piper PA-28 Cherokee Series	IO-320-D1AD	1591	3182
GA #13	Rockwell Commander 700	IO-320-D1AD	15264	30528
MILITARY				
ID	**# Type**	**Engine**	**Landings**	**Operations**
MIL #1	Boeing F/A-18 Hornet	F404-GE-400	580	1160
MIL #2	Boeing F-15 Eagle	F100-PW-229	4698	9396
MIL #3	Dassault Falcon 50	TFE731-3	187	374
MIL #4	Rockwell OV-10 Bronco	T76-G-12A	29	58

EDMS 5.1.3 Model Inputs for 2010_Fresno_6-1-11 Study

Study Created:	Wed Jun 01 10:11:48 2011
Report Date:	Thu Jun 09 16:17:00 2011
Study Pathname:	F:\Project\J90 - City of Fresno\J90001001 Sustainabilty Management Plan\Baseline categories\Air Quality and Greenhouse Gases\EDMS\2010_Fresno_6-1-11\2010_Fresno_6-1-11.edm

Study Setup

Unit System:	Metric
Dispersion Modeling:	Dispersion is not enabled for this study
Speciated Organic Gas (OG) Modeling:	Speciated Organic Gas (OG) Emissions are excluded from this study.
Analysis Years:	2010

Scenarios

Scenario Name:	Description:	Add a description.
Baseline	Aircraft Times in Mode Basis:	Performance-Based
	Taxi Time Modeling:	User-specified Taxi Times
	FOA3 Sulfur-to-Sulfate Conversion Rate:	2.400000 %

Airports

Airport Name:	Fresno Yosemite International
IATA Code:	FAT
ICAO Code:	KFAT
FAA Code:	
Country:	US
State:	California
City:	Fresno
Airport Description:	Fresno Yosemite International
Latitude:	36.776°
Longitude:	-119.718°
Northing:	4073491.72
Easting:	257417.62
UTM Zone:	11
Elevation:	336.00 feet
PM Modeling Methodology:	FOA3a (Sulfur-to-Sulfate Conversion Rate = 5.0%, Fuel Sulfur Content = 0.068%)

Scenario-Airport: Baseline, Fresno Yosemite International

Weather

Baseline, Fresno Yosemite International

Mixing Height:	914.40 meters
Temperature:	17.22 °C
Daily High Temperature:	22.97 °C
Daily Low Temperature:	11.47 °C
Pressure:	100338.68 Pa
Sea Level Pressure:	101557.78 Pa
Relative Humidity:	58.11
Wind Speed:	10.00 kph
Wind Direction:	0.00 °
Ceiling:	30480.00 m
Visibility:	80.47 km

The user has used annual averages.

Base Elevation:	102.41 meters
Date Range:	Thursday, January 01, 2004 to Friday, December 31, 2004
Source Data File Location:	
Upper Air Data File Location:	

Quarter-Hourly Operational Profiles

Baseline, Fresno Yosemite International

Name: DEFAULT

Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight	Quarter-Hour	Weight
12:00am to 12:14 am	1.000000	6:00am to 6:14am	1.000000	12:00pm to 12:14 pm	1.000000	6:00pm to 6:14pm	1.000000
12:15am to 12:29 am	1.000000	6:15am to 6:29am	1.000000	12:15pm to 12:29 pm	1.000000	6:15pm to 6:29pm	1.000000
12:30am to 12:44 am	1.000000	6:30am to 6:44am	1.000000	12:30pm to 12:44 pm	1.000000	6:30pm to 6:44pm	1.000000
12:45am to 12:59 am	1.000000	6:45am to 6:59am	1.000000	12:45pm to 12:59 pm	1.000000	6:45pm to 6:59pm	1.000000
1:00am to 1:14am	1.000000	7:00am to 7:14am	1.000000	1:00pm to 1:14pm	1.000000	7:00pm to 7:14pm	1.000000
1:15am to 1:29am	1.000000	7:15am to 7:29am	1.000000	1:15pm to 1:29pm	1.000000	7:15pm to 7:29pm	1.000000
1:30am to 1:44am	1.000000	7:30am to 7:44am	1.000000	1:30pm to 1:44pm	1.000000	7:30pm to 7:44pm	1.000000
1:45am to 1:59am	1.000000	7:45am to 7:59am	1.000000	1:45pm to 1:59pm	1.000000	7:45pm to 7:59pm	1.000000
2:00am to 2:14am	1.000000	8:00am to 8:14am	1.000000	2:00pm to 2:14pm	1.000000	8:00pm to 8:14pm	1.000000
2:15am to 2:29am	1.000000	8:15am to 8:29am	1.000000	2:15pm to 2:29pm	1.000000	8:15pm to 8:29pm	1.000000
2:30am to 2:44am	1.000000	8:30am to 8:44am	1.000000	2:30pm to 2:44pm	1.000000	8:30pm to 8:44pm	1.000000
2:45am to 2:59am	1.000000	8:45am to 8:59am	1.000000	2:45pm to 2:59pm	1.000000	8:45pm to 8:59pm	1.000000
3:00am to 3:14am	1.000000	9:00am to 9:14am	1.000000	3:00pm to 3:14pm	1.000000	9:00pm to 9:14pm	1.000000
3:15am to 3:29am	1.000000	9:15am to 9:29am	1.000000	3:15pm to 3:29pm	1.000000	9:15pm to 9:29pm	1.000000
3:30am to 3:44am	1.000000	9:30am to 9:44am	1.000000	3:30pm to 3:44pm	1.000000	9:30pm to 9:44pm	1.000000
3:45am to 3:59am	1.000000	9:45am to 9:59am	1.000000	3:45pm to 3:59pm	1.000000	9:45pm to 9:59pm	1.000000
4:00am to 4:14am	1.000000	10:00am to 10:14am	1.000000	4:00pm to 4:14pm	1.000000	10:00pm to 10:14pm	1.000000
4:15am to 4:29am	1.000000	10:15am to 10:29am	1.000000	4:15pm to 4:29pm	1.000000	10:15pm to 10:29pm	1.000000
4:30am to 4:44am	1.000000	10:30am to 10:44am	1.000000	4:30pm to 4:44pm	1.000000	10:30pm to 10:44pm	1.000000
4:45am to 4:59am	1.000000	10:45am to 10:59am	1.000000	4:45pm to 4:59pm	1.000000	10:45pm to 10:59pm	1.000000
5:00am to 5:14am	1.000000	11:00am to 11:14am	1.000000	5:00pm to 5:14pm	1.000000	11:00pm to 11:14pm	1.000000
5:15am to 5:29am	1.000000	11:15am to 11:29am	1.000000	5:15pm to 5:29pm	1.000000	11:15pm to 11:29pm	1.000000
5:30am to 5:44am	1.000000	11:30am to 11:44am	1.000000	5:30pm to 5:44pm	1.000000	11:30pm to 11:44pm	1.000000
5:45am to 5:59am	1.000000	11:45am to 11:59am	1.000000	5:45pm to 5:59pm	1.000000	11:45pm to 11:59pm	1.000000

Daily Operational Profiles

Baseline, Fresno Yosemite International

Name: DEFAULT

Day	Weight	Day	Weight
Monday	1.000000	Friday	1.000000
Tuesday	1.000000	Saturday	1.000000
Wednesday	1.000000	Sunday	1.000000
Thursday	1.000000		

Monthly Operational Profiles

Baseline, Fresno Yosemite International

Name: DEFAULT

Month	Weight	Month	Weight
January	1.000000	July	1.000000
February	1.000000	August	1.000000
March	1.000000	September	1.000000
April	1.000000	October	1.000000
May	1.000000	November	1.000000
June	1.000000	December	1.000000

Aircraft

Baseline, Fresno Yosemite International

Default Taxi Out Time:	19.000000 min	
Default Taxi In Time:	7.000000 min	
Year:	Uses Schedule?	Schedule Filename:
2010	No	(None)

Aircraft Name:
Airbus A300B4-600 Series
Engine Type:
CF6-80C2A1
Identification:
Fed Ex #2
Category:
HCJP

Take Off weight:	146964.00 Kgs
Approach Weight:	120592.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP331-200ER (143 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-50H)	Diesel	0.00	8.00	190.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	60.00	60.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	17.00	18.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	17.00	18.00	210.00	53.00	
Cargo Loader (FMC Commander 15)	Diesel	40.00	40.00	80.00	50.00	
Catering Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	20.00	235.00	70.00	
Lavatory Truck (Wollard TLS-770 / F350)	Diesel	25.00	0.00	235.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	15
Annual Arrivals:	15
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A310-200 Series
Engine Type:
CF6-80A3
Identification:
Fed Ex #3
Category:

Take Off weight:	138074.00 Kgs
Approach Weight:	111584.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP331-200ER (143 HP)
APU Departure OP Time:	3.50 min

HCJP

APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-50H)	Diesel	0.00	8.00	190.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	60.00	60.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	17.00	18.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	17.00	18.00	210.00	53.00	
Cargo Loader (FMC Commander 15)	Diesel	40.00	40.00	80.00	50.00	
Catering Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	20.00	235.00	70.00	
Lavatory Truck (Wollard TLS-770 / F350)	Diesel	25.00	0.00	235.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	135
Annual Arrivals:	135
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A310-300 Series
Engine Type:
CF6-80A3
Identification:
Fed Ex #4
Category:
HCJP

Take Off weight:	138074.00 Kgs
Approach Weight:	111584.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP331-200ER (143 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-50H)	Diesel	0.00	8.00	190.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	60.00	60.00	107.00	55.00	

Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	17.00	18.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	17.00	18.00	210.00	53.00	
Cargo Loader (FMC Commander 15)	Diesel	40.00	40.00	80.00	50.00	
Catering Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	20.00	235.00	70.00	
Lavatory Truck (Wollard TLS-770 / F350)	Diesel	25.00	0.00	235.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	34
Annual Arrivals:	34
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A318-100 Series
Engine Type:
CFM56-5B8/P SAC
Identification:
Mexicana Airlines #1
Category:
LCJP

Take Off weight:	66270.00 Kgs
Approach Weight:	56250.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-300 (80HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	94
Annual Arrivals:	94
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A319-100 Series
Engine Type:
CFM56-5B6/P
Identification:
Mexicana Airlines #2
Category:
LCJP

Take Off weight:	66270.00 Kgs
Approach Weight:	56250.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-300 (80HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	77
Annual Arrivals:	77
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT

Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A319-100 Series
Engine Type:
CFM56-5B6/P
Identification:
US Airways #4
Category:
LCJP

Take Off weight:	66270.00 Kgs
Approach Weight:	56250.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-300 (80HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	135
Annual Arrivals:	135
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Airbus A320-100 Series	Take Off weight:	70715.00 Kgs
Engine Type: CFM56-5-A1	Approach Weight:	59421.00 Kgs
Identification: Mexicana Airlines #3	Glide Slope:	3.00°
Category: LCJP	APU Assignment:	APU GTCP 36-300 (80HP)
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year: 2010	Annual Departures:	49
	Annual Arrivals:	49
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Airbus A320-100 Series	Take Off weight:	70715.00 Kgs
Engine Type: CFM56-5-A1	Approach Weight:	59421.00 Kgs
Identification: US Airways #2	Glide Slope:	3.00°
Category: LCJP	APU Assignment:	APU GTCP 36-300 (80HP)
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	

Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	3
Annual Arrivals:	3
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A320-200 Series
Engine Type:
V2527-A5
Identification:
Jet Blue Charter #1
Category:
LCJP

Take Off weight:	69989.00 Kgs
Approach Weight:	59421.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-300 (80HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD						

1410)	Diesel	15.00	0.00	56.00	25.00
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Airbus A320-200 Series
Engine Type:
V2527-A5
Identification:
USA 3000 Charter #1
Category:
LCJP

Take Off weight:	69989.00 Kgs
Approach Weight:	59421.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-300 (80HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 727-200 Series
Engine Type:
JT8D-15 Reduced emissions
Identification:
Fed Ex #1
Category:
LCJP

Take Off weight:	85729.00 Kgs
Approach Weight:	68991.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	87
Annual Arrivals:	87
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Boeing 737-400 Series Engine Type: CFM56-3 Identification: TEM Enterprises Charter #1 Category: LCJP	Take Off weight:	62686.00 Kgs
	Approach Weight:	50621.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	APU GTCP85-129 (200 HP)
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year: 2010	Annual Departures:	4
	Annual Arrivals:	4
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Boeing 737-700 Series Engine Type: CFM56-7B22 Identification: Sun Country Charter #1 Category: LCJP	Take Off weight:	70035.00 Kgs
	Approach Weight:	52254.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	APU 131-9
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year

Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 737-800 Series
Engine Type:
CFM56-7B26
Identification:
American Airlines #4
Category:
LCJP

Take Off weight:	76022.00 Kgs
Approach Weight:	59738.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU 131-9
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	

Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 737-800 Series
Engine Type:
CFM56-7B26
Identification:
Continental Charter #1
Category:
LCJP

Take Off weight:	76022.00 Kgs
Approach Weight:	59738.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU 131-9
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0

Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 737-800 Series
Engine Type:
CFM56-7B26
Identification:
Miami Air Charter #1
Category:
LCJP

Take Off weight:	76022.00 Kgs
Approach Weight:	59738.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU 131-9
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	3
Annual Arrivals:	3
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly	DEFAULT

Operational profile:	
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 737-800 Series
Engine Type:
CFM56-7B26
Identification:
Southwest Charter #1
Category:
LCJP

Take Off weight:	76022.00 Kgs
Approach Weight:	59738.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU 131-9
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	2
Annual Arrivals:	2
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 757-200 Series
Engine Type:
PW2037
Identification:
Delta Charter #1
Category:

Take Off weight:	110314.00 Kgs
Approach Weight:	80830.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP331-200ER (143 HP)
APU Departure OP Time:	3.50 min

LCJP

APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-50H)	Diesel	0.00	8.00	190.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	2
Annual Arrivals:	2
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing 757-200 Series
Engine Type:
PW2037
Identification:
UPS #1
Category:
LCJP

Take Off weight:	110314.00 Kgs
Approach Weight:	80830.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP331-200ER (143 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-50H)	Diesel	0.00	8.00	190.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	24.00	24.00	107.00	50.00	

Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00

Year:
2010

Annual Departures:	225
Annual Arrivals:	225
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing F-15 Eagle
Engine Type:
F100-PW-229
Identification:
MIL #2
Category:
LMJA

Take Off weight:	38555.00 Kgs
Approach Weight:	38555.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	5.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	5.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	4698
Annual Arrivals:	4698
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT

Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing F/A-18 Hornet
Engine Type:
F404-GE-400
Identification:
MIL #1
Category:
LMJA

Take Off weight:	11340.00 Kgs
Approach Weight:	9525.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	5.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	5.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	580
Annual Arrivals:	580
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-81
Engine Type:
JT8D-217C Environmental Kit (E_Kit)
Identification:
American Airlines #2
Category:
LCJP

Take Off weight:	61296.00 Kgs
Approach Weight:	52254.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-	Diesel	10.00	10.00	210.00	53.00	

Way F650)						
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	175
Annual Arrivals:	175
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-81
Engine Type:
JT8D-217C Environmental Kit (E_Kit)
Identification:
American Airlines #3
Category:
LCJP

Take Off weight:	61296.00 Kgs
Approach Weight:	52254.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:

2010

Annual Departures:	425
Annual Arrivals:	425
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-82
Engine Type:
JT8D-217C Environmental Kit (E_Kit)
Identification:
Allegiant Airlines #4
Category:
LCJP

Take Off weight:	66151.00 Kgs
Approach Weight:	53070.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	14
Annual Arrivals:	14
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT

Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-83
Engine Type:
JT8D-219 Environmental Kit (E_Kit)
Identification:
Allegiant Air Charter #1
Category:
LCJP

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	15
Annual Arrivals:	15
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-83
Engine Type:
JT8D-219 Environmental Kit (E_Kit)

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°

Identification:
Allegiant Air Charter #2
Category:
LCJP

APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	3
Annual Arrivals:	3
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-83
Engine Type:
JT8D-219 Environmental Kit (E_Kit)
Identification:
Allegiant Airlines #1
Category:
LCJP

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	

Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	152
Annual Arrivals:	152
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-83
Engine Type:
JT8D-219 Environmental Kit (E_Kit)
Identification:
American Airlines #1
Category:
LCJP

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00

Year:
2010

Annual Departures:	124
Annual Arrivals:	124
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-87
Engine Type:
JT8D-209
Identification:
Allegiant Air Charter #3
Category:
LCJP

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	3
Annual Arrivals:	3
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT

Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Boeing MD-87
Engine Type:
JT8D-209
Identification:
Allegiant Airlines #3
Category:
LCJP

Take Off weight:	66714.00 Kgs
Approach Weight:	56971.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP85-98 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year:
2010

Annual Departures:	14
Annual Arrivals:	14
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Boeing MD-88 Engine Type: JT8D-219 Environmental Kit (E_Kit) Identification: Allegiant Airlines #2 Category: LCJP	Take Off weight:	66714.00 Kgs
	Approach Weight:	56971.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	APU GTCP85-98 (200 HP)
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Air Conditioner (Generic)	Electric	7.00	23.00	0.00	75.00	
Air Start (ACE 180)	Diesel	0.00	7.00	425.00	90.00	
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	37.00	38.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Diesel	24.00	24.00	71.00	50.00	
Cabin Service Truck (Hi-Way F650)	Diesel	10.00	10.00	210.00	53.00	
Catering Truck (Hi-Way F650)	Diesel	7.00	8.00	210.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	
Water Service (Gate Service)	Electric	0.00	12.00	0.00	20.00	

Year: 2010	Annual Departures:	49
	Annual Arrivals:	49
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Bombardier CRJ-100 Engine Type: CF34-3A1 LEC II Identification: SkyWest Delta #1 Category: LCJP	Take Off weight:	36287.00 Kgs
	Approach Weight:	33339.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	APU GTCP 36-150[RR]
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	

Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00

Year:
2010

Annual Departures:	975
Annual Arrivals:	975
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier CRJ-100
Engine Type:
CF34-3A1 LEC II
Identification:
SkyWest United #4
Category:
LCJP

Take Off weight:	36287.00 Kgs
Approach Weight:	33339.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-150[RR]
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	1373
Annual Arrivals:	1373
Annual TGOs:	0

Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier CRJ-200
Engine Type:
CF34-3B
Identification:
SkyWest United #1
Category:
LCJP

Take Off weight:	36287.00 Kgs
Approach Weight:	33339.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-150[RR]
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	67
Annual Arrivals:	67
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Bombardier CRJ-200	Take Off weight:	36287.00 Kgs
Engine Type: CF34-3B	Approach Weight:	33339.00 Kgs
Identification: US Airways #3	Glide Slope:	3.00°
Category: LCJP	APU Assignment:	APU GTCP 36-150[RR]
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG GT-35, Douglas TBL-180)	Diesel	0.00	8.00	88.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Hydrant Truck (F250 / F350)	Diesel	0.00	12.00	235.00	70.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year: 2010	Annual Departures:	339
	Annual Arrivals:	339
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Bombardier CRJ-700	Take Off weight:	36287.00 Kgs
Engine Type: CF34-8C1	Approach Weight:	33339.00 Kgs
Identification: Horizon Air Industries #2	Glide Slope:	3.00°
Category: LCJP	APU Assignment:	APU GTCP 85 (200 HP)
	APU Departure OP Time:	3.50 min
	APU Arrival OP Time:	3.50 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	

Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	988
Annual Arrivals:	988
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier CRJ-700
Engine Type:
CF34-8C1
Identification:
SkyWest Delta #2
Category:
LCJP

Take Off weight:	36287.00 Kgs
Approach Weight:	33339.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 85 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	5
Annual Arrivals:	5
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT

Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier CRJ-700
Engine Type:
CF34-8C1
Identification:
SkyWest United #3
Category:
LCJP

Take Off weight:	36287.00 Kgs
Approach Weight:	33339.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 85 (200 HP)
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	436
Annual Arrivals:	436
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier CRJ-900
Engine Type:
CF34-8C5 LEC
Identification:

Take Off weight:	36287.00 Kgs
Approach Weight:	33339.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 85 (200 HP)

US Airways #1
Category:
LCJP

APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Gasoline	15.00	0.00	97.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	1332
Annual Arrivals:	1332
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier Learjet 25
Engine Type:
CJ610-6
Identification:
GA #9
Category:
SGJB

Take Off weight:	6804.00 Kgs
Approach Weight:	5534.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year:
2010

Annual Departures:	3076
Annual Arrivals:	3076
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Bombardier Learjet 35A/36A (C-21A)
Engine Type:
TFE731-2-2B
Identification:
GA #10
Category:
LMJP

Take Off weight:	8301.00 Kgs
Approach Weight:	6260.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year:
2010

Annual Departures:	676
Annual Arrivals:	676
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Cessna 172 Skyhawk
Engine Type:
IO-360-B
Identification:
GA #2
Category:
SGPP

Take Off weight:	1111.00 Kgs
Approach Weight:	1111.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year

Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	943
Annual Arrivals:	943
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Cessna 208 Caravan
Engine Type:
PT6A-114
Identification:
GA #3
Category:
SGTB

Take Off weight:	5080.00 Kgs
Approach Weight:	4686.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	

Year:
2010

Annual Departures:	7458
Annual Arrivals:	7458
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Cessna 441 Conquest II Engine Type: TPE331-8 Identification: GA #4 Category: SGTP	Take Off weight:	4468.00 Kgs
	Approach Weight:	3821.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	None
	APU Departure OP Time:	13.00 min
	APU Arrival OP Time:	13.00 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	

Year: 2010	Annual Departures:	1279
	Annual Arrivals:	1279
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Cessna 650 Citation III Engine Type: TFE731-2-2B Identification: GA #5 Category: SGJB	Take Off weight:	9072.00 Kgs
	Approach Weight:	6940.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	None
	APU Departure OP Time:	13.00 min
	APU Arrival OP Time:	13.00 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year: 2010	Annual Departures:	2917
	Annual Arrivals:	2917
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT

Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Cessna 650 Citation III
Engine Type:
TFE731-3
Identification:
GA #6
Category:
SGJB

Take Off weight:	9072.00 Kgs
Approach Weight:	6940.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year:
2010

Annual Departures:	129
Annual Arrivals:	129
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Cessna 750 Citation X
Engine Type:
AE3007C Type 1
Identification:
GA #7
Category:
SGJB

Take Off weight:	16193.00 Kgs
Approach Weight:	12982.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	

Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year:
2010

Annual Departures:	159
Annual Arrivals:	159
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Dassault Falcon 50
Engine Type:
TFE731-3
Identification:
MIL #3
Category:
SGJB

Take Off weight:	8709.00 Kgs
Approach Weight:	6622.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-100
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	

Year:
2010

Annual Departures:	187
Annual Arrivals:	187
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
DeHavilland DHC-8-200
Engine Type:
PW123
Identification:
US Airways #5
Category:
SCTP

Take Off weight:	17554.00 Kgs
Approach Weight:	17146.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	0.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	0.00	15.00	107.00	50.00	
Cabin Service Truck (Hi-Way / TUG 660 chasis)	Diesel	0.00	5.00	71.00	53.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	0.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Lavatory Truck (TLD 1410)	Diesel	0.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	0.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
DeHavilland DHC-8-300
Engine Type:
PW123
Identification:
Horizon Air Industries #1
Category:
SCTP

Take Off weight:	17554.00 Kgs
Approach Weight:	17146.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart &						

Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	0.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	0.00	15.00	107.00	50.00	
Cabin Service Truck (Hi-Way / TUG 660 chasis)	Diesel	0.00	5.00	71.00	53.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	0.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Lavatory Truck (TLD 1410)	Diesel	0.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	0.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	1
Annual Arrivals:	1
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Embraer EMB120 Brasilia
Engine Type:
PW118
Identification:
SkyWest United #2
Category:
SCTP

Take Off weight:	10194.00 Kgs
Approach Weight:	10535.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-150[]
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	

Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year: 2010

Annual Departures:	4998
Annual Arrivals:	4998
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Embraer ERJ145
Engine Type:
AE3007A1E Type 3
Identification:
American Eagle
Category:
LCJP

Take Off weight:	18960.00 Kgs
Approach Weight:	16831.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36-150[]
APU Departure OP Time:	3.50 min
APU Arrival OP Time:	3.50 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Diesel	15.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year: 2010

Annual Departures:	1953
Annual Arrivals:	1953
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT

Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Fairchild SA-227-AC Metro III
Engine Type:
TPE331-10
Identification:
AmeriFlight Cargo #4
Category:
SCTP

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Cabin Service Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	44
Annual Arrivals:	44
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Fairchild SA-227-AT Expeditor
Engine Type:
TPE331-10
Identification:
AmeriFlight Cargo #3
Category:
SCTC

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op	Departure Op	Horsepower	Load	Manufactured

		Time (mins)	Time (mins)	(hp)	Factor (%)	Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	15.00	15.00	107.00	50.00	
Cabin Service Truck (Hi-Way / TUG 660 chasis)	Diesel	5.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	7
Annual Arrivals:	7
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Grumman S-2E Tracker
Engine Type:
TPE331-15AW
Identification:
CDF Other #3
Category:
LMTO

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	126
Annual Arrivals:	126
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT

Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Grumman S-2E Tracker
Engine Type:
TPE331-15AW
Identification:
USDA Other #2
Category:
LMTO

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	11
Annual Arrivals:	11
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Gulfstream V-SP
Engine Type:
BR700-710A1-10
Identification:
GA #8
Category:
LGJB

Take Off weight:	34893.00 Kgs
Approach Weight:	30740.00 Kgs
Glide Slope:	3.00°
APU Assignment:	APU GTCP 36 (80HP)
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	0.00	18.00	107.00	55.00	
Belt Loader (Stewart & Stevenson TUG 660)	Gasoline	0.00	15.00	107.00	50.00	

Catering Truck (Hi-Way / TUG 660 chasis)	Diesel	0.00	5.00	71.00	53.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Lavatory Truck (TLD 1410)	Diesel	0.00	0.00	56.00	25.00	
Service Truck (F250 / F350)	Diesel	0.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	2917
Annual Arrivals:	2917
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Lockheed P-3 Orion
Engine Type:
T56-A-14
Identification:
CDF Other #2
Category:
LMTO

Take Off weight:	59874.00 Kgs
Approach Weight:	55111.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	2
Annual Arrivals:	2
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT

Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Lockheed P-3 Orion
Engine Type:
T56-A-14
Identification:
CDF Other #4
Category:
LMTO

Take Off weight:	59874.00 Kgs
Approach Weight:	55111.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	6
Annual Arrivals:	6
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Lockheed P-3 Orion
Engine Type:
T56-A-14
Identification:
USDA Other #4
Category:
LMTO

Take Off weight:	59874.00 Kgs
Approach Weight:	55111.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	4
Annual Arrivals:	4
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Lockheed P-3 Orion
Engine Type:
T56-A-14
Identification:
USDA Other #5
Category:
LMTO

Take Off weight:	59874.00 Kgs
Approach Weight:	55111.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	0.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	0.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures:	5
Annual Arrivals:	5
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Mitsubishi MU-300 Diamond
Engine Type:
JT15D-4 series
Identification:
GA #11
Category:
SGJB

Take Off weight:	6396.00 Kgs
Approach Weight:	5398.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	

Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year:
2010

Annual Departures:	159
Annual Arrivals:	159
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Piper PA-28 Cherokee Series
Engine Type:
IO-320-D1AD
Identification:
GA #12
Category:
SGPP

Take Off weight:	998.00 Kgs
Approach Weight:	898.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	1591
Annual Arrivals:	1591
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:

Piper PA-31 Navajo
Engine Type:
TIO-540-J2B2
Identification:
AmeriFlight Cargo #1
Category:
SGPB

Take Off weight:	2495.00 Kgs
Approach Weight:	2495.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	507
Annual Arrivals:	507
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Piper PA-31 Navajo
Engine Type:
TIO-540-J2B2
Identification:
AmeriFlight Cargo #2
Category:
SGPB

Take Off weight:	2495.00 Kgs
Approach Weight:	2495.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	357
Annual Arrivals:	357
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT

Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Piper PA-32 Cherokee Six
Engine Type:
TIO-540-J2B2
Identification:
AmeriFlight
Category:
SGPP

Take Off weight:	1361.00 Kgs
Approach Weight:	1225.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	5
Annual Arrivals:	5
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Raytheon Beech 1900-C
Engine Type:
PT6A-65B
Identification:
AmeriFlight Cargo #5
Category:
SCTP

Take Off weight:	7031.00 Kgs
Approach Weight:	6777.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD)	Gasoline	0.00	40.00	107.00	75.00	

Year: 2010	Annual Departures:	32
	Annual Arrivals:	32
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Raytheon Beech 55 Baron
Engine Type:
TIO-540-J2B2
Identification:
CDF #1
Category:
SGPB

Take Off weight:	2121.00 Kgs
Approach Weight:	2204.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year: 2010	Annual Departures:	3
	Annual Arrivals:	3
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Raytheon Beech 99
Engine Type:
PT6A-36
Identification:
AmeriFlight Cargo #6
Category:
SCTP

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min

Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Aircraft Tractor (Stewart & Stevenson TUG MC)	Diesel	0.00	5.00	86.00	80.00	
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	20.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	
Service Truck (F250 / F350)	Diesel	7.00	8.00	235.00	20.00	

Year:
2010

Annual Departures:	39
Annual Arrivals:	39
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Raytheon Beech Baron 58
Engine Type:
TIO-540-J2B2
Identification:
GA #1
Category:
SGPB

Take Off weight:	2495.00 Kgs
Approach Weight:	2495.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures:	3172
Annual Arrivals:	3172
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT

Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Raytheon King Air 100
Engine Type:
PT6A-28
Identification:
CDF Other #5
Category:
SGTB

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Baggage Tractor (Stewart & Stevenson TUG MA 50)	Gasoline	17.00	18.00	107.00	55.00	
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	
Ground Power Unit (TLD, 28 VDC)	Diesel	0.00	40.00	71.00	75.00	

Year:
2010

Annual Departures:	2
Annual Arrivals:	2
Annual TGOs:	0
Taxi Out Time:	Determined by Sequencing model
Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Rockwell Commander 500
Engine Type:
TIO-540-J2B2
Identification:
CDF Other #6
Category:
SGPP

Take Off weight:	2495.00 Kgs
Approach Weight:	2495.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year: 2010	Annual Departures:	6
	Annual Arrivals:	6
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Rockwell Commander 690
Engine Type:
TPE331-10
Identification:
USDA Other #1
Category:
SGPP

Take Off weight:	5670.00 Kgs
Approach Weight:	5021.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min
Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year: 2010	Annual Departures:	35
	Annual Arrivals:	35
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name:
Rockwell Commander 700
Engine Type:
IO-320-D1AD
Identification:
GA #13
Category:
SGPP

Take Off weight:	2495.00 Kgs
Approach Weight:	2495.00 Kgs
Glide Slope:	3.00°
APU Assignment:	None
APU Departure OP Time:	13.00 min
APU Arrival OP Time:	13.00 min

Gate Assignment: None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Fuel Truck (F750, Dukes Transportation Services, DART 3000 to 6000 gallon)	Diesel	0.00	10.00	175.00	25.00	

Year:
2010

Annual Departures: 15264
Annual Arrivals: 15264
Annual TGOs: 0
Taxi Out Time: Determined by Sequencing model
Taxi In Time: Determined by Sequencing model

Departure Quarter-Hourly Operational profile: DEFAULT
Departure Daily Operational Profile: DEFAULT
Departure Monthly Operational Profile: DEFAULT
Arrival Quarter-Hourly Operational profile: DEFAULT
Arrival Daily Operational Profile: DEFAULT
Arrival Monthly Operational Profile: DEFAULT
Touch & Go Quarter-Hourly Operational profile: DEFAULT
Touch & Go Daily Operational Profile: DEFAULT
Touch & Go Monthly Operational Profile: DEFAULT

Aircraft Name:
Rockwell OV-10 Bronco
Engine Type:
T76-G-12A
Identification:
CDF Other #1
Category:
SMTA

Take Off weight: 5577.00 Kgs
Approach Weight: 4376.00 Kgs
Glide Slope: 3.00°
APU Assignment: None
APU Departure OP Time: 13.00 min
APU Arrival OP Time: 13.00 min
Gate Assignment: None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	5.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	5.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year:
2010

Annual Departures: 83
Annual Arrivals: 83
Annual TGOs: 0
Taxi Out Time: Determined by Sequencing model
Taxi In Time: Determined by Sequencing model

Departure Quarter-Hourly Operational profile: DEFAULT
Departure Daily Operational Profile: DEFAULT
Departure Monthly Operational Profile: DEFAULT
Arrival Quarter-Hourly Operational profile: DEFAULT
Arrival Daily Operational Profile: DEFAULT
Arrival Monthly Operational Profile: DEFAULT
Touch & Go Quarter-Hourly Operational profile: DEFAULT
Touch & Go Daily Operational Profile: DEFAULT
Touch & Go Monthly Operational DEFAULT

Profile:

Aircraft Name: Rockwell OV-10 Bronco Engine Type: T76-G-12A Identification: MIL #4 Category: SMTA	Take Off weight:	5577.00 Kgs
	Approach Weight:	4376.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	None
	APU Departure OP Time:	13.00 min
	APU Arrival OP Time:	13.00 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	5.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	5.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year: 2010	Annual Departures:	29
	Annual Arrivals:	29
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

Aircraft Name: Rockwell OV-10 Bronco Engine Type: T76-G-12A Identification: USDA Other #3 Category: SMTA	Take Off weight:	5577.00 Kgs
	Approach Weight:	4376.00 Kgs
	Glide Slope:	3.00°
	APU Assignment:	None
	APU Departure OP Time:	13.00 min
	APU Arrival OP Time:	13.00 min
	Gate Assignment:	None

Assigned GSE/AGE:	FUEL	Arrival Op Time (mins)	Departure Op Time (mins)	Horsepower (hp)	Load Factor (%)	Manufactured Year
Cart (Taylor Dunn)	Diesel	5.00	5.00	25.00	50.00	
Generator (Generic)	Diesel	0.00	120.00	158.00	82.00	
Lift (Generic)	Diesel	5.00	5.00	115.00	50.00	
Other (Generic)	Diesel	0.00	0.00	140.00	50.00	

Year: 2010	Annual Departures:	2
	Annual Arrivals:	2
	Annual TGOs:	0
	Taxi Out Time:	Determined by Sequencing model
	Taxi In Time:	Determined by Sequencing model

Departure Quarter-Hourly Operational

profile:	DEFAULT
Departure Daily Operational Profile:	DEFAULT
Departure Monthly Operational Profile:	DEFAULT
Arrival Quarter-Hourly Operational profile:	DEFAULT
Arrival Daily Operational Profile:	DEFAULT
Arrival Monthly Operational Profile:	DEFAULT
Touch & Go Quarter-Hourly Operational profile:	DEFAULT
Touch & Go Daily Operational Profile:	DEFAULT
Touch & Go Monthly Operational Profile:	DEFAULT

GSE Population

Baseline, Fresno Yosemite International

None.

