

## Agriculture, Natural Resources, and Sustainability

### Airports Helping Colorado's Sustainability

Airports are among the largest, consolidated tracts of land in Colorado, including Denver International Airport (DEN), which has the largest land area of any airport in the U.S. Many airports in the state have taken a holistic approach to ensure they operate the airport safely and efficiently while carefully managing the use of land assets and natural resources. The CDOT Division of Aeronautics sponsors a special program for general aviation airports to prepare sustainability plans. Starting with three airports (Centennial Airport (APA), Canon City-Fremont County Airport (1V6), and Rifle-Garfield County Airport (RIL)), this program is expanding to others across the state.

The stories below highlight sustainable management of natural resources and the critical role aerial applicators play in the state's agriculture, particularly in the eastern plains of Colorado.

### Agriculture and Aerial Applicators at Colorado Airports

In 2018, agricultural crops in Colorado generated \$7.5 billion in revenue from approximately 4.6 million acres of harvested land. The state's major crops include corn, wheat, alfalfa, potatoes, and oats. Colorado farmers also produce specialty crops such as melons, sweet corn, peaches, chilis, pumpkins, and many other fruits, vegetables, and flowers.<sup>1</sup>

Aerial applicators perform many tasks in Colorado including seeding crops, planting cover crops, feeding and fertilizing, disease control, public health spraying, forest seeding, fertilizing, and weed mitigation.<sup>2</sup> By flying over fields, aerial applicators avoid the surface disruption a tractor equipped with sprayers might cause. In 2018, aerial applicators treated an estimated 1.29 million acres of crop land in Colorado, nearly 30 percent of the state's total harvested land.<sup>1</sup>

Most of the active aerial applicators are based at eastern plains airports in Akron (AKO), Brush (7V5), Burlington (ITR), Eads (9V7), Holly (K08), Holyoke (HEQ), La Junta (LHX), Springfield (8V7), Wray (2V5), and Yuma (2V6). Other areas with regular aerial agricultural activities include the San Luis Valley near Monte Vista (MVI) and on the western slope near Craig (CAG).

### Agriculture at Denver International Airport

DEN has a 53-square mile footprint that sits on land that was originally the farms of several families. Today, the airport maintains four agricultural leases with three families. The leases span across various parcels around the airfield and have a total acreage of 15,325 acres. All farming at DEN is dry land farming, meaning that no irrigation or wells are needed. Farmers raise wheat, corn, millet, and sunflowers. At one time, DEN had a revenue-sharing arrangement with the farmers, but in 2015-2016, DEN went to a flat rate system for agricultural leases, which made it easier for the tenants to plan for crops and revenues. The cost of weed control is shared by farming tenants and the airport, who pays one-third of the cost.



*Photo Courtesy Colorado Agricultural Aviation Association*



*Photo Courtesy of Denver International Airport*

<sup>1</sup> USDA, 2018 Colorado State Agricultural Overview, NAAA

<sup>2</sup> Colorado Agricultural Aviation Association

## Agriculture, Natural Resources, and Sustainability

### Sustainability at DEN

DEN has initiated and completed several sustainability projects in the terminal and around the airfield. Solar projects, concrete recycling plants, and honey bee apiaries are highlighted as some of the most significant and unique projects at DEN.

**Solar.** DEN completed its first four solar projects (10 megawatts (MW)) between 2008 to 2015 as a participant in Xcel Energy's Solar\*Reward Program. These ground-mounted solar arrays were developed privately 'behind the meter' on airport property. DEN entered into a lease and power purchase agreement with Xcel Energy that allowed the solar arrays to interconnect with DEN's grid to serve the airport's energy needs. In 2016, DEN hosted a fifth demonstration project that involved a 1.3 MW solar canopy facility with a 1-2 megawatt hour (MWh) lithium-ion battery storage system. The project was installed on one of DEN's parking garages and is designed to detect disturbances in the regional power grid, disconnect, and continue to supply power to the Panasonic Enterprise Solutions Company headquarters located across from the garage. More recently, DEN has engaged in two 'in front of the meter' solar projects with the Community Solar Gardens Act and the Renewable\*Connect program. DEN has agreed to purchase 40 percent of the output from these grid connected projects. The Renewable\*Connect contract also involves a 10-year purchase agreement from an off-airport renewable provider.<sup>1</sup>



*Photo courtesy of Denver International Airport*

**Concrete Recycling.** DEN has more than 30 miles of paved runways and taxiways that must be regularly maintained to ensure safe operations. This requires thousands of tons of pavement from the airfield to be removed and replaced each year. DEN also has an extensive recycling program including two pavement recycling plants that process more than 194,000 tons of asphalt and concrete each year. These yards process pavement slabs from airfield and terminal construction projects, first removing metal and other debris from the pavement before crushing the slabs into small aggregate material. The aggregate is then moved to stockpiles to be used as sub-base fill or aggregate for new pavement. Although the recycling yards do not sell the recycled materials, the pavement recycled at DEN is used for non-airport construction work including projects on Peña Boulevard and in the City of Denver, as well as for general airfield maintenance. DEN has incorporated the recycling yards into the Stormwater Management Plan to ensure that pavement contaminants do not enter the local ecosystem. The recycling yards have greatly reduced the amount of new aggregate needed for airport improvements and improved the sustainable use of paving materials at the airport.



*Photo courtesy of Denver International Airport*

Although the recycling yards do not sell the recycled materials, the pavement recycled at DEN is used for non-airport construction work including projects on Peña Boulevard and in the City of Denver, as well as for general airfield maintenance. DEN has incorporated the recycling yards into the Stormwater Management Plan to ensure that pavement contaminants do not enter the local ecosystem. The recycling yards have greatly reduced the amount of new aggregate needed for airport improvements and improved the sustainable use of paving materials at the airport.

**Apiaries.** DEN is developing holistic land management programs to help support native pollinator species on property. DEN currently hosts one active hive of honey bees that is managed by the firefighters at Fire Station 35 on the south side of the airfield. The goal of the apiary project is to engage employees and actively highlight the importance of pollinators for ecosystem health. However, honey bees are not native to Colorado and compete with native pollinators, so the airport is focusing on developing other approaches to natural pollination while maintaining a small apiary. Additionally, DEN is working on policies to eliminate the use of pesticides that contain neonicotinoids which are particularly harmful to pollinators used in agriculture. DEN is also working to promote pollinator-friendly habitats through the planting of native species on airport property and restoring degraded landscapes after construction.

### Summary

<sup>1</sup> ACRP Synthesis 02-21, Practices in Airport Renewable Energy Projects

Sustainable use of natural resources is critical to the viability of Colorado's economy. Resource management is actively taking place on airport property itself as active farming and projects in renewable energy, recycling, and habitat restoration. Colorado has 40 active aerial applicator businesses that support 102 jobs. These businesses increase crop yield on many of the farms in the state, particularly in the eastern plains.