



## **2016 - 2017 Biennial Report**

This report describes the Airport Board's activities and operations for the period January 1, 2016 through 2017, updated as appropriate through December 1, 2018, and its efforts at reducing environmental impacts of Airport operations on Grand Teton National Park and surrounding areas.

April 15, 2019

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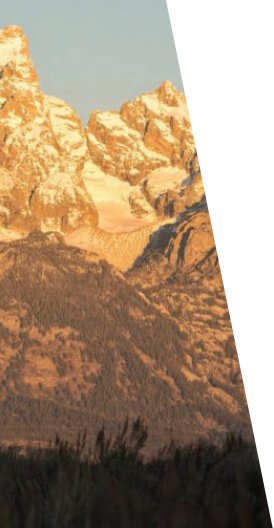
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The Jackson Hole Airport was established in the 1930's and is the only commercial service airport in the United States which is located entirely within a national park. Because of the Airport's unique location, the Jackson Hole Airport Board works closely with the National Park Service to protect the values of Grand Teton National Park and our surrounding ecosystem, while also providing the highest level of service and safety to the traveling public.



The Airport Board was created by the Town of Jackson and Teton County in 1968 to serve our community. Though the public interest is always paramount, the Airport also serves a substantial number of interested stakeholders, including several airlines, concessionaires, aircraft owners and operators, and ground transportation providers. In operating the Airport to serve the public interest, the Airport Board also works in a complex regulatory environment. In addition to the National Park Service, we coordinate closely with agencies such as the Federal Aviation Administration, Transportation Security Administration, Environmental Protection Agency, and State of Wyoming Department of Aeronautics.

The following Biennial Report was developed in compliance with Subsection 13(h) of our Agreement with the Department of the Interior, originally signed in 1983, under which the Airport is operated in the National Park. In addition to requiring the submittal of the following Biennial report, the 1983 Agreement limits certain airport activities and facilities, and imposes stringent noise and other environmental standards. In compliance with the Agreement, and in many cases going beyond its requirements, the Airport Board has implemented a range of mitigation measures which are fully detailed in the Report.

The Jackson Hole Airport Board's role is to set policy for the Airport, while staff is responsible for the Airport's daily operations and management. We are fortunate to have a talented and experienced staff that has done an excellent job of ensuring that the highest quality of service is provided. The Board is committed to both the Airport and the community and Board members often work with staff on key topics.

The Biennial Report highlights progress made during 2016 and 2017, with updates in some cases through 2018. Some notable achievements during this time frame are the installation of the Glycol Recovery System (p.25), the Greater Sage-Grouse Habitat Restoration Plan (p.28), the implementation of the NextGen aircraft approach for noise reduction (p.21), other noise mitigation measures (p.15), and innovative ground transportation options (p.10).

Safety and efficiency of operations, and environmental stewardship must continually be refined and advanced. In the next biennium we will build upon the progress outlined in this Report, by developing projects and creating policies which will further establish the Jackson Hole Airport as a leader in the aviation community. The successes outlined in the following report would not have been possible without the support, strong partnerships and close relationship with you, our local community and stakeholders. Thank you!

The successes outlined in the following report would not have been possible without the support, strong partnerships and close relationship with you, our local community, stakeholders along with the dedicated National Park Service staff. Additionally, the Jackson Hole Airport Board would like to thank all parties involved for their help in creating this report. The Board's objective is to continue efforts to bringing the Airport closer to the goals and mission of the National Park Service to protect natural resources. While considerable work has been accomplished, there is much work left to be done.

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James P. Elwood, AAE  
Executive Director

# INTRODUCTION



Federal statutes authorize the Secretary of the Interior to enter into agreements with public agencies, such as the Jackson Hole Airport Board (the “Board”), for the operation of airports in or near national parks. Pursuant to that authority, the Department of the Interior (the “Department”) and the Board entered into an Agreement dated April 27, 1983 (the “1983 Agreement”), for the operation of the Jackson Hole Airport (the “Airport”) in Grand Teton National Park (the “Park”). The 1983 Agreement was originally for a term of 30 years and granted the Board two 10-year options to renew. The Board exercised these two 10-year options in 1993 and 2003, which extended the 1983 Agreement’s term to 2033.

To be eligible for Federal Aviation Administration (“FAA”) grants for capital improvements to airport infrastructure, the Board and other airport sponsors must comply with FAA regulations and grant assurances. Among these is a requirement that the Board either own or have leasehold control over the land on which the airport is located for a term of at least 20 years. To maintain eligibility for FAA grants, in 2004 the Board began seeking an amendment to the 1983 Agreement to provide additional terms with extension options for the periods 2033-2043 and 2043-2053.

After an extensive environmental assessment process, on May 18, 2011 the Department of the Interior, acting through the National Park Service (“NPS”), entered into a Third Amendment to the 1983 Agreement (the “Third Amendment”). Under the Third Amendment, the term of the 1983 Agreement was extended to April 27, 2053, through the addition of two 10-year options. The Board has exercised the first option for an additional term of ten years, from April 28, 2033 through April 27, 2043, thereby giving it the requisite 20-year term required for FAA grant eligibility.

The Third Amendment also expanded the Board’s obligations to explore reasonably available environmental mitigation measures. A new paragraph 4(i) of the 1983 Agreement requires the Board to act in good faith and in coordination and cooperation with NPS to develop and implement reasonable and cost-effective mitigation measures as may be available to reduce environmental effects on the Park. Section 12 of the 1983 Agreement, as amended, requires the Board and NPS to discuss and identify mitigation measures which may be available to comply with the requirements of paragraph 4(i). Finally, a new Section 13(h) was added which requires the Board to submit to NPS a report describing the Board’s activities and operations during the previous two calendar years, its efforts at reducing negative environmental impacts, and specifically, its efforts to reduce noise impacts on the Park. This is the fourth Biennial Report submitted under this requirement and covers the Board’s activities and operations during calendar years 2016 and 2017, updated as indicated to include certain activities through December 1, 2018.

# EXECUTIVE SUMMARY

The Jackson Hole Airport Board, a Joint Powers Board appointed by the Town and County, entered into an agreement with the Department of the Interior in 1983 to operate Jackson Hole Airport inside Grand National Park. The 1983 Agreement was originally for a term of 30 years and granted the Board two 10-year options to renew. The Board exercised these two 10-year options in 1993 and 2003, which extended the 1983 Agreement's term to 2033.

On May 18, 2011 the Department of the Interior, entered into a Third Amendment to the 1983 Agreement, extending the term of the Agreement to 2053 which included important lease extension options that allow the Airport to follow grant requirements from the FAA. The Third Amendment also defined obligations the Airport has to the Park to explore reasonable mitigation measures to reduce the Airport's environmental impacts. In many cases, the Board has gone above and beyond their reasonable requirements in order to achieve these goals.

The Biennial Report captures these concepts and reports to the Park what measures have been taken, what progress has been made, and a general outline of next steps.

Resolution of December 1967, the Town of Jackson and Teton County created the Jackson Hole Airport Board and delegated their authority with respect to the Jackson Hole Airport to the Board.

Under Wyoming Statutes, the Board is a both a "body corporate," and a "local governmental entity" which has separate existence and is distinct from the Town and County. Though it has certain governmental powers, in most instances the Board operates the Airport in its "proprietary capacity," and more like a private business. It has no power to tax. Its revenue comes only from its operations and grant funding.

The five members of the Board are appointed jointly by the Town and County, each for a five-year term. In February of each year the Board reorganizes and appoints new officers.

**Board Obligations to FAA:** In addition to its obligation to NPS under the 1983 Agreement, the Board has obligations to the Federal Aviation Administration ("FAA"). In accepting federal grant funds, the Board is required by law to give 39 different "assurances" to FAA regarding its use of grant funds and operation of the Airport. If the Board breaches these assurances, it will be ineligible for future grants and may be required to repay prior grants.

## 1

### SECTION 1 (Board Organization and FAA Obligations)

The Wyoming Aeronautics Act ("WAA") authorizes counties and municipalities to acquire, construct, operate and maintain airports. Under this authority, and by Joint

## 2

### SECTION 2 (Existing and Ongoing Noise Mitigation Measures)

Jackson Hole is the only commercial airport fully inside a national park. The Airport

operates under the 1983 Agreement, which restricts certain activities and facilities, and imposes stringent noise and other environmental standards. Mitigation measures from 2016 and 2017 are briefly described below.

**Noise Measurements and Modeling:**

Noise monitoring has been regularly conducted at the Airport since 1984. This monitoring has evolved from short term seasonal monitoring of DNL (Day-Night average sound Level - a cumulative noise measurement of average day/night noise levels); to a sophisticated state-of-the-art permanent monitoring system which uses noise monitors and radar data to measure the noise environment using many complex noise descriptors. Based in part on these noise measurements, the Board's noise consultant, BridgeNet International, produces a noise report each year. The reports for 2016 and 2017 found that aircraft noise levels within the Park were more than 5 dBA (A-weighted decibels) below the single event levels specified in the 1983 Agreement.

**Single and Cumulative Noise Standards:**

The Airport has other and more restrictive sound management requirements than simply the 65-dBA day-night average sound level used by the FAA as a measure of compatibility. These may be the most restrictive sound management limits of any airport in the nation. Under the cumulative noise standards requirements of the 1983 Agreement:

- ◆ "Acoustical energy associated with airport operations shall not exceed a level of 45 DNL based on measurement of single event noise levels" west or north of a line specified in the 1983 Agreement Section 4(f)(1), and
- ◆ Airport operations shall not generate a 55 DNL noise contour which extends beyond the boundary of the noise sensitive areas of the Park, as defined in the 1983 Agreement

**Stage II Aircraft Ban:** On June 20, 2004, the Board enacted a rule prohibiting the operation of the older, louder Stage II corporate jet aircraft that contributed disproportionately to the noise environment in the Park. The Airport was one of only a handful of airports in the nation that were allowed to implement such a ban, and this authorization required a special act of Congress. Under the Town of Jackson Municipal Code, violations of this rule result in a mandatory court appearance and fines.

**Preferential Runway Use:** Section 4(e) of the 1983 Agreement requires the Board to take all reasonable measures to notify aircraft operators to avoid noise-sensitive areas of the Park, and to encourage aircraft to utilize approaches from and takeoffs toward the south on the Airport's single runway. To implement this requirement, and to acknowledge current NPS policy, the Board makes preferential runway use information widely available through the Airport's website, an insert for pilot notebooks, air traffic control broadcasts, aeronautical publications, and other materials typically used by pilots for flight planning.

**Noise Abatement Plan:** The Board's Noise Abatement Plan was adopted March 14, 1985 and has been in effect since that date. Major sections of the Plan include maximum noise level limit, cumulative noise standard, aircraft operating procedures, operations specifications amendment for scheduled passenger service airlines, requirements for aeronautical contractors, noise complaint/inquiry report system, and educational efforts. The Plan also requires commercial jet aircraft to schedule arrivals prior to 9:30 p.m. and departures no earlier than 7:00 a.m. The Board requires compliance with the contents of the Noise Abatement Plan in all its operating agreements with air carriers and commercial general aviation operators.

**Voluntary Curfew:** Under the Airport Noise and Capacity Act passed by Congress, the Board cannot unilaterally impose a

mandatory curfew without FAA approval. The Board has nonetheless adopted a voluntary curfew for general aviation aircraft between 11:30 p.m. and 6:00 a.m. for landing, and between 10:00 p.m. and 6:00 a.m. for takeoff. For any aircraft that do not conform to the voluntary curfew, staff will send them a notification letter.

### **RNAV and GPS Approaches Runway 19:**

A NextGen approach to Runway 19 was approved by FAA in March 2013. When it was sanctioned and adopted, it was the first instrument procedure in the United States with a curved approach component designed for noise abatement purpose. The GPS approach is being used by approximately 89% of jet aircraft flying IFR approaches to Runway 19 (66% of all Runway 19 jet arrivals).

### **Increased Efficiency in Airline Operations:**

Aircraft operations for both General Aviation and Commercial Aviation have been trending downward since the Tower began keeping records. This, along with improved engine technology and a change in fleet make-up, has also contributed to lowering the overall noise contour size. Data indicates that the airlines and Airport are providing service to more people with fewer aircraft operations and therefore reducing noise impact.

# 3

## **SECTION 3** *(Other Existing and Ongoing Mitigation Matters)*

The Jackson Hole Airport Board is dedicated to becoming an industry leader in environmental stewardship, green building initiatives, and sustainability. In effort to preserve the power of place for future generations, it has and will continue to implement environmentally sustainable initiatives at the Jackson Hole Airport.

**Visibility and Screening:** The Airport has planted trees and other native vegetation

to reduce the visual impacts of Airport buildings. The Airport will continue to plant additional trees and replace existing trees to improve the overall visual screening of airport facilities and buildings year-round. Additionally, The Airport works with the Dark Skies Initiative to reduce light pollution and protect the scenic night sky in the National Park and Jackson Hole.

**Recycling:** Many years ago, the Board, with the support of all tenants, started a small recycling program. There are currently six multi-stream recycling stations available in the Terminal for recycling aluminum, #1 plastic, and newspaper. The Airport also recycles cardboard, white paper, glass, magazines, textiles, fluorescent bulbs, ink/toner cartridges, batteries, e-waste and bear spray. From 2009 to 2017 JAC's well-supported recycling efforts resulted in a 24% average increase in the total cubic yards of recycled materials. Total diversion rate is at 18%.

**Fleet and Idling Policies:** On March 14, 2012 the Board adopted a "No Idle Policy" for Airport vehicles, and for vehicles operating under contract or by agreement at the Airport. This policy was implemented immediately for Airport vehicles and was inserted into all new and renewing contracts beginning July 1, 2012. In 2017, the Airport earned the designation as a GreenFleet through Yellowstone-Teton Clean Cities for consistently updating its current fleet with alternative fuel vehicles. The Airport currently operates two plug-in all-electric maintenance vehicles and two propane powered maintenance trucks. As part of the 2019 plan, the remaining fleet is going to be screened relative to existing grants to see if additional vehicles could be switched out for alternative fuel through several grant programs. Also, in the summer of 2017 the Airport installed two dual, Level 2 PowerPost EVSE charging stations in the public parking lot for electric/hybrid vehicle charging. This is part of the community wide effort to support the use of electrical vehicles.



**Glycol Recovery:** The Airport has an aircraft de-icing pad at the north end and just to the east of Taxiway Alpha. The de-ice pad is a 460' x 179.5' concrete pad and has two main parking spots large enough to handle two Boeing 757s simultaneously. There are two spent glycol collection drains on the east and south sides of the pad which funnel the used glycol into a 30,000-gallon underground collection tank, which is just south of the concrete pad. There is also an underground valve that can be closed to divert rain water and other precipitation away from the collection tank during times (or seasons) when de-icing of aircraft is no longer necessary.

**Water Quality Monitoring:** The Airport and adjacent residential subdivisions are located on alluvial deposits which are saturated and constitute a relatively large water-table aquifer. Results of a groundwater quality study at selected sites in and adjacent to the Airport during 2008 – 2009 indicated the presence of reduced geochemical conditions in two wells downstream from the Airport. These conditions were not observed in wells upstream or laterally from the Airport. As a result of this study, the Board contracted with the United States Geological Survey (“USGS”) to (a) investigate groundwater quality upstream, downstream and lateral to the affected wells to better characterize the aquifer, (b) establish baseline groundwater quality in the area in which the new deicing and glycol recovery pad was to be constructed, and (c) characterize seasonal flow velocities for the aquifer near the Airport. The Board also installed four new groundwater monitoring wells to be used in the study and in subsequent analysis and monitoring.

The Board will continue to work with USGS and other agencies and partners to better understand the conditions within the aquifer. Future analysis and study will continue to develop methodology to detect the presence of deice fluids or their constituents and monitor the changes in

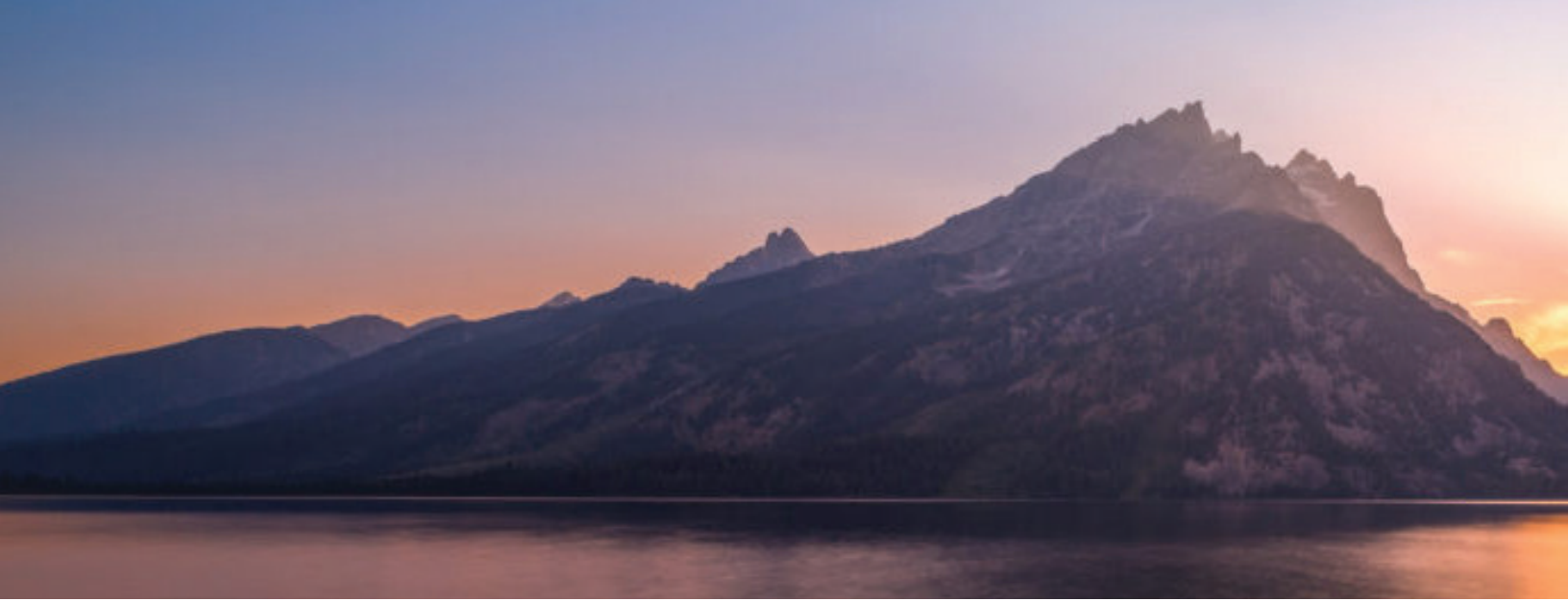
these levels, as well as levels of dissolved oxygen, to evaluate the effectiveness of the glycol capture system.

**Alternate Fuel Vehicles:** The Board has made a commitment to reducing its carbon footprint through several policies. One of these is the purchase and use of alternative fuel vehicles for Airport Operations. The Board plans to acquire additional alternative fuel vehicles as older Airport Operations fleet vehicles are retired.