Parking Facilities

Baseline, Fresno Yosemite International

None.

Roadways

Baseline, Fresno Yosemite International

Roadway Name: Roadway

Vehicle Type:	Default Fleet Mix (all types, fuels & ages)
Fuel:	Gasoline
Manufactured Year:	2010
Average Speed:	35 mph
Roadway Length:	1.00 miles
Release Height:	

Width:	20.00 meters		
Point:	X (meters)	Y (meters)	Elevation (meters)
1	0.00	0.00	0
2	100.00	0.00	0

Year: 2010

Traffic Volume:	2.26202e+007
Quarter-Hourly Operational profile:	DEFAULT
Daily Operational profile:	DEFAULT
Monthly Operational Profile:	DEFAULT

The user has NOT edited the following emission factors:

CO (g/veh):	8.24
THC (g/veh):	-1
NMHC (g/veh):	0.647
VOC (g/veh):	0.655
NOX (g/veh):	1.154
SOX (g/veh):	0.0088
PM-10 (g/veh):	0.0415
PM-25 (g/veh):	0.0255
TOG (g/veh):	
BENZENE (g/veh):	0.020413
MTBE (g/veh):	0
1,3-BUTA (g/veh):	0.00285
FORMALDEHYDE (g/veh):	0.007709
ACETALDEHYDE (g/veh):	0.005514
ACROLEIN (g/veh):	0.000339

Stationary Sources

Baseline, Fresno Yosemite International

None.

Training Fires	Baseline, Fresno Yosemite International
None.	

Gates	Baseline, Fresno Yosemite International
None.	

Taxiways	Baseline, Fresno Yosemite International
None.	

Runways	Baseline, Fresno Yosemite International
None.	

Taxipaths	Baseline, Fresno Yosemite International
None.	

Configurations	Baseline, Fresno Yosemite International
None.	

Buildings	Baseline, Fresno Yosemite International
None.	

Discrete Cartesian Receptors	Baseline, Fresno Yosemite International
None.	

Discrete Polar Receptors	Baseline, Fresno Yosemite International
None.	

Cartesian Receptor Networks	Baseline, Fresno Yosemite International
None.	

Polar Receptor Networks	Baseline, Fresno Yosemite International
None.	

User-Created Aircraft	Baseline, Fresno Yosemite International
None.	

User-Created GSE	Baseline, Fresno Yosemite International
None.	

User-Created APU	Baseline, Fresno Yosemite International
None.	

Appendix C - 2

Noise

CHAPTER 4.0
AFFECTED ENVIRONMENT

4.1 INTRODUCTION

This chapter provides a description of the current demographic physical, natural, and human environment within the Fresno Yosemite International Airport (FAT) study areas established for this Environmental Assessment/Environmental Impact Report (EA/EIR). The environmental impacts of the alternatives along with the applicable mitigation are presented in **Chapter 5, Environmental Consequences and Mitigation Measures**. Two study areas were established by using commonly accepted planning techniques and prior environmental experience to determine the extent of potential environmental impacts. The Generalized Study Area (GSA) and Detailed Study Area (DSA) are depicted in **Figure 4.1-1**.

The GSA was used to evaluate environmental and cumulative issues, and to describe features and quantify both potential direct and indirect impacts. The GSA encompasses a large geographic area and was established to quantify potential effects that may occur in the communities of Fresno County, the City of Fresno, and the City of Clovis. Environmental categories in this area included a review for potential project impacts to noise-sensitive land uses; air quality; social and/or socioeconomic areas; and Section 4(f) and Section 6(f) properties. The GSA is approximately 2,750 acres, and is based on the 2004-estimated extent of the community noise equivalent level (CNEL) 65 decibel (dB) contour and includes the area proposed for a new stormwater detention basin.

The DSA was established to evaluate more specific, direct impact issues such as wetlands, floodplains, biotic communities, and hazardous materials. The DSA is confined to FAT's current properties and areas adjacent to the southeastern and northwestern portions of the airfield, and represents the locations where direct disturbance would occur from the alternatives studied in detail. The DSA is approximately 1,265 acres.

FAT is the principal commercial service airport in California's Central Valley and serves a six-county region that includes Fresno, Kings, Madera, Mariposa, Merced, and Tulare Counties, an area that covers nearly 18,000 square miles. See **Figure 4.1-2**.

The FAT Land Use Policy Plan and the Airport and Environs Plan are adopted by the County Airport Land Use Commission (ALUC), as required by Section 21675 of the California Public Utilities Code. These plans establish criteria that the ALUC would use in evaluation of general and specific plans, zoning ordinances, building regulations, and airport master plans proposed for adoption or amendment, in the FAT vicinity. The Airport and Environs Plan is proposed to be updated to reflect the recent Part 150 update, projects from the FAT Airport Master Plan (AMP) and this EA/EIR upon completion and approval.

4.2 EXISTING LAND USE, COMMUNITY SERVICES, AND RECREATION

4.2.1 EXISTING LAND USE

A number of regional and local agencies and jurisdictions have regulatory authority within the GSA, including Fresno County, the City of Fresno, and the City of Clovis. Fresno County lands within the GSA located on the southeast side of FAT, with a small portion of land west of the Airport. Lands to the southeast are classified as agriculture, and limited development currently exists, while lands to the west are predominantly residential. The GSA consists of lands primarily within the City of Fresno. Commercial and industrial land uses surround FAT on the north and south sides, which are considered to be airport compatible land uses. Residential land uses are found on the northwest side of FAT. Most of the homes in this area date to the same time period, the 1950s and early 1960s, when FAT was expanded for commercial aviation. City of Clovis lands that fall within the GSA are located near the East Airways Boulevard/West Dakota Avenue intersection and near the North Winery Avenue/East Ashlan Avenue intersection on the northwest side of FAT. These land uses are classified as commercial/industrial and residential uses, respectively. Other land uses within the GSA besides the Airport are used for parks and recreation. The area known locally as “leaky acres” is located immediately northwest of FAT, along with another stormwater detention basin.

Existing land uses within the DSA primarily consist of aviation related development that is associated with FAT as well as a few commercial buildings and a golf course (Airways Golf Course). This EA/EIR contains documentation (in the form of a Land Use Assurance letter in **Appendix C**) to support the City of Fresno’s assurance under 49 USC 47107(a)(10), formerly Section 511(a)(5) of the 1982 Airport Act, that appropriate action, including the adoption of zoning laws, would be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the FAT to activities and purposes compatible with normal Airport operations, including landing and takeoff of aircraft.

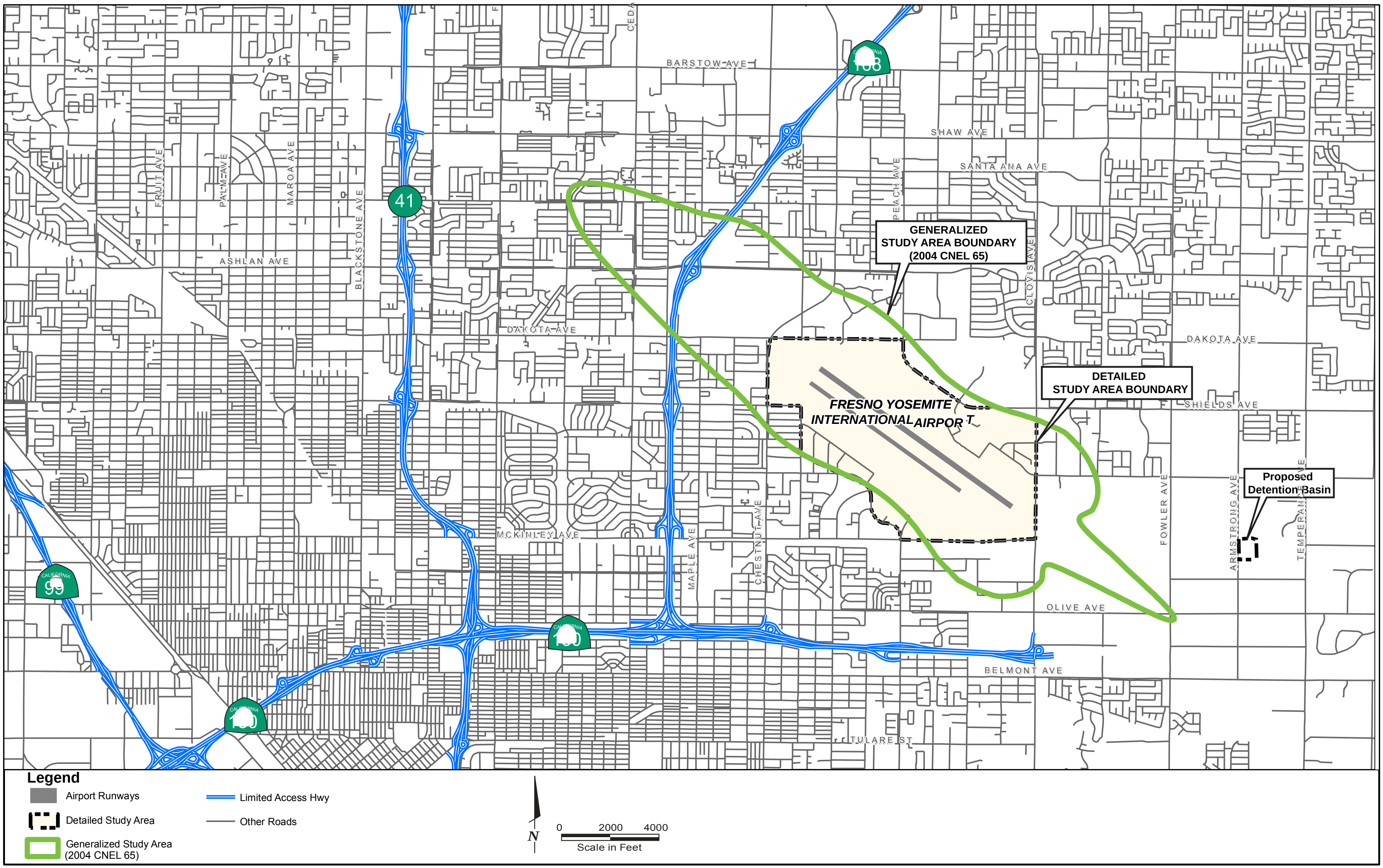
4.2.2 COMMUNITY SERVICES

Community services include public services and utility and service systems. Public services include fire and police protection, schools, libraries, health care centers, recreation centers, day care centers, and religious facilities. The City of Fresno Fire Department serves FAT and operates one fire station located at the Airport. Another City fire facility, Station #10, is located adjacent to FAT on the northeast side. The Fire Department also provides emergency medical services besides fire fighting capabilities. Police protection is provided by Fresno County and the City of Fresno, with officers stationed at Airport security areas. No library facilities, health services, neighborhood community facilities, or religious facilities are located within the DSA or GSA. However, there are four schools located within the GSA. Utilities and service systems include water supply, sanitary sewage, power, natural gas, solid waste disposal, and telecommunications and cable. Each jurisdiction (i.e., Fresno County, City of Fresno, and City of Clovis) either maintains or supports utilities and service systems commensurate with the level of demand within the study areas.

4.2.3 RECREATION

An overview of parks and recreation properties within the DSA and GSA is presented below. Also discussed below are four schools that have recreation facilities available for public use. For a location of these facilities see **Figure 4.2-1**.

1. <u>CW Large Park</u> is located on North Millbrook Avenue, approximately 1.5 miles from the northwest side of FAT. Facilities include recreation fields and picnic tables at this 7-acre neighborhood park.



FRESNO YOSEMITE INTERNATIONAL AIRPORT

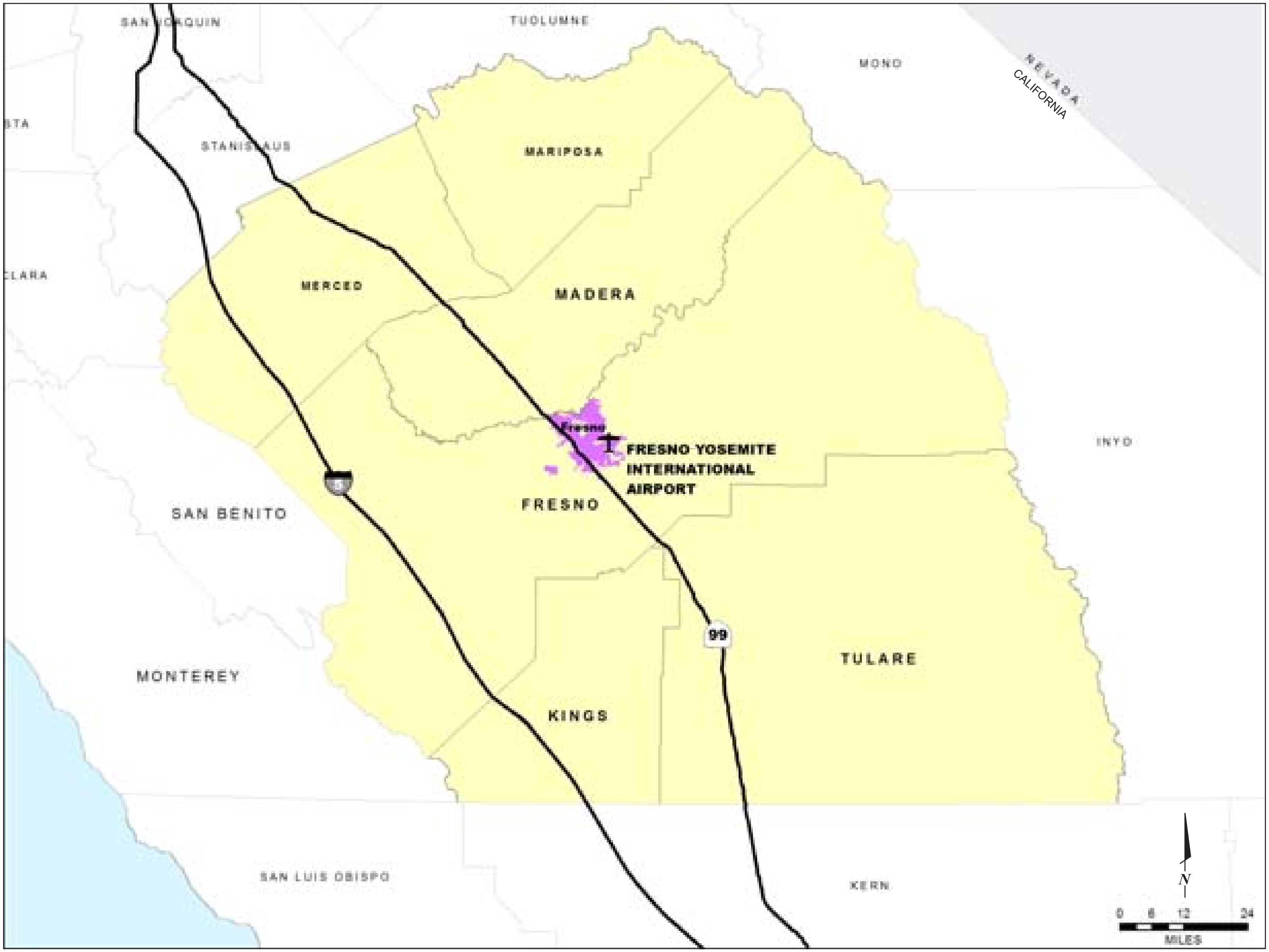
GENERALIZED AND DETAILED STUDY AREA

Fresno Yosemite International Airport
Airport Improvements EA/EIR
Fresno, California

February 2011
28066717

FIGURE 4.1-1

1/25/11 vsa/hk .T:\28066717 Fresno Airport\EA-EIR 2011\4.1-1_gen_and_detailed_study_area.ai



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Legend

FAT Six-County Service Area

City of Fresno

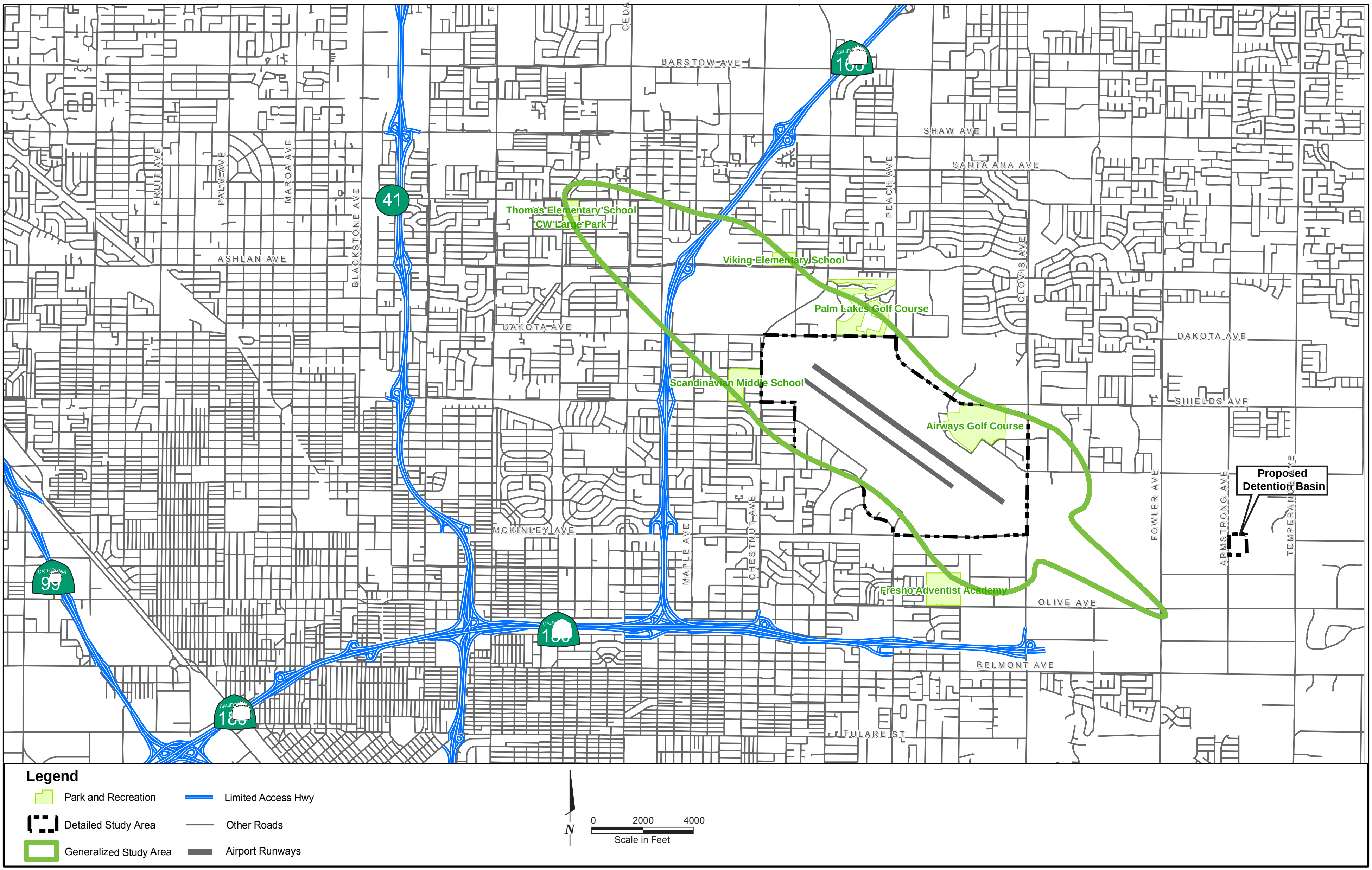
FAT SIX-COUNTY SERVICE AREA

February 2011
28066717

Fresno Yosemite International Airport
Airport Improvements EA/EIR
Fresno, California

FIGURE 4.1-2

1/25/11 vsa/hk ..T:\28066717 Fresno Airport \EA-EIR 2011\4.1-2_6-counties svc area.cdr



Source: City of Fresno, Department of Planning and Community Development

FRESNO YOSEMITE INTERNATIONAL AIRPORT

PARKS AND RECREATION PROPERTIES

Fresno Yosemite International Airport
Airport Improvements EA/EIR
Fresno, California

February 2011
28066717

1/25/11 vsa/hk ..T:\28066717 Fresno Airport\EA-EIR 2011\4.2-1_parks_and_recreation_properties.ai

FIGURE 4.2-1

2. Palm Lakes Municipal Golf Course is located on East Dakota Avenue, and adjacent to the northeast side of FAT. Facilities include an 18-hole golf course, practice putting greens, and restrooms, on 62 acres of land. The golf course is currently closed.

3. Airways Municipal Golf Course is located on East Shields Avenue, and adjacent to the north side of FAT. Facilities include an 18-hole golf course, driving range, practice putting greens, pro shop, and a coffee shop, on 80 acres. The golf course is open year-round. Of note, Airways Golf Course is slated to be removed and replaced with aviation-related development sometime after 2015.

4. Viking Elementary School is located on North Winery Avenue, approximately 1 mile from the northwest side of FAT. Facilities include playground equipment, basketball courts, and picnic tables.

5. Thomas Elementary School is located on North Millbrook Avenue, approximately 1.5 miles from the northwest side of FAT. Facilities include playground equipment, basketball courts, and picnic tables. This school is adjacent to CW Large Park.

6. Scandinavian Middle School is located on North Sierra Vista Avenue, approximately ¼ mile from the west side of FAT. Facilities include recreation fields, basketball courts, and picnic tables.

7. Fresno Adventist Academy is located on East Olive Avenue, approximately ¼ mile from the south side of FAT. Facilities include playground equipment, recreation fields, basketball courts, and picnic tables.

Of these seven park and recreation properties, only CW Large Park has the potential for eligibility as a Section 4(f) property in the GSA. However, after review of eligibility requirements it was found that CW Large Park is not a Section 4(f) property. Additionally, there are no historic, architectural, or archaeological properties protected under Section 4(f). Further, there are no existing resources within the DSA or GSA identified as Section 6(f) properties. Additional information regarding park and recreation properties and historic properties can be referenced in **Chapters 5.9** and **5.10**, respectively.

4.3 SOCIAL AND DEMOGRAPHIC PROFILE

4.3.1 POPULATION

Population trends from 1990 through 2030 in the vicinity of FAT are shown in **Table 4.3-1**. Growth in the Airport vicinity was higher than the California average for the period from 1990 to 2000 period, with the City of Clovis experiencing the largest gain at nearly 36 percent. Anticipated growth during the period from 2000 to 2010 is expected to be the greatest in the City of Clovis. The City of Fresno is anticipated to experience the largest gain in people from 2010 to 2020. More moderate growth is forecasted for the Airport vicinity during the 2020 to 2030 period. This growth is attributed to a net in-migration, as coastal Californians moved toward the Fresno region due to high housing costs, versus growth as a result of natural increase (e.g., births exceeding deaths).

Table 4.3-1: Historical and Forecast Population

Area	1990 Population	2000 Population	2010 Population	2020 Population	2030 Population	1990-2000 Growth	2000 - 2010 Growth	2010-2020 Growth	2020-2030 Growth
Fresno County	667,490	799,407	949,961	1,114,654	1,297,476	19.8%	18.8%	17.3%	16.4%
City of Fresno	354,091	427,652	[a] 495,424	[b] 725,000	[b] 790,000	20.8%	15.8%	46.3%	9.0%
City of Clovis	50,323	68,468	[c] 96,971	N/A	[c] 182,775	36.1%	41.6%	N/A	N/A
State	29,760,021	33,871,648	39,246,767	43,851,741	48,110,671	13.8%	15.9%	11.7%	9.7%

Source: U.S. Census Bureau, 1990 and 2000; City of Fresno, 2007; URS, 2002; City of Clovis, 1993 and 2002.

Notes: a = 2011 population number from City of Fresno (City of Fresno, 2007. Demographic Characteristics. http://www.fresno.gov/NR/rdonlyres/FE90F042-7F9A-46D1-BB1C-686A97C3C933/0/DemographicsFresnoCity.pdf)
b = 2020 and 2025 population from City of Fresno Draft General Plan EIR (URS Corporation [URS], 2002. The City of Fresno Draft Master Environmental Impact Report for the 2025 Fresno General Plan. May 24)
c = 2010 and 2030 population from City of Clovis General Plan (City of Clovis, 1993. The City of Clovis General Plan Program 1993. City of Clovis, Planning Division. April 26; City of Clovis, 2002. City of Clovis Community Development Agency and Planning and Development Services Department. September 3.)

Unlike the Airport vicinity, only portions of the GSA experienced significant population growth from 1990 to 2000, with an average increase of 7.3 percent, which was well below Fresno County's growth rate. The Fresno Council of Governments (COG) has forecasted all of the future population and land use changes. The COG approved forecasts began in 2005 and extend to the year 2025, in 5-year increments. Fresno COG has developed sub-regions called Traffic Analysis Zones (TAZs) for forecasting purposes. Fresno COG predicts modest overall population growth for the GSA from 2005 to 2025, at nearly 5 percent. A large growth increase is predicted over a 20-year period in the areas northwest and southeast of FAT, with some TAZs having growth rates topping out at nearly 86 percent. Alternatively a decline is anticipated from 2005 to 2025, mainly in areas southeast of FAT, with some TAZs declining 60 percent or more. Additional information regarding population is provided in **Appendix D**.

4.3.2 RACIAL AND ETHNIC COMPOSITION

The majority of the ethnicity within the GSA is considered white; however, the GSA's population has recently became more diversified, between 1990 and 2000. This is evidenced by the fact that the percentage of white population dropped by an average of 20.4 percent over a 10-year period. African American populations were relatively stable during this 10-year period and other ethnic groups increased. Nearly all GSA Census Tracts experienced a gain in the number of Asians and/or Pacific Islanders from 1990 to 2000. The GSA has few American Indians, and little change in their population percentages was seen over the 10-year period. While Latino populations are not an official ethnic category due to reporting inaccuracies, it is estimated that Latino residents within the GSA moderately increased by 13 percent from 1990 to 2000. Additional information regarding race is provided in **Appendix D**.

4.3.3 EMPLOYMENT

Unemployment rates in Fresno County have been consistently higher than the state's average unemployment rate, as shown in **Table 4.3-2.** Fresno County's economy is mainly agriculturally based and is considered the agricultural commercial hub of the San Joaquin Valley area.

Table 4.3-2: Historical Unemployment Rates

Area	2001	2002	2003	2004	2005
Fresno County	9%	10.5%	11.8%	11.6%	10.7%
California	5.4%	6.2%	6.8%	6.7%	5.4%

Source: EDD, 2006

Fresno COG expects Fresno County's total employment to grow by 24 percent from 2005 (373,494 employed) to 2015 (461,541 employed). Overall, the industries with the most growth over this period are the service and educational services, which are projected to have increases of 41 percent and 33 percent, respectively, from 2005 to 2015.

