ASPEN/PITKIN COUNTY AIRPORT

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IMPROVEMENTS

ENVIRONMENTAL ASSESSMENT

ASPEN/PITKIN COUNTY AIRPORT

JUNE 2018

ASPEN/PITKIN COUNTY AIRPORT IMPROVEMENTS ENVIRONMENTAL ASSESSMENT

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"This Environmental Assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official."

RESPONSIBLE FAA OFFICIAL

July 19, 2018

DATE

U.S. Department of Transportation
Federal Aviation Administration
Northwest Mountain Region
Denver Airports District Office

Finding of No Significant Impact/ Record of Decision

For the Runway & Terminal Area Improvement Projects
At the Aspen/Pitkin County Airport
Aspen, CO

July 2018

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I. Introduction

This document serves as the Federal Aviation Administration's (FAA) Finding of No Significant Impact/Record of Decision (FONSI/ROD) and provides final agency determinations and approvals for the federal actions necessary to implement the proposed terminal and airfield improvement projects at the Aspen/Pitkin County Airport (ASE), owned and operated by Pitkin County (Airport Sponsor). This FONSI/ROD is based on the information and analysis contained in the attached Final Environmental Assessment (FEA), dated June 2018. This FEA has been prepared in accordance with the guidelines and requirements set forth by the Council on Environmental Quality (CEQ) and the FAA to implement the environmental review and disclosure provisions of the National Environmental Policy Act of 1969 (NEPA).

II. Background

ASE is a publically owned and operated commercial service airport located in Pitkin County, Colorado approximately three miles northwest of the City of Aspen's Central Business District and approximately 38 miles southeast of the City of Glenwood Springs. ASE is situated west of Colorado Highway 82 and east of Owl Creek Road on the northern limits of the Aspen Area Urban Growth Area. Airside facilities at ASE include Runway 15/33 (8,006 feet long by 100 feet wide), a taxiway system, aircraft parking aprons and associated visual and electronic navigational aids. Landside facilities include a terminal building, hangars, ground access routes, automobile parking areas, fuel farm and storage facilities.

The Airport Reference Code (ARC) is a coding system used by the FAA to relate airport design criteria to the operational and physical characteristics of the airplanes that currently and are forecasted to operate at an airport. The ARC has two components. The first component is depicted by a letter (A-E) and relates to the aircraft approach speed. The second component is depicted by Roman numeral (I-IV) and relates to physical characteristics (aircraft wingspan or tail-height). ASE is a D-III airport that does not fully comply with D-III standards. The non-standard conditions include the separation distance between the runway and taxiway, the taxiway and parked aircraft, and runway and the holding position; runway width; and runway strength. As result, ASE has wingspan restriction that prohibits aircraft with a tip-to-tip wingspan of greater than 95' and landing weight in excess of 100,000 lbs. dual-wheel from operating at ASE.

In 2012, ASE completed a Master Plan Update and submitted an updated Airport Layout Plan (ALP) to the FAA. The Master Plan identified needed improvements on the east side area (including a passenger terminal replacement), a full parallel taxiway for the west side, and development for a potential second Fixed Base Operator (FBO). The Master Plan Update determined that the existing terminal configuration has resulted in many of the undersized areas that are unable to efficiently accommodate existing demand. The ALP was partially approved on a conditional basis in August of 2013 for projects on the east side, but not for projects on the west side. The conditional basis of the ALP approval was subject to subsequent NEPA compliance. No runway changes were recommended in the Master Plan because of the existing restrictions in place at ASE.

In 2014, Pitkin County commissioned an Air Service Study in response to changes that were starting to occur in aircraft fleet. That study found that the regional jets with wingspans less than 95 feet would be phased-out by commercial operators by 2028. Airlines are changing their aircraft fleet in response to air travel demand and it is expected that the aircraft serving ASE that meet the current restrictions will eventually be withdrawn from service in favor of larger aircraft with more seating. As a result, the airlines would not be able to provide similar scheduled commercial passenger air service at ASE in the future because the aircraft contained in their fleet would not meet those specifications. The Air Service Study analyzed options for ASE to retain commercial passenger service consistent to what exists today and the recommendations from that study were used to update the ALP in 2015 and were brought forward in this EA.

III. Proposed Action (Chapter 1 of the FEA)

ASE is proposing to build a replacement terminal and make airfield improvements. The existing terminal is not able to efficiently accommodate the passengers who fly in and out of ASE while the airfield improvements are needed to meet FAA design standards.

The Terminal Area Improvements include:

- Construction of a replacement terminal;
- Construction of associated parking;
- Re-configuration of the terminal roadway and recirculation roadway;
- Integration of the passenger terminal with public transit;
- Relocation of ancillary facilities, such as rental car facilities;
- Demolition of existing passenger terminal facilities;
- Commercial service aircraft apron expansion; and
- Construction of a noise barrier along the general aviation apron area.

The runway improvements include:

- Shifting Runway 15/33 80' west, widening to 150' and strengthening to accommodate 150,000 pounds landing weight;
- Realignment of the perimeter road, Owl Creek Road, and Owl Creek bike path within the Colorado Department of Transportation's right-of-way;
- Relocation of associated navigational aids and runway/taxiway lighting;
- Removing current wingspan and weight limit restrictions;
- Piping of Owl Creek (for both the runway relocation and to address a wildlife hazard); and
- Amending flight procedures to accommodate the runway improvements.

The Proposed Actions are illustrated on Figure 1-1 in the Final EA. During the development of the Final EA it was discovered that Figure 1-1 did not include the entire proposed project. A portion of one of the navigational aids (the Medium Intensity Approach Lighting System with Sequenced Flashing Lights (MALSF)) which will be relocated as part of this project was not included on the figure though it was included in the analysis in the EA. Figure 1-1 has been updated to reflect the correct project boundary and study area which includes the entire MALSF lighting. In addition, the following figures were also updated to accurately reflect the study areas analyzed: Figure 3-1, Figure 3-4, Figure 4.2-1, Figure 4.6-1, Figure 4.8-1, Figure 4.14-1, Figure 4.14-2 and Figure 4.14-3.

IV. Purpose and Need (Chapter 2 of the FEA)

A. Terminal Area Improvements

The purpose and need for improvements to the passenger terminal at ASE are related to deficiencies in the current terminal, issues associated with the current roadway configuration and passenger parking, and deficiencies in the apron area where aircraft park. The existing terminal is unable to efficiently accommodate existing demand. Runway 15/33 Improvements

The purpose and need for the proposed runway improvements is to enable ASE to accommodate anticipated future aircraft and bring the airfield into compliance with the FAA standards and recommendations.

B. Piping of Owl Creek Outside of Runway Improvements

The purpose and need for the piping of Owl Creek outside of the runway improvements is to reduce the attraction of hazardous wildlife to Owl Creek. The 2012 wildlife hazard management plan (WHMP) identified Owl Creek as a hazardous wildlife attractant within the critical zone (area within 10,000 feet of an aircraft operation area).

V. Agency Actions and Approvals

The FAA actions, determinations, and approvals necessary for this project to proceed include:

- A determination that the environmental analysis prerequisites associated with any future Airport Improvement Program (AIP) funding application have been fulfilled pursuant to 49 USC 47101.
- Unconditional approval of the Proposed Action as shown on the 2015 ALP Update.
- Approval of modifications to the procedures for the shifted runway relocation.
- Relocation of navigational aids and runway/taxiway lighting.

VI. Alternatives (Chapter 3 of FEA)

In accordance with NEPA and FAA Orders 1050.1F and 5050.4B, and FAA design standards, the FEA identified and evaluated all reasonable alternatives.

A. Alternatives Examined but Eliminated from Further Study

The following alternatives were considered during the planning process and were dismissed from further consideration because they were determined not to be feasible and/or did not meet the Purpose and Need.

1. Other Modes of Transportation
   - Travel by Automobile/Bus: Reliance on ground travel is not a realistic alternative to access the Aspen area given the added travel time, unreliable winter roadway conditions and heavy traffic.
   - Substitute Telecommunication Technology for Air Travel: Telecommunication technology may relieve potential future business travel demand but would likely have no effect on recreational travel.
2. Use of Other Area Airports

   Grand Junction Regional Airport and Eagle County Regional Airport are the two closest commercial service airports to ASE that could provide service. The added travel time and unreliable winter roadway conditions makes this alternative unrealistic.

3. Terminal Area Improvement Alternatives
   - Upgrade Existing Terminal
     For this alternative, the existing terminal would be expanded and upgraded in its present location. Passengers and employees would experience significant inconveniences during construction given the constrained facilities. The age of the terminal building would make it difficult to resolve all of the facility deficiencies identified in Chapters 1 and 2 of the FEA.
   - Construction of a Parking Garage
     The 2012 Master Plan indicated that, by 2027, approximately 1,713 spaces would be needed to meet demand. A parking garage that could accommodate 1,300 spots was included in the Master Plan. Due to a lack of financial feasibility, this alternative will not be brought forward. The terminal planning will include the potential for a future parking garage, so that, if it does become financially feasible at some point in the future, the site will be able to accommodate it.
   - Offsite Parking
     An offsite parking location was considered but then tabled given the expected City and County parking study that will consider parking solutions for the Roaring Fork Valley, including ASE.
4. Runway Alternatives
   An Air Service Study (Study) examined multiple alternatives that would correct the existing non-standard conditions, allowing ASE to meet FAA design standards. Runway relocation and runway realignment are not feasible alternatives at ASE due to the constrained nature of the valley and the mountainous approach. Shifting to the east is not feasible due to existing constraints (terminal, Fixed Base Operator [FBO] facilities, and Highway 82). The Study examined 18 different alternatives for achieving the design standards. Pages 3.4-3.5 of the FEA provides information on the 18 alternatives considered and reasons for the elimination of the alternatives.
5. Piping of Owl Creek Alternative
   Manipulation and Maintenance of Vegetation: The sections of Owl Creek located on either side of the runway have been disturbed and maintained by ASE to prevent wildlife hazards. On the west side of the runway, vegetation along Owl Creek is mowed giving the creek the appearance of a meandering ditch. On the east side of the runway within the study area, riparian plants, which include herbaceous species and cottonwoods, have been mowed and the trees trimmed. Hazardous wildlife is still attracted to Owl Creek even with the maintenance being completed by ASE. Therefore, this alternative was eliminated from further consideration.

B. Alternatives Carried Forward for Analysis

1. No Action Alternative
   The No Action Alternative consists of retaining existing ASE facilities (the runway, taxiway, terminal, roadway, and apron) as they exist today. The existing 95-foot wingspan restriction and the Modification to Standards would be kept in place.

Consequently, ASE could lose commercial passenger service in the future as aircraft would not be available that meet the current restrictions. Some form of commercial service is anticipated to still exist under this Alternative with the use of smaller, older turboprops; however, it would likely be greatly reduced. The No Action Alternative would not allow ASE to accommodate existing and future passenger and operational needs in the terminal area and would not address the FAA design standard deficiencies; however, pursuant to NEPA, this alternative was carried forward for environmental analysis.

2. Terminal Alternatives

   Two terminal alternatives were carried forward for evaluation in the EA. Both terminal alternatives include the relocation and expansion of the terminal, reconfiguration of the terminal area roadways and parking, an expansion of the air carrier apron, relocation of ancillary facilities such as rental car facilities, and a noise wall over by the GA apron. It would also include demolition of the existing terminal facilities. The differences between the two terminal alternatives are related to architectural features – the size and footprint are the same for both alternatives.

   Terminal Alternative 1: A split-level terminal that fits within the landscape where all functions are generally on a single level, and the split-level provides some grade mitigation opportunity.

   Terminal Alternative 2: A hybrid of the nested/two-story concept that includes a setback appearance to make it less conspicuous within the landscape and a stack of the levels to allow for flexibility of space expansion in the future.

   These alternatives were combined into one Terminal Alternative for consideration in this FONSI/ROD that focuses on the footprint of the proposed building.

3. Runway Alternative

   This alternative includes shifting the runway 80 feet to the west, widening to 150 feet and strengthening to accommodate up to 150,000 pounds; piping of Owl Creek; relocating navigational aids and runway/taxiway lighting; updating flight procedures; and relocating the perimeter road, Owl Creek Road and Owl Creek Bike Path. This alternative would also remove the wingspan and aircraft weight restriction policy, allowing ASE to fully meet FAA D-III standards.

C. Preferred Alternative (Chapter 3 of the FEA)

After careful consideration of the analysis of the impacts of the various alternatives considered and the ability of these alternatives to satisfy the identified purpose and need for the proposed action; and after review and consultation with various resource agencies, and after considering federal policy; the FAA hereby selects the Runway Alternative and Terminal Alternative as the Preferred Alternative in the FEA for federal support.

VII. Affected Environment (Chapter 3 of the FEA)

ASE is located approximately two miles northwest of Aspen, Colorado on a bench about 200 feet above the Roaring Fork River. The town of Aspen is in a remote area of the Rocky Mountains' Sawatch Range and Elk Mountains, along the Roaring Fork River at an elevation just below 8,000 feet above sea level on the Western Slope, 11 miles west of the Continental Divide. Aspen is a ski resort town and year-round destination for outdoor recreation.

Much of ASE is relatively flat except for a few soil piles and topographic high points which support native sagebrush, oakbrush and Aspen/oakbrush communities. The vast majority of ASE has either been disturbed or manipulated through the development of the airport. Areas that were previously disturbed were seeded with a variety of native and non-native species. Owl Creek runs through the northern part of the property. In addition, there are two tributaries, four ditches, three wetlands and multiple irrigation laterals located on ASE property. The 100-year floodplain of Owl Creek is on the northern side of ASE. A surficial, mountainous aquifer associated with the Roaring Fork River lies under an area just north of ASE and the Town of Aspen. ASE currently has a National Pollution Discharge Elimination System (NPDES) Permit and a Storm Water Management Plan (SWMP).

The major land uses in the vicinity of ASE include government/institutional, open space/recreational, agricultural and residential. There is a large area of open space associated with the North 40 residential development immediately east of ASE that provides a buffer between ASE and residential uses. ASE owns numerous avigation easements in the surrounding area.

The North 40 Home Owners Association owns/operates three parks within the North 40 development. The largest of these parks, North 40 Park, is privately owned and operated by the North 40 HOA. The White River National Forest is approximately 1.5 miles east of ASE on the eastern side of the Roaring Fork River. Immediately south of the runway on ASE property is a segment of the Owl Creek bike path, which is owned and operated by Pitkin County. The Airport Business Trail runs along the eastern side of Highway 82 and is connected to ASE via an underpass. ASE is situated within the Scenic View Protection Areas associated with Colorado Highway 82 and Owl Creek Road. The closest Colorado State Park is the Arkansas Headwaters Recreation Area approximately 40 miles east of ASE. There are five properties within Pitkin County that have used funding from the Land and Water Conservation Fund including Iselin Park (2.7 miles away), Glory Hole Park (4.4 miles away), Aspen Trail System (4 miles away), North Star Ranch (5.6 miles away) and Wingo Junction Train Crossing (16 miles away).

A records search of the NRHP indicated that there are 36 historically significant sites within Pitkin County. The Maroon Creek Bridge is the closest National Register-listed historic resource to the APE. The 2015 Cultural Resources Survey reviewed all properties at ASE including buildings, hangars, and offices related to operations at ASE. The National Register-eligible Airport Ranch (5PT.538) was the only historic property identified within the study area. The Airport Ranch, which was determined eligible in 1988, consists of approximately 463 acres, and retains its nine contributing buildings and structures. Its boundaries are the ASE boundary to the east, the 7,800-foot contour line to the west, Owl Creek Road to the South, and a row of trees to the north. The Airport Ranch is located on the west side of ASE property. The ranch is outside the secured area fence, which surrounds the perimeter separating ASE from the ranch property, and therefore, is

located outside the APE. No other properties were found to meet the National Register Criteria for Evaluation within the APE. Most of ASE property is pre-disturbed, and previous archeological surveys have not identified any sites that are eligible for the National Register

Section 4(f) resources near ASE include Airport Ranch, Children's Memorial Park, Chuck Brandt Park, Harmony Park, Owl Creek Bike Path, and the Airport Business Center Trail. A small portion of the Owl Creek Bike Path is within the existing 65 DNL contour.

Pitkin County is currently designated as maintenance for PM_{10} and as attainment for the remaining National Ambient Air Quality Standards (NAAQS) criteria pollutants. Pitkin County has been preparing carbon dioxide (CO_2) emissions inventories for ASE since 2008. The most recent airport-wide emissions inventory was prepared for the year 2014, which reported airport-related emissions to be approximately 62,326 metric tons of CO_2.

The day-night noise level (DNL) is used to describe the cumulative noise exposure over a 24-hour period with a 10 dB penalty added for noise during the nighttime hours (10:00pm – 7:00am). The base year for the FEA is 2015. There were 39,224 operations in 2015. The 65 DNL contour encompasses 182 acres and there are no noise-sensitive land uses within the existing 65 DNL contour (Figure 4-11.1).

There are permitted small generators of hazardous waste on and near ASE. These generators are identified as low risk and generally include materials such as fuel, oil, pesticides, and fertilizers.

The following resources are not present in the project area: coastal resources and farmlands.

VIII. Environmental Consequences of the Preferred Alternative (Chapter 4 of the FEA)

Environmental impact categories identified in FAA Orders 1050.1F and 5050.4B were evaluated in the FEA. Environmental consequences of the No Action Alternative and the Preferred Alternatives are included in Chapter 4 of the FEA. Below is a summary of the findings.

Projects were analyzed separately in the FEA given the independent utility of each project and the plan to build only one project at a time; therefore, impacts were provided for the No Action Alternative, the Terminal Alternative and the Runway Alternative. A Combined Alternatives analysis was also completed for those resource categories that could be impacted by the implementation of both projects.

A. Air Quality (Section 4.1 of FEA)

- No Action Alternative

  No project-related construction would occur under the No Action, therefore there would be no construction related emissions. Emissions of all pollutants are anticipated to decrease relative to 2015 (base year) except for VOCs. VOCs are expected to increase slightly between 2015 and 2033 (from 45.4 tons in 2015 to 53.8 tons in 2033). These changes in emissions are largely due to the fleet mix changes as jet aircraft that meet the current wind span requirement are phased out of commercial service.

- Terminal Alternative
  - Construction Emissions
    Construction of the terminal building is expected to occur between 2018 and 2022. Short-term construction emissions would occur with the construction of the terminal building. The total direct and indirect construction related emissions are below *de minimis* levels and are not expected to be significant (Table 4.1-5).
  - Operational Emissions
    Comparing the emissions associated with the No Action alternative, the proposed terminal improvements would not materially change emissions. The taxi distance would decrease by 193 feet with the construction of the new terminal given its proposed location. As a result, the emissions expected with operation of the terminal improvements would be slightly less than the No Action (Table 4.1-6).
- Runway Alternative
  - Construction Emissions
    Construction of airfield improvements is expected to occur between 2023 and 2027. Short-term construction related emissions would occur with the construction of the airfield improvements, however, none of the emissions are projected to exceed *de minimis* levels (Table 4.1-7).
  - Operational Emissions
    A slight change in aircraft movement would occur with the construction of the airfield improvements. The runway would shift 80 feet to the west, which would result in an increase in taxi distance of approximately 160 feet. The most notable difference in emissions between the No Action and the Runway Alternative is the increase in NOx, which would increase by 26.1 tons (Table 4.1-8). This increase is associated with the bigger aircraft that would be operating in 2033. However, all expected emissions are below *de minimis* levels and are not expected to be significant.
- Combined Terminal and Runway Alternatives
  Construction emissions for both alternatives were not analyzed given that construction is not expected to overlap. By 2028, both projects would be complete and an operations emission inventory was prepared for the combined scenario. The combined terminal and airfield improvements would produce emissions similar to that of the airfield improvements only. In 2028, NOx and SOx emissions would increase while all other emissions would decrease. By 2033, VOC emissions would decrease while all other emissions would increase due to the change in aircraft operating at ASE. All emissions would be less than *de minimis* and are not expected to result in significant impacts.

B. *Biological Resources (Section 4.2 of the FEA)*

- No Action Alternative
  The No Action Alternative does not include any construction or land disturbance and would therefore not impact any wildlife, vegetation, or wetlands in the area.

- Terminal Alternative

  The Terminal Alternative is located in an area that has been previously disturbed. Approximately 1.22 acres of seeded/graded habitat may be disturbed along with a portion of planted trees and existing landscaping. There are no creeks, streams, or rivers, and there is no substantial habitat for fish or animal species in the project area. The Roaring Fork River, located adjacent to ASE, is clearly separated from the study area via berms, Hwy 82, and other features. The FAA determined that the project will have no effect on Federally threatened or endangered fish, wildlife, or plants (**Appendix 2**).

- Runway Alternative

  Direct impacts of the airfield improvements include the piping of Owl Creek within the fence line. Portions of Owl Creek are already piped within the project area. The piping will not impact the function of Owl Creek to transmit water to the Roaring Fork River. Water quality of Owl Creek will not be impaired and may actually improve with the reduction in debris/sediment that would be able to access the creek. Best management practices will be utilized during construction to minimize impacts to water quality. Piping will also impact vegetation on the banks of the creek (including the removal of approximately 1.5 acres of narrowleaf cottonwood/alder) and change an open water system to a terrestrial system. It is expected that birds, amphibians, reptiles, mammals, and invertebrates that once inhabited the area will move downstream to an area that remains open.

  Vegetation impacts are also expected as a result of the airfield improvements. Managed areas that will be disturbed consist of seeded/graded areas and a small serviceberry/grass area. Construction impacts will change the physical landscape and alter plant and wildlife habitat. Areas that are disturbed during construction that are not permanently developed will be graded and seeded. Approximately 22 acres of managed vegetation will be permanently removed/disturbed.

  Impacts to Federally-threatened or endangered fish, wildlife, or plants are not expected. Furthermore, the USFWS concurred with FAA's no effect determination (**Appendix 2**).

C. Climate/Greenhouse Gases (Section 4.3 of FEA)

- No Action Alternative

  No project-related construction would occur under the No Action and therefore, there would be no construction greenhouse gas emissions. With respect to operational emissions under the no action scenario, total airport operations are expected to increase slightly between 2015 and 2023 (from 14,199 in 2015 to 14,711 in 2023), but begin decreasing from 2028 through 2033 as curtailment of commercial air service over time would occur as airlines retire aircraft that meet the current wingspan limitation at ASE.

- Terminal Alternative
  - Construction Emissions

    The total quantity of greenhouse gas emissions to complete construction of a replacement terminal would be approximately 5,340 metric tons of CO_2. Assuming 50% of the emissions occur in a peak construction year, those emissions would be 2,670 metric tons of CO_2.

- Operational Emissions
  Once construction is completed, aircraft taxi distance would decrease by approximately 193 feet. This reduced taxi distance would eliminate 27 to 29 metric tons of CO2 on an annual basis. There would also be a decrease in the energy use per square foot based on increased efficiencies of the new terminal. However, since there would be an increase in the overall square footage, the change in energy use and thus greenhouse gases related to the terminal would not result in a significant change.

- Runway Alternative
  - Construction Emissions
    Construction of the airfield improvement projects would generate approximately 5,385 metric tons of CO_2 emissions, which is expected to occur between 2023-2027. Assuming 50% of the emissions occur in a single year, approximately 2,693 metric tons of CO_2 would be emitted during the peak construction year.
  - Operational Emissions
    Once construction is completed, there will be a slight change in the way aircraft move around on the airfield. The airfield changes would result in a taxi increase of approximately 160 feet in addition to a change in aircraft fleet mix. The proposed airfield projects would increase emissions relative to the No Action by 1,510 metric tons of CO_2 in 2028 and 5,626 metric tons of CO_2 in 2033. Although there is an increase over the No Action, the No Action emissions do not include the emissions that would result from vehicle traffic from other airports (e.g. Denver International Airport, Grand Junction, etc.) if ASE lost commercial service nor does the proposed action calculations reflect County policies put in place to reduce GHG emissions or the fact that the anticipated aircraft to use ASE is expected to be more fuel efficient.

- Combined Terminal and Runway Alternatives
  Construction emissions for both alternatives were not analyzed given that construction is not expected to overlap. Once construction is completed, both projects will slightly change the taxi distances that will offset one another. The airfield improvements will have a notable effect on the aircraft fleet operating at ASE. The proposed combined terminal and airfield projects would increase CO2 emissions relative to the No Action by 1,487 metric tons in 2028 and 5,597 metric tons in 2033. As stated above, these calculations for the No Action do not include the emissions that would result from vehicle traffic from other airports (e.g. Denver International Airport, Grand Junction, etc.) if ASE lost commercial service nor does the proposed action calculations reflect County policies put in place to reduce GHG emissions or the fact that the anticipated aircraft to use ASE is expected to me more fuel efficient.

D. Department of Transportation Act Section 4(f) (Section 4.5 of FEA)

- No Action Alternative
  There would be no direct impacts to Section 4(f) resources. The No Action Alternative would result in a change in noise as jet air carrier aircraft would be phased out over time and air carrier service would be limited to turboprop activity. GA charter jet operations are

anticipated to increase to account for the reduction in service via the air carriers. However, this change in aircraft does not change the noise exposure to the Owl Creek Bike Path.

- Terminal Alternative

  No direct Section 4(f) resources would be impacted. The closest recreational resource to the terminal improvements is the Airport Business Trail connected to ASE via an underpass. Neither this trail nor the underpass would be affected by the Terminal Alternative. The site plans for the Terminal Alternative creates a better link to this underpass to allow improved pedestrian access to the terminal in the future. During construction, temporary impacts could occur to the underpass that access the terminal from the Airport Business Trail; however, these would be temporary and not significant. There are no changes in the 65 DNL contour as a result of this alternative; therefore, it is anticipated that the overall impacts to Section 4(f) resources will be beneficial once construction is completed.

- Runway Alternative

  The Runway Alternative requires a shift of approximately 1,657 linear feet of the Owl Creek Bike Path to the west between 13 feet and 58 feet. During construction, there would be temporary access restrictions to Owl Creek Bike Path, but there is likely room in the CDOT ROW to either build a temporary bike path or allow users to use the road for a small section to minimize impacts. Complete closure is estimated to be about 6-9 months but with phasing and temporary routing, the bike path and/or road should be able to remain open during the majority of this time to minimize impacts. While Owl Creek may be closed for minor durations, these impacts would be temporary and would not be significant. Additionally, adequate notice will be provided prior to closure of the trail. ASE coordinated with users/owners of the bike path and found that the relocation of the bike path would not constitute a negative effect on the bike path, its uses, or its users.

  Noise contours would shift slightly due to the change in fleet mix and the 80-foot runway shift, resulting in the 65 DNL noise contour extending over a small portion of Airport Ranch, a historically eligible property on the west side of ASE, and Owl Creek Bike Path. Airport Ranch is currently on ASE property and subject to the noise and activity associated with airport use. The slight change in the noise contours would not result in significant impacts to this resource. The 65 DNL noise contour already encompasses portions of the Owl Creek Bike Path. Because this bike path is currently subject to this level of noise associated with ASE, the slight shift in noise would not substantially impair the use of this resource.

  The FAA has determined that the proposed project will result in a *de minimis* impact to the Owl Creek Bike Path. A de minimis impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in a determination that the project would not adversely affect the activities, features, or attributes qualifying the resource for protection under Section 4(f). The FAA informed Pitkin County of the intent to make a *de minimis* impact determination and Pitkin County concurred with the determination in an email dated March 4, 2018 (Appendix 4 of the FEA).

E. Hazardous Materials, Solid Waste and Pollution Prevention (Section 4.7 of FEA)

- No Action Alternative

  The No Action alternative does not include construction and would not generate hazardous wastes or additional pollution. It also would not result in a change in volume of the existing solid waste.

- Terminal Alternative
  - Hazardous Materials

    The Terminal Alternative would occur in an area that has no known hazardous sites. Construction activities can sometimes generate hazardous wastes and some construction materials consist of hazardous substances. Any hazardous waste materials generated during construction of the Terminal Alternative would be sent to an appropriately permitted facility.

  - Solid Waste

    The increase in terminal square footage is intended to meet existing passenger needs and therefore is not expected to result in additional waste creation or create additional solid waste streams in the long term. Construction activities would create temporary increases in construction and demolition waste; however, this increase would be short-term and would not put undue strain on land disposal services, as the facility still has a 15-year lifespan. These construction activities would be temporary, non-significant and reduced through best management practices and the use of ASE's Sustainable Construction Management Plan.

  - Pollution Prevention

    ASE implements several best management practices to address pollution prevention initiatives. These include maintaining and updating a site-specific spill prevention control and countermeasure plan, SWMP, and properly handling and storing hazardous materials. Pitkin County provides large recycling containers for the collection of cans, bottles, office paper, and newspapers inside ASE buildings and this would be extended into the new terminal building. The staff at ASE is responsible for the collection of the recyclable materials.

- Runway Alternative

  The Runway Alternative occurs in an area that has been previously disturbed and contains no known hazardous material sites. The airfield improvements would not result in notable increases in the generation or handling of hazardous materials or solid wastes. There is a potential for a temporary increase of solid waste as a result of construction but the impacts would be temporary and would not put undue strain on the landfill. ASE's Sustainable Construction Management Plan will be utilized. There is also a potential for removal of fill from the site. Per the Sustainable Construction Management Plan, the contractor may be able to re-use this fill in the area. If such a re-use is not found, the contractor would likely need to truck it to a disposal site down valley at an appropriately permitted facility.

F. *Historical, Architectural, Archeological and Cultural Resources (Section 4.8 of the FEA)*

- No Action Alternative

  The No Action Alternative would result in no development activities. Therefore, no direct impacts relative to archaeological, architectural, cultural, or historic sites would occur.

- Terminal Alternative

  The existing terminal would be demolished when the new terminal is constructed. None of the existing buildings that would be affected by the terminal area projects are eligible for listing on the NRHP. All terminal projects occur on the east side of ASE and would not affect the Airport Ranch. The FAA issued a No Historic Properties Affected finding on November 17, 2016. The Colorado SHPO requested additional information on Airport Ranch in relation to the proposed projects. The FAA provided this information in an updated No Historic Properties Affected finding on January 31, 2017. The SHPO concurred with the finding in a letter dated February 6, 2017 (Appendix 3 of the FEA).