## 4 SECTION 4 (*New and Developing Mitigation Efforts*)

The Third Amendment to the 1983 Agreement, which was signed on May 18, 2011, added a new paragraph 4(i) requiring the Board to act in good faith and in coordination and cooperation with NPS to develop and implement reasonable and cost-effective mitigation measures as may be available to reduce environmental impacts on the Park. The following are mitigation measures which the Board added, began to implement or study, or continued to implement or study during the reporting period January 1, 2016 through December 31, 2017:

**Part 150 Study:** The 1983 Agreement required the Board to develop a revised noise abatement plan based on Code of Federal Regulations Part 150 (“CFR Part 150”) and continues to require periodic reviews and updates of that plan. The Board received a grant from the FAA and commenced a new Part 150 Study in the spring of 2014. Meetings were held in the summer of 2016 on the operational alternatives identified in the Part 150 Study to further analyze the alternatives and select those to be carried forward. These were followed by meetings on the Fly Quiet Program and land use alternatives. Subsequent to a Public Hearing on the Recommendations, the Study was submitted



to the FAA for acceptance and approval. A full list of defined alternatives can be found in Appendix B.

**Wildlife Management:** With the exception of the entrance road, the Airport is completely surrounded by a wildlife fence, which has served to minimize conflicts between aircraft and most wildlife. The exceptions to this are birds, which are obviously not restrained by the wildlife fence. Two incidents at the Airport, both involving greater sage grouse and aircraft, met the damage and risk criteria necessary to trigger an FAA Wildlife Hazard Assessment (WHA). In order to address the concerns identified in the WHA, the assessment recommended that the Airport develop a Wildlife Hazard Mitigation Plan (WHMP). The WHMP was completed in October of 2013 and was approved by the FAA on September 24, 2014. In coordination with Park Service in 2017, the Airport developed a Greater Sage-Grouse Habitat Restoration Plan that identifies strategies to protect both birds and aircraft. The Airport is working with the Park Service to restore brood-rearing habitat in the Park to safely draw hens outside of the Airport boundary.

**Waste Water Treatment:** The WWTP was completed in May of 2014 and commissioned that summer. However, construction of the planned injection wells, through which treated effluent was to be discharged, was delayed pending preparation of an EA to

determine the best alternative for such disposal. Pending completion of the EA, the Airport released the treated WWTP effluent into the existing leach fields under temporary authority from the Wyoming Department of Environmental Quality. The Board participated with NPS and FAA in the preparation of the EA examining a no-action alternative and two action alternatives, which were identified through the scoping and public involvement process. In the spring of 2016, the Board selected Alternative C (pipeline to Town) as the Preferred Alternative for inclusion in the EA and directed that funding for the project be pursued. The final EA was published in the summer of 2016. The Board then moved to construct the pipeline to the Town of Jackson's wastewater treatment plant, which was completed in late 2016. The pipeline project enables the Airport to serve not only the wastewater disposal needs of the Airport as it exists today, but also what is expected to be increased passenger demand in the future.

**Energy and Power:** In 2011, the Jackson Hole Airport received LEED Silver Certification from the U.S. Green Building Council for the Terminal Building Expansion. After completion of the Terminal Building Expansion, the Airport has partnered with the Jackson Hole Energy Sustainability Project and [Lower Valley Energy](#) to conduct an energy audit, which helped identify



energy saving measures. These measures have been implemented and have reduced the Airport's energy consumption by 117,900 kilowatt hours per year. The Airport has made significant environmental improvements by working under the Dark Skies Initiative with Energy Conservation Works and Lower Valley Energy to convert the taxiway lighting and landside lights to LED. All power supplied to the Airport Terminal Building is now 100% Green Power.

**New Fuel and Glycol Storage Facility:** In 2018 the Airport built a state-of-the art fuel and glycol facility with the environment at the forefront of the design process. Water quality will be protected in the unlikely event of a leak of a petroleum product, through the use of multiple oil/water separators and an extensive storm water filtration system. If the unlikely spill of glycol, the system will sense it and that liquid would be put into a collection tank.

**New QTA Facility:** In 2018 the Airport constructed a new and improved "quick turn-around" (QTA) facility for use by all on-airport rental car operators. The QTA is equipped with a wash water recovery, treatment, and reuse system which is anticipated to result in a 75% - 90% reduction in wash water used by the on-Airport rental car companies. It is equipped with LED lighting and high efficiency natural gas boilers to reduce fuel consumption and

emissions. It has in-floor heat, insulated precast wall panels, and high-speed roll-up doors to reduce heat loss during winter operations. Car wash effluent is routed to the Town of Jackson treatment plant and replaces on-site septic/leach field treatment.

**Waste Reduction:** Bear spray cannot be taken onto air carrier aircraft. The Airport therefore has bear spray disposal containers in the Terminal to allow passengers to properly dispose of bear spray canisters they have brought to the Airport. The bear spray canisters are collected and sent to a facility where they are discharged and recycled. The Airport also has hydration stations for refilling reusable water bottles. These stations reduce the number of single use water bottles in the waste stream.

# 5

## SECTION 5 (Community and Employee Programs)

People are an integral part of any comprehensive sustainability program. "People Helping People" is the mission of the Airport. The Board and its employees seek to embrace this mantra in every aspect of Airport operations. The Board therefore seeks to integrate the Jackson Hole community in its sustainability programs, initiatives, and environmental strategies. The Board strives to support our partners, its



staff, and its broader community initiatives through the various programs highlighted below.

**Community Outreach Program:** The Airport's community outreach program highlights key groups that are supporting the overall mission of the Airport by participating in community programs.

**Employee Housing Benefit:** Located in a competitive and expensive housing market, the Airport provides a housing and transportation stipend to full-time staff. This may allow some employees to live near Jackson while it assists others with their transportation expenses.

**Holiday Food Drive:** Annually, the Airport holds a Holiday Food Drive. Non-perishable items are donated at the Airport in exchange for a free drink from Jedediah's. At the end of the drive, all items are donated to the Jackson Cupboard, which distributes these goods to local residents in need.

**Airport Host Program:** The Airport has implemented an Airport Host Program. The hosts greet arriving and departing guests, assisting with travel needs and questions about the facility and local area. The hosts are essential to our guest experience and we continuously strive to go above the expectations of Airport users.

**Employee Storm Support:** During adverse weather events, The Airport provides staff with hotel rooms. This initiative supports a sustainable and resilient work force while allowing the Airport to provide a high level of service during storm events.

**TSA Screening Program:** The Airport is one of only a few in the country that has a private security workforce providing

passenger and baggage screening services to TSA standards. This program supports the community through employment of up to 58 screeners and allows the Airport to control the customers' experience.

# 6

## SECTION 6 (Overview of Airport Operations)

The Airport is part of the National Plan of Integrated Airports Systems and is classified by FAA as a non-hub primary commercial service airport. The following is a description of the major areas of operations at the Airport during the 2016-2017 reporting period:

**Air Carrier Operations:** Commercial airlines operating regularly scheduled service at the Airport, either year-round or seasonally, change from time to time. For the Winter Season 2016-2017, the airlines serving the Airport were American, Delta, and United Airlines. A total of 351,414 passengers were enplaned by commercial airlines at the Airport in 2016 and 353,776 passengers were enplaned in 2017. This 2016 number represents an 11% increase over enplanements in 2015, and the 2017 number represents a 1% increase over 2016. In terms of enplanements, the Airport is the busiest in Wyoming and accounts for more than 61% of all commercial airline passengers arriving in the State.

**General Aviation Operations:** A fixed-base operator is also located on the Airport. Jackson Hole Aviation LLC provides fueling and ground service to general aviation (private and corporate) and commercial airlines. It also operates hangars, located south of the Terminal, providing storage for aircraft. In 2017 there were 11,400 general aviation operations, with "operations"

being defined as either a landing or take-off at the Airport.

**Ground Transportation Activity:** Public ground transportation is important to meet the needs of the traveling public. The Board enters into annual contracts with providers of ground transportation services at the Airport. In 2017, the Board entered into contracts with 37 Taxi Providers, 8 Executive Service and Charter Providers, and 15 operators of airport courtesy vehicles. In June of 2017, the Board for the first time entered into contracts with two transportation network companies (TNC). Under these contracts the independent drivers of Uber and Lyft may operate at the Airport. Airport access fees are charged using a “geo fence” which electronically detects when any in-service Uber or Lyft vehicle enters the Airport. During the last six months of 2017, there were 2,544 operations by TNC operators at the Airport. Responding to changes in the ground transportation industry, in 2018 Ride2Fly was rebranded as Taxi2Fly and the Board instituted a TaxiPool program. To facilitate this program, the Board entered into a Lease with the Town, effective September 1, 2018, under which the Board leases 141 parking spaces on Levels 3 and 4 of the Town garage from November 15 through the following April 15, and 71 parking spaces on Level 4 of the garage from April 16 through November 14. These spaces are for the exclusive use of Airport passengers.

**Rental Car Activity:** The Board periodically solicits competitive proposals for a limited number of rental car companies that will be permitted to maintain a base of operations on the Airport. As of May 1, 2018, the Airport is currently served by three on-airport rental car companies which offer the Enterprise, National/Alamo and Hertz brands from counters in the Airport terminal building. The Airport is also served by several off-Airport rental car companies which offer van service from the Airport to their locations in the Town of Jackson.

**Terminal Businesses:** Several businesses are located or supported in the Airport terminal building. Jedediah’s Restaurant is located in the secure passenger holding room, and also operates a snack bar in the non-secure lobby of the terminal building. Jedediah’s also operates a gift shop in the secure passenger holding area. The National Park Service, through the Grand Teton National History Association, operates a natural history gift shop inside the passenger holding area.

**Airport Parking Activity:** In 2016 and 2017, the terminal had a parking lot capable of holding approximately 580 vehicles for the public and rental car ready return vehicles. The Airport also had employee parking areas capable of holding approximately 125 employee vehicles. All public parking is free during the day, with a fee being required only for overnight parking.

**Inter-Agency Helibase Operations:** Pursuant to a Second Amendment to the 1983 Agreement, Bridger-Teton National Forest and the Grand Teton National Park have established an interagency helibase at the Airport. The joint base consists of a 3,200 square foot building, two 30’ by 30’ helicopter landing pads and one 40’ by 40’ pad. The helibase directly serves 2.5 million acres of federal land and is available to assist in rescue and fire operations on 18 million acres across the greater Yellowstone area.

# 7

## **SECTION 7** (*Overview of Airport Facilities and Plans*)

The Airport is part of the National Plan of Integrated Airports Systems and is classified by FAA as a non-hub primary commercial service airport. The following is a description of the major areas of operations at the Airport during the 2016-2017 reporting period:



**Master Plan:** An airport master plan is a document which describes the approved actions to be accomplished for phased development of an airport. Master plans address the airfield, terminal, landside access improvements, modernization, and expansion needs of an airport. In 2015, the Board caused a Conceptual Area Development Plan to be prepared that identifies a preferred development strategy to most efficiently utilize the space available on the Airport for future commercial aircraft operations, general aviation operations, Airport Rescue and Firefighting and Snow Removal operations, Rental Car Service Facilities and other facilities such as parking for airport users and rental cars.

**Terminal Building:** In the spring of 2014, the Board began construction on an expanded baggage claim area to complete the Terminal project. This expansion used portions of the existing administrative building and relocated a number of utilities and mechanical areas to maximize efficiency of the new arrivals area. The Terminal expansion has received numerous awards for design, process, construction, and efficiency. These include LEED Silver recognition for its energy efficient and environmentally friendly construction and design, and the 2014 American Institute of Architecture - National "Award of Excellence."

**Public Art at the Airport:** Public art can display our history and culture, and provides an intersection between past, present and future, between disciplines, and between ideas. The Jackson Hole Airport is home to an impressive collection of public art, with several pieces distributed throughout the Airport terminal and grounds. To learn more about the Airport, its art collection, and the surrounding area, the public can download the TravelStorysGPS app from Apple's AppStore or Google Play.

**New Fuel Facility:** During 2016 and 2017 the Airport had two aging underground aviation fuel facilities. Referred to as the North Fuel

Facility and the South Fuel Facility, each was owned by the Board and leased to JHA. Because of the Airport's remote location and seasonal peaks in fuel demand, the existing facilities were also becoming too small to meet the demand for Jet-A fuel. In 2017, the Board resolved to construct a new, state-of-the-art, above-ground fuel facility to be owned and operated by the Board. The new facility is the sole fuel facility on the Airport. It is operated by the Board under its "proprietary exclusive right" with the intent to sell fuels to the FBO(s) operating on the Airport for resale and delivery into aircraft. Construction of the new fuel facility was financed by a customer facility charge initially set at 5¢ per gallon (the "CFC") and a fuel facility fee which would be initially set at 20¢ per gallon (the "FFF"). These are in addition to the fuel flowage fees which remained effective.

**General Aviation Facilities:** Jackson Hole Aviation, LLC ("JHA") is currently the sole fixed base operator ("FBO") at the Airport. JHA operates at the Airport under two types of agreements, (a) a Master Operating Agreement ("MOA") granting it the right to operate an FBO on the Airport, and (b) four leases for Board-owned hangars. JHA is authorized to operate an FBO at the Airport under its existing MOA through April 13, 2023, with no rights to renew. As noted above, in 2017 the Board signed an Asset Purchase Agreement with Jackson Hole Aviation LLC. Upon closing of the Agreement, the Board will itself operate all FBO facilities on the Airport. Because



of [a lawsuit challenging this transaction](#), the Board and JHA-LLC entered into an amendment to extend closing until the lawsuit has been successfully resolved. Regardless of the outcome of the lawsuit, the Board has determined that it will be the sole FBO on the Airport after April 2023, when the operating rights of the current FBO expire.

**The Runway:** The Airport has a single 6,300-foot runway (at an elevation of 6,450 feet), which was built in the 1960s. The runway is 150 feet wide, and is asphalt overlaid with a porous friction course. The Airport also has one taxiway to the east of the runway which is 6,300 feet long and 75 feet wide with 4 connecting taxiways to allow for the movement of aircraft to and from the runway. Prior to 2011, the Airport had a long history of runway excursions which often resulted in damage to both commercial and general aviation aircraft. The Board and the National Park Service determined that the high excursion rate represented an unacceptable risk and resolved to work cooperatively to identify causal factors and solutions and implement appropriate mitigation measures. The studies found that paving the full length of the south runway safety area "...would substantially reduce the risk of catastrophic damage resulting from runway excursions, as past excursions have not gone more than 1,000 feet beyond the end of the runway." Acting on this recommendation, with the support of the National Park Service, and a \$1,760,000 grant from the Wyoming Aeronautics

Commission, the Board constructed the additional 700 feet of pavement in the south runway safety area in June of 2011. Since 2011 the paved area has been used by overrunning aircraft on several occasions, but all such excursions have stayed on the pavement, resulting in minimal if any damage.

**Electronic Navigational Aids:** Electronic navigational equipment located on the Airport includes a Localizer (LOC) antenna array at the departure end of Runway 19 and a Glide Slope (GS) antenna at the approach end of Runway 19. Combined, the LOC and GS constitute an Instrument Landing System (ILS) for Runway 19 which is protected by FAA-mandated critical areas that must be cleared to prevent signal interference. This navigational equipment is owned and operated by the FAA. A Differential Global Position Satellite (DGPS) antenna and a Very-High-Frequency Omni Directional Range Radio Beacon (VOR) are also located on the Airport and are owned and operated by the Board.

**Airfield Lighting Systems:** The Airport has a number of different lighting systems to assist pilots and airport staff during nighttime and low visibility. Each runway end is currently equipped with Medium Intensity Approach Lighting Systems (MALs), Runway Centerline Lighting System (RCLS) and four-light Precision Approach Path Indicator (PAPI) units. A High-Intensity Runway Lighting (HIRL) system is in place for the runway edge. The taxiways are equipped with Medium Intensity Taxiway Edge Lights (MITL) which are LED. Additional lighting includes an airport beacon, a lighted wind cone, a lighted wind tee and segmented circle.

**Air Traffic Control Tower (ATCT) and Surrounding Airspace:** The Airport has a controlled airfield with an on-site Air Traffic Control Tower ("ATCT"). The ATCT is operational daily from 7 AM to 9 PM and is staffed with private controllers under a contract with Serco, Inc. through



the FAA's Contract Tower Program. The primary purpose of the ATCT is to ensure that aircraft separation is maintained when operating within the vicinity of the Airport and when operating in the Aircraft Operating Area (AOA) on the ground. The ATCT also provides local weather and limited aviation weather observation. The Airport is in the center of Class D controlled airspace with a radius of about 4.5 nautical miles. The Airport's Class D airspace extends from the earth's surface up to 2,500 feet above ground level. All aircraft must be in two-way communication with air traffic control to enter and operate within Class D airspace.

## 8

### SECTION 8 (*Security and Screening*)

**Operation of Passenger Screening:** The Jackson Hole Airport is one of several airports in the country which have "opted out" of security screening performed by the Transportation Security Administration ("TSA"). Security screening for opt-out airports is performed by screening contractors under TSA standards and funding. Due in part to its unique history and organizational structure, the Board is currently the only airport operator in the United States which itself has been awarded a screening contract by TSA. The Board operated passenger and baggage security screening at the Airport during 2016 and 2017 under a fixed-price contract with TSA. The current contract is for a period of five years but may be renewed on an annual basis contingent on the Board meeting rigid quality assurance standards.

**Law Enforcement Contract:** Because it is served by scheduled air carriers, and security screening of passengers and baggage is performed, the Board is required by federal law to ensure a law enforcement presence at the Airport. To meet this requirement, the Board entered into a Memorandum of Understanding ("MOU") with the Town of

Jackson under which officers of the Jackson Police Department are stationed at the Airport. Under the current MOU, which was entered into in July 2017 for a three-year term, the Board reimburses the Town \$44,327 per month to provide these law enforcement services. A portion of this amount is reimbursed to the Board by the Transportation Security Administration.

## 9

### SECTION 9 (*Financial Management and Planning*)

**Overview of Airport Finance Requirements:** In terms of operating revenues, the Board is a financially self-sustaining entity. It receives no operating revenue from Teton County, the Town of Jackson or the State of Wyoming. All operating expenses are matched by operating revenues, which are generated by rentals and fees imposed on airport users. These include Airport tenants such as airlines, rental car operators, the fixed base operator and ground transportation providers. The Board also receives landing fees, fuel flowage fees and user fees from others who conduct business on the Airport. Each year the Board establishes an operating budget based on expected revenues. Cash reserves are retained for years in which revenues do not match expenses including capital projects. Cash reserves are also used to fund the Board's "match" which is required for all federal and state grants. For each of the past ten years, the Board has come within two percent of hitting its annual expense targets. The Board receives annual grants from FAA, along with occasional grants from the Wyoming Aeronautics Commission and Wyoming Business Council, for capital improvements at the Airport. The Airport Board operates under other financial constraints. The 1983 Agreement requires that all rates and prices charged to the public by the Board and its subcontractors and licensees shall be fair and reasonable. As the recipient of FAA grants, the Board



is also subject to an FAA requirement that it establish a fee structure which will make the Airport as self-sustaining as possible under the circumstances. In most cases, this requires the Board to charge market rentals and fees to airport tenants and users.