4.3.4 INCOME AND HOUSING AND DISTRIBUTION

Median household income levels for the Census Tracts within the GSA increased by over $8,000 from 1990 to 2000 (U.S. Census Bureau, 1990 and 2000). These median household incomes are well above the U.S. Department of Housing and Urban Development, Health and Human Services Poverty Guidelines for a family of four in 1990 and 2000.

The number of residents considered to be below the poverty level is another indicator of income distribution. Overall, the GSA census tracts experienced a moderate gain in the number of people below the poverty level from 1990 to 2000, at 5.2 percent. Additional information regarding income and housing is provided in **Appendix D**.

4.4 PHYSICAL AND NATURAL ENVIRONMENT

Fresno County is located in the center of California's San Joaquin Valley, stretching approximately 95 miles from the Pacific Coast Range Mountains to the eastern slope of the Sierra Nevada Mountains. The Pacific Range Mountains are the dominant feature on the west side of the County that transitions into a large agricultural belt that generally extends between Interstate 5 (I-5) and State Route (SR) 99. The urbanized and suburbanized areas of the county generally are situated along SR 99, including the City of Fresno and FAT. The Sierra Nevada foothills and Sierra Nevada Mountains lie farther to the east and are the most dominant land use feature on the east side of the county. The San Joaquin River generally flows east/west on the north side of the City of Fresno, while the Kings River generally flows northeast/southwest on the south side of the City of Fresno. Kings Canyon/Sequoia National Park is located approximately 40 miles to the east of FAT.

As previously stated, FAT is located on the San Joaquin Valley floor, with few visually significant features. The openness of the area provides views of the Pacific Coast Range Mountains and the eastern slope of the Sierra Nevada on clear days. Unlike coastal California, the San Joaquin Valley is not subject to microclimates with wide temperature ranges. Temperatures at FAT range from low 40s Fahrenheit (°F) in the winter to the high 90s°F and over 100°F in the summer/early fall. Fog conditions are often present in the early morning hours at various times throughout the year. The tule fog phenomenon that occurs during winter months can result in delays at FAT (ceiling and visibility are lower than the approach minimums associated with the Category III instrument landing system), these conditions occur more than one percent of the time. The Category III instrument landing system enables aircraft to land in zero ceiling/zero visibility conditions provided that the aircraft is properly equipped and the pilots are properly trained.

4.4.1 NOISE

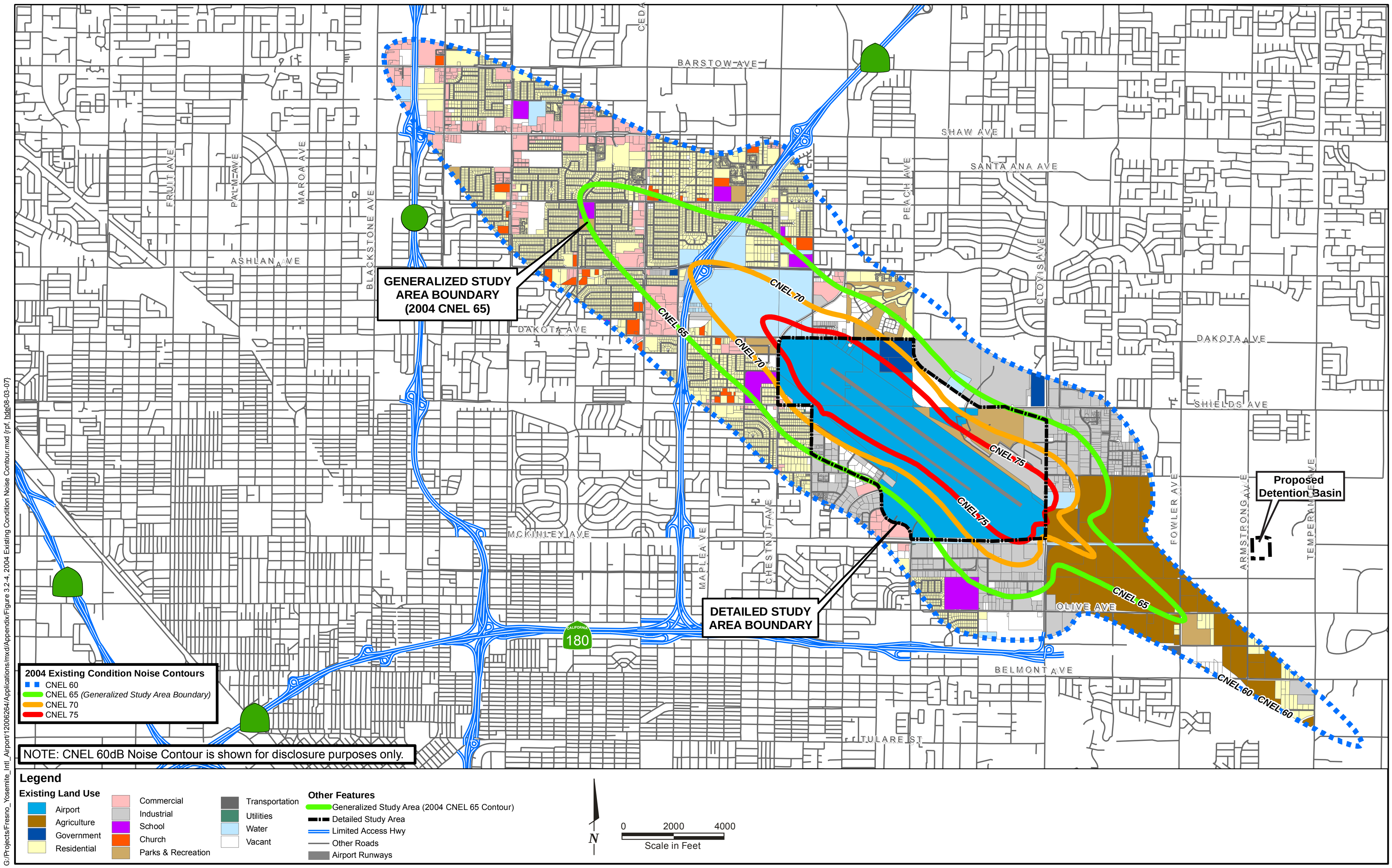
The base year selected for the noise analysis at FAT in this EA/EIR is 2004. The number of aircraft operations used to model the 2004 existing condition was obtained from the Federal Aviation Administration (FAA) Terminal Area Forecast (TAF). Annual operations for the 2004 existing condition totaled 163,971, with jet operations accounting for approximately 36 percent of the total aircraft operations and the remaining 64 percent consisting of piston, turboprop, and helicopter operations. Since this time the total operations have been slightly lower, therefore 2004 numbers represent a conservative approach compared to current TAF operation numbers. Airport layout, runway use, flight tracks, flight track use, and flight profiles, were obtained from the *Fresno Yosemite International Airport Part 150 Update Study (Noise Exposure Map, September 2004 and Noise Compatibility Program, November 2005)* (HMMH, 2004 and 2005) for use in this EA/EIR. On July 6, 2005 (70 FR 50437–50438), the FAA determined that the noise exposure maps submitted by the City of Fresno were in compliance with applicable requirements under 14 Code of Federal Regulations (CFR) Part 150. On July 28, 2008, the FAA issued a Record of Approval for the FAT Noise Compatibility Program.

Noise exposure levels are depicted as CNEL contours. CNEL contours are a graphical representation of how the noise from aircraft operations at FAT is distributed over the surrounding area on an average day of a given year. FAA defines the CNEL 65 dB contour as the threshold of noise compatibility with residential land uses. The *CEQA Guidelines* also specify the CNEL 65 dB contour as significant (California Governor's Office of Planning and Research, 2001).

The 2004 existing condition aircraft noise contours were superimposed over the land use base map, as shown in **Figure 4.4-1**, and land use, housing and population estimates associated with these contours were estimated using GIS. Land use within the 2004 existing condition CNEL 65 dB contour includes noise-sensitive land use such as residences, schools, and churches. It was determined through GIS analysis that the off-airport land uses include 323.5 acres of residential uses within the 65 CNEL and greater contour. Approximately 2,447 households and 6,584 people reside within the CNEL 65 dB and greater noise contours in the 2004 existing condition. Additional information for noise, including relevant tables and figures, is provided in **Appendix B**.

4.4.2 SURFACE TRANSPORTATION/TRAFFIC

Regional access to the Fresno-Clovis metropolitan area is provided via SR 99, which is also known as the Golden State Route. SR 99 is a northwest-southeast oriented highway that runs through California's Central Valley and links Madera, Mariposa, Merced, Kings, and Tulare Counties to the Fresno-Clovis metropolitan area. Locally, SR 99 provides links to SR 41 and SR 180, which are the highways that serve the City of Fresno. SR 168 is accessed via SR 180 and serves the City of Clovis area. Regional



FRESNO YOSEMITE INTERNATIONAL AIRPORT

2004 EXISTING CONDITION NOISE CONTOURS

Fresno Yosemite International Airport
Airport Improvements EA/EIR
Fresno, California

February 2011
28066717

FIGURE 4.4-1

1/25/11 vsa/hk ..T:\28066717 Fresno Airport\EA-EIR 2011\4.4-1_2004 Existing Condition Noise Contour.ai travelers to and through the GSA would use SR 99, SR 41, SR 168, and SR 180. Access within the GSA and to FAT is provided by series of local roadways. Smaller-scale highways, arterials, and roads provide direct access to the Airport vicinity. Portions of SR 41 experienced a deficient Level of Service (LOS) in 2002 at LOS E or greater due to intra-regional congestion. All other roadways/highways operated at an acceptable LOS in 2002, at LOS D or better. Little land development has occurred within the GSA over the last seven years; thus, traffic demand in the GSA has not changed significantly.

4.4.3 AIR QUALITY

The GSA is located in Fresno County, which is within the San Joaquin Valley Air Basin (SJVAB), an 8-county area in central California that includes the entire counties of Fresno, Kings, Madera, Merced, Tulare, San Joaquin, Stanislaus, and the northern portion of Kern County. A variety of federal, state, and local regulations are used to protect and manage air quality conditions in Fresno County, and the Fresno-Clovis area. Both the San Joaquin Valley Air Pollution Control District (SJVAPCD) and California Air Resources Board (CARB) operate several ambient air monitoring sites in Fresno County as part of their state and local air monitoring programs. These stations are intended to sample and record outdoor levels of the U.S. Environmental Protection Agency (U.S. EPA) and California Environmental Protection Agency criteria air pollutants. Four air monitoring stations are located within 5 miles of FAT. The highest recorded 8-hour ozone concentration in 2005 was 0.111 parts per million (ppm), recorded at the First Street site. This value is above the ozone National Ambient Air Quality Standards (NAAQS) and is considered to be in nonattainment because the 3-year design value (2003–2005) is above the standard level of 0.08 ppm. All of the measured concentrations in the vicinity of FAT for 2005 for all other criteria pollutants were below their respective thresholds.

The SJVAB has been designated by U.S. EPA as a Serious Ozone Nonattainment Area for the 8-hour ozone standard. Under the Federal Clean Air Act (CAA), this designation signifies that violations of NAAQS for this pollutant have occurred within this region, and that the area must be brought into attainment with the standard by June 2013. Fresno County (and the entire SJVAB) is also designated as a Serious Nonattainment Area for particulate matter at 10 microns or less (PM_{10}), a Nonattainment Area for the particulate matter at 2.5 microns or less ($PM_{2.5}$), and attainment or unclassified for the other U.S. EPA criteria air pollutants for which there are NAAQS. The Fresno-Clovis urbanized area, which includes the GSA, is designated as Attainment/Maintenance for carbon monoxide (CO). On the state level, the Fresno-Clovis area is in attainment of all of the California Ambient Air Quality Standards (CAAQS), with the exception of ozone and particulate matter. However, air quality in the San Joaquin Valley has improved greatly in the past few years as air quality plans and regulations have been adopted and implemented.

Most airports (including FAT) generate air emissions from the following general source categories: aircraft; ground service equipment (GSE); motor vehicles traveling to, from, and moving about the Airport site; fuel storage and transfer facilities; a variety of stationary sources (i.e., steam boilers, backup generators, etc.); an assortment of aircraft maintenance activities (i.e., painting, cleaning, and repair); routine airfield, roadway, and building maintenance activities (i.e., cleaning, painting, and repair); and periodic construction activities for new projects or improvements to existing facilities. Additional information regarding air quality is provided in **Appendix E**.

According to most international reviews, aviation emissions comprise a small but potentially important percentage of anthropogenic (human-made) greenhouse gases and other emissions that contribute to global warming. The Intergovernmental Panel on Climate Change estimates that global aircraft emissions account for about 3.5 percent of the total quantity of greenhouse gas from human activities.[1] In terms of U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts “for about 3 percent of total U.S. greenhouse gas emissions from human sources” compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent).[2]

FAT focuses on achieving energy efficiency by minimizing waste and maximizing recycling efforts. The following are the operational and design measures currently used or planned for implementation at FAT to minimize and reduce greenhouse gases (GHG)s:

- Unpaved airfield areas are mowed or sprayed to limit weeds (rather than disking) and reduce dust.
- Procedures are followed to open additional exit booths when the number of vehicles waiting to exit airport parking lots exceeds a specified amount of stacking. The self-pay, automated parking lot exit lane reduces dwell time and thereby increases throughput, reducing automobile idling time and reducing stationary emissions.
- Routine maintenance and wet sweeping occurs during construction of airport service roads, taxiways, and runways to remove dirt and tire wear debris.
- Consolidated ready/return rental car facility is directly adjacent to the terminal area, eliminating the need for shuttle buses, and reducing carbon dioxide (CO_2) emissions. This new facility includes state-of-the-art car wash, fuel system, and oil/water separators installed to ensure clean discharge and reduce concentrations of impurities that enter into the drainage system.
- The passenger loading bridge uses electrically powered ground power and pre-conditioned air units for parked aircraft, thereby reducing the use of fossil-fueled aircraft auxiliary power units and ground power units.
- Pushback tugs for aircraft movement from the terminal are used whenever possible to avoid aircraft engines start up until powered out.
- The Airport’s onsite solar facility generates 4.2 megawatts/hr per year of electricity.
- Use of cool roofs at the terminal facility.

The recently commissioned solar power generating facility not only reduces the energy cost at FAT but also has a beneficial effect on the entire San Joaquin Valley, due to reduced hydrocarbon emissions and improved air quality. This facility is predicted to reduce 93,800 pounds of nitrogen oxides (NO_x), 70,400 pounds of sulfur oxides (SO_x), and over 1 million pounds of CO_2 over the 30-year design life.

4.4.4 HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTES

The types, characteristics, and occurrences of hazardous materials and other similarly regulated substances at FAT are typical of most metropolitan airports that offer commercial, cargo, military, and general aviation

1 Intergovernmental Panel on Climate Change Report as referenced in U.S. General Accounting Office (GAO) *Environment: Aviation’s Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow*; GAO/RCED-00-57, February 2000, p. 4.

2 Ibid, p. 14; GAO cites available EPA data from 1997.

service. These include the fueling, servicing, and repair of aircraft; use of GSE and motor vehicles; the operation and maintenance of the airfield, terminal complex and parking facilities; and a range of other special purposes connected with aviation (i.e., air cargo facilities, navigation, and air traffic control functions). The largest quantities of substances used at FAT that are classifiable as hazardous include aircraft and motor vehicle fuels. Other, smaller amounts of petroleum products (e.g., lubricants and solvents), waste materials (e.g., used oils, filters, cleaning residues, and spent batteries), and manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam, de-icing fluids) are stored in various locations throughout at FAT. De-icing takes place at FAT and the airlines or operators of the aircraft are responsible for compliance with storage, disposal, and care of de-icing fluids or spills.

Former and existing sites of environmental contamination at FAT are mainly attributed to its previous use as a military airfield during World War II. Originally, the U.S. Army Air Corps developed FAT in the early 1940s as Hammer Field. The U.S. Army Air Corps deactivated the base in late 1945, and the City of Fresno assumed operation in 1946. Several sites/facilities in the vicinity of FAT are known, or have the potential, to contain hazardous materials and/or other regulated substances, or have been identified as confirmed hazardous waste release sites. These sites/facilities are located within or near the DSA.

In 1991, the firm ERM conducted a preliminary assessment with the boundary of Old Hammer Field to assess historical site usage, summarize previous environmental investigations, and identify areas of environmental concern that may be the subject of future investigation activities. Based on the results of the preliminary assessment, Area 1 of Old Hammer Field was identified as the highest priority area for additional investigation. Area 1 is located near the North Clovis Avenue/Aircorp Way intersection on the northeast side of FAT. A site inspection was conducted in 1992 that identified a plume of chlorinated volatile organic compounds (VOC) originating in Area 1. The plume is more than 2 miles long, and extends several thousands of yards to the southwest of the current FAT boundary. In addition to the VOC groundwater plume, the results of a remedial investigation conducted at the California Air National Guard (CANG) facility indicated the presence of soil and groundwater contamination related to subsurface releases. A plume of tetrachloroethene (PCE) occurs primarily at the CANG facility, with a smaller PCE plume also emanating from Area 1 at Old Hammer Field. Testing of groundwater has indicated that the plume has migrated to the southwest beyond the perimeter of the CANG facility by approximately 1,500 feet. Remediation activities for the plumes are ongoing (ERM, 2004).

In order to assess the potential for soil and groundwater impacts from other on- and off-airport related facilities and other commercial/industrial site operations being conducted in the vicinity of FAT, an environmental database report of federal, state, and local regulatory agency file information was generated by Environmental Data Resources (EDR) in July 2006. The majority of the hazardous substances release sites associated with current FAT activities that have impacted subsurface conditions are mainly located along the southern side of the airfield, west of the terminal building, where the existing air cargo and general aviation operations are located. Activities at this portion of the airfield include the fueling, servicing, and repair of aircraft, GSE, and motor vehicle activities. The majority of the subsurface impact has been from the release of petroleum hydrocarbons from underground storage tanks (USTs) in this area. Where releases were known, soil removal and remediation was conducted in order to reduce the potential threat to groundwater quality. Additional information regarding hazardous materials and wastes is provided in **Appendix F**.

During 2007, FAT generated approximately 219 tons of solid waste from airport operations consisting of approximately 574,530 enplanements. Solid wastes at FAT are typical of commercial/general aviation airports and generally include unwanted or discarded paper, plastic, and food products, landscaping, construction debris, and other similar forms of garbage or trash that are not classifiable as hazardous. This waste material is collected in designated areas at the airport and hauled off site to approved disposal facilities throughout the region. The City of Fresno Solid Waste Management Division provides solid waste removal at FAT. Once trash is removed from the airport, it is delivered to the American Avenue Landfill, which is operated by Fresno County, or to the Orange Avenue Landfill, which is privately operated. Sufficient capacity exists in either landfill.

4.4.5 WATER RESOURCES

FAT is located within the Tulare Lake Basin, which is the southern portion of the San Joaquin Valley. This basin covers approximately 10.5 million acres between the Pacific Coast Range Mountains on the west, the San Emigdio and Tehachapi Mountains on the south, and the Sierra Nevada Mountains on the east and southeast. Both the San Joaquin and Kings Rivers originate in the Sierra Nevada Mountains and flow westerly near Fresno.

Water supply demands in the region are met by a “conjunctive use” system, where surface water and groundwater storage are used jointly. When available, surface water is imported from the Kings River and San Joaquin River watersheds in excess of agricultural and urban demand, and is recharged into the groundwater aquifer by applying excess irrigation water or using percolation basins. Fresno County, the Cities of Fresno and Clovis, and the Fresno Irrigation District (FID) work cooperatively to maintain active groundwater recharge programs. The City of Fresno has a dedicated recharge basin located northwest of FAT in the GSA. The area known locally as “Leaky Acres” is a 210-acre recharge basin that allows water to pond and then percolate into the aquifer for later use.

Flood control and stormwater management in the GSA is under the jurisdiction of the Fresno Metropolitan Flood Control District (FMFCD). Within the Fresno-Clovis urbanized area, FMFCD maintains an infrastructure for collection of stormwater and delivery to more than 130 interconnected flood control basins. FID’s Mill Ditch borders FAT to the south and is parallel to East McKinley Avenue along the Atchison, Topeka, and Santa Fe railroad tracks. Based on a 1974 agreement with FMFCD and FID, FAT pumps stormwater from the Airport into Mill Ditch. However, approximately 1,100 acres at FAT is managed by the Airport’s own stormwater system. The onsite storm drain collection system at FAT includes a network of drains and culverts that serve the commercial area, general aviation area, and runway/taxiway areas.

Surface water quality is regulated by the National Pollutant Discharge Elimination System (NPDES), in accordance with the Clean Water Act. The City of Fresno, and therefore FAT, is included in NPDES Permit No. CA0083500 (Regional Water Quality Control Board [RWQCB] Order No. 5-01-048) issued by the Central Valley RWQCB under the NPDES Phase 1 Rule for Municipal Separate Storm Sewer Systems (MS4). In accordance with the NPDES permit, the City of Fresno and the Airport have prepared a Stormwater Management Plan that outlines the best management practices (BMPs) that would be implemented to prevent the discharge of pollutants in stormwater.

The Fresno region is underlain by an extensive and productive groundwater aquifer within the Kings Subbasin of the San Joaquin Valley Groundwater Basin (DWR, 2006). This groundwater subbasin extends into Fresno, Kings, and Tulare Counties, and has a surface area of approximately 1,530 square miles. In the vicinity of FAT, depth to groundwater is approximately 95 feet to 105 feet bgs. Since 1972, the water table has declined by approximately 75 feet due to regional pumping (ERM, 2004). The aquifer under the Fresno-Clovis area has historically been overdrawn, creating a groundwater overdraft situation in the eastern San Joaquin Valley. Overdraft of the groundwater has been estimated to be approximately 10,000 acre-feet per year (City of Fresno, 2002), with long-term projections indicating continued overdraft.

Potable water is supplied to the GSA from the City of Fresno, Department of Utilities, Water Division; and City of Clovis, Public Utilities Department. Fresno's water supply is primarily derived from the regional groundwater aquifer using nearly 250 water wells, with a small amount provided by surface water. Clovis' water supply includes a combination of surface water and groundwater. The City of Fresno has one surface water treatment plant that currently processes 14 million gallons of water per day, while the City of Clovis' one water treatment plant currently processes 15 million gallons of water per day. Both facilities are expandable to accommodate future population growth. There are three water wells within the FAT DSA, with seven other water wells in close proximity. Water resources are utilized for Airport-related activities, including jet/vehicle washing, irrigation (non-potable water), and drinking (potable water) to support terminal operations.

Municipal sewage is conveyed from the GSA, including FAT, to the Fresno/Clovis Regional Water Reclamation Facility, which is operated by the City of Fresno. The regional wastewater treatment system receives 68 million gallons of wastewater per day, but can treat up to 80 million gallons per day. The facility is located at Jenson and Cornelia Streets in southwest Fresno, and provides both primary and secondary treatment processes.

4.4.6 HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

In order to comply with Section 106 of the National Historical Preservation Act (NHPA) of 1966, a project must evaluate its effects on historic properties in consultation with the State Historical Preservation Officer (SHPO) and other interested parties, such as California's Native American Heritage Commission (NAHC). Regulations for the protection of historic properties (Title 36, CFR, Part 800.16[d]) seek to define the area of potential effect (APE) of a project as the geographic area or areas that may directly or indirectly impact the character of use of historic properties. The APE is shown on **Figure 4.4-2**.

The San Joaquin Valley area has a long history of archaeological investigations, from prehistoric times through today. As a result, many archaeological and cultural investigations have been undertaken within the area in an effort to uncover potential resources of historic importance.

No archaeological resources were identified during either archaeological field effort (September 2004 and August 2006). Given the highly disturbed nature of the area, the result of extensive grading and other earth-moving activities, it is unlikely that intact archaeological deposits remain within the FAT APE. None of the properties within the APE are eligible for listing in the National Register of Historic Places (NRHP) or California Register of Historic Resources (CRHR). Buildings older than 45 years old were included in the analysis. Additional information regarding historic, architectural, archaeological, and cultural resources is provided in **Appendix G**.

4.4.7 FISH, WILDLIFE, AND PLANTS

The land surrounding FAT has been heavily modified by urban development. Native plant communities are not the dominant land cover in the GSA or DSA due to the urbanization of the Fresno-Clovis area, which has been ongoing since the 1940s. The following land coverage have been identified within the DSA:

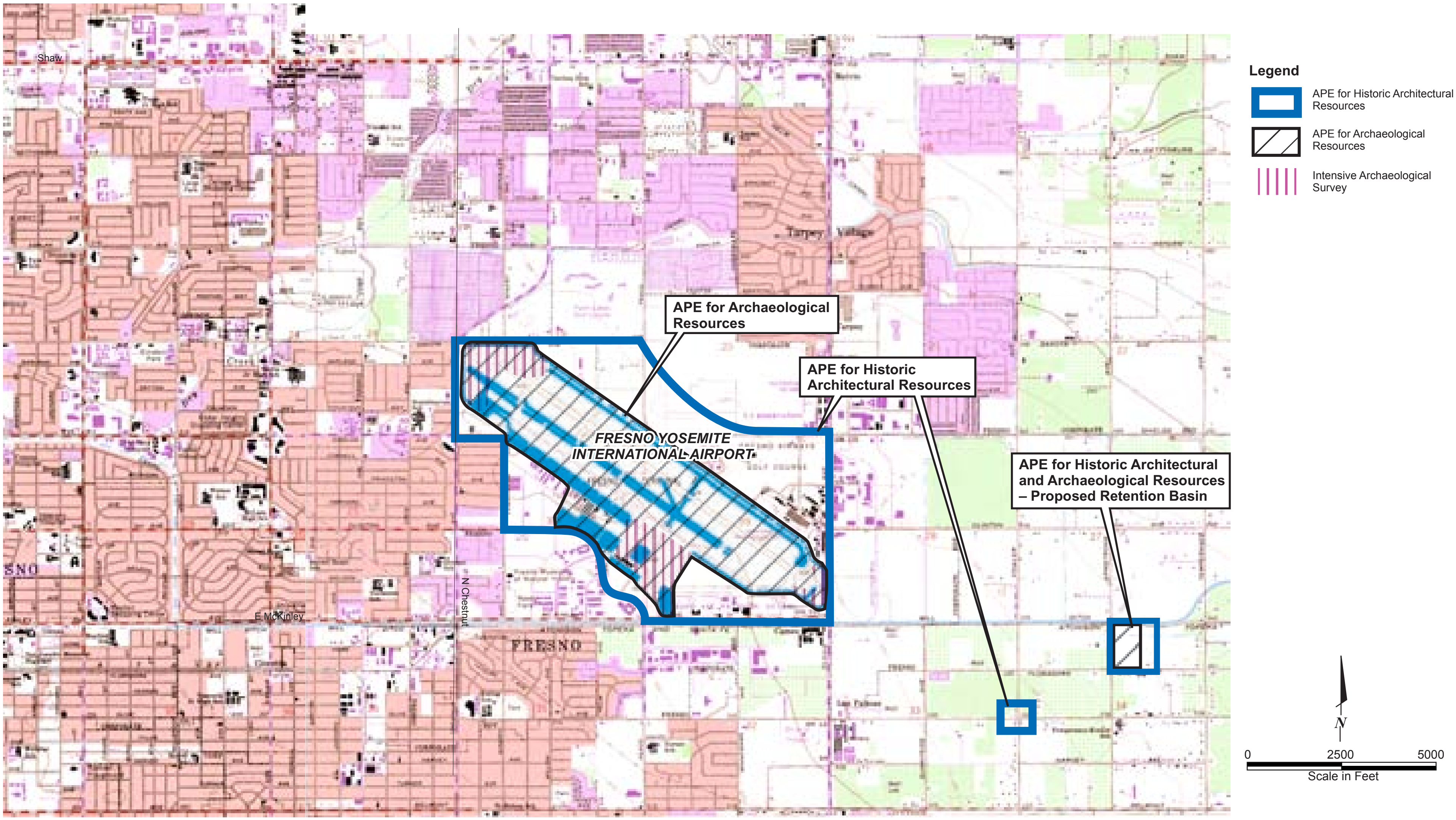
- Airport-Urban Developed
- Non-Native Herbaceous Field
- Seasonally Inundated Drainages
- Seasonally Ponded Swales
- Seasonally Ponded Depressions
- Artificial Ponds

All of the vegetation communities in the GSA are disturbed and provide little habitat for wildlife. Due to ongoing maintenance and application of herbicides and rodenticides, the GSA provides roosting habitat for wildlife, but very little foraging or nesting opportunities. Wildlife expected to occur in the upland portions of the GSA include species typical of ruderal grasses and agricultural habitats including starlings (*Sturnus vulgaris*), house finches (*Carpodacus mexicanus*), western meadowlarks (*Sturnella neglecta*) and American crows (*Corvus brachyrhynchos*). There is also evidence of California ground squirrels (*Otospermophilus beechey*) and red fox (*Vulpes vulpes*) occurring at FAT. The Airport takes measures to manage several species in accordance with the California Department of Fish and Game (CDFG) guidelines and has a contract with Wildlife Control Technology for addressing these species of concern. Amphibians and reptiles that could occur in the area include western toads (*Bufo boreas*) and gopher snakes (*Pituophis melanoleucus*). The large stormwater detention basins provide habitat within the vicinity of FAT for waterfowl and other birds. However, historically the risk of bird strike is considered to be low at FAT. Only five bird strike incidents were recorded in 2008; no injuries or impact to Airport operations resulted. FAT follows wildlife management policies and procedures as required by FAA regulations Part 139. Based on the history at FAT, formal bird surveys were not conducted at Leaky Acres or other nearby stormwater detention basins as a part of this EA/EIR. Additional information regarding biotic communities is provided in **Appendix H**.

4.4.8 SPECIAL-STATUS SPECIES, THREATENED AND ENDANGERED SPECIES

Thirty-six (36) special-status species were identified by the U.S. Fish and Wildlife Service (USFWS) and CDFG California Natural Diversity Database (CNDDB) record search and were reviewed for the Draft EA/EIR. Of the species considered, 30 are not likely to occur due to a lack of suitable habitat present in the DSA, but are listed for informational purposes. The species can be referenced in **Tables 3.1-1** and **3.1-2** in **Appendix H3**. The species that have potential to occur in the GSA or that need further explanation are the following: California horned lark (*Eremophila alpestris actia*), California tiger salamander (*Ambystoma californiense*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole

3 In April 2010 additional USFWS and CNDDB searches were conducted. The searches identified three bat species and one plant species not previously identified in the 2006 searches. The new species identified in 2010 searches are also not likely to occur due to lack of suitable habitat present in the Detailed Study Area (see the Supplemental Biological Investigation in Appendix H).



Source:
USGS 7.5 minute Topo Maps,
Fresno North and Clovis, CA (1981) quads

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CULTURAL RESOURCES
AREA OF POTENTIAL EFFECT

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Airport Improvements EA/EIR
Fresno, California

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FIGURE 4.4-2

shrimp (*Lepidurus packardi*), western burrowing owl (*Athene cunicularia hypugea*), and the Western pond turtles, including both the northwestern (*Clemmys marmorata* ssp. *marmorata*) and southwestern (*C. marmorata* ssp. *pallida*) subspecies.