- Runway Alternative

  The Runway Alternative would not impact the closest historic resource, Airport Ranch, which is outside the disturbance footprint for this project. The 80-foot lateral shift of the runway would cause a shift in noise contours 80 feet closer to the Airport Ranch. However, since Airport Ranch is currently on ASE property and it is subject to the noise and activity associated with that use, it would not change the character of the property. The FAA issued a No Historic Properties Affected finding on November 17, 2016. The Colorado SHPO requested additional information on the Airport Ranch in relation to the proposed projects. The FAA provided this information in an updated No Historic Properties Affected finding on January 31, 2017. The SHPO concurred with the finding in a letter dated February 6, 2017 (Appendix 3 of the FEA).

G. *Land Use (Section 4.9 of the FEA)*

- No Action Alternative

  The No Action Alternative would have no adverse impacts on land use compatibility surrounding ASE.

- Terminal Alternative

  The Terminal Alternative includes a relocated and expanded terminal facility, re-configured roadways and parking, and other associated improvements. Implementation of the Terminal Alternative would not result in the disruption of a community, the relocation of residences or businesses, or result in any changes to existing or planned land uses. The Terminal Alternative provide more direct connectivity to the existing mass transit stops, which is a positive impact of the proposed terminal project.

- Runway Alternative

  The Runway Alternative is located almost entirely on ASE property. However, it would require the slight relocation of Owl Creek Road and the Owl Creek Bike Path, which are located on CDOT property. The road relocation would occur within the CDOT right-of-way and would be considered a compatible land use. Realignment of approximately 1,657 feet of the bike path 13 to 58 feet west of the existing path would not be considered to have a

negative effect on the bike path or its users. No changes to existing land use or zoning codes is anticipated.

H. Natural Resources and Energy Supply (Section 4.10 of the FEA)

- No Action Alternative

  There would be no significant impacts to natural resources or energy supply as a result of the No Action Alternative. The outdated terminal's energy use could negatively affect ASE in the future by continuing to operate on old, more energy intensive systems, which means less efficiency and higher costs. This alternative would restrict newer generation aircraft from flying into ASE. Generally, the newer generation aircraft are more fuel efficient; however, this is not expected to result in significant differences in fuel usage.

- Terminal Alternative

  Construction of the Terminal Alternative would require the use of building materials and water. Materials would be sourced locally, if possible; however, due to the remote nature of the valley, the proposed improvements could result in minor increases in fuel consumption for those materials that must be transported into the valley. This increase would be short-term, temporary, and relatively small compared to the overall amount of resources available. The use of fuel to transport materials in combination with fuel used to power construction vehicles is not anticipated to exceed the existing capacity or future availability of fuel in the area. With the construction of the new terminal, aircraft would taxi to a location approximately 193 feet closer on average than the current terminal, which would result in a minor reduction in the amount of fuel used.

  The proposed terminal improvements represent an increase in square footage compared to the existing terminal. In general, it is assumed that larger square footage would require additional energy for heating, cooling and lighting. However, in this case, the existing terminal is old and relies on outdated energy systems and technology. It is anticipated that, while the overall energy consumption of the proposed larger terminal might increase, it could be partially offset by more efficient technology. The efficiency of the terminal would be improved by incorporating state of the art technology and building innovations and with ASE's commitment to purchasing renewable wind power. Any potential increase in energy use is not expected to exceed existing or future available resources.

- Runway Alternative

  The Runway Alternative would not change energy consumption on the airfield. The shift of the runway 80 feet to the west would result in slightly longer taxi distance (160 feet on average for total taxi distance). However, this increase in taxiing distance would not significantly impact fuel use. The impacts associated with the increase taxiing distance may be offset with the introduction of newer generation aircraft. It is predicted that over time these aircraft would be more efficient than the existing aircraft; therefore, there would not be a significant increase in use of aviation fuel at ASE related to this project.

  Similar to the Terminal Alternative, materials would be locally sourced, if possible, but may be transported in, if necessary. Due to the remote nature of the valley, the transportation of the materials could result in an increase of fuel consumption. The increase in fuel

consumption would be short-term, temporary, and relatively small compared to the overall amount of resources available.

I. Noise and Compatible Land Use (Section 4.11 of the FEA)

- No Action Alternative

  The No Action would not result in operational changes at ASE; therefore, there would be no changes to the average annual noise contours. However, there is the potential for a change in noise due to a change in fleet mix with the phase out of CRJ-700. The 65 DNL contour would encompass 165.2 acres in 2023 (Figure 4.11-2), 163.9 acres in 2028 (Figure 4.11-5), and 162.3 acres in 2033 (Figure 4.11-6). No noise-sensitive land uses are located within the 65 DNL contour. Noise levels would not increase noise by 1.5 dB or more for a noise-sensitive area within the 65 DNL or higher contour.

- Terminal Alternative

  As with the No Action Terminal Alternative, there would be no operational changes, and there would be no significant noise impacts. The proposed alternatives would result in short-term noise increases from construction activities, but these are expected to be short term, and not significant. The noise contours would be the same as the No Action for 2023 (the 65 DNL would encompass 165.2 acres – Figure 4.11-2). No noise-sensitive land uses are located within the 65 DNL contour. Noise levels would not increase noise by 1.5 dB or more for a noise-sensitive area within the 65 DNL or higher contour

  The Terminal Alternative includes the construction of a noise wall/berm on the ramp between the aircraft parking area and the North 40 community. These areas are not within the 65 DNL noise contour. The noise wall will reduce single-event noise from aircraft ground operations (running APUs to provide power to the aircraft when the engines are off) for the residences close to ASE on the other side of Highway 82. The noise wall analysis used an acoustical planning and modeling program called SoundPLAN (Version 7.4), created by Braunstein & Berndt GmbH. A 14-foot wall is proposed based on the height of an APU mounted on a tail of a business jet (no more than 10-12 feet above ground).

- Runway Alternative

  Shifting the runway to meet FAA design standards would remove the current restrictions and allow all D-III aircraft to fly into ASE. The CRJ-700 would likely be replaced by a mix of next generation regional jets such as the CS100. Discussions with air carriers have indicated that the 737-MAX could potentially operate out of ASE with the runway shift, but would likely operate under payload restrictions in certain conditions. While no air carrier has officially expressed interest in operating the 737-MAX out of ASE, the aircraft was included in the noise analysis given the potential for it being used in the reasonably foreseeable future.

  The INM program does not contain noise profiles for new generation aircraft, including the Bombardier CS100 and Boeing 737-MAX; therefore, FAA-approved substitution aircraft were used to more accurately model noise.

  The proposed alternatives would result in short-term noise increases from construction activities, but these are expected to be short term, and not significant.

The first year of implementation (2028) assumes a phase-in of regional jets with a wingspan greater than 95 feet. For this scenario, the modeling assumed continued use of turboprops, a reduction in the CRJ-700 (as it starts to be phased out of the fleet), and a small number of narrow-body commercial jet (Boeing 737-MAX). Compared to the 2028 No Action, there would be an increase in the 65 DNL contour of 7.6 acres for a total of 171.4 acres. There are no noise sensitive land uses located in the 65 or greater DNL contour and the alternative would not increase noise by 1.5 dB or more over a noise sensitive area within the 65 DNL or higher contours; therefore, the noise impacts would not be significant.

The out year (2033) conditions assume a small number of turboprops will still be flying, with the majority of air carrier operations using new generation regional jets with wingspans greater than 95 feet and a small number of narrow-body commercial jet operations. Compared to the 2033 No Action, there would be an increase in the 65 DNL contour of 12.6 acres for a total of 174.9 acres. This action would not increase noise by 1.5 dB or more for a noise-sensitive area within the 65 DNL or higher contours given there are no noise sensitive land uses located in the 65 or greater DNL contour; therefore, there would be no significant impact.

J. Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risk (Section 4.12 of FEA)

- No Action Alternative

  The No Action Alternative would not improve the terminal nor would it allow lifting of the existing aircraft restrictions. While the No Action would have no adverse impacts on children's health or environmental justice, there could be negative socioeconomic impacts. The terminal would continue to operate with spatial constraints, which could have a negative impact on tourism. The runway would continue to operate under the use restrictions and, as a result, commercial service would be impacted. This would likely result in a form of reduced commercial service to ASE. Some commercial service would likely continue in the future case, but it would need to be operated exclusively by turboprops. The economy in the Aspen/Snowmass Village area relies heavily on tourism and the transportation network. This could translate to an economic loss of nearly $90 million annually by 2033, with the greatest impact on tourism sectors of the economy. This was calculated using the enplanement forecast and the estimate for visitor spending obtained from the 2013 CDOT Economic Impact Study for Colorado Airports. The Impact Study found that 74.4% of commercial airline passengers who arrive at ASE are visitors. Since retail sales tax is a major component of local government general fund revenues, government services and employment could also be affected; therefore, the restriction of commercial jet service in the future could result in negative socioeconomic impacts to the area.

- Terminal Alternative
  - Socioeconomic Impacts

    The new terminal and associated terminal area projects are not anticipated to have any negative direct or indirect socioeconomic impacts during construction. Access to businesses on the east side of ASE and at the Airport Business Center (ABC) would be

maintained through construction. The existing terminal would remain open during construction of the new terminal. Therefore, any of the businesses within the terminal itself would not be significantly affected. There would be temporary positive socioeconomic impacts during construction by increasing employment opportunities and expenditures on local services and materials.

The Terminal Alternative would provide minor long-term positive socioeconomic impacts due to expanded concessions and increased visitor use. Since the Terminal Alternative is not expected to significantly increase the number of employees who work at ASE, no appreciable burden on the existing housing inventory is anticipated.

- Environmental Justice.
  Terminal replacement would not increase noise, rather it would result in only a slight change to the location of ground related noise due to the change in the air carrier aircraft apron parking configuration. Additionally, the Terminal Alternative would include a noise wall that would help reduce the single event ground noise levels from Auxiliary Power Unit use on the general aviation apron area; therefore, the Terminal Alternative is not expected to result in any substantial negative or otherwise disproportionate impacts to any specific population groups.
- Children's Environmental Health and Safety Risks.
  There are no schools, parks, or playgrounds within the Study Area or within the 65 DNL or greater noise contour that might be affected by noise or other impacts associated with the proposed Terminal Alternative; therefore, impacts to children's environmental health and safety are not expected.

- Runway Alternative
  - Socioeconomic Impacts
    Businesses at ASE would not be negatively impacted by construction because no on-airport development areas or airport access would be affected. Traffic on Owl Creek Road from construction activities could be affected temporarily, but it would not affect any businesses. Temporary positive socioeconomic impacts during construction include an increase in employment opportunities and spending on local services and materials.

    This alternative would likely have significant positive socioeconomic effects. The ability for commercial airlines to operate D-III aircraft without any restrictions would allow continued growth in tourism, which is the primary economic driver in the region. The growth in enplanements would also generate economic benefits as a result of the dollars spent in the local economy. By 2028 the runway relocation could result in an increase of 46,574 annual visitors with an initial off-airport economic benefit of approximately $107,166,000. By 2033 the initial economic benefit of the runway relocation could rise to nearly $170,712,000. This was calculated using the enplanement forecast and the estimate for visitor spending obtained from the 2013 CDOT Economic Impact Study for Colorado Airports.

    There is limited room to accommodate additional visitors in the existing lodging inventory based on historic occupancy data. However, additional lodging facilities have

received development approvals in both Aspen and Snowmass Village. In addition, there has been significant growth in the number of Rent-By-Owner (RBO) units. Comparing the combined monthly practical capacity shows that the capacity of the RBO units and the future lodging units is nearly double the number of potential new lodging guests, even for the peak months in 2033. Therefore, the proposed runway shift would not exceed the future capacity of the Aspen/Snowmass Area lodging inventory and would not create development pressure for additional lodging units.

- Environmental Justice
  There would be no negative noise or relocation impacts on any population groups. The Runway shift would change the fleet mix to the newer commercial service aircraft, which are generally quieter than their CRJ-700 predecessors; therefore, the Runway Alternative is not expected to result in any substantial negative or otherwise disproportionate impacts to any specific population groups within the Study Area.
- Children's Environmental Health and Safety Risks
  The Runway Alternative is not expected to result in any environmental health risks or safety risks for children. No schools, parks, or playgrounds are within the Study Area or within the 65 DNL or greater noise contour that might be affected by noise or other impacts associated with the Runway Alternative.

K. Visual Effect (Section 4.15 of the FEA)

- No Action Alternative
  The No Action Alternative would not alter the existing lighting patterns or visual environment at ASE.
- Terminal Alternative
  To reduce visual impact to the community, the design of the terminal facility would reflect the community vision, incorporating colors and textures that fit into the landscape visually and aesthetically by complementing the surrounding area. Landscaped areas and a potential green roof would provide aesthetic views from vantage points outside of the terminal. Sky-lights and large windows would optimize daylight within the terminal and provide scenic views of Buttermilk Ski Area for travelers inside the terminal.

  The greater expanse of pavement associated with roadway and parking reconfiguration would not have a significant impact on visual quality, as it would be similar to the existing visual character of ASE. Existing trees would be kept to the extent possible to screen changes from Highway 82. Light emissions associated with the proposed terminal area improvements would be similar to those of the existing terminal. Neither would impede any scenic views and would not diminish the existing character of the area.

  Short-term, temporary visual impacts would occur during construction of the terminal area improvements. These impacts would include views of construction equipment, placement of fill, and construction related light emissions.
- Runway Alternative
  The shifted runway, equipment, and lighting and widened runway would be similar in appearance to existing conditions. The NAVAIDS and lighting would not change significantly

and would be re-located to maintain a similar relationship to the runway. The potential new location of these elements would be closer to the west side of ASE; therefore, these elements could be more visible to viewpoints west of ASE. The visual character would not change drastically from existing conditions; therefore, these improvements are not expected to result in any significant impacts.

Relocation of the perimeter road, Owl Creek Road, and Bike Path and the piping of Owl Creek would not result in significant impacts to visual character. The visual appearance of these elements would not change, and would therefore not have any significant impacts on the visual environment. Temporary impacts to visual resources could result from construction activities. However, these impacts would not be significant.

L. Water Resources (Section 4.14 of FEA)

- No Action Alternative

  This alternative does not include any development and therefore, would not adversely impact any wetlands, floodplains, or water resources.

- Terminal Alternative

  The Terminal Alternative is proposed in a previously disturbed area on the east side. No wetlands, floodplains, or other water resources are located within this area. Therefore, there wouldn't be any direct impacts on wetlands, floodplains, or other water resources.

  The Terminal Alternative would result in a slight increase in impervious surface on the east side due to a larger terminal footprint and the larger apron size. Stormwater runoff from paved airport surfaces typically contains low concentrations of some metals, petroleum compounds, rubber and rubber removal compounds, and airplane and pavement deicers. The deicing pad runoff would continue to flow into an underground storage tank. During non-deicing storm events, stormwater will be captured in a subsurface drainage system that ties to a new trench drain and drain line that will also capture the flows on the commercial ramp. This stormwater will flow to the north and be directed to a drainage feature that will be installed just south of the existing terminal building. This drainage feature will comply with the FAA wildlife Advisory Circular. This alternative would require a change to the NPDES Permit for ASE in the project area to account for the increase in stormwater runoff and to meet stormwater runoff requirements. An update to ASE's SWMP for industrial stormwater will likely be required.

  All necessary permits and approvals for the project would be obtained before construction activities take place.

- Runway Alternative

  The Runway Alternative would slightly change the drainage patterns, but would not substantially change or impact the existing drainage system or the aquifers on or near ASE property. Relocating and widening the runway would alter the stormwater runoff slightly, but the design and permitting would account for the change in impervious surface. The NPDES Permit and the SWMP would need to be updated to reflect the changes. This alternative would not impact water quality standards, contaminate public drinking water, or contaminate an aquifer used for public water.

The project includes the piping of 1,670 feet of Owl Creek, a Water of the US. Sections of Owl Creek on either side of the runway within airport property would be impacted. Piping of Owl Creek will result in the loss of open water and disturb vegetation. Since the piping of Owl Creek will reduce sedimentation and wildlife hazards, this is viewed as beneficial. However, piping Owl Creek will also reduce access to 1,670 LF of Owl Creek. Organisms that cannot access the piped section of the creek are likely to migrate to habitat that is of better quality and adjacent to the piped section. Impacts to Owl Creek warrant an Individual Permit under the Clean Water Act, per discussions with USACE, due to the length of stream that will be placed in a culvert.

The Runway Alternative would also result in direct impacts to the Owl Creek floodplains with the piping of Owl Creek. The piping would be designed to maintain the conveyance and storage capacity of the existing floodplain. Coordination with FEMA will be maintained throughout the project to avoid and minimize impacts to floodplains. Despite the proposed floodplain modifications, the existing drainage patterns downstream of ASE (i.e., Roaring Fork) will not be changed as a result of the proposed project. The proposed project would not result in significant impacts to the floodplain because they would not result in (1) a considerable probability of loss of human life, (2) likely future damage associated with the encroachment that could be substantial in cost or extent, or (3) a notable adverse impact on the floodplain's natural and beneficial floodplain values.

No wetlands would be impacted as a result of the Runway Alternative.

M. Traffic Study (Section 4.15 of the FEA)

- No Action Alternative

  The No Action Alternative would not result in a substantial change to the traffic conditions. Vehicle movements would increase in the future due to the anticipated projected growth at ASE that would occur with or without the proposed projects. The No Action would represent a reduction in enplanements compared to Runway Alternative due to the reduction in commercial jet service, as the CRJ-700s are slowly phased out of the commercial fleet over time. As the CRJ-700s are phased out, they would be replaced with turboprops and other GA jets that fit within the wingspan restriction, reducing the overall enplanements compared to Runway Alternative in both the 2028 and 2033 scenarios; therefore, the No Action Alternative would have no significant effect on traffic conditions.

- Terminal Alternative

  The potential impacts of the No Action and the Terminal Alternative would be the same since the proposed terminal improvements would not have any impact on the number of enplanements at ASE. Similar to the No Action Alternative, vehicle movements would increase in the future due to more enplanements; however, these increases are expected to occur whether or not the terminal improvements are implemented. The Terminal Alternative would have no significant impact on traffic conditions. .

  Minor modifications to the surface traffic routing at ASE could occur with implementation of the Terminal Alternative, but the airport roads would tie into existing intersections and would not substantially alter the traffic accessing ASE. It is anticipated that more people

will use rideshare, public transit, shuttles or taxis to ASE since auto parking will not be expanded as part of the proposed project. This should not substantially impact traffic (though it may have a small reduction in trips), it could add to circling time if people who wish to park cannot find a spot.

There would be short-term impacts to traffic relative to construction activities. Routes used for the transportation of materials or construction equipment to ASE would be selected to minimize impacts to the local surface transportation network. Additionally, the contractor would use standard construction traffic techniques to maintain traffic during construction and follow the ASE Sustainable Construction Management Plan for ASE.

Overall, implementation of the Terminal Alternative would not have a significant effect on surface transportation in either 2023 or in the out year of 2028.

- Runway Alternative

  The Runway Alternative would result in temporary changes to the traffic patterns on Owl Creek Road during construction. However, these impacts would be temporary and not significant. Routes used for the transportation of materials or construction equipment on the surface roads to ASE would be selected to minimize impacts to the local surface transportation network. Additionally, the contractor would use standard construction traffic techniques to maintain traffic during construction and follow ASE's Sustainable Construction Management Plan.

  The proposed Runway Alternative would have a higher number of enplanements compared to the No Action Alternative. While the total number of operations would be consistent, enplanements would be higher than the No Action due to the phasing out of commercial aircraft in the No Action scenario. These enplanements would represent additional trips on the roadways and intersections on and surrounding ASE. Additionally, the Runway Alternative would relocate Owl Creek Road. However, this relocation is within the existing CDOT right of way and would not result in any significant impacts.

  In 2028, passenger trips are anticipated to result in an average 1,181 daily vehicle trips including 188 peak-hour trips compared to 1,032 daily vehicle trips including 164 peak-hour trips. The Baltic Avenue and CO-82 intersection would continue to operate at an LOS D with an average delay of 50.1 seconds per vehicle. Because the LOS remains the same, the implementation of the runway improvements would not have a significant impact on the surrounding surface transportation network.

  In 2033, passenger trips are anticipated to result in an average 1,329 daily vehicle trips including 211 peak-hour trips compared to 1,121 daily trips including 178 peak hour trips under the No Action Alternative. The Baltic Avenue and CO-82 intersection is forecast to operate at an LOS E with an average delay of 61.1 seconds per vehicle. An LOS E reflects an intersection that operates at capacity and is considered typical for an urban, crowded four-way intersection where major traffic movements conflict with turns. Although the LOS will decrease in relation to the No Action (2033) scenario, the intersection will still function. Therefore, it can be determined that the proposed runway improvements would not have a significant impact on the surrounding surface transportation network.

N. Cumulative Impacts (Section 4.16 of the FEA)

To adequately understand the potential environmental affects related to cumulative impacts, it is important to document the past, present, and reasonably foreseeable projects. For purposes of the proposed projects, the review of past projects follows the desk reference guidance, "Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and alternative(s)." Present actions are those that are occurring in the same general time frame that could have cumulative impacts. Reasonably foreseeable projects include actions that are not remote or speculative (generally meaning they are included in planning documents). See Section 4.16.1.1 of the Final EA for the list of past, present, and reasonably foreseeable projects.

Several resources categories would have no impact and therefore would have no potential for cumulative impacts. The categories that are excluded from further discussion are Coastal Resources, Farmlands, Historic Resources, Hazardous Materials, Land Use, and Visual Impacts.

- Air Quality: Because the proposed projects would generate emissions during construction as well as ongoing operational emissions, consideration was given to air quality implications for all past, present, and future actions. The pollutant of concern is PM10 because Pitkin County is in a maintenance area for this pollutant. The proposed terminal and airfield projects are expected to result in short-term construction emissions as well as emissions in the out year, both of which are substantially lower than the *de minimis* threshold for PM10. Other past, present, and reasonably foreseeable projects would add PM10 emissions, but would collectively be small and primarily temporary; therefore, cumulative air quality impacts are not expected to be significant.

- Climate: The cumulative impact of the proposed terminal and airfield projects on the global climate when added to other past, present, and reasonably foreseeable future actions is not currently scientifically predictable. At present, there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO2 emissions. Moreover, there are large uncertainties regarding aviation's impact on climate. Aviation has been calculated to contribute approximately 3% of global CO2 emissions; this contribution may grow to 5% by 2050. Actions are underway within the U.S. and other nations to reduce aviation's contribution through such measures as new aircraft technologies, renewable alternative fuels, more efficient air traffic management, market-based measures and environmental regulations including an aircraft CO2 standard. The U.S. has ambitious goals to achieve carbon-neutral growth for aviation by 2020 compared to a 2005 baseline, and to gain absolute reductions in greenhouse gas emissions by 2050.

- Section 4(f): While the Runway Alternative would require the relocation of the Owl Creek Bike Path, this relocation was determined to not adversely affect the use of the bike path. No 4(f) resources would be significantly affected by noise. When considered with the past, present and reasonably foreseeable projects, there would be no cumulative impacts to Section 4(f) resources as a result of either Proposed Action.

- Socioeconomic: The No Action would result in the loss of commercial service, which would be a substantial impact on the economy of the Roaring Fork Valley. This is unusual in that

in this case, the No Action would provide the largest socioeconomic impact. This impact would likely create induced impacts relative to the economy within the valley. Most of the other past, present and reasonably foreseeable projects in the area (such as the enhancements to roadways, bridges and housing) would provide benefits to the economy. Therefore, the No Action, while it would provide large negative socioeconomic impact in the area, would not have cumulative negative impacts relative to other project as the other projects would generally benefit the economy. The Proposed Actions, when considered with past, present, and reasonably foreseeable future projects, would not result in significant cumulative socioeconomic impact.

- Water Resources: There are no impacts to wetlands under the Proposed Actions; however, 1,670 LF of Owl Creek would be piped as part of the airfield improvements. The projects would occur in areas where the open channel, and riparian and floodplain area of Owl Creek have been maintained to improve safety conditions. The Proposed Actions are not intended to increase capacity; therefore, cumulative impacts to water resources such as increased development near the ASE are unlikely to occur in the present and reasonable future. None of the other past or present projects listed above have had a significant impact on Owl Creek. Additionally, none of the reasonably foreseeable projects would impact Owl Creek. Therefore, there are no known cumulative impacts on Owl Creek as a result of past, present or reasonably foreseeable projects.

Based on the analysis described above, there would be no significant cumulative impacts as a result of the proposed actions.

IX. Environmental Mitigation (Chapter 4 of FEA)

ASE has committed to the following mitigation measures as part of the Preferred Alternatives:

- Complete pre-construction surveys and spatial/seasonal buffers would be utilized to minimize construction impacts to common wildlife and migratory birds. Surveys will be coordinated with the FAA prior to construction.
- Obtain an individual permit for all work within Waters of the US that fall under the jurisdiction of the USACE. All mitigation included in the permit that is approved by the USACE will be completed in accordance with the terms of the permit.
- Ensure no vehicle or material storage occurs in wetland areas or other sensitive areas.
- Utilize phasing and temporary routing to minimize closures to the Owl Creek Trail and/or Owl Creek Road. Adequate notice will be provided prior to any closure of the Owl Creek Trail and/or Owl Creek Road.
- Design the piping of Owl Creek to maintain flood storage capacity on ASE property.
- Include Best Management Practices (BMPs) to limit construction impacts. The contractor would be required to carry out dust and erosion control procedures, such as watering to control dust, seeding with a temporary cover crop in work areas that are temporarily inactive, and installation/maintenance of silt fence. This also includes the installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality in Owl Creek. These requirements would be included in

the project drawings and specifications under the FAA standard specification Item P-156, "Temporary Air and Water Pollution, Soil Erosion, and Siltation Control" (AC 150/5370-10).

- Update the SWMP in association with the NPDES Construction Permit.
- Mitigate water quality impacts including flow control and treatment BMPs in accordance with federal, state, and local regulations.
- Design all water drainage/treatment features to meet FAA AC 150/5200-33B (*Hazardous Wildlife Attractants On or Near Airports*).
- All phases of construction would be performed in accordance with FAA AC 150/5370-10, Standards for Specifying Construction of Airports.
- Contaminated soil and water will be handled and disposed of in accordance with applicable federal, state and/or local regulations.
- In the event that cultural or archaeological resources are discovered during construction, all work will stop until ASE notifies SHPO and the FAA Denver Airports District Office (DEN-ADO). ASE shall protect the area until cultural/archaeological resource concerns have been appropriately addressed, and ASE shall take action to comply with the National Historic Preservation Act, the Native American Graves Protection and Repatriation Act, and the Archaeological Resources Protection Act, as appropriate.
- During construction, in the event that previously unknown contaminants are discovered or if a reportable spill occurs, work shall cease until ASE notifies appropriate local, state, and Federal agencies.

The following mitigation is voluntary and may be implemented by ASE:

- Odors from vehicle emissions during construction would be controlled by muffler systems on the vehicles.
- Dust from construction activities would be controlled by the use of a water truck that will water the construction site at least once daily.
- Emissions from equipment and vehicles would not exceed state and national air quality standards.
- Construction equipment engines would be turned off when idle for more than 5 minutes.
- New terminal will meet current building code (which will be substantially more energy efficient than the 1971 terminal that it will replace).
- Partnerships with Rocky Mountain Institute (as part of the design committee).
- Consideration of energy efficiencies in building design, and when selecting materials and energy sources (i.e., renewable and geothermal energy sources).
- Improve airside geometry (i.e., ramp configuration), which currently has sloping pavement – making this flat will improve push in and push out of aircraft.
- Use of energy-efficient methods throughout the construction period.
- Maximize the use of natural lighting, LEDs and other energy reducing technologies in the terminal and other airport facilities.
- Contractors will adhere to ASE's Sustainable Construction Management Plan.

- Construction of a noise wall to help reduce existing single event noise from the general aviation apron.
- Final design would need to go through local approvals and meet local planning standards, including the Airport Design Guidelines and the Highway 82 Corridor Plan Standards.

X. Public and Agency Coordination

Public involvement is a vital component of the NEPA process. The EA started with scoping in 2015 that included the development of a Community Input Committee (CIC). CIC and public meetings occurred on February 23, 2015; April 16, 2015; September 10, 2015; October 22, 2015; February 16/17, 2016; September 29, 2016 and January 19, 2017. Five notices for each public meeting were placed in the local papers, online, via radio on the local station, as well as through social media and press releases. Comments were accepted at all these meetings. Presentations to the BOCC were made throughout the project and these meetings were open to the public. Pitkin Connect Online Public Town Hall was utilized throughout the process to gather input on various topics. The Draft EA was released for agency and public review on August 23, 2017. Comments were accepted through October 3, 2017. To facilitate comments, public hearings were held on September 25 and 26, 2017. 30 comments from the public were received during the public comment period. Outreach materials, comments, notices of the meetings, and responses to comments are contained within Appendix 11 of the FEA.

XI. Agency Findings

The FAA makes the following determinations for the project based upon careful review of the attached FEA, comments received on the Draft EA, the supporting administrative record, and appropriate supporting information.

The following determinations are prescribed by the statutory provisions set forth in the Airport and Airway Improvement Act of 1982, as codified in 49 USC §47106 and 47107.

A. *The Project is reasonably consistent with existing plans of public agencies for development of the area surrounding the airport (49 USC §47106(a)(1)).*

The determination prescribed by this statutory provision is a precondition to agency approval of project grant funding applications. Extensive coordination regarding the Preferred Alternative has taken place among federal, state and local agencies. The Preferred Alternative is not in conflict with the comprehensive planning and goals of Pitkin County or the Town of Aspen. Evidence of public and agency coordination can be found in Appendices 4, 8, 9 and 11 of the FEA.

The Pitkin County Planning Commission is authorized to institute zoning regulations by e 1973 Colorado Revised Statutes, Title 30, Article 28, Section 111, Title 24, Article 65.1, Section 101, and Title 24, Article 67, Section 101, et. seq. as amended and are hereby declared to be in accordance with all provisions of these statutes. ASE is encumbered by five different zone districts: PUB, P-I, AR-2, AR-10, and RS-20. Pitkin County Land Use Code provides the restrictions that are included with these zoning designations.

B. *The interests of the community in or near which the project may be located have been given fair consideration (49 USC §47106(b)(2)).*

The determination prescribed by this statutory provision is a precondition to agency approval of airport development project grant funding applications. The Draft EA was published and made available for public review on August 23, 2017. The Airport Sponsor held public hearings on September 25 and 26, 2017, after the release of the Draft EA (Appendix 11). The public comment period ran from August 23, 2017 – October 3, 2017. Comments were received and responses were completed. In addition, the project has been discussed at numerous public meetings over the three years:

- Public Meetings/Open Houses: February 2015, March 2015, April 2015, September 2015, October 2015, February 2016, September 2016, January 2017 and September 2017.
- Community Impact Community Meetings: February 2015, September 2015, October 2015, February 2016, September 2016, and January 2017.
- Board of County Commissioners Meetings (open to the public): January 2015, September 2015, December 2015, April 2016, December 2016, July 2017, and November 2017.