**Summary of Finances:** Operating revenues and expenses are those incurred with respect to ordinary airport operations. The Board's operating revenues and expenses from year to year will therefore depend to a significant degree on the Airport's aircraft and passenger volume. Operating expenses do not immediately and automatically mirror aircraft and passenger volume and must therefore be closely monitored and changed by the Board when appropriate. A capital outlay is an expense for the purpose of constructing or extending the life of a fixed asset, such as the runway or a building. Capital outlays at the Airport are funded in large part through grant revenues and Passenger Facility Charge ("PFC") project reimbursements. Grant revenues are dependent on both the appropriation of federal funds, and the Airport's passenger volume upon which the level of grant funding is partially based. A PFC on the other hand is a congressionally authorized charge imposed by airlines for the Board, on each ticketed passenger that utilizes the Airport, up to established caps on each passenger's entire trip. PFC's may be used by the Board for capital outlays approved by FAA. The amount of PFC reimbursements received by the Board is therefore related, but not directly proportionate, to passenger volumes at the Airport. PFC Collections at the Airport are currently pledged through the year 2038 to repay outstanding bond which were taken out for the Terminal expansion project.

**Capital Improvement Plan:** Eligibility for FAA and/or WYDOT grant funding requires the Board maintain a Capital Improvement Plan ("CIP"), which projects the estimated uses of federal grant funds over a five-year time horizon. Proposed capital improvements

must be reflected on the CIP to be eligible for federal funding. Major projects on the Board's current CIP are:

◇ Taxiway Rehabilitation	\$20,400,000
◇ ARFF/SRE Building ( <i>cost to be revised</i> )	\$16,533,667
◇ Access Road Rehabilitation	\$8,982,789
◇ Acquire 2 SRE Tractors with Tow Behind Broom	\$1,750,000
◇ Runway Rehabilitation	\$19,700,000

# 10

## SECTION 10 (Conclusion)

The Jackson Hole Airport is the only commercial airport entirely contained within a national park. Along with this comes a unique responsibility to help steward the resources of the Park and the Greater Yellowstone ecosystem, and help ensure Jackson Hole remains a special place for travelers from around the world to experience the grandeur of its scenery, abundance of its wildlife, and diversity of its recreational opportunities. The Board hopes to provide a gateway experience which demonstrates its commitment to the stewardship of the environment, customer service and safety.

To this end the Board has worked collaboratively with the National Park Service and conservation groups to constantly seek, set, and achieve high standards in all three of these areas. The Board is extremely proud of the process and products which have resulted from its cooperative efforts during 2016-2017.

The cooperative relationship between the Board and the National Park Service is based largely on a mutual philosophy. It is a view that in each challenge we face to bring air service to a pristine part of the country, there are also opportunities to be seized

to combine cutting edge technology with common sense conservation education and interpretation about National Park values and traditional old west culture with a vision to the future.



# SECTION 1



## Board Organization and FAA Obligations

### 1.1 Board Organization.

The Wyoming Aeronautics Act (“WAA”) authorizes counties and municipalities to acquire, construct, operate and maintain airports. This legal authority may be delegated to an airport board. W.S. §§10-5-101 through 10-5-30. Under this authority, and by Joint Resolution of December 1967, the Town of Jackson and Teton County created the Jackson Hole Airport Board and delegated their authority with respect to the Jackson Hole Airport to the Board. This was made a part of the Town of Jackson Municipal Code, which grants the Board the authority to engage in all business authorized by the WAA. Town of Jackson Code §§2.36.010 through 2.36.100. Additional information concerning the Board Organization and FAA Obligations can be found in Appendix C.

# SECTION 2



## Existing and Ongoing Noise Mitigation Measures

### 2.1 Background.

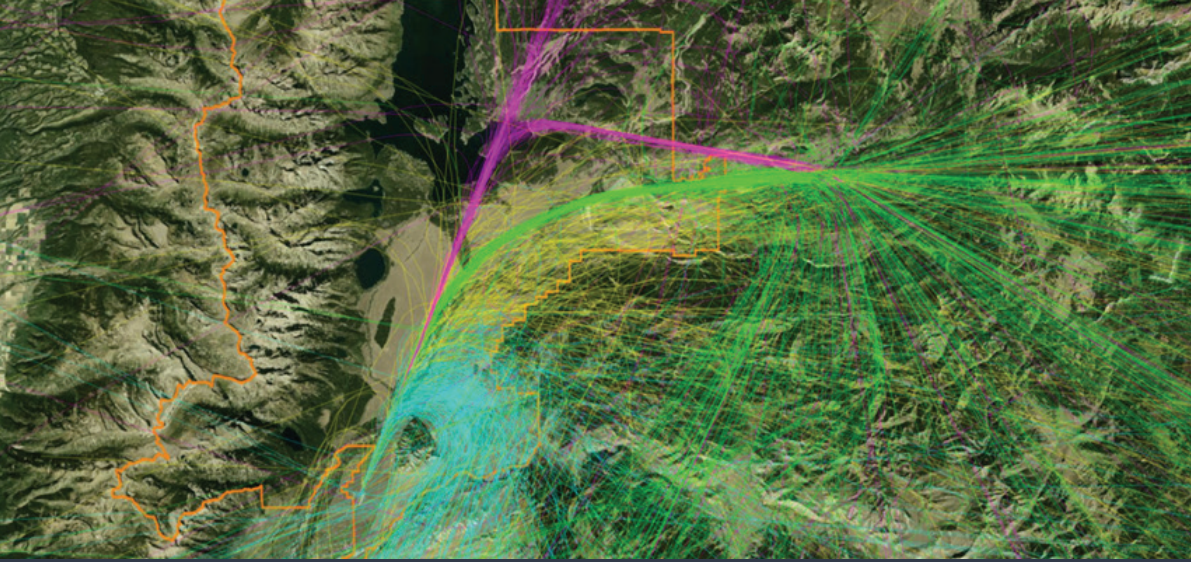
As noted above, the Jackson Hole Airport is the only airport in the United States with regular commercial service located entirely within a national park. The Airport operates under the 1983 Agreement, which restricts certain activities and facilities, and imposes stringent noise and other environmental standards. In compliance with the 1983 Agreement, and in many cases going beyond its requirements, the Board has implemented a range of mitigation measures which are described below.

The Board's noise consultants, Paul Dunholter, of BridgeNet International, and Ryk Dunkelberg of Mead & Hunt, were awarded Aviation Week's 2011 Laureate Award and the 2016 Randy Jones Award for Excellence in Airport Noise Mitigation, Abatement and Management, respectively in part for their noise measurement and mitigation work at the Jackson Hole Airport. The Next-Gen Approach developed for the Airport has been featured on the cover of the FAA's Next-Gen website.

The Airport Noise and Capacity Act of 1990 ("ANCA") requires that any airport proposing to adopt a noise or capacity restriction affecting Stage II aircraft, must first engage in a regulatory process known as "Part 161." If the restriction would affect quieter State III aircraft, not only must the process be followed, but FAA approval is actually required. Because of an Act of Congress obtained specifically for the Jackson Hole Airport, since 2004 these quieter Stage III aircraft have been the only aircraft permitted to operate at the Airport. Therefore, FAA approval would be required for any additional noise or capacity restrictions at the Airport.

Part 161 requires a cost-benefit analysis of alternatives to accomplish a desired noise reduction, and that analysis is subject to FAA approval. Under Part 161, FAA has disapproved measures if it deems that the noise reduction achieved is unreasonable when balanced against the burden of the restriction. Unfortunately, FAA admits that unlike residential land uses, no standard currently exists against which to judge the reasonableness of noise reductions in a national park. In the 27 years since adoption of ANCA, only one airport in the United States has successfully completed the Part 161 process – and that was to implement a Stage II aircraft ban, which the Jackson Hole Airport has already obtained by Act of Congress.

In addition to being part of mandatory noise abatement regulations, the Board continues to pay close attention the activities of the National Overflight Advisory Group. This advisory group was jointly established by the Administrator of the Federal Aviation Administration and the Director of the National Park Service to continuously advise and counsel with respect to



*Data from the BI-6 can be used to record flight paths, identify approach types, and provide nearly real time flight tracking with noise contour modeling of individual aircraft.*

commercial air tour operations over and near national parks. We are pleased to note that Board Member, John Eastman, was appointed to this committee in 2017 and is currently still serving his term.

## **2.2 2016-17 Noise Measurements and Modeling.**

Noise monitoring has been regularly conducted at the Airport since 1984. This monitoring has evolved from short term seasonal monitoring of DNL (Day-Night average sound Level - a cumulative noise measurement of average day/night noise levels); to a sophisticated state-of-the-art permanent monitoring system which uses noise monitors and radar data to measure the noise environment using many complex noise descriptors. In 1984, noise measurements were conducted at only three locations near the Airport: Moulton Loop, the community of Moose, and Barker Ranch. Each site was monitored for approximately one week to ten days during both the peak winter and summer seasons. The measurement sites were used to determine the DNL noise level at critical boundaries established in the 1983 Agreement.

In 2004, the Board upgraded its noise measurement program by installing a permanent noise monitoring system. The system consists of six permanent monitors which collect noise data continuously year-round. In addition to the three 1984 sites

mentioned above, the new monitors were installed at the Jackson Hole Golf and Tennis Club, the Four Lazy F Ranch, and east of Timbered Island. A total of four of the six sites are in the Park to monitor noise levels in more sensitive areas. The upgraded noise monitoring system records the continuous noise level every one second, calculates noise events from aircraft and other noise sources, and determines the DNL noise level as required in the 1983 Agreement. The permanent noise monitoring system enhancement provides year around noise data associated with individual events, and data at additional sites of interest in the Park and the surrounding community.

In the fall of 2008, the FAA installed a Beacon Interrogator Type 6 radar system (BI-6) at the Airport. The noise monitoring system was then upgraded to use the radar and flight information from the BI-6. This provided information on the flight path and type of each individual aircraft. The BI-6 radar data now allows for the noise monitoring system to correlate an aircraft noise event to the aircraft which is actually causing the event. This provides for a more accurate measurement of the aircraft DNL noise level, and to identify operations that generate higher noise levels. This also allows the Board to more precisely model the flight paths around the Airport and identify operations that deviate from preferred paths.



At the same time, the noise monitoring sites were upgraded to measure more complex noise metrics which have evolved as supplemental methods to measure and extrapolate aircraft noise levels in other unmonitored areas within the Park. The enhancements included: low noise microphones, weather sensors, continuous measurement of the 1/3 octave spectra, and the measurement of detectability. The “detectability” measurement is used to show the audible contribution of aircraft and other noise sources to the Park’s natural quiet. This allows the system to better quantify aircraft audibility levels at these locations. The results are presented on a first of its kind three-dimensional display of aircraft noise and aircraft flight paths.

Based in part on these noise measurements, the Board’s noise consultant, BridgeNet International, produces a noise report each year. The reports for 2016 and 2017 found that aircraft noise levels within the Park were more than 5 dBA (A-weighted decibels) below the single event levels specified in the 1983 Agreement. The 65 DNL (average day/night noise) contours did not extend beyond the Airport boundary, and therefore no residential or other non-compatible land uses (as defined by FAA) were exposed to 65 DNL.

## 2.3 Single and Cumulative Noise Standards.

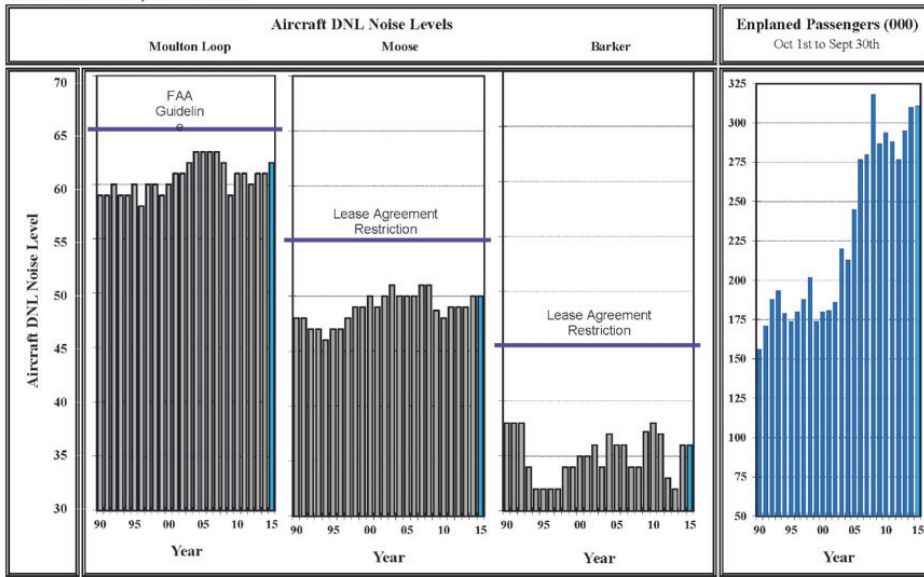
Under the 1983 Agreement, the Airport has other and more restrictive sound management requirements than simply the 65-dBA day-night average sound level used by the FAA as a measure of compatibility. These may be the most restrictive sound management limits of any airport in the nation. Under the cumulative noise standards requirements of the 1983 Agreement:

- ◆ “Acoustical energy associated with airport operations shall not exceed a level of 45 DNL based on measurement of single event noise levels” west or north of a line specified in the 1983 Agreement Section 4(f)(1), and
- ◆ Airport operations shall not generate a 55 DNL noise contour which extends beyond the boundary of the noise sensitive areas of the Park, as defined in the 1983 Agreement.

Under the 1983 Agreement, the single-event noise standard for aircraft on approach to the Airport was established at 92 dBA. This requirement applies to the Federal Aviation Administration Circular 36 certification status of each aircraft type determined under controlled conditions.



Figure 4-12  
2015 Annual DNL Noise Report  
Jackson Hole Airport 2015 Annual Report  
October 1st 2014 to September 30th 2015



Jackson Hole Airport  
2015 Annual Report

BridgeNet International  
Page 4-22

## 2.4 Stage II Aircraft Ban.

On June 20, 2004, the Board enacted a rule prohibiting the operation of the older, louder Stage II corporate jet aircraft that contributed disproportionately to the noise environment in the Park. These Stage II aircraft generated the highest single event noise levels in the valley. The Airport was one of only a handful of airports in the nation that were allowed to implement such a ban, and this authorization required a special act of Congress. Under the Town of Jackson Municipal Code, violations of this rule result in a mandatory court appearance and fines.

To put this into perspective, in February 2012, Congress passed the FAA Modernization and Safety Act. Section 710

of that Act bans the use of Stage II aircraft in the continental United States under 75,000 pounds after December 31, 2015. This effectively implemented on a nationwide basis the same restriction which has been imposed at the Jackson Hole Airport since 2004. The Board had its rule in place for 11 years before the rest of the nation's airports were required to comply. As a result, the Park and surrounding areas received noise reduction benefit during this period.

## 2.5 Preferential Runway Use.

Section 4(e) of the 1983 Agreement requires the Board to take all reasonable measures to notify aircraft operators to avoid noise-sensitive areas of the Park, and to encourage aircraft to utilize approaches from



The graphs show the Airport is well within compliance of the standards specified by FAA and contained within the 1983 Agreement. The purple horizontal lines indicate these limits. Of note is the trending increase in passenger enplanements (depicted in blue on the right) while noise levels have remained relatively steady for the same period. This demonstrates the use of quieter, more efficient commercial aircraft with greater capacities serving more passengers without an increase in DNL.

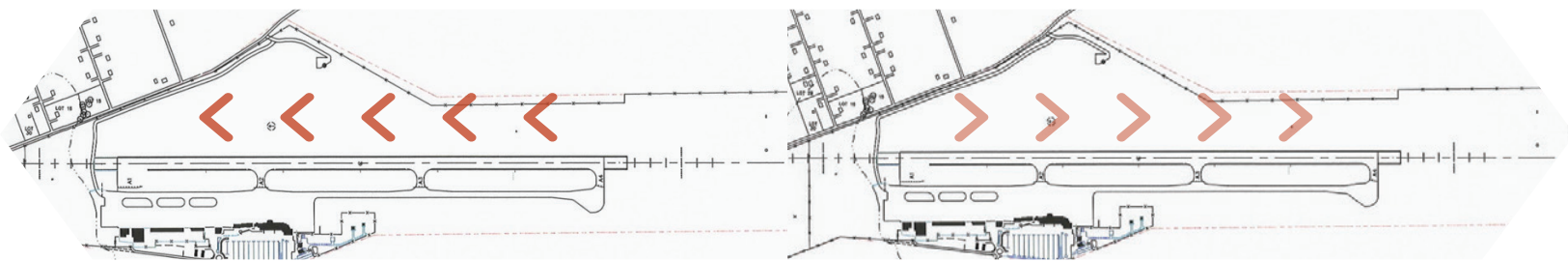
and takeoffs toward the south on the Airport's single runway. Such approaches and takeoffs would avoid overflying any part of the Park which is outside Airport Use Agreement boundaries. It should be noted that while the 1983 Agreement defines certain "Noise Sensitive Areas" within the Park, current National Park Service Management Policies describe all National Park Service lands as noise sensitive.

To implement this requirement of the 1983 Agreement, and to acknowledge current NPS policy, the Board makes preferential runway use information widely available through the Airport's website, an insert for pilot notebooks, air traffic control broadcasts, aeronautical publications, and other

materials typically used by pilots for flight planning. The procedures indicate that Runway 01 (from the south) is the preferred arrival runway and Runway 19 (to the south) is the preferred departure runway.

The availability of the preferred runways is dictated by wind direction and speed, and also by traffic. From 0700 – 2100 the tower controller will designate the runways to be used and will use the preferred runways whenever wind and safety permit. When the winds are calm (<5kt) the preferred runways can be used regardless of wind direction.

Departures are typically the loudest operations. Winds at the Airport are predominately from the south which allows most departures to use the preferred runway. However, in the mornings the winds can exceed 5 knots from the north. This is due, in part, to normal convection as cold air flows downhill from north to south.



**PREFERRED DEPARTURES**  
87% UTILIZATION



**PREFERRED ARRIVALS**  
13% UTILIZATION

During calm winds, use of both preferential runways simultaneously can lead to “head-on” operations with aircraft departing to the south directly at, or in the path of, aircraft arriving from the south for north bound approaches. This could pose a hazard to aviation safety depending on the volume of traffic and the weather conditions. The controller will determine if conditions will allow for the safe use of both preferred runways simultaneously. If not, departures (as they are the loudest) will continue on the preferred runway and arrivals will come in from the north.

From an aircraft performance standpoint, it is advantageous for flight crews to use both preferential runways whenever feasible. The runway slopes downhill from north to south. For departures and the purpose of accelerating to takeoff speed, the slope provides significant advantages as aircraft can accelerate quicker. This allows either shorter takeoffs or the ability to take on more weight. Conversely for arrivals, the runway slope uphill towards the north allows aircraft landing to the north to decelerate quicker and have shorter stopping distances, adding an increased margin of safety.

