

Tucson Airport Authority Green Report 2010

Tucson Airport Authority (TAA) has been recognized numerous times over the years for its green management practices. TAA has focused on programs that actively reduce pollution, conserve energy, promote sustainability on construction projects by incorporating LEEDS (Leadership in Energy and Environmental Design) standards when possible, and increase awareness among airport employees about what they can do to save energy. TAA has worked cooperatively with local and regulatory agencies to implement a variety of environmental programs that have resulted in the mitigation of high levels of noise for neighborhoods adjacent to Tucson International Airport (TIA); the adoption of zoning ordinance to limit incompatible development around the airfield, and the cleanup of contaminated groundwater on and around TIA.

In 2008, TAA completed an eight year expansion of Tucson International Airport that included the installation of a Building Automation System to provide for energy efficient operation of the air conditioning, heating and lighting systems in the TIA Terminal. During the expansion program, new energy efficient chillers and boilers were installed; pumps and fans were equipped with variable frequency drives; power monitoring systems were upgraded; and, a new energy efficient lighting control system including motion detectors that activate lighting systems only when certain areas of the building are in use was installed. These same features were incorporated in TAA's new Maintenance and Warehouse facilities. Also in 2008, the recycling program was expanded to the public areas of the terminal complex.

TAA's commitment to the environment is formalized in the Corporate Philosophy, adopted in 2000, affirming that the organization is *"committed to the consideration of environmental health and resources in all TAA planning and activity. We demonstrate this by: 1) being a good neighbor by developing and consistently practicing sound environmental and mitigating policies. And, 2) proactively seeking opportunities to enhance and preserve natural resources."*

For more than 20 years TAA has been actively engaged in activity to preserve the environment and conserve energy. A recap of some of those activities is listed here.

Noise Abatement Program

In 1982, Tucson International was one of the first airports in the country to obtain approval of an Airport Noise Control and Land Use Compatibility Study (ANCLUC). This enabled TAA, Pima County and the City of Tucson to develop the 1982 Airport Environs Plan creating zoning ordinance to regulate development in areas exposed to high levels of aircraft noise.

Since 1992, a federally funded Residential Sound Insulation Program has been underway to insulate homes exposed to significant levels of aircraft noise. To date, more than 900 homes have been treated.

To create a noise buffer around TIA, TAA has acquired land adjacent to the airfield to protect neighbors from the impact of noise, and created a separate aircraft engine run-up apron shielded by a dirt wall to absorb and dissipate engine noise.

Water Conservation

In 1982, TAA converted much of the airport's vegetation to Xeriscape (lower water use) landscaping and installed drip irrigation systems to minimize water use. In 2000, TAA partnered with the University of Arizona, Soil, Water & Environmental Sciences Department to participate in a series of grant-funded studies on passive water reuse and water harvesting at TIA, implemented on the grounds of the airport.

In 2003, as part of the TIA Terminal Expansion Project, hands free faucets as well as waterless urinals were introduced in the men's restrooms at TIA saving an estimated 40,000 gallons of water per urinal per year. In 2008, hands free faucets and waterless urinals were installed in TAA's new Warehouse and Maintenance facilities.

Vehicles

In 1984, TAA started to phase out its fossil fuel fleet with electric carts, first introduced at the TIA Executive Terminal and later integrated into the TAA Custodial and Maintenance Departments. Bicycles were introduced for refuelers at the TIA Flight Line, and in 2003, the TAA Police Department added a Bike Patrol.

Recycling

In 1990, TAA initiated an airport-wide recycling program for white and news paper throughout the airport complex, and in 1992, Tucson airlines instituted a cardboard and aluminum collection program.

Since 1995, TAA has routinely recycled lamps and ballasts, used fuel filters, waste oil, waste antifreeze, contaminated fuel, used tires, batteries, and scrap metal generated from airport operations.

In 2000, TAA specified recycling of concrete and asphalt from horizontal construction projects to the extent practical. Milled asphaltic concrete has been used to construct economical haul road surfacing to provide a durable surface and eliminate dust pollution.