Pitkin County, the Town of Aspen, and ASE all recognize that the Preferred Alternative has the potential to provide economic benefits to ASE, the County and the Town by providing reliable commercial service in the future.

C. *The airport sponsor has taken, or will take, actions to restrict land use in the airport vicinity, including adoption of zoning laws, to ensure the uses are compatible with airport operations (49 USC §47107(a)(10)).*

The determination prescribed by this statutory provision is a precondition to agency approval of airport development project grant funding applications. As a recipient of AIP funding, the Airport Sponsor has signed grant assurances that require them to take appropriate action, to the extent reasonable, including the adoption of zoning laws, 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. The Pitkin County Planning Commission is authorized to institute zoning regulations by e 1973 Colorado Revised Statutes, Title 30, Article 28, Section 111, Title 24, Article 65.1, Section 101, and Title 24, Article 67, Section 101, et. seq. The Pitkin County Planning Commission has designated five different zoning districts within ASE property: PUB, P-I, AR-2, AR-10, and RS-20. Pitkin County Land Use Code provides the restrictions that are included with these zoning designations.

XII. Decision and Order

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action, namely the Preferred Alternative, is consistent with existing national environmental policies and objectives as set forth in Section 101 (a) of NEPA and other applicable environmental requirements and is not a major federal action significantly affecting the quality of the human environment or otherwise, including any condition requiring consultation pursuant to Section 102(2)(c) of NEPA. As a result, the FAA will not prepare an Environmental Impact Statement.

This decision does not constitute a commitment of funds under the Airport Improvement Program (AIP); however, it does fulfill the environmental prerequisites to approve applications for grants of AIP funds for the proposed project in the future. (49 U.S.C § 47101)

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve and direct that agency action be taken to carry out implementation of the Preferred Alternative

David C. Suomi — July 19, 2018

David C. Suomi
Regional Administrator
FAA Northwest Mountain Region

Date

Right of Appeal

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to the exclusive judicial review under 49 USC § 46110 by the US Circuit Court of Appeals for the District of Columbia or the US Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate US Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 USC § 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.

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Chapter 1 - Background and Proposed Action

Pitkin County, as owner and operator of Aspen/Pitkin County Airport (ASE), is proposing improvements to ASE. These improvement projects require a modification to the Airport Layout Plan (ALP)[1]. In addition, the County will seek federal funding assistance. Both actions, approval of the ALP and federal funding, are considered federal actions. Other federal actions include the movement of the navigational aids and revised procedures. Pursuant the requirements of the National Environmental Policy Act of 1969 (NEPA), the approving federal agency must disclose the environmental consequences of the action(s) before a federal action can be undertaken. The Federal Aviation Administration (FAA) is the responsible federal agency for these projects. To disclose any potential environmental consequences of the proposed actions, this Draft Environmental Assessment (EA) has been prepared in accordance with Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 CFR 1500-1508), FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions.*

This EA includes the following components:

- Chapter 1: Background and Proposed Action;
- Chapter 2: Purpose and Need;
- Chapter 3: Alternatives;
- Chapter 4: Affected Environment and Environmental Consequences; and
- Chapter 5: Preparers.

This chapter provides background on the proposed actions and the existing airport facilities related to the proposed actions.

1.1 Proposed Projects

This EA evaluates the potential impacts related to projects and actions proposed by the Airport Sponsor (Pitkin County) for FAA approval. These projects, which are shown in **Figure 1-1,** include:

- Shifting the runway 80 feet to the west, widening the runway to 150 feet, strengthening to allow up to 150,000 pounds landing weight and associated projects including but not limited to:
    - Realignment of the perimeter road and Owl Creek Road and Bike Path within the Colorado Department of Transportation (CDOT) right-of-way
    - Relocation of associated Navigational Aids (NAVAIDs), and runway/taxiway lighting
    - Change of the wingspan and aircraft weight restriction policy implemented by the County in 2001 (removing the current restrictions, and allowing aircraft up to 118 feet wingspan and with an aircraft weight up to 150,000 pound per FAA design group D-III)
    - Piping of Owl Creek
    - Amending flight procedures to accommodate the shift in runway location

[1] An ALP graphically shows existing airport facilities as well as proposed long-term improvements

- Terminal Area Improvements
    - Construction of a replacement terminal
    - Construction of associated parking
    - Re-configuration of the terminal roadway and recirculation roadway
    - Integration of the passenger terminal with public transit
    - Relocation of ancillary facilities, such as rental car facilities
    - Demolition of existing passenger terminal facilities
    - Commercial service aircraft apron expansion
    - Construction of a noise barrier along the general aviation (GA) apron area

1.2 Airport Information

ASE is located about three miles northwest of Aspen's Central Business District, within Pitkin County, Colorado. ASE is situated west of Highway 82 on the northern limits of the Aspen Area Urban Growth Area. **Figure 1-2**, *AIRPORT LOCATION MAP*, illustrates ASE's location with respect to the surrounding cities within the valley. Basalt, Carbondale, and Glenwood Springs are located north and west of Aspen, with Independence Pass located east of the City of Aspen, that provides summer access to Denver. **Figure 1-3**, *AIRPORT VICINITY MAP*, shows a more detailed drawing of the surrounding airport environs. ASE has an elevation of 7,820 feet above mean sea level (AMSL).

The City of Aspen is the county seat and the most populous municipality of Pitkin County. Based on the 2010 Census, the city population was 6,658, and that increases significantly during the winter, as the Aspen area is an internationally recognized ski resort, and during certain summer events. Aspen is situated in a remote area of the Rocky Mountains' Sawatch Range and Elk Mountains, along the Roaring Fork River on the Western Slope, 11 miles west of the Continental Divide.

The Proposed Actions are illustrated on Figure 1-1 in the Final EA. During the development of the Final EA is was discovered that Figure 1-1 did not include the entire proposed project. A portion of one of the navigational aids (the Medium Intensity Approach Lighting System with Sequenced Flashing Lights (MALSF)) which will be relocated as part of this project was not included on the figure though it was included in the analysis in the EA. Figure 1-1 has been updated to reflect the correct project boundary and study area which includes the entire MALSF lighting. In addition, the following figures were also updated to accurately reflect the study areas analyzed: Figure 3-1, Figure 3-4, Figure 4.2-1, Figure 4.6-1, Figure 4.8-1, Figure 4.14-1, Figure 4.14-2 and Figure 4.14-3.

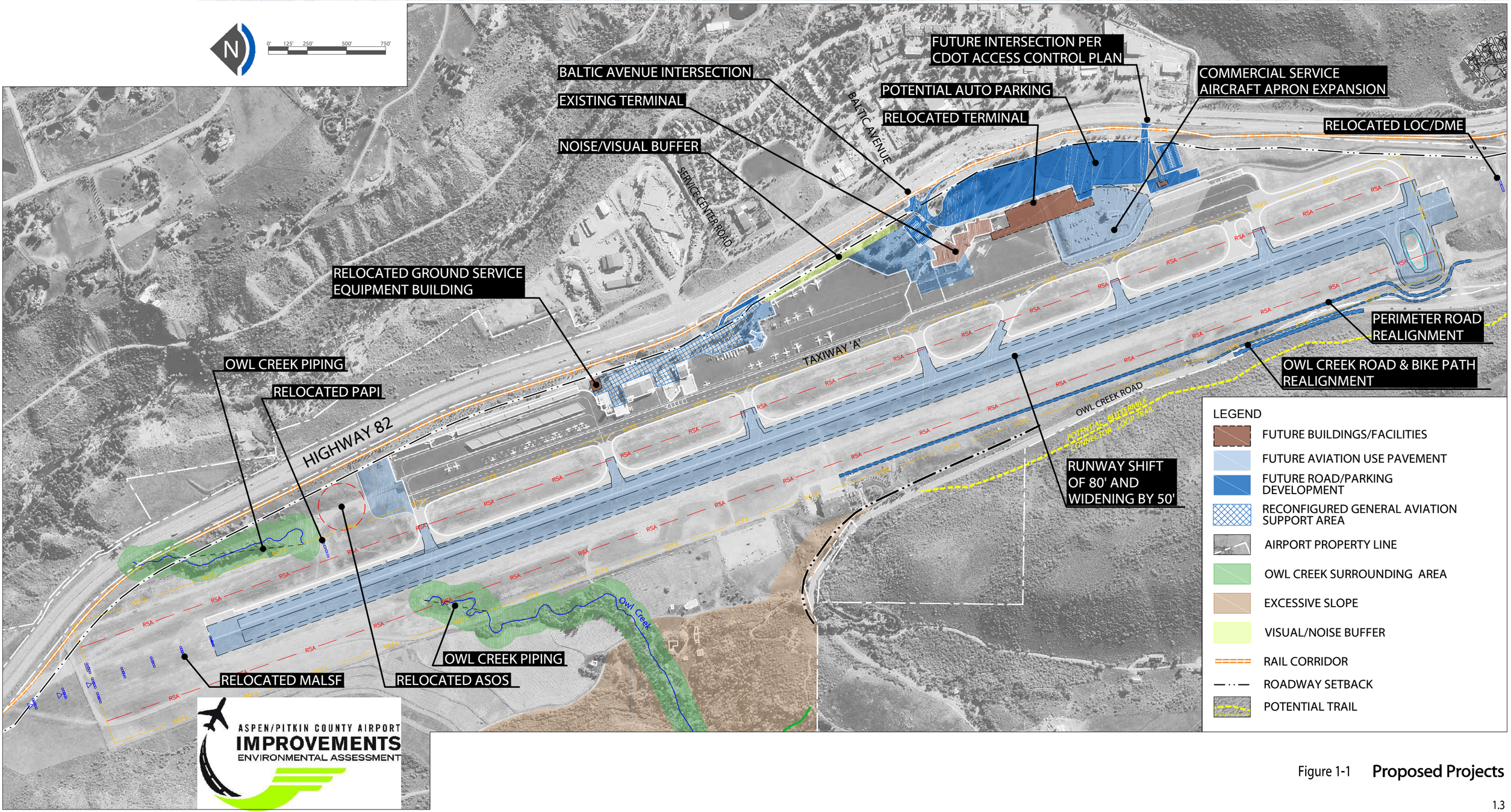

Figure 1-1 **Proposed Projects**

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SOURCE : Google Map Data, 2016.

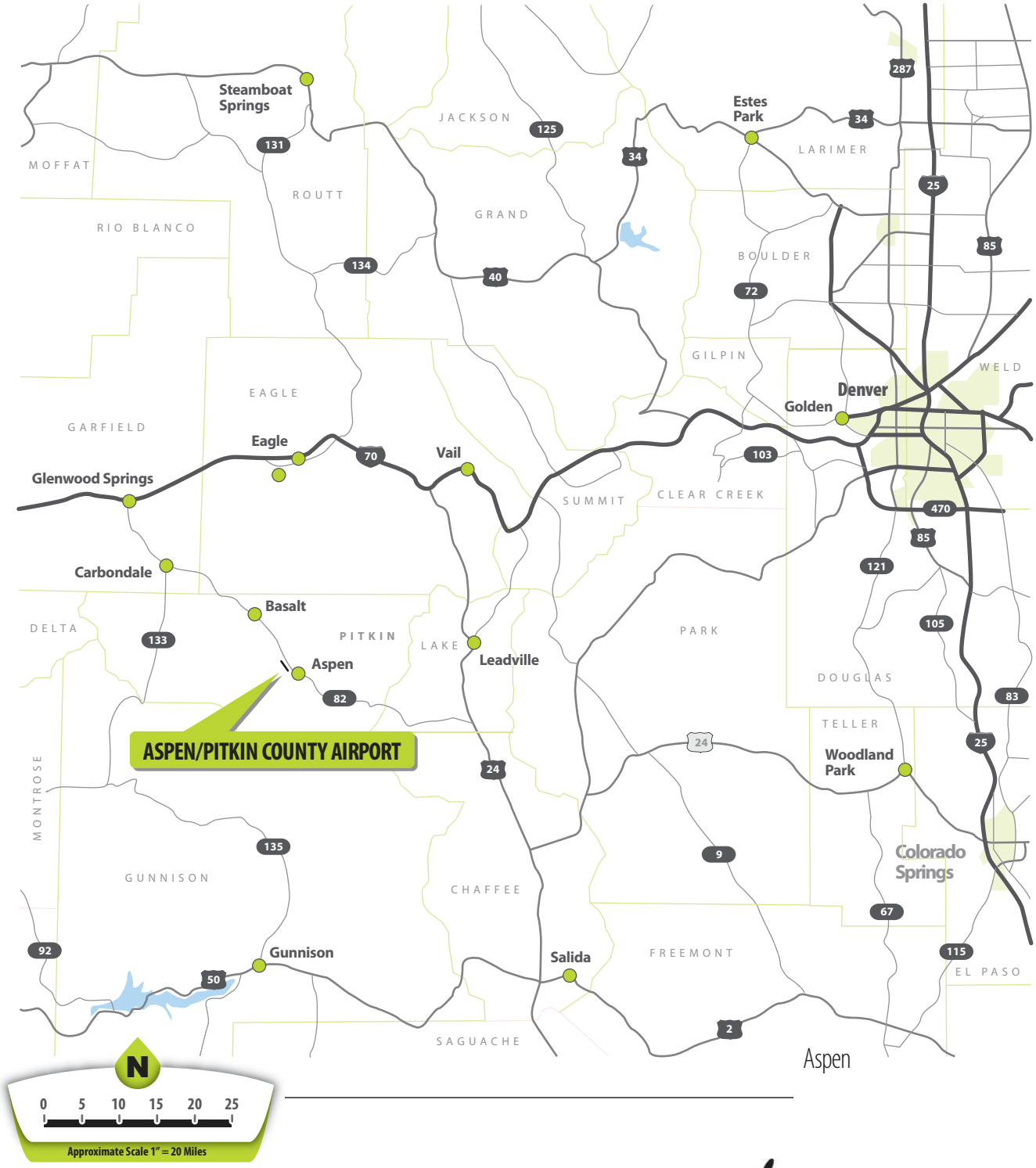


Figure 1-2 **Airport Location Map**

APPROXIMATE SCALE 1" = 40 MILES

ASPEN/PITKIN COUNTY AIRPORT IMPROVEMENTS ENVIRONMENTAL ASSESSMENT

SOURCE : City of Aspen/Pitkin County GIS Database.

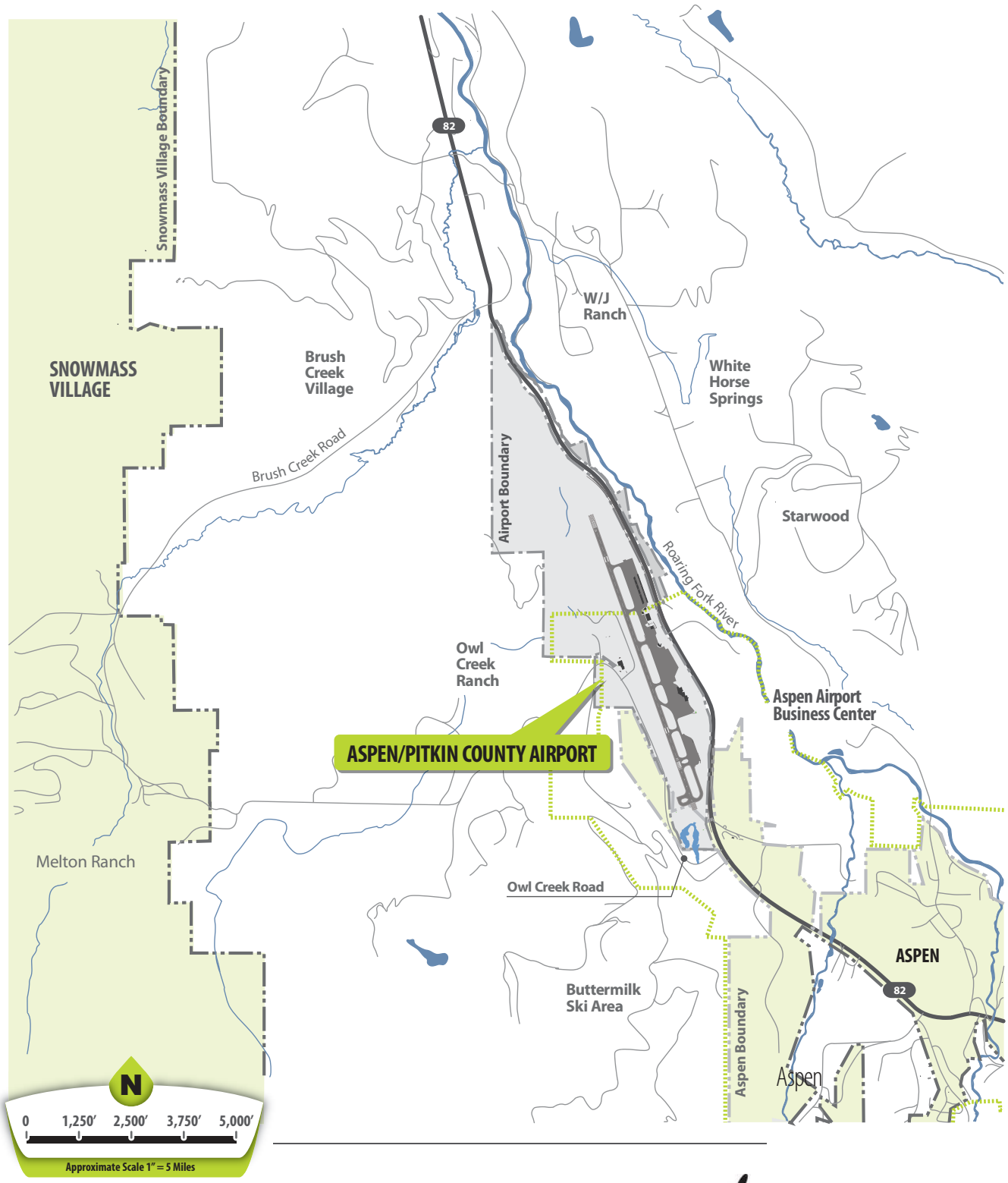


Figure 1-3 **Airport Vicinity Map**

Urban Growth Boundary

ASPEN/PITKIN COUNTY AIRPORT IMPROVEMENTS ENVIRONMENTAL ASSESSMENT

1.3 Background - Historical Planning Efforts

Pitkin County currently limits the size of aircraft that can operate at ASE through Section 10.12.030(C) of the Pitkin County Code. This section, adopted in 2001, prohibits the operation of aircraft with "a tip-to-tip wingspan of greater than 95 feet." The wingspan restriction was required because ASE could not satisfy all of the applicable FAA design standards without significant improvements. The FAA approved modifications to design standards for ASE based on the Pitkin County Code. The non-standard conditions that do not meet FAA current airfield design standards include the separation distance between the runway and taxiway, between the taxiway and parked aircraft, and between the runway and the locations at which aircraft wait to enter the airfield until receiving permission from the Airport Traffic Control Tower (ATCT), known as the "holding position."

In 2012, the County completed a Master Plan Update and submitted an updated ALP to the FAA for review and approval. The Master Plan called for projects improving the east side area (including a passenger terminal replacement), a parking garage on the east side, a full parallel taxiway for the west side, and development for a potential second Fixed Base Operator (FBO). The ALP was partially approved on a conditional basis in August of 2013 for projects on the east side (terminal replacement, etc.), but not for projects on the west side (the full parallel taxiway on the west side and the second FBO were not included in the FAA approval). The conditional basis of the ALP approval was subject to subsequent NEPA compliance.

No runway changes were recommended in the Master Plan because that study assumed continuation of the County's wingspan policy and the taxiway/runway design Modification to Standards granted by the FAA[2]. Changes in the air carrier fleet were not expected at the time the Master Plan was completed.

In 2014, the County commissioned an Air Service Study to consider how the industry was expected to evolve with changes that were occurring in aircraft fleet. That study found that the regional jets with wingspans less than 95 feet will be phased-out by commercial operators by 2028. This means that if ASE retained the 95-foot wingspan restriction, the airlines would not be able to provide similar scheduled commercial passenger air service at ASE in the future because the aircraft contained in their fleet would not meet those specifications. Thus, the Air Service Study noted a substantial dilemma for Pitkin County: either risk the loss of commercial passenger jet service to/from ASE or modify the airfield to enable commercial service by the jet aircraft that could be in service in the future. The Air Service Study analyzed options that would enable ASE to retain commercial passenger service, similar to what occurs today (but with aircraft that will be in operation), and the recommendations of that study are brought forward into the analysis of this EA. The lifting of the wingspan restriction would require a vote of the Pitkin County Board of County Commissioners. Therefore, this EA evaluates both the east side improvement projects (new passenger terminal and parking garage) proposed in the 2012 Master Plan Update, as well as the airfield improvements from the Air Service Study. Both efforts are reflected in the 2015 ALP Update referenced in the remainder of this report.

[2] FAA's design standards are mandatory for airports that receive federal funding through the Airport Improvement Program. When an airport cannot meet all of the standards due to physical constraints, FAA must approve a modification to standards that will maintain an acceptable level of safety.

1.4 Other Considerations

In May 2017, the FAA's Western Service Area (WSA) Operations Support Group (OSG) determined that ASE air traffic control's (ATC) techniques of modifying an aircraft's flight path while on the LINDZ EIGHT departure procedure was not in line with FAA rules and regulations. As a result, the FAA suspended the technique causing an increase in separation distances between arriving aircraft, which has decreased the number of operations per hour. Though ASE is able to accommodate the same number of flights on a daily basis, the flights are now spread out throughout the day. Though this is slightly different from what was analyzed in this EA, it would not result in a change in the impacts disclosed since the total number of daily operations have remained the same. The FAA is working diligently to return ASE to pre-May 2017 operational rates and conditions with the publishing of a VFR Departure Procedure, the COZY ONE, in October of 2017 and amending ATC techniques.

During the fall of 2017, the FAA will begin developing Performance Based Navigation (PBN) procedures in order to increase operational efficiency and safety. This review process could take up to two years to complete and will consider the proposed actions included in this EA. Any changes to existing published procedures or any new procedures identified as part of this process will be analyzed in a separate NEPA document.

Chapter 2 – Purpose and Need

This chapter identifies the Purpose and Need for the Proposed Federal Actions. In general terms, the purpose and need for a project identifies the issues, goals, and objectives associated with the project, answering questions like "Why is the project needed?", "What problem is being solved?" and "What purpose will it serve?" This chapter also provides a list of federal, state, and local actions, as well as an anticipated timeframe for the Proposed Actions and associated projects.

The proposed projects are categorized as those projects related to the Runway Reconfiguration (to meet FAA airfield design standards) and those projects related to the Terminal Area Improvements (improving the efficiency of ASE). Therefore, two purposes and several needs are described below as related to the two separate projects.

2.1 Purpose and Need of the Runway Reconfiguration

2.1.1 Background

2.1.1.1 FAA Airfield Design Standards.

FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, identifies the standards that FAA has established for airfields to ensure operational safety. The Airport Reference Code (ARC) is a system developed by the FAA to relate airport design criteria to the operational and physical characteristics of the aircraft that use an airport. The ARC has two components. The first component, depicted by a letter A through E, is the aircraft approach category and relates to certified aircraft approach speed. Based on FAA AC 150/5300-13A, aircraft are grouped into five approach speed categories:

- Category A: Approach speeds less than 91 knots;
- Category B: Approach speed of 91 knots or more, but less than 121 knots;
- Category C: Approach speed of 121 knots or more, but less than 141 knots;
- Category D: Approach speed of 141 knots or more, but less than 166 knots; and
- Category E: Approach speed of 166 knots or more.

Aircraft Approach Categories A and B typically include small piston engine aircraft and a limited number of smaller, commuter turboprops and business jets. Category C consists of business jets as well as commercial service regional and other commercial jet and propeller aircraft. Categories D and E include some business jet models and some high performance smaller jets, as well as larger jet aircraft generally associated with wide-body commercial and/or military use.

The second component of the ARC, depicted by a Roman numeral, is the airplane design group, which is categorized by wingspan or tail height. Where an airplane is in two categories, the most demanding category should be used.

Under the County's current wingspan and weight limit, ASE is an ARC D-III airport. D-III includes aircraft with a wingspan up to 118 feet. However, even though ASE has a D-III ARC, it does not fully comply with D-III standards. For this reason, the FAA previously provided a Modification to Standards when the County enacted its 95-foot wingspan restriction. The design standards are included in **Table 2-1**.

Table 2-1 ARC D-III Standards and Deficiencies – ASE

	Existing ASE Condition	FAA Standard	Difference/Shortfall
Runway/Taxiway Separation	320 feet	400 feet	80 feet
Runway Width	100 feet	150 feet	50 feet
Weight Limit	100,000 lbs	150,000 lbs	50,000 lbs

Source: FAA AC 150/5300-13, Airport Design; Mead & Hunt, 2016

To achieve the FAA airfield design standards, Pitkin County would be required to increase the runway-to-taxiway separation by 80 feet and to increase the width of the runway by 50 feet.

According to FAA AC 150/5200-13A, Runway Safety Areas must be "cleared and graded and have no potentially hazardous ruts, humps, depressions or other surface variations." Additionally, the Object Free Area should also not contain objects that are non-essential for air navigation or aircraft ground maneuvering purposes. This means that Owl Creek Road and the Owl Creek Bike path would need to be relocated outside of the Object Free Area.

Wildlife Considerations: A wildlife hazard management plan (WHMP) for ASE was completed in the summer of 2012. The purpose of the plan was to identify specific wildlife hazards at ASE and then provide recommendations. This fulfills the legal requirements set forth in 14 CFR Part 139.337(e). Owl Creek was identified in the WHMP as an attractant within the critical zone, which is the area within 10,000 feet of ASE as measured from the nearest aircraft operations area. The separation distances are based on (1) flight patterns of aircraft, (2) altitude at which most strikes occur, and (3) recommendations from the National Transportation Safety Board. Nationwide approximately 75 percent of all bird-aircraft strikes by civilian aircraft occur within this critical zone. While removing this wildlife attractant from the critical zone is not a mandate for the Runway Reconfiguration, it would occur at the same time, and thus, under the terms of NEPA for actions occurring in a similar time, is considered as part of the Runway Reconfiguration.

2.1.1.2 Current and Forecast Fleet Mix.

In 2014, under the Air Service Study, coordination with air carriers indicated that the existing aircraft currently serving ASE under the 95-foot wingspan restriction are being phased-out of the commercial service fleet and being replaced by aircraft with larger wingspans and higher seat counts by 2028. According to the Air Service Study, the CRJ-700 and the Q-400 are the only commercial aircraft that are able to operate in and out of ASE year-round that are under the 95-foot wingspan restriction. Since the start of this Study the Q-400, a propeller aircraft, has already stopped operating at ASE.

Based on this information, the Air Service Study examined the existing and future aircraft to determine whether the commercial service fleet will contain aircraft that can operate at ASE within the current 95-foot restriction both from a wingspan and a performance standpoint. Aircraft technical specifications are provided in **Table 2-2.** The table illustrates that other than the CRJ-700 which is being phased-out, no existing or future aircraft meet three important criteria: 1) the 95-foot wingspan, 2) the current weight limit and 3) can operate out of ASE with the current airfield configuration. The existing shorter wingspan aircraft, such as the E-170, E-175, E-190, and E-195, are not capable of operating in and out of Aspen due to how the aircraft operate related to the extreme terrain. Those future aircraft that can operate at ASE from a performance standpoint all have wingspans longer than 95 feet.

For ASE to continue to support future jet-based commercial passenger service, the County would need to meet all FAA design standards and remove the 95-foot wingspan restriction. Coupled with the removal of the restriction, the FAA would require the County to reconfigure the airfield to meet its current airfield design standards.

This forecast takes into account that the wingspan restriction will be lifted in the future and assumes that as soon as the wingspan restriction is lifted, airline and corporate operators will start using larger aircraft at ASE. As a result, the forecast identified the aircraft operations that would be affected and the aircraft that would replace the phased-out aircraft. **Table 2-3** shows the forecasts for the No Action and With Project scenarios. The forecast in the 2015 ALP Update assumes an unconstrained forecast (i.e. that in the future [2028], the airfield will be in compliance with FAA design standards), allowing for the longer-wing air carrier fleet to operate at ASE. This forecast was reviewed and approved by the FAA (**Appendix 10**). The No Action therefore, will represent a constrained scenario, where air carrier operations will be limited to turboprop activity, paired with an increase in general aviation (GA) charter jet operations to account for the reduction in service via the air carriers. The No Action would likely have the same number of operations, but due to the lower seating capacity of the turboprops, enplanements would likely decrease, when compared to the With Project Scenarios.

Table 2-2 Aircraft Technical Specifications – ASE						
	Wingspan					
Aircraft Type	Feet/Inches	Meter	Max Landing Weight (lbs.)	ASE Performance Capable	Meets/Does Not Meet ASE Operational Restrictions	Number of Seats
Current Aircraft						
CRJ-700	76' 3"	23.2	67,000	Yes	Meets	64-70
Q-400[3]	93' 3"	28.4	62,000	Yes	Meets	70
CRJ-900	81' 7"	24.9	73,500	No	Meets	76
CRJ-1000	85' 11"	26.2	81,500	No	Meets	100
E-170	85' 4"	26.0	72,312	No	Meets	70
E-175	85' 4"	26.0	74,957	No	Meets	78-88
E-190	94' 3"	28.7	94,799	No	Meets	97
E-195	94' 3"	28.7	99,208	No	Meets	106
Future Regional Aircraft						
E-175 E2	101’ 7”	31.0	86,201	Yes*	Does not meet	80
E-190 E2	110’ 6”	33.7	109,018	Yes*	Does not meet	97
E-195 E2	115’”	33.7	118,498	TBD*	Does not meet	118
MRJ-70 Standard	95' 9"	29.2	79,807	TBD	Does not meet	70
MRJ-90 Standard	95' 9"	29.2	83,776	TBD	Does not meet	90
CS100 Base	115’ 1”	35.1	110,000	Yes	Does not meet	110-135
CS300 Base	115’ 1”	35.1	121,500	Yes	Does not meet	135
Comparison Non-Regional Aircraft						
Airbus A319	111' 11"	34.1	138,000	Yes**	Does not meet	126-144
Boeing 737-700 MAX	117 '5"	35.7	128,928	Yes**	Does not meet	118-143
Boeing 717	93' 5"	28.5	100,000	Yes**	Does not meet	110

Source: Air Service Study, Manufacturers Coordination, Jviation, 2014
Note: ASE Operational restriction includes the 95 ft. wingspan restriction and the 100,000 lb. weight restriction. Performance capability refers to the aircrafts ability to fly in an out of ASE (based on the constrained terrain) under an air carriers ops specs.
*Data on E-Jets E-2 are preliminary
** Potentially performance capable, but likely limited during hotter summer months. Pending airline coordination will help determine if these aircraft could meet airline safety requirements for performance.