FAT is situated on a flat plain in the City of Fresno. The Airport vicinity has not historically supported hard pan vernal pools. The majority of the soils in the FAT area are classified as well drained, moderately coarse textured, sandy loam soils, with 0 to 3 percent slopes. The northwestern portion of the Airport vicinity is dominated by Greenfield coarse sandy loam and Hanford sandy loam, while the southeastern portion is dominated by Atwater sandy loam. These soil series are formed from granitic alluvium, and do not pond water and are not conducive to supporting vernal pools. Therefore, habitat within the GSA is considered to be marginal for vernal pool fairy shrimp and vernal pool tadpole shrimp. There are two documented occurrences of vernal pool fairy shrimp in the Clovis U.S. Geological Survey (USGS) quadrangle (CDFG, 2006); the site closest to FAT is in a vernal pool approximately 5 miles away and east of Clovis. Potential habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp in the vicinity of proposed projects in the DSA is shown in Figure 5.12-1.

Western burrowing owls have been observed in the Fresno region in the past and the likelihood of their presence in the DSA is low, but cannot be totally discounted. The DSA is being managed to discourage western burrowing owls from nesting. FAT coordinates with CDFG and has a contract with Wildlife Control Technology for addressing burrowing owls. Habitat conditions within the DSA are marginal for the California horned lark. While habitat exists within the stormwater detention basins in the DSA for the Western pond turtles and the California tiger salamander, the isolation by roads of these detention basins from other suitable habitat make the occurrence of this species unlikely. According to the CNDDB, there is one documented occurrence of the California tiger salamander, from 1879, within the Clovis USGS quadrangle west of the Friant canal. The California tiger salamander is considered to be extirpated (absent) from the area (CDFG, 2006). Additional information regarding threatened and endangered species is provided in **Appendix H**.

4.4.9 WETLANDS

Potential wetlands and other waters of the U.S. were observed and recorded in January 2006 by URS biologists and a 2010 field verification survey was also conducted. Wetlands were formally recorded in accordance with the routine onsite methodology described in the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory, 1987). Features delineated in the DSA were analyzed to determine their status as potential waters of the state or U.S., based upon the ordinary high water elevation. These features include Seasonally Inundated Drainages; Seasonally Ponded Depressions; Seasonally Ponded Swales; and Artificial Ponds. No water features with an ordinary high water mark were identified in the vicinity of the Proposed Project except airport drainage ditches. Based on the three-parameter approach described in the Delineation Manual, no wetlands were identified in the DSA. In 2010, a memorandum was sent by FAA to USACE identifying the results of observations and recordings. Erin Hanlon of USACE reviewed the documentation and concurred that no further permitting or coordination was needed. **Appendix H** contains the memorandum and coordination effort.

4.4.10 FLOODPLAINS

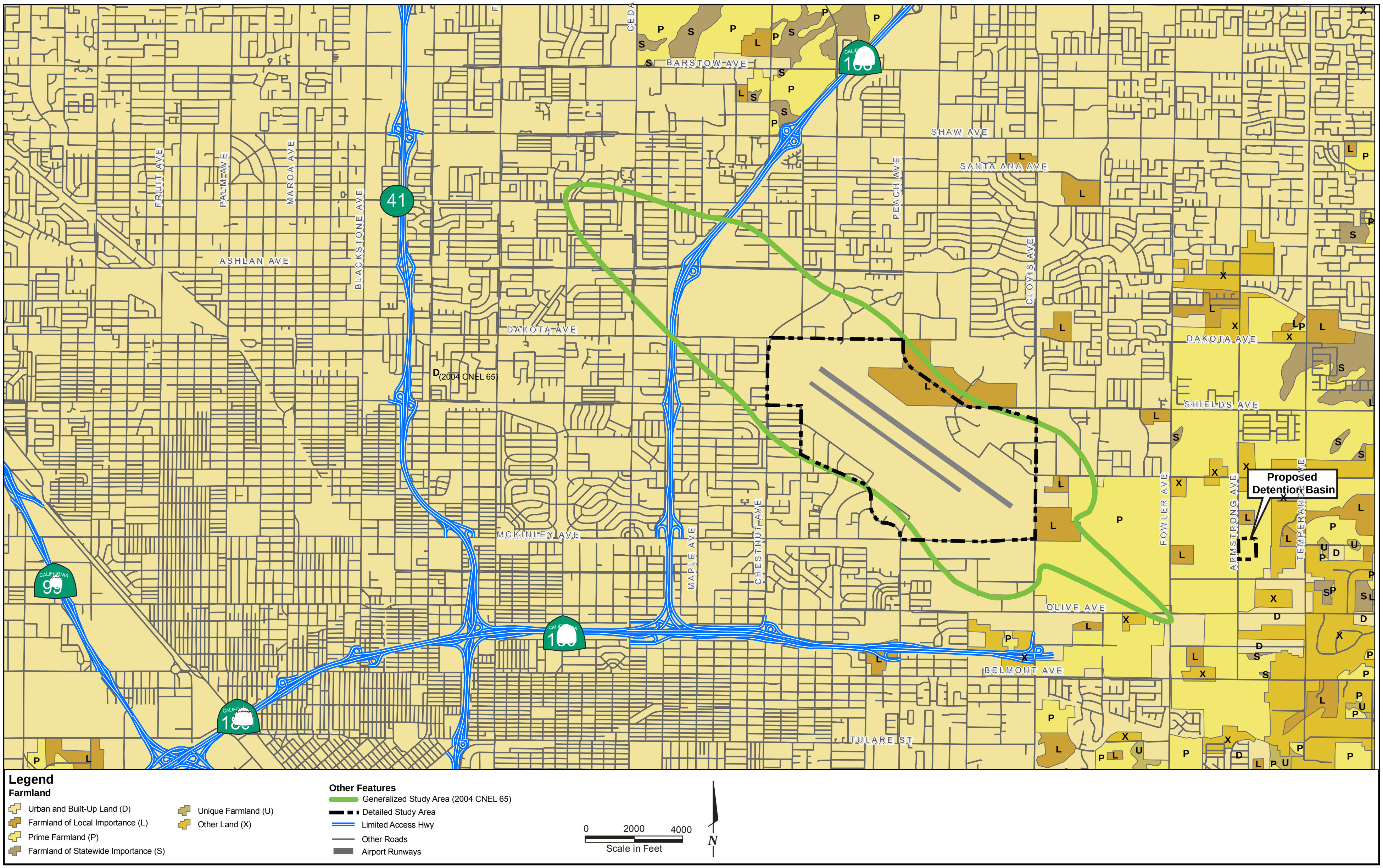
The DSA is located on the Flood Insurance Rate Map (FIRM) Community Panel Number 06019C1590F, which has an effective date of July 19, 2001 (FEMA, 2001). The majority of the GSA is located in Zone X, which is designated as the 500-year floodplain area. The 100-year floodplain area (Zone A) within FAT is associated with the Airport's stormwater detention basin located near East McKinley Avenue/East Clinton Way. Two Zone A areas are immediately northwest of FAT. Along the southern portion of the DSA and adjacent to East McKinley Avenue, a 100-year floodplain (Zone AE) associated with Mill Ditch is delineated. Two stormwater detention basins have been created adjacent to FAT and are within the GSA since the FIRM's effective date of July 2001. The first is located along North Clovis Avenue and is adjacent to the southeast side of FAT, while a second is located off of East Airways Boulevard and is located on the north side of FAT. Similar to the other FMFCD stormwater basins, both of these detention basins would be expected to be designated as being within the 100-year floodplain (Zone A).

4.4.11 FARMLANDS

Farmland in California is protected mainly by federal and state legislation, although local policies and ordinances are sometimes put in place at the county or city level to control uses on or adjacent to farmland. Significant soil types can be classified as either prime or unique farmlands, farmland of statewide importance, or of local significance. Farmland soils information for the GSA was obtained from the U.S. Department of Agriculture (USDA)–Natural Resources Conservation Service (NRCS) GIS data as well as the *Soil Survey of Eastern Fresno County* (USDA, 1971). Four soil series occur in the DSA. These soils are classified as somewhat excessively drained to moderately well drained soils of young alluvial fans. The soil series include the Hanford, Greenfield, Tujunja, and Atwater series soils.

Data indicates that the majority of the GSA soils are considered to be urban land by NRCS. Agricultural activities do not occur on FAT property or in a majority of the GSA. Only those lands located in the southeast portion of the GSA are considered to be agricultural land uses. Prime farmlands in the GSA equal approximately 47 acres, of which 30 acres are located within the DSA. The prime farmlands within the DSA are located near Mill Ditch and Armstrong Avenue, which is 2 miles east of FAT and the potential site of a new stormwater detention basin. Farmlands of local importance in the GSA equal approximately 17 acres, of which half of the locally important farmland acres is located on current FAT property and is not actively being used for agriculture, nor would it be in the future. The farmlands of local importance within the DSA are located near the California Army National Guard facility and adjacent to East Airways Boulevard on the north side of the airfield. The remaining 1,227 acres in the DSA is considered to be urban land. See **Figure 4.4-3**.

The Williamson Act of 1965, also known as the California Land Conservation Act, is the state's premier agricultural land protection program. The Act was passed to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. Within the GSA, only 5 acres of land are currently under Williamson Act contracts. However, there are no Williamson Act contract lands within the DSA. See **Figure 4.4-4**.



Source: California Department of Conservation, Division of Land Resource Protection

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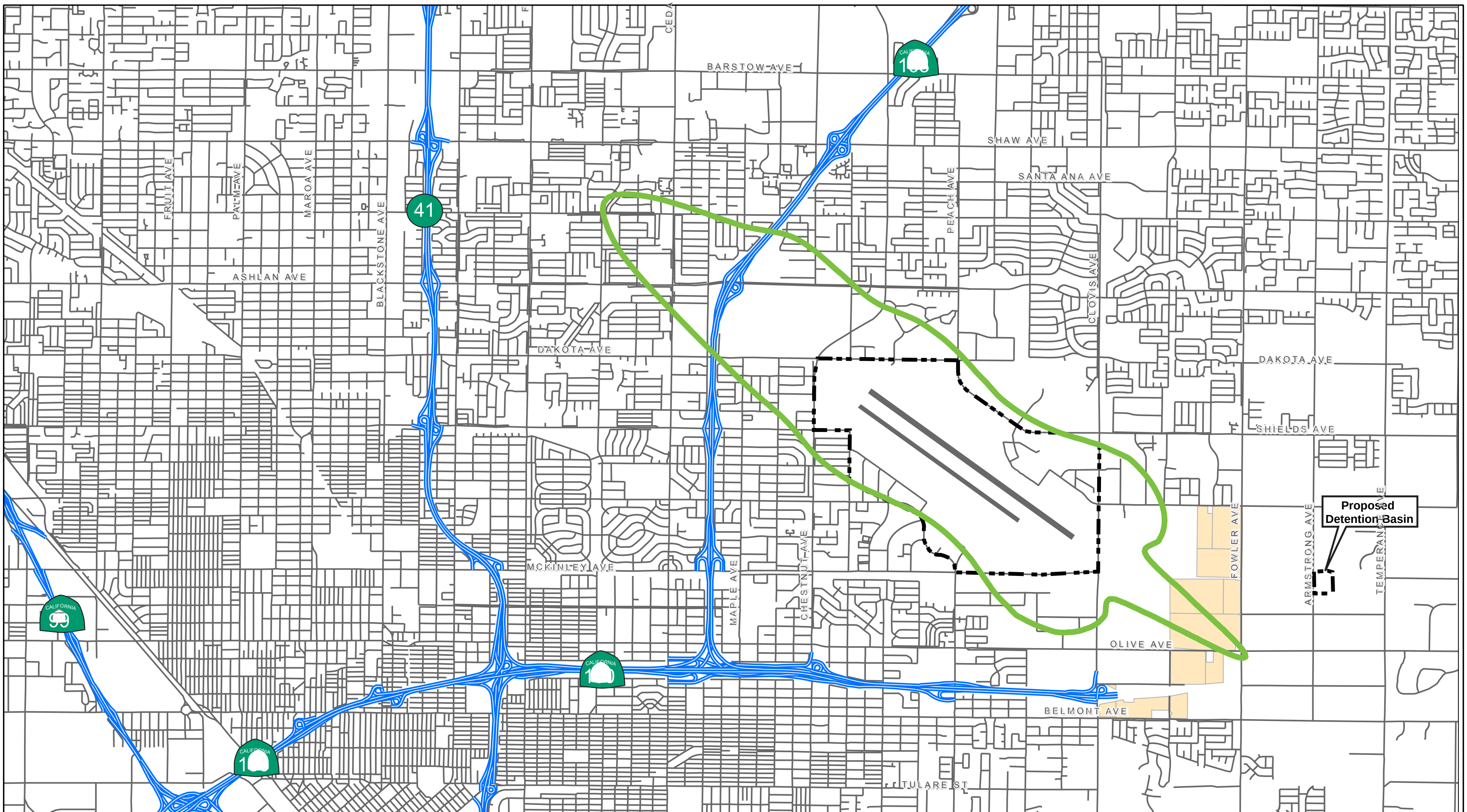
Airport Improvements EA/EIR
Fresno, California

FIGURE 4.4-3

1/25/11 vsa/hk ..\T:\28066717 Fresno Airport\EA-EIR 2011\4.4-3_farmlands.ai



Legend

- Williamson Act Lands
- Limited Access Hwy
- Other Roads
- Airport Runways
- Detailed Study Area
- Generalized Study Area

N

0 2000 4000
Scale in Feet

Source: California Department of Conservation, Division of Land Resource Protection

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

WILLIAMSON ACT LANDS

Fresno Yosemite International Airport
Airport Improvements EA/EIR
Fresno, California

February 2011
28066717

FIGURE 4.4-4

1/25/11 vsa/hk ..\T:\28066717 Fresno Airport\EA-EIR 2011\4.4-4_williamson_act_lands.ai

4.4.12 GEOLOGY, SOILS, AND SEISMICITY

Geology

The San Joaquin Valley is formed by the Great Valley geocline, which is a large, elongated, northwest-trending asymmetric structural trough. The major geologic units surrounding and within the GSA are listed from youngest to oldest as follows: Quaternary Recent Fan Deposits (recent to 10,000 years ago) and Pleistocene nonmarine (Riverbank Formation) (10,000 to 1.5 million years ago).

The GSA lies along the eastern portion of the Great Valley geomorphic province, and is characterized by low-lying ridges and valleys separated by streams. Within the DSA, the land is relatively flat, with gentle slopes generally to the southwest. Topographic elevations at FAT are relatively flat and range from approximately 330 feet along the eastern boundary and 325 feet along the western edge of the site.

Soils

The *Soil Survey Eastern Fresno County* (USDA, 1971) shows four soil series occurring in the DSA. These soils are classified as somewhat excessively drained to moderately well-drained soils of young alluvial fans. The soil series include the Hanford, Greenfield, Tujunja, and Atwater series soils. Development within the DSA is likely to be influenced by the geologic deposits occurring at or near the surface.

Information on the mineral resource potential within the GSA was obtained from the California Department of Conservation-Division of Mines and Geology, Generalized Mineral Land Classification of Aggregate Resources in the Fresno P-C Region (CDMG, 1998). In accordance with California's Surface Mining and Reclamation Act of 1975, the land in the Fresno P-C Region is classified according to "the presence, absence, or likely occurrence of significant mineral deposits in areas of the county subject to either urban expansion or other irreversible land uses incompatible with mining."

Seismicity

The GSA is located along the eastern edge of the San Joaquin Valley of California in a seismically quiescent region between two areas of documented tectonic activity. The Pacific Coast Range Mountains to the west contain many active faults that are associated with the northwest-trending San Andreas Fault System (Jennings, 1994). The San Andreas Fault, which parallels the Pacific Coast Range Mountains in western Fresno County, has a long history of movements and earthquakes and as such is the most likely source of a damaging earthquake within Fresno County. The San Andreas Fault is located approximately 76 miles to the west of FAT. The Owens Valley Fault Group consists of a series of faults that have been the source of numerous earthquakes in historic time. Located along the base of the east slope of the Sierra Nevada Mountains, the Owens Valley Fault Group is divided into three sections: a north active area, a central seismically "quiet" area, and a south area. The Owens Valley Fault Group is located approximately 86 miles to the east of FAT. The White Wolf Fault, located near the Tehachapi range southeast of Bakersfield, is a mapped active fault that produced a damaging series of earthquakes in 1952. The White Wolf Fault is a left lateral reverse fault approximately 60 miles in length. The seismicity of the area is limited to a single event and its aftershocks. Other nearby faults include the Long Valley Caldera, a seismic and volcanic area in the eastern Sierra Nevada Mountains that lies roughly between Mono Lake and Crowley Lake and the Clovis fault, which trends north to south through the City of Clovis, located approximately 5 miles to the northeast of FAT. No evidence has been found of historic ground movement along this feature.

4.4.13 ENERGY SUPPLY AND NATURAL RESOURCES

Energy Supply

Energy used at FAT to operate aircraft, service vehicles, lighting, terminal, and other facilities are provided by Pacific Gas & Electric (PG&E). During the 2004 calendar year, electrical energy used to support airside and landside operations totaled approximately 1-megawatt hour (1,000-kilowatt hours) of electricity and approximately 63,000 therms of natural gas. A similar amount of energy was used in 2005 (Duarte, 2006). Common stationary sources that provide energy at FAT include boilers, heaters, and emergency/standby power generators. Common mobile sources that provide energy at FAT include auxiliary power units (APUs) and ground service equipment (GSE) vehicles. The APUs use electricity, while the GSE vehicles burn gasoline or diesel fuel.

The halogen bulbs currently used for illuminating taxiways on the airfield shall be replaced by LED bulbs, resulting in substantial energy savings. FAT also commissioned a solar power generating facility consisting of 11,700 single tracking solar panels installed on 20 acres of land off the approach of Runway 29L, on the east side of Clovis Avenue. This is the largest photo voltaic facility at any airport in the country. These solar panels are designed to generate some 4.2 million kilowatt-hours of electricity annually, and are expected to provide 58 percent of the total electric power needs at FAT. This facility is estimated to save the Airport almost $13 million in energy costs over the next 25 years, when compared to predicted rates from PG&E. This solar power generating facility would not only reduce energy costs at FAT, but would also have a beneficial effect on the entire San Joaquin Valley, due to reduced hydrocarbon emissions and improved air quality. This facility is predicted to reduce 93,800 pounds of NO_x, 70,400 pounds of SO_x and over 1 million pounds of CO_2 over the 30-year design life.

Natural Resources

No known natural resources, such as oil, coal, natural gas, sand, gravel, or crushed stone exist within the GSA. Water resources are used for Airport-related activities, including jet/vehicle washing, irrigation (non-potable water), and drinking (potable water). FAT’s potable water supply comes from the City of Fresno’s water supply, which is taken out of the regional aquifer. Non-potable water comes from surface runoff that drains into an existing stormwater retention basin located at the corner of East McKinley Avenue and East Clinton Way. The non-potable water is used to irrigate most of the landscaped areas at FAT.

4.4.14 VISUAL/AESTHETICS AND LIGHT EMISSIONS

The GSA is relatively flat due to its location in the San Joaquin Valley. The foothills of the Sierra Nevada Mountains are visible to the east. The most dominant visual features in the GSA include FAT facilities and SR 168. The remainder of the GSA is an urban landscape that consists of various commercial, industrial, manufacturing, and residential buildings, along with local roadways. The vast majority of these buildings are considered to be low-rise, about three stories or less. Landscaping in the GSA consists of various trees, shrubs, and grasses that are adjacent to the commercial, industrial, manufacturing, and residential buildings. Typically, no unique scenic qualities are associated with landscaping.

Various types of lighting within the DSA illuminate Airport facilities, including lights from the airfield, visual navigational aids, terminal/apron, and surface transportation. Airfield lighting is generally low to the ground and considered to be low intensity and is usually not visible from great distances. Terminal lighting systems illuminate internal and external areas for passengers and employees. Internal lighting systems are typically directed to passenger walkways, shops, restaurants, service counters, and baggage facilities. Internal lighting systems are generally visible only to those areas that are immediately adjacent. External lighting includes aprons, parking areas, surface transportation roadways, and transfer areas. External lighting systems are typically visible at greater distances from an airport. However, the systems at FAT include directional shields that direct light toward the ground to reduce light and glare. Light sensitive areas are located within the GSA, primarily to the northwest in the residential areas.

Moderate levels of visual quality exist within the GSA. The dominant urban character of the landscape is pleasant and generally attractive. However, these views are not as scenic as the more rural or undeveloped areas outside of the GSA in other parts of Fresno County, especially to the east in the foothills of the Sierra Nevada Mountains. Within the DSA there are no outstanding scenic views or vistas of renowned features, or specific landscape features that are designated as a scenic resource. Light sensitive areas are located within the GSA, primarily to the northwest in the residential areas.

4.5 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

4.5.1 PAST ACTIONS

The significant FAT past projects include the new surface transportation circulation system, parking lot enhancements, and passenger loading area completed in 2001; new terminal building completed in 2002; new Federal Inspection Services facility completed in 2006, new mega-hangar complex in 2007 and new ready/return rental car facility in 2008. Listed below are other recently completed projects within the FAT vicinity.

Major projects on the northwest side of FAT include:

- Expansion of the existing Fashion Fair Mall by approximately 115,000 square feet
- Construction of three triplexes (12 total units) near North Cedar Avenue/North Archie Avenue
- Construction of a daycare center on East Ashcroft Avenue
- Subdivision of approximately 24 acres of land to create a 40-lot industrial development
- Development of 324,444 square feet of industrial buildings on 24 acres on North Winery Avenue
- Construction of a 6,700-square-foot building addition on East Shaw Avenue
- Construction of two restaurants near Fashion Fair Mall

Major projects on the south side of FAT include:

- A new 4,450-square-foot retail building and a three-story, 87-room AmeriHost Inn and Suites on North Peach Avenue

Major projects on the southeast side of FAT include:

- The construction of a 12,000-square-foot storage building on East Lamona Avenue
- The addition of 8,550 square feet to an industrial building on North Argyle Avenue

The majority of the GSA is already developed. The aforementioned projects are primarily infill-type developments that are similar to surrounding land uses.

4.5.2 PRESENT ACTIONS

Present actions near FAT include the further extension of SR 180 from North Peach Avenue to North Clovis Avenue, which was opened in late 2006. A 4-lane extension to Temperance Avenue is scheduled to be opened in 2008. No major developments have occurred in the City of Fresno portion of the GSA in 2006; however, two vesting tentative tract maps have been submitted for review to the City of Fresno Planning Department. The first is for a 2-acre, 8-lot single-family-home development on North Sharon Avenue, and the second is for a 2.5-acre, 5-lot single-family-home development on East Austin Way. Both tentative developments are located on the northwest side of FAT. There are no current construction projects at FAT.

4.5.3 FUTURE ACTIONS

Potential future actions at FAT are listed in **Table 1-2** and are predicted to occur between 2012 and 2025. According to the Fresno COG, significant new surface transportation projects are not expected through 2010. Also according to the Fresno COG, the top long-term priorities for Fresno County would continue to be the maintenance and improvement of the existing roadway system. However, due to the tremendous influx of people anticipated in the Fresno Metropolitan Area by 2030, the following projects have been identified for roadway improvements in or near the GSA: widen North Clovis Avenue from four to six lanes from Kings Canyon to McKinley; widen East Shaw Avenue from four to six lanes from Clovis to Temperance; and widen South Peach Avenue from two to four lanes from Butler to SR-180 (Fresno COG, 2004). Note that these projects have not been programmed, only identified. Significant transportation improvements are not planned at this time within the GSA because the local roadways are anticipated to have enough capacity to accommodate the short-term traffic. Numerous small maintenance and improvement projects are planned to increase the operational capabilities of the existing roadway system, such as installation of traffic signals, traffic signal synchronization, and reconstruction of road segments and bridges.

Planned land use development within the GSA is limited by the availability of developable land and existing Airport-related land use/zoning constraints. Outside of the GSA, most of the development in the Fresno area is already occurring, and is projected to continue north and east of FAT. Isolated developments are occurring on other edges of the urbanized area, such as the Fancher Creek Project. This development is primarily located south of East Belmont Avenue between South Clovis Avenue and South Fowler Avenue. Fancher Creek consists of a 424-acre development with 243 acres planned for 687 residential lots, with 74 acres planned for commercial land use and 107 acres planned for industrial land use. The Fancher Creek Project was approved in April 2005 by the City of Fresno and is currently under development. The October 2004 EIR for the project indicated that the development would result in significant adverse environmental impacts involving the loss of prime agricultural farmland, air quality, and traffic; however, those impacts may be entirely or partially mitigated. There are no other significant planned development projects in the vicinity of FAT at this time.

Appendix C - 3

Land and Natural Resource Management

Water Usage for Public Trees by Zone

6/8/2011

Zone	Water Usage	Tree Count	Standard Error	% of Zone	% of Public Trees
1	Very Low	0	(N/A)	0.00	0.00
	Low	29	(N/A)	5.69	2.58
	Medium	481	(N/A)	94.31	42.83
	High	0	(N/A)	0.00	0.00
	Total	510	(N/A)	100.00	45.41
2	Very Low	0	(N/A)	0.00	0.00
	Low	19	(N/A)	16.96	1.69
	Medium	84	(N/A)	75.00	7.48
	High	9	(N/A)	8.04	0.80
	Total	112	(N/A)	100.00	9.97
3	Very Low	0	(N/A)	0.00	0.00
	Low	19	(N/A)	27.14	1.69
	Medium	50	(N/A)	71.43	4.45
	High	1	(N/A)	1.43	0.09
	Total	70	(N/A)	100.00	6.23
4	Very Low	0	(N/A)	0.00	0.00
	Low	54	(N/A)	30.17	4.81
	Medium	71	(N/A)	39.66	6.32
	High	54	(N/A)	30.17	4.81
	Total	179	(N/A)	100.00	15.94
5	Very Low	0	(N/A)	0.00	0.00
	Low	71	(N/A)	31.28	6.32
	Medium	110	(N/A)	48.46	9.80
	High	46	(N/A)	20.26	4.10
	Total	227	(N/A)	100.00	20.21
6	Very Low	0	(N/A)	0.00	0.00
	Low	0	(N/A)	0.00	0.00
	Medium	25	(N/A)	100.00	2.23
	High	0	(N/A)	0.00	0.00
	Total	25	(N/A)	100.00	2.23
Citywide	Very Low	0	(N/A)	0.00	0.00
	Low	192	(N/A)	17.10	17.10
	Medium	821	(N/A)	73.11	73.11
	High	110	(N/A)	9.80	9.80
	Total	1,123	(N/A)	100.00	100.00

Species Distribution for the Five Most Abundant Species of (0) Trees

6/8/2011

Zone	1st (%)	2nd (%)	3rd (%)	4th (%)	5th (%)	# of Trees
1	Common crapemyrtle (32)	Chinese Tallow Tree (26.5)	Chinese pistache (20.4)	Western redbud (9.4)	Canary Island Pine (5.7)	510
2	Chinese pistache (22.3)	Roble negro (14.3)	Ginkgo (10.7)	Southern magnolia (9.8)	Hollywood Juniper (8.9)	112
3	London planetree (34.3)	Itailian stone pine (25.7)	Evergreen pear (14.3)	Canary Island Pine (10)	Chinese pistache (8.6)	70
4	Afghan Pine (30.2)	Black tupelo (16.8)	Chinese pistache (12.8)	Basswood (11.7)	Common crapemyrtle (8.4)	179
5	Common crapemyrtle (17.2)	Italian cypress (15)	Coast redwood (8.8)	Chaste Tree (7.9)	California palm (7.9)	227
6	Chinese pistache (56)	Raywood ash (44)	(0)	(0)	(0)	25
Citywide total	Common crapemyrtle (20.5)	Chinese pistache (16.5)	Chinese Tallow Tree (12)	Western redbud (5.3)	Afghan Pine (4.8)	1,123