In 2007, TAA began collecting liquids banned by the Transportation Security Administration at the security checkpoints and donates unopened items to local charities.

In 2008, TAA installed collection containers for recycling paper, bottles and cans throughout the public areas of the terminal, further expanding the recycling program.

In 2009, TAA installed beverage disposal containers pre-security so passengers could empty liquids from containers and keep them for refilling once through the checkpoints.

Energy Conservation

In 1994, a terminal lighting retrofit through the Tucson Electric Power rebate program results in 10% savings, and in 1985, TAA installed a hydrant aircraft fueling system eliminating the need for gasoline powered, portable units, and their associated carbon emissions. The addition of a central 400 Hz ground power system significantly reduced emissions from ground power carts and aircraft APUs (auxiliary power units).

In 1999, TAA began adding Variable Frequency Drives (VFD) to pumps, fans and air handler motors over five horse power. VFDs save power by allowing the motor to only run as fast as it needs to according to the load conditions.

In 2002, TAA installed a Building Automation System to control the operation of the HVAC and lighting systems in the Terminal and new Rental Car Building. The Building Automation System was extended to the Concourses in 2007 and to the new TAA Maintenance Facility, which opened in 2008.

In 2004, a new energy efficient chiller and boiler were installed in the airport central plant and the circulation pumps and air handlers were equipped with variable frequency drives, significantly increasing the efficiency of the airport's HVAC (heating, ventilating and air conditioning) systems. A second energy efficient chiller was installed in 2007 and the chilled water system was converted to a single loop configuration to further increase the energy efficiency.

Today, TAA has the capability of monitoring and controlling the A/C, heating, and in the Main Terminal and the Maintenance and Warehouse facilities, the lighting, from one central location and remotely over the TAA Local Area Network, a very powerful and sophisticated energy management tool.

New signage and flight information system displays have been converted from CRT to liquid crystal displays (LCDs) to reduce energy consumption.

All paints used at TIA on recent repainting projects were low VOC's, and the new reflective roof coating that we will soon be applied to the terminal will be a more reflective and energy efficient white coating. Besides the standard elastomeric coatings that only address sunlight bounce of visible light, we are also evaluating a white ceramic based product that contains several different ceramic additives that will reflect or block 95% of the UV, visible light, infrared, and thermal heat. This should provide additional energy savings in our hottest months.

Airfield Lighting Conversion

In 2004, TAA began conversion to LED taxiway lighting at Ryan Airfield and TIA. LED runway and taxiway signs are being tested at Tucson International. Staff is studying new technologies to better control exterior lighting to reduce usage during off peak periods.

Solar Energy

In 2007, TAA collaborated with Tucson Electric Power on the installation of a photovoltaic solar panel array north of the main parking lot revenue control building. The 9 kilowatt per month system feeds directly back into the electrical meter, and helps offset the electrical costs of powering that building. Cost saving is approximately \$1,100 per year.

Storm Water Pollution Prevention Program

Since 1995, TAA has managed a Storm Water Pollution Prevention Program to minimize the impacts of airport operations on storm water. Currently under ADEQ's Multi-Sector General Storm Water Permit Program both Tucson International Airport and Ryan Airfield have Storm Water Pollution Prevention Plans which included those users at each airport who engage in activities covered by the ADEQ program.

Tucson International Airport Area Groundwater Remediation Project

In 1983, the U.S. Environmental Protection Agency (EPA) Region IX and the Arizona Department of Health Services (now ADEQ) began a Remedial Investigation/Feasibility Study (RI/FS) of TCE (trichloroethylene) contamination in groundwater in the area of the Tucson International Airport.

In August 1986, EPA issued a Record of Decision (ROD) covering groundwater contamination North of Los Reales Road, which mandated extraction of contaminated groundwater from both the regional upper divided and undivided aquifers to control migration of contamination and to restore aquifer quality.