3 Note the Q-400 has stopped operating at ASE since January 2016.

Table 2-3 Summary of Aviation Activity Forecasts, 2015-2033								
			Actual	Forecasts				
A/C Operations by Type			2015 Actual	2023 No Action and With Terminal Project	2028 No Action Runway and With Terminal Project	2028 Runway Project: First Year of Implement-ation	2033 No Action	2033 Runway Project: Out Year
	Scheduled Commuter (less than 50 seats)		36	0	0	0	0	0
Air Carrier Aircraft	**Total Air Carrier**		**8,950**	**10,012**	**9,245**	**10,877**	**10,037**	**11,808**
	Less than 95 ft	Total Air Carrier (wingspan less than 95') Total	8,950	10,012	9,245	6,877	10,037	938
		CRJ-700	*8,950*	*10,012*	*4,623*	*3,439*	*0*	*0*
		Turboprop	*0*	*0*	*4,622*	*3,438*	*10,037*	*938*
	Greater than 95 ft	Total Air Carrier (wingspan greater than 95')	0	0	0	4,000	0	10,870
		New generation regional jets	*0*	*0*	*0*	*3,453*	*0*	*9,228*
		737-MAX	*0*	*0*	*0*	*547*	*0*	*1,642*
GA and Air Taxi Aircraft	**GA and Air Taxi Total**		**30,001**	**27,550**	**30,059**	**28,427**	**31,106**	**29,335**
	Single Piston		*3,935*	*3,614*	*3,729*	*3,729*	*3,848*	*3,848*
	Twin Piston		*2,097*	*1,926*	*1,987*	*1,987*	*2,050*	*2,050*
	Single TP		*998*	*917*	*946*	*946*	*976*	*976*
	Twin TP		*1,662*	*1,526*	*1,574*	*1,574*	*1,625*	*1,625*
	Jet		*20,816*	*19,116*	*21,356*	*19,724*	*22,125*	*20,354*
	Helo		*493*	*453*	*467*	*467*	*482*	*482*
Military Aircraft	**Military Local**		**81**	**30**	**30**	**30**	**30**	**30**
	Military Itinerant		**156**	**107**	**107**	**107**	**107**	**107**
TOTAL	**Total Aircraft operations**		**39,224**	**37,699**	**39,441**	**39,441**	**41,280**	**41,280**
	Total Enplanements		**233,541**	**263,153**	**258,860**	**296,140**	**281,036**	**333,259**

Source: 2015 data: ATADS 2016. 2015 ALP Update – Forecast Chapter, Jviation 2015.
+Note: For 2023 the number of operations for the No Action and the Terminal are the same because there would be no operational changes in the year of implementation for the Terminal Project.

ASE is served by three airlines (American, Delta, and United). Currently, the CRJ-700 (a regional jet) is the only commercial aircraft that meets the 95-foot wingspan restriction and is operating in and out of ASE year-round. The Q-400 was retired in January 2016 and no longer operates at ASE. Therefore, 100% of these commercial service flights now operate the CRJ-700. **Table 2-4** shows the city pair markets served to/from ASE.

During the Air Service Study, coordination with airlines indicated that many of the 70 seat regional jets and turboprops will be retired by 2025 and will likely be replaced with larger regional jet aircraft such as the Embraer E175 E2, E190 E2, or the E195 E2 that have 80-144 seats, or be replaced by newer aircraft such as the Embraer E170 and Mitsubishi (MRJ-70) that are 70-86 seat regional jet aircraft. Given the length of the runway at ASE, the altitude, and the surrounding terrain, service by larger commercial air carrier aircraft may not be able to consistently operate with full passenger and baggage loads. It is not possible to determine how established airlines would alter their operation (i.e., weight/payload restriction, aircraft operating performance) to allow large aircraft such as B737 to operate at ASE once ASE meets all applicable FAA design standards. The Air Service Study indicated that technically the B737 aircraft could operate at ASE once it meets all FAA design standards. Discussions with air carriers have indicated that the 737-MAX could potentially operate out of ASE with the runway relocation to meet FAA standards, but likely operating under payload restrictions in certain conditions. While no air carrier has officially expressed interest in operating the 737 out of ASE, it is a potential condition that the EA will address. Therefore, this EA will discuss the modeling assumptions for inclusion of a conservative fleet mix, including a number of operations by the 737 in the future conditions (With Project).

Table 2-4 Non-Stop ASE Markets in 2015

Airline	Markets
United	Aspen/Pitkin County Airport (ASE) - Chicago O'Hare International Airport (ORD)
United	Aspen/Pitkin County Airport (ASE) - Houston Intercontinental Airport (IAH)
United	Aspen/Pitkin County Airport (ASE) - Denver International Airport (DEN)
United	Aspen/Pitkin County Airport (ASE) - Los Angeles International Airport (LAX)
United	Aspen/Pitkin County Airport (ASE) - San Francisco International Airport (SFO)
Delta	Aspen/Pitkin County Airport (ASE) - Hartsfield-Jackson Atlanta International Airport (ATL)
Delta	Aspen/Pitkin County Airport (ASE) - Minneapolis-St. Paul International Airport (MSP)
American	Aspen/Pitkin County Airport (ASE) - Dallas/Fort Worth International Airport (DFW)
American	Aspen/Pitkin County Airport (ASE) - Los Angeles International Airport (LAX)

Note some markets are not served year-round.
Source: 2015 ALP Update, Jviation, 2015

2.1.2 Purpose and Need Statement for the Runway Reconfiguration.

Airlines are changing their aircraft fleet in response to air travel demand and it is expected that the aircraft serving ASE, which meet the County's wingspan and weight limit, will eventually be withdrawn from service in favor of larger aircraft with greater wingspan and passenger seating. Based upon manufacturer information, aircraft replacing the CRJ-700 will not meet the wingspan and weight criteria. Unless the current wingspan policy is rescinded, the Airport risks the loss/reduction of commercial passenger service as it stands today. Before the County can rescind its current policy, FAA will require that the airfield be brought into compliance with current airfield design standards.

Given these factors, the purpose of the proposed runway reconfiguration is to enable ASE to accommodate the anticipated future aircraft and bring the airfield into compliance with the FAA airfield design criteria, allowing for safe separation of aircraft movement on the airfield.

2.2 Purpose and Need of the Terminal Improvements

The purpose and need for improvements to the passenger terminal at ASE are related to deficiencies in the current terminal, issues associated with the current roadway configuration and passenger parking, and deficiencies in the apron area where aircraft are parked, as discussed below**.**

2.2.1 Terminal Deficiencies

The existing terminal is a 45,000-square foot, single-level structure that is divided into three general areas: a ticketing area to the north, a departure area in the center, and a baggage claim area to the south. The terminal building is situated near the middle of the airfield, on the east side of the runway/taxiway complex. A single common departure lounge supports the ground loading of commercial passengers to the adjacent terminal apron aircraft parking positions. There are no enclosed passenger loading bridges. Existing terminal building use areas include airline ticket counters, baggage handling areas, passenger waiting areas, rental car counters, snack bar/restaurant area, and airport/airline administration offices.

According to the analysis completed in the 2012 Master Plan Update, "Despite previous terminal expansion measures in 1986-1987, passenger demand at ASE has outpaced facility capacity, putting a strain on ASE facilities and roadways during peak activity periods. Also, the current use areas are not configured in an efficient manner, resulting in some spaces that are oversized and many spaces that are undersized to fulfill their intended function. As the building continues to age, the recurring costs to keep the facility in good repair will continue to increase without major investment in newer and more efficient building systems."

The existing building has substantial deficiencies in meeting life/safety needs. A review of the building life safety/fire protection systems, mechanical systems, and electrical systems was performed by BCER, Inc. Numerous deficiencies were identified in these building systems. Some systems with deficiencies included the sprinkler systems, exterior deluge systems (exterior fire protection), insufficient number of fire hydrants, and the fire alarm system. Other deficiencies that were identified included ramp and restroom areas that don't comply with the Americans with Disabilities Act (ADA), poor access to rooftop heating, ventilation and air conditioning (HVAC) systems, duct work, boiler plant, roof conduits in need of repair; and the need to remediate electrical deficiencies, test and replace egress lighting, perform thermal image scanning of electrical systems, provide emergency power via generator to certain areas, among others.

Additionally, Pitkin County and the City of Aspen have jointly created and adopted an Efficient Building (EB) program to encourage sustainable and efficient construction in the County, something that would be cost prohibitive to meet with the current terminal. As a result, the existing facility does not enable Pitkin County to reduce its energy use and carbon footprint.

The following areas were cited in the 2012 Master Plan Update as being deficient in space relative to the existing and future demand. Full details of the terminal deficiencies are described in the full Master Plan Update (available at ASE airport offices).

2.2.1.1 Gate Areas/Hold Room Deficiencies

The gate areas represent the single largest undersized existing area at ASE. All flights board from doors that are too close together, which results in passenger confusion and congestion. As flights are called, passengers often approach the wrong door and attempt to board aircraft for which they are not flying and then when identified, block access for others. The hold room is currently too crowded on peak weekends in the winter, during normal daily operations. Four to five flights are typically waiting to board at a time. Furthermore, there is only one hold room service counter that houses too many staff, leading to a perception by passengers that customer service is poor. There is also limited room for adequate concessions and restrooms on the secure side due to the hold room deficiencies. Under the assumption that the new commercial service aircraft in the future will have greater seat capacity, these deficiencies in the hold room will only be made worse.

Forecasts in the Master Plan Update indicate that in 2017, eight gates would be required during the average day, peak hour and 10 would be required for the peak day, peak hour. The existing terminal only has four actual gates; however, parking is available for six aircraft. Therefore, the existing terminal facilities and accompanying apron would not be able to meet the projected future passenger and associated aircraft activity.

2.2.1.2 Transportation Security Administration (TSA)

A large constraint placed on the passenger terminal building has been the required adaptation of an older building to modern security standards and practices. The existing building was not designed to accommodate present security protocols and standards and as a result, the current security checkpoint encroaches on other spaces. This encroachment of one space into another reduces efficiency and causes terminal crowding.

The security processing area is typically a pinch point of congestion for both passenger and baggage screening. Based on discussions with TSA during the Master Plan, the TSA screeners should process 200 passengers per lane per hour; however, they typically only process 130 passengers, creating long lines and the potential for passengers to miss flights. Additionally, the baggage screening area is inadequate and inefficient. Part of this is related to a higher-than-average bag count per passenger and an abundance of oversized baggage (skis, etc.) that slows the processing rate of the machines. Additional space for TSA is required for passenger screening, baggage screening, a training room, staff break room, and office space.

2.2.1.3 Baggage Service Office

The baggage service office is insufficient. When weather inevitably causes delays preventing passenger bags from making their connection through Denver, baggage trucks from Denver often deliver hundreds of bags at a time. There is presently no secure space to accommodate this influx of luggage and the bags are placed on the floor indefinitely for people to retrieve on the honor system. This presents both a potential security threat and a liability for ASE.

2.2.1.4 Rental Car Operators

The rental car operators currently lack adequate space in the baggage claim areas of the terminal for personnel as well as places to store vehicles ready for rental. They have substantially less space at ASE in terms of ready parking positions and equipment storage as they do at comparably sized airports.

The crowded condition at the rental counters is both a nuisance to customers and presents a potential privacy violation in that neighboring customers could easily overhear/oversee sensitive information. Furthermore, child seats are stored in front of the counters or in an unheated shed in the parking lot because there is not enough room behind the counters. These factors add up to customer queues of up to 7-10 people during peak hours.

2.2.1.5 Summary of Terminal Deficiencies

The existing terminal is deficient in many of the functional areas at current and future activity levels. Some of the largest deficiencies are associated with baggage and public circulation areas, as well as mechanical/electrical and building support systems space. As discussed earlier, these deficiencies are expected to be worse with higher passenger levels associated with the aircraft that would replace the CRJ-700 when it is phased out.

2.2.2 Terminal Circulation Road Requirements and Parking Needs.

Data presented in the 2012 Master Plan Update indicates a total of 257 long-term and 223 short-term stalls would be needed to accommodate the air travel demand in 2017, for a combined total of 480 additional passenger parking stalls. Today, approximately 270 public parking stalls are available, but in 2017, 480 parking spaces would be needed, an increase of 210 stalls or 77 percent. By 2027, 566 public parking stalls would be needed, resulting in a shortage of 296 stalls or a 110 percent deficit.

Forecasts also indicate that, for 2017, 88 stalls will be needed for employee parking versus the 69 stalls available (a shortage of 19 stalls), as shown in **Table 2-5**. By 2027, this deficit would increase to 35 employee stalls, as 104 stalls would be needed then, but only 69 are available today. Additionally, 2017 forecasts indicate that 150 ready/return rental car stalls and 97,000 SF for rental car overflow storage parking will be needed. The sum of these stated parking needs is 1,550 parking stalls for 2017, and 1,713 in 2027, shown in **Table 2-5**.

Table 2-5 Parking Requirements			
Description	Existing Terminal Parking	2017 Parking Stall Needs	2027 Parking Stall Needs
Airline Functions			
Short Term Parking	115	223	263
Long Term Parking	155	257	303
Employee Parking	69	88	104
Rental Car Ready Return	58	150	226
Rental Car Storage	265	363	428
RFTA Park-n-ride	0	225	205
Commercial Development Parking	0	244	184
Total Parking Requirement	**662**	**1,550**	**1,713**

Source: Mead & Hunt, Inc.

2.2.3 Apron area needs.

The existing commercial service terminal apron currently slopes down toward the terminal building. This creates public health and safety issues. During periods of intense rain, the terminal has occasionally flooded due to this sloping issue.

Additionally, according to the 2012 Master Plan Update, the commercial service apron is undersized. Forecasts in the Master Plan indicated that, in 2017, eight gates would be required to serve the average day-peak hour and 10 would be required for the peak day-peak hour. This means that up to 10 aircraft could be parked at one time on the terminal apron. The Master Plan Update analyzed parking based on the existing type of aircraft operating at ASE with the 95-foot wingspan restriction in place. Based on this analysis, there is apron area currently available for six aircraft of current wingspans (under 95 feet). Therefore, the existing apron is already deficient based on current aircraft and existing and future passenger activity. This deficiency could be made worse by the potential future change in aircraft, which would have longer wingspans and would require more apron space. With the higher capacity aircraft that would operate at ASE in the future if ASE meets all FAA design standards and the wingspan restriction is lifted, the peak number of aircraft would not likely increase because their larger capacity.

2.2.4 The need to reduce apron noise on surrounding communities.

Coordination with the public during the Master Plan Update identified noise from the GA apron as a substantial concern for the businesses and residences near the Airport Business Center. The GA apron can be very busy during peak times in the summer and the winter, with numerous business jets parked. Jets are generally parked with Auxiliary Power Units (APUs) running, facing Highway 82 and the Airport Business Center (ABC).

These units are run prior to taking off, during maintenance, and sometimes for hours while waiting for clients. This creates noise in the surrounding community. While this project is not directly related to the needed terminal improvements, its need could be addressed at about the same time as the terminal improvements.

2.2.5 Purpose and Need Statement for the Terminal Improvements Projects.

The existing terminal is unable to efficiently accommodate existing and forecast passenger demand. The purpose is to meet the existing and future passenger and staff needs at ASE and improve operational efficiency of the terminal space and apron areas.

2.3 Federal Actions

The types of actions likely to be undertaken by the FAA include:

- Unconditional approval of the proposed actions as shown on the ALP;
- Federal funding for the proposed actions under the Airport Improvement Program (AIP);
- Modifications to existing procedures;
- Approval of an amendment to the Airport's Certification Manual per 14 C.F.R.139 (Aircraft Rescue and Firefighting Requirements) and 49 U.S.C. 44502(b); and
- Relocation or upgrade of existing NAVAIDs per 49 U.S.C. 44502(a)(1).

2.4 Actions by Other Agencies

Permits and clearances would also be required from various federal, state, and local agencies such as the US Army Corps of Engineers and various departments within the State of Colorado. The agencies will be coordinated with during the development of this EA. See **Chapter 4**, *Affected Environment and Environmental Consequences* and **Chapter 5***, Mitigation and Best Management Practices*, for more detailed information about permits and clearances.

2.5 Airport Operator Actions

The actions expected by the Airport Sponsor include:

- Application for federal financial assistance;
- Application for and approval of a building and grading permit;
- Formal approval (public hearing) from the BOCC to accept the EA and forward it to the FAA for their independent review;
- Airport Design Guidelines Review and Approval;
- Local Land Use Approval: Location and Extent Review approval (for each phase of construction); and
- Construction of the Preferred Alternative.

2.6 Action Funding and Time Frame

According to the 2015 ALP Update, during the preliminary engineering, the total preliminary cost estimates for updates to the terminal area and the runway shift were identified, as well as when the projects would be completed.

The Terminal Area (design, terminal construction, apron construction, parking, and roadway improvements) would cost approximately $90,475,777 for either alternative, but dependent on final design and finishes selected. This would be completed in 2018-2022. The Runway Shift (design and construction) would cost approximately $87,488,974. These projects would be completed during the 2023-2027 timeframe so that the new runway is functional at the time that the air carrier fleet would be retired and switched over to the longer wingspan.

The Runway Reconfiguration, Terminal improvements and associated improvements would be completed using a combination of local, State and Federal funding paired with money from the Passenger Facility Charge (PFC) fund.

Chapter 3 - Alternatives

In accordance with the federal guidelines that implement the NEPA, a range of reasonable alternatives has been identified that may accomplish the objectives of the proposed action. Council on Environmental Quality (CEQ) regulations state that the responsible federal agency shall "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives that were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." The CEQ has defined "reasonable" as those alternatives that are prudent or feasible.

CEQ regulations require the following regarding the analysis of alternatives:

- The analysis shall inform decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment (CEQ 1502.1);
- The range of alternatives shall encompass those to be considered by the ultimate agency decision maker;
- Agencies shall include reasonable alternatives not within the jurisdiction of the lead agency (CEQ 1502.14[c]); and
- Agencies shall include the alternative of No Action (CEQ 1502.14[d]).

This chapter examines the No Action Alternative, as well as a range of alternatives to meet the Purpose and Need described in **Chapter 2**. As described in **Chapter 2**, the purpose of the proposed projects has two components:

1. **Runway Reconfiguration:** ASE currently does not meet FAA design standards. The purpose is to enable ASE to meet FAA design standards and to accommodate anticipated commercial service aircraft in the future.

2. **Terminal Area Improvements:** The existing terminal is unable to accommodate existing and forecast passenger demand. The purpose is to improve operational efficiency to meet the existing and future passenger and staff needs at ASE.

3.1 Range of Alternatives

To ensure a wide consideration of the possible range of alternatives, four primary types of alternatives were identified:

- **Use of other modes of travel.** Other modes of travel and telecommunications might reduce the commercial service demand for air service at ASE.

- **Use of other airports.** Passengers and aircraft could use other airports that do not have wingspan restrictions in place and can already accommodate the upcoming change in the commercial service fleet.
- **Development Improvements at ASE.** Includes physical improvements at ASE.
- **No Action.** The No Action Alternative assumes that no improvements are made ASE and is used as the baseline in the determination of impacts.

3.2 Initial Consideration of Range of Alternatives

The initial review of the broad types of Runway Alternatives and the Terminal Area Improvements was conducted to determine feasibility and whether they would meet the project's Purpose and Need. The following sections document that evaluation and identify alternatives to be carried forward for further evaluation. Those alternatives that were determined not to be feasible/prudent or not to meet the Purpose and Need were eliminated from further evaluation.

3.2.1 Other Modes of Transportation

Alternative modes of transportation may provide options to meet air travel needs of individuals who are unable to use air travel into ASE due to the reduced or eliminated commercial service. As discussed in **Chapters 1 and 2**, this is an anticipated result of the wingspan restriction paired with the future longer-wingspan fleet. This type of alternative would require passengers to travel by highway (auto or bus), or substitute telecommunications technologies for actual air travel. The ability of such alternatives to satisfy the need at ASE largely depends upon such factors as: 1) availability of the mode of transportation; and 2) trip characteristics and travel needs of the air passengers.

Although it may seem a reasonable choice, reliance on ground travel is not a realistic alternative to access the Aspen area. Because Aspen is largely a vacation travel destination, the added travel time and unreliable winter roadway conditions would be troublesome. Since visitors come from all over the world, some portion of travel would still occur by air, reliant on other area airports within driving distance. While Colorado has 79 airports, three commercial service airports are a reasonable ground travel distance from ASE: Denver, Eagle County, and Grand Junction. ASE is about 200 road miles from the nearest major airport (Denver) with international air service. The flight between Aspen and Denver is about 30 minutes, whereas the drive time from Aspen to Denver is approximately 3.5 to 4 hours. The drive to Eagle County Airport is about one hour and fifteen minutes, and the drive between ASE and Grand Junction Regional Airport takes about two hours and fifteen minutes. All three of these estimated drive times are based on good weather conditions. Winter driving conditions (as well as road closures) and heavy traffic on Interstate 70 can significantly increase this travel time, especially during weekends when considerable traffic heads to and from the mountains from the Denver metropolitan area.

Telecommunication options simplify doing business in today's global economy, and may also seem a reasonable substitute for reduced or eliminated air service. However, improved communications and video-conferencing technology may relieve potential future business travel demand or even increase it, but would likely have no effect on recreational travel.

Because the Aspen area is primarily a tourist destination, there would be little or no decrease in the travel to Aspen for recreation if increased telecommunication were used for business dealings. Demand for air travel at ASE has increased in terms of the number of passengers served by the ASE.

The purpose and need for the runway reconfiguration and Terminal Area Improvements is related to the ability of ASE to retain its commercial service and to address existing and future terminal deficiencies. Therefore, this alternative is not prudent and has been eliminated from further consideration.

3.2.2 Use of Other Area Airports

There are 79 public use airports spread throughout Colorado. Airports either nearby ASE or accessible via roadway include Glenwood Springs Airport, Eagle County Regional Airport, Garfield County Regional Airport, Meeker Airport, and Grand Junction Regional Airport, among others. Grand Junction Regional Airport and Eagle County Regional Airport are the two closest commercial service airports to ASE that could provide service to ASE. The same reasons that discourage use of other modes of transportation including added travel time, weather conditions and air travel demand are valid reasons that use of other airports is not a prudent alternative to improvements to ASE. Therefore, this alternative is eliminated from future consideration in this EA.

3.2.3 Development Options at ASE

As described in **Chapter 2**, Purpose and Need, this EA is addressing two specific categories of projects: the runway reconfiguration (**Section 3.2.3.1**) and the Terminal Area Improvements (**Section 3.2.3.2**). Separate alternatives were considered for each category since they represent different functional areas of ASE.

3.2.3.1 Development Alternatives – Runway Reconfiguration

The Air Service Study (Study) examined multiple alternatives that would correct the non-standard condition, allowing ASE to meet FAA design standards and enable ASE to retain similar level of commercial service in the future. Runway relocation and runway realignment are not feasible alternatives at ASE due to the constrained nature of the valley and the mountainous approach. Due to the constraints on the east side (terminal, Fixed Base Operator [FBO] facilities, and Highway 82), shifting to the east was not feasible. Therefore, the Study focused on providing adequate separation between the runway/taxiways and the width of the runway to meet standards primarily with alternatives shifting the runway to the west. Therefore, shifting of the runway within a general envelope that would enable aircraft to still clear the mountains while at the same time meeting design standards was the primary focus of the Air Service Study.

The Study examined approximately 18 different alternatives for achieving the design standards. The alternatives included a review of the regulatory environment, analysis of airfield and airspace configuration, feasibility analysis of different options to ensure future commercial air service to ASE (including likelihood of community support, cost, compliance with FAA regulations, etc.)

During the first and second phases of the Study, the following alternatives, listed in the order that they were considered, were examined and rejected due to the issues noted:

- **Alternative 1:** Construct a new parallel taxiway 320 feet west of the existing runway, leaving the runway and east side taxiways in place.
    - Issues: Does not meet full runway/taxiway separation on east or west side and does not meet runway width standards;
- **Alternative 2:** Construct a new parallel taxiway 350 feet west of the existing runway, leaving the runway and east side taxiways in place.
    - Issues: Does not meet full runway/taxiway separation on east or west side and does not meet runway width standards;
- **Alternative 3:** Construct a new parallel taxiway 400 feet west of the existing runway, leaving the runway and east side taxiways in place.
    - Issues: Does not meet full runway/taxiway separation on east side and does not meet runway width standards;
- **Alternative 4:** Shift east side parallel taxiway 80 feet east, construct a new parallel taxiway 400 feet west of the existing runway.
    - Issues: Financially not feasible. Would require relocation of the airport traffic control tower, hangars, tie downs, maintenance hangar, fuel farm, wash pad, etc. Due to constraints of Highway 82, commercial terminal area would be substantially affected;
- **Alternative 5:** Shift Runway 15/33 30 feet west and construct a new parallel taxiway west of the relocated runway.
    - Issues: Does not meet full runway/taxiway separation on east and west side and does not meet runway width standards;
- **Alternative 6:** Shift Runway 15/33 80 feet west, construct a partial parallel taxiway 400 feet west of the relocated runway, and add west side tea cup taxiways on the south end of the runway 160 feet west with no west side parallel taxiway or FBO.
    - Issues: Does not meet runway width design standards;
- **Alternative 7:** Shift Runway 15/33 80 feet to the west and construct a partial parallel taxiway at 400 feet west of the relocated runway with a midfield runway crossing for access to the west side.
    - Issues: Conflicts with FAA recommendations to limit runway crossings and does not meet runway width standards;
- **Alternative 8:** Shift Runway 15/33 80 feet west and construct a new parallel taxiway at 400 feet west of the relocated runway.
    - Issues: Does not meet runway width standards;
- **Alternative 9:** Hold Runway 15 threshold, shift Runway 33 threshold 20 feet west, and construct a new parallel taxiway at 350 feet west of the angled runway; existing east side parallel Taxiway A separation from the runway varies from 330 feet to 377 feet.
    - Issues: Does not meet full runway/taxiway separation and does not meet runway width standards. Runway would not be parallel to other infrastructure;

- **Alternative 5a:** Evolved from Alternative 5 and includes a shift of the runway 25 feet, widening to 150 feet, and construct a new west side parallel taxiway at 345 feet from the relocated runway.
    - Issues: Would not meet runway/taxiway separation standards;
- **Alternative 7a:** Addition to Alternative 7 to include an extension to Taxiway B to Taxiway A6 for runway crossing. Allows landing aircraft better access to west side;
    - Issues: Does not meet runway width standards. Greater impact on west side;
- **Alternative 7b:** Addition to Alternative 7 to include an extension of Taxiway B to Runway 15 threshold for runway crossing.
    - Issues: Does not meet runway width standards;
- **Alternative 10:** New alternative including a shift of the runway 25 feet, widen to 150 feet, shift Taxiway A 25 feet east, and construct a new west side parallel taxiway at 360 feet from the relocated runway.
    - Issues: Does not meet runway/taxiway separation standards;
- **Alternative 11:** New alternative including a shift of the runway 80 feet, widening to 150 feet, and construction of a new west side parallel taxiway at 320 feet from the relocated runway.
    - Issues: Would require shift of GA from east side to west side, operational efficiency issues;
- **Alternative 12:** New alternative including a shift of the runway 80 feet, widening to 150 feet, construction of a new west side parallel taxiway at 320 feet from the relocated runway south of the Airport Operations Center (AOC). Construct a new west side parallel taxiway at 400 feet from the relocated runway north of the AOC. East side runway/taxiway separation meets FAA standard. West side taxiway operational restrictions south of the AOC.
    - Issues: Does not meet runway/taxiway separation standards on the west side; and
- **Alternative 13:** Hybrid of 5a and 10. Explore shifting runway more than 25 feet to the west and pushing Taxiway A into the ramp further than 15 feet than in Alternative 10.
    - Issues: Does not meet runway/taxiway separation on west side. Impacts to efficiency.

During the third phase, all previous alternatives were rejected for failing to meet all of the needs. Two additional alternatives were added to focus on the shift of 80 feet and widening to 150 feet that met the runway/separation on the east side:

- **Alternative 12a:** Modified Version of Alternative 12. Shift runway 80 feet, widen to 150 feet, and construct a new west side parallel taxiway at 400 feet north of the AOC and 320 feet south of the AOC from the relocated runway; and
- **Alternative 8a:** Modified Version of Alternative 8. Shift runway 80 feet, widen to 150 feet, construct a new west side parallel taxiway at 400 feet from the relocated runway, and provide bump out around AOC at 320 feet from the relocated runway.

These final two alternatives included a runway shift of 80 feet to the west, a widening to 150 feet, and a new west side parallel taxiway of varying lengths and shifts further to the west. As described above, the shift of the runway by 80 feet and the widening to 150 feet was the only portion of the alternatives that fully met the purpose and need to meet the design standards.

The alternatives described above included a west side taxiway, which was considered to provide access to a potential second FBO. Since that time, the parallel taxiway was determined to be not reasonably foreseeable due to funding considerations and was eliminated from further study.