Replacement Value for Public Trees by Species

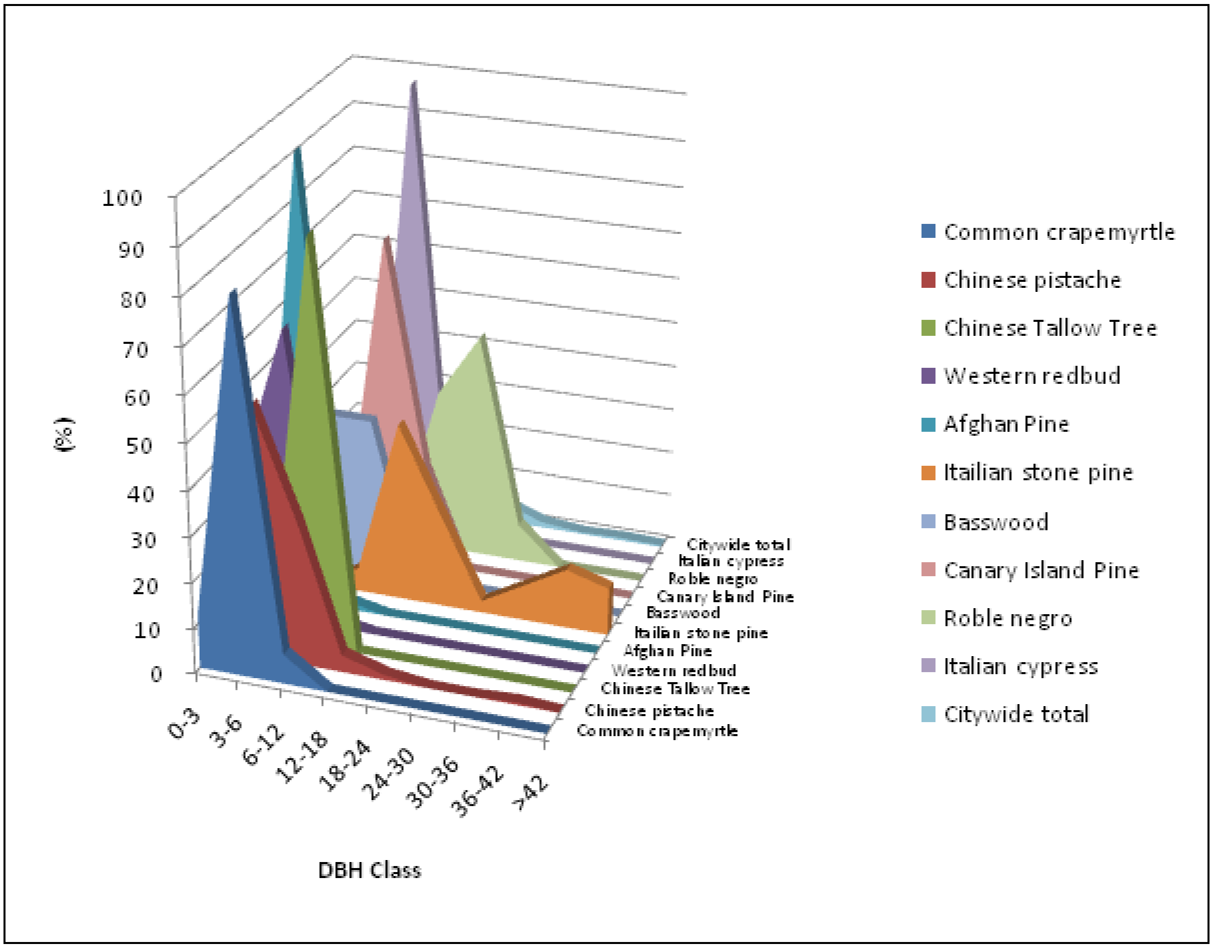
6/8/2011

Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total	Standard Error	% of Total
	DBH Class (in)											
Common crapemyrtle	5,214	126,291	34,902	0	0	0	0	0	0	166,407	(±0)	7.65
Chinese pistache	2,495	76,396	160,639	51,799	28,790	0	0	45,748	0	365,866	(±0)	16.81
Chinese Tallow Tree	199	5,900	124,539	0	0	0	0	0	0	130,639	(±0)	6.00
Western redbud	3,719	20,577	1,721	0	0	0	0	0	0	26,017	(±0)	1.20
Afghan Pine	0	17,284	347	0	0	0	0	0	0	17,631	(±0)	0.81
Itailian stone pine	0	0	1,548	38,822	43,010	8,800	38,640	84,427	75,453	290,699	(±0)	13.36
Basswood	2,046	9,544	33,158	0	0	0	0	0	0	44,748	(±0)	2.06
Canary Island Pine	0	652	21,891	16,518	0	0	0	0	0	39,061	(±0)	1.80
Roble negro	0	644	895	66,883	195,739	55,488	0	0	0	319,649	(±0)	14.69
Italian cypress	0	0	34,479	0	0	0	0	0	0	34,479	(±0)	1.58
Coast redwood	0	749	17,545	22,467	26,881	8,800	0	0	0	76,442	(±0)	3.51
Black tupelo	3,699	5,704	0	0	0	0	0	0	0	9,403	(±0)	0.43
London planetree	0	0	16,601	48,690	0	0	0	0	0	65,291	(±0)	3.00
Chaste Tree	0	5,454	18,614	6,226	12,075	0	0	0	0	42,370	(±0)	1.95
California palm	0	0	461	3,689	3,228	922	0	0	0	8,300	(±0)	0.38
Raywood ash	0	5,704	1,612	8,405	8,089	13,270	0	0	0	37,079	(±0)	1.70
American sycamore	0	0	0	29,005	49,596	63,104	26,929	25,149	0	193,783	(±0)	8.91
Callery pear 'Chanticleer'	0	7,778	0	0	0	0	0	0	0	7,778	(±0)	0.36
Sweetgum	0	0	0	32,877	16,177	26,540	0	0	0	75,595	(±0)	3.47
Ginkgo	0	0	17,727	4,202	0	0	0	0	0	21,929	(±0)	1.01
Arizona Cypress	0	0	2,526	16,518	0	0	0	0	0	19,044	(±0)	0.88
Southern magnolia	0	869	6,688	6,956	13,377	0	0	0	0	27,889	(±0)	1.28
White alder	0	0	994	4,315	0	0	0	0	0	5,309	(±0)	0.24
Hollywood Juniper	0	0	0	58,011	0	0	0	0	0	58,011	(±0)	2.67
Evergreen pear	0	0	6,883	27,035	0	0	0	0	0	33,918	(±0)	1.56
Callery pear 'Bradford'	0	0	1,612	25,214	8,089	0	0	0	0	34,914	(±0)	1.60
Broadleaf Deciduous Medium	0	393	3,147	0	3,484	0	0	0	0	7,025	(±0)	0.32
Incense cedar	0	0	3,619	3,478	0	0	0	0	0	7,097	(±0)	0.33
Broadleaf Evergreen Small	0	1,091	1,721	0	0	0	0	0	0	2,812	(±0)	0.13
Plum	0	1,444	0	0	0	0	0	0	0	1,444	(±0)	0.07
Citrus	213	0	0	0	0	0	0	0	0	213	(±0)	0.01
European white birch	189	0	0	0	0	0	0	0	0	189	(±0)	0.01
Hackberry	0	0	1,338	0	0	0	0	0	0	1,338	(±0)	0.06
Camphor tree	0	644	0	0	0	0	0	0	0	644	(±0)	0.03
Olive	0	500	0	0	0	0	0	0	0	500	(±0)	0.02
Elm	0	0	0	2,543	0	0	0	0	0	2,543	(±0)	0.12

Species	DBH Class (in) 0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total	Standard Error	% of Total
Citywide total	17,774	287,619	515,206	473,653	408,533	176,925	65,569	155,323	75,453	2,176,054	(±0)	100.00

Relative Age Distribution of Top 10 Public Tree Species (%)

6/8/2011



DBH class (in)

Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42
Common crapemyrtle	12.17	81.30	6.52	0.00	0.00	0.00	0.00	0.00	0.00
Chinese pistache	7.57	55.14	31.89	3.78	1.08	0.00	0.00	0.54	0.00
Chinese Tallow Tree	0.74	11.11	88.15	0.00	0.00	0.00	0.00	0.00	0.00
Western redbud	33.90	64.41	1.69	0.00	0.00	0.00	0.00	0.00	0.00
Afghan Pine	0.00	98.15	1.85	0.00	0.00	0.00	0.00	0.00	0.00
Itailian stone pine	0.00	0.00	5.26	39.47	21.05	2.63	7.89	13.16	10.53
Basswood	29.73	35.14	35.14	0.00	0.00	0.00	0.00	0.00	0.00
Canary Island Pine	0.00	5.56	72.22	22.22	0.00	0.00	0.00	0.00	0.00
Roble negro	0.00	2.78	2.78	36.11	50.00	8.33	0.00	0.00	0.00
Italian cypress	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Citywide total	8.55	41.67	30.72	11.75	4.72	1.25	0.36	0.62	0.36

Complete Population of Public Trees

6/8/2011

Species	DBH Class (in) 0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total Standard Error
Broadleaf Deciduous Large (BDL)										
London planetree	0	0	13	14	0	0	0	0	0	27
American sycamore	0	0	0	5	5	4	1	1	0	16
Sweetgum	0	0	0	9	2	2	0	0	0	13
Hackberry	0	0	1	0	0	0	0	0	0	1
Elm	0	0	0	1	0	0	0	0	0	1
Total	**0**	**0**	**14**	**29**	**7**	**6**	**1**	**1**	**0**	**58 (±NaN)**
Broadleaf Deciduous Medium (BDM)										
Chinese pistache	14	102	59	7	2	0	0	1	0	185
Chinese Tallow Tree	1	15	119	0	0	0	0	0	0	135
Basswood	11	13	13	0	0	0	0	0	0	37
Black tupelo	19	11	0	0	0	0	0	0	0	30
Raywood ash	0	11	1	2	1	1	0	0	0	16
Callery pear 'Chanticleer'	0	15	0	0	0	0	0	0	0	15
Ginkgo	0	0	11	1	0	0	0	0	0	12
White alder	0	0	3	7	0	0	0	0	0	10
Callery pear 'Bradford'	0	0	1	6	1	0	0	0	0	8
Broadleaf Deciduous Medium	0	1	3	0	1	0	0	0	0	5
European white birch	1	0	0	0	0	0	0	0	0	1
Total	**46**	**168**	**210**	**23**	**5**	**1**	**0**	**1**	**0**	**454 (±NaN)**
Broadleaf Deciduous Small (BDS)										
Common crapemyrtle	28	187	15	0	0	0	0	0	0	230
Western redbud	20	38	1	0	0	0	0	0	0	59
Chaste Tree	0	8	8	1	1	0	0	0	0	18
Plum	0	3	0	0	0	0	0	0	0	3
Total	**48**	**236**	**24**	**1**	**1**	**0**	**0**	**0**	**0**	**310 (±NaN)**
Broadleaf Evergreen Large (BEL)										
Roble negro	0	1	1	13	18	3	0	0	0	36
Total	**0**	**1**	**1**	**13**	**18**	**3**	**0**	**0**	**0**	**36 (±NaN)**
Broadleaf Evergreen Medium (BEM)										
Southern magnolia	0	2	5	2	2	0	0	0	0	11
Hollywood Juniper	0	0	0	10	0	0	0	0	0	10
Camphor tree	0	1	0	0	0	0	0	0	0	1
Olive	0	1	0	0	0	0	0	0	0	1
Total	**0**	**4**	**5**	**12**	**2**	**0**	**0**	**0**	**0**	**23 (±NaN)**
Broadleaf Evergreen Small (BES)										
Evergreen pear	0	0	4	6	0	0	0	0	0	10
Broadleaf Evergreen Small	0	2	1	0	0	0	0	0	0	3
Citrus	2	0	0	0	0	0	0	0	0	2
Total	**2**	**2**	**5**	**6**	**0**	**0**	**0**	**0**	**0**	**15 (±NaN)**
Conifer Evergreen Large (CEL)										
Afghan Pine	0	53	1	0	0	0	0	0	0	54
Itailian stone pine	0	0	2	15	8	1	3	5	4	38
Canary Island Pine	0	2	26	8	0	0	0	0	0	36
Italian cypress	0	0	34	0	0	0	0	0	0	34
Coast redwood	0	2	16	8	5	1	0	0	0	32
Arizona Cypress	0	0	3	8	0	0	0	0	0	11
Incense cedar	0	0	3	1	0	0	0	0	0	4
Total	**0**	**57**	**85**	**40**	**13**	**2**	**3**	**5**	**4**	**209 (±NaN)**
Conifer Evergreen Medium (CEM)										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0 (±NaN)**
Conifer Evergreen Small (CES)										
California palm	0	0	1	8	7	2	0	0	0	18

Complete Population of Public Trees

6/8/2011

Species	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42	Total Standard Error
				DBH Class (in)						
Total	**0**	**0**	**1**	**8**	**7**	**2**	**0**	**0**	**0**	**18 (±NaN)**
Palm Evergreen Large (PEL)										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0 (±NaN)**
Palm Evergreen Medium (PEM)										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0 (±NaN)**
Palm Evergreen Small (PES)										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0 (±NaN)**
Grand Total	**96**	**468**	**345**	**132**	**53**	**14**	**4**	**7**	**4**	**1,123 (±0)**

LAND AND NATURAL RESOURCE MANAGEMENT ZONES

Importance Values for Public Most Abundant Trees

6/8/2011

Species	Number of Trees	% of Total Trees	Leaf Area (ft^2)	% of Total Leaf Area	Canopy Cover (ft^2)	% of Total Canopy Cover	Importance Value
Common crapemyrtle	230	20.5	62,782	4.9	27,220	6.4	10.6
Chinese pistache	185	16.5	172,284	13.3	78,400	18.4	16.1
Chinese Tallow Tree	135	12.0	147,783	11.4	54,775	12.9	12.1
Western redbud	59	5.3	11,921	0.9	5,358	1.3	2.5
Afghan Pine	54	4.8	28,066	2.2	7,132	1.7	2.9
Itailian stone pine	38	3.4	158,632	12.3	44,719	10.5	8.7
Basswood	37	3.3	23,772	1.8	7,838	1.8	2.3
Canary Island Pine	36	3.2	56,835	4.4	11,858	2.8	3.5
Roble negro	36	3.2	118,591	9.2	39,091	9.2	7.2
Italian cypress	34	3.0	46,245	3.6	9,417	2.2	2.9
Coast redwood	32	2.8	66,751	5.2	14,905	3.5	3.8
Black tupelo	30	2.7	8,733	0.7	1,929	0.5	1.3
London planetree	27	2.4	54,837	4.2	21,780	5.1	3.9
Chaste Tree	18	1.6	10,584	0.8	3,571	0.8	1.1
California palm	18	1.6	4,767	0.4	2,298	0.5	0.8
Raywood ash	16	1.4	24,829	1.9	6,635	1.6	1.6
American sycamore	16	1.4	77,853	6.0	25,280	5.9	4.5
Callery pear 'Chanticleer'	15	1.3	7,778	0.6	2,222	0.5	0.8
Sweetgum	13	1.2	58,620	4.5	10,066	2.4	2.7
Ginkgo	12	1.1	12,136	0.9	4,247	1.0	1.0
OTHER TREES	82	7.3	137,220	10.6	46,466	10.9	9.6
Total	1,123	100.0	1,291,016	100.0	425,209	100.0	100.0

Structural (Woody) Condition of Public Trees by Species

6/8/2011

Species	Condition	Tree Count	Standard Error	% of Species	% of Public Trees
Afghan Pine	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	1	(N/A)	1.85	0.09
	Fair	0	(N/A)	0.00	0.00
	Good	53	(N/A)	98.15	4.72
	Total	54	(N/A)	100.00	4.81
American sycamore	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	5	(N/A)	31.25	0.45
	Good	11	(N/A)	68.75	0.98
	Total	16	(N/A)	100.00	1.42
Arizona Cypress	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	11	(N/A)	100.00	0.98
	Total	11	(N/A)	100.00	0.98
Basswood	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	2	(N/A)	5.41	0.18
	Fair	1	(N/A)	2.70	0.09
	Good	34	(N/A)	91.89	3.03
	Total	37	(N/A)	100.00	3.29
Black tupelo	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	30	(N/A)	100.00	2.67
	Total	30	(N/A)	100.00	2.67
Broadleaf Deciduous Medium	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	1	(N/A)	20.00	0.09
	Good	4	(N/A)	80.00	0.36
	Total	5	(N/A)	100.00	0.45
Broadleaf Evergreen Small	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	3	(N/A)	100.00	0.27
	Total	3	(N/A)	100.00	0.27
California palm	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	18	(N/A)	100.00	1.60
	Total	18	(N/A)	100.00	1.60
Callery pear 'Bradford'	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	8	(N/A)	100.00	0.71
	Total	8	(N/A)	100.00	0.71
Callery pear 'Chanticleer'	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	15	(N/A)	100.00	1.34
	Total	15	(N/A)	100.00	1.34
Camphor tree	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.09
	Total	1	(N/A)	100.00	0.09

Structural (Woody) Condition of Public Trees by Species

6/8/2011

Species	Condition	Tree Count	Standard Error	% of Species	% of Public Trees
Canary Island Pine	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	36	(N/A)	100.00	3.21
	Total	36	(N/A)	100.00	3.21
Chaste Tree	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	18	(N/A)	100.00	1.60
	Total	18	(N/A)	100.00	1.60
Chinese pistache	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	2	(N/A)	1.08	0.18
	Fair	8	(N/A)	4.32	0.71
	Good	175	(N/A)	94.59	15.58
	Total	185	(N/A)	100.00	16.47
Chinese Tallow Tree	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	1	(N/A)	0.74	0.09
	Good	134	(N/A)	99.26	11.93
	Total	135	(N/A)	100.00	12.02
Citrus	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	1	(N/A)	50.00	0.09
	Fair	1	(N/A)	50.00	0.09
	Good	0	(N/A)	0.00	0.00
	Total	2	(N/A)	100.00	0.18
Coast redwood	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	32	(N/A)	100.00	2.85
	Total	32	(N/A)	100.00	2.85
Common crapemyrtle	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	10	(N/A)	4.35	0.89
	Good	220	(N/A)	95.65	19.59
	Total	230	(N/A)	100.00	20.48
Elm	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.09
	Total	1	(N/A)	100.00	0.09
European white birch	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.09
	Total	1	(N/A)	100.00	0.09
Evergreen pear	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	10	(N/A)	100.00	0.89
	Total	10	(N/A)	100.00	0.89
Ginkgo	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	12	(N/A)	100.00	1.07
	Total	12	(N/A)	100.00	1.07

Structural (Woody) Condition of Public Trees by Species

6/8/2011

Species	Condition	Tree Count	Standard Error	% of Species	% of Public Trees
Hackberry	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.09
	Total	1	(N/A)	100.00	0.09
Hollywood Juniper	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	10	(N/A)	100.00	0.89
	Total	10	(N/A)	100.00	0.89
Incense cedar	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	1	(N/A)	25.00	0.09
	Good	3	(N/A)	75.00	0.27
	Total	4	(N/A)	100.00	0.36
Itailian stone pine	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	2	(N/A)	5.26	0.18
	Fair	2	(N/A)	5.26	0.18
	Good	34	(N/A)	89.47	3.03
	Total	38	(N/A)	100.00	3.38
Italian cypress	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	34	(N/A)	100.00	3.03
	Total	34	(N/A)	100.00	3.03
London planetree	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	2	(N/A)	7.41	0.18
	Good	25	(N/A)	92.59	2.23
	Total	27	(N/A)	100.00	2.40
Olive	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	1	(N/A)	100.00	0.09
	Total	1	(N/A)	100.00	0.09
Plum	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	1	(N/A)	33.33	0.09
	Fair	1	(N/A)	33.33	0.09
	Good	1	(N/A)	33.33	0.09
	Total	3	(N/A)	100.00	0.27
Raywood ash	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	16	(N/A)	100.00	1.42
	Total	16	(N/A)	100.00	1.42
Roble negro	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	1	(N/A)	2.78	0.09
	Fair	7	(N/A)	19.44	0.62
	Good	28	(N/A)	77.78	2.49
	Total	36	(N/A)	100.00	3.21
Southern magnolia	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	0	(N/A)	0.00	0.00
	Good	11	(N/A)	100.00	0.98
	Total	11	(N/A)	100.00	0.98

Structural (Woody) Condition of Public Trees by Species

6/8/2011

Species	Condition	Tree Count	Standard Error	% of Species	% of Public Trees
Sweetgum	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	4	(N/A)	30.77	0.36
	Good	9	(N/A)	69.23	0.80
	Total	13	(N/A)	100.00	1.16
Western redbud	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	1	(N/A)	1.69	0.09
	Fair	3	(N/A)	5.08	0.27
	Good	55	(N/A)	93.22	4.90
	Total	59	(N/A)	100.00	5.25
White alder	Dead or Dying	0	(N/A)	0.00	0.00
	Poor	0	(N/A)	0.00	0.00
	Fair	3	(N/A)	30.00	0.27
	Good	7	(N/A)	70.00	0.62
	Total	10	(N/A)	100.00	0.89

Annual Benefits of Public Trees by Species ($/tree)

6/9/2011

Species	Energy	CO_2	Air Quality	Stormwater	Aesthetic/Other	Total ($)	Standard Error
Common crapemyrtle	2.11	0.15	2.32	0.63	4.29	9.49	(N/A)
Chinese pistache	8.89	0.74	7.82	2.22	28.46	48.13	(N/A)
Chinese Tallow Tree	9.66	0.86	9.59	2.92	23.41	46.44	(N/A)
Western redbud	1.59	0.11	1.78	0.48	4.33	8.29	(N/A)
Afghan Pine	2.33	0.26	3.13	2.01	40.46	48.19	(N/A)
Itailian stone pine	25.20	3.11	28.91	16.99	42.67	116.87	(N/A)
Basswood	5.00	0.49	5.00	1.58	31.60	43.67	(N/A)
Canary Island Pine	7.87	0.99	7.97	5.72	44.92	67.47	(N/A)
Roble negro	23.48	3.33	11.43	14.03	47.49	99.77	(N/A)
Italian cypress	6.34	0.81	6.64	4.87	45.30	63.95	(N/A)
Coast redwood	11.15	1.39	11.37	7.78	44.42	76.11	(N/A)
Black tupelo	1.45	0.19	1.51	0.54	38.19	41.88	(N/A)
London planetree	17.58	1.58	13.16	5.62	31.60	69.53	(N/A)
Chaste Tree	3.68	0.23	3.92	1.12	3.91	12.86	(N/A)
California palm	3.18	0.30	2.87	2.28	7.82	16.46	(N/A)
Raywood ash	10.10	1.09	9.06	2.53	56.90	79.68	(N/A)
American sycamore	31.23	1.79	23.07	12.00	15.20	83.29	(N/A)
Callery pear 'Chanticleer'	3.49	0.41	3.50	1.19	33.10	41.69	(N/A)
Sweetgum	18.99	2.13	-14.56	5.03	75.59	87.19	(N/A)
Ginkgo	8.94	1.14	6.97	2.01	39.63	58.69	(N/A)
OTHER STREET TREES	13.03	1.21	13.66	6.00	27.21	61.10	(N/A)

Appendix C - 4

Surface Transportation Management

Vehicle Miles Traveled Calculations
(#) Corresponds to Assumption on Following Pages

Employee VMT Calculation

	# of Employees (1)
Terminal	354
Tower	51
Parking Office	14
Hertz	27
Enterprise	21
Dollar	13
DHL	4
Avis	22
ARFF	11
Airport Maintenance	9
Airport Administration	38

Total # of Employees 564

Days/Week Worked (2) 5

Length of Commute (4)	% of respondents	Roundtrip Miles	VMT by Length of Commute	
0-5 miles	25%	10	7,050	
6-10 miles	27%	20	15,228	
11-15 miles	29%	30	24,534	
16-20 miles	7%	40	7,896	
20+ miles	12%	50	16,920	
Totals	1		71,628	Total Weekly VMT
			49	Commute Weeks (3)
			3,509,772	Total Annual Employee VMT

Employee Mode Share (5):

Drive Alone =	96%
Walk =	0%
Carpool =	3%
Public Transportation =	1%
Work at Home =	0%
Bicycle =	0%

	3,509,772	Total Annual Employee VMT
-	52,647	carpool share (accounts for 2-person carpool)
-	35,098	transit share
	3,422,027	**Final Employee VMT**

Passenger VMT Calculation

	Mode of Transportation	Mode Share % Based on ACRP 10-06 (7)	# of Enplanements (6)	Vehicle Occupancy Ratio (8)	Trip Length (roundtrip-miles) (9,10)	Annual VMT	
Commercial	Personal Vehicle	42%	248,747	2	40	4,974,940	
	Drop-off	50%	296,127	2	80	11,845,080	
	Taxi/Limousine	4%	23,690	2	80	947,600	
	Public Transit+	4%					
						17,767,620	**Commercial Service VMT**

	# of Operations (not including Touch & Go ops) (12,13)	# of Trip Generating GA Flights (14)	Trip Length (roundtrip-miles) (8)	Annual VMT	
General Aviation	71,530	35,765	40	1,430,600	
				1,430,600	**GA Service VMT**

+ Transit VMT calculated based on schedule of Routes 26/39 (see below for calc)

+Transit VMT Calculation (15)

Length of Route 26 is estimated at 33.6 miles using Google Maps - rounded to 35 miles and route 39 is estimated at 20.8 miles - rounded to 21 miles.
According to schedules found online, there are 28/38 trips to the airport along these routes during the week, and 12 on the weekends:

		Weekdays		Weekends			
	Length of Route (miles)	# of Trips/Day	# of Days	# of Trips/Day	# of Days		
Route 26	35	28	252	12	113	**294,420**	
Route 39	21	30	252	12	113	**187,236**	
						481,656	**Transit VMT**

Miscellaneous Data Used In Calculations

2010 Enplanements =	592,254	(6)
Assumed Roundtrip Trip Length (passengers) =	40	(9)
12 Month Total Operations (ending 9/2011) =	129,116	(11)
GA Operations =	79,478	(12)
Touch & Go Operations (10% of GA Ops) =	7,948	(13)

	Annual VMT
Employee	3,422,027
Commercial Service	17,767,620
GA Service	1,430,600
Transit	481,656
Total Annual VMT	**23,101,903**

List of Assumptions and Source Information
Surface Transportation Baseline Assessment
June 2011

C&S COMPANIES®

Employee VMT Calculation Data

1. Number of employees and number of days worked obtained through interviews with airport entities and a survey conducted by C&S
2. Employee data provided in terms of full time equivalents
3. Number of weeks worked per year assumed to be 49 to account for vacation, holiday and sick time
4. Average commute length based on findings from employee survey which indicated the following breakdown of lengths
   - 0-5 miles: 25%
   - 6-10 miles: 27%
   - 11-15 miles: 29%
   - 16-20 miles: 7%
   - 20+ miles: 12%
5. Mode share data based on findings from employee survey which indicated the following:
   - Drive alone = 96%
   - Walk = 0%
   - Carpool = 3%
   - Public Transportation = 1%
   - Bicycle = 0%

Commercial Service VMT Calculation Data

6. 2010 enplanement data used provided by the airport (2010 = 592,254)
7. No mode share data for passengers provided by airport. ACRP 10-06 surveyed 14 different airports ranging in size from small to large and determined how passengers arrived at the airport. The ground access mode to the small and medium sized airports were found to be:
   - Drove and dropped off: 50%
   - Drove and parked: 42%
   - Taxi, limo and rental car: 4%
   - Transit and shuttle: 4%

   Since the small and medium airports surveyed in this study have some similar characteristics as Fresno, this was assumed to be the passenger mode share.
8. Vehicle occupancy information, the average number of passengers that arrive in the same vehicle, was not available for the airport. The 8th Edition of the Institute of Transportation Engineers' Trip Generation Manual ***(Trip Generation, 8th Edition, Institute of Transportation Engineers, Washington D.C., 2008.)*** provides a vehicle occupancy ratio range of 1.8-2.4 for commercial airports. For the purposes of this calculation, a 2.0 vehicle occupancy was assumed.

9. Assumed that if a passenger lived within 20 miles of the airport (Selma, Madera), they would use Fresno. An average of 20 miles one-way (40 miles roundtrip) was assumed for passenger trip length (also used in General Aviation calculation).
10. One 40.0 mile roundtrip assumed for drive alone, carpool and rental share and two roundtrips (total 80 miles) assumed for drop-off/pick-up and taxi/limousine shares.

General Aviation Service VMT Calculation Data

11. 12 months of operations data ending 9/2011 provided by airport (129,116)
12. GA service accounted for 79,478 operations
13. The number of touch and go operations, present or historical, is not documented for the airport. Based on FAA AC 150/5060-5, the percentage of general aviation operations that are touch and go can be estimated anywhere between zero to 40%. Due to a lack of any information other than the knowledge that touch and go operations do occur, it was assumed that 10% of all general aviation operations are touch and go.
14. It was assumed that 1 roundtrip is generated by 2 operations (one take-off and one landing)

Transit VMT Calculation

15. Transit VMT not based on passenger data but the route and schedule of FAX Routes 26/39 that currently serves the airport
    - Route length approx 35 (route 26) & 21 (route 39) miles – estimated by following the route in Google Maps
    - 28/30 trips daily during week
    - 12 trips daily during weekend

Appendix C - 5

Sustainable Site and Land Use Compatibility

Fresno Yosemite International Airport Land Use Compatibility Plan

City of FRESNO

Adopted:

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AIRPORT LAND USE COMPATIBILITY PLAN

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FRESNO YOSEMITE INTERNATIONAL AIRPORT LAND USE COMPATIBILITY PLAN

CHAPTER 1 : INTRODUCTION – SCOPE OF THE PLAN

1.1 Authority and Purpose

Requirements for creation of airport land use commissions were first established under the California State Aeronautics Act (Public Utilities Code Section 21670, et seq.) in 1967. The fundamental purpose of the Airport Land Use Commission (ALUC or Commission) is to promote land use compatibility around airports and is expressed in the statute as:

"*... to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.*"

The statutes give ALUC's the following powers and duties, subject to limitations, by which to accommodate the following:

- Assist local agencies in ensuring compatible land uses in the vicinity of airports to the extent that land in the vicinity of the airport is not already devoted to incompatible uses.
- Coordinate planning at the state, regional and local level, so as to provide for the orderly development of air transportation, while at the same time protect public health, safety and welfare;
- Prepare and adopt airport land use compatibility plans.

The State Aeronautics Act (Public Utilities Code, Section 21670 et seq.) requires preparation of an airport land use compatibility plan for nearly all public-use airports in the State of California (Section 21675). Compatibility Plans specifically provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission and safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

1.2 Airport Identification

The airport addressed by this plan is Fresno Yosemite International Airport (FYI). Prior to October 3, 1996, FYI was known as the Fresno Air Terminal. The official Federal Aviation Administration (FAA) identifier has remained FAT.

1.3 Geographic Coverage

The policies of this Airport Land Use Compatibility Plan ("Compatibility Plan") apply to all land within the Airport Influence Area. The Airport Influence Area (AIA) is depicted in Figure 4.5 and consists of all land within the 60 or greater CNEL contours (refer to Figure 4.1) and within Safety Compatibility Zones 1 through 5 (refer to Figure 4.2.1).

1.4 Jurisdictions Affected

The jurisdictions affected by this Compatibility Plan are the City of Fresno, the City of Clovis, and the County of Fresno.

1.5 Limitations of the Plan

There are important limitations to an ALUC's authority. ALUC's have no authority over either existing land uses (Section 21670(a)(2)) or the operation of airports (Section 21674 (a)). Once a local agency has made its general plan consistent with the ALUC plan, the ALUC's authority to review projects within that jurisdiction is narrowly limited. The only actions for which review remains mandatory are proposed adoption or amendment of general plans, specific plans, rezone applications, text amendments to the zoning ordinance, and building regulations affecting land within an AIA. Submittal of individual projects for ALUC review is voluntary.

CHAPTER 2: AIRPORT INFORMATION

2.1 Planning Status

FYI, in cooperation with the FAA, updated the airport master plan in 2006. Known as the January 2006 FYI Master Plan Update (AMP), the process included a total of six meetings with input from the public and several agencies, including the ALUC. Although not formally adopted, the AMP provides a 20 year planning window for FYI, including an FAA approved 20 year aviation demand forecast, and an FAA approved Airport Layout Plan (ALP).

2.2 Airport Layout Plan

Refer to Figure 4.4, FAA approved ALP.

2.3 Airport Activity

FYI is the largest and busiest commercial service airport in California's Central Valley and is owned and operated by the City of Fresno. The principal runway (11L-29R) is 9,227 feet long and 150 feet wide. A parallel runway (11R-29L) is 7,206 feet long and 100 feet wide. The elevation of the airport is 336 feet above Mean Sea Level (MSL).

FYI is a joint use civilian/military airport. It is used by commercial air carriers, air cargo operators, charter operators, the State of California, general aviation, and the United States military. The California Air National Guard (CANG) occupies a 58 acre area adjacent to McKinley Avenue in the southeast portion of FYI. A helicopter repair and maintenance unit of the Army National Guard, the California Division of Forestry, and a number of corporate aviation businesses occupy facilities north of the runways. About 250 general aviation aircraft are based at FYI and two Fixed Base Operators (FBO's) offer a wide range of aeronautical services.

The AMP and subsequent joint environmental document (EA/EIR) took into consideration the 20 year FAA approved aviation demand forecast, which was a key step in providing a basis for determining the aviation development and activity at the airport. The aviation demand forecast data and detailed distribution of operations can be found in the EA/EIR.