The Board has continued to monitor runway utilization and consistency with these preferential runway use provisions. In 2016/2017, 87% of aircraft utilized the preferred departure runway, (Runway 19 departing to the south) with departures being the noisier operation. In the same years, 13% of aircraft utilized the preferred arrival runway (Runway 01 landing from the south). Due to winds, in the absence of a preferred runway program, it could be expected that these two utilization numbers would equal 100%. However, this data indicates the preferred arrival runway is being used 4% more often than if winds alone were the deciding factor in utilization.



Thus, the preferential runway program has shifted 4% of arriving operations which would have overflowed the Park, to the preferred runway. The Board will continue to work with FAA and the control tower to attempt to improve preferential runway use.

## 2.6 Noise Abatement Plan.

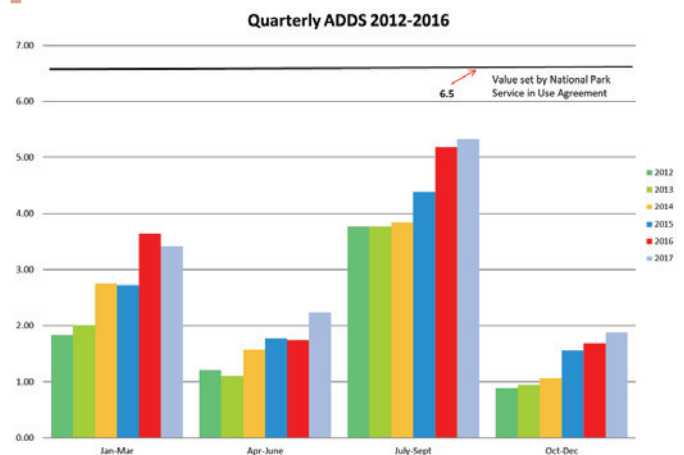
The Board's Noise Abatement Plan was adopted March 14, 1985 and has been in effect since that date. Major sections of the Plan include maximum noise level limit, cumulative noise standard, aircraft operating procedures, operations specifications amendment for scheduled passenger service airlines, requirements for aeronautical contractors, noise complaint/inquiry report system, and educational efforts. The Plan also requires commercial jet aircraft to schedule arrivals prior to 9:30 p.m. and departures no earlier than 7:00 a.m. The Board requires compliance with the contents of the Noise Abatement Plan in all of its operating agreements with air carriers and commercial general aviation operators.

The cumulative and single-event noise requirements are enforceable limits and represent an upper bound on the Park's exposure to noise associated with airport operation. As part of the Plan, and to ensure compliance with the cumulative noise limit, a maximum of 6.5 average daily departures (ADDs) are allowed by the "Base Class" aircraft, a Boeing 737-200. As stated in the noise abatement plan, "[I]f an aircraft is quieter than the 'Base Class' aircraft, it may operate in greater numbers based on an "equivalency" formula. The limitation applies to all scheduled commercial aircraft having noise levels above 86 dBA on approach and above 74.5 dBA on departure."

In response to proposals by two airlines in 1984 to schedule flights that would have exceeded the 6.5 average daily departures limit, the Board adopted an access plan that identified a limited number of landing

"slots" each day at the Airport and a method for allocating them among the airlines. The two airlines subsequently withdrew their proposals and it was not necessary to implement the access plan.

Based on advances in aircraft noise technology since 1984, the 45-decibel DNL and 55-decibel DNL contours have never been exceeded and the number of average daily departures has remained below the specified limit of 6.5 "Base Class" aircraft equivalents. The Boeing 757-200, Canadair Regional Jet CRJ700, and Airbus 319 are all quieter aircraft which produce less than the threshold 86.0 dBA on approach and less than 74.5 dBA on departure. The Board has elected to continue to track these aircraft, despite the fact that they are considered exempt under the Plan. An equivalency formula was developed to represent and include the impact of these aircraft in the cumulative noise limit. Even with the inclusion of the exempted aircraft, since 1984 it has not been necessary to make allocations under the access plan.



Annual Average Daily Departures (ADDs) for 2015 were 2.62, well below the 1983 Agreement stated operational limit of 6.5 ADDs averaged annually.



## 2.7 Voluntary Curfew.

Under the Airport Noise and Capacity Act passed by Congress, the Board cannot unilaterally impose a mandatory curfew without FAA approval. The Board has nonetheless adopted a voluntary curfew for general aviation aircraft between 11:30 p.m. and 6:00 a.m. for landing, and between 10:00 p.m. and 6:00 a.m. for takeoff. Pilots are notified of the curfew using the same media described above for preferential runway use. Pilots also are advised that the Airport and tower are not staffed overnight, that fire/rescue and other services are not available during this period, and in winter, the runway, taxiway, and ramp are not plowed after the last scheduled passenger flight arrives, so that incoming planes risk landing on a snow-covered runway.

Airport staff receives a report from Flight View, showing N-numbers and time of aircraft operations at the Airport. They then look up the addresses and companies that operate during the voluntary curfew (with the exception of life-flights). For any aircraft that do not conform to the voluntary curfew, they send them a notification letter. Although the curfew is voluntary, the Board finds that the letter notifications substantially reduce the number of nighttime operations during the curfew. After finding the cause of the violation, Airport staff then follows up with the person who submitted the complaint.

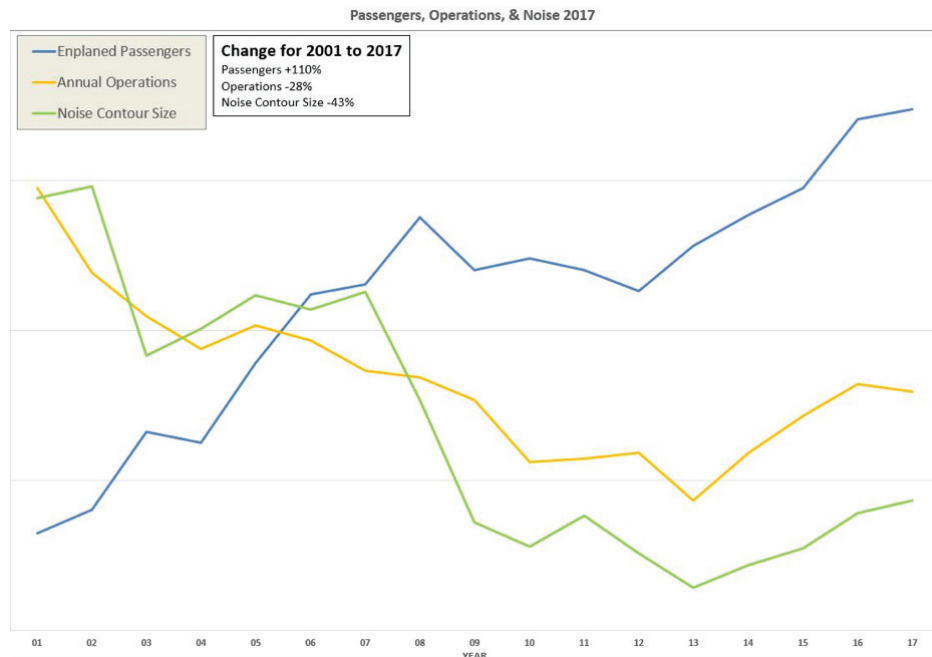
## 2.8 RNAV and GPS Approaches Runway 19.

The Board worked extensively with the FAA to provide a “NextGen” satellite-based precision procedure that makes the landing path to Jackson Hole safer and shorter, while avoiding most noise sensitive areas of the Park.

NextGen is an umbrella term for FAA’s ongoing transformation from a ground-based to a satellite-based system of air traffic management. NextGen is designed to increase safety while reducing environmental effects. When fully implemented, NextGen will allow aircraft to safely fly closer together on more direct routes. Because routes are more direct, and there is a reduced need for aircraft to “hold,” benefits should accordingly include reductions in carbon emissions, fuel consumption and noise

A NextGen approach to Runway 19 was approved by FAA in March 2013. When it was sanctioned and adopted, it was the first instrument procedure in the United States with a curved approach component designed for noise abatement purpose. The GPS approach is being used by approximately 89% of jet aircraft flying IFR approaches to Runway 19 (66% of all Runway 19 jet arrivals). This GPS approach was prominently featured on the cover of the FAA’s NextGen webpage as an example of using NextGen technology for Noise Abatement.

The graph displays the trend in airline passenger enplanements to increase, while the trends in commercial aircraft operations and noise contours have decreased. \*Noise contours include data for both commercial and general aviation aircraft operations.



## 2.9 Increased Efficiency in Airline Operations.

Aircraft operations for both General Aviation and Commercial Aviation have been trending downward since the Tower began keeping records. This is also supported by data from the FAA's Terminal Area Forecast (TAF). This, along with improved engine technology and a change in fleet make-up, has also contributed to lowering the overall noise contour size. Of note is the trending increase in airline passenger enplanements during the same period. This would indicate that the airlines and Airport are providing service to more people with fewer aircraft operations and therefore with a reduced noise impact.

This is driven primarily by a shift in commercial aircraft types. The Airport has seen a move away from smaller capacity (19-30 seat) turbo prop aircraft to larger regional jet and mainline jet aircraft ranging in capacity from 70 – 187 seats. We have also seen improvements in load factor, which is a measurement of how much seating capacity is actually being utilized. A flight with an 80% load factor utilized 80% of its seating capacity. The combination of higher capacity aircraft, with a more efficient use of that capacity, has allowed the airport to actually serve more passengers with less environmental impact.

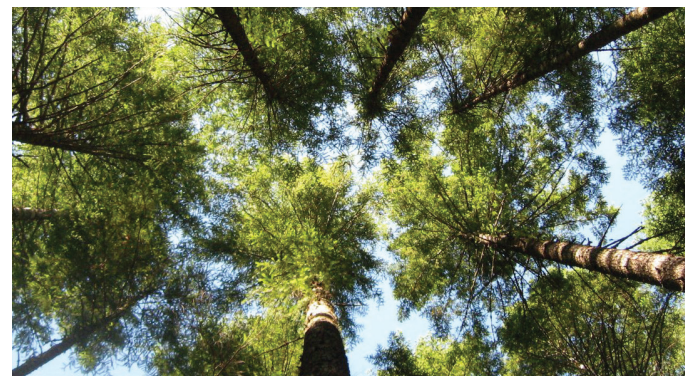


# SECTION 3



## Other Existing and Ongoing Mitigation Matters

The Jackson Hole Airport Board is dedicated to becoming an industry leader in environmental stewardship, green building initiatives, and sustainability. In effort to preserve the power of place for future generations, it has and will continue to implement environmentally sustainable initiatives at the Jackson Hole Airport. The Board's commitment is to protect our natural environment, the National Park in which it exists, support our local community, and serve as a resilient resource to the unique area it serves.



### 3.1 Visibility and Screening

The Airport has planted trees and other native vegetation to reduce the visual impacts of Airport buildings. The Airport will continue to plant additional trees and replace existing trees to improve the overall visual screening of airport facilities and buildings year-round.

Additionally, The Airport works with the Dark Skies Initiative to reduce light pollution and protect the scenic night sky in the National Park and Jackson Hole. In 2017, the public parking lot had the light poles lowered and LED lights installed. This further reduced the visual impact and saved energy consumption.

### 3.2 Recycling.

Many years ago, the Board, with the support of all tenants, started a small recycling program. A few types of recyclables were collected and taken to the recycle center.

As the program was promoted, the Board saw an increase in demand for a more comprehensive and efficient program. In May 2009, the Airport purchased and put into service its own recycle trailer which has 10 one-yard bins. The recycle trailer is hauled to the Teton County Integrated Solid Waste & Recycling Center (ISWR) on an as-needed basis. The program also added cardboard recycling. The Airport introduced four additional multi-stream recycling receptacles in 2013. There are currently six multi-stream recycling stations available in the Terminal for recycling aluminum, #1 plastic, and newspaper. The Airport also recycles cardboard, white paper, glass, magazines, textiles, fluorescent bulbs, ink/toner cartridges, batteries, e-waste and bear spray.

The Airport's recycling program has had a significant impact on diverting solid waste from the landfill and has been used and supported by all Airport tenants.



In 2016, the Airport recovered 48 tons of recoverable materials which included newspaper, glass, paper, plastic, cardboard, and aluminum. By 2017 this went down slightly to 47 tons. Cardboard recycling has increased from 350 cubic yards to approximately 380 cubic yards over this same

period. While there was a slight dip in total recycling between 2016 and 2017, from 2009 to 2017 JAC's well-supported recycling efforts resulted in a 24% average increase in the total cubic yards of recycled materials.

Total diversion rate is at 18%.

**24%**  **AVERAGE INCREASE**



2009-2017 saw a 24% average increase in total cubic yards of recycled materials.

### 3.3 Fleet and Idling Policies.

On March 14, 2012 the Board adopted a "No Idle Policy" for Airport vehicles, and for vehicles operating under contract or by agreement at the Airport. This policy was implemented immediately for Airport vehicles and was inserted into all new and renewing contracts beginning July 1, 2012. Under the policy vehicle operators would not idle any vehicle longer than five minutes in any one-hour period. Exceptions to this policy would be made for personnel safety, including but not limited to adverse weather conditions. In 2017, the Airport earned the designation as a GreenFleet through Yellowstone-Teton Clean Cities for consistently updating its current fleet with alternative fuel vehicles. The Airport currently operates two plug-in all-electric maintenance vehicles and two propane powered maintenance trucks. As part of the 2019 plan, the remaining fleet is going to be screened relative to existing grants to see if additional vehicles could be switched out for alternative fuel through several grant programs.

Also, in the summer of 2017 the Airport installed two dual, Level 2 PowerPost EVSE charging stations in the public parking lot for electric/hybrid vehicle charging. This is part of the community wide effort to support the use of electrical vehicles in the Valley.

### 3.4 Glycol Recovery.

The Airport has an aircraft de-icing pad at the north end and just to the east of Taxiway Alpha. The de-ice pad is a 460' x 179.5' concrete pad and has two main parking spots large enough to handle two Boeing 757s simultaneously. There are two spent glycol collection drains on the east and south sides of the pad which funnel the used glycol into a 30,000-gallon underground collection tank, which is just south of the concrete pad. There is also an underground valve that can be closed to divert rain water and other precipitation away from the collection tank during times (or seasons) when de-icing of aircraft is no longer necessary.

Before the spent glycol is collected, it flows thru two oil-water separators which are 1,000 gallons, and 3,000 gallons respectively. The tank monitoring system is powered by four large solar panels, which supply power to a battery bank that sits next to the tank volume display panel. To the east of the de-ice pad is a large, asphalt covered, snow storage area. Snow that accumulates on the de-ice pad is removed and stored at this site. This snow and subsequent runoff are closely monitored for glycol contamination. If any glycol is detected in this runoff, the contaminated water can be diverted into the 30,000-gallon collection tank. If no glycol is

detected, the runoff can be diverted into a large French drain, which leads to a long, exposed evaporation ditch.

It has been estimated that as much as 50% of glycol applied to aircraft adheres to the aircraft when it exits the pad and into takeoff position. The location of the de-ice pad allows for a very short taxi distance before aircraft depart the runway. Although the concentration of glycol in the fluid collected at the pad is lower than historical levels, the amount of Glycol collected is significantly higher than in the past.



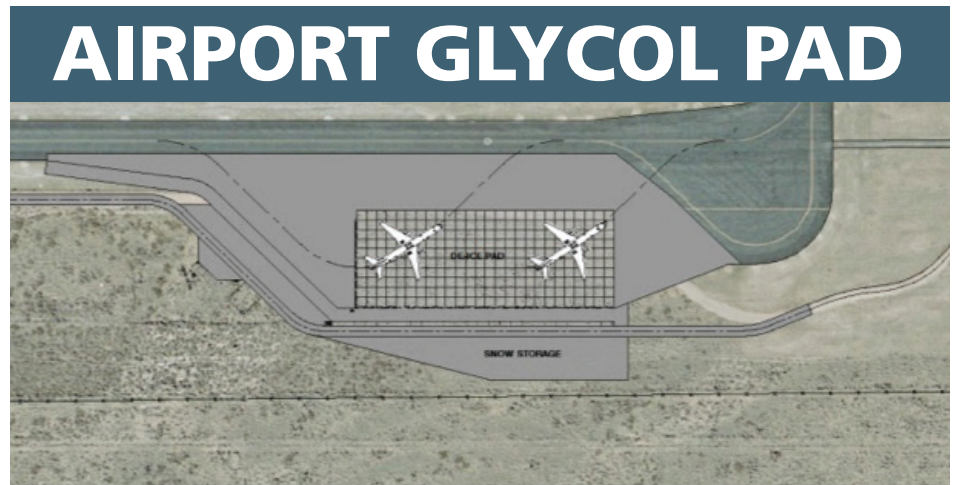


### 3.5 Water Quality Monitoring.

The Airport and adjacent residential subdivisions are located on alluvial deposits which are saturated and constitute a relatively large water-table aquifer. The water quality of the alluvial aquifer is generally considered to be good.

Results of a groundwater quality study at selected sites in and adjacent to the Airport during 2008 – 2009 indicated the presence of reduced geochemical conditions in two wells downstream from the Airport. Water quality analysis indicated low dissolved oxygen and corresponding high iron and manganese concentrations. These conditions were not observed in wells upstream or laterally from the Airport. This study did not detect petroleum products or glycols above laboratory reporting levels.

As a result of this study, the Board contracted with the United States Geological Survey ("USGS") to (a) investigate groundwater quality upstream, downstream and lateral to the affected wells to better characterize the aquifer, (b) establish baseline groundwater quality in the area in which the new deicing and glycol recovery pad was to be constructed, and (c) characterize seasonal flow velocities for the



aquifer near the Airport. The cost of this study to the Board was approximately \$308,000. The Board also installed four new groundwater monitoring wells to be used in the study and in subsequent analysis and monitoring. The study was completed on March 31, 2013 and published in 2014.

The Board was a driving force in developing the scientific methodology that went into the study and report. As deicing chemicals themselves rapidly break down and have not been detectable in the previous hydrology studies, the Board worked with USGS and industry experts to identify compounds known as triazoles, common to deicing fluids, and to adjust analytical methodologies to detect the presence of these compounds at extremely low levels. This involved testing for these compounds at levels far below normal detection for the Environmental Protection Agency ("EPA"), Wyoming Department of

**The cost of this study to the Board was approximately \$308,000.**

Environmental Quality, and USGS standards. Methodology was developed to detect the presence of triazoles in parts per billion; levels 1000 times lower than most water quality standards require.

Generally, water in the Snake River Alluvial Aquifer down gradient from the Airport was determined to be of good quality with no constituents exceeding USEPA maximum contaminant levels or advisories. The Snake River is identified as a Class 1 watershed. The water from the aquifer is suitable for domestic use



without treatment. The study indicates low concentrations of oxygen in sample locations immediately down gradient from the Airport, but not laterally or upgrate. This indicates that the aquifer is naturally oxic, and a source of dissolved organic carbon has been introduced in the vicinity of the Airport. The study also detected triazoles inconsistently throughout the study process. This inconsistency could be due to a source that is not persistent, and or that the levels detected are extremely low and were near the bottom of the analytical method detection limit, and or that there was contamination of the test samples. The study concludes that the combination of low dissolved oxygen concentrations along with the presence of triazoles likely indicates that deicing fluids have seeped into the ground water over time.