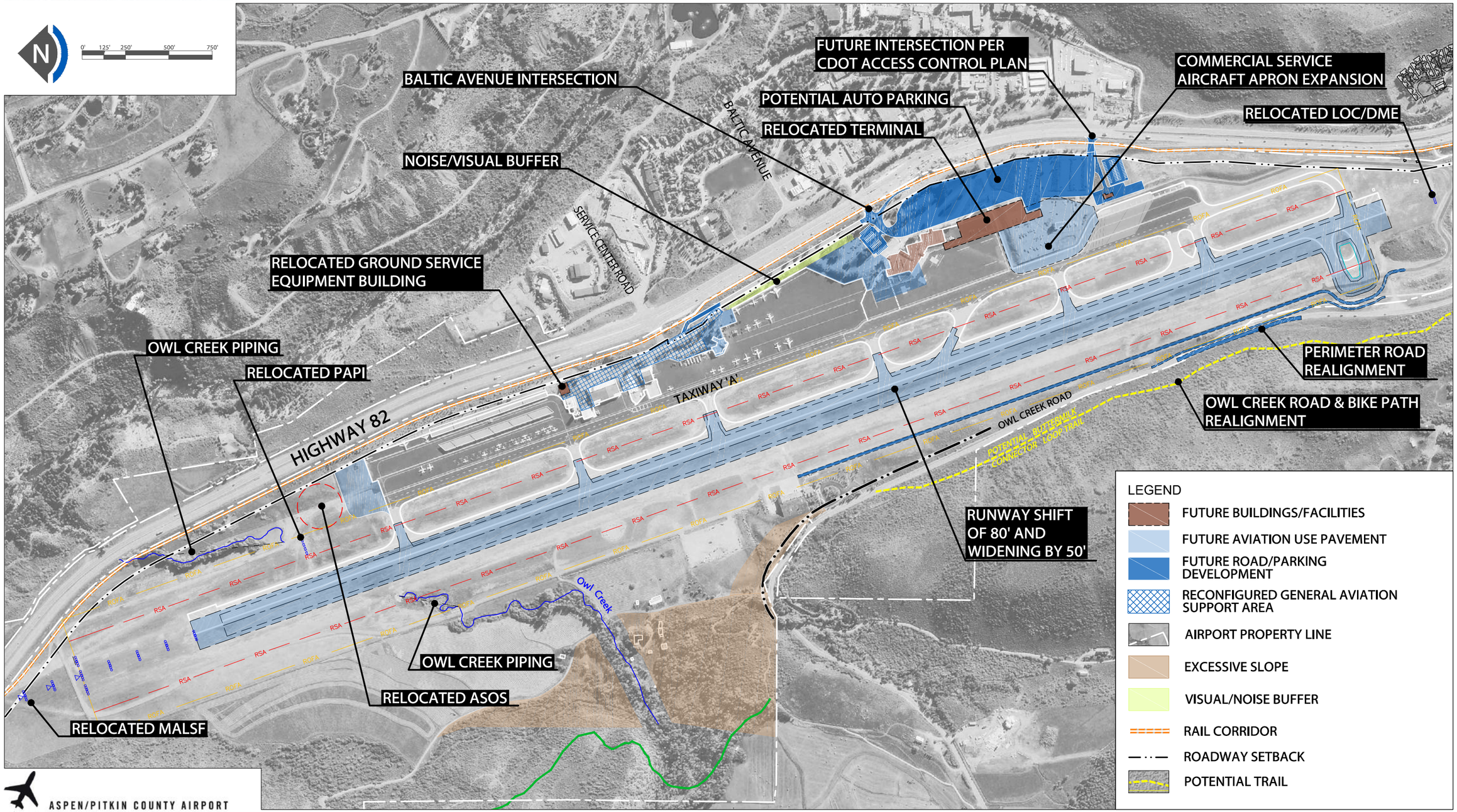
3.2.3.1.1 Runway Alternative: This alternative includes shifting the runway by 80 feet to the west and widening the runway to a total width of 150 feet. This alternative meets the purpose and need and is feasible within the constraints of the site. This alternative includes the piping of Owl Creek within the fence, as illustrated in **Figure 3-1**.

As a result of the shift in the runway, portions of Owl Creek within the fence would be contained within the Object Free Area and Runway Safety Area. Therefore, piping Owl Creek within the airport fence-line would be required to meet FAA design standards relative to grading within these areas. According to FAA AC 150/5200-13A, *Airport Design*, Runway Safety Areas must be "cleared and graded and have no potentially hazardous ruts, humps, depressions or other surface variations." Additionally, the Object Free Area should also be clear of objects that are non-essential for air navigation or aircraft ground maneuvering purposes.

Review of Alternatives (Minimization on Owl Creek): Owl Creek also was reviewed in terms of impacts through a WHMP completed in the summer of 2012. Owl Creek was identified in the plan as an attractant within the critical zone (the area within 10,000 feet of ASE as measured from the nearest aircraft operations area). Based on the analysis, one of the recommended measures in this plan was to pipe Owl Creek within the critical zone within the boundaries of the Airport fence to reduce wildlife attractants, increasing safety.

Owl Creek and associated wetlands are protected under Executive Order 11990, Protection of Wetlands. This Executive Order's stated purpose is to "minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Additionally, under Section 404 of the Clean Water Act, no discharge of dredged or fill material can be permitted if an alternative exists that avoids or minimizes wetland impacts. As a result of these protections, the EA must consider whether other reasonable alternatives exist that would reduce the impacts on Owl Creek.

There are no other alternatives that meet the purpose and need that also avoid impacts to Owl Creek and the wetlands as well as to the Owl Creek Bike Path and Owl Creek Road (**Figure 3-1**). Additionally, previous work to minimize the attraction of Owl Creek to wildlife, including vegetation management, has not resolved the issue and the piping would be a permanent fix for this issue.



ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Figure 3-1 **Runway Alternative**

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

3.2.3.2 Development Alternatives – Terminal Area Improvements

Facility requirements for a passenger terminal building are based on the number of people and aircraft it is expected to serve. As can be seen in **Table 3-1**, the Master Plan concluded that most of the areas are currently deficient in size (shown in red). The Master Plan does not account for the potential need to accommodate larger aircraft due to the anticipated phase-out of the smaller wingspan aircraft because that issue came up after the plan was created.

Based upon the 2012 Master Plan analysis, during the peak hour approximately 482 passengers would need to be accommodated, assuming that the existing, smaller wingspan aircraft continue to operate through the year 2027. The Master Plan indicated an estimated terminal size of 80,411 square feet for 2017 using the CRJ-700 to help determine the estimates of the sizing and 97,939 square feet for the terminal in the 2027 timeframe.

With the assumed scenario of larger aircraft, averaging 100-110 seats (such as the CS100 at 110 seats), and a larger apron parking area that allows more aircraft to be parked at the same time, the potential maximum throughput number of passengers would conservatively increase to about 900-1,100 peak hour passengers. This means the square footage shown in **Table 3-1** would need to increase to meet an adequate level of service. Despite the larger throughput and larger aircraft, not all functional areas would require equal enlargement. The larger aircraft would be expected to have a substantial impact on the size of the following terminal areas: hold room, TSA screening, baggage handling, and concessions.

While final terminal building sizing will occur during the design phase, it is important in the EA to look at a high-level estimate of terminal size to disclose potential environmental impacts. The Airport Cooperative Research Program (ACRP) Report #25 on *Airport Passenger Terminal Planning and Design, Volume 1*, provides high-level planning criteria for terminal sizing. Report #25 methodology is based off an estimated number of square feet per narrow body gate. Assuming the use of the CS100 aircraft and the ACRP planning assumption for small domestic airports, the report provides a range of 15,000 square feet to 18,000 square feet per narrow body gate. Currently the airport operates with six gates, and the 2012 Master Plan recommended ten gates. It is assumed that the larger CS-100 can be accommodated by the eight to ten gate estimate from the Master Plan in the future. Therefore, based on these assumptions, the terminal sizing range from the ACRP report tracks as follows:

- Conditions Today (CRJ-700) – 90,000-108,000 (six gates x15,000 square feet per gate and six gates x 18,000 square feet per gate)
- Future Conditions (2028) – eight gates with CS-100 aircraft: 120,000 – 144,000 (eight gates x 15,000 square feet per gate and eight gates x 18,000 square feet per gate)
- Future Conditions (2033) – 10 gates with CS-100 aircraft: 150,000 – 180,000 (10 gates x 15,000 square feet per gate and ten gates x 18,000 square feet per gate)

Based on these assumptions, this alternative includes a terminal footprint around 140,000 square feet and a disturbance footprint of the entire east side area shown in the site plan (**Figure 3-3**) to environmentally clear the maximum space needed for the terminal. This allows for flexibility of final design relative to the terminal sizing, and roadway and parking configuration. A detailed breakdown of space requirements to a high level

of detail can be done during terminal programming and design to assist the County in the final decision on the terminal size going forward.

Table 3-1 Facility Requirements Comparison

Terminal Building Conceptual Facility Requirements Comparison

Description	Existing Terminal	2017 Space Requirements	2027 Space Requirements
Airline Functions			
Ticket Counter Area	1,035	907	1,073
Ticket Counter Length	*97*	*86*	*102*
Ticket Counter Queuing	1,834	1,727	2,044
Curbside Baggage Check	50	169	200
Baggage Claim Area / Oddsize	4,057	5,175	6,100
Baggage Claim Frontage	*224*	*180*	*212*
Baggage Service Office	786	1,242	1,464
Airline Operations / Airline	5,131	6,346	7,499
Outbound Baggage	4,227	6,474	7,666
Inbound Baggage	1,050	2,588	3,050
Departures Lounges	2,160	6,615	8,505
Jet Gates	*4*	*7*	*9*
Subtotal Airline Functions	**20,280**	**31,241**	**37,601**
Concessions			
Concessions (Food / Beverage)	877	2,004	2,364
Concessions Other (seating /	1,433	100	118
Concessions (News / Gifts /	567	751	887
Concessions (Concession	175	376	443
Ground Transportation	318	626	739
Information	243	451	532
Rental Car Counters	567	877	1,034
Subtotal Concessions	**4,180**	**5,184**	**6,118**
Secure Public Area			
Security	2,610	2,400	3,600
Circulation	1,200	7,560	9,450
Restrooms	673	1,428	1,684
TSA Bag Screen Room	1,700	3,750	5,000
TSA Offices / Break	312	872	1,033
Airport Administration	1,213	2,755	3,251
Other / Airline Service Counters	387	351	414
Subtotal Secure Public Area	**8,095**	**19,116**	**24,431**
Non-Secure Public Area			
Circulation - Ticketing	3,086	2,159	2,556
Circulation - Baggage Claim	2,872	3,105	3,660
Circulation - General	3,930	6,261	7,389
Restrooms	766	1,428	1,684
Other	0	351	414

Table 3-1 Facility Requirements Comparison			
Terminal Building Conceptual Facility Requirements Comparison			
Description	Existing Terminal	2017 Space Requirements	2027 Space Requirements
Subtotal Non-Secure Public	**10,654**	**13,304**	**15,702**
Non-Public Area			
Loading Dock	0	207	252
Storage	167	688	839
Maintenance	686	688	839
Mech. / Elec. / Bldg. Systems	955	8,261	10,062
Miscellaneous	0	1,721	2,096
Subtotal Non-Public Area	**1,808**	**11,566**	**14,087**
Grand Total	**45,017**	**80,411**	**97,939**

Source: Jviation, 2012 Red Numbers show existing deficiencies; Analysis from the Airport Master Plan and based on CRJ-700

3.2.3.2.1 Upgrading Existing Terminal

In this alternative, the terminal would be expanded and rebuilt in its present location with improvements designed to address the facility deficiencies discussed in **Chapters 1 and 2**, and above. The following subsections identify the various functional areas of the terminal and the improvements that would occur from this alternative.

Function: As described in **Chapter 2**, the existing terminal is deficient for size, such as in the areas of the hold room, TSA screening, baggage screening, and concessions, among others. All of these areas would need to be substantially expanded in order to create a functional space for passengers and for operational efficiency and safety.

Safety: In order to understand the safety, maintenance and upgrade needs of the terminal, a review of the building life safety/fire protection, mechanical systems, and electrical systems was performed by BCER, Inc. and summarized in the 2012 Master Plan Update. Numerous deficiencies were noted in the various systems, with many of those deficiencies related to ongoing preventative maintenance and operational procedures. The BCER report included an assessment of current inadequacies, as well as estimated costs, to bring the problem areas into code compliance and/or meet recommendations. The following sections summarize these findings.

Life Safety/Fire Protection

A total of approximately $1.5 million in upgrades to the life safety/fire protection systems were identified:

- Upgrade ramp at the entrance to the ticketing area and modify restrooms to meet Americans with Disabilities Act (ADA) requirements;

- Upgrade fire protection sprinkler system to a fully automatic system and replace existing sprinkler heads;
- Install fire protection standpipe system;
- Install exterior deluge system on apron facing windows if fueling is to be performed within 100 feet of the terminal face;
- Install fire hydrants to the airside and increase the diameter of the water supply main from six inches to eight inches;
- Correct maintenance deficiencies and upgrade fire alarm system;
- Improve and repair fire area separations as they are inadequate and/or inoperable; and
- Provide permanent, safe rooftop access to heating, ventilation and air conditioning (HVAC) units.

Mechanical Systems: A total of approximately $535,500 in mechanical system improvements was identified. A summary of major findings includes:

- Prepare accurate mechanical system and controls drawings;
- Ductwork modifications in the baggage and operations areas;
- Current boiler plant improvements, and replace boiler by 2017; and
- Repair and upgrade other minor issues.

Electrical Systems: A total of approximately $363,000 in electrical system improvements was identified. Major findings include:

- Prepare system drawings;
- Remediate electrical deficiencies and broken devices;
- Conduct thermal imaging, repair roof conduits;
- Remove abandoned electrical equipment;
- Test all egress lighting and repair or replace as needed;
- Perform lighting study to identify higher efficiency lighting and maximize daylight harvesting;
- Provide emergency power to key areas; and
- Repair and upgrade issues as they are identified.

Conclusions: Even if all the safety issues highlighted above were fixed, the expansion of the terminal is functionally unfeasible due to the sheer age and configuration, and would still not address some of the other movement and functionality issues noted in **Chapter 2**. For this reason, upgrading would not be feasible while still meeting the needs of the passengers and staff during construction. Therefore, this alternative is eliminated from further consideration in the EA.

3.2.3.2.2 Terminal Area Improvements

Terminal Area Improvements includes the redevelopment of the Terminal Area to fix the deficiencies and operational issues that exist with the current terminal and the parking area. Additionally, Terminal Area Improvements includes the apron expansion, relocation of ancillary facilities, integration with public transit, relocation of the terminal roadway and the installation of a noise wall to mitigate aircraft run-ups. These projects are identified as the Terminal Area Improvements, because the disturbance footprint includes the whole east side as described in **Chapter 1** (see **Figure 1-1**). This allows for some flexibility in final design as it assumes a redevelopment of the entire area. Specific development alternatives pertaining to the terminal and the parking are split out to detail the needs of these two specific areas of focus within the terminal area.

3.2.3.2.2.1 Terminal Alternatives:

This alternative will include a terminal size around 140,000 square feet and a disturbance footprint of the entire east side area shown in the site plan to environmentally clear the maximum space needed for the terminal. This allows for flexibility during final design relative to the terminal sizing, and roadway and parking configuration. A highly detailed breakdown of space requirements can be done during the final terminal design to assist the County in the final decision on the terminal size.

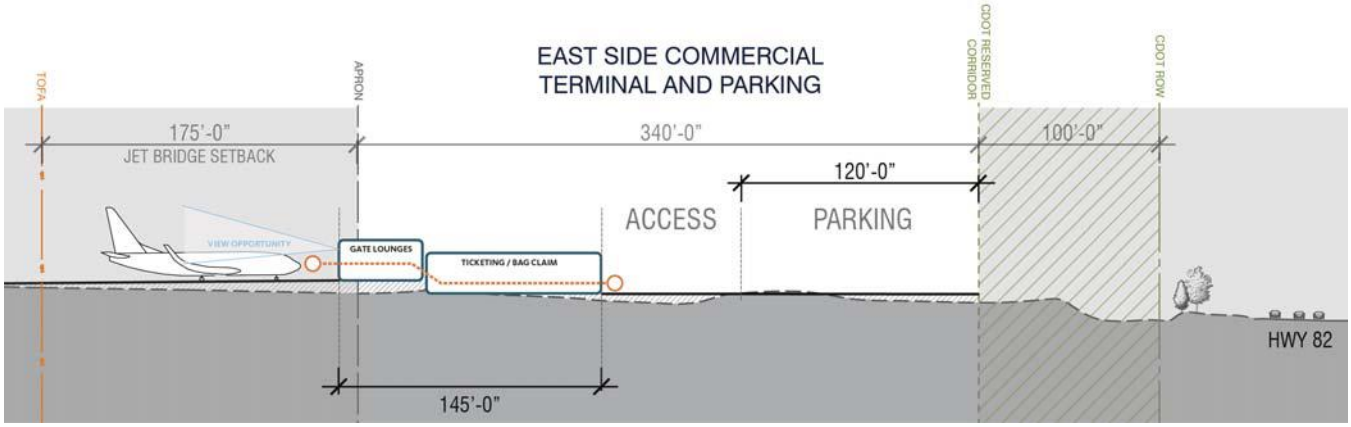
The first step in determining the terminal alternatives was to review the existing site constraints. The overall slope to the valley is about two percent down valley; additionally, the aircraft apron must slope away from the terminal to fix the existing issue of having runoff from the apron go into the terminal. This means that, from the start of the apron to its end, the height difference between the apron and the site slope is about 12-18 feet.

Four initial terminal concepts were presented to the community and the Board of County Commissioners (BOCC) for review. These included a single-story option, a split-level alternative, a nested concept, and a two-story concept. Two of the concepts were found to be more favorable due to their ability to fit within the landscape, while still providing functional “flow” of passengers through the terminal. During the public involvement effort, it was also determined that the general public preferred jet bridges not be implemented to preserve the passenger “experience” of unloading with the full mountain view. Therefore, jet bridges were removed from alternatives going forward.

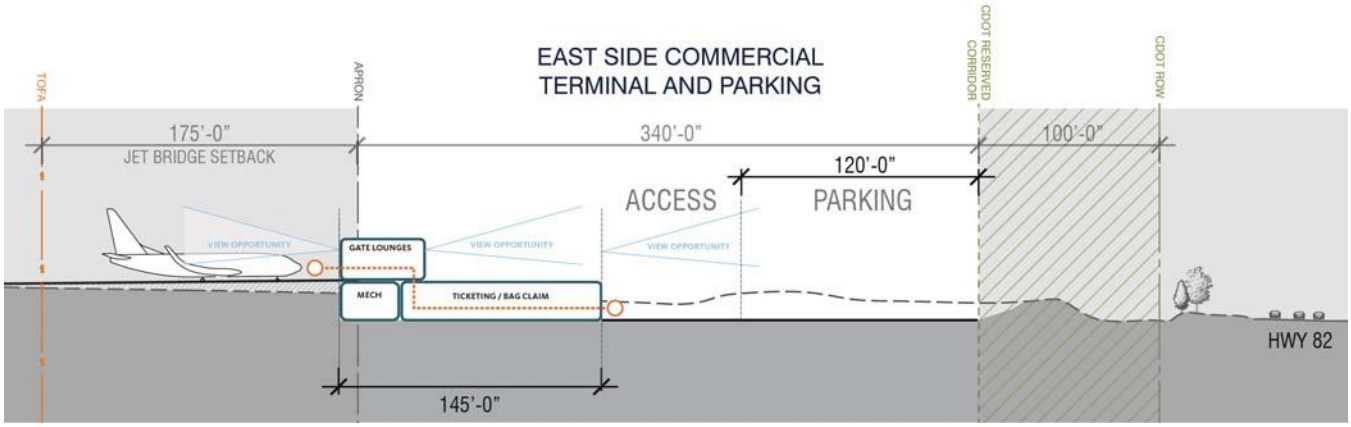
The two alternatives carried forward are a hybrid of the nested, two-story, and split-level concepts as detailed below. These two alternatives were chosen to move forward into the EA because they would provide several options that would be visually different and give the community a good understanding of the range of potential impacts in the EA, but both also would work functionally within the site constraints. Additionally, because this project assumes a full redevelopment of the east side terminal area, both terminal concepts are considered to have similar footprint impacts (that could be sized up or down based on final programming), but would have different visual impacts.

Terminal Alternative 1 – Ridge: Figure 3-2 (top) shows Terminal Alternative 1, a concept that includes a split-level that fits within the landscape where all functions are generally on a single level, and the split level provides some grade mitigation opportunity. This alternative would include an expanded air carrier apron that would fit within the site constraints and allow for additional parking of the larger aircraft expected in future conditions. It would increase the aircraft parking spots from six spots to 8-11 spots, depending on the wingspan (100 feet to the max 118 feet).

Terminal Alternative 2 – Pavilion: Figure 3-2 (bottom) shows Terminal Alternative 2, a hybrid of the nested/two-story concept that includes a setback appearance to make it less conspicuous within the landscape and a stack of the levels to allow for flexibility of space expansion in the future. It would include an expanded air carrier apron that would fit within the site constraints and allow for additional parking of larger aircraft in the future conditions. It would increase the parking spots from six spots to 8-11 spots, depending on the wingspan (100 feet to the max 118 feet).



Terminal Conceptual Alternative 1: The Ridge



Terminal Conceptual Alternative 2: The Pavilion

Figure 3-2 **Conceptual Terminal Alternatives**

3.2.3.2.2.2 Parking Alternatives

As part of the Terminal Area Improvement, parking deserves additional consideration due to the stated needs in the Master Plan versus the constraints that have been identified since the Master Plan was completed. As stated in **Chapter 2** and shown in the Master Plan Update, ASE is currently operating at a deficiency for the parking needs. Several alternatives examining this issue are described below.

The 2012 Master Plan examined the site constraints, which include the location of Highway 82 and Taxiway A, that create a building envelope that reduces the area on airport property for efficiently locating terminal area functions. The dictated Colorado Department of Transportation access points also limit the possibilities for layout of parking and roadways.

Parking Alternative 1 — Construction of a parking garage: The 2012 Master Plan evaluated several options to meet the future needs of ASE. The analysis indicated that, by 2027, approximately 1,713 spaces would be needed to meet demand. An extensive alternatives analysis was completed along with detailed public involvement process. Given the site constraints, the resulting recommendation was that, in order to accommodate even just 1,300 spaces, a garage would need to be built. Therefore, a parking garage that could accommodate 1,300 spots and integrate with the potential new terminal was a recommendation included in the Master Plan. The discussion with the public indicated that ASE could limit total number of spots to potentially entice people to use public transit or other options rather than driving, recognizing that traffic on Highway 82 is an issue for the valley.

As recently as 2015, the parking garage was considered to be the preferred alternative to meet parking needs. However, after the Air Service Study was completed, ASE initiated an Airport Layout Plan (ALP) Update and an update to the Capital Improvement Program (CIP) to account for the addition of the large-scale project related to the runway reconfiguration. This addition made it financially unfeasible for both the parking garage and the runway reconfiguration to occur at the same time. As the runway reconfiguration to retain commercial service was a higher need, the parking garage was not included in this EA. Therefore, due to a lack of financial feasibility, this alternative will not be brought forward into evaluation in the EA because it is not a reasonably foreseeable project. However, the terminal and site planning will take into account the potential for a future parking garage, so that, if it does become financially feasible at some point in the future, the terminal and site will be able to accommodate and fit efficiently with a future parking garage.

Parking Alternative 2 – Replace existing number of spaces: Once it was determined through the 2015 ALP Update that the parking garage was not reasonably foreseeable, coordination with ASE led to discussions on how many spots could be accommodated within the site constraints.

Full build out of the site with roadways and connections to the terminal could create about 950 spots, but would result in a "sea" of parking that likely would not meet ASE's design guidelines. Based on that, as well as direction from the BOCC, this alternative looks at meeting the existing number of spaces (662) with the terminal area update. The recommended site plan with generalized parking layout is included in **Figure 3-3**. The graphic shows a generalized site plan for both alternative options, which indicates similar disturbance footprint (Terminal Alternative 1 is on the top of the graphic and Terminal Alternative 2 is on the lower half of the graphic). Final design would take into account all design guidelines, and this EA covers the disturbance of the entire area to account for final design changes.

Although this parking alternative (the site plans for Terminal Alternative 1 and 2) matches the existing number of spots, the existing number of spots does not meet the projected demand. Therefore, this alternative assumes that for the near term, some number of passengers would need to find other ways to ASE due to the parking deficiencies. This could include use of taxi cab or shuttle service and the use of public transit. With recent improvements to the bus rapid transit (BRT) system within the valley, this could help alleviate some of the near-term parking issues at ASE. Parking Alternative 2 would meet the existing number of spots currently on ASE today, but would take into account a potential future parking garage to allow for future integration if it becomes feasible.

Parking Alternative 3 – Offsite Parking: Another alternative is the development of additional off-site parking. Other sites in the valley could help meet the parking demand. However, in addition to the ASE parking requirements, there is currently a larger valley-wide discussion occurring relative to parking availability and traffic on Highway 82. A future study of parking is expected at the City and County level. With the ASE parking garage still in consideration for the future term, the potential barriers to other sites, and the valley-wide concerns, it is recommended that offsite parking development is tabled until a full study of ASE and Roaring Fork Valley requirements is further examined within the context of other options, such as the parking garage, public transit and other community wide alternatives for long term solutions to ASE and the valley-wide parking issues. Therefore, this third alternative is not considered further in this EA.

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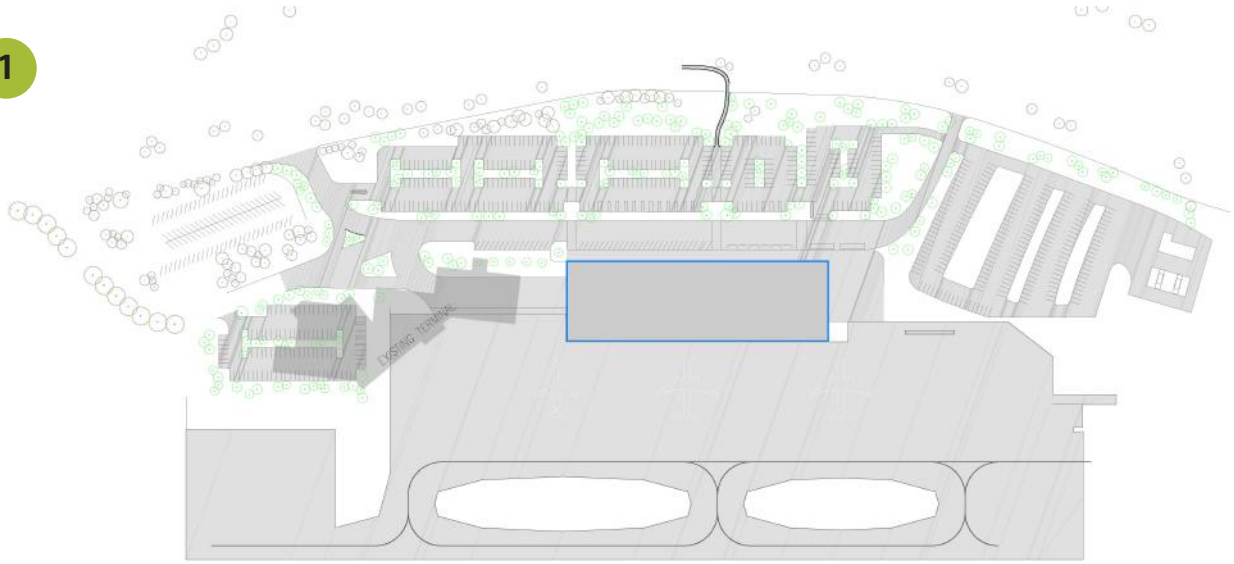

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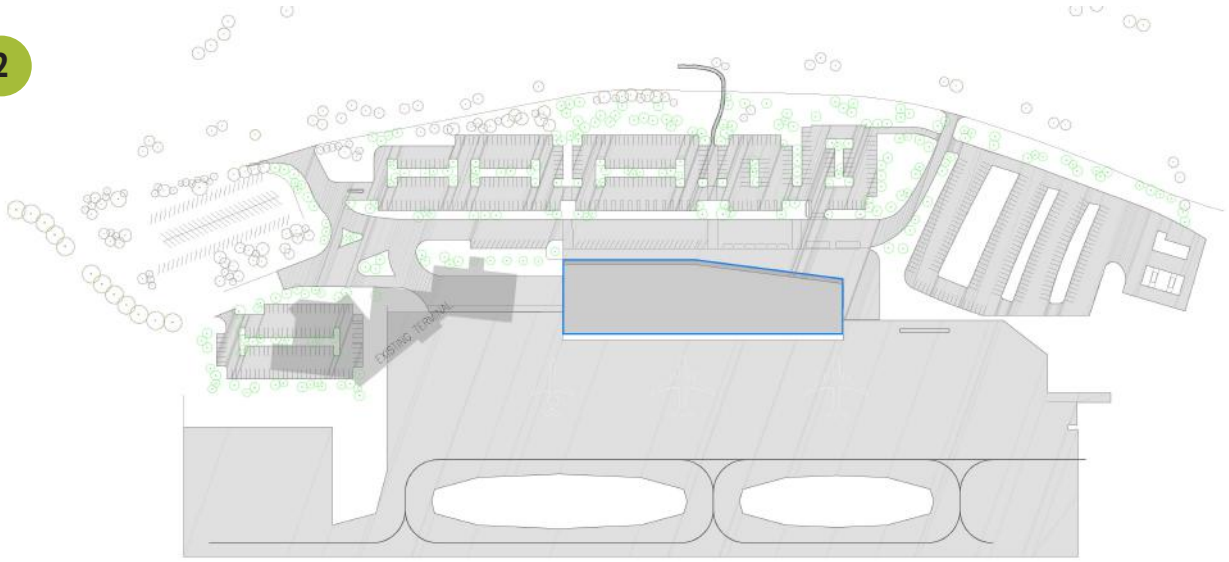


Conceptual Site Plan: 1) The Ridge. 2) The Pavilion.

Figure 3-3 **Conceptual Site Plans**

3.2.4 No Action Alternative

The No Action Alternative consists of retaining the existing ASE facilities (the runway, taxiway, terminal, roadway, and apron) as they exist today. This means that the runway and taxiway would continue to not meet FAA design standards. Existing functional limitations within the terminal and apron would continue to persist.

The No Action Alternative, in this case, would keep the existing 95-foot wingspan restriction and the Modification to Standards in place. Consequently, in the future, as airlines discontinue flying the CRJ-700, ASE could lose commercial passenger service as aircraft would not be available that meet the current County policy. Some form of commercial service is anticipated to still exist under this Alternative with the use of smaller, older turboprops; however, it would likely be greatly reduced. **Table 2-3** shows the anticipated level of activity in the No Action condition.

Existing and future expected passenger needs would not be met. Because the No Action would not allow ASE to accommodate their existing and future passenger and operational needs in the terminal area and would not address the FAA design standard deficiencies, the No Action Alternative would not meet the project Purpose and Need. However, because the CEQ regulations require consideration of the No Action Alternative as a baseline, it is carried forward for evaluation.

3.3 Alternatives Brought Forward into the EA

Based on the analysis above for the Terminal Area Improvements and Runway Alternatives, the following alternatives are brought forward into analysis of the EA. The combined alternatives are included in **Figure 3-5**. The two terminal alternatives are shown in detail in **Figure 3-3**.