CHAPTER 3: COMPATIBILITY POLICIES & CRITERIA

3.1 Noise

The purpose of noise compatibility policies is to avoid establishment of new noise-sensitive land uses and exposure of the users to levels of aircraft noise that can disrupt activities involved. The noise contours established for the purpose of evaluating noise compatibility of land use are depicted on Figure 4.1. The state law (Public Utilities Code Section 21675(a)) requires that noise contours reflect the anticipated growth of the airport during at least the next 20 years. The AMP and EA/EIR provided the activity forecast used in the contour calculations.

(1) Airport land use noise compatibility shall be evaluated in terms of the Community Noise Equivalent Level (CNEL), as defined in Title 21, Subchapter 6, of the California Code of Regulations (noise standards). Wherever used in this plan, the term CNEL shall be assumed to be an annual average.

(2) The maximum noise exposure which shall be considered normally acceptable for residential areas is 65 db CNEL. The residential area criterion establishes the baseline from which noise compatibility for other land uses shall be evaluated.

(3) The relative acceptability or unacceptability of particular land uses with respect to the noise levels to which they would be exposed is indicated in the "Airport Land Use Noise Compatibility Criteria" matrix, Table 1. These criteria shall be the principal determinants of whether a proposed land use is compatible with the noise impact from FYI. Special circumstances which would affect the specific proposal's noise sensitivity (e.g., the extent or lack of outdoor activity) shall also be taken into account.

(4) A condition for approval of a proposed land use which is shown on Table 1 identified as "Conditional" for a given noise environment shall be that the building intended for habitation or occupation provide a satisfactory degree of noise attenuation. Table 2 sets forth the permitted interior noise levels. If the structure can reduce the noise exposure to the outlined noise levels, the use may be deemed compatible.

(5) New residential development and new schools shall be prohibited within the 65 CNEL contour of FYI unless it is determined that there is no feasible alternative to such development of the subject property and provided that the following conditions are met:

(a) The record property owner grants an avigation easement to the City of Fresno.

(b) The record property owner executes an agreement in favor of the City of Fresno, whereby the property owner shall indemnify, hold harmless and defend the City and every officer and employee thereof from any and all loss, liability, damages, costs, suits or claims arising out of the location of the development within the 65 CNEL contour.

(c) New residential structures shall incorporate noise insulation in compliance with Title 24 of the California Code of Regulations such that interior noise levels are reduced to no more than 45 db CNEL.

(6) An acoustical analysis shall be required prior to the approval of a special permit (site plan or conditional use permit) for any new residential use, transient lodging, school, library, hospital, nursing home, day nursery, church, auditorium or a concert hall located within a 65 or greater CNEL contour. For single family residential proposals, an acoustical analysis shall be required as a condition of subdivision map approval, said analysis to be submitted prior to the issuance of building permits. The acoustical analysis shall be completed in a manner consistent with Title 24 of the California Code of Regulations. A special permit for the uses listed above shall not be approved unless the acoustical analysis demonstrates that interior noise levels attributable to exterior sources does not exceed 45 db CNEL in any habitable room with windows and doors closed. In quantifying aircraft noise exposure of the project site, the acoustical analysis shall include consideration of engine run up noise where applicable. A single report may suffice for all similar proposals within the same CNEL contour.

(7) Within the 70 CNEL contour, new or redeveloped schools, hospitals, nursing homes, libraries, day nurseries, churches, auditoriums, and amphitheaters shall be prohibited. New residential uses (excluding

transient lodging) shall be prohibited, except as provided for in Policy No. (8), below.

(8) Existing residential uses lying within the 70 CNEL contour, that conform to the land use designations of this plan, may be remodeled in such a way that does not increase the floor space of the residence, or rebuilt if destroyed by fire, explosion or other catastrophic means. A use is considered to be destroyed if the cost of reconstruction, repairing or rebuilding would exceed fifty percent of the reasonable replacement value of the building immediately prior to the destruction.

(9) When applying the noise compatibility criteria listed in Table 1 to a given location, the basis for evaluation shall be the maximum CNEL contour shown in the Compatibility Plan.

(10) If a noise analysis, including noise monitoring, indicates that project noise exposure may be higher or lower than indicated by the Airport Land Use Noise Compatibility Criteria, Table 1, due to site-specific conditions or changes in Airport/aircraft operations, the noise exposure used for project evaluation may be adjusted at the discretion of the ALUC.

3.2 Overflight

Noise from individual aircraft can be intrusive and annoying in locations beyond the limits of the mapped noise contours. Sensitivity to aircraft overflights varies from one person to another. The purpose of overflight compatibility policies is to help notify people about the presence of overflights near airports so that they can make informed decisions regarding acquisition or lease of property in the affected areas. Overflight compatibility is particularly important with regard to residential land uses.

(1) The overflight compatibility of proposed land uses within the AIA shall be evaluated in accordance with the policies set forth in this section.

(2) Except when overriding circumstances exist, a condition for approval of any residential development proposal (i.e., zone change, subdivision map, conditional use permit, site plan review) within the AIA, as defined herein, shall be the dedication of an avigation easement to the City of Fresno.

(3) An Avigation Easement and Agreement shall be required for all development proposals (commercial, industrial or residential) within the 65 CNEL contour. The avigation easement shall contain the following property rights:

(a) Right-of-flight at any altitude above acquired easement surfaces.

(b) Right to generate noise, vibrations, fumes, dust and fuel particle emissions.

(c) Right-of-entry to remove, mark, or light any structures or growths above easement surfaces.

(d) Right to prohibit creation of electrical interference, unusual light sources, and other hazards to aircraft flight.

(e) Right to prevent erection or growth of all objects above acquired easement surfaces.

The easement surfaces acquired shall be based on Part 77 of the Federal Aviation Regulations except that no easement surface less than 35 feet above ground shall be acquired.

(4) A Covenant shall be required as a further condition for approval of residential development proposals within the AIA and all development proposals within the 65 CNEL contour. The Council of the City of Fresno shall, except where overriding circumstances exist, require the property owner(s) to record a covenant providing the following:

(a) That it is understood by the owners and owners' successors in interest that the real property in question lies close to the Fresno Yosemite International Airport and that the operation of the airport and the landing and take-off of aircraft may generate high noise levels which will affect the habitability and quiet enjoyment of the property.

(b) That the owners covenant to accept and acknowledge the operation of the Fresno Yosemite International Airport.

(5) The above avigation easement, covenants, conditions and restrictions shall be recorded in the office of the Fresno County Clerk/Recorder and shall run with the land and shall be binding upon the present and subsequent owners of the property.

(6) Effective January 1, 2004, California state statutes (Business and Professional Code Sections 1102.6, 1103.4 and 1353) require that, as part of residential real estate transactions, information be disclosed regarding whether the property is situated within an AIA. Buyer notification shall be accomplished by the use of real estate disclosure statements for property within the AIA. The disclosure statements shall notify the buyers of property located within the AIA of Fresno Yosemite International Airport

and that aircraft overflights may affect the habitability and quiet enjoyment of the property.

3.3 Safety

The intent of land use safety compatibility is to minimize the risks associated with an off-airport aircraft accident or emergency landing. Risks both to people and property on the ground in the vicinity of the airport and to people on board aircraft are considered. The safety compatibility of land use development is outlined in Table 3. The zone boundaries are based upon general aviation aircraft accident location data contained in the California Airport Land Use Planning Handbook ("Caltrans Handbook") along with data regarding the runway configuration and aircraft operational procedures at FYI.

(1) Land uses or land use characteristics which may affect safe air navigation or because of their nature and proximity to an airport, may be incompatible with the airport and shall be avoided in the vicinity of FYI.

(2) The criteria which shall be used to evaluate whether a land use is acceptable with respect to its airport proximity are set forth in Table 3, entitled Airport Land Use Safety Compatibility Criteria. The indicated Safety Compatibility Zones (SCZs), as defined in the Caltrans Handbook, shall be used.

NOTE: Within SCZs 3 and 4 the following shall apply:

(a) Existing development that conforms to existing zoning regulations in effect prior to February 20, 1987 may be rebuilt in the event it is destroyed by fire or Act of God.

(b) The regulations identified in the Caltrans Handbook are not intended to take development rights such that the economic viable use of land is unduly restricted. Therefore, development of vacant property or redevelopment of property in accordance with the zoning regulations in effect prior to February 20, 1987 shall not be prohibited on the basis of the restrictions set forth in Table 3. This provision shall not apply to schools, hospitals, nursing homes, churches, auditoriums, concert halls, amphitheaters or other uses that would result in a large concentration of people.

(3) Land uses which attract wildlife that pose a hazard to aviation activities are a special concern adjacent to airports. Examples of land use which may attract hazardous wildlife include landfills and bodies of standing water. In reviewing a project for safety compatibility, the most current version of the FAA Advisory Circular AC No. 150/5200-33 (Hazardous Wildlife Attractants On or Near Airports) shall be considered. The review area identified in this circular is outlined as the boundary within 10,000 feet of the Airport Operations Area.

3.4 Airspace Protection

The objective of airspace protection policies is to ensure that structures and other uses of the land do not cause hazards to aircraft in flight in the airport vicinity. Hazards to flight include physical obstructions to the navigable airspace, wildlife hazards (particularly bird strikes) and land use characteristics that create visual or electronic interference with aircraft navigation or communication. Boundaries of this zone represent the imaginary surfaces defined for the airport in accordance with Federal Aviation Regulations (FAR) Part 77.

(1) No structure, tree, or other object shall be permitted to exceed the height limits established in accordance with Part 77, Subpart C, of the FAR. This criterion applies unless, in the case of a proposed object or growing tree, one or more of the following conditions exist:

(a) The object would be substantially shielded by existing permanent structures or terrain in a manner such that it clearly would not affect the safety of air navigation;

(b) The FAA has conducted an aeronautical study and either determined that the object would not result in a hazard to air navigation or made recommendations for the object's proper marking and lighting as an obstruction, and FAA recommendations, if any, are properly implemented;

(c) The object is otherwise exempted from the requirements of FAR Part 77.

In the case of an existing object, this criterion also applies unless the object exceeded the prescribed height limits prior to February 20, 1987, in which case marking and lighting may still be required.

(2) No object shall be permitted to be erected that, because of height or other factors, would result in an increase in the minimum ceiling or visibility criteria for an existing or proposed instrument approach procedure to any runway.

(3) The FAR Part 77 surfaces depicted on the Airspace Protection Surfaces (Figures 4.3.1 through 4.3.5) shall be used in conjunction with the above airspace policies to determine whether the height of an object is acceptable.

CHAPTER 4: COMPATIBILITY ZONE MAPS

4.1 Noise Contours

The recently updated AMP and the adopted EA/EIR provides the activity forecast used in the contour calculations. Refer to Figure 4.1, Noise Contours.

4.2 Safety Zones

The Caltrans Handbook, January 2002, provides guidance for Safety Zone Configuration. These zones are delineated based on the type of airport, size of airport, and operational characteristic. Refer to Figure 4.2.1, Safety Compatibility Zones.

4.3 Airspace Protection Surfaces

Part 77 of the FAR, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions to navigable airspace and the effects of such obstructions on the safe and efficient use of that airspace. Refer to Figures 4.3.1 through 4.3.5, Airspace Protection Surfaces.

4.4 Airport Layout Plan

The Airport Layout Plan (ALP) is an FAA approved document that depicts planned development at the airport. Refer to Figure 4.4 (2006 FAA approved ALP). For evaluation purposes the most recent ALP on file with FAA shall be used.

CHAPTER 5: PROCEDURAL POLICIES

5.1 Types of Actions Reviewed by the Airport Land Use Commission (ALUC)

The following types of actions must be referred to the ALUC for review when the affected property is located in the Airport Influence Area (AIA – see Figure 4.5):

a) Adoption or amendment of general plans, community plans and specific plans;
b) Rezoning applications or text amendments to the zoning ordinance;
c) Airport Master Plans
d) Building Regulations

The following types of local actions do NOT require ALUC review:

e) Conditional Use Permits and Site Plan Reviews
f) Variances
g) Subdivision or Parcel Maps

5.2 Types of Actions that Require Consistency with Airport Land Use Compatibility Plan Policies:

The following types of local actions require consistency with the plan policies included in this document when the affected property is located in the AIA:

a) Rezoning applications,
b) Conditional use permits, and site plan reviews,
c) Variances,
d) Subdivision maps and parcel maps

Interpretation Guidelines:

a) If a parcel of land is partially within the AIA, the entire parcel is considered to be subject to the land use consistency requirements of this plan.

b) In the event that it cannot be precisely determined from the AIA Map whether a parcel of land is within the AIA, the determination in this regard shall be made by the Director of the Development and Resource Management Department. The Director's Determination shall be final.

5.3 Project Information

The Fresno County Airport Land Use Commission Application Review Form is used for submittal of a project to the ALUC for review.

5.4 Timing of Review

Time is a factor with regard to the project review process in two ways:

a) Timing of Project Submittal. Plans and projects shall be referred to the ALUC at the earliest reasonable point in time so that the commission's review can be duly considered by the local jurisdiction prior to formalizing its actions. Depending upon the type of plan or project and the normal scheduling of meetings, ALUC review can be done before, after or concurrently with review by the local planning commission and other advisory bodies, but must be accomplished before final action by the decision making bodies.

b) Response Time Requirement. ALUC must respond within 60 days of referral to local agency requests for a consistency determination on plans or projects for which submittal is mandatory. However, this response period does not begin until such time as all information necessary for accomplishment of the project review has been submitted to the commission..

5.5 ALUC Action Choices

ALUC choice of action on a land use plan or project submitted for review may either be consistent or inconsistent with the compatibility plan. Although the Aeronautics Act (Sections 21676(a) and 21676.5(a)) mentions only the above two choices of action, the Fresno County ALUC has decided to allow a third option: consistent with conditions. When a finding of consistency with conditions is made, the conditions should be limited in scope and described in a manner which allows compliance to be clearly assessed.

5.6 Overruling an ALUC Decision

Various sections of the airport land use commission statutes provide for local agencies to overrule ALUC decisions on land use matters and airport master plans. The overruling process involves the three following mandatory steps:

a) The holding of a public hearing (and as a courtesy it is recommended to inform the ALUC of such hearing);

b) The making of specific findings that the action proposed is consistent with the purposes of the ALUC statute; and

c) Approval of the proposed action by a two-thirds vote of the agency's governing body.

CHAPTER 6: INITIAL REVIEW OF GENERAL PLAN CONSISTENCY

The Caltrans Handbook specifically outlines that to be fully consistent with the compatibility plan, a general plan must not have any direct conflicts with the compatibility plan; and must delineate a mechanism or process for ensuring that individual land use development proposals comply with the ALUC criteria.

The City of Fresno FYI Airport Land Use Compatibility Plan is an amendment to an existing specific plan (the FYI Airport and Environs Plan, 1997). It does not change the planned land use designations in the 2025 Fresno General Plan or the applicable community plans, specific plans or redevelopment plans, nor does it change zoning designations within the scope of the plan area. It simply updates noise contours and safety zone configurations, while maintaining the noise and safety-related land use policies that must be applied to property within the AIA. As such, it is a refinement of the 2025 Fresno General Plan and the McLane, Hoover and Roosevelt Community Plans and applicable redevelopment plans within the AIA.

Furthermore, there are no conflicts between the City of Fresno FYI Airport Land Use Compatibility Plan and the County of Fresno ALUC Compatibility Land Use Plan (CLUP) adopted in October 2010. As outlined by the Caltrans Handbook, consistency does not require being identical. It means only that the concepts, standards, physical characteristics, and resulting consequences of proposed action must not conflict with the intent of law or the compatibility plan to which the comparison is made. The two plans are virtually identical, with slight variation in Chapters 5 and 6 related to processing procedures and general plan consistency. Therefore, they meet the criteria of compatibility set forth in state law.

TABLE 1
AIRPORT LAND USE NOISE COMPATIBILITYCRITERIA

LAND USE CATEGORY	Exterior Noise Exposure (CNEL)		
	60-65	65-70	70-75
Residential, Lodging, and Care			
*Residential (including single-family, multi-family)	0	–	–
Retirement homes, residential support facilities, hospitals, nursing homes, large child day care centers, adult day care facilities	0	0	–
*Hotels, motels, other transient lodging	0	0	–
*Mobile Homes	0	–	–
Public and Institutional			
* Schools, libraries	0	0	–
*Places of worship, auditoriums, concert halls, theaters, indoor arenas	0	0	–
Cemeteries, Parking	+	+	0
Commercial and Industrial			
Offices, service commercial, retail, shopping centers, restaurants	+	0	–
Wholesale, warehousing, research and development, light industrial	+	+	0
Extractive industry, industrial, manufacturing, utilities	+	+	0
Agricultural, and Recreational			
Cropland	+	+	+
Nature preserves, Livestock breeding, Zoos	0	0	–
Regional parks, athletic fields, golf courses, outdoor spectator sports, water recreational facilities, horse stables	+	0	0
Amphitheaters	0	–	–

TABLE 1 (cont)
AIRPORT LAND USE NOISE COMPATIBILITY CRITERIA

LEGEND

Symbol	Land Use Acceptability	Interpretation/Conditions
+	**Compatible**	The activities associated with the specific land use may be carried out with essentially no interference from aircraft noise.
0	**Conditional**	The indicated noise exposure will cause interference with the activities. Building structure must be capable of attenuating noise to the indoor acceptable CNEL, standard construction methods will normally suffice. Indoor Uses: Noise exposure may cause moderate interference with indoor activities, extensive construction features required to make the indoor environment acceptable. Outdoor Uses: CNEL is acceptable for outdoor activities, although some noise interference may occur, caution should be exercised with regards to noise-sensitive uses.
_	**Incompatible**	Unacceptable noise interference upon these activities will occur indoor and outdoor. Adequate structural noise insulation is not practical under most circumstances. Severe noise interference makes outdoor activities unacceptable
*	**Acoustical Analysis Required**	An acoustical analysis shall be performed by an individual or firm experienced in Acoustical Engineering

TABLE 2

INTERIOR NOISE LEVEL REDUCTION (dBA)
CNEL RANGE (Annual Average)

GENERALIZED LAND USE	60-65	65-70	70-75
Residential	AS	--	--
Transient Lodging	AS	25[1]dBA	--
Schools, Hospitals and Nursing Homes	AS	25[1]dBA	--
Commercial	AS	AS	25dBA
Manufacturing[2]	+	AS	25dBA

Legend

\+ Uses normally acceptable.

-- Uses should not be permitted.

1 Acoustical studies may indicate a need for additional insulation in noise sensitive living areas such as sleeping quarters and areas of the facility used at night for relaxing and conversing.

2 Noise level reductions are for those portions of the buildings where the public is received, office areas, and noise sensitive areas where noise levels are low.

AS Acoustical studies shall be performed to determine if insulation should be added to sensitive occupancy areas.

TABLE 3

AIRPORT LAND USE SAFETY COMPATABLITY CRITERIA

LAND USE CHARACTERISTIC	SAFETY ZONES					
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Residential Uses	--	(A)	(B)	(C)	--	+
Other Uses in Structures	--	(D,E)	(E)	(E)	--	+
Other Uses Not in Structures	(D,F)	(D)	+	+	--	+
SPECIAL CHARACTERISTICS (IN OR OUTSIDE OF STRUCTURES)						
Distracting Lights or Glare	--	--	--	--	--	+
Sources of Smoke or Electrical Interference	--	--	--	--	--	+
Attractor of Birds	--	--	--	--	--	+

NOTES

1. See Figure 4.2.1, Safety Compatibility Zones.
2. Refer to figure 4.2.2 for dimensional layout of the Safety Compatibility Zones.

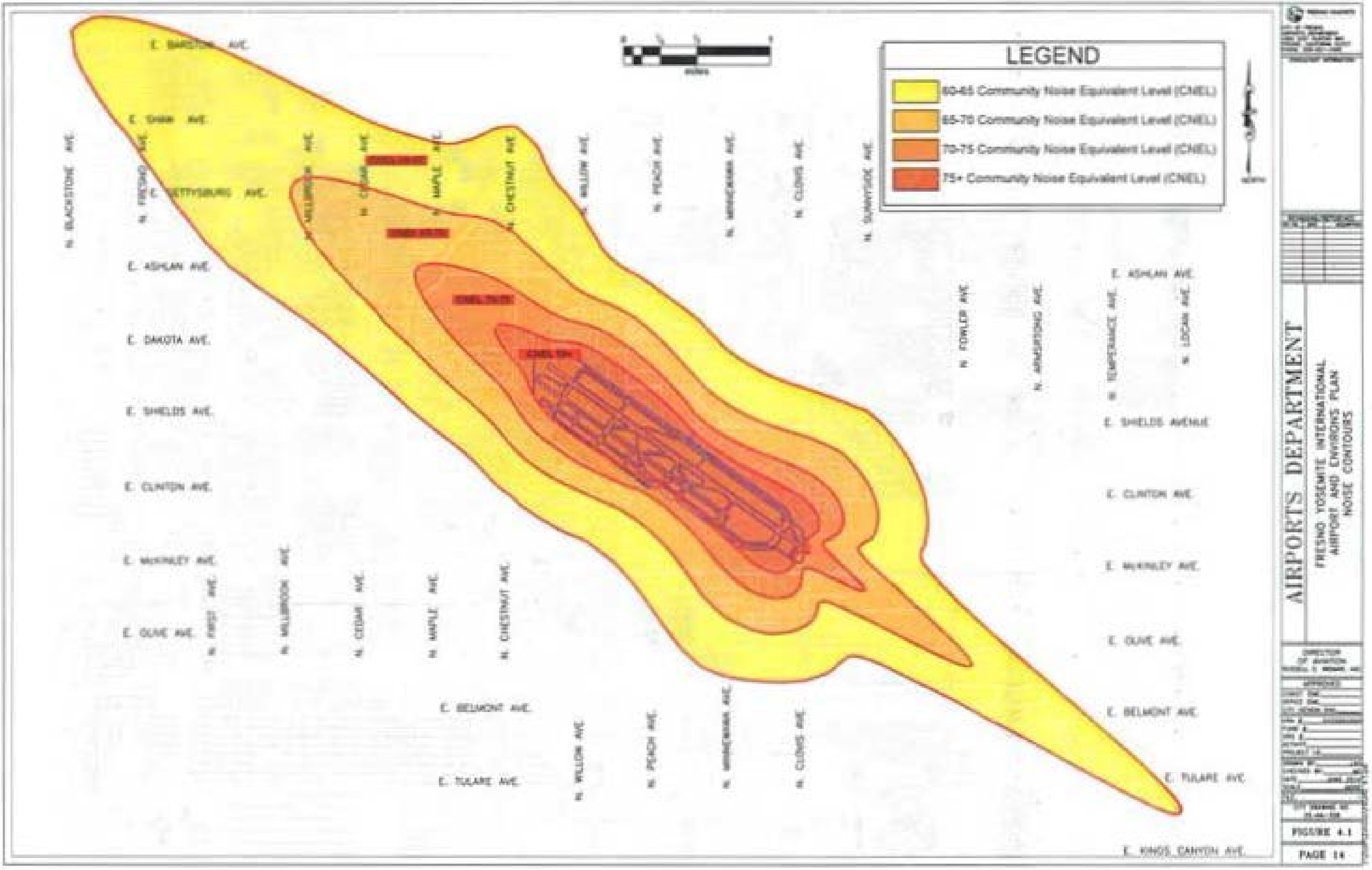
INTERPRETATION

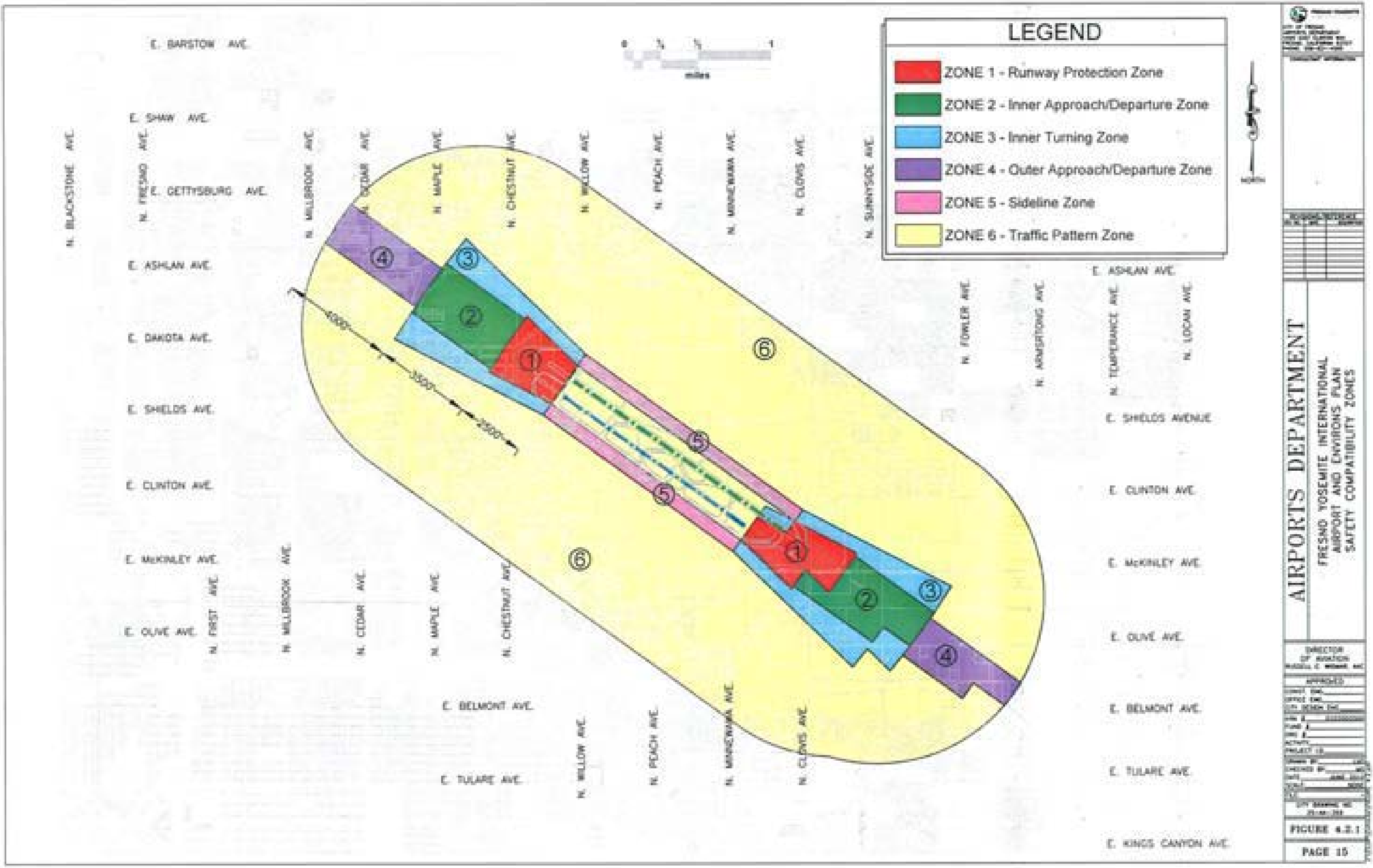
\+ Compatible: Use is acceptable with little or no risks.

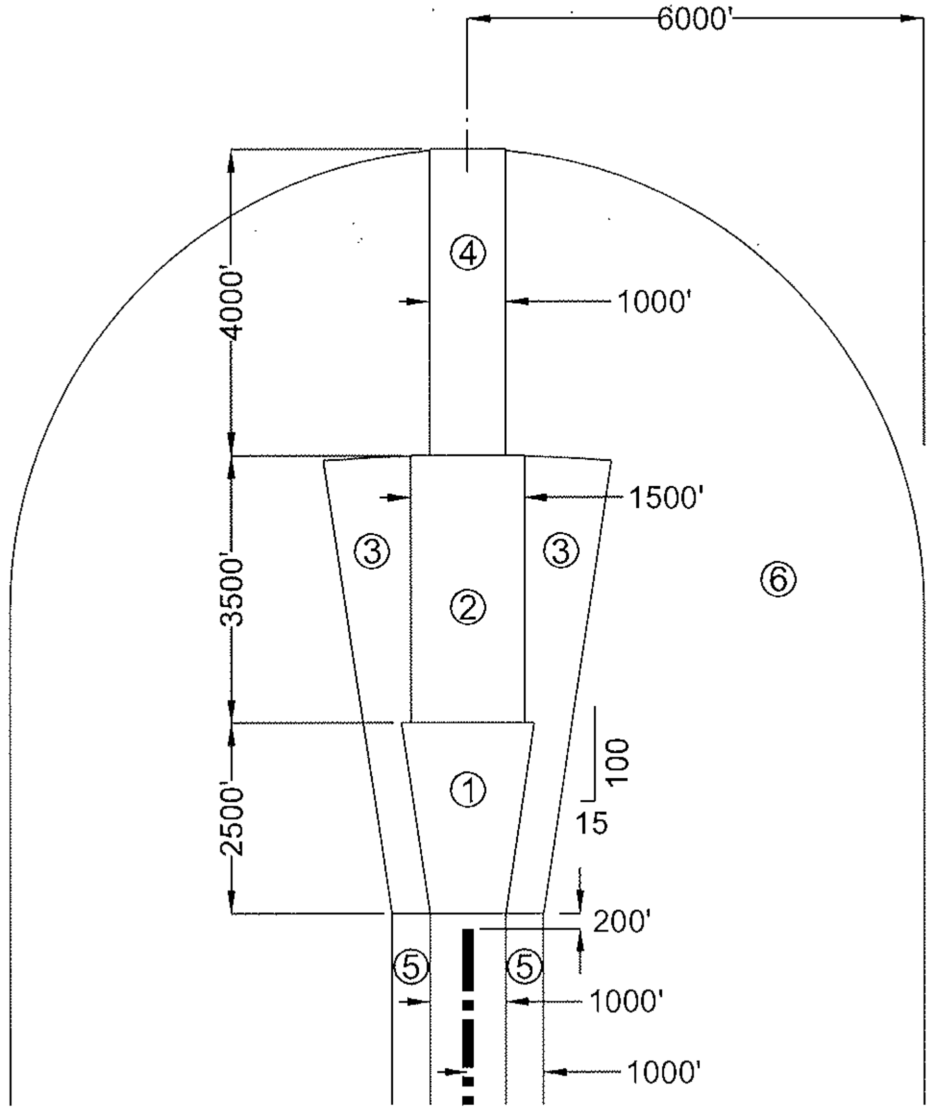
( ) Conditional: land use proposals that fall within this category must be reviewed on a case-by-case basis by Commission or jurisdiction having authority. The Commission or jurisdiction having authority may determine the use to be acceptable under conditions cited below.

A Density no greater than 1 dwelling unit per 3 acres.
B Density no greater than 2 dwelling units per acre.
C Density no greater than 5 dwelling units per acre.
D No uses attracting more than 10 persons per acre.
E No schools, hospitals, nursing homes, or similar uses.
F Characteristic cannot reasonably be avoided or located outside the indicated safety zone.

-- Incompatible: Use is unacceptable due to associated high risks.