To better understand the conditions within the aquifer. Future analysis and study will continue to develop methodology to detect the presence of deice fluids or their constituents and monitor the changes in these levels, as well as levels of dissolved

oxygen, to evaluate the effectiveness of the glycol capture system. Ideal outcomes would be an increase in oxygen levels and the reduction or elimination of triazoles. Note that during the recent commercial ramp rehabilitation, the Airport has been removing soils and other materials off site from sites that had been used for de-icing operation prior to the construction of the new de-icing containment site. This was done to minimize the potential for potential leaching of historic fluids that might have been present.

### 3.6 Alternate Fuel Vehicles

The Board has made a commitment to reducing its carbon footprint through several policies. One of these is the purchase and use of alternative fuel vehicles for Airport Operations. As discussed in 7.3 below, the Board plans to acquire additional alternative fuel vehicles as older Airport Operations fleet vehicles are retired. The Airport plans to acquire additional alternative fuel vehicles will be made as older Airport Operations fleets retire.

**The Board will continue to work with USGS and other agencies and partners**

# SECTION 4



## New and Developing Mitigation Efforts

The Third Amendment to the 1983 Agreement, which was signed on May 18, 2011, added a new paragraph 4(i) requiring the Board to act in good faith and in coordination and cooperation with NPS to develop and implement reasonable and cost-effective mitigation measures as may be available to reduce environmental impacts on the Park. Section 12 of the Agreement also requires the Board and NPS to discuss and identify mitigation measures

which may be available to comply with the requirements of paragraph 4(i).

In addition to the ongoing mitigation measures already in place and discussed in Sections 6 and 7 above, the following are mitigation measures which the Board added, began to implement or study, or continued to implement or study during the reporting period January 1, 2016 through December 31, 2017:



#### 4.1 Part 150 Study Recommendations.

The 1983 Agreement required the Board to develop a revised noise abatement plan based on Code of Federal Regulations Part 150 ("CFR Part 150") and continues to require periodic reviews and updates of that plan. The initial CFR Part 150 study at the Airport was completed by the Board in 1985, and has since been updated three times, as recommended by the CFR Part 150 program and the 1983 Agreement.

The Board received a grant from the FAA and commenced a new Part 150 Study in the spring of 2014. As explained above, the Board worked extensively with the FAA to provide a NextGen satellite-based precision approach procedure that permits a shorter approach to the Airport from the north, thus avoiding most noise sensitive areas of the Park. This was approved by the FAA in March 2013. The current CFR Part 150 Study evaluated the potential noise benefits for developing additional satellite-based approaches. The Study included several Recommendations that have the potential to reduce noise intrusion to the Park, as presented in Appendix B.

Meetings were held in the summer of 2016 on the operational alternatives identified in the Part 150 Study (see Alternatives 1-6 listed in Appendix A) to further analyze the alternatives and select those to be carried forward. These were followed by meetings on the Fly Quiet Program (Alternative 7 below) and land use alternatives. Subsequent to a Public Hearing on the Recommendations, the Study was submitted to the FAA for acceptance and approval. The Fly Quiet Program was approved in the Part 150 Study and the Board has initiated implementation of the Program as outlined below.

##### 4.1.1 Alternative 7: Fly Quiet Program.

Fly quiet programs are custom tailored environmental compliance plans to

encourage airlines, business jet operators (single and fractional owners) and private pilots to operate as quietly as possible at a particular airport. The primary purpose of a fly quiet program is to foster a participatory approach to complying with existing noise abatement procedures and objectives by including stakeholders in the process from the beginning. For instance, such a program could provide that each airline and corporate jet operator with a minimum number of flights would be graded and ranked on their performance; these scores would then be available to the public via the Airport's website, newsletters, publications and public meetings.

**The overall goal of such a program would be to influence airlines and corporate operators to fly as quietly as possible at this Airport.**

This program is intended to communicate results in an understandable format which allows for easy comparison between airlines and business jet operators over time and shows whether an operator is working to improve its performance and ranking. The Fly Quiet Program for Jackson Hole Airport was approved in the ROA and has been initiated. A Fly Quiet Committee has been formed, goals developed, and ranking metrics identified. Aircraft tracking and fleet mix evaluation have been initiated.



## 4.2 Wildlife Management.

With the exception of the entrance road, the Airport is completely surrounded by a wildlife fence, which has served to minimize conflicts between aircraft and most wildlife. The exceptions to this are birds, which are obviously not restrained by the wildlife fence.

The Airport has a Wildlife Hazard Mitigation Plan (WHMP) which was developed in coordination with the Park. The WHMP includes an Appendix A, The Greater Sage-Grouse Habitat Restoration Plan, setting forth strategies to (a) increase separation between aircraft and sage grouse through restoration of brood rearing habitat in disturbed areas of the Park to draw sage grouse hens farther from aircraft movement areas and eventually outside of the Airport boundary; (b) restore two historic lek sites and develop a satellite lek near the restored brood-rearing habitat to attract male sage grouse; and (c) modify Airport conditions to make areas within Airport boundaries less attractive to sage grouse. Implementation of the WHMP alternatives and Greater Sage-Grouse Habitat Restoration Plan should enable the Board to minimize the risks of wildlife strikes within this environmentally sensitive ecosystem.

The Airport is working with the Park Service to restore brood-rearing habitat in the Park to safely draw hens outside of the Airport boundary by restoring two historic lek sites and developing a satellite lek near the restored brood-rearing habitat to attract male sage. In May of 2018 the Park submitted a grant that airport and Park Service co-developed to start the implementation of this plan. The grant was to the Upper Snake River Basin Local Working Group. After presenting these materials the Park Service was awarded \$20,000 for that project and the remainder of the funds will be from the airport.

## 4.3 Waste Water Treatment.

The Board participated with NPS and FAA in the preparation of the EA examining a no-action alternative and two action alternatives, which were identified through the scoping and public involvement process. These alternatives were further refined through engineering studies and to address regulatory requirements. The No-Action Alternative (Alternative A) would have continued the then-current management of domestic wastewater handling. Alternative B would have discharged treated effluent from the WWTP into a new leach field on Airport property. Alternative C



would have bypassed the WWTP and convey untreated sewage in a pipeline to the Town of Jackson, for treatment in its wastewater treatment plant.

In the spring of 2016, the Board selected Alternative C (pipeline to Town) as the Preferred Alternative for inclusion in the EA and directed that funding for the project be pursued. The final EA was published in the summer of 2016. The Board then moved to construct the pipeline to the Town of Jackson's wastewater treatment plant, which was completed in late 2016. The pipeline project enables the Airport to serve not only the wastewater disposal needs of the Airport as it exists today, but also what is expected to be increased passenger demand in the future.

#### 4.4 Energy and Power.

In 2011, the Jackson Hole Airport received LEED Silver Certification from the U.S. Green Building Council for the Terminal Building Expansion. During the expansion project, the Airport incorporated LED lighting in the new baggage claim building, installed low-flow water plumbing fixtures, and incorporated regional and recycled materials and Forest Stewardship Council Certified Timber for construction.

After completion of the Terminal Building Expansion, the Airport has partnered with the Jackson Hole Energy Sustainability Project and Lower Valley Energy to conduct an energy audit, which helped identify energy saving measures. These measures have been implemented and have reduced the Airport's energy consumption by 117,900 kilowatt hours per year. The Airport has made significant environmental improvements by working under the Dark Skies Initiative with Energy Conservation Works and Lower Valley Energy to convert the taxiway lighting and landside lights to LED. All power supplied to the Airport Terminal Building is now 100% Green Power.



All power supplied to the Airport Terminal Building is now 100% Green Power.



#### **4.5 New Fuel and Glycol Storage Facility.**

In 2018 the Airport built a fuel and glycol facility with the environment at the forefront of the design process. Water quality will be protected in the unlikely event of a leak of a petroleum product, through the use of multiple layers of containment, numerous oil/water separators and an extensive storm water filtration system that resolves any issues before it could leave the property. If the unlikely spill of glycol, the system will sense it and that liquid would be put into a collection tank. The focus on this facility was to protect water quality to a high level, be efficient for the operators and has been screened to decrease its visual impact.

Specifically, older underground fuel tanks were replaced with new above-ground tanks, which are surrounded by a concrete basin sufficient to contain any tank spills. Spill detection technology has been deployed throughout Fuel Farm. Run-off is monitored for hydrocarbons and glycol before discharge to Airport's storm water filtration system, and real-time video monitors all Fuel Farm operations. This facility to provides the following capacity (150,000 gallons of Jet A, 12,000 Gallons of AVGas, 30,000 gallons of Unleaded, 12,000 of Diesel, 30,000 gallons of Type I Glycol and 6,000 gallons of Type IV Glycol).

#### **4.6 New QTA Facility.**

As noted above, in 2018 the Airport constructed a new and improved "quick turn-around" (QTA) facility for use by all

on-airport rental car operators. The QTA facility became operational in the fall of 2018 and replaced the separate facilities the on-airport rental car operators had been using for over 25 years, and which had come to the end of their useful lives.

The QTA will have several environmental benefits. The QTA is equipped with a wash water recovery, treatment, and reuse system which is anticipated to result in a 75% - 90% reduction in wash water used by the on-Airport rental car companies. It is equipped with LED lighting and high efficiency natural gas boilers to reduce fuel consumption and emissions. It has in-floor heat, insulated precast wall panels, and high-speed roll-up doors to reduce heat loss during winter operations. Car wash effluent is routed to the Town of Jackson treatment plant and replaces on-site septic/leach field treatment. The two underground fuel tanks associated with the old buildings are being replaced by connection to Airport's above-ground, state-of-the-art fuel facility.

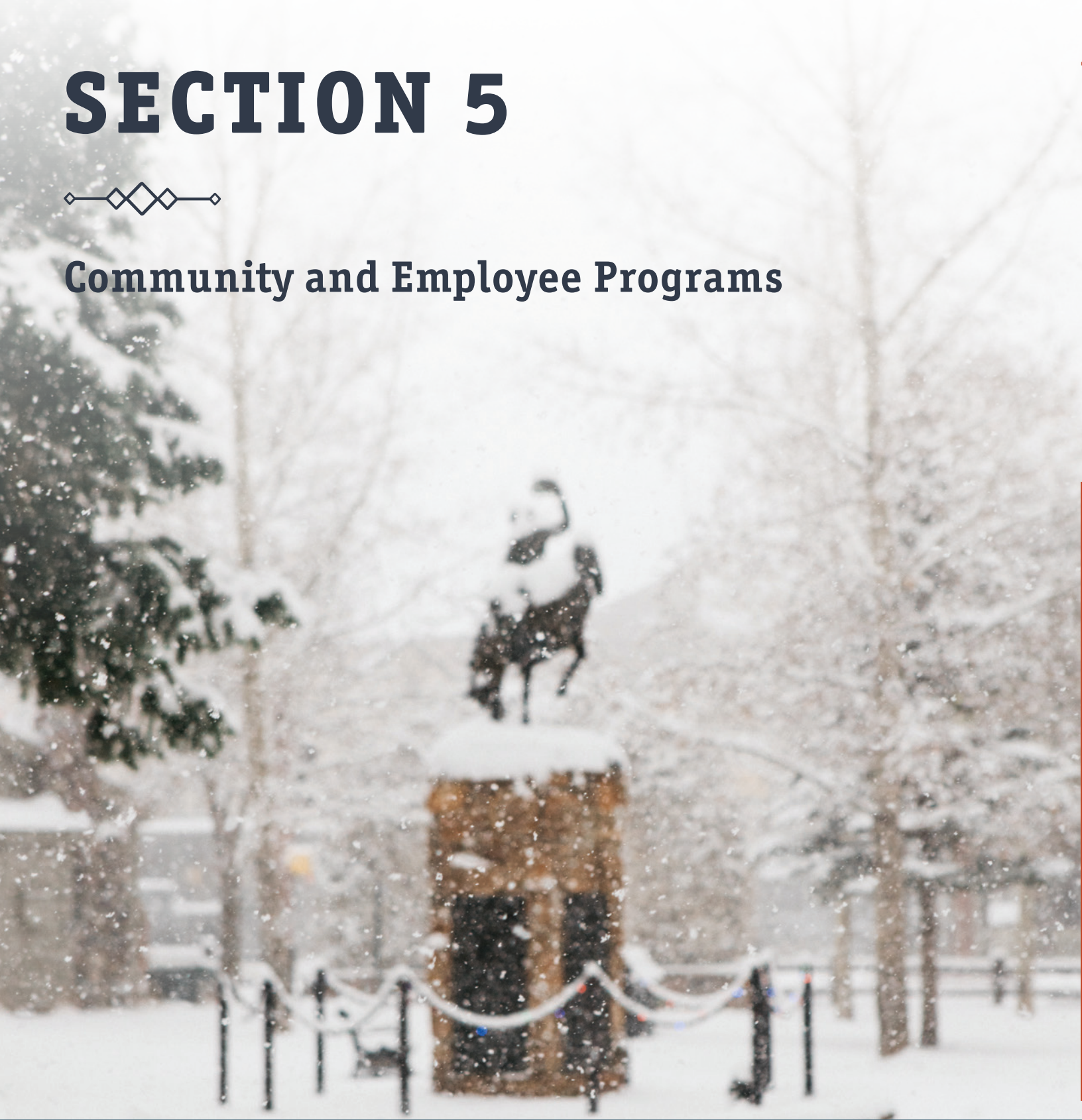
#### **4.7 Waste Reduction.**

Bear spray cannot be taken onto air carrier aircraft. The Airport therefore has bear spray disposal containers in the Terminal to allow passengers to properly dispose of bear spray canisters they have brought to the Airport. The bear spray canisters are collected and sent to a facility where they are discharged and recycled. The Airport also has hydration stations for refilling reusable water bottles. These stations reduce the number of single use water bottles in the waste stream.

# SECTION 5



## Community and Employee Programs



People are an integral part of any comprehensive sustainability program. ***“People Helping People” is the mission of the Airport.*** The Board and its employees seek to embrace this mantra in every aspect of Airport operations. Whether we are helping guests, co-workers or partners, we seek to operate as a team (or a big family) at the Airport. The Board therefore seeks to integrate the Jackson Hole community in its sustainability programs, initiatives, and environmental strategies. The Board strives to support our partners, its staff, and its broader community initiatives through the various programs highlighted on the following page.





### 5.1 Community Outreach Program.

The Airport's community outreach program highlights key groups that are supporting the overall mission of the Airport by participating in community programs. Programs which the Airport and community partnered in/with during 2016-2017 include:

- Teton Conservation District (TCD)
- Yellowstone-Teton Clean Cities
- Riverwind Foundation: Jackson Hole & Yellowstone Sustainable Destination Program
- Habitat for Humanity–ReStore
- Jackson Hole Children's Museum
- Jackson Cupboard
- Jackson Hole Food Rescue: Reduce Food Waste
- Teton County Integrated Solid Waste and Recycling: "RRR" (Reduce, Reuse, Recycle)
- Business Leader Program; "Zero Waste Construction" Committee Member
- Energy Conservation Works: Partner for Energy Efficiency
- Lions Club International: Eyeglass Recycling
- Browse and Buy: Thrift Store Donations
- Jackson Hole Chamber of Commerce

### 5.2 Employee Housing Benefit.

Located in a competitive and expensive housing market, the Airport provides a housing and transportation stipend to full-time staff. This may allow some employees to live near Jackson while it assists others with their transportation expenses.

### 5.3 Holiday Food Drive.

Annually, the Airport holds a Holiday Food Drive. Non-perishable items are donated at the Airport in exchange for a free drink from Jedediah's. At the end of the drive, all items are donated to the Jackson Cupboard, which distributes these goods to local residents in need.

### 5.4. Airport Host Program.

The Airport has implemented an Airport Host Program. The hosts greet arriving and departing guests, assisting with travel needs and questions about the facility and local area. The hosts are essential to our guest experience and we continuously strive to go above the expectations of Airport users. The Jackson Hole Chamber assists the Host Program in partnership with the Airport during the winter months. The Chamber staff provide guests with local knowledge and serve beverages in the baggage claim area for arriving guests.

### 5.5. Employee Storm Support.

During adverse weather events, The Airport provides staff with hotel rooms. This initiative supports a sustainable and resilient work force while allowing the Airport to provide a high level of service during storm events.

### 5.6 TSA Screening Program.

The Airport is one of only a few in the country that has a private security workforce providing passenger and baggage screening services to TSA standards. This program supports the community through employment of up to 58 screeners and allows the Airport to control the customers' experience.

# SECTION 6



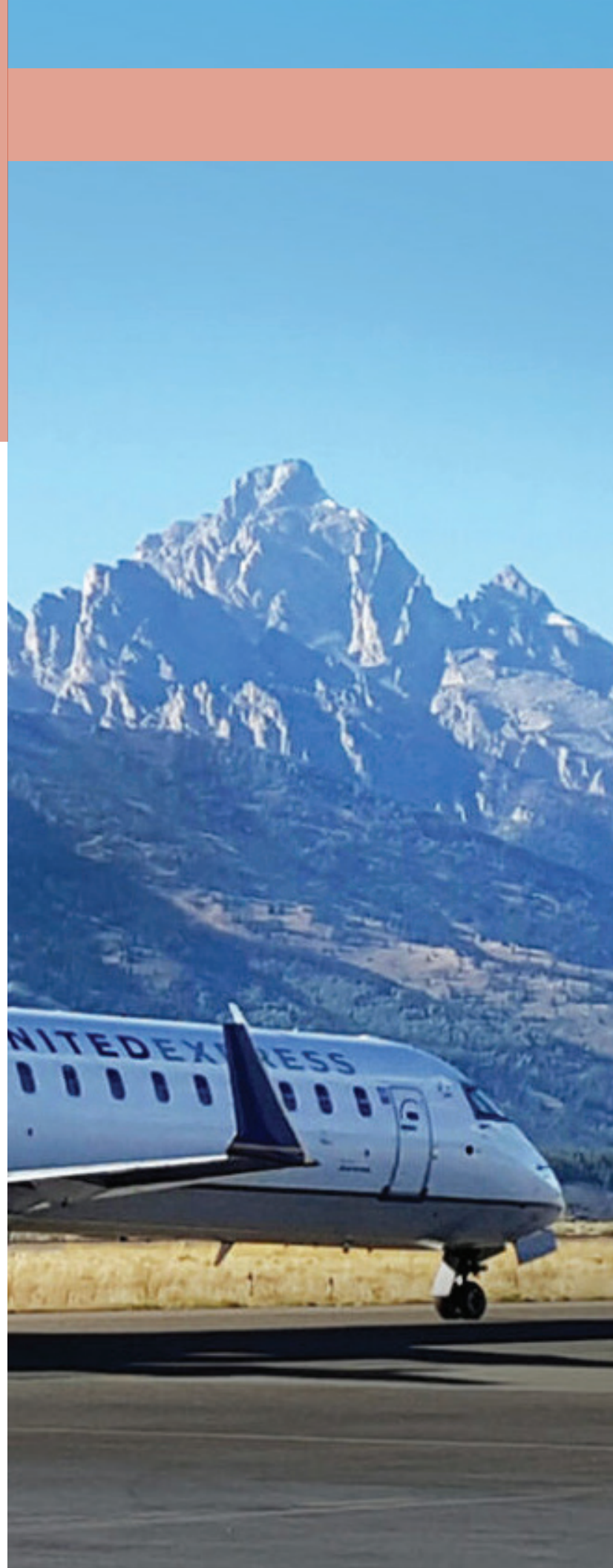
## Overview of Airport Operations

The Jackson Hole Airport serves the Town of Jackson and Teton County, Wyoming, and is a gateway to Grand Teton National Park, Yellowstone National Park, and other nearby natural areas such as the National Elk Refuge. The Airport is part of the National Plan of Integrated Airports Systems and is classified by FAA as a non-hub primary commercial service airport.