3.3.1 Runway Alternative Brought Forward

Runway Alternative: This alternative includes a Runway Shift of 80 feet to the west, a widening to 150 feet and strengthening to allow up to 150,000 pounds, the piping of Owl Creek within the fence, the relocation of the NAVAIDs and runway/taxiway lighting, and the relocation of the perimeter road, Owl Creek Bike Path and Owl Creek Road as illustrated in **Figure 3-1**. This would also change the wingspan and aircraft weight restriction policy, removing the current restrictions and allowing aircraft up to 118 feet in wingspan and with an aircraft weight up to 150,000 pounds per FAA design group D-III. Flight procedures would need to be amended to take into account the shift in runway location. As is noted in the prior section, this alternative would affect Owl Creek, Owl Creek Bike Path, Owl Creek Road and the wetlands associated with Owl Creek. No other alternatives were identified that would avoid affects to Owl Creek and yet meet the project purpose and need.

3.3.2 Terminal Area Improvement Alternatives Brought Forward

Two terminal alternatives are being brought forward into the EA for further analysis.

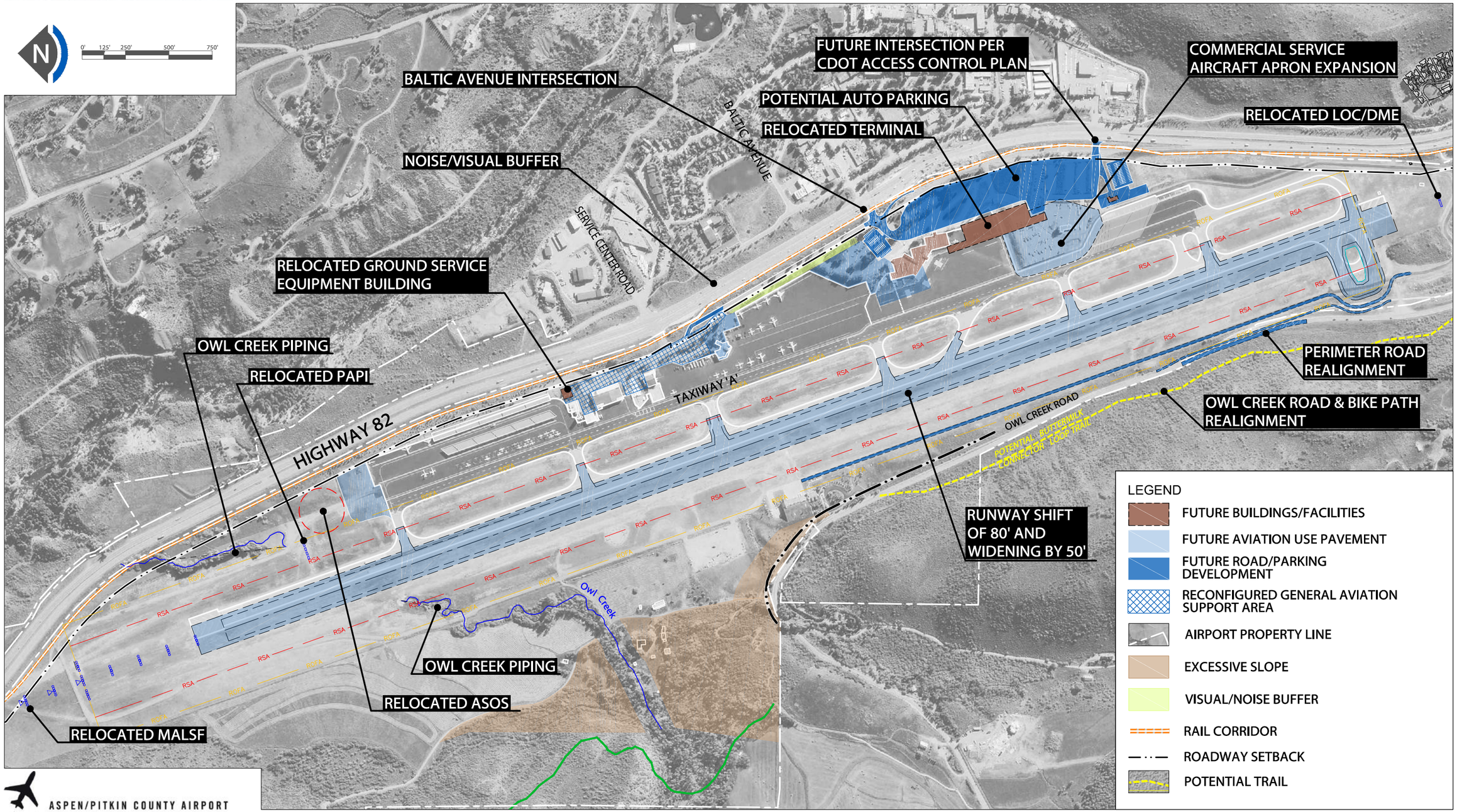
Common to both terminal alternatives: As described above, both terminal alternatives include the relocation and expansion of the terminal, reconfiguration of the terminal area roadways and parking, an expansion of the air carrier apron, relocation of ancillary facilities such as rental car facilities, and a noise wall over by the GA apron. It would also include demolition of the existing terminal facilities. Based on the parking discussion, Parking Alternative 2 is being brought forward as part of these alternatives (meeting existing parking needs). Both terminal alternatives include the same parking, apron, noise wall, and roadway projects as depicted in the combined alternatives **Figure 3-4** and the sizing of the terminal can be scaled based on the final terminal design. The differences between the two alternatives focus on the conceptual visual elements.

Terminal Alternative 1: Figure 3-2 (top) shows Terminal Alternative 1, a concept that includes a split-level that fits within the landscape where all functions are generally on a single level, and the split-level provides some grade mitigation opportunity. This alternative would include an expanded air carrier apron that would fit within the site constraints and allow for additional parking of the larger aircraft expected in future conditions. It would increase the parking spots from six spots to 8-11, depending on the size of the aircraft.

Terminal Alternative 2: Figure 3-2 (bottom) shows Terminal Alternative 2, a hybrid of the nested/two-story concept that includes a setback appearance to make it less conspicuous within the landscape and a stack of the levels to allow for flexibility of space expansion in the future. It would include an expanded air carrier apron that would fit within the site constraints and allow for additional parking of larger aircraft in the future conditions. It would increase the parking spots from six spots to 8-11, depending on the size of the aircraft.

3.4 Forecasts

As stated in **Chapter 2**, Purpose and Need, the forecasts in **Table 2-3** show the forecasts for the No Action and With Project scenarios. These forecasts will be the basis for the environmental impact analysis contained in **Chapter 4**.



ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Figure 3-4 **Combined Proposed Projects Runway Relocation and Terminal Projects**

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

4.0 Introduction: Approach to the Affected Environment/Environmental Consequences Chapter

The environmental analysis in **Chapter 4** combines the required affected environment and environmental consequences sections for each resource category, following the organizational structure outlined below. The intent of this chapter is to provide the reader with a clear description of the baseline conditions and the environmental analysis conducted for the project within the applicable framework of regulations.

The discussion for each resource category follows the organizational structure outlined below:

4.X Introduction to Resource

This section provides background the resource category and the associated regulatory context.

4.X.1 Affected Environment

This section describes the existing project site and study conditions at the time of analysis. Information about the affected environment is focused on issues relevant to the specific technical topic. Describing the baseline resources allows further study of the setting and environmental impacts of the alternatives under consideration. Each resource category can have a slightly different study area.

4.X.2 Environmental Consequences

The Environmental Consequences section documents the potential environmental impacts of the alternatives under consideration, including construction impacts, compared to the No Action Alternative. Potential impacts were calculated through research, analysis, and superimposing footprints over Geographic Information System (GIS) resources data.

This section examines the potential environmental consequences associated with the No Action Alternative; Terminal Alternatives 1 and 2; and Runway Alternative—all carried forward from the Alternatives chapter. The alternatives are outlined below:

No Action Alternative:
The No-Action Alternative would maintain the existing conditions of the 1971 ASE terminal, and existing runway taxiway deficiencies, which means these facilities would not be able to support the anticipated future commercial service aircraft fleet with the larger wingspan. For a few select categories the No Action will be separated out into the No Action Terminal and the No Action Runway.

Terminal Alternatives 1 and 2:
Overall, the potential impacts for both terminal alternatives are similar, differing only in design and visual impact. Both terminal alternatives assume a disturbance footprint of the entire east side (relative to the terminal, parking and roadway improvements) as shown in **Chapter 3, Alternatives**. Because both assume a full disturbance footprint, the overall east side improvement footprints do not change substantially between each alternative, and are thus considered together for most resource categories, except for visual impacts.

Runway Alternative:
This alternative would consist of a runway shift and widening in compliance with minimum federal standards. Adjustments include an 80-foot runway shift, a widening of the runway to 150 feet, an adjacent road and bike path realignment, and the continuance of Owl Creek piping underneath the runway.

4.X.3 Mitigation and Minimization

This section provides guidance on types of mitigation and best management practices that may be employed to reduce the potential impact of the proposed alternatives.

4.1 Air Quality

The Clean Air Act (CAA), which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards: Primary Standards (for the protection of public health) and Secondary Standards (for the protection of public welfare) and are presented in **Table 4.1-1**. The pollutants of concern are called "criteria pollutants" and include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than or equal to 10 microns aerodynamic diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns aerodynamic diameter ($PM_{2.5}$), and lead. VOCs are not a criteria pollutant and therefore no ambient air standards have been established for this pollutant. Since VOCs, however, react with NOx in sunlight to form O_3, this analysis includes VOCs and NOx emissions, and refers to them as ozone precursor pollutants.

All areas of the country are required to demonstrate attainment with the NAAQS. Attainment areas are areas where pollutant levels have not exceeded the NAAQS whereas non-attainment areas are those where one or more NAAQS was exceeded. If an area has exceeded a NAAQS in the past but currently meets the standards, the area is then designated as maintenance. States with regions that are non-attainment or maintenance are required to have a State Implementation Plan (SIP) in place to identify how the region will attain the NAAQS. Maintenance areas are subject to a SIP to ensure continued attainment.

The Colorado Department of Public Health and Environment (CDPHE) is the state agency responsible for air quality in Colorado, and has established a state standard for SO_2 (a three-hour maximum of 700 micrograms per cubic meter)[1] in addition to the EPA NAAQS.

The air quality evaluation focuses on emissions of criteria pollutants. The air quality assessment considered the emissions associated with each project independently, as well as the emissions for the combined projects.

[1] Department of Public Health and Environment. https://www.colorado.gov/pacific/sites/default/files/5-CCR-1001-14.pdf, accessed 3-20-2017

Table 4.1-1 National Ambient Air Quality Standards			
		NAAQS	
POLLUTANT	AVERAGING TIME	PRIMARY	SECONDARY
Ozone (O_3)	8-hour	0.075 ppm (147 µg/m^3)	Same as Primary
	1-Hour	N/A	N/A
Carbon Monoxide (CO)	8-hour	9 ppm (10 mg/m^3)	N/A
	1-Hour	35 ppm (40 mg/m^3)	N/A
Nitrogen Dioxide (NO_2)	Annual	0.053 ppm (100 µg/m^3)	Same as Primary
	1-Hour	100 ppb (188 µg/m^3)	N/A
Sulfur Dioxide (SO_2)	Annual	0.03 ppm (80 µg/m^3)	N/A
	24-Hour	0.14 ppm (365 µg/m^3)	N/A
	3-Hour	N/A	0.5 ppm (1300 µg/m^3)
	1-Hour	75 ppb (196 µg/m^3)	N/A
Course Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)	AAM	12.0 µg/m^3	15 µg/m^3
	24-Hour	35 µg/m^3	Same as Primary
Lead (Pb)	Rolling 3-Month Average	0.15 µg/m^3	Same as Primary

Source: USEPA

NAAQS = National Ambient Air Quality Standards

mg/m^3 = milligrams per cubic meter

ppm = parts per million (by volume)

N/A = Not applicable

µg/m^3 = micrograms per cubic meter

AAM = Annual arithmetic mean

4.1.1 Affected Environment

Pitkin County is currently in attainment for all NAAQS criteria pollutants. However, because the region was previously non-attainment for PM_{10}, it is now designated by USEPA as a PM_{10} maintenance area. The area is subject to a Maintenance Plan/SIP for PM10. In addition, federal approvals of projects occurring in nonattainment or maintenance areas must be shown to conform with the SIP before the federal approval can be granted.

The City of Aspen has been measuring PM_{10} for more than 20 years. Based on a City of Aspen inventory, the two main sources of PM_{10} in the Aspen area are from surface traffic dust (83%) and from wood burning (13%). In recent years, concentrations of PM_{10} have decreased from their peak in 1991 due to local actions. PM_{10} levels "climb when the roads dry out and become dusty from all the traffic grinding up the dirt on the roads and tracking the dirt back out onto roadways."[2] Pollutant levels are usually higher on weekdays when commuter and business surface traffic are high, and drop on weekends when there is less traffic. The City of Aspen and Pitkin County sweep and flush streets to reduce PM_{10} levels.

The emissions inventory prepared for the criteria pollutants is based on current activity levels and aircraft fleet mix. **Table 4.1-2** quantifies the yearly emissions of CO, VOC, NOx, SOx, PM_{10} and $PM_{2.5}$ by airport sources for 2015. Approximately 30,000 gallons of Avgas was consumed in 2015 in contrast to approximately 6 million gallons of JetA. Avgas emits lead, but was not evaluated because it is used in small quantities at ASE relative to JetA.[3]

As **Table 4.1-2** shows, of the sources evaluated, aircraft and auxiliary power units (APU) emissions are the greatest, with the greatest quantity of emissions being CO. The next greatest quantities are ozone precursor pollutants (VOC and NOx).

Table 4.1-2
Current Sources of Emissions (2015) That May be Affected by the Proposed Project (Tons/Year)

Pollutant	Aircraft & Auxiliary Power Units	Ground Support Equipment	Passenger On-Road Travel	Const-ruction	Total
Carbon Monoxide	259.1	42.0	1.0	NA	302.2
Volatile Organic Compounds	44.0	1.4	0.1	NA	45.4
Nitrogen Oxides	38.9	3.8	0.1	NA	42.8
Sulfur Oxides	6.7	0.1	0	NA	6.9
Particulate Matter (PM_{10})	2.0	0.1	0	NA	2.2
Particulate Matter ($PM_{2.5}$)	2.0	0.1	0	NA	2.2

Source: BridgeNet Consulting Services, May 4, 2017. May not add due to rounding. NA=Not applicable

[2] City of Aspen Environmental Health Department, *2008 Air Quality and Temperature Report for the City of Aspen*; www.aspenpitkin.com/pdfs/depts/44/2008airrpt.pdf

[3] Because Avgas consumption is declining, emissions were not quantified.

4.1.2 Environmental Consequences

The following sections discuss the air quality implications of the proposed projects at ASE in terms of air emissions. The FAA's Emissions Dispersion Modeling System (EDMS) Version 5.1.4 was used to determine emissions from aircraft and ground support equipment.[4] The ACRP *Report 102 Guidance for Estimating Airport Construction Emissions* and the electronic Airport Construction Emissions Inventory Tool (ACEIT), which relies on emission factors from the USEPA's Motor Vehicle Emissions Simulator (MOVES) model, was utilized to determine construction related emissions.

The following subsections contrast the 2015 conditions with future emissions in 2023 (the opening year for proposed terminal), 2028 (the first year for relocated operational runway), and then approximately five years later in 2033. Each project is considered separately, and then in combination. The No Action scenario was compared to the With Project scenarios to identify the project-related change in the same respective year. **Table 4.1-3** details the project related emissions anticipated from operating the development scenarios described in the sections that follow.

Because ASE is located in a maintenance area for PM_{10}, a General Conformity Applicability Analysis was conducted and is provided in the General Conformity Conclusion for PM_{10} emissions; a key criterion of the General Conformity process is to identify if emissions are less than the de minimis threshold established for PM_{10} (where de minimis is the level where no further analysis is needed). The General Conformity de minimis consideration is only needed for criteria air pollutants that are in non-attainment or maintenance, in the case of Pitkin County it is only needed for PM10. The General Conformity de minimis applicability analysis is included in **Section 4.1.4**.

[4] While FAA has adopted a new tool for evaluating air quality, because the project assessment began before the new tool was released, FAA National Environmental Policy Act guidance enables use of the model available when the study began. The newer model would be expected to produce the same results.

Table 4.1-3 Project Related Emissions						
	Annual Operational Emissions (tons per year)					
Year/Scenario	**CO**	**VOC**	**NOX**	**Sox**	**PM10**	**PM2.5**
2015/Existing Conditions	302.2	45.4	42.8	6.9	2.2	2.2
2023						
No Action	263.4	41.5	41.8	7.1	2.2	2.1
With Terminal Alt 1 or Alt 2	263.1	41.5	41.7	7.1	2.2	2.1
Project-related change (Alt 1 & 2)	-0.3	0	+0.1	0	0	0
2028						
No Action	263.8	48.3	32.8	6.1	2.0	2.0
With Terminal Alt 1 or Alt 2	263.6	48.2	32.9	6.1	2.0	2.0
Project-related change (Alt 1 & 2)	-0.2	-0.1	+0.1	0	0	0
With Airfield Improvements	258.3	43.2	39.5	6.8	2.0	2.0
Project-related change	-5.5	-5.1	+6.7	+0.7	0	0
With COMBINED Terminal and Airfield projects	258.1	43.1	39.4	6.8	2.0	2.0
Project-related change	-5.7	-5.2	+6.6	+0.7	0	0
2033						
No Action	263.1	53.8	24.1	5.2	1.9	1.9
With Terminal Alt 1 or Alt 2	263.0	53.7	24.1	5.2	1.9	1.9
Project-related change (Alt 1 & 2)	-0.1	-0.1	0	0	0	0
With Airfield Improvements	266.0	42.3	50.2	7.9	2.1	2.1
Project-related change	+2.9	-11.5	+26.1	+2.7	+0.2	+0.2
With COMBINED Terminal and Airfield projects	265.8	42.2	50.2	7.9	2.1	2.1
Project-related change	+2.7	-11.6	+26.1	+2.7	+0.2	+0.2

Source: BridgeNet Consulting, May 4, 2017

4.1.2.1 No Action Alternative

With the No Action, neither the terminal nor the runway projects would occur. Therefore, no project-related construction would occur, nor the associated construction emissions. However, total ASE activity is expected to continue to evolve (increase in aircraft operations and changes in fleet mix/aircraft) over time as noted in other chapters of this document.

As is shown by comparing the 2015 emissions to the future No Action emissions noted in **Table 4.1-3**, emissions of all pollutants are anticipated to decrease relative to 2015 except for VOC emission.

VOC emissions are expected to increase slightly between 2015 and 2033 (from 45.4 tons in 2015 to 53.8 tons in 2033 No Action). NOx emissions are expected to decrease from nearly 43 tons in 2015 to nearly 33 tons in 2028 and decrease further to 24 tons in 2033 under the No Action alternative. PM_{10} and $PM_{2.5}$ emissions are expected to remain relatively the same, decreasing slightly from 2.2 tons in 2015 to 1.9 tons in 2033. **Table 4.1-4** identifies the emissions by airport source and pollutant for 2023, 2028, and 2033.

The anticipated decreases in emissions can occur as activity levels at ASE are expected to increase due to changes in the aircraft fleet mix that lower most pollutants. These changes in emissions over time are largely a function of the fleet mix changes in the No Action condition as jet aircraft that meet the current wing span requirement are phased-out of commercial service and are primarily replaced with older turbojets and GA jets.

Table 4.1-4 Operating Emissions – No Action

2023 No Action (Tons per year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	239.7	40.6	38.9	6.6	1.6	1.6
APUs	6.6	0.4	1.6	0.3	0.4	0.4
Subtotal	246.2	40.9	40.5	7.0	2.1	2.1
GSE	16.1	0.5	1.2	0.1	<0.1	<0.1
Roadways	1.1	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.35**	**41.52**	**41.75**	**7.1**	**2.2**	**2.1**
2028 No Action (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	244.6	47.6	30.7	5.8	1.7	1.7
APUs	4.3	0.2	1.0	0.2	0.2	0.2
Subtotal	248.9	47.8	31.7	6.0	1.9	1.9
GSE	13.9	0.5	1.1	0.1	0.1	0.1
Roadways	1.0	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.8**	**48.3**	**32.8**	**6.1**	**2.0**	**2.0**
2033 No Action (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	246.3	53.2	22.6	5.0	1.8	1.8
APUs	2.2	0.1	0.4	0.1	<0.1	<0.1
Subtotal	248.5	53.2	23.0	5.1	1.8	1.8
GSE	13.6	0.5	1.1	0.1	<0.1	<0.1
Roadways	1.1	0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.1**	**53.8**	**24.14**	**5.24**	**1.9**	**1.9**

Source: BridgeNet International, May 4, 2017. May not add due to rounding.

4.1.2.2 Terminal Alternatives 1 and 2

With implementation of the proposed terminal improvements, there would be construction emissions, and then upon completion of the project, operating emissions. The following paragraphs discuss these emissions.

Construction Emissions: To calculate emissions during the construction of the replacement terminal and associated facilities, the types of equipment and construction processes were considered. ACRP *Report 102 Guidance for Estimating Airport Construction Emissions* and the electronic Airport Construction Emissions Inventory Tool (ACEIT), which relies on emission factors from the USEPA's Motor Vehicle Emissions Simulator (MOVES) model, was utilized. The construction emissions estimates include emissions from non-road equipment, employee work commute, material delivery, and fugitive emissions.

Construction of the terminal is expected to occur between 2018 and 2022. Because detailed construction phasing plans have not yet been developed, it is estimated that peak construction emissions would not exceed 50 percent of total construction emissions. **Table 4.1-5** lists the total terminal replacement construction emissions and identifies the peak year construction emissions, assumed to be 50 percent of the total.

Table 4.1-5 Construction Emissions – During Terminal Construction

Pollutant	Total Construction Duration Emissions (Short Tons)	Peak Year Construction Emissions (50% of total – tons)
Carbon Monoxide (CO)	29.9	15.0
Volatile Organic Compounds (VOC)	5.9	3.0
Nitrogen Oxides (NOx)	6.0	3.0
Sulfur Oxides (SOx)	0.1	<0.1
Particulate Matter (PM_{10})	0.6	0.3
Particulate Matter ($PM_{2.5}$)	0.3	0.2

Source: Synergy Consultants, Inc. December 2016, numbers rounded to the nearest tenth of a ton.

Short-term construction-related emissions would occur with the proposed project implementation. The short-term construction emissions are not expected to be significant, as the total direct and indirect emissions including construction emissions are below de minimis (below the USEPA General Conformity threshold set for PM_{10} in a maintenance area), as shown in **Section 4.1.4** for the General Conformity conclusion and do not require further analysis. **Section 4.1.4** discusses the best management practices that would be used to reduce construction-related emissions.

Operational Emissions: **Table 4.1-6** shows the Terminal operational emissions in years 2023, the first full year after commissioning, year 2028, and year 2033. Project-related emissions, those emissions that would occur beyond the No Action, are also identified in **Table 4.1-3** (in the row titled project-related change). This includes an average decrease in taxi distance of 193 feet due to the shift in terminal location to the south.

When comparing the table above to the emissions associated with the No Action, the proposed terminal improvements at ASE would not materially change emissions. All project-related changes due to the terminal would be less than 1 ton in 2023 through 2033. In 2023, NOx emissions would increase slightly (0.1 ton) but result in a slight reduction in CO emissions (0.3 ton). By 2028, CO emissions with the project would decrease by 0.2 ton, VOC would decrease by 0.1 ton, and NOx would increase by 0.1 ton. By 2033, the project-related change would be a reduction in both CO and VOC, and no change in other pollutants.

As is described in a later section (**4.1.4**), all terminal-related project emission changes would not be significant.

Table 4.1-6 Operating Emissions With Project Terminal Only Alternatives 1 and 2

2023 With Terminal ONLY Alternatives 1 and 2 (Tons per year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	239.4	40.6	38.9	6.6	1.6	1.6
APUs	6.6	0.4	1.6	0.3	0.4	0.4
Subtotal	245.9	40.9	40.4	7.0	2.1	2.1
GSE	16.1	0.5	1.2	0.1	<0.1	<0.1
Roadways	1.1	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.1**	**41.51**	**41.7**	**7.1**	**2.2**	**2.1**
2028 With Terminal ONLY Alternatives 1 and 2 (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	244.4	47.5	30.7	5.8	1.7	1.7
APUs	4.3	0.2	1.0	0.2	0.2	0.2
Subtotal	248.7	47.7	31.6	6.0	1.9	1.9
GSE	13.9	0.5	1.1	0.1	<0.1	<0.1
Roadways	1.0	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.6**	**48.2**	**32.7**	**6.1**	**2.0**	**2.0**
2033 With Terminal ONLY Alternatives 1 and 2 (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	246.1	53.1	22.6	5.0	1.8	1.8
APUs	2.2	<0.1	0.4	0.1	<0.1	<0.1
Subtotal	248.3	53.2	23.0	5.1	1.8	1.8
GSE	13.6	0.5	1.1	0.1	<0.1	<0.1
Roadways	1.1	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**263.0**	**53.7**	**24.1**	**5.2**	**1.9**	**1.9**

Source: BridgeNet International, May 5, 2017. Note: May not add due to rounding.

4.1.2.3 Runway Alternative

The With Project airfield evaluation identified emissions associated with construction of the project and operation of the proposed runway improvements.

Construction Emissions: To calculate emissions during the construction of the airfield improvements, the types of equipment and construction processes were considered. Similar to the methods for evaluation of the terminal, ACRP Report 102 and the ACEIT were used. The project description identified in Chapters 1 and 2 of this document formed the basis of the construction equipment estimates. Included in the construction emissions estimates are emissions from nonroad equipment, employee work commute, material delivery, and fugitive emissions.

Construction of the airfield improvements are expected to occur between 2023 and 2027. Because detailed construction phasing plans have not yet been developed, emissions are not available at the planning phase, and it is estimated that peak construction emissions would not exceed 50 percent of total construction emissions. **Table 4.1-7** lists the total terminal replacement construction emissions and identifies the peak year construction emissions, assumed to be 50 percent of the total.

Table 4.1-7 Construction Emissions During Airfield Construction (2023-2027)

Pollutant	Total Construction Duration Emissions (Short Tons)	Peak Year Construction Emissions (50% of total – tons)
Carbon Monoxide (CO)	24.0	12.0
Volatile Organic Compounds (VOC)	26.7	13.4
Nitrogen Oxides (NOx)	3.7	1.9
Sulfur Oxides (SOx)	0.1	<0.1
Particulate Matter (PM_{10})	1.4	0.7
Particulate Matter ($PM_{2.5}$)	0.2	0.1

Source: Synergy Consultants, Inc. December 2016, numbers rounded to the nearest tenth of a ton.

Short-term construction-related emissions would occur with the proposed project implementation. These construction-related emissions will be minimized by use of best management practices noted in **Section 4.1.3**.

Operational Emissions: Once construction is completed, the airfield operation will change slightly, including a slight change in aircraft moving around on the airfield and a change in the aircraft fleet mix as described in **Chapter 1** and **Chapter 2**. The runway would be shifted 80 feet to the west, the taxi distance would increase by about 160 feet on average. **Table 4.1-8** shows the With Project operational emissions in years 2028 (the first full year after commissioning the airfield improvements) and then in year 2033 (five years hence). Project-related emissions, those emissions that would occur beyond the No Action, are also identified in **Table 4.1-3**.

Table 4.1-8 Operating Emissions With Project Runway Alternative

2028 With Project Runway Alternative (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	238.6	42.5	37.0	6.5	1.7	1.7
APUs	5.3	0.2	1.4	0.2	0.3	0.3
Subtotal	243.8	42.7	38.4	6.7	1.9	1.9
GSE	13.3	0.5	1.1	0.1	<0.1	<0.1
Roadways	1.2	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**258.3**	**43.2**	**39.5**	**6.8**	**2.0**	**2.0**
2033 With Project Runway Alternative (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	246.3	41.6	47.3	7.6	1.8	1.8
APUs	6.2	0.2	1.9	0.2	0.2	0.2
Subtotal	252.5	41.8	49.2	7.8	2.1	2.1
GSE	12.2	0.4	1.0	0.1	<0.1	<0.1
Roadways	1.3	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**266.0**	**42.3**	**50.2**	**7.9**	**2.1**	**2.1**

Source: BridgeNet International, May 5, 2017. Note: numbers may not add due to rounding.

When comparing the table above to the emissions associated with the No Action, the airfield-related improvements would not materially affect ASE emissions. In 2028, the proposed airfield improvements would reduce emissions (or maintain emission levels) of all criteria pollutants except NOx and SOx, which would increase slightly. These changes are all associated with the changes in aircraft fleet mix due to the wider wingspan/bigger aircraft and the increased number of operations in future timeframes. By 2033, these changes in aircraft fleet mix would be expected to increase emissions of all criteria pollutants, except VOC which would decrease.

As noted in **Table 4.1-3,** which shows the project-related changes, the most notable increase in 2033 would be for NOx, which would increase by 26.1 tons (slightly more than double the NOx emissions). This change is associated with the much greater NOx emissions associated with the bigger aircraft that would be operating in the 2033 timeframe.

All airfield-related project emission changes would not be significant. Changes to PM_{10} would be de minimis as described in **Section 4.1.4**.

4.1.2.4 With Project Combined Terminal and Runway Alternatives

In addition to considering each project separately, the combined effect of the terminal improvements and the airfield projects were also considered. As the airfield projects would not be completed by 2023, the 2023 effects noted for the Terminal Improvements in **Section 4.1.2.2** would be the resulting air emissions from the combined project. By 2028 both projects would be complete and thus an operational emission inventory was prepared for the combined scenario.

Construction Emissions: Completion of the combined terminal and airfield improvement projects would result in construction of the terminal improvements between 2018 and 2022 as noted in **Table 4.1-5**. Completion of the airfield improvements would occur between 2023 and 2027 and result in the emissions shown in **Table 4.1-7**. Thus, construction of the two sets of projects is not expected to overlap.

Short-term construction-related emissions would occur with the proposed project implementation. These construction-related emissions will be minimized by use of best management practices noted in **Section 4.1.4**.