LEGEND
60-65 Community Noise Equivalent Level (CNEL)
65-70 Community Noise Equivalent Level (CNEL)
70-75 Community Noise Equivalent Level (CNEL)
75+ Community Noise Equivalent Level (CNEL)
E. BARSTOW AVE.
E. SHAW AVE.
E. GETTYSBURG AVE.
E. ASHLAN AVE.
E. DAKOTA AVE.
E. SHIELDS AVE.
E. CLINTON AVE.
E. McKINLEY AVE.
E. OLIVE AVE.
E. BELMONT AVE.
E. TULARE AVE.
E. SHIELDS AVENUE
E. KINGS CANYON AVE.
N. BLACKSTONE AVE.
N. FRESNO AVE.
N. FIRST AVE.
N. MILLBROOK AVE.
N. CEDAR AVE.
N. MAPLE AVE.
N. CHESTNUT AVE.
N. WILLOW AVE.
N. PEACH AVE.
N. MINNEWAWA AVE.
N. CLOVIS AVE.
N. SUNNYSIDE AVE.
N. FOWLER AVE.
N. ARMSTRONG AVE.
N. TEMPERANCE AVE.
N. LOCAN AVE.
AIRPORTS DEPARTMENT
FRESNO YOSEMITE INTERNATIONAL AIRPORT AND ENVIRONS PLAN NOISE CONTOURS
FIGURE 4.1
PAGE 14


LEGEND
ZONE 1 - Runway Protection Zone
ZONE 2 - Inner Approach/Departure Zone
ZONE 3 - Inner Turning Zone
ZONE 4 - Outer Approach/Departure Zone
ZONE 5 - Sideline Zone
ZONE 6 - Traffic Pattern Zone
miles
NORTH
E. BARSTOW AVE.
E. SHAW AVE.
E. GETTYSBURG AVE.
E. ASHLAN AVE.
E. DAKOTA AVE.
E. SHIELDS AVE.
E. CLINTON AVE.
E. McKINLEY AVE.
E. OLIVE AVE.
E. BELMONT AVE.
E. TULARE AVE.
E. SHIELDS AVENUE
E. KINGS CANYON AVE.
N. BLACKSTONE AVE.
N. FRESNO AVE.
N. FIRST AVE.
N. MILLBROOK AVE.
N. CEDAR AVE.
N. MAPLE AVE.
N. CHESTNUT AVE.
N. WILLOW AVE.
N. PEACH AVE.
N. MINNEWAWA AVE.
N. CLOVIS AVE.
N. SUNNYSIDE AVE.
N. FOWLER AVE.
N. ARMSTRONG AVE.
N. TEMPERANCE AVE.
N. LOCAN AVE.
4000'
3500'
2500'
AIRPORTS DEPARTMENT
FRESNO YOSEMITE INTERNATIONAL
AIRPORT AND ENVIRONS PLAN
SAFETY COMPATIBILITY ZONES
DIRECTOR OF AVIATION
APPROVED
FIGURE 4.2.1
PAGE 15



LEGEND
1. Runway Protection Zone
2. Inner Approach/Departure Zone
3. Inner Turning Zone
4. Outer Approach/Departure Zone
5. Sideline Zone
6. Traffic Pattern Zone

RUNWAY CENTER LINE

FRESNO YOSEMITE
CITY OF FRESNO
AIRPORTS DEPARTMENT
4995 EAST CLINTON WAY
FRESNO, CALIFORNIA 93727
PHONE: 559-621-4500

CONSULTANT INFORMATION

REVISIONS/REFERENCE		
REV NO.	DATE	DESCRIPTION

AIRPORTS DEPARTMENT

FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
SAFETY COMPATIBILITY ZONES DIMENSIONAL LAYOUT

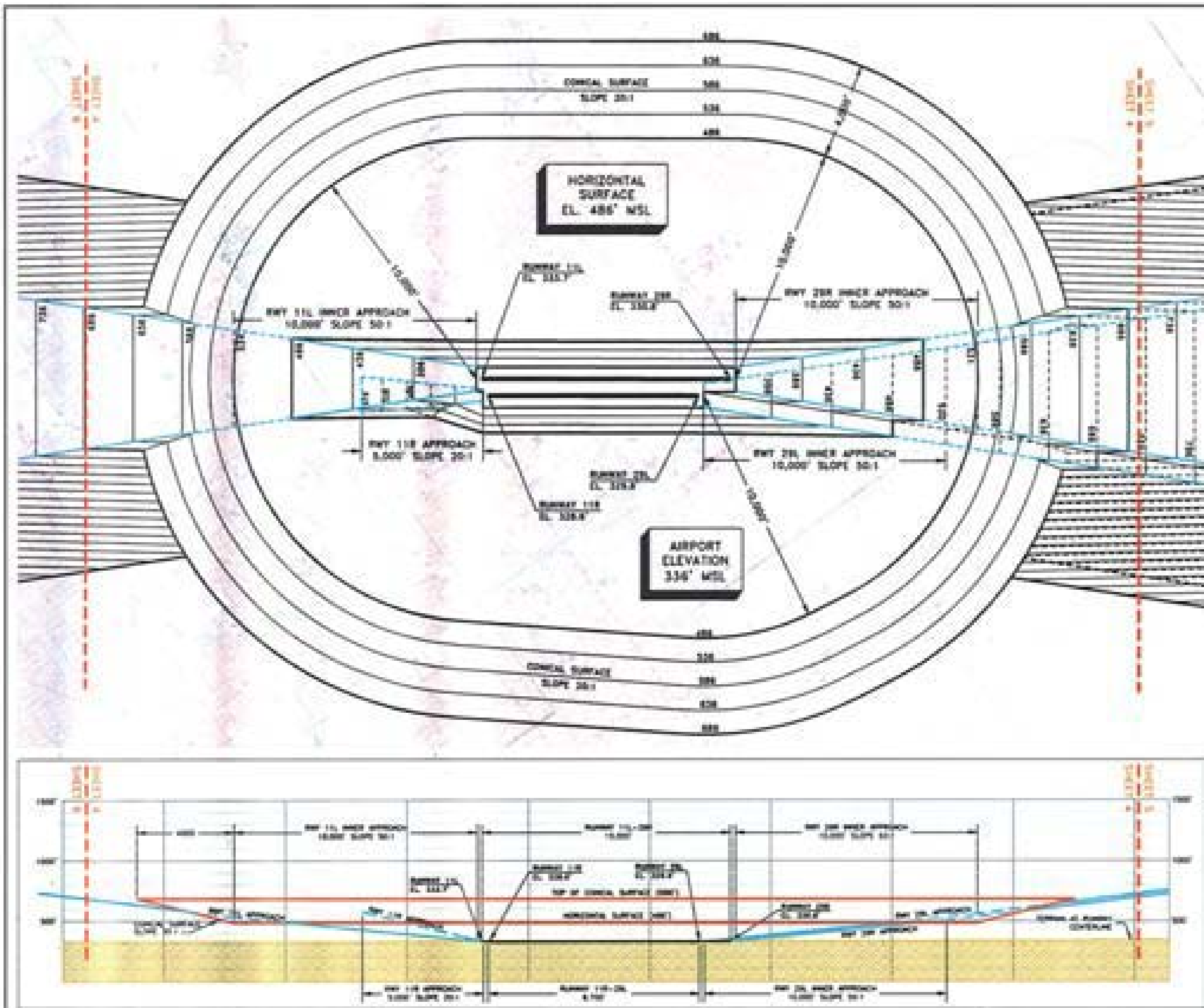
DIRECTOR
OF AVIATION
RUSSELL C. WIDMAR, AAE

APPROVED
CONST. ENG.
OFFICE ENG.
CITY DESIGN ENG.
KRA # 0102002000
FUND #
ORG #
ACTIVITY
PROJECT I.D.
DRAWN BY: LNS
CHECKED BY: MS
DATE: JUNE 2010
SCALE: NONE
FILE: -

CITY DRAWING NO.
25-A-373

FIGURE 4.2.2

J:\CLUP\Exhibits\CLUP\FIGURE 4.2.2.pdf



REVISIONS

FAR PART 77 IMAGINARY SURFACES INNER APPROACH

FRESNO YOSEMITE International Airport

URS

DATE: AUGUST 2006

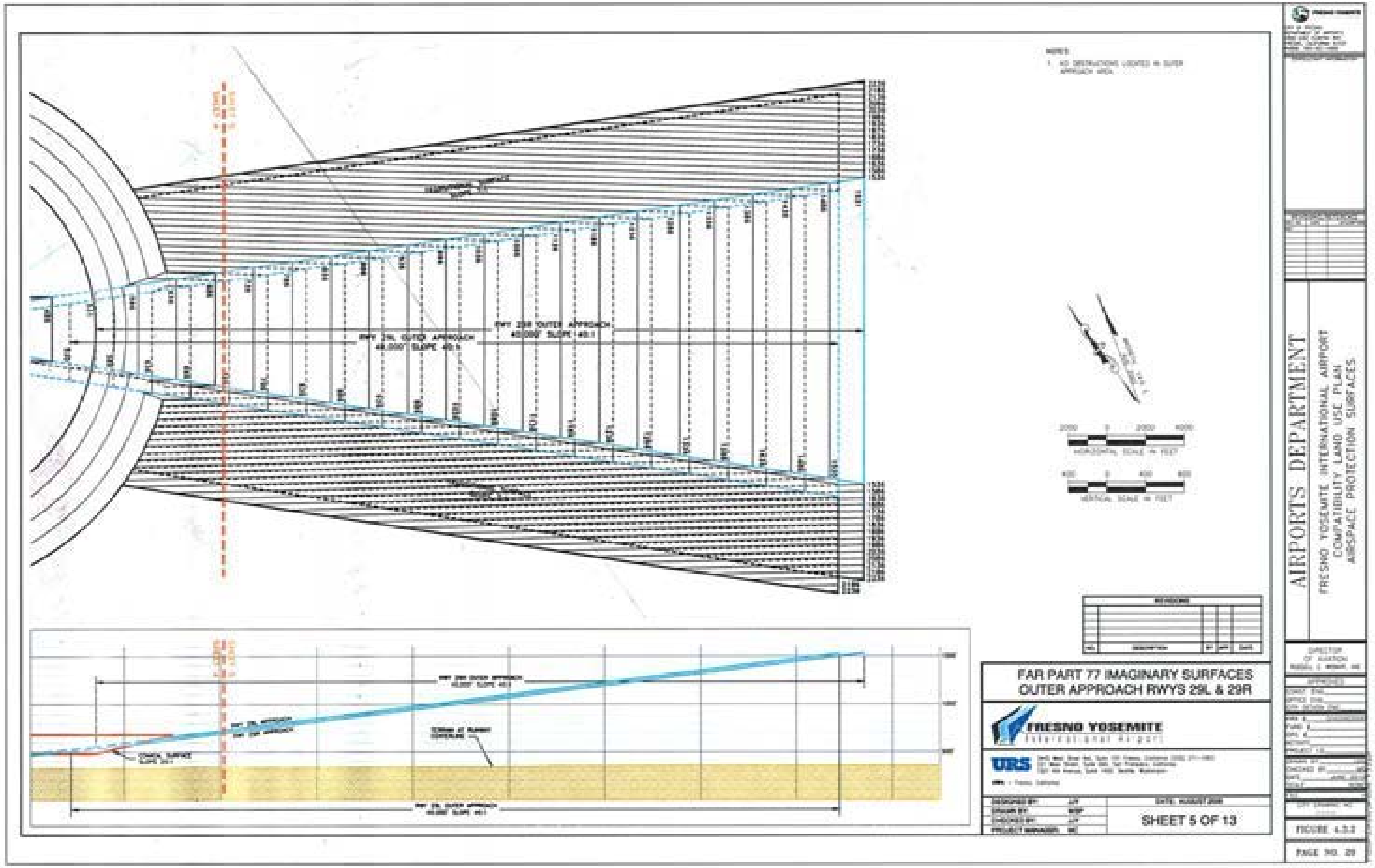
SHEET 4 OF 13

AIRPORTS DEPARTMENT

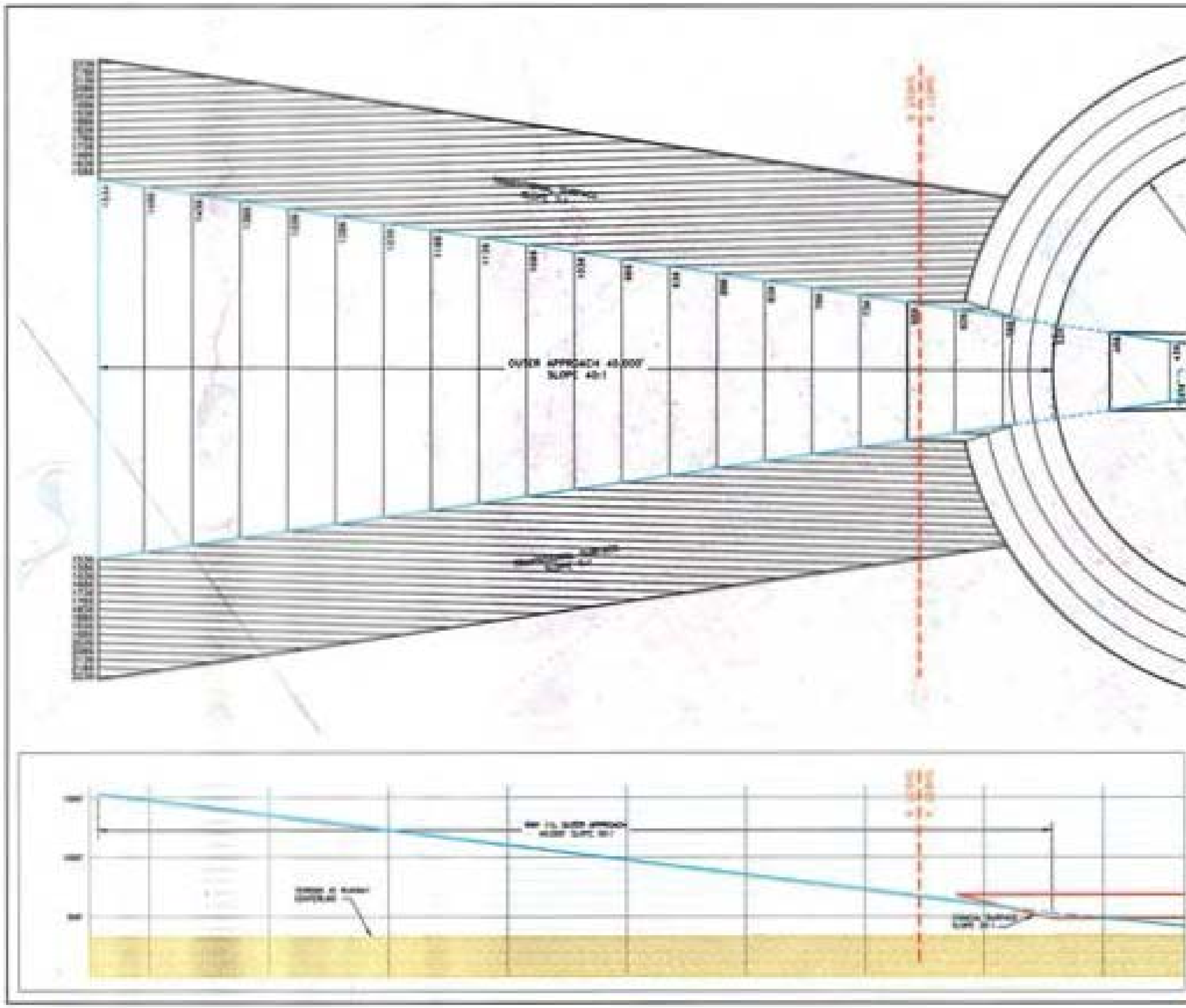
FRESNO YOSEMITE INTERNATIONAL AIRPORT COMPATIBILITY LAND USE PLAN AIRSPACE PROTECTION SURFACES

DIRECTOR OF AVIATION

FIGURE 4.3.1



RWY 29R OUTER APPROACH
40,000' SLOPE 40:1
RWY 29L OUTER APPROACH
40,000' SLOPE 40:1
HORIZONTAL SCALE IN FEET
VERTICAL SCALE IN FEET
REVISIONS
FAR PART 77 IMAGINARY SURFACES
OUTER APPROACH RWYS 29L & 29R
FRESNO YOSEMITE
International Airport
URS
SHEET 5 OF 13
AIRPORTS DEPARTMENT
FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRSPACE PROTECTION SURFACES
FIGURE 4.3.2
PAGE NO. 29



FAR PART 77 IMAGINARY SURFACES
OUTER APPROACH RUNWAY 11L

FRESNO YOSEMITE
International Airport

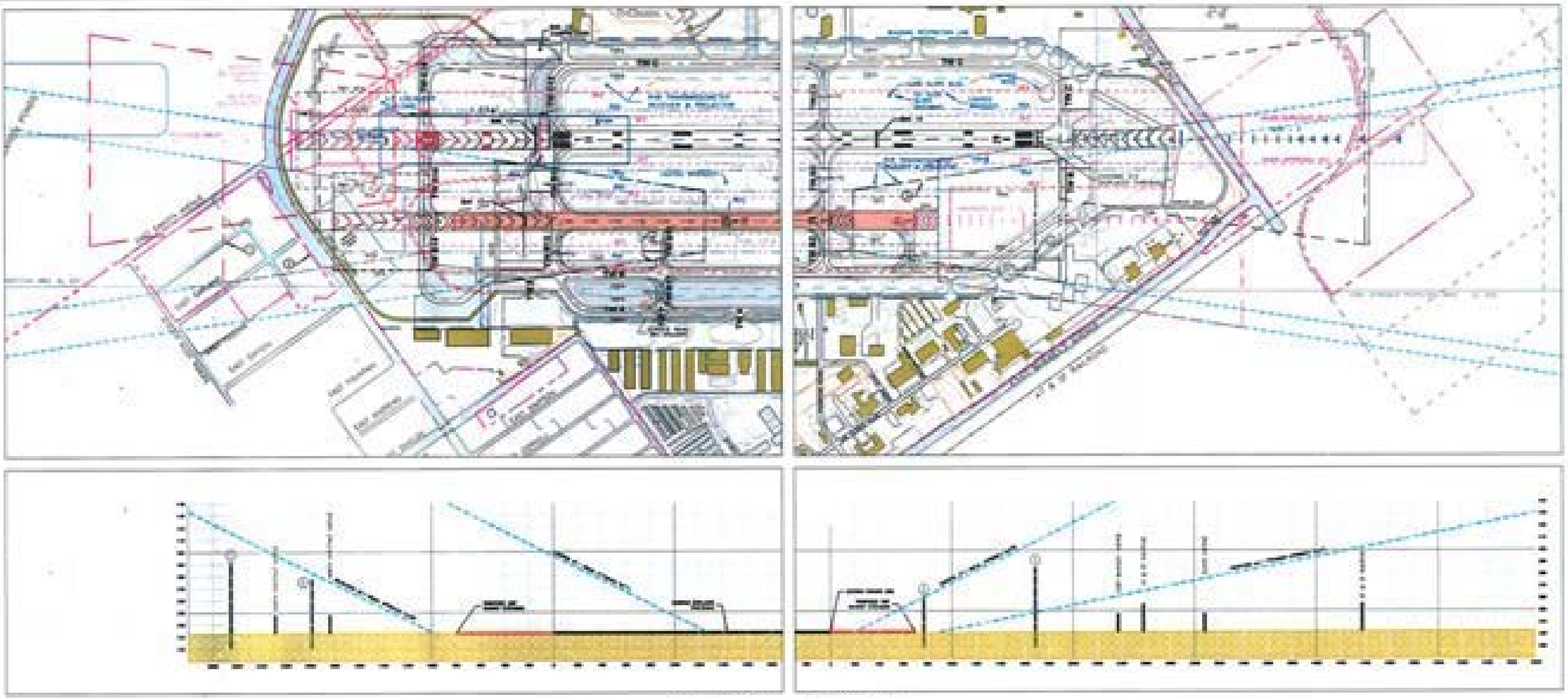
URS

SHEET 6 OF 13

AIRPORTS DEPARTMENT

FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRSPACE PROTECTION SURFACES

FIGURE 4.3.3



HORIZONTAL SCALE IN FEET

VERTICAL SCALE IN FEET

PLAN VIEW ORIENTATION

LEGEND

LIST OF OBSTRUCTIONS

REVISIONS

INNER RUNWAY APPROACH SURFACES
RUNWAY 11R-29L

FRESNO YOSEMITE
International Airport

URS

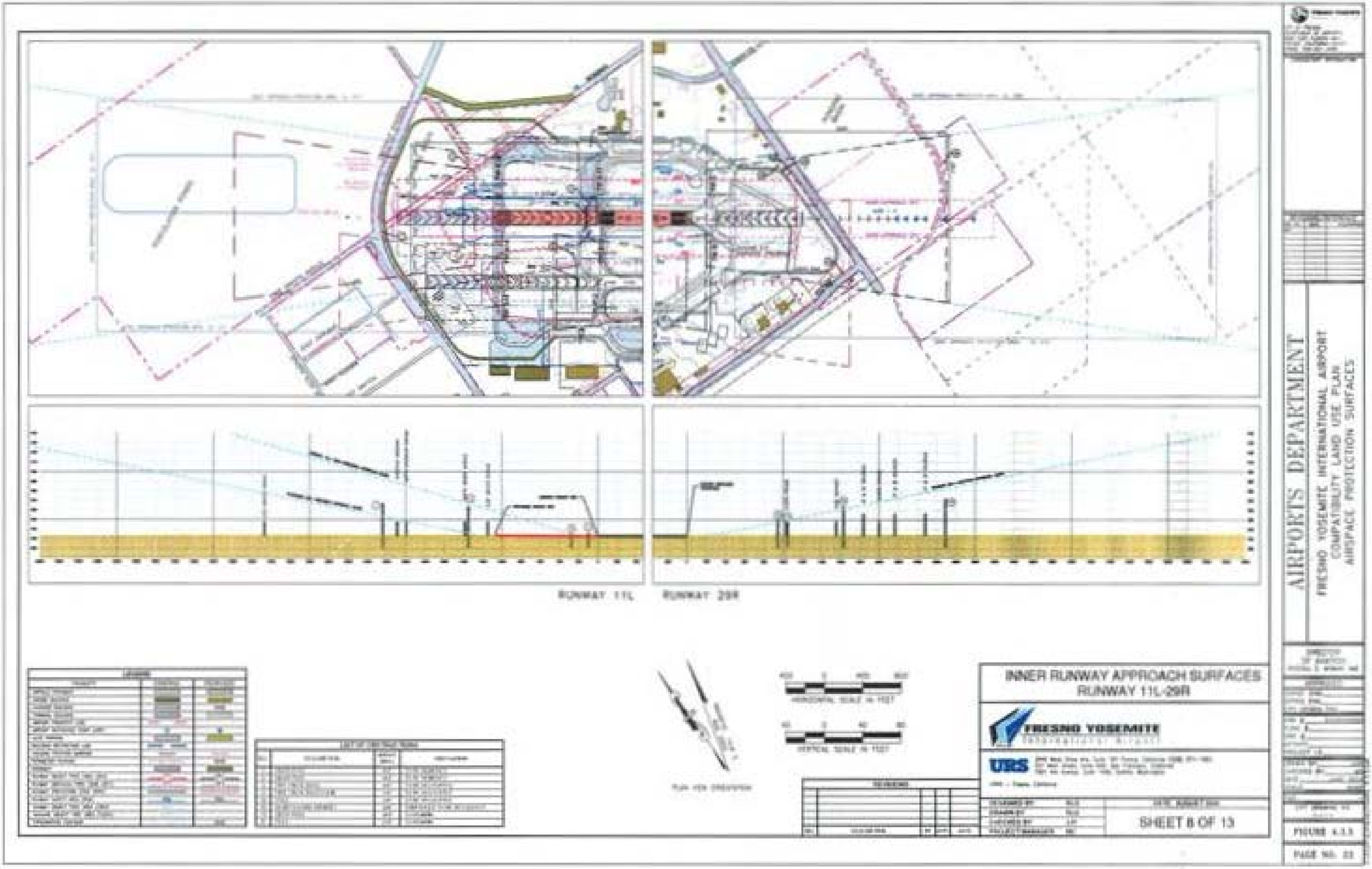
SHEET 7 OF 13

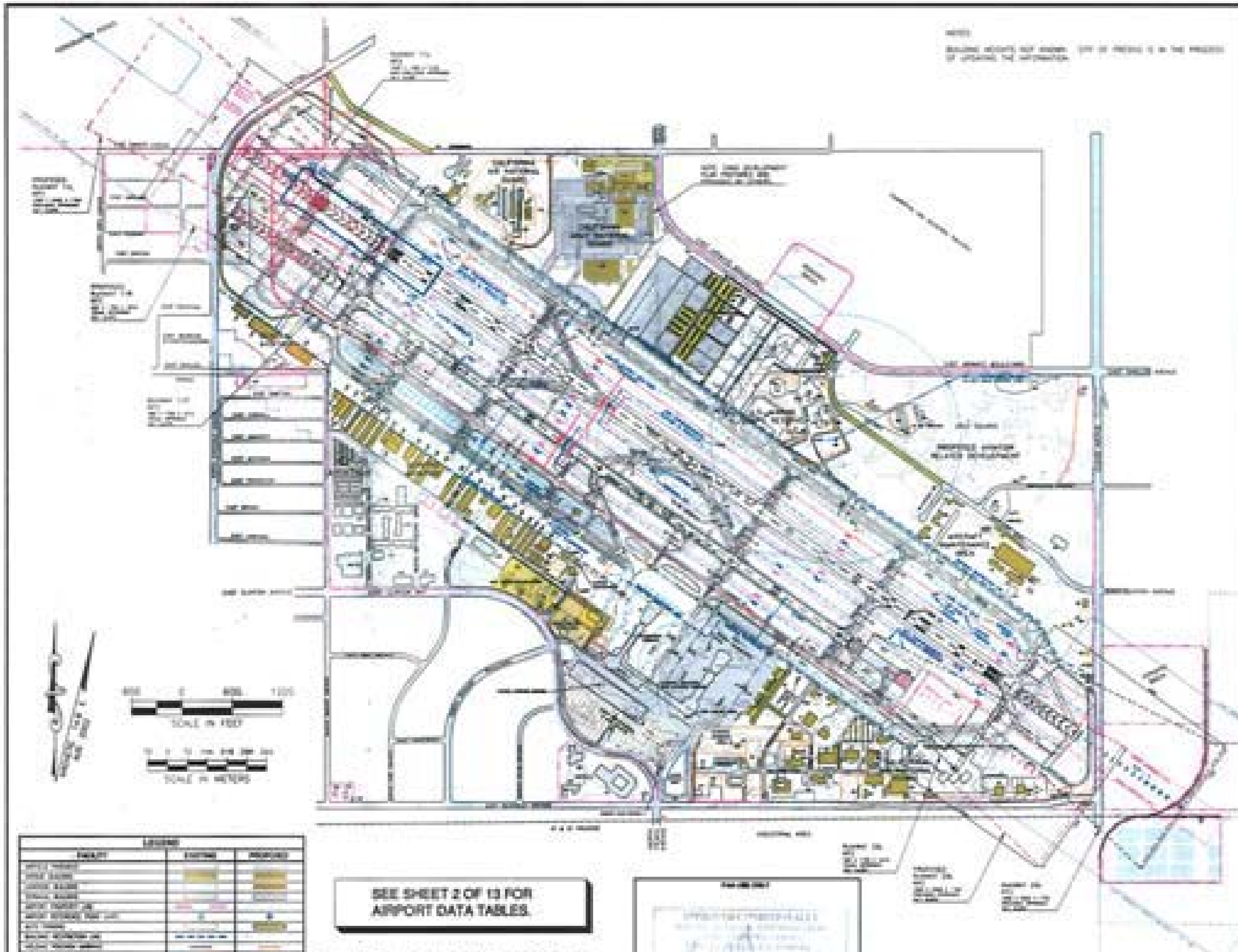
AIRPORTS DEPARTMENT

FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRSPACE PROTECTION SURFACES

DIRECTOR
OF AVIATION

FIGURE 4.3.4


RUNWAY 11L
RUNWAY 29R
INNER RUNWAY APPROACH SURFACES
RUNWAY 11L-29R
FRESNO YOSEMITE
URS
SHEET 8 OF 13
AIRPORTS DEPARTMENT
FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRSPACE PROTECTION SURFACES



BUILDING INVENTORY

LEGEND

SEE SHEET 2 OF 13 FOR AIRPORT DATA TABLES.

AIRPORT LAYOUT PLAN

FRESNO YOSEMITE International Airport

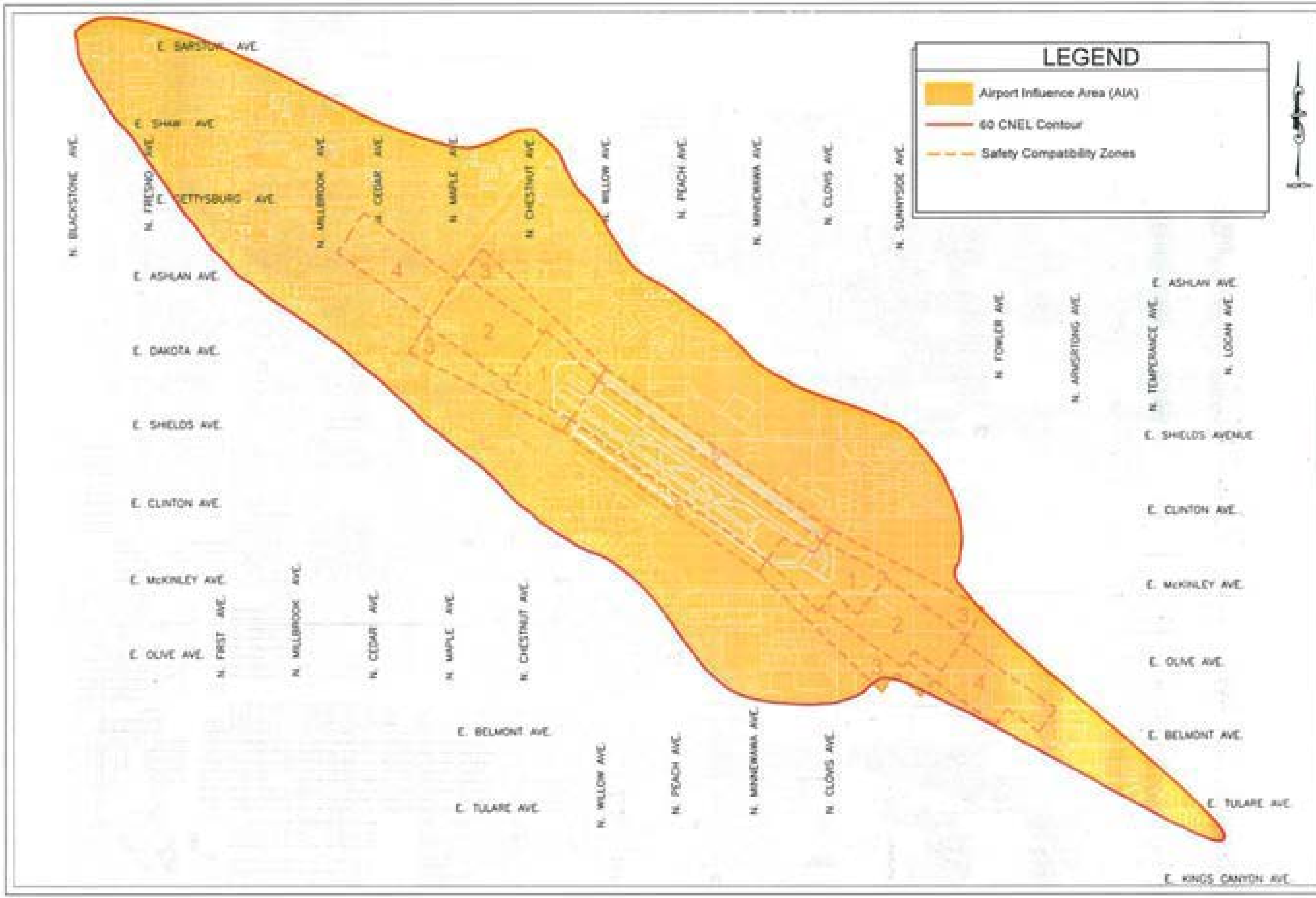
URS

SHEET 3 OF 13

AIRPORTS DEPARTMENT

FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRPORT LAYOUT PLAN

FIGURE 4.4



AIRPORTS DEPARTMENT

FRESNO YOSEMITE INTERNATIONAL AIRPORT
COMPATIBILITY LAND USE PLAN
AIRPORT INFLUENCE AREA

DIRECTOR OF AVIATION

APPROVED

FIGURE 4.5

Appendix D

Sample Sustainability Report Card

Sustainability Report Card for Year 20__

Through the goals outlined in the sustainability management plan, the airport has established a set of initiatives to make more sustainable decisions moving forward. This report card serves as a tool to help the airport monitor its progress in the categories identified in the plan.