In January 1989, EPA issued an Administrative Order requiring the City of Tucson, Hughes Aircraft, McDonnell Douglas, TAA, and USAF to begin a remedial action to address groundwater contamination north of Los Reales Road, otherwise known as the Tucson Airport Remediation Project (TARP). This was followed by a Consent Decree in June 1991. In September 1994, the pump and treat remedy entered routine operation. Since the beginning of operation, the TARP pump and treat remedy has removed over 3,700 pounds of TCE from the groundwater.

In August 1992, the Environmental Protection Agency (EPA) issued a Unilateral Administrative Order (UAO) to the City of Tucson, General Dynamics, McDonnell Douglas, and Tucson Airport Authority (the PRPs) directing them to conduct a Remedial Investigation and Feasibility Study at the Airport Property of soils and the Vadose Zone, including the Shallow Groundwater Zone (SGZ). EPA also requested that the USAF participate in this RI/FS. With the exception of General Dynamics, the PRPs complied with the UAO and completed the RI/FS in October 1996 and June 1997, respectively.

In September 1997, EPA issued a Record of Decision for the Airport Property (1997 ROD). The 1997 ROD selected a remedy with four separate components: 1) soil vapor extraction of VOC (volatile organic compounds) contamination in Vadose Zone soils; 2) containment and, where feasible, restoration of VOC-contaminated groundwater in the Shallow Groundwater Zone; 3) excavation of PCB (polychlorinated biphenyl) and metals-contaminated soils and sediments for off-site disposal; and, 4) closure of the TAA Landfill.

A Consent Decree between the EPA and City of Tucson, General Dynamics Corporation, McDonnell Douglas Corporation, and Tucson Airport Authority in June 1999 provided for the completion of the four remedies contained in the 1997 ROD. In 2007, TAA celebrated the completion of the Airport Property Soils and Groundwater Treatment Facility, which is designed to remove VOC contamination from the Vadose Zone and SGZ. With the beginning of routine operation of this facility, all portions of the Tucson International Airport Area Superfund Site now have active remedies in place, the culmination of 20 years work to clean toxic solvents from the Tucson International Airport area.

Employee and Public Awareness Campaign

In 2002, Saving Tucson Airport's Resources – Today! (START), an internal outreach program composed of employees and tenants, was launched to raise awareness about the importance of managing resources more carefully and focusing on reducing consumption of electricity, gas and water. Many environmental upgrades are the result including retrofitting airport buildings with energy efficient lights; electronic ballasts and compact fluorescent lamps; installation of a programmable lighting control system in the main terminal utilizing a photocell to turn lights on and off with the sunrise and sunset; and shutting down escalators during early morning hours.

A long time participant in the Pima Association of Governments (PAG) Shared Ride Program, TAA began offering passes to employees who ride the City bus in 2004, and in 2008 celebrated 18 years of compliance in PAG's Travel Reduction Plan reaching our goal of 40% alternate mode usage.

Awards

In 1988, TAA received an award of excellence from the Southern Arizona Water Resources Association for the desert garden in front of the main terminal, and in 1992 the group presented TAA an award of excellence for the TIA Xeriscape garden on the entrance roadway.

In 1999, the Board of Directors of Arizona Clean and Beautiful announced TAA's Fuel Recovery System was a Governor's Pride in Arizona Award winner.

In 2003, TAA was presented with the Excellence in Outdoor Lighting award by the International Dark Sky Association for replacing aging fixtures on TIA's general aviation ramp with updated lights that include full cut-off housings and modern optical assemblies. This significantly reduced uplight into the nighttime sky and visible off-site glare.

In 2003, TAA was awarded the Annual Transportation Award by the Metropolitan Energy Commission for efforts to facilitate the opening and operation of Tucson's first publicly accessible Compressed Natural Gas fueling facility on Corona Rd. west of Country Club.

In 2005, TAA was designated by the EPA as a Best Workplace for Commuters. TAA received this National designation again in 2006 and 2007.