The following is a description of the major areas of operations at the Airport during the 2016-2017 reporting period:

### 6.1 Air Carrier Operations.

Commercial airlines operating regularly scheduled service at the Airport, either year-round or seasonally, change from time to time. For the Winter Season 2016-2017, the airlines serving the Airport are listed on the chart below, together with their principal destinations. A total of 351,414 passengers were enplaned by commercial airlines at the Airport in 2016 and 353,776 passengers were enplaned in 2017. This 2016 number represents an 11% increase over enplanements in 2015, and the 2017 number represents a 1% increase over 2016. In terms of enplanements, the Airport is the busiest in Wyoming and accounts for more than 61% of all commercial airline passengers arriving in the State. Commercial passenger traffic at the Airport varies considerably from season to season.



# WINTER 2016-2017 FLIGHT MAP



## 6.2 General Aviation Operations.

A fixed-base operator is also located on the Airport. Jackson Hole Aviation LLC provides fueling and ground service to general aviation (private and corporate) and commercial airlines. It also operates hangars, located south of the Terminal, providing storage for aircraft. In 2017 there were 11,400 general aviation operations, with "operations" being defined as either a landing or take-off at the Airport.

In April 2017, Wyoming Jet Center LLC ("WJC-LLC") applied to operate a second FBO at the Airport. The following month, the Board determined that under applicable FAA guidelines, though it would cause many problems, just enough space existed on the Airport and when the Airport's larger fuel facility became operational in mid-2018, it would be required to accommodate a second FBO. The Board directed staff to develop a Request for Proposals for the second FBO so all interested parties would have a chance to compete for the opportunity.

Shortly thereafter, JHA-LLC approached the Airport and suggested that the inefficiencies associated with two FBOs operating on the same ramp could be avoided, if the Board purchased its assets and operated the single FBO on the Airport. Though FAA prohibits the granting of exclusive rights, it permits an airport operator to itself be the exclusive provider of any aeronautical service on its airport. This is referred to by FAA as an airport operator's "proprietary exclusive right."



After research, the Board identified the purchase of FBO assets as the option which would best serve the Airport, stakeholders and the community. It then signed an Asset Purchase Agreement (“APA”) with JHA-LLC. Upon closing of the APA, there will be a single FBO operating in the Airport’s small development subzone, the Board will manage the character and footprint of general aviation the FBO, and the Board will control the quality and value of services provided to general aviation users.

### **6.3 Ground Transportation Activity.**

The Airport is located nine miles from the Town of Jackson and 22 miles from Teton Village. Public ground transportation is therefore important to meet the needs of the traveling public. The Board enters into annual contracts with providers of ground transportation services at the Airport. In 2017, the Board entered into contracts with 37 Taxi Providers, 8 Executive Service and Charter Providers, and 15 operators of airport courtesy vehicles.

In June of 2017, the Board for the first time entered into contracts with two transportation network companies (TNC). Under these contracts the independent drivers of Uber and Lyft may operate at the Airport. Airport access fees

are charged using a “geo fence” which electronically detects when any in-service Uber or Lyft vehicle enters the Airport. During the last six months of 2017, there were 2,544 operations by TNC operators at the Airport.

In the fall of 2013, the Board partnered with the Town of Jackson, Teton County and the Board’s then-contracted scheduled ground transportation shuttle provider to implement a park-and-ride program designed to reduce impacts of vehicle traffic on the Park and the Airport. The program, known as “Ride 2 Fly” was a cooperative effort with the Town. It provided much needed parking capacity in its Town’s downtown parking garage, and the shuttle provided a reduced rate for transportation from the garage to and from the Airport using existing shuttle vehicle routes and schedules.

Responding to changes in the ground transportation industry, in 2018 Ride2Fly was rebranded as Taxi2Fly and the Board instituted a TaxiPool program. To facilitate this program, the Board entered into a Lease with the Town, effective September 1, 2018, under which the Board leases 141 parking spaces on Levels 3 and 4 of the Town garage from November 15 through the following April 15, and 71 parking spaces on Level 4 of the garage from April 16

## **Under Taxi2Fly, travelers are able to select the taxi provider of their choice and arrange for transportation from the Town parking garage to the Airport for \$20 each way.**

through November 14. These spaces are for the exclusive use of Airport passengers.

Under Taxi2Fly, travelers are able to select the taxi provider of their choice and arrange for transportation from the Town parking garage to the Airport for \$20 each way. TaxiPool is a ridesharing program under which passengers who agree to rideshare in a taxi will receive a \$10 discount on the posted fare for each destination. This helps reduce the number of vehicles on local roadways and congestion at the Airport and is aligned with the community Integrated Transportation Plan.

### **6.4 Rental Car Activity.**

The Board periodically solicits competitive proposals for a limited number of rental car companies that will be permitted to maintain a base of operations on the Airport. As of May 1, 2018, the Airport is currently served by three on-airport rental car companies which offer the Enterprise, National/Alamo and Hertz brands from counters in the Airport terminal building. The Airport is also served by several off-Airport rental car companies which offer van service from the Airport to their locations in the Town of Jackson.

Starting in June of 2014, with the support of on-airport rental car companies, the Board adopted an on-airport rental car facilities fee (a "CFC") of \$4.00 per customer, per transaction day, capped at the first 14 days of any continuous vehicle rental. This CFC was raised in 2018 to \$5.00 per day not capped by the number of days' rental.

CFCs collected by rental car companies are held by the Board to be used for the costs of on-airport improvements designed for the parking, washing, and fueling and/or limited service of rental cars provided to customers by on-airport rental car companies. For the two-year period ending June 2017, \$2,350,000 has been collected and \$1,765,000 has been expended in rental car CFC fees.

To date the CFCs have been used to study alternatives for improving on-airport rental car parking, and then to fund construction of a "quick turn-around" (QTA) facility for use by all on-airport rental car operators. The QTA facility was scheduled to be operational in the winter of 2018 and replaced the separate facilities which the on-airport rental car operators had been using for over 25-years, and which had come to the end of their useful lives. All CFCs are now pledged to repayment of the loan used for the construction of the QTA facility.

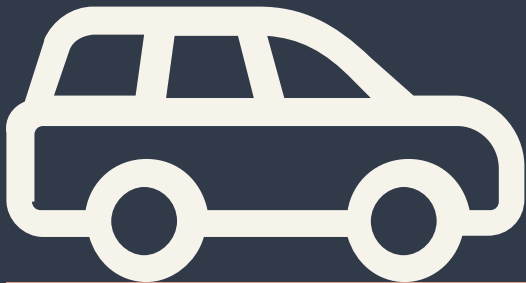
### **6.5 Terminal Businesses.**

Several businesses are located or supported in the Airport terminal building. Jedediah's Restaurant is located in the secure passenger holding room, and also operates a snack bar in the non-secure lobby of the terminal building. Jedediahs also operates a gift shop in the secure passenger holding area. The National Park Service, through the Grand Teton National History Association, operates a natural history gift shop inside the passenger holding area. The Board also has contracts with three companies to provide vending services in the terminal.

## 6.6 Airport Parking Activity.

Based on a parking study prepared by KLJ Engineers, in 2015 the Board redesigned its parking lot to provide better circulation and less confusing access to rental cars by airport passengers. Construction of this redesign was completed in 2016, the existing Airport entry roundabout has been replaced and Airport entry and departure access has been improved.

In 2016 and 2017, the terminal had a parking lot capable of holding approximately 580 vehicles for the public and rental car ready return vehicles. The Airport also had employee parking areas capable of holding approximately 125 employee vehicles. All public parking is free during the day, with a fee being required only for overnight parking. In this way, the Airport estimates that at least 20 percent of public parking is provided at no charge.



# 580

*Public and rental car ready  
return vehicle parking spaces*

# 125

*Employee parking spaces*

## 6.7 Inter-Agency Helibase Operations.

Pursuant to a Second Amendment to the 1983 Agreement, Bridger-Teton National Forest and the Grand Teton National Park have established an interagency helibase at the Airport. The joint base consists of a 3,200 square foot building, two 30' by 30' helicopter landing pads and one 40' by 40' pad. There is also spill containment parking for fuel trucks and a mobile communications trailer. The building houses

offices, a crew ready room, a physical fitness room, a training/meeting room, a storage area stocked with gear and equipment for response crews, and an operations center. In 2016 and 2017, the crew based at the helibase responded to numerous wildland fires and conducted many short-haul rescue operations in the Park and National Forest. The helibase directly serves 2.5 million acres of federal land and is available to assist in rescue and fire operations on 18 million acres across the greater Yellowstone area.

# SECTION 7



## Overview of Airport Facilities and Plans



The Jackson Hole Airport is located on 533 acres described in the 1983 Agreement. Most “landside” facilities, generally being those other than runways, taxiways, ramps, control tower, underground utilities and safety and navigational facilities, are located in a small 28-acre “development subzone.” All terminals, hangars, parking lots, rental car facilities and other above-ground airport related structures are located within this subzone. The major airside and landside facilities at the Airport, the significant planning instruments in place, and improvements constructed in the 2016-2017 period are described in the following pages:



## 7.1 Master Plan.

An airport master plan is a document which describes the approved actions to be accomplished for phased development of an airport. Master plans address the airfield, terminal, landside access improvements, modernization, and expansion needs of an airport. The master plan is developed through a process which involves collecting data, forecasting demand, determining facility requirements, determining the best way to develop facilities to meet the demand, and creating a schedule for that development. The Airport's current Master Plan was developed by the Board in 1997. A Master Plan Update focused on operational safety was completed and accepted by the FAA in 2011. Forward focused planning has since occurred.

A landside parking and traffic study was completed in 2012, the results of which will be included in the future Master Plan. The Board submitted an Updated Airport Layout Plan (ALP) to FAA in 2014, which was approved by the FAA in July of that year.

In 2015, the Board caused a Conceptual Area Development Plan to be prepared that identifies a preferred development strategy to most efficiently utilize the space available on the Airport for future commercial aircraft operations, general aviation operations, Airport Rescue and Firefighting and Snow Removal operations, Rental Car Service Facilities and other facilities such as parking for airport users and rental cars.

## 7.2 Terminal Building.

In 2009-2010 the Board completed the first phase of a major expansion of the passenger terminal building at the Airport (the "Terminal"). This first phase expanded the passenger departure area and provided space for state-of-the-art outgoing baggage screening.

In the spring of 2014, the Board began construction on an expanded baggage claim area to complete the Terminal project. This expansion used portions of the existing administrative building and relocated a number of utilities and mechanical areas to maximize efficiency of the new arrivals area. The first phase of the baggage project was completed in June of 2014 and involved construction of a new support building to house the activities previously performed in the affected portions of the administrative building, along with new heating, ventilation and air conditioning (HVAC), domestic and fire wells, emergency generator, and electrical power and telecom. Phase two of the baggage expansion was completed in December of 2014 and included the new baggage claim area, with three expanded baggage carousels and a new oversized baggage claim device. The project cost \$21 million and was completed on time.

The Terminal expansion has received numerous awards for design, process, construction, and efficiency. These include LEED Silver recognition for its energy efficient and environmentally friendly







construction and design, and the 2014 American Institute of Architecture - National "Award of Excellence."

The Terminal's award-winning design beautifully blends into the unique landscape of Jackson Hole. Its interior offers examples of old west heritage and cutting-edge conservation and was designed to reflect the Airport's unique location in the Park. Art and photos highlight the natural beauty of the Park's geology and wildlife, along with recreational opportunities in the Park and surrounding area.

The outgoing baggage screening wing of the Terminal is not seen by the general public and is masked by indigenous stone and vegetation. This wing functions to efficiently sort, process and screen outbound baggage.

### **7.3 New Fuel Facility.**

During 2016 and 2017 the Airport had two aging underground aviation fuel facilities. Referred to as the North Fuel Facility and the South Fuel Facility, each was owned by the Board and leased to JHA. These facilities were antiquated and in a location which interfered with future Airport development. Because of the Airport's remote location and seasonal peaks in fuel demand, the existing facilities were also becoming too small to meet the demand for Jet-A fuel.

In 2017, the Board resolved to construct a new, state-of-the-art, above-ground fuel facility to be owned and operated by the Board. When constructed, the new facility would become the sole fuel facility on the Airport. It would be operated by the Board under its "proprietary exclusive right" with the intent to sell fuels to the FBO(s) operating on the Airport for resale and delivery into aircraft.

Construction of the new fuel facility was financed by a customer facility charge

initially set at 5¢ per gallon (the "CFC") and a fuel facility fee which would be initially set at 20¢ per gallon (the "FFF"). These are in addition to the fuel flowage fees which remained effective. Based on a reasonably projected sale of 5,250,000 gallons of fuel per year, the CFC and FFF together collect approximately \$1,300,000 per year. To finance construction of the new fuel facility, the Board would issue a bond, for the repayment of which is be secured through collection of the CFC and FFF.

### **7.4 General Aviation Facilities.**

Jackson Hole Aviation, LLC ("JHA") is currently the sole fixed base operator ("FBO") at the Airport. JHA operates at the Airport under two types of agreements, (a) a Master Operating Agreement ("MOA") granting it the right to operate an FBO on the Airport, and (b) four leases for Board-owned hangars. JHA is authorized to operate an FBO at the Airport under its existing MOA through April 13, 2023, with no rights to renew.

As noted above, in 2017 the Board signed an Asset Purchase Agreement with Jackson Hole Aviation LLC. Upon closing of the Agreement, the Board will itself operate all FBO facilities on the Airport. Because of a lawsuit challenging this transaction, the Board and JHA-LLC entered into an amendment to extend closing until the lawsuit has been successfully resolved. Regardless of the outcome of the lawsuit, the Board has determined that it will be the sole FBO on the Airport after April 2023, when the operating rights of the current FBO expire.

The principal general aviation facilities at the Airport consist of the following:

- ◇ Hangar No. 2 which is owned by the Board, was leased in 2016 and 2017 to JHA, and continues to be leased to JHA for a one-year term.
- ◇ Hangars No. 4 and 5 which are owned by the Board and were also leased in 2014 and 2015 to JHA for a term ending April 2018 (JHA has exercised its first right to lease them until April 2023).
- ◇ The Board owns the area currently designated as the general aviation ramp. This designated area may be changed from time-to-time as necessary to balance the needs of both air carrier and general aviation aircraft. JHA has the non-exclusive right to use and provide tie-down and parking services on this ramp, subject to the Airport Director's allocation and direction.

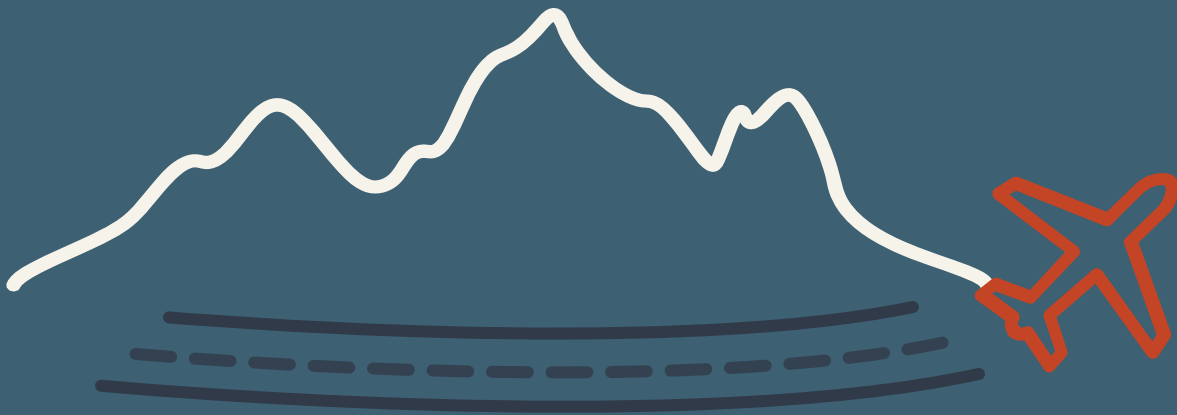
## 7.5 The Runway.

The Airport has a single 6,300-foot runway (at an elevation of 6,450 feet), which was built in the 1960s to accommodate the Douglas DC-3 aircraft then serving the Airport. The runway is 150 feet wide, and is asphalt overlaid with a porous friction course.

The Airport also has one taxiway to the east of the runway which is 6,300 feet long and 75 feet wide with 4 connecting taxiways to allow for the movement of aircraft to and from the runway.

Prior to 2011, the Airport had a long history of runway excursions which often resulted in damage to both commercial and general aviation aircraft. A runway excursion is any incident in which an aircraft inappropriately exits the runway, but usually consists of an aircraft being unable to stop before the end of the runway. The Airport experienced 22 excursions in the 38 months prior to March 2011, or about one every two months. Four of these excursions involved large commercial aircraft. The runway excursion rate at the Jackson Hole Airport was 22 times higher than that experienced by similarly sized airports.

The Board and the National Park Service determined that the high excursion rate represented an unacceptable risk and resolved to work cooperatively to identify causal factors and solutions and implement appropriate mitigation measures. FAA



and the Wyoming Aeronautics Commission partnered with the Board and NPS to study the issue and forward an array of options. This resulted in an Operational Enhancement Study, presented in 2011, which included a number of safety improvement recommendations. In a parallel effort, the FAA Northwest Mountain Region established a Runway Excursion Working Group which was comprised of over 500 aviation and aerospace professionals at its peak and received the 2011 FAA Regional Administrator's Award for Aviation/Aerospace Partnership.

Almost all runway excursions had occurred at the south runway end, and several had resulted in aircraft leaving the 300 feet of paved runway safety area and ending their landing roll-out in the remaining gravel portion of the safety area. This area was often saturated in the spring and fall and covered in deep snow during the winter months. The studies found that paving the full length of the south runway safety area "... would substantially reduce the risk of catastrophic damage resulting from runway excursions, as past excursions have not gone more than 1,000 feet beyond the end of the runway."