***Operational Emissions*:** Once construction of the terminal is completed, a slight change in emissions relative to the No Action would occur in 2023 due to the slight overall average decrease taxi distance to the center of the new terminal and relocation of the runway. With completion of the airfield improvements, in 2028 the combined terminal and airfield projects would again experience a slight change in emissions. **Table 4.1-9** shows the With Project operational emissions in years 2028 (the first full year of the combined implementation of the terminal and airfield improvements) as well as emissions in 2033 (five years hence). Project-related emissions, those emissions that would occur beyond the No Action, are identified in **Table 4.1-3**.

Table 4.1-9 Operating Emissions With Project Combined Terminal and Runway Alternatives						
2028 With Project Combined Terminal and Airfield Improvements (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	238.3	42.4	36.9	6.5	1.7	1.7
APUs	5.3	0.2	1.4	0.2	0.3	0.3
Subtotal	243.6	42.6	38.3	6.7	1.9	1.9
GSE	13.3	0.5	1.1	0.1	<0.1	<0.1
Roadways	1.2	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**258.1**	**43.1**	**39.4**	**6.8**	**2.0**	**2.0**
2033 With Combined Terminal and Airfield Improvements (Tons per Year)						
Category	**CO**	**VOC**	**NOx**	**SOx**	**PM-10**	**PM-2.5**
Aircraft Engines	246.1	41.6	47.2	7.6	1.8	1.8
APUs	6.2	0.2	1.9	0.2	0.2	0.2
Subtotal	252.3	41.7	49.2	7.8	2.1	2.1
GSE	12.2	0.4	1.0	0.1	<0.1	<0.1
Roadways	1.3	<0.1	<0.1	0.0	0.0	0.0
Grand Total	**265.8**	**42.2**	**50.2**	**7.9**	**2.1**	**2.1**

Source: BridgeNet International, May 5, 2017. Note: numbers may not add due to rounding.

When comparing **Table 4.1-9** to the emissions associated with the No Action in 2028, the combined terminal and airfield improvements would produce emissions similar to that of the airfield improvements only. In 2028, the proposed combined projects would reduce emissions (or maintain emission levels) of all criteria pollutants except NOx and SOx, which would increase slightly (6.7 tons and 0.8 tons, respectively). These changes are all associated with the changes in aircraft fleet mix due to the wider wingspan/bigger aircraft that would be operating. By 2033, these changes in aircraft fleet mix would be expected to increase emissions of all criteria pollutants, except VOC which would decrease. As noted in **Table 4.1-3**, which shows the project-related changes, the most notable increase in 2033 would be for NOx, which would double. This change is associated with the much greater NOx emissions associated with the bigger B737 aircraft that would be operating in the 2033 timeframe with the project.

All airfield-related project emission changes would not be significant. Changes to PM10 would be de minimis as described in **Section 4.1.4**.

4.1.3 General Conformity

Because a federal approval is required for the proposed actions, it must be shown that the project would conform with the State Implementation Plan (SIP) for those criteria pollutants that are in nonattainment or maintenance. As noted earlier, the area is subject to a SIP for course particles (PM_{10}) due to past exceedances of the standard. Thus, conformity must be demonstrated for PM_{10} only.

The first step in the conformity process is to prepare an applicability analysis, as the proposed projects are not presumed to conform.[5] The applicability analysis compares project-related emissions to the de minimis thresholds established in the General Conformity rules.

To identify potential air emissions from the proposed actions, the emissions inventories in the preceding sections were contrasted with the de minimis levels for a maintenance area for PM_{10}, which is 100 tons per year. The analysis in **Table 4.1-10** shows that with the combined terminal and airfield improvements the project-related emissions would be below the Clean Air Act defined de minimis threshold, and thus the planned actions do not require a conformity determination. No project, either individually or in combination, would produce significant air quality impacts.

[5] The General Conformity rules allow agencies to identify and adopt projects that are "presumed to conform" as their emissions will always be below the de minimis. FAA has adopted a list of such projects, which do not include those reflected in the Proposed Project.

Table 4.1-10 Total Project Related Impacts (Tons per Year Emissions) – Applicability Analysis		
Year	**Project-Related PM_{10} (tons/year)**	**Are Project-Related Emissions less than De-Minimis?**
Terminal Replacement Project Only		
Year 2018-2022 (terminal construction year peak year)	0.3	Yes
Year 2023 (Operational emissions)	0.0	Yes
Year 2028 (Operational emissions)	0.0	Yes
Year 2033 (Operational emissions)	0.0	Yes
Airfield Improvements Only		
Year 2023-2027 (Airfield construction peak year)	0.7	Yes
Year 2028 (Operational emissions)	0.0	Yes
Year 2033 (Operational emissions)	0.2	Yes
Implementation of Both Projects		
Years 2018-2022 (construction of terminal replacement)	0.3	Yes
Year 2023-2027 (Operational and airfield construction)	0.7	Yes
Year 2028-2032 (Operational emissions)	0.0	Yes
Year 2033 (Operational emissions)	0.2	Yes
De-minimis (Maintenance area)	100	

Note: Construction emissions for airfield 0.7 ton PM10 plus no operational related changes in emissions

Source: Synergy Consultants Sources reflect direct and indirect emissions.

4.1.4 Minimization and Mitigation

The two proposed projects are not expected to produce significant air quality emissions when compared to the No Action Alternative. However, Pitkin County anticipates voluntarily implementing a number of measures to reduce project emissions further, beyond that which is described earlier:

- Odors from vehicle emissions during construction would be controlled by muffler systems on the vehicles.
- Dust from construction activities would be controlled by the use of a water truck that will water the construction site at least once daily.
- Emissions from equipment and vehicles would not exceed state and national air quality standards.
- Construction equipment engines would be turned off when idle for more than 5 minutes.

In addition to the emission reduction actions during construction, Pitkin County anticipates that the terminal improvements will result in an energy reduction on a per square foot basis over the current terminal complex. Pitkin County will explore obtaining FAA Voluntary Airport Low Emission (VALE) funding for the installation of preconditioned air and ground power to enable airlines to reduce their use of APUs. Additionally, ASE will consider applying for additional energy efficient grants such as under Section 512 of the FAA Modernization and Reform Act (FRMA) and Energy Efficiency in Buildings (Section 138 of the Airport Improvement Program), as well as potential local grants such as the Community Office for Resource Efficiency (CORE).

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4.2 Biological Resources

Biological resources include fish, wildlife, plants, and their respective habitats. There are numerous regulations and guidance related to biological resource including, but not limited to, the Endangered Species Act (16 U.S.C. §§ 1531-1544), the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667d), the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.), Executive Order 13112 (Invasive Species), as well as various state and local regulations. The US Fish and Wildlife Service (USFWS) is the federal agency responsible for the Endangered Species Act, the Fish and Wildlife Coordination Act and the Migratory Bird Treaty Act. Colorado Parks and Wildlife is the state agency that is responsible for conservation, outdoor recreation and wildlife management within the State of Colorado.

The Endangered Species Act (ESA) requires federal agencies to ensure that actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of endangered or threatened species nor result in the destruction or adverse modification of a species' habitat. Agencies overseeing Federally-funded projects are required to obtain information from the USFWS concerning any species listed, or proposed to be listed, which may be present in the study area. Coordination with the United States Fish & Wildlife Service (USFWS) consists of requesting information regarding any endangered, threatened, and rare species (ETR species) that may occur within the survey area and nearby, and consequently asking for concurrence with the assessment that there is no significant impact or concern regarding endangered, threatened, or rare species.

4.2.1 Affected Environment

The area surveyed for this project is included in **Figure 4.2-1**. ASE and the project survey area are located approximately two miles northwest of Aspen, Colorado, on a bench about 200 feet above the Roaring Fork River. The river is approximately one mile east and north of the survey area, and the survey area is at an approximate elevation of 7,800 feet. The general region is semi-arid and typified by sagebrush-steppe. The survey area experiences a total annual precipitation of approximately 24 inches. The annual average maximum temperature is about 55 degrees and the annual average minimum temperature is about 28 degrees. The total annual snowfall is approximately 174 inches. Both the Terminal Alternatives and the Runway Alternative are located primarily on previously disturbed ground.

4.2.1.1 General Conditions

Field surveys for plants and animals were conducted on-site to document the affected environment. Aerial photographs were reviewed for indications of various habitats and vegetation.

Maps were used as a resource to perform a qualitative survey within the study area, which included identifying potential habitat for the protected species as identified by the CNHP data and the USFWS. Survey methods included meandering pedestrian transects throughout the study area by habitat type. Flora and fauna species were identified and recorded, with special attention to any threatened, endangered, or sensitive species. The field survey took place in 2015.

The survey area on the east includes the heavily-developed terminal area, which has been previously disturbed in its entirety. The west side of the survey area has been manipulated and includes a bike path; seeded areas at the sides of the existing runway, along the apron, and along Owl Creek Road; as well as some remaining natural sagebrush communities. Owl Creek, which is a habitat for fish and other wildlife, is present at the northern end of the survey area where a segment of stream is piped under the runway and taxiway as it courses northeast towards the Roaring Fork River. No listed endangered, threatened, or special status species are commonly found within the survey area.

Owl Creek supports a riparian/wetland area in the northwestern portion of the survey area and is a source of water for hay meadows north and west of the runways. Other ditches with control features parallel Owl Creek Road. A spring, located outside of the survey area to the west of the runway, is controlled at various points along its course before the channel moves through the survey area. One small wetland area is identified along a ditch in the western portion of the survey area.

Within the southern end of the survey area, there is another wetland area that divides into two branches up gradient. These two arms are separated by a sagebrush-covered hill. Water flows north from under Owl Creek Road into one arm of the wetland. The other wetland arm receives water from a ditch west of Owl Creek Road and the survey area.

Much of the survey area is relatively flat except for soil piles and topographic high points which support native Sagebrush, Oakbrush and Aspen/Oakbrush communities. The Sardy Homestead and Airport Ranch site, on the northwest side of the runway and taxiway, consist of several abandoned buildings and old developed springs and channels, one of which is Owl Creek. The western portion of the survey area grades upslope and encompasses shrubby hillsides.

The Wasatch Formation of Paleocene age dominates the landscape in this area. The formation underlies the Uinta Formation. Soils made from these formations differ according to slope, aspect, and other conditions. ASE resides on a soil type that can support native populations of wheatgrasses, needle and thread grasses, and sagebrush. However, this natural vegetation has been cleared for the runway and much of the survey area has been seeded.

Mapped soil units in the survey area are in the Kilgore, Kobar, Morval and Uracca series and are classified as Ustolic Haplargids. With the exception of the Kilgore silt loam, they are well-drained soils. Their derivation is from igneous and metamorphic rock in the case of the Uracca soils, and from shale in the case of Kobar soil. The Morval soil is derived from sandstone and shale, and the Kilgore is of a mixed alluvium origin.

Site conditions, such as soils, slope, exposure to solar radiation, and disturbance, dictate where wildlife and plant communities exist within the site boundaries. For example, graded areas are seeded with a mixture of native and non-native species, while small hills support remnants of the high mountain sagebrush communities that vary based on their exposures. Steeper slopes support Gambel's oak (*Quercus gambelii*) and aspen (*Populus tremuloides*). **Figure 4.2-1** provides the general location of the survey area and the plant communities described. Photos are also presented in **Appendix 1**.

4.2.1.2 Wildlife, Fish and Plants

Aerial photographs were reviewed for indications of various land uses including wetlands and "waters of the United States," development, and other uses. The maps were used as a resource to perform a qualitative survey, which included identifying potential habitat for the protected species as identified by the CNHP data and the USFWS. Survey methods included a site survey based on meandering pedestrian transects throughout the survey area by habitat type. Flora and fauna were recorded, with special attention to any threatened, endangered, or sensitive species. The mobile nature of many mammal and bird species can limit the effectiveness of field surveys. Although surveys for these species can include actual sightings, sometimes more pertinent data is developed from identifying and characterizing habitat types that fall within the proposed project boundaries. Field survey data from site visits in 2008 and 2015, and information from the USFWS and Colorado Natural Heritage Program, the Colorado Parks and Wildlife (CPW) latitude longitude studies, Righter and Andrews (1992)[1] and Hammerson (1999)[2] serve as the basis for species potentially located within the project boundaries.

The Colorado Natural Heritage Program (CNHP) was contacted to assess the presence of endangered, threatened, and rare species (ETR). Correspondence from CNHP, dated October 21, 2015, indicated that a federally threatened and state endangered species, the Canada lynx (*Lynx canadensis*), was last observed in 1969 within a two-mile radius of the survey area. It was sighted well to the north of ASE in a forested area. There is no dense coniferous forested habitat within the ASE project boundaries and therefore no Canada Lynx are expected to be found in the area.

1 Righter, Robert and Andrews, Robert, Colorado Birds, A Reference to Their Distribution and Habitat, Denver Museum of Natural History, 1992, pp. 442.
2Hammerson, Geoffery, Amphibians and Reptiles in Colorado, University Press of Colorado, 1999.

The CNHP lists no other locations of candidate species, rare and/or imperiled mammals, birds, reptiles, amphibians, or insects within a two-mile radius of the proposed projects.
Bio-Environs accessed the USFWS Information for Planning and Consultation (IPaC) website in September 2015 and found no indication of critical habitat for rare, threatened or endangered species in Pitkin County or near the survey area. A letter to USFWS was sent December 3, 2015, to confirm these findings, and a response was received in 2015 (**Appendix 2**) stating that they had no concerns. The ASE project area is primarily disturbed or previously developed land, which does not provide suitable habitat for endangered species listed at the IPaC. These species include the Canada Lynx, North American Wolverine, Yellow Billed Cuckoo, Mexican Spotted Owl, Ute Ladies'-tresses, Boney Tail Chub, Colorado Pike Minnow, Greenback Cutthroat Trout, Humpback Chub, Razorback Sucker. According to the IPaC website the ASE project area is outside of designated critical habitat for the Canada Lynx, Spotted Owl, Yellow Bellied Cuckoo, Boney Tail Chub, Colorado Pike Minnow, Humpback Chub, and Razorback Sucker. No critical habitat has been designated for the North American Wolverine, Ute Ladies'-tresses and the Greenback Cutthroat Trout. The elevation at ASE is too low for North American Wolverines and therefore this species is unlikely to be found in the area. Although the ASE project area includes limited habitat that can potentially support Ute Ladies'-tresses none were found in the 2015 survey. Greenback Cutthroat Trout require clear, cold, well oxygenated water. Owl Creek affords marginal water quality due to inputs from warmed irrigation waters and therefore, it provides a poor trout habitat.

Bio-Environs conducted field surveys September 8-9, 2015, for plant communities and wetlands, and while doing so also noted presence of wildlife. The following information was compiled from this survey, the previous site survey and the other previously discussed sources.

Wildlife

Wildlife species identified in the field are presented in **Table 4.2-1**. This table also includes species recognized by scat, bones, or other means within the property boundaries. These species are typically associated with mixed sagebrush shrublands, marsh or sedge meadows, or drainages. No threatened or endangered species were encountered.

Table 4.2-1 Species Encountered During Site Visit on July 10, 2008, and September 9, 2015		
Common Name	**Scientific Name**	**Evidence**
Goose	*Branta Canadensis*	Sighting
Common snipe	*Gallinago*	Sighting
Red-tailed hawk	*Buteo jamaicensis*	Sighting
Northern harrier	*Circus cyaneus*	Sighting
Vesper sparrow	*Pooecetes gramineus*	Sighting
American robin	*Turdus migratorius*	Sighting
Broad-tailed hummingbird	*Celasphorus platycerus*	Sighting
Northern flicker	*Colaptes auratus*	Sighting
Cliff swallow	*Petrochelidon pyrrhonota*	Sighting
Common raven	*Corvus corax*	Sighting
American crow	*Corvus brachurhynchos*	Sighting
Brewer's blackbird	*Euphagus cyanocephalus*	Sighting
Red-winged blackbird	*Agelaius phoeniceus*	Sighting
Yellow-headed blackbird	*Xanthocephalus*	Sighting
Black-billed magpie	*Pica*	Sighting
Black-capped chickadee	*Poecile atricapillus*	Sighting
Mountain bluebird	*Sialia sialis*	Sighting
Elk	*Cervus Canadensis*	Scat and tracks
Deer	*Odocoileus hemionus*	Sighting
Red fox	*Vulpes*	Sighting
Thirteen-lined ground squirrel	*Spermophilus tridecenlineatus*	Sighting

Source: Bio-Environs, 2008 and 2015

Fish

Owl Creek, four ditches, and waterways through the wetlands at the southern end of the survey area may provide habitat for fish; however, none were observed in those features during the September 2015 field survey. The Roaring Fork is adjacent to ASE and is clearly separated from the survey area via berms, Hwy 82, and other features. In addition, there is a substantial drop off in Owl Creek with natural fish barriers leading up from the Roaring Fork River to ASE property (see **Appendix 1, Photograph 1**). The drop-off and rock barriers prevent fish from migrating from the Roaring Fork River up Owl Creek within the survey area.

Plants and Plant Communities

Based on correspondence from the CNHP dated October 21, 2015, there is one potential conservation area (PCA) and multiple network of conservation areas (NCAs) within the vicinity of the survey area. PCAs are areas that provide habitat and ecological processes upon which a particular species, suite of species, or natural community depends on for its continued existence.

NCAs include unoccupied or un-surveyed areas that are within the same ecological system that the species or natural communities require. NCAs contain PCAs that may occur at a variety of ecological scales. The CNHP notes that the Brush Creek at Roaring Fork River PCA is located along the Roaring Fork between Aspen and Basalt and is within a deep canyon that is outside of the proposed projects boundary. Also, several NCAs are located within the vicinity of ASE, but are all located outside the survey area.

4.2.1.3 Ground Cover and Vegetation Types

Vegetation and ground cover is an important component of biological resources and provides food and shelter for mammals, birds, and other organisms. Identifying the types, amount of vegetation and ground cover provide the ability to measure habitat loss based on project scope. To that end vegetation and ground cover was mapped by identifying plant communities (**Figure 4.2-1**). Plant communities are identified by dominant plant species, and these associations provide useful habitat information for many animal species and provide an efficient starting point for biological surveys

Bio-Environs mapped plant community and associations boundaries by observing and determining dominant plant species and vegetative coverage in different locales within the ASE project area. These boundaries of the plant communities and associated coverage were recorded on maps in the field whereby the majority of species were identified within an identifiable plant community. The field mapped areas were compared to aerial photographs of the project area and the boundaries identified in **Figure 4.2-1** were established using GIS,.

Based on the survey completed in September 2015, the following cover and plant communities identified in **Table 4.2-2** were found in the survey area:

Table 4.2-2 Acres of Vegetation with Survey area	
Vegetation Types	**Acreage**
Airport Pavement	104.0
Aspen/Oakbrush	6.2
Graded/Developed	47.0
Grassland	1.0
Gravel Pad	2.0
Hawthorne/Oakbrush	6.5
Hay Meadow	28.8
Meadow	3.6
Oakbrush	7.0
Non-wetland Riparian Area	2.6
Sagebrush	13.4
Sardy Homestead	4.1
Seeded/Graded	110.0
Seviceberry/Grass	5.7
Wetland Area	4.35

Source: Bio-Environs, 2015

Graded and Developed Areas

The bench where ASE exists includes roads, a runway, a taxiway, airport facilities, and other infrastructure; these areas are void of vegetation. Within the survey area, the apron to the south of the runway has been seeded with alfalfa (*Medicago sativa*). This area comprises approximately 47.0 acres.

Seeded/Graded Community

Within the west, east, and very south of the survey area, the ground is graded and seeded with a variety of native and non-native species. The area comprises approximately 110.0 acres of the 385-acre survey area (–see **Appendix 1,** photographs 2 and 3). Species include smooth brome (*Bromus inermis*), cheatgrass (*Anisantha tectorum*), western wheatgrass (*Pascopyrum smithii*)), wild rye (*Elymus trachycaulus*), needlegrass (*Stipa nelsonii*), Canada bluegrass (*Poa compressa*), Russian wild rye (*Psathyrothacys juncea*), aster (*Aster* sp.), Rocky Mountain penstemon (*Penstemon strictus*), wild chamomile (*Matricaria perforata*), whitetop (*Cardaria draba*), peppergrass (*Lepidium* sp.), and thistle (*Carduus acanthoides*).

Hay Meadow
At the northwest end of the survey area, approximately 28.8 acres comprises irrigated hay meadow. Mowed grasses including orchard grass (*Dactylis glomerata*) and timothy (*Phleum pretense*) exist within the hay meadow (–see **Appendix 1,** photograph 4).

Grassland
Where the bike path crosses a service road from Owl Creek Road at the southern end of the survey area, a one-acre seeded grassland consisting of giant wild rye (*Leymus cinereus*) dominates (–see **Appendix 1,** photograph 5).

Sagebrush
Several small hills support what appears to be a remnant high mountain sagebrush community (–see **Appendix 1,** photograph 6). This community type encompasses 13.4 acres within the survey area. Species included in this community are sagebrush (*Artemisia tridentata,* rabbitbrush (*Chrysothamnus nauseosus*), snowberry (*Symphiocarpus rotundifolius*), serviceberry, bitterbrush, needlegrasses (*Stipa nelsonii* and *Stipa lettermanni*), muttongrass (*Poa fendleriana*), sedge (*Carex* sp.), Rocky Mountain penstemon, lupine (*Lupinus bakeri*), wild buckwheat (*Eriogonum umbellatum*), false arabis (*Boechera* sp.), mariposa (*Calochortis gunnisonii*), senecio (*Senecio* sp.), geranium (*Geranium viscosissum*), desert sandwort (*Eremogene congesta*), alumroot (*Heuchera parviflora*), Indian paintbrush (*Castilleja* sp.), Oregon grape (*Mahonia repens*), and mule's ears (*Wyethia amplexicaulus*).

Hawthorn/Oakbrush
A hawthorn/oakbrush (*Crataegus rivularis/Quercus gambelii*), located west of the hay meadow, includes approximately 6.5 acres and slopes upwards. The hawthorn dominates the area east of a ditch that flows north from Owl Creek. Oakbrush dominates to the west of the same ditch, and this community includes Wood's rose (*Rosa woodsii*), snowberry (*Symphiocarpus* sp.), gooseberry (*Ribes* sp.), chokecherry (*Padus virginiana*), serviceberry, bluegrass, wheatgrass, timothy, and redtop (*Agrostis stolonifera*).

Aspen/Oakbrush
To the west of the Sardy homestead, a 6.2-acre area supports aspen and oakbrush. Its adjacency to the homestead likely caused the weedy nature of the community's understory. While the community supports Wood's rose, gooseberry, serviceberry, chokecherry, wheatgrass, orchard grass, cow parsnip ((*Heracleum maximum*), monument plant (*Frasera speciosa*), it also harbors stands of thistle.

Oakbrush
A seven-acre oakbrush community surrounds a portion of the graveled bike trail that traverses west from a gravel pad adjacent to the runways. This community includes oakbrush, snowberry, chokecherry, smooth brome, wheatgrass and thistle.

Serviceberry/Grassland
Along Owl Creek Road parallel and west of the runways, 5.7 acres of a serviceberry/grassland community exists. Comprised of serviceberry, sagebrush, oakbrush, rabbitbrush, smooth brome and wheatgrasses, this plant community slopes up towards the west (see **Appendix 1,** photograph 5).

Meadow
A 3.6-acre meadow situated adjacent to Highway 82 on a bench above the Roaring Fork River in the northeastern corner of the survey area is dominated by upland grasses.

Riparian
Owl Creek supports an established, 2.3-acre non-wetland riparian area along 2,950 linear feet of stream reach on the east and west sides of the existing runway within the survey area. Another 0.3-acre non-wetland riparian area is associated with ditches south of Owl Creek on the west side of the runway. On the west side of ASE, Owl Creek supports cottonwoods, hawthorn and willows (see **Appendix 1,** photograph 7). This plant community is similar to the description of the PCA, which includes narrowleaf cottonwoods-blue spruce/alder though no blue spruce is present. On the east side of the runway, Owl Creek, again, supports a similar riparian area. The creek on the east side of the runway is incised and likely does not connect with its floodplain due to the managed nature of the airport operation area (see **Appendix 1,** photograph 9). Combined with a shallow water table in some areas, Owl Creek supports three acres of wetlands to the west of the runway and operations fence line (see **Appendix 1,** photograph 8).

Tributaries
Tributaries 1 and 2, located on the Sardy homestead, are open channels with Tributary 1 being dry and surrounded by grasses (D-1,420 feet long, see **Appendix 1,** photograph 10 and **Figure 4.14-1**). Tributary 2 is dry for approximately 40 feet ending in a dug out and ponded area with standing water approximately 3 feet wide and 6 inches deep (D-2, see **Appendix 1,** photograph 11).

Ditches
Four ditches (Ditch 1-4) identified in the northwestern portion of the survey area are part of the ASE water system and serve to convey hydrology to various sections of the northwest portion of ASE property to irrigate ranching operations in the area (see **Figure 4.14-1**). All of these ditches are associated with control features that can be used to calibrate or terminate flows within the ditches.

Ditch 1 (610 LF) is located near the western survey area boundary just north of Owl Creek in the northwestern portion of the survey area. This feature appears to deliver water to the irrigation system that serves the hay meadows in the northwest corner of ASE property.

Ditch 2 (1306 LF) runs along the western edge of the hay meadow and appears to convey irrigation waters down gradient towards Owl Creek.

Ditch 3 (2,400 LF) flows east from a headgated and culverted area at the crossroads of Owl Creek Road and an ASE service road, then parallels the runways until it joins Owl Creek within the fence line. The upper portion of Ditch 3 supports hawthorn, narrowleaf cottonwood, willow, rushes, manna grass (*Glyceria grandis*), and sedge. This portion of the ditch is approximately one foot wide by three inches deep. The portion of Ditch 3 that parallels the runway supports cattail (*Typha latifolia*), manna grass, redtop, and other herbaceous species. This portion of Ditch 3 is three feet wide by eight inches deep.

Ditch 4 (306 LF) is a small ditch, one foot wide by one inch deep, that flows northeasterly from a headgate through a grassland/sagebrush area. A portion of this ditch is piped underground to join Ditch 3.

Multiple irrigation laterals are also part of the irrigation delivery system located in within the hay meadows in the northwestern portion of the survey area

Wetlands

Based on the site visit in September 2015 and a wetland delineation that was verified by the USACE in September 2016, three wetland areas totaling 4.35 acres (identified as Wetlands A, B, and C in the wetland delineation report; see **Figure 4.14-1**) exist within the survey area. The section of Owl Creek considered for piping in the Runway Alternative does not support wetlands; however, the creek itself is considered jurisdictional under current Army Corps of Engineers (USACE) guidance. (The wetland delineation of the survey area is included in **Section 4.14** and Appendix 6 – *Wetland Delineation*. Wetlands are also discussed in **Section 4.2.1.2**.).

Associated with Owl Creek, approximately 3.0 acres of wetlands (Wetland A) exist at the northern end of the survey area (see **Appendix 1**, photograph 8). The wetlands associated with Owl Creek support narrowleaf cottonwood, Bebb's willow (*Salix bebbiana*), beaked sedge and manna grass. The wetland area includes 1890 LF of Owl Creek, which is likely considered a jurisdictional "waters of the US" under current USACE guidance.

The habitat quality and diversity of the Owl Creek wetlands is adequate for birds, deer, small rodents and other species that require water during some part of their life cycle. Wetland A supports quality wetland functions, such as food chain support, streambank stabilization, water quality improvement, flood protection, and maintenance of hydrologic cycle (recharge/discharge to ground water).

Wetland B is a 0.05-acre scrub-shrub wetland located along a ditch just north of the operations center. Wetland B includes a dominance of Booth's willow (*Salix boothii)* and narrowleaf cottonwood (*Populous angustifolia*) with an understory comprised of wetland species, such as spreading bent (*Agrostis stolinifera)* and American brooklime (*Veronica Americana*). This wetland provides limited habitat and wetland functions due to size and the fact that the hydrology that supports this wetland is controlled as part of the ASE water system and can be initiated or terminated based on ASE's water needs.

Wetland C is an emergent wetland area located at the southern end of the runway. This area was identified in a report provided by Carter & Burgess, Inc. (August 18, 2006) in association with a previous runway expansion and bike path construction. The area totals 1.3 acres and comprises two branches of stream course that enter the area from the south. Drainage from this area is piped underneath ASE facilities. Vegetation supported in Wetland C comprises mostly sedge species (*Carex aquatilis, Carex nebrascensis*) with the establishment of some cattail (*Typha latifolia*) (see **Appendix 1**, photograph 12). Wetland C provides low habitat diversity, low habitat value for fish and wildlife, little in the way of flood protection, some water quality improvement, some bank stabilization, low food chain support, moderate maintenance of the hydrologic cycle, and low quality with respect to food production, educational research, recreation, and heritage.

Finally, there is a small constructed detention feature located north of the wetland (see **Appendix 1**, photograph 14). This pond receives water from the wetland, where it is stored and released to a culvert that likely follows in a northeasterly direction off ASE property.