Sustainability Goals

The overarching goals for each sustainability category are shown below:

Air Emissions

Reduce air emissions from airport-controlled sources and work with the community and business partners to reduce non-airport-controlled emissions.

Energy

Reduce energy consumption at airport-owned and operated facilities.

Water Conservation

Reduce potable water consumption at airport-owned and -operated facilities.

Water Quality

Reduce stormwater runoff volume, rate, and duration from the airport site.

Noise

Minimize disruption to the community from noise generated by airport activities.

Landscape Management

Maintain landscape features on airport property that contribute to biodiversity and reduce use of water, chemicals, and energy.

Solid Waste and Recycling

Reduce the volume of solid waste generated by the airport and increase the amount of material diverted to recycling.

Indoor Environmental Quality

Maintain healthy indoor environmental quality by minimizing the use of materials that are damaging to the environment and human health.

Hazardous Materials

Ensure that hazardous materials are properly stored and handled and do not pose a threat to the environment or human health.

Surface Transportation

Reduce vehicle miles traveled by passengers and employees.

Socioeconomic and Community Outreach

Continue to serve as a community asset and involve residents and visitors in airport decisions and operations.

Sustainable Site and Land Use Compatibility

Develop on-airport lands in ways that support airport activities

Sustainability Report Card for Year 20__

Air Emissions

Air Emissions Sub Goal 1

Meet the requirements of California Assembly Bill 32 (AB-32) reducing emissions by 2020 to 1990 levels.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Install additional photovoltaics for electrical power.
Yes ☐ No ☐	Comments:	Install infrastructure for alternative fuel/electric vehicle conversion.
Yes ☐ No ☐	Comments:	Track energy and fuel usage as well as greenhouse gas emissions from the airport on an annual basis, incorporating plans for airport modifications if emissions begin to increase.
Yes ☐ No ☐	Comments:	Prepare updated airport-wide greenhouse gas inventory (every three years, at a minimum).
Yes ☐ No ☐	Comments:	Collect annual energy use by scope 1 and 2 sources and report this information annually.

Monitoring

Performance Metric	Baseline Year (2010)		Current Year	
Fuel Usage	Gasoline *(Airport Vehicles)*	1,129 Gallons	Gasoline *(Airport Vehicles)*	______Gallons
	Diesel *(Airport Vehicles)*	2,847 Gallons	Diesel *(Airport Vehicles)*	______Gallons
	Natural Gas	6,498,90 ft^3	Natural Gas	______ft^3
Scope 1 Emissions	386.01 metric tons of CO_2		______metric tons of CO_2	
Scope 2 Emissions	3,796.27 metric tons of CO_2		______metric tons of CO_2	

Sustainability Report Card for Year 20__

Air Emissions Sub Goal 2

Maintain or decrease Scope 1 and 2 emissions from 2010 levels.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Develop a plan to further reduce scope 1 and 2 emissions, including projects, schedule, costs, and greenhouse gas reductions.
Yes ☐ No ☐	Comments:	Install infrastructure for alternative fuel vehicle conversion.
Yes ☐ No ☐	Comments:	Implement projects that increase the energy efficiency of buildings and combustion equipment to reduce fuel and electricity usage.
Yes ☐ No ☐	Comments:	Prepare updated airport-wide greenhouse gas inventory (every three years, at a minimum).
Yes ☐ No ☐	Comments:	Collect annual energy use by scope 1 and 2 sources and report this information annually.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Scope 1 Emissions	386.01 metric tons of CO_2	______metric tons of CO_2
Scope 2 Emissions	3,796.27 metric tons of CO_2	______metric tons of CO_2

Sustainability Report Card for Year 20__

Air Emissions Sub Goal 3

Help tenants and employees reduce scope 3 emissions from 2010 levels.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Educate and coordinate with airport tenants to identify facility and operational procedures that would assist with reducing scope 3 emissions.
Yes ☐ No ☐	Comments:	Install infrastructure for alternative fuel/electric vehicle conversion for both airlines and cargo.
Yes ☐ No ☐	Comments:	Work with the airlines to institute a program to convert GSE to electric.
Yes ☐ No ☐	Comments:	Work with rental car companies to expand the percentage of alternation fuel vehicles.
Yes ☐ No ☐	Comments:	Develop programs to promote alternative fuel vehicles or public transportation for employees.
Yes ☐ No ☐	Comments:	Prepare updated airport-wide greenhouse gas inventory (every three years, at a minimum).
Yes ☐ No ☐	Comments:	Prepare updated airport-wide greenhouse gas inventory (should be done every 2 – 3 years).

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Scope 3 Emissions	53,103.18 metric tons of CO_2	______metric tons of CO_2

Sustainability Report Card for Year 20__

Air Emissions Sub Goal 4

Promote the conversion of airport-owned vehicles to alternative fuel or hybrid vehicles. By 2020, 50 percent of the vehicles owned and operated by the airport will be alternative fuel vehicles or hybrid vehicles.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Update baseline of vehicle information and tracking of fuel usage.
Yes ☐ No ☐	Comments:	Evaluate the capability of hybrid and alternative fuel (natural gas, propane, or electricity) vehicles in meeting the needs of the airport.
Yes ☐ No ☐	Comments:	Conduct a feasibility analysis, including obtaining funding through the FAA VALE Program and other programs, to develop alternative fuel infrastructure as well as vehicle conversions/replacement to reduce emissions of particulate matter, oxides of nitrogen, and volatile organic compounds.
Yes ☐ No ☐	Comments:	Replace airport-owned vehicles at the end of their useful life with hybrids or alternative fuel vehicles.
Yes ☐ No ☐	Comments:	Replace airport-owned vehicles at the end of their useful life with vehicles in a smaller class that produce fewer emissions and get more miles per gallon.

Monitoring

Performance Metric	Baseline Year (2010)		Current Year	
	Vehicle Type	Quantity	Vehicle Type	Quantity
Vehicles owned by type	Patrol units	3	Patrol units	
	Trucks/vans/SUVs	26	Trucks/vans/SUVs	
	Passenger Vehicles	0	Passenger Vehicles	
	Tractor/sweepers/ dump trucks	6	Tractor/sweepers/ dump trucks	
	Fork Lift	1	Fork Lift	
	AARF crash rigs	2	AARF crash rigs	
Hybrid/Alternative fuel vehicles	0/0		/	
Fuel Usage by airport vehicles	Gasoline	1,129 Gallons	Gasoline	______Gallons
	Diesel	2,847 Gallons	Diesel	______Gallons

Sustainability Report Card for Year 20__

Air Emissions Sub Goal 5

Provide infrastructure and work with airlines to install electric chargers so 50 percent of the GSE used at the airport are electric vehicles by 2020.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Update baseline of GSE information and tracking of fuel usage.
Yes ☐ No ☐	Comments:	Work with the airlines to institute a program to convert GSE to electric.
Yes ☐ No ☐	Comments:	Plan and implement the electric infrastructure and associated charging stations.
Yes ☐ No ☐	Comments:	Research funding opportunities for conversion costs, including FAA'S VALE program.

Monitoring

Performance Metric	Baseline Year (2010)		Current Year	
	GSE Type	Quantity	GSE Type	Quantity
Airline GSE vehicles by type	Gasoline	21	Gasoline	
	Diesel	36	Diesel	
	Electric	11	Electric	
	Hybrid	0	Hybrid	

Sustainability Report Card for Year 20__

Air Emissions Sub Goal 6

Develop a program encouraging taxi and rental car companies operating at the airport to increase the number of hybrids and/or alternative fuel vehicles in their fleets.

Timeframe for implementation

The program will be implemented by 2015.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Explore funding sources to assist tenants with vehicle conversions and other incentives to achieve conversions.
Yes ☐ No ☐	Comments:	Initiate discussions with taxi and rental car companies regarding the conversion to hybrids or alternative fuel vehicles.
Yes ☐ No ☐	Comments:	Develop a program that encourages the use of more hybrid or alternative fuel vehicles at the airport.
Yes ☐ No ☐	Comments:	Provide potential non-revenue incentives such as front of the line privileges for taxis.
Yes ☐ No ☐	Comments:	Add language requiring taxi and rental car companies to provide alternative fuel vehicles in their fleets (when leases are due for renewal).

Monitoring

Performance Metric	Baseline Year (2010)		Current Year	
	Vehicle Type	Quantity	Vehicle Type	Quantity
Rental car fleet composition	Gasoline	N/A	Gasoline	
	Hybrid	N/A	Hybrid	
	Alternative Fuel	N/A	Alternative Fuel	
	Electric	N/A	Electric	
Percentage of rental car fleet vehiclces that are hybrid or alternative fuel	Avis	N/A	Avis	
	Budget	N/A	Budget	
	Dollar	N/A	Dollar	
	Enterprise	N/A	Enterprise	
	Hertz	N/A	Hertz	
	National/Alamo	N/A	National/Alamo	
	Airport Overall Percentage	N/A	Airport Overall Percentage	

Sustainability Report Card for Year 20__

Energy Sub Goal 1

Reduce electricity consumption by 26 percent and natural gas usage by 15 percent.

Timeframe for implementation

This goal will be met by 2020.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Implement a control system upgrade to the passenger terminal building. Add all major HVAC equipment to a single DDC (direct digital control) system. This upgrade will include the following energy conservation measures: • Installing CO2 sensors and implementing demand control ventilation wherever feasible • Updating occupancy schedules and space temperature setbacks • Review and revise sequences of operation
Yes ☐ No ☐	Comments:	Upgrade lighting in the airport administration building to high efficiency T-8 bulbs and electronic ballasts.
Yes ☐ No ☐	Comments:	Upgrade site lighting and airfield lighting to newer, more-efficient lighting technologies.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Total natural gas usage	64,989 therms	
Total electricity usage	6,605,351 kWh	

Sustainability Report Card for Year 20__

Energy Sub Goal 2

Increase the capacity of the photovoltaic array.

Timeframe for implementation

Ongoing. Many elements related to achieving this goal are based on outside factors (energy prices, solar panel prices, incentives, etc.). By 2020, the solar panel array will be expanded to meet total on-site electricity generation.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Increasee the size of the solar array.
Yes ☐ No ☐	Comments:	Encourage development of solar panels in at the airport by making it as attractive an investment option as possible.
Yes ☐ No ☐	Comments:	Reserve land areas for future development, including areas near the existing array.
Yes ☐ No ☐	Comments:	Advertise the airport as a viable site to install solar panels in the future.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Water Conservation Sub Goal 1

Install low-flow, high-efficiency fixtures.

Timeframe for implementation

Incorporate the requirement for Water Sense labeled fixtures into all construction specifications by the end of 2012.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Specify high-efficiency fixtures labeled with the U.S. Environmental Protection Agency's (EPA) Water Sense label for all new projects.
Yes ☐ No ☐	Comments:	Install automatic sensors on toilets, urinals, and faucets and install dual-flush toilets.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Building water usage	1,301,663 gallons	

Sustainability Report Card for Year 20__

Water Conservation Sub Goal 2

Reduce water use for landscape maintenance.

See Landscape Management sub goals 2, 3, and 4.

Timeframe for implementation

Ongoing.

Sustainability Report Card for Year 20__

Water Quality Sub Goal 1

Implement low-impact development practices in future development projects.

Timeframe for implementation

The timeframe for implementing this goal is dependent on the pace and scale of development projects at the airport. Measures to reach the target curve number should be built in to individual projects and once the target curve number is reached, maintenance of this level of performance will be an ongoing effort.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Incorporate appropriate low-impact design best practices into design standards and guidelines for development of airport property.
Yes ☐ No ☐	Comments:	Review impact of proposed development projects on runoff curve number and water quality.
Yes ☐ No ☐	Comments:	Update the land cover baseline map on an annual basis to evaluate the impact of any new development or other land cover changes to the runoff curve number.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Runoff curve number	86	

Sustainability Report Card for Year 20__

Noise Sub Goal 1

Continue the Sound Mitigation Acoustical Remedy Treatment (SMART) program to help mitigate aircraft noise.

Timeframe for implementation

Because of the large number of eligible residences, it may take until approximately 2030 to complete this goal.

Initiatives

ed this year		Initiative
Yes ☐ No ☐	Comments:	Proceed with the SMART program until all of the eligible homes have been completed.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of homes receiving treatment	99	

Sustainability Report Card for Year 20__

Noise Sub Goal 2

Continue to work with airport tenants, including the California Air National Guard's 144th Fighter Wing, to implement the airport's noise abatement programs codified in FAA Tower Order FATZ 7110.8D.

Timeframe for implementation

This is an ongoing goal.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Pilots should be sensitive of the timing of their flights to avoid excess noise during early morning, night-time and late evening hours.
Yes ☐ No ☐	Comments:	Aircraft should follow flight paths and height restrictions designated by the FAA during approach to the airport.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of coordination meetings or discussions with tenants regarding noise abatement programs	0	

Sustainability Report Card for Year 20__

Landscape Management Sub Goal 1

Increase species diversity in landscape plantings.

Timeframe for implementation

Ongoing effort required during review of future proposed landscape plans.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Only plant new trees whose species do not comprise more than 10 percent of the overall population. Review the existing and proposed planting plans to ensure that species diversity is maintained.
Yes ☐ No ☐	Comments:	Consult the wildlife hazard management plan before approving any species to be planted around the airport.
Yes ☐ No ☐	Comments:	Update the iTree landscape inventory on an annual basis.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of tree species planted at airport	36	
Species representing more than 10% of the total tree population	• Crapemyrtle • Chinese pistache • Chinese tallow tree	

Sustainability Report Card for Year 20__

Landscape Management Sub Goal 2

Reduce irrigation water consumption.

Timeframe for implementation

Ongoing.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Increase low-water-use plants and decrease water-thirsty plants in new landscape plantings. For all new planting projects, require a minimum of 50 percent low-water-use plants and a maximum 25 percent high-water-use plants, including lawns. No turf should be used in areas less than eight feet wide.
Yes ☐ No ☐	Comments:	Separate plants into zones based on their water needs so that each zone can be irrigated with the least amount of water required for healthy plant growth.
Yes ☐ No ☐	Comments:	Require EPA Water Sense labeled, climate-based irrigation controllers for all new projects and as replacements for existing controllers.
Yes ☐ No ☐	Comments:	Install high-efficiency irrigation systems that use slow drip or micro irrigation.
Yes ☐ No ☐	Comments:	Review irrigation practices on an annual basis to ensure that best practices are being followed by maintenance staff.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Annual water usage for landscaping at terminal, parking lot, and rental car facility	14,109,831 gallons	

Sustainability Report Card for Year 20__

Landscape Management Sub Goal 3

Install landscape mulch.

Timeframe for implementation

Install mulch in all shrub beds by the end of 2012.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Install and maintain landscape mulch in all existing and future planting beds.
Yes ☐ No ☐	Comments:	Recalibrate the irrigation system.
Yes ☐ No ☐	Comments:	Review landscape practices on an annual basis to ensure that mulching recommendations are being followed by maintenance staff.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Percent of landscaped area with mulch	0%	

Sustainability Report Card for Year 20__

Landscape Management Sub Goal 4

Reduce inputs (water, labor, chemicals, and fuel) required to maintain landscape plantings and retain soil moisture.

Timeframe for implementation

Ongoing. Revise landscape maintenance operations to reduce the amount of pruning by the end of 2012.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Install shrub species which are the appropriate size for their location, and do not require regular pruning to keep them small. Also, avoid planting vegetation which requires regular maintenance with chemical fertilizers or pesticides.
Yes ☐ No ☐	Comments:	Train landscape maintenance staff to allow shrubs to grow naturally so that they shade out the ground beneath them, which reduces evaporation.
Yes ☐ No ☐	Comments:	Review maintenance practices on an annual basis to ensure that pruning, fertilizing, and watering practices are being followed by maintenance staff.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Annual water usage for landscaping at terminal, parking lot, and rental car facility	14,109,831 gallons	

Sustainability Report Card for Year 20__

Solid Waste and Recycling Sub Goal 1

Promote recycling by travelers, employees, and vendors at the airport.

Timeframe for implementation

The implementation strategy will be initiated within one year of finalizing the sustainability plan.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Conduct a tenant survey regarding recycling capabilities and habits.
Yes ☐ No ☐	Comments:	Work with the City of Fresno Recycling Division on a no-cost recycling education program for airport employees and tenants.
Yes ☐ No ☐	Comments:	Encourage passenger participation in the terminal's recycling program via signage and bin labeling.
Yes ☐ No ☐	Comments:	Encourage recycling at the security checkpoint where passengers discard plastic beverage containers and other recyclables. Place recycling bins in accessible and convenient locations.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Terminal building garbage	107.53 tons	
Terminal building recycling (non-construction)	14.12 tons	
% Non-construction waste recycled	12%	

Sustainability Report Card for Year 20__

Solid Waste and Recycling Sub-Goal 2

Strive to align the airport's waste diversion goals with the City of Fresno's Zero Waste Strategic Plan and "Fresno Green" by diverting 75 percent of the waste stream generated from offices and the passenger terminal facilities by 2016.

Timeframe for implementation

Achieve 75 percent waste diversion by 2016.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Implement employee and tenant recycling education program provided by the COF Recycling Division.
Yes ☐ No ☐	Comments:	Increase signage to promote recycling. Add more visible and educational signs adjacent to or on recycling bins showing what products can be recycled.
Yes ☐ No ☐	Comments:	Increase the number of recycling bins throughout all occupied spaces in the airport.
Yes ☐ No ☐	Comments:	Remove unneeded/excessive trash bins to deter people from disposing of recyclable and/or reusable items.
Yes ☐ No ☐	Comments:	Continue to look for ways to reuse construction materials on- or off-site.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Terminal building garbage	107.53 tons	
Terminal building recycling (non-construction)	14.12 tons	
Terminal building recycling (construction)	20.84 tons	
% Non-construction waste recycled	12%	

Sustainability Report Card for Year 20__

Solid Waste and Recycling Sub-Goal 3

Encourage restaurants and food vendors at the airport to participate in a local, off-site composting program.

Timeframe for implementation

This objective is ongoing. If there are no local composting facilities available at this time, the airport can revisit the idea in the future.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Work with the City of Fresno's Recycling Division to learn more about composting facilities in the area.
Yes ☐ No ☐	Comments:	Work with restaurant tenants and food vendors to coordinate participation in available composting programs.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Vendor food waste composting	0 pounds	

Sustainability Report Card for Year 20__

Solid Waste and Recycling Sub-Goal 4

Reduce the total generation of solid waste from the airport terminal and administration building.

Timeframe for implementation

The success of this goal will be measured on a yearly basis. Airport staff are already tracking solid waste amounts generated in the terminal. Monitoring will require little additional effort. Without a baseline for the amount of waste generated by the administration building, it is difficult to quantify progress. Tipping fees can be monitored over time to ascertain whether volume of waste is increasing, decreasing, or remaining steady.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Modify airport operations to reduce waste. Education and awareness programs can increase the amount of waste (from passengers and employees) being diverted from landfills.
Yes ☐ No ☐	Comments:	Work with tenants to increase recycling. Provide recycling containers in tenant spaces. Determine if new leases can be adjusted to encourage waste reduction and recycling.
Yes ☐ No ☐	Comments:	Implement waste reduction strategies for construction projects. Reuse/salvage construction materials both on-site and off-site and consider selling materials and debris that cannot be reused on-site. Use a public information website or FYI's website to list salvaged materials to offer for sale or donation. Aim to purchase construction materials with minimal packaging that generates the least amount of waste to produce.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Terminal building garbage	107.53 tons	
Terminal building recycling (non-construction)	14.12 tons	
Terminal building recycling (construction)	20.84 tons	
% Non-construction waste recycled	12%	

Sustainability Report Card for Year 20__

Solid Waste and Recycling Sub-Goal 5

Follow the City of Fresno's green purchasing policy.

Timeframe for implementation

This is an ongoing goal.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Adhere to the City of Fresno's green purchasing policy.
Yes ☐ No ☐	Comments:	Encourage airport and janitorial staff to procure products and materials that use minimal packaging and contain high recycled content.
Yes ☐ No ☐	Comments:	Spread awareness at the airport regarding the city's purchasing policy and encourage tenants to participate.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Indoor Environmental Quality Sub Goal 1

Continue with green purchasing program and low-VOC paints and glue policy.

Timeframe for implementation

The green purchasing program and low-VOC policy should be updated at least every three years, as new environmentally friendly products become available.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Continue to track available environmentally friendly products, including low- or no-VOC products.
Yes ☐ No ☐	Comments:	Review and amend the green purchase program and low or no VOC policy (every three years, at a minimum).
Yes ☐ No ☐	Comments:	Research available materials used for cleaning airport buildings and update list of available products (at least annually).

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Indoor Environmental Quality Sub Goal 2

Develop a policy to work with tenants to use green products within airport-owned and -operated buildings.

Timeframe for implementation

The policy to have tenants use green products at the airport should be in place by 2015.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Meet with tenants to discuss program and benefits.
Yes ☐ No ☐	Comments:	Develop contract language to incorporate into existing tenant contracts.
Yes ☐ No ☐	Comments:	Document meetings and correspondence with tenants to reduce off-gassing.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
% of tenants complying with green purchasing	0%	

Sustainability Report Card for Year 20__

Indoor Environmental Quality Sub Goal 3

Develop standard specifications for the use of green construction methods, compared to traditional means.

Timeframe for implementation

The standards specifying green construction methods should be in place by 2015.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Organize a technical group responsible for developing the green construction method specification.
Yes ☐ No ☐	Comments:	Review published green methods of construction and sequencing details to promote a better indoor environment.
Yes ☐ No ☐	Comments:	Develop standard specifications and work with engineering groups for details. Specifications should require sequencing details for the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wallboard.
Yes ☐ No ☐	Comments:	Research available materials and update the standard specifications for green construction methods.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Indoor Environmental Quality Sub Goal 4

Designate smoking areas at an outdoor location away from building entrances.

Timeframe for implementation

The designated outdoor smoking area located away from doorways will be in place by 2015.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Plan and implement a safe and accessible smoking area that keeps potential second hand smoke from entering buildings and affecting people accessing airport facilities.
Yes ☐ No ☐	Comments:	Track incidents of smoking outside of designated areas on an annual basis.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Hazardous Materials Sub Goal 1

Develop a tracking system for bulk material storage (including tenants) at the airport by 2015.

Timeframe for implementation

The tracking program would be developed by 2015.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Develop a protocol for Fresno County Health Department to report new or modified bulk storage of hazardous materials at the airport.
Yes ☐ No ☐	Comments:	Designate responsible person to track the bulk storage at the airport.
Yes ☐ No ☐	Comments:	Provide guidance to tenants to potentially consolidate storage of materials or methods to minimize impacts to the environment.
Yes ☐ No ☐	Comments:	Upon development of a tracking system, Update the database of hazardous materials at the airport at least annually.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Hazardous Materials Sub Goal 2

Reduce number of spills by 25 percent by 2015.

Timeframe for implementation

An applicable year prior to 2010 can be used as a baseline for spill tracking. The airport should record and lists spills on an annual basis. Additional training, if necessary, will need to be provided to applicable airport employees, starting in calendar year 2013. With the limited number of spills currently occurring at the airport, the reporting period for the 25 percent reduction may need to be increased to a five-year summary.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Incorporate spill prevention into other environmental training mandated by existing spill plans.
Yes ☐ No ☐	Comments:	Track spills occurring at the airport.
Yes ☐ No ☐	Comments:	Report the number of spills, type of hazardous material, respective quantities released, and impact on the environment at the airport on an annual basis.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Surface Transportation Sub Goal 1

Establish a transportation demand management program.

Timeframe for implementation

A transportation demand management (TDM) program will be established within one year of finalizing the sustainability plan, but the individual strategies, tools, and improvements will be implemented within the next five years.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Survey or interview airport employees, tenants, and passengers to determine which strategies will be most effective. Repeat survey after a minimum of six months.
Yes ☐ No ☐	Comments:	Establish programs to reduce transportation demand, including providing infrastructure for employees to work from home, establishing preferred parking spaces, promoting transit use, establishing ride-sharing programs to encourage carpooling, and providing improved bicycle facilities.
Yes ☐ No ☐	Comments:	Educate and promote the programs to employees and passengers.
Yes ☐ No ☐	Comments:	Monitor and evaluate progress to determine what programs are working and what else could be implemented to achieve goals.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Employee drive-alone share	97%	
Passenger pick-up/drop-off share	NA	

Sustainability Report Card for Year 20__

Surface Transportation Sub Goal 2

Reduce employee 'drive alone' mode share.

Timeframe for implementation

Employee drive-alone mode share will be reduced by 10 percent over a five-year period in conjunction with the TDM program developed through Surface Transportation Sub Goal 1.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Implement initiatives associated with Surface Transportation Sub Goal 1, including education and promotion.
Yes ☐ No ☐	Comments:	Monitor and evaluate progress after a certain amount of time from the start of implementation (6 months to a year) to determine if goal is being met.
Yes ☐ No ☐	Comments:	Survey or interview airport employees, tenants, and passengers to determine which strategies will be most effective. Repeat survey after a minimum of six months.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Employee drive-alone share	97%	

Sustainability Report Card for Year 20__

Surface Transportation Sub Goal 3

Improve regional planning coordination.

Timeframe for implementation

This is an ongoing goal that should be implemented immediately based on regional planning studies and their schedules.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Initiate contact with planning agencies within the region to learn about current and upcoming planning efforts.
Yes ☐ No ☐	Comments:	Assign an airport staff member to be the point of contact for each planning effort. Report back to airport on relevant findings, recommendations and/or conclusions associated with each effort.
Yes ☐ No ☐	Comments:	Incorporate recommendations into airport initiatives that benefit the airport's other sustainability goals.
Yes ☐ No ☐	Comments:	Maintain list of plans, programs or studies that the airport is a participant of and summarize the airport's role and any outcomes that may affect the vehicle miles traveled associated with the airport.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
# of coordinated efforts	0	

Sustainability Report Card for Year 20__

Socioeconomic and Community Outreach Sub Goal 1

Connect with local residents through newsletters, television, and the airport's website.

Timeframe for implementation

The airport will re-visit their process annually to make any needed adjustments to how the messages are being communicated.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Continue publishing the airport's newsletter and re-evaluate its distribution format and content to ensure the airport's message is being communicated effectively.
Yes ☐ No ☐	Comments:	On an annual basis, the airport staff will meet and review the effectiveness that the current outreach program is having on the community. Prepare a summary report/memo of the program's successes and areas for improvement.
Yes ☐ No ☐	Comments:	Meet periodically to discuss new ideas for outreach and specific outreach initiatives.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of newsletters published	2	

Sustainability Report Card for Year 20__

Socioeconomic and Community Outreach Sub Goal 2

Create an interactive multimedia display that engages and educates travelers about the airport's sustainability goals and accomplishments.

Timeframe for implementation

This goal will be implemented by 2014

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Install electronic messaging boards that can be remotely updated.
Yes ☐ No ☐	Comments:	Construct public displays throughout the terminal that promote airport initiatives.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of displays in terminal	0	

Sustainability Report Card for Year 20__

Socioeconomic and Community Outreach Sub Goal 3

Use social media to increase communication between the airport and the community.

Timeframe for implementation

Set up accounts on Facebook and Twitter by the end of 2012 and assign an individual or group of people to post updates relevant to the airport on a regular basis.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Open Twitter and Facebook accounts to make the community aware of flight deals and current events at the airport.
Yes ☐ No ☐	Comments:	Assign staff to post updates, travel deals, and community outreach messages on a regular basis.
Yes ☐ No ☐	Comments:	Look into up-and-coming social media networks that may provide a better avenue for reaching the target audience.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
Number of followers on Twitter	0	
Number of likes on Facebook	0	

Sustainability Report Card for Year 20__

Sustainable Site and Land Use Compatibility Goal

Develop on-airport lands in ways that support airport activities

Timeframe for implementation

This is a continuous goal.

Initiatives

Achieved this year		Initiative
Yes ☐ No ☐	Comments:	Continue with the adoption of the City of Fresno Airports Department Airport Land Use Compatibility Plan.
Yes ☐ No ☐	Comments:	During all planning studies, ensure that land uses are kept compatible with the airport's existing and planned operations.

Monitoring

Performance Metric	Baseline Year (2010)	Current Year
None		

Sustainability Report Card for Year 20__

Airport General Data

Performance Metric	Baseline Year (2010)	Current Year
General Business		
Airport revenue	$16,010,067.41	
Airport expenditures	$12,750,730.75	
Number of airport employees	564	
Annual passenger enplanements	592,254	
Annual aircraft operations	121,644	
Number of airlines	8 (Allegiant Air, American Airlines, American Eagle, Horizon Air, Mexicana Airlines, SkyWest Delta, SkyWest United, U. S. Airways)	
Number of destinations served		
Number of based aircraft		
Cargo (tons)	5,725,568	
Security queue time rating (departing passengers)		
Overall airport experience rating (arriving passengers)		
Overall airport experience rating (departing passengers)		