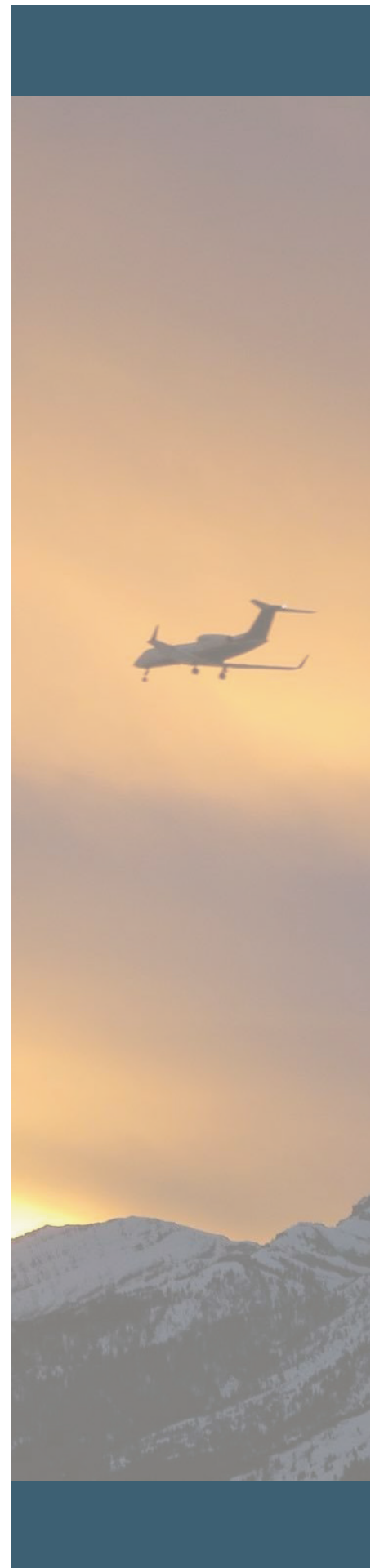
*Acting on this recommendation, with the*

*support of the National Park Service, and a \$1,760,000 grant from the Wyoming Aeronautics Commission, the Board constructed the additional 700 feet of pavement in the south runway safety area in June of 2011. Since 2011 the paved area has been used by overrunning aircraft on several occasions, but all such excursions have stayed on the pavement, resulting in minimal if any damage.*

## **7.6 Electronic Navigational Aids.**

Electronic navigational equipment located on the Airport includes a Localizer (LOC) antenna array at the departure end of Runway 19 and a Glide Slope (GS) antenna at the approach end of Runway 19. Combined, the LOC and GS constitute an Instrument Landing System (ILS) for Runway 19 which is protected by FAA-mandated critical areas that must be cleared to prevent signal interference. This navigational equipment is owned and operated by the FAA.

A Differential Global Position Satellite (DGPS) antenna and a Very-High-Frequency Omni Directional Range Radio Beacon (VOR) are also located on the Airport and are owned and operated by the Board. The DGPS antenna is not currently functional, but the Board is pursuing integration with a Ground Based Augmentation



System (GBAS) for more precise GPS approaches. The VOR is a type of short-range radio navigation system for aircraft, enabling aircraft with a receiving unit to determine their position and stay on course by receiving radio signals transmitted by a network of fixed ground radio beacons.

### **7.7 Airfield Lighting Systems.**


The Airport has a number of different lighting systems to assist pilots and airport staff during nighttime and low visibility. Each runway end is currently equipped with Medium Intensity Approach Lighting Systems (MALS), Runway Centerline Lighting System (RCLS) and four-light Precision Approach Path Indicator (PAPI) units. A High-Intensity Runway Lighting (HIRL) system is in place for the runway edge. The taxiways are equipped with Medium Intensity Taxiway Edge Lights (MITL) which are LED. Additional lighting includes an airport beacon, a lighted wind cone, a lighted wind tee and segmented circle. The MALS, HIRL, and MITL systems are controlled by the Air Traffic Control Tower (ATCT) but are pilot and Airport controlled after ATCT hours.

### **7.8 Air Traffic Control Tower (ATCT) and Surrounding Airspace.**

The Airport has a controlled airfield with an on-site Air Traffic Control Tower ("ATCT"). The ATCT is operational daily from 7 AM to 9 PM and is staffed with private controllers under a contract with Serco, Inc. through the FAA's Contract Tower Program. Air traffic controllers located in the tower provide instructions to aircraft operating in the air and on the ground. The primary purpose of the ATCT is to ensure that aircraft separation is maintained when operating within the vicinity of the Airport and when operating in the Aircraft Operating Area (AOA) on the ground. The ATCT also provides local weather and limited aviation weather observation.

The ATCT is located approximately 1,000 feet west of Runway 1-19. The tower height is 68 feet above ground level, and the tower cab floor elevation is 40 feet above ground level. The ATCT location and height provides controllers with sufficient visibility of controlled movement areas, including the runway, taxiways, terminal area, and airspace in the airport vicinity.

The airspace in the Airport area and all of the United States is under the jurisdiction of the FAA. This authority was granted by Congress via the Federal Aviation Act of 1958. The FAA established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is defined as the common network of US airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; personnel; and material. System components shared jointly with the military are also included.

An aerial photograph of a mountainous landscape. In the foreground, there's a valley with a large, rectangular reservoir or lake. The middle ground shows rolling hills and fields. In the background, there are large, rugged mountains under a clear sky. The image is split vertically, with the left side being a lighter, more detailed view and the right side being a darker, more atmospheric view of the same scene.

The Airport is in the center of Class D controlled airspace with a radius of about 4.5 nautical miles. The Airport's Class D airspace extends from the earth's surface up to 2,500 feet above ground level. All aircraft must be in two-way communication with air traffic control to enter and operate within Class D airspace. Controllers in the Airport's ATCT provide instruction and separation to approaching and departing aircraft within the Airport's Class D airspace. Air traffic immediately outside the ATCT's Class D airspace is controlled and separated by the Salt Lake City Air Route Traffic Control Center.

The approach and departure corridors for the Airport are Class E airspace, which extends approximately 20 nautical miles north and south of the Airport, extending from 700 feet above ground level up to, but not including, 18,000 feet above mean sea level. All aircraft conducting Instrument Flight Rules (IFR) operations must be in two-way communication with air traffic control to enter and operate within Class E airspace.

The in-route environment related to the Airport consists of several low altitude Victor Airways, all of which originate from the Jackson VOR. A Victor airway is a type of low altitude Class E airspace that can be described as "a highway in the sky," connecting distant VOR beacons that radiate signals in all directions.



# SECTION 8



## Security and Screening



### 8.1 Operation of Passenger Screening.

The Jackson Hole Airport is one of several airports in the country which have “opted out” of security screening performed by the Transportation Security Administration (“TSA”). Security screening for opt-out airports is performed by screening contractors under TSA standards and funding. Due in part to its unique history and organizational structure, the Board is currently the only airport operator in the United States which itself has been awarded a screening contract by TSA.

*The Board operated passenger and baggage security screening at the Airport during 2016 and 2017 under a fixed-price contract with TSA. The current contract is for a period of five years but may be renewed on an annual basis contingent on the Board meeting rigid quality assurance standards. Pursuant to this contract, the Board has recruited, trained and maintains a workforce of approximately 58 security screeners and support staff at the Airport. These screeners operate both the passenger screening checkpoint and checked baggage screening, all in accordance with TSA standards and operating procedures. In*



*2017, the Board screened more than 353,700 passengers and their checked baggage.*

### 8.2 Law Enforcement Contract.

Because it is served by scheduled air carriers, and security screening of passengers and baggage is performed, the Board is required by federal law to ensure a law enforcement presence at the Airport. In light of the volume of enplaned passengers, and the Airport’s distance from the Town of Jackson, law enforcement personnel are required to be physically present at the Airport during all hours in which passenger or baggage screening is conducted.

To meet this requirement, the Board entered into a Memorandum of Understanding (“MOU”) with the Town of Jackson under which officers of the Jackson Police Department are stationed at the Airport. Under the current MOU, which was entered into in July 2017 for a three-year term, the Board reimburses the Town \$44,327 per month to provide these law enforcement services. A portion of this amount is reimbursed to the Board by the Transportation Security Administration.



# SECTION 9



## Financial Management and Planning



## 9.1 Overview of Airport Finance Requirements.

In terms of operating revenues, the Board is a financially self-sustaining entity. It receives no operating revenue from Teton County, the Town of Jackson or the State of Wyoming. All operating expenses are matched by operating revenues, which are generated by rentals and fees imposed on airport users. These include Airport tenants such as airlines, rental car operators, the fixed base operator and ground transportation providers. The Board also receives landing fees, fuel flowage fees and user fees from others who conduct business on the Airport.

Airline rates and charges are based on a hybrid compensatory model. An analysis of airport costs attributable to airline use is generated annually. Airlines rates and charges are based on that model. Under the hybrid approach the Board may reduce airline charges based on the amount of non-airline revenue received.

Each year the Board establishes an operating budget based on expected revenues. Cash reserves are retained for years in which revenues do not match expenses including capital projects. Cash reserves are also used to fund the Board's "match" which is required for all federal and state grants. For each of the past ten years, the Board has come within two percent of hitting its annual expense targets.

The Board receives annual grants from FAA, along with occasional grants from the Wyoming Aeronautics Commission and Wyoming Business Council, for capital improvements at the Airport. To protect FAA's investment, federal law provides that revenue generated by the Airport will be expended for the costs of the Airport, the local airport system, or other local facilities owned or operated by the airport owner or operator and directly and substantially related to the air transportation of passengers or property. This is generally described as a "revenue diversion" prohibition. Violation of this provision is often referred to as "taking revenue downtown." As a result of this federal requirement, all Airport revenue must remain on-Airport or be used for expenses which are directly and substantially related to air transportation.

The Airport Board operates under other financial constraints. The 1983 Agreement requires that all rates and prices charged to the public by the Board and its subcontractors and licensees shall be fair and reasonable. As the recipient of FAA grants, the Board is also subject to an FAA requirement that it establish a fee structure which will make the Airport as self-sustaining as possible under the circumstances. In most cases,

*The Board receives no operating revenue from Teton County, the Town of Jackson or the State of Wyoming.*

this requires the Board to charge market rentals and fees to airport tenants and users.

## 9.2 Summary of Finances.

Operating revenues and expenses are those incurred with respect to ordinary airport operations. The Board's operating revenues and expenses from year to year will therefore depend to a significant degree on the Airport's aircraft and passenger volume. For instance, fees received from many tenants are on a "percentage of gross" basis; parking revenues are directly related to parking lot usage; landing fees and fuel flowage fees are directly related to the volume of aircraft activity.

*The Jackson Hole Airport Board is financially sufficient and doesn't use any tax dollars.*



Operating expenses do not immediately and automatically mirror aircraft and passenger volume and must therefore be closely monitored and changed by the Board when appropriate.

A capital outlay is an expense for the purpose of constructing or extending the life of a fixed asset, such as the runway or a building. Capital outlays at the Airport are funded in large part through grant revenues and Passenger Facility Charge (“PFC”) project reimbursements. Grant revenues are dependent on both the appropriation of federal funds, and the Airport’s passenger volume upon which the level of grant funding is partially based. A PFC on the other hand is a congressionally authorized charge imposed by airlines for the Board, on each ticketed passenger that utilizes

the Airport, up to established caps on each passenger’s entire trip. PFC’s may be used by the Board for capital outlays approved by FAA. The amount of PFC reimbursements received by the Board is therefore related, but not directly proportionate, to passenger volumes at the Airport. PFC Collections at the Airport are currently pledged through the year 2038 to repay outstanding bond which were taken out for the Terminal expansion project

As noted in Section 4.1, the Board operates passenger security screening services under a contract with TSA. Though the Board receives revenue from that contract, it also incurs related expenses. Should the TSA contract not be renewed, both revenues and expenditures will simultaneously, or nearly simultaneously, terminate.

## MAJOR SOURCES OF REVENUE

THE AIRPORT BOARD RECEIVED REVENUE FROM A VARIETY OF SOURCES DURING THE 2016-2017 FISCAL YEARS. THE MAJOR SOURCES OF REVENUE ARE APPROXIMATELY AS FOLLOWS:	2016	2017
<i>State and federal grants for selected capital improvements and equipment acquisitions</i>	\$3,154,902	\$9,984,767
<i>Passenger Facility Charges collected by airlines from airline passengers utilizing the Airport</i>	\$1,130,524	\$1,151,722
<i>Rentals and fees related to the operations of scheduled airlines</i>	\$3,230,887	\$3,491,485
<i>General aviation related rentals and fees, including those received from the fixed base operator, landing fees and general aviation catering</i>	\$1,201,266	\$1,355,985
<i>Other terminal and facilities rents and access fees, including the restaurant, gift shop, TSA rental and terminal advertising</i>	\$310,882	\$359,524
<i>Customer Facility Fees collected by on-airport rental car companies for related facilities. This is a new income category created by Board resolution in June 2010.</i>	\$1,078,024	\$1,163,976
<i>On-airport and off-airport rental car concession fees</i>	\$3,112,159	\$3,183,355
<i>All other sources, including parking and ground transportation providers (excluding glycol)</i>	\$800,516	\$1,079,763
<b>TOTAL</b>	<b>\$14,163,494</b>	<b>\$22,345,953</b>

# THE BOARD'S EXPENSES FOR FY 2016-2017 ARE SUMMARIZED AS FOLLOWS

\$350,487 in fiscal year 2017 as lease payment to the National Park Service. Under a Fourth Amendment to the 1983 Agreement, entered into on September 1, 2013, the Board agreed to pay the United States an increased sum equal to three percent (3%) of the first \$4,000,000 of its eligible operating receipts (excluding grants and other government appropriations of funds, interest earned, loan receipts, and security reimbursements, etc.), and four percent (4%) of its operating receipts exceeding \$4,000,000.

\$9,564,023 in capital outlays and projects in 2017.



\$20,632,698 for general operating expenses (excluding security screening and glycol expenses) in 2017; this was \$19,231,042 in 2016.

### 9.3 Capital Improvement Plan.

Eligibility for FAA and/or WYDOT grant funding requires the Board maintain a Capital Improvement Plan ("CIP"), which projects the estimated uses of federal grant funds over a five-year time horizon. Proposed capital improvements must be reflected on the CIP to be eligible for federal funding. Major projects on the Board's current CIP are:



Projects planned but not eligible for State and Federal funding include a new fuel facility, and QTA rental car facility discussed above.



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# SECTION 10



## Conclusion





The Jackson Hole Airport is the only commercial airport entirely contained within a national park. Along with this comes a unique responsibility to help steward the resources of the Park and the Greater Yellowstone ecosystem, and help ensure Jackson Hole remains a special place for travelers from around the world to experience the grandeur of its scenery, abundance of its wildlife, and diversity of its recreational opportunities. For travelers who take advantage of the exclusive access the Airport affords for two of the crown jewels of the National Park System, the Board hopes to provide a gateway experience which demonstrates its commitment to the stewardship of the environment, customer service and safety.

To this end the Board has worked collaboratively with the National Park Service and conservation groups to constantly seek, set, and achieve high standards in all three of these areas. The Board is extremely proud of the process and products which have resulted from its cooperative efforts during 2016-2017. The cooperative relationship between the Board and the National Park Service is based largely on a mutual philosophy. It is a view that in each challenge we face to bring air service to a pristine part of the country, there are also opportunities to be seized to combine cutting edge technology with common sense conservation education and interpretation about National Park values and traditional old west culture with a vision to the future.

The Board has historically met or exceeded all environmental requirements that have been placed on the Airport and its operations. These requirements are viewed by the Board and its staff as minimal performance guidelines that are meant to be eclipsed. The Board has developed partnerships within the airline and aerospace industry to implement cleaner, quieter, and more efficient systems, aircraft, equipment, and technologies as early as feasibly possible to minimize the impact of airport operations on the Park.

As we move forward in cooperation, it is the hope of the Board that this shared philosophy will continue to thrive. In the next two years, we hope to take on projects and adopt policies which will truly identify the Jackson Hole Airport as the environmental management benchmark for other airports to follow. We hope to instill these values in our tenants, and service providers, and to extend it to other airport users in the areas of general aviation and ground transportation.

# APPENDICES



## Appendix A

### NextGen Terminology

To understand the CFR Part 150 Study Recommended Alternatives presented in Appendix B, it is first necessary to understand certain terminology and acronyms. The following is a list of NextGen navigation technologies and terms that could be applied to the noise abatement alternatives:

#### **Area Navigation (RNAV) & Required Navigation Performance (RNP).**

One of the opportunities NextGen offers is Performance Based Navigation (PBN), which allows more efficient use of airspace through point-to-point navigation, rather than restricting flight paths between ground-based radio navigation systems. PBN procedures consist of Area Navigation (RNAV) and Required Navigation Performance (RNP). The key difference between RNAV and RNP is that RNP requires on-board performance monitoring and alerting, while RNAV does not. The FAA's strategy for implementing PBN is to provide "RNAV Everywhere and RNP Where Beneficial." All RNAV and RNP approach and departure procedures rely on satellite-based navigation, breaking free of the dependency on Ground-Based Navigation Aids. PBN enables procedure designers to maximize efficient use of the airspace, altering the traditional flight paths around an airport.

#### **Wide Area Augmentation System (WAAS).**

WAAS provides general aviation pilots with Area Navigation (RNAV) capabilities that in many cases rival or exceed what commercial aircraft have. WAAS enables vertically guided approach procedures to any qualifying airport in most of North America with minimums as low as 200 feet decision altitude (DA), without the need to install costly Instrument Landing System (ILS) equipment. These minimums can be lower than other conventional based navigation aid (NAVAID) approaches. When rising terrain is an issue near an airport, precise vertical guidance enhances safety regardless of visibility and whether the approach is being flown during the day or at night.

#### **Localizer Performance without Vertical Guidance (LP).**

Localizer Performance without Vertical Guidance (LP) is a non-precision approach with WAAS lateral guidance. LPs are added in locations where terrain or obstructions do not allow publication of Localizer Performance with Vertically Guidance (LPV) procedures. Lateral sensitivity increases as an aircraft gets closer to the runway. Unlike an ILS, LP is not a fail-down system. While flying an ILS, if the glideslope goes out of service, the pilot can continue the approach using just the localizer and switching from descent to a decision altitude (DA) to the higher Minimum Descent Altitude (MDA). LPV does not have the feature to fail down to the LP (localizer equivalent). LP and LPV are independent procedures.

#### **Charted RNAV Visual.**

A charted Area Navigation (RNAV) visual procedure is a visual flight procedure that uses GPS waypoints for navigation. These procedures are only flown in visual flight conditions. A conventional Charted Visual procedure would be a guide to follow landmarks, such as following a river or turning south of the water tower. A Charted RNAV visual uses GPS waypoints instead, which can create very precise paths at the exact location of interest.

**GBAS.**

A Ground Based Augmentation System (GBAS) improves the accuracy of an aircraft's GPS and provides an alternative to a traditional Instrument Landing System (ILS) to provide approach and departure operations. JAC maintains a GBAS on site. However, it is not operational due to a lack of aircraft serving the Airport properly equipped.

**Optimized RNAV STAR.**

An optimized RNAV (Standard Terminal Arrival Route) STAR is an arrival procedure using RNAV navigation. This provides for a more precise point to point navigation that is independent of any ground-based navigation. Optimized refers to arrival altitudes for the waypoint that allows the aircraft to fly a more efficient optimized profile descent.

**Optimized RNAV SID.**

An optimized RNAV Standard Instrument Departure (SID) is a departure procedure using RNAV navigation. This provides for a more precise point to point navigation that is independent of any ground-based navigation. Optimized refers to departure altitudes for the waypoint that allows the aircraft to climb out more efficiently without the need to hold the aircraft down for level flight segments. Aircraft on departure are at times "climb restricted" which means they can climb to a certain altitude and must remain at level flight at that altitude until allowed to climb higher or cleared to resume the charted navigation.

**Airline/Airport Charters.**

A Charter is a procedure that an airline, fractional operator, or airport publishes. Typically, an airline will create a procedure in-house for use by their pilots that is not publicly available. Large fractional corporate jet operations, such as NetJets, will also have Charters. Charters are typically used during visual conditions that allow use of local landmarks or terrain for guidance.

**Non-Charted Waypoint Information.**

An airline, aircraft operator, or general aviation pilot can input waypoints to its flight management system to fly to a desired point. These waypoints aren't part of a published procedure. The non-charted waypoint information provides a method to have small, general aviation aircraft fly NextGen procedures without highly sophisticated avionics.

# Appendix B

## (CFR Part 150 Noise Abatement Alternatives)

The FAA has ultimate responsibility for the control of aircraft in flight. Therefore Alternatives 1-6 below are, to some extent, subject to FAA control and approval in their final configuration and design. Final development of the alternatives will require the Air Traffic Division of the FAA to evaluate each one for safety, efficiency and capacity.

### **Alternative 1: RNP-AR Arrival Procedure for Runway 19.**

Aircraft on approach to the Airport currently fly arrivals using published instrument approach procedure (IAP) or a visual non-published landing. There are four types of instrument approaches to Runway 19 that are used in all weather conditions as well as visual flight paths that are used only in good weather conditions.

This Recommendation builds upon the satellite-based procedures that were previously implemented for Runway 19 and would use a curved arrival path that would keep aircraft east and south of the Snake River and Highway 89, reducing flights over the core of the GTNP. This Recommendation involves three new arrival path transitions for aircraft landing on Runway 19 that are based upon RNP-AR (Required Navigation Performance-Authorization Required). The aircraft must be equipped, and the pilot must have authorization to fly this procedure. This procedure would reduce flights over the central and northern portions of the Snake River.

### **Alternative 2: Charted Visual RNAV/Company Special RNAV Arrival Procedure For Runway 19.**

During visual meteorological conditions (VMC) aircraft currently use radar vector headings issued to pilots by air traffic control and use local ground-based landmarks as guides for navigation. The Airport is in VMC approximately 80% of the time. However, aircraft use a visual approach only approximately 40% of the time, since even in visual weather conditions, aircraft will often fly one of the instrument procedures.

Similar to Recommendation 1, this Recommendation would use a curved arrival path that would keep aircraft east of the Snake River and Highway 89 and minimize flights over the core portions of GTNP and the Snake River. This Recommendation would create a notional procedure that would be distributed to the airlines that operate at JAC. The airlines would be responsible for the ultimate procedure design and implementation within their fleet. This procedure can be implemented using RNAV (Area Navigation). The aircraft must be equipped to fly RNV to utilize this procedure.

**Alternative 3: RNAV Standard Instrument Departure (SID) - Runway 19.** Aircraft on departure from the Airport on Runway 19 now typically fly straight-out to the south on runway heading until reaching a point to turn east or west to their destination or continue south. When traffic permits, aircraft now depart and fly runway heading until reaching a point approximately 10 miles south of the Airport, then are radar vectored by air traffic control.

As an enhancement to this Recommendation, an additional Alternative would include modeling, evaluating and evaluating for formalization the use of the FAA defined Noise Abatement Departure Procedure 1 (NADP 1). NADP 1 is a procedure that includes thrust reduction close to the Airport to reduce noise over close-in residential structures, then increasing thrust when the aircraft is beyond the residences. However, prior to recommending this departure procedure be implemented for all southern straight out departures, noise modeling should be undertaken to determine if it reduces noise over noise sensitive uses.

### **Alternative 4: RNAV Standard Instrument Departure (SID) - Runway 01.**

Aircraft on departure from the Airport on Runway 01 now typically fly runway heading to Moose, approximately three miles north of the Airport, turn slightly to the east and then proceed to the north

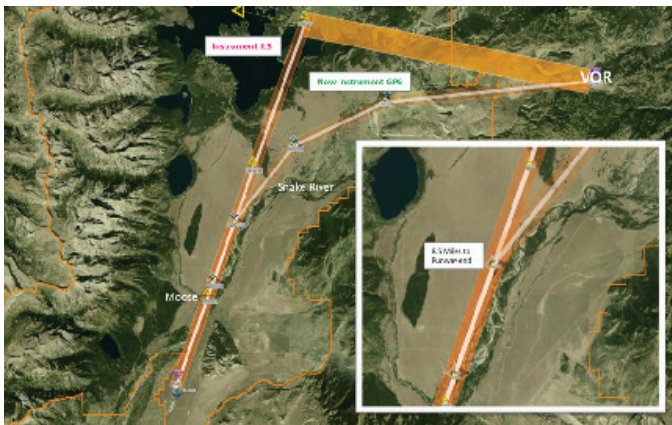


and are radar vectored to a Victor airway. There is one published departure procedure for Runway 01, the Geyser Four Departure. On this departure, aircraft now depart Runway 01 and fly straight for approximately three miles, then turn to the east approximately 30 degrees. Aircraft are then radar vectored to join a Victor airway.

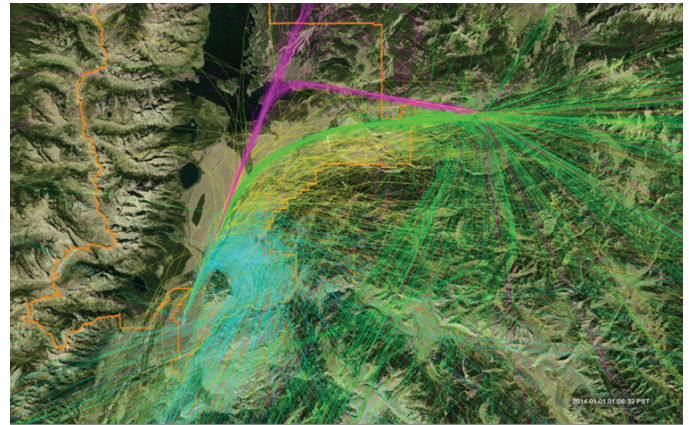
### Alternative 5: Waypoint Noise Abatement Flight Paths.

Small general aviation aircraft operate at the Airport under both Instrument Flight Rules (IFR) and VMC, with the majority of general aviation flights in VMC. Procedures in this Alternative 6 would be used in VMC only.

This Recommendation would create specific flight paths based upon GPS waypoints that define noise abatement paths for small general aviation aircraft. This information can be shared through an airport-sponsored iPad application. The flight paths would follow historic noise abatement tracks that are difficult to follow precisely using conventional navigation. This Recommendation proposes a flight path for arrivals and departures on both runway ends. In addition to the noise benefits, these paths could reduce fuel consumption and emissions.



Example of GPS satellite navigation approach in green, compared to existing conventional ILS approach. Notice the GPS approach avoids direct overflight of Jackson Lake and large portions of the scenic Snake River and skirts the Park boundary.



Actual flight track data indicates that the vast majority (as much as 89%) of Runway 19 arrivals utilize the RNAV or Visual Approaches. Only 11% of Runway 19 arrivals are using the traditional ILS approach over noise sensitive areas of the Park.

### Alternative 6: Avoid Low Flying Aircraft Operations Over GTNP.

This Recommendation does not propose any new specific flight paths. It provides measures to help reduce overflights over noise sensitive areas of GTNP to the extent possible. Possible measures include:

Install a BI-6 repeater scope in the JAC airport traffic control tower to allow controllers the ability to identify visual flight rules traffic by assigning transponder code and then advise the aircraft of noise sensitive areas of GTNP

Develop a Memorandum of Understanding with all controllers to recommend east turns and paths for all operations to avoid the defined noise sensitive areas

Incorporate these goals into the voluntary Fly Quiet program

Work with sightseeing operators and other recurring operators to provide a GPS path to better define their operations when transitioning from JAC to the tour destination just outside the GTNP

# Appendix C

## Board Organization and FAA Obligations

The Wyoming Joint Powers Act was adopted in 1971 (the “WJPA”). The WJPA provided that previously established airport boards would become joint power boards, without need to reorganize. As a result, the Board is now both a statutory airport board under the WAA and a joint powers board under the WJPA. Joint powers boards usually operate under joint powers agreements, and in October 2013 the Town and County entered into a revised Joint Powers Agreement with respect to the Board.

Since 1967 the Board has had the power, delegated by the Town and County, to acquire lands for airport purposes (by lease or otherwise). The Board exercised this power by entering into the 1983 Agreement in its own name with the Department. Also delegated to the Board was the power to acquire other property and to construct facilities for airport purposes. All facilities of the Airport have therefore been constructed and acquired in the name of the Board. The 2013 Joint Powers Agreement with the Town and County confirmed that the Board owns all Airport improvements and facilities.

Under Wyoming Statutes, the Board is both a “body corporate,” and a “local governmental entity” which has separate existence and is distinct from the Town and County. Though it has certain governmental powers, in most instances the Board operates the Airport in its “proprietary capacity,” and more like a private business. It has no power to tax. Its revenue comes only from its operations and grant funding.

### Members of the Board.

The five members of the Board are appointed jointly by the Town and County, each for a five-year term. In February of each year the Board reorganizes and appoints new officers. By tradition, Board members rotate positions, with each member thereby having the opportunity to serve as Member, Secretary, Treasurer, Vice President and President during their five-year term. Board members at the end of this reporting period were:



Jerry Blann.

Jerry has extensive Airport Board experience. He was appointed to the Airport Board in 2000 and is currently serving his third term. Additionally, Jerry has held previous executive positions and Board level appointments. Jerry was the President of the Jackson Hole Mountain Resort for 22 years, where he oversaw more than \$200 million dollars in capital improvements before retiring in 2018



Rick Braun.

Rick Braun was appointed to the Airport Board in 2016. He is a very experienced aviator with over 45 years of involvement in international and domestic aviation operations, which included 15 years of service with Boeing, where Braun was a pilot and led the Operation Enhancement Study for Boeing at the Jackson Hole Airport.



Mary Gibson Scott.

Mary was appointed to the Airport Board in 2016. She retired as a senior manager from the National Park Service, and has comprehensive experience in planning and development, infrastructure management, and emergency response programs. She is also on the national board of the Student Conservation Association.



John Eastman.

John was appointed to the Airport Board in 2013. He is an accomplished business entrepreneur with 20 years' experience creating, building, and leading successful start-up businesses. John has extensive community board experience including the St. John's Hospital Board, the Center for Resolution and Mediation, and the Historic Preservation Board. John was also recently appointed to the National Parks Overflights Advisory Board.



Jim Waldrop.

Jim was appointed to the Airport Board in 2009. Jim has extensive community board experience including Chamber of Commerce, Jackson Hole Central Reservations, and the Fall Arts Festival. Jim is the General Manager of The Wort Hotel and the Million Dollar Cowboy Bar.

### **Airport Staff.**

The Airport has a regular staff of 35 personnel which are engaged in administration, airfield operations and maintenance, project management, aviation fuel facility operations, community outreach, hospitality and other ordinary airport functions. It also has a security screening staff which averages 58 personnel. With total employment of 90 staff, the Airport is one of the larger employers in Teton County. The Airport's senior staff are:

Jim Elwood, Executive Director.

Jim came to the Jackson Hole Airport in 2014. Before coming to Jackson, Jim was the director of Aspen/Pitkin County Airport in Aspen, CO. While in Aspen he had significant accomplishments in improving the environmental stewardship of the airport. Prior to working in Aspen, Jim served as the Airport Manager in both Eagle County Airport and Pueblo Airport in Colorado. His many accomplishments in the industry include serving as Chair for the American Association of Airport Executives in 2008, and the Outstanding Leadership Award from Airports Going Green in 2013.



Dustin Havel, Assistant Airport Director – Operations.

Dustin Havel came to the Jackson Hole Airport in May of 2016. Prior to working at the Jackson Hole Airport, he was the Assistant Aviation Director – Operations at the Aspen/Pitkin County Airport. Dustin Havel graduated Magna Cum Laude from Central Missouri State University with a Master of Science in Aviation Safety and has over 10 years of experience in Airport Operations and Management. He also has a Bachelor's degree in Aviation Technology – Maintenance Management and Bachelors in Business Administration – Computer Information Systems. An accredited Airport Executive, Certified Aircraft Rescue & Fire Fighter and Airport Certified Employee in all facets, Dustin has also logged over 250 hours of Instrument Rated Private Pilot flying time.





Aimee Crook, Assistant Airport Director - Security Operations. Aimee Crook is a Jackson Hole native who started working at JAC the year she graduated high school. In 2000, Aimee graduated from the University of Wyoming with a Bachelor of Arts in Criminal Justice. Aimee was promoted to the Director of Security Screening in 2002 and played an intricate role in obtaining a Private Security Screening Contract on behalf of the Jackson Hole Airport Board. In 2016 Aimee became the Manager of Security Operations. Aimee is a certified member of the American Association of Airport Executives and currently serves as the Assistant Airport Director – Security.



Michelle Anderson, Assistant Airport Director - Finance and Administration.

Michelle started working at the Jackson Hole Airport as the Office Manager in 2002. While working for the Airport, she earned her Executive MBA from the University of Wyoming. She has also earned her Certified Member designation with the American Association of Airport Executives. During her time at the Airport, Michelle has helped the Airport successfully bid the private screening contract with TSA multiple times. Michelle was promoted to Assistant Airport Director in 2017. Her accomplishments include being awarded Wyoming's 40 Under 40 Award for 2017, and her recent appointment to the Board of the Wyoming Airport Operators Association.

### **Board Obligations to FAA Generally.**

In addition to its obligation to NPS under the 1983 Agreement, the Board has obligations to the Federal Aviation Administration ("FAA"). In accepting federal grant funds, the Board is required by law to give 39 different "assurances" to FAA regarding its use of grant funds and operation of the Airport. If the Board breaches these assurances, it will be ineligible for future grants and may be required to repay prior grants. Principal grant assurances include the following:

#### Grant Assurance No. 4:

The Board must certify that it has "good title" to Airport land. Where the airport sponsor does not own the underlying ground, this term is defined to include a lease of at least 20 years past the date of the grant.

#### Grant Assurance No. 21:

The Board must "take appropriate actions . . . to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft." This is accomplished to the south and west of the Airport by the Teton County Airport Zoning Resolution, which prohibits structures above certain heights surrounding the Airport and conditions near the Airport which are hazards to aircraft in flight.

#### Grant Assurance No. 22:

The Board must make the Airport available "for public use on fair and reasonable terms and without unjust discrimination, to all types, kinds, and classes of aeronautical uses." Under this requirement the Board may not prohibit scenic flights or other particular types of aeronautical operations, must accommodate all airlines which wish to serve the Airport, and in most cases must permit all general aviation operations and businesses so long as space is available, and they meet the Board's Minimum Standards.

Grant Assurance No. 23:

The Board may not grant or permit any "exclusive right for the use of the Airport" by persons providing aeronautical services to the public. For instance, it cannot specify that all flight training will be provided by a single private operator at the Airport. Though it may not grant an exclusive right, as the operator of the Airport the Board may exercise its "proprietary exclusive right" to operate any or all aeronautical activities on the Airport using its own employees.

Grant Assurance No. 24:

The Board must maintain a rent and fee structure which will make the Airport as self-sustaining as possible under the circumstances. This is interpreted to require, in most cases, the charging of market rent on the land side of the Airport and a reasonable rental on the airside of the Airport.

Grant Assurance No. 24:

All revenues generated by the Airport must be expended for the capital or operating costs of the Airport, or other facilities owned or operated by the Board and directly and substantially related to air transportation. A violation of this grant assurance is often referred to as "revenue diversion."

# Appendix D

## Public Art in The Terminal

Airport terminals worldwide are becoming places people not only transit but enjoy. Airports strive to reflect the particular identity of the communities they serve. This is important in a world where everyplace is tending to look like everyplace else. Places with strong public art displays break the trend of blandness and sameness and give communities a stronger sense of place and identity. Public art can display our history and culture, and provides an intersection between past, present and future, between disciplines, and between ideas.

The Jackson Hole Airport is home to an impressive collection of public art, with several pieces distributed throughout the Airport terminal and grounds. To learn more about the Airport, its art collection, and the surrounding area, the public can download the TravelStorysGPS app from Apple's AppStore or Google Play. Examples of notable public art at the Airport are:



*"Battle of the Wills" by Bart Walter.*

This large-scale bronze sculpture on display in the Airport entrance roundabout is a unique rendition of an iconic Wyoming image. The image represents Wyoming. It has adorned our state's automobile license plates since 1936 and is the longest running license plate motif in the world. The horse is the infamous Steamboat, a star in bucking bronco contests at Cheyenne Frontier Days from 1901 until 1914. Battle of the Wills epitomizes the frontier spirit of Jackson Hole even to this day.



*"Arrival Over The Snake" by Bland Hoke, Shane Lindsay, Terry Chambers*

This aerial silhouette rendered in brushed stainless steel, captures the view visible from the planes as they make their final approach into the Jackson Hole Airport. The flight path crosses the Snake River at the very spot early homesteaders did, where the river narrows to a single channel at Menor's Ferry. This braiding of history and modernity suggests that no matter the mode of transport, the Snake River serves as a threshold into Jackson Hole.



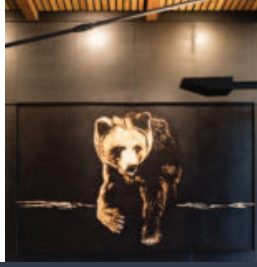
*"Welcome to Jackson Hole" by Richard Painter*

Wyoming loves its cowboy heritage, a pride writ large by this whimsical watercolor that highlights our Terminal arrival hall. By the looks of the boots, the ranching lifestyle is both fun-loving and hard-working, a duality which Nelson Boren approaches with respect and humor. You cannot see anyone's faces, but you can bet that they are laughing and having fun. Even the moose-ling seems happy, and if you look closely there are actually two.



*"Trading For Moccasins" by Z.S. Liang.*

Through meticulous research and exacting realism, Chinese artist Z.S. Liang brings to life scenes from the pages of American history. In this oil painting, which is also in our arrival hall, two Lakota women trade goods with pioneers stopped for a day's rest at Chimney Rock on the Oregon Trail. Similarly, each spring in Jackson Hole, neighboring tribes would trade their goods with local settlers in what is now Grand Teton National Park. Trading for Moccasins was generously donated by the Wort Hotel. Moccasins on loan from Terry and Claudia Winchell, Fighting Bear Antiques.



*"Callisto The Huntress-Grizzly Bear" by Richard Painter*

A bear, charred into wood by Tennessee artist Richard Painter, references the Greek Myth of Callisto, the nymph who became Ursa Major. The painting casts the viewer as prey, vulnerable yet still capable of escaping - a metaphor for our relationship with the planet, a message mirrored by the bald eagle Painter created for the departure terminal.





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