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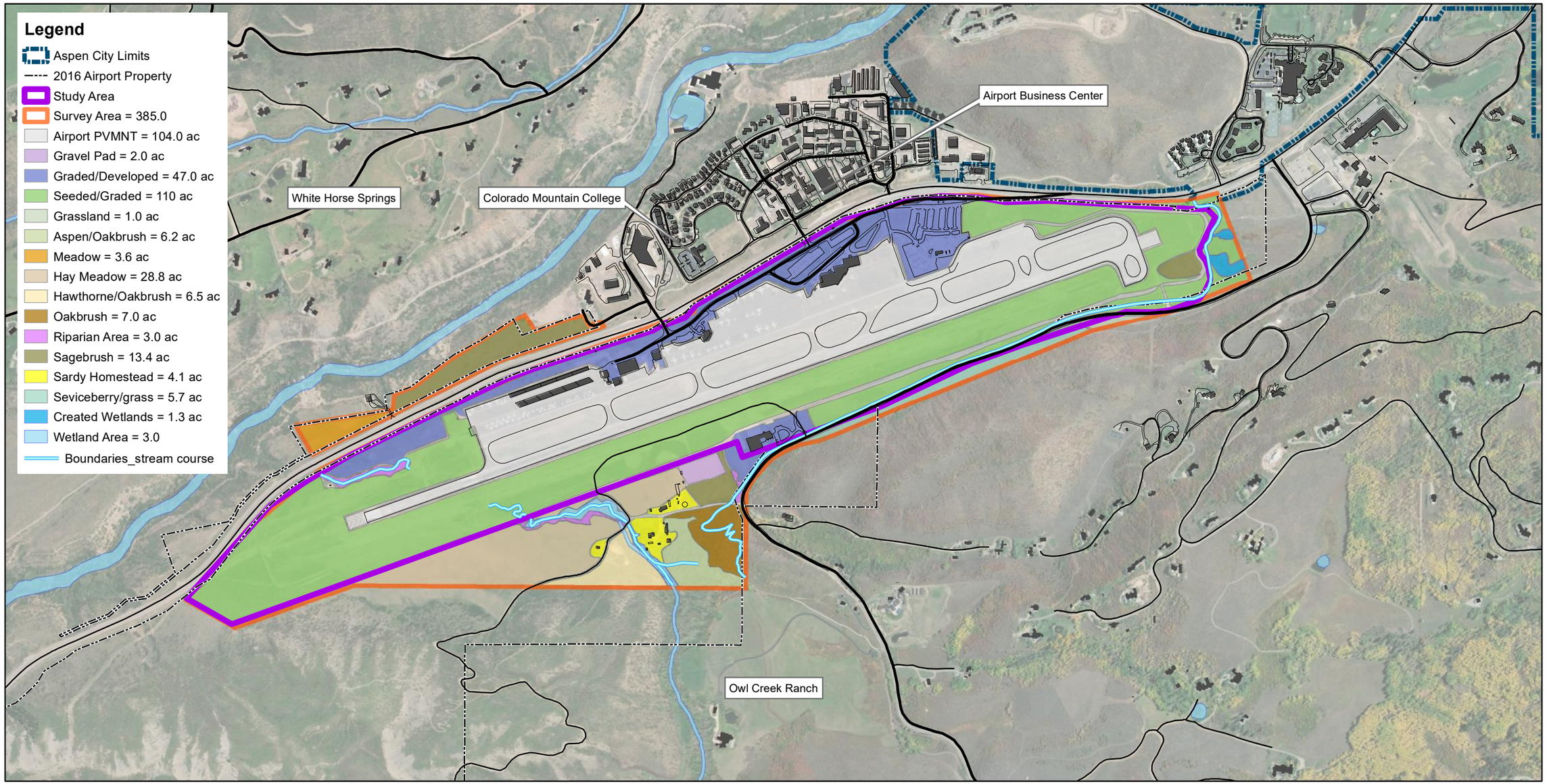

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N W E S

0 500 1,000 2,000
Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
City of Aspen/Pitkin County GIS/Mapping Department

Figure 4.2-1
Vegetation Types

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4.2.2 Environmental Consequences

The proposed projects would impact only a portion of the entire area surveyed. The proposed projects are proposed within a 300.59-acre study area established within the 385.0-acre ASE survey area (see **Figure 4.2-1** for survey area and study area delineations). This study area consists of mostly pre-disturbed ground. No listed endangered, threatened, or special status species are commonly found within the study area. The USFWS sent a response letter stating they had no concern on December 3, 2015 (**Appendix 2**). On August 2, 2017, the FAA sent a letter of determination of No Effect on engendered or threatened species and requested written concurrence (**Appendix 2**).

4.2.2.1 No Action Alternative

The No Action Alternative would not require a disruption of land or soil and would therefore not impact any wildlife, vegetation, or wetlands in the area.

4.2.2.2 Terminal Alternatives 1 and 2

Terminal Alternatives 1 and 2 have the same construction footprint and are located in an area of ASE consisting of entirely pre-disturbed ground. These alternatives propose redevelopment of the terminal building and terminal area, and include improvements to the apron within an area that contains no undisturbed land and no quality wildlife habitat. Approximately 1.22 acres of seeded/graded habitat may be disturbed along with a portion of planted trees and existing landscaping in association with the terminal (see **Table 4.2-3**). No wetlands will be disturbed as a part of the Terminal Alternatives 1 and 2.

Within the east side footprint, there are no creeks, streams, or rivers, and there is no substantial habitat for fish or animal species. While there are some green areas between the pavements on the east side, it is all frequently disturbed by public and airport related activities. Therefore, there is no quality wildlife habitat that would be affected by these alternatives. The Roaring Fork River, located adjacent to ASE, is clearly separated from the study area via berms, Hwy 82, and other features.

No impacts to Federally-threatened or endangered fish, wildlife, or plants is expected. Furthermore, the USFWS concurred with a determination of no affect (**Appendix 2**). Because there would be no impacts to threatened, endangered, or special status species, and small impacts on habitat that was all previously disturbed, there are no significant impacts related to fish, wildlife, and plants as a result of these alternatives.

Table 4.2-3 Acres of Vegetation Impacted By Alternatives			
Vegetation Types	**Acres Disturbed Runway Alternative**	**Acres Disturbed Terminal Alternative 1 and 2**	**Total**
Natural Community			
Aspen/Oak	0.0 ac	0.0 ac	0.0 ac
Grassland	0.0 ac	0.0 ac	0.0 ac
Hawthorne/Oakbrush	0.0 ac	0.0 ac	0.0 ac
Meadow	0.0 ac	0.0 ac	0.0 ac
Oakbrush	0.0 ac	0.0 ac	0.0 ac
Riparian	1.5 ac	0.0 ac	1.5 ac
Sagebrush	0.0 ac	0.0 ac	0.0 ac
Serviceberry/Grass	0.1 ac	0.0 ac	0.1 ac
Wetland	0.0 ac	0.0 ac	0.0 ac
Managed Vegetation			
Hay Meadow	0.0 ac	0.0 ac	0.0 ac
Seeded/Graded	20.82 ac	1.22 ac	22.04 ac

Source: Bio-Environs survey, 2015
Note: Impacts to vegetation from location and movement of construction equipment will be temporary and on pre-disturbed ground where outside the areas noted above. Areas impacted as a result of construction staging will be re-vegetated. No equipment or activities employed for staging of construction will occur in wetlands, Owl Creek, other aquatic resource features or natural plant communities.

4.2.2.4 Runway Alternative

Airfield improvements associated with the Runway Alternative would result in land disturbing activities that would directly affect biologic resources. Direct impacts include piping of Owl Creek, disturbing natural vegetation, and altering landscaped plants. Managed areas that would be disturbed are primarily the Seeded/Graded areas and a small area of serviceberry/grass. There are no impacts to Hay Meadow and most off the other vegetation in the area. These impacts are described in **Table 4.2-3**.

The Runway Alternative will impact Owl Creek by piping the area within the fence line. Piping consists of placing the channel and its flow within a culvert sized to carry calculated flows. Portions of Owl Creek are already piped within the fenced portion of the survey area. Piping can reduce debris and sediment that may enter an open channel at the piped section. The same effect is achieved with adequately vegetated streambanks that are stabilized with rooted plants.

Water quality will not be impaired where the pipe is placed except during the installation process, when sediment and debris may enter the channel and flow downstream. However, sediment and erosion control methods can reduce impacts during installation. Piping, conversely, will impact vegetation and change an open water system to a terrestrial system. With no access to water, birds, amphibians, reptiles, mammals, and invertebrates that once inhabited the area will move downstream or to another riparian system.

Approximately 1.5 acres of the narrowleaf cottonwood/alder community that contains no blue spruce would be removed because Owl Creek on the east side of ASE would be piped. Owl Creek's associated riparian area would be removed, filled, graded, and seeded. The piping of Owl Creek would reduce the exposure of the area within the fence line to run-off, allowing generally reduced sedimentation and storm water impacts in this section of Owl Creek, while eliminating habitat for invertebrates. Due to the channelized nature of Owl Creek within the airport operations fence line, functions of the stream course are limited to the conveyance of waters that originate west of the area across ASE property to the Roaring Fork River. The piping of the creek within the fence will not impact this function as waters will not be obstructed except during construction.

The natural or naturalized plant communities that will be disturbed will either be covered by 1) moving or expanding hard surfaces (this is considered to be removal of vegetation); 2) grading and seeding, or 3) trimming of trees and tall vegetation. The hard surface expansion areas will support no vegetation, and therefore, processes associated with carbon sequestration, pollination, wildlife habitat, and precipitation absorption will cease. The graded and seeded areas will be managed to ensure cover of bare ground. Carbon sequestration, precipitation absorption, and pollination processes will remain; however, minimal wildlife habitat will be available. Trimming of trees and tall vegetation, similar to trimming that occurs currently along Owl Creek on the east side of ASE, changes habitat structure and reduces some carbon sequestration. However, precipitation absorption will still occur.

Construction impacts to biological resources are limited to those areas altered by removal of vegetation. Actions mentioned in **Section 4.2.3** will minimize potential impacts to biological resources. Staging of construction should occur to reduce additional impacts to biological resources particularly vegetation. In addition, the activity and noise associated with construction may cause wildlife including birds to temporarily migrate away from the area.

Construction impacts will change the physical landscape and alter plant and wildlife habitat. Disturbance to the managed plant communities will be a combination of removal, grading, and seeding. Interruption of ecological processes such as soil erosion prevention, precipitation absorption, and limitation of wildlife habitat will occur during construction. Some disturbance will be permanent, but other areas will be graded and seeded to account for the shift in the runway. Permanent disturbance where managed plant communities are removed total 22.04 acres.

Impacts to vegetation from location and movement of construction equipment will be temporary. Areas impacted as a result of construction staging will be re-vegetated. No equipment or activities employed for staging of construction will occur in wetlands, Owl Creek, other aquatic resource features or natural plant communities.

No impacts on Federally-threatened or endangered fish, wildlife, or plants is expected. Furthermore, in 2015, the USFWS gave a determination of no concerns for this alternative (**Appendix 2**). On August 2, 2017, the FAA sent a letter of determination of No Effect on engendered or threatened species and requested written concurrence (**Appendix 2**).

Because there would be no impacts to threatened, endangered, or special status species, and small impacts on habitats that were previously disturbed, there are no significant impacts related to fish, wildlife, and plants as a result of this alternative.

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be recovered or reversed. Irreversible is a term that describes the loss of future options. The features and characteristics of the development area are primarily pre-disturbed and are neither rare nor significant. No rare biological resources would be physically altered or destroyed. Therefore, the project is not anticipated to result in an irreversible or irretrievable commitment of resources.

4.2.3 Mitigation and Minimization

Although there would not be any significant impacts on biological resources, best management processes (BMPs) and conservation measures would be incorporated into project construction practices to minimize potential impacts to habitats and biota and may include:

- BMPs for erosion and sediment control, such as surface protection for slopes, sediment capture, and runoff management;
- Installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality in Owl Creek;
- Conducting all work in accordance with permit stipulations (i.e., USACE 404 Permit, Title 41, and State Consistency Determination);
- Fueling or servicing vehicles or equipment at least 100 feet from any wetlands or waters of the U.S. with the exception of low-mobility equipment;

- Scheduling in-water construction timing to avoid times when most vulnerable species are most likely be present.

Mitigation options would be developed for impacts to wetlands associated with Owl Creek, as described in **Section 4.14**.

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4.3 Climate

Greenhouse gases (GHG) are those that trap heat in the earth's atmosphere. GHGs are produced both naturally and through anthropogenic sources, and they include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Research indicates that there is a direct link between greenhouse gas emissions and the combustion of fuel. Aircraft emit the same type of air pollutants as automobiles. The International Panel on Climate Change (IPCC) estimates that global aircraft emissions account for about 3.5% of the greenhouse gases from human sources.[1] In the United States, U.S. Environmental Protection Agency (EPA) data indicate that commercial aviation contributed 6.6% of total CO2 emissions in 2013, compared with other sources, including the remainder of the transportation sector (20.7%), industry (28.8%), commercial (16.9%), residential (16.9%), agricultural (9.7%) and U.S. territories (0.05%)[2]. The scientific community is developing ways to further examine the effects aviation has on the global atmosphere.

The City of Aspen has adopted a program called the Canary Initiative and Canary Action Plan designed to quantify and reduce greenhouse gas emissions. Aspen's City Council adopted the Canary Action Plan in 2007, which includes a policy to reduce community GHG emissions by 30% by 2020 and 80% by 2050, below 2004 levels. While the City of Aspen does not own or control ASE, nor is ASE in the city limits, visitors to the City do use ASE, which is why they have included aircraft and ground support equipment in their community inventory. ASE's emissions from buildings and ground access vehicles delivering passengers to/from ASE are also included in the inventory, but not called out separately as airport emissions. Pitkin County is also currently working on a Climate Action Plan and Emissions inventory that also includes ASE.

[1] FAA 1050.1E Change 1, Guidance Memo #3.

[2] GHG allocation by economic sector. Environmental Protection Agency (2015). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013. Available at: http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html#fullreport

4.3.1 Affected Environment

Pitkin County has been preparing inventories of CO_2 emissions associated with ASE since 2008 and has actively coordinated with the City of Aspen Canary Initiative on emissions inventories and actions that can be taken to reduce emissions. The most recent airport-wide emissions inventory, following the Airport Cooperative Research Program Report 11 guidance,[3] was prepared for the year 2014. **Table 4.3-1** lists the 2014 emissions inventory, and shows that total airport-related emissions were approximately 62,326 metric tons of CO_2. Of the total airport-related emissions, aircraft represented 83% of total emissions (with the landing and take-off cycle (LTO)[4] representing 17.8% and cruise representing 65.6%). The second biggest source of emissions was airline ground support equipment, followed by building energy use (facilities/stationary sources).

The FAA's EDMS tool was used to quantify aircraft emissions for 2015. That quantification found that in 2015, aircraft LTO emissions represented 14,199 metric tons of CO_2.

The 2014 inventory (**Table 4-3.1**) reflected an estimated LTO emissions calculated based on the percentage of total airport dispensed fuel to LTO in year 2011. In 2014, there was approximately 5.4 million gallons of Jet A dispensed. This fuel dispensed represents about 51,974 metric tons of CO_2. Thus, the greenhouse gas emission in the LTO cycle in 2014, as reflected below in **Table 4.3-1**, represents 30% of total aircraft-related greenhouse gases with 70% occurring at cruise. In 2011, and assumed for 2014, aircraft operating in the LTO modes represented 21% of the total aircraft greenhouse gas emissions. This increase in emissions in the LTO is associated with an increase in the operational efficiency of aircraft as they fly between airports and is not a function of ASE's operating conditions.

The most recent greenhouse gas inventory prepared by the USEPA for the United States is for the year 2014. Total US greenhouse gas emissions are noted to be 6,870 million metric tons.[5] In the context of total US emissions, the total airport-wide emissions associated with ASE are 0.0009%.

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[3] ACRP Report 11 Guidance on Preparing Airport Greenhouse Gas Inventories, 2009.

[4] The LTO cycle captures aircraft operating below 3,000 feet and includes taxi, takeoff, climbout, and approach.

[5] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014

Table 4.3-1 Total Airport Wide Greenhouse Gas Inventory (2014)	
User/Source Category	**2014 CO2 (tons/year)**
Airport-owned/controlled	
Facilities/Stationary Sources	1,350
Ground Support Equipment	256
Ground Access Vehicles	131
Subtotal	**1,736**
Airlines/Tenants/Aircraft Operator-owned/controlled	
Aircraft	
Estimated LTO (taxi, approach, takeoff, climbout)	11,059
Residual/Cruise/APU	40,915
Sub-total Aircraft	**51,974**
Ground Support Equipment	6,295
Ground Access Vehicles	23
Stationary Sources	Unknown
Subtotal	**58,292**
Public-owned/controlled	
Passenger Vehicles (off-airport roads)	561
Rental Car Travel (off-airport roads)	1,731
Hotel Shuttles (off airport roads)	6
Subtotal	**2,298**
Total	**62,326**

Source: Synergy Consultants, Inc., March 2015.

To equalize the evaluation, the quantity of fuel dispensed in 2015 was obtained to enable a comparison of emissions in the LTO to total aircraft emissions. In 2015, a total of 6,064,282 gallons of Jet A was dispensed and 29,663 gallons of AvGas, resulting in 14,199 tons of CO2 per year for the LTO cycle (compared to 11,059 for 2014).

Aspen has experienced notable changes in its air temperature over the last 50 years, making air quality and climate change an important local issue. These changes could affect the ski season and quality of life in the Aspen area. Over the last 50 years, the City of Aspen notes that the frost-free summer period has increased by 27 days from 73 days a year to an average of 109 days per year. In addition, the number of days per year where the temperature falls below zero has dropped by 12 days over the last 50 years. The last freeze comes earlier and earlier each year and the first freeze in the fall arrives 20 days later than it did 50 years ago. Continued increases in

greenhouse gas emissions is projected to potentially end the skiing industry in Aspen in 2100.[6]

4.3.2 Environmental Consequences

There are no significance thresholds for aviation GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions. There are currently no accepted methods of determining significance applicable to aviation projects given the small percentage of emissions they contribute to global levels. There is a considerable amount of ongoing scientific research to improve understanding of global climate change.

Using the modeling effort documented in **Section 4.1** Air Quality, the greenhouse gas emissions were calculated for the same future No Action and With Project scenarios. **Table 4.3-2** lists the resulting emissions, which exclusively reflect aircraft in the LTO cycle. It is important to note that in this case, the No Action Alternative would result in the loss of commercial jet service at ASE and as a result aircraft emissions from larger aircraft would not occur. However, it is likely that passengers that would not be served in the No Action would drive from other airports to ASE generating greenhouse gas emissions not reflected in this evaluation.

[6] City of Aspen Environmental Health Department, *2008 Annual Air Quality and Temperature Report of the City of Aspen*; www.aspenpitkin.com/pdfs/depts/44/2008airrpt.pdf

Table 4.3-2 Summary of Aircraft Greenhouse Gas Emissions (Metric Tons Per Year)	
	Greenhouse Gas Emissions (tons per year)
Year/Scenario	**CO_2**
2015/Existing Conditions	**14,199**
2023	
No Action	14,711
With Terminal Alt 1 or Alt 2	14,684
Project-related change (Alt 1 & 2)	***-27***
2028	
No Action – Loss of Jet Service	12,860
With Terminal Alt 1 or Alt 2	12,841
Project-related change (Alt 1 & 2)	***-29***
With Airfield Improvements	14,370
Project-related change (change denotes loss of jet air service)	***+1,510***
Project related change to 2015 existing conditions	***+171***
With COMBINED Terminal and Airfield Improvements	14,347
Project-related change (change denotes loss of jet air service)	***+1,487***
Project related change to 2015 existing conditions	***+148***
2033	
No Action Loss of Jet Service	11,117
With Terminal Alt 1 or Alt 2	11,103
Project-related change (Alt 1 & 2)	***-14***
With Airfield Improvements	16,743
Project-related change (change denotes loss of jet air service)	***+5,626***
Project related change to 2015 existing conditions	***+2,544***
With COMBINED Terminal and Airfield Improvements	16,714
Project-related change (change denotes loss of jet air service)	***+5,597***
Related change to 2015 existing conditions	***+2,515***

Source: BridgeNet Consulting, May 5, 2017.

4.3.2.1 No Action Alternative

With the No Action, the proposed projects would not occur. Therefore, no project-related construction would occur, or the associated construction greenhouse gas emissions. However, total airport activity is expected to continue to evolve over time.

As is shown by comparing the 2015 emissions to the future No Action emissions noted in **Table 4.3-2**, aircraft greenhouse gas emissions in the LTO cycle are expected to increase slightly between 2015 and 2023 (from 14,199 in 2015 to 14,711 in 2023), but begin decreasing from 2028 through 2033 with the No Action. However, in the context of total airport-related emissions and worldwide emissions, these changes are not substantial. In addition, the No Action would result in a significant curtailment of commercial air service over time as airlines retire aircraft that meet the current wingspan limitation at ASE.

4.3.2.2 Terminal Alternatives 1 and 2

With implementation of the proposed terminal improvements, there would be construction emissions, and then upon completion of the project, operating emissions. The following paragraphs discuss these emissions.

Construction Emissions: The same methods and input assumptions described in **Section 4.1.3.2** were used to evaluate greenhouse gas emissions. The evaluation shows that the total quantity of greenhouse gas emissions to complete construction of a replacement terminal would be approximately 5,340 metric tons of CO_2. Assuming 50% of the emissions occur in a peak construction year, those emissions would be 2,670 metric tons of CO_2.

Operational Emissions: Once construction is completed, aircraft would taxi to a location that is about 193 feet less on average than the current terminal location. This lower taxi distance would produce 27 to 29 metric tons less of CO_2 on an annual basis over the timeframes evaluated. There would also be a decrease in the energy use per square foot based on increased efficiencies of the new terminal. However, since there would be an increase in the overall square footage, the change in energy use and thus greenhouse gases related to the terminal would not result in a significant change.

4.3.2.3 Runway Alternative

The Runway Alternative airfield evaluation identified emissions associated with construction of the project and operation of the proposed runway improvements.

Construction Emissions: Construction of the airfield improvement projects would generate about 5,385 metric tons of CO_2 emissions, which is expected to occur between 2023-2027. Assuming 50% of the emissions occur in a single year, approximately 2,693 metric tons of CO_2 would be

emitted during the peak construction year. *Operational Emissions*: Once construction is completed, the airfield operation will change slightly, including a slight change in aircraft moving around on the airfield. The airfield changes would result in an increase of about 160 feet in taxi for aircraft in addition to a change in aircraft fleet mix as described in **Chapters 1** and **2**, including the addition of newer generation regional jets. As noted in **Table 4.3-2**, the proposed airfield projects would increase emissions relative to the No Action by 1,510 metric tons of CO_2 in 2028 and 5,626 metric tons of CO_2 in 2033. It is important to note that, while this increase might appear substantial, it does not capture that when comparing the two scenarios (No Action to With Project), the No Action condition essentially reflects a loss of commercial airline service to ASE, which has notable other consequences as reflected in this EA. Those passengers that would not be served by flights to ASE would fly to another nearby city (likely Denver) and drive to Aspen.

In addition, the tools available to examine greenhouse gas emissions from aircraft do not reflect the programs and policies that have been adopted to reduce greenhouse gases from aviation nor do they include the aircraft that is expected to operate at Aspen (the Bombardier CS100 series aircraft). The commercial airlines have adopted a policy referred to as carbon neutral growth post 2020 that is focused on international aviation, but which will have some influence over emissions from domestic activity.[7] The airlines have committed to reducing their fuel use and associated greenhouse gas emissions by 1.5% per year through 2020, and then to achieve carbon neutral growth post 2020.

Bombardier has noted that the CS100 series aircraft are expected to consume 20% less energy that existing aircraft serving the same flight mission.[8] Thus, the With Project emissions for that aircraft in the evaluation performed for this EA are likely overstated by 20%. Per the Air Transport Action Group "The new…. Bombardier C Series aircraft use less than 3 liters of jet fuel per 100 passenger kilometers. This matches the efficiency of most modern compact cars."[9]As noted earlier, the FAA has not adopted a threshold of significance relative to greenhouse gases. However, in the context of the construction and operational project-related emissions and total US greenhouse gas emissions, total airport related emissions with the proposed airfield improvements are very small and thus not expected to be significant.

4.3.2.4 With Project Combined Terminal and Runway Alternatives

The With Project combined terminal and airfield projects evaluation identified emissions associated with construction of the two projects (2018-2022 for the terminal and 2023-2027 for the airfield projects) and the operational emissions with both projects commissioned.

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[7] International Air Transport Association (IATA), http://www.iata.org/pressroom/pr/Pages/2009-06-08-03.aspx

[8] http://www.bombardier.com/en/media/multimedia-gallery/details.bombardier-aerospace-cseries-customers-operators-cs100.html

[9] http://www.atag.org/facts-and-figures.html

Construction Emissions: Completion of the combined terminal and airfield improvement projects are not expected to overlap. Therefore, the combined analysis will be the same as the individual analyses above.

Operational Emissions: Once construction is completed, both projects will slightly change the distance, somewhat offsetting one another. The airfield project will have a notable effect on the aircraft fleet operating at ASE, which will have the biggest effect on greenhouse gas emissions. As noted in **Table 4.3-2**, the proposed combined terminal and airfield projects would increase emissions relative to the No Action by 1,487 metric tons of CO_2 in 2028 and 5,597 metric tons in 2033.

Similar to the prior section that discusses the airfield project alone, with both the terminal and airfield projects, it is important to note that the comparison of the With Combined Projects to the No Action reflects that in the No Action, a significant curtailment of the commercial airline service would occur. As was noted earlier, the assumptions in the modeling likely overstate by 20% the emissions from with CS100 series aircraft that would be expected to operate at ASE.

In the context of the construction and operational project-related emissions and total US greenhouse gas emissions, total airport related emissions with the proposed combined terminal and airfield improvements are very small and thus not expected to be significant.

4.3.3 Mitigation and Minimization

As described in **Section 4.3.2.4**, the two proposed projects are not expected to produce significant greenhouse gas emissions. Pitkin County has implemented actions at ASE designed to reduce energy use and associated greenhouse gas emissions, and with the proposed projects, expects to continue to reduce energy use. In addition, ASE staff have been actively working with the City of Aspen Canary Initiative to identify measures in which ASE can contribute to regional greenhouse gas reduction. Pitkin County anticipates voluntarily implementing actions, which may include:

- Improvements related to updated building codes: New terminal will meet current building code (which will be substantially more energy efficient than the 1971 terminal that it will replace);
- Development of key partnerships: The County is exploring potential partnerships with Rocky Mountain Institute (as part of the design committee);
- Integration of energy efficient design: Consideration of energy efficiencies in building design, and when selecting materials and energy sources (i.e., renewable and geothermal energy sources);
- Incorporation of airside improvements: Improve airside geometry (i.e., ramp configuration), which currently has sloping pavement – making this flat will improve push in and push out of aircraft;

- Sustainable Construction Management Plan: Use of energy-efficient methods throughout the construction period; and
- Incorporation of energy efficient lighting: The County strives to maximize the use of natural lighting, LEDs and other energy reducing technologies in the terminal and other airport facilities.

In addition, Pitkin County will explore obtaining FAA Voluntary Airport Low Emission (VALE) funding to help incorporate energy efficiency elements into the new terminal, including but not limited to preconditioned air and ground power units. The installation of preconditioned air and ground power to enables airlines to reduce their use of auxiliary power units, which would contribute to reducing aircraft energy use and greenhouse gas emissions. They can also consider other grants to assist with energy efficiency projects such as under Section 512 of the FAA Modernization and Reform Act (FRMA) and Energy Efficiency in Buildings (Section 138 of the Airport Improvement Program), as well as potential local grants such as the Community Office for Resource Efficiency (CORE). Funding to support energy efficient, airport power sources may be available through the FAA Airport Improvement Program, and Airport Zero Emissions Vehicle (ZEV) grants may also be available.

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4.4 Coastal Resources

Coastal Resources include all natural resources occurring within and near coastal waters and shore lands. Effects on coastal resources are assessed based upon requirements defined in the Coastal Resources Act, the Coastal Zone Management Act and Executive Order 13089, Coral Reef Protection. The Pacific Coast is the closest coast to the Aspen/Pitkin County Airport, and is located approximately 700 miles away. Because the state of Colorado is not within a Coastal Zone Management Zone, neither of the Terminal Alternatives nor the Runway Alternative would adversely impact coastal zone resources or coastal barriers.

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4.5 Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 (recodified and renumbered as section 303[c] of 49 U.S.C.), from here on referred to as Section 4(f), provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly owned land from a public park, recreation area or wildlife and waterfowl refuge of National, State, or Local significance or land from a historic site of National, State, or Local significance, as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such project includes all possible planning to minimize impact. The project also needs comply with Section 6(f) of the Land and Water Conservation Fund which applies to publicly owned land if the property was acquired or developed with Land and Water Conservation Fund program.

4.5.1 Affected Environment

The affected environment for Section 4(f) resources includes the area directly affected by the projects (the disturbance footprint), as well as the area within the 65 day-night average noise level (DNL) and greater noise contour.

The closest Colorado State Park to ASE is the Arkansas Headwaters Recreation Area, located about 40 driving miles east of Aspen. In addition, the White River National Forest lies east of ASE on the eastern side of the Roaring Fork River. There are also several areas of designated open space near ASE. Cozy Point South Open Space, located east of Highway 82 and Brush Creek (3 miles north of ASE), consists of 129 acres of land. Cozy Point Open Space, located west of Highway 82 and Brush Creek (3 miles north of ASE), includes 205 acres of open space land. Both open space parcels are located north of the Bluffs and ASE. The closest school is the Colorado Mountain College on the eastern side of Highway 82 (approximately 0.5 miles east of ASE). The nearest site that is eligible for inclusion in the National Register of Historic Places is the Airport Ranch, located on the western edge of the ASE fence line, on ASE property (see **Section 4.8**).

The North 40 neighborhood owns and/or operates three parks that are located east of the Airport Business Center across Highway 82. The largest of these parks, North 40 Park, is privately owned and operated by the North 40 HOA; therefore, this park is not considered a Section 4(f) resource. Section 4(f) only applies to publicly owned parks. The two smaller parks, Children's Memorial Park and Chuck Brandt Park, are located on the far east side of the North 40 development approximately 0.2 miles east of ASE. These two parks are located on parcels that are owned by Pitkin County, but the parks are operated by the North 40 HOA. The three North 40 parks are also discussed in the compatible land use section of the EA (**Section 4.9)**. The next closest public park/playground is Harmony Park on the east side of ASE in Burlingame (approximately 0.5 mile east of ASE). The closest golf course is the Maroon Creek Golf Course (1.1 miles south of ASE), however it is a privately owned and operated facility, so it is not considered a Section 4(f) resource. The closest public recreational use to the west side of ASE (nearest the Runway

Realignment project) is the Owl Creek Bike Path, which runs along Owl Creek Road on the western edge of ASE, and then crosses through ASE property on the south side of ASE. This path is owned and maintained by Pitkin County. The Airport Business Center (ABC) Trail is the closest Section 4(f) resource on the east side of ASE (nearest the Terminal Area Projects). The ABC Trail is located east of ASE, and is linked to Owl Creek Bike Path and ASE via two separate underpasses. The ABC Trail is a paved path that links to other trails and ultimately leads into the City of Aspen. There are additional bike paths (such as the Airline Trail) that lie west of ASE on the northern end. The trails can be seen in **Figure 4.5-1**.

None of the recreation properties in **Figure 4.5-1** are Section 6(f) properties (i.e. properties acquired or developed using funding assistance from the Land and Water Conservation Fund). There are five properties within Pitkin County that have used funding from the Land and Water Conservation Fund including Iselin Park (2.7 miles away), Glory Hole Park (4.4 miles away), Aspen Trail System (4 miles away), North Star Ranch (5.6 miles away) and Wingo Junction Train Crossing (16 miles away). However, none of these properties are within the study area; the closest being the Iselin Park, 2.7 miles away. Therefore, Section 6(f) is not discussed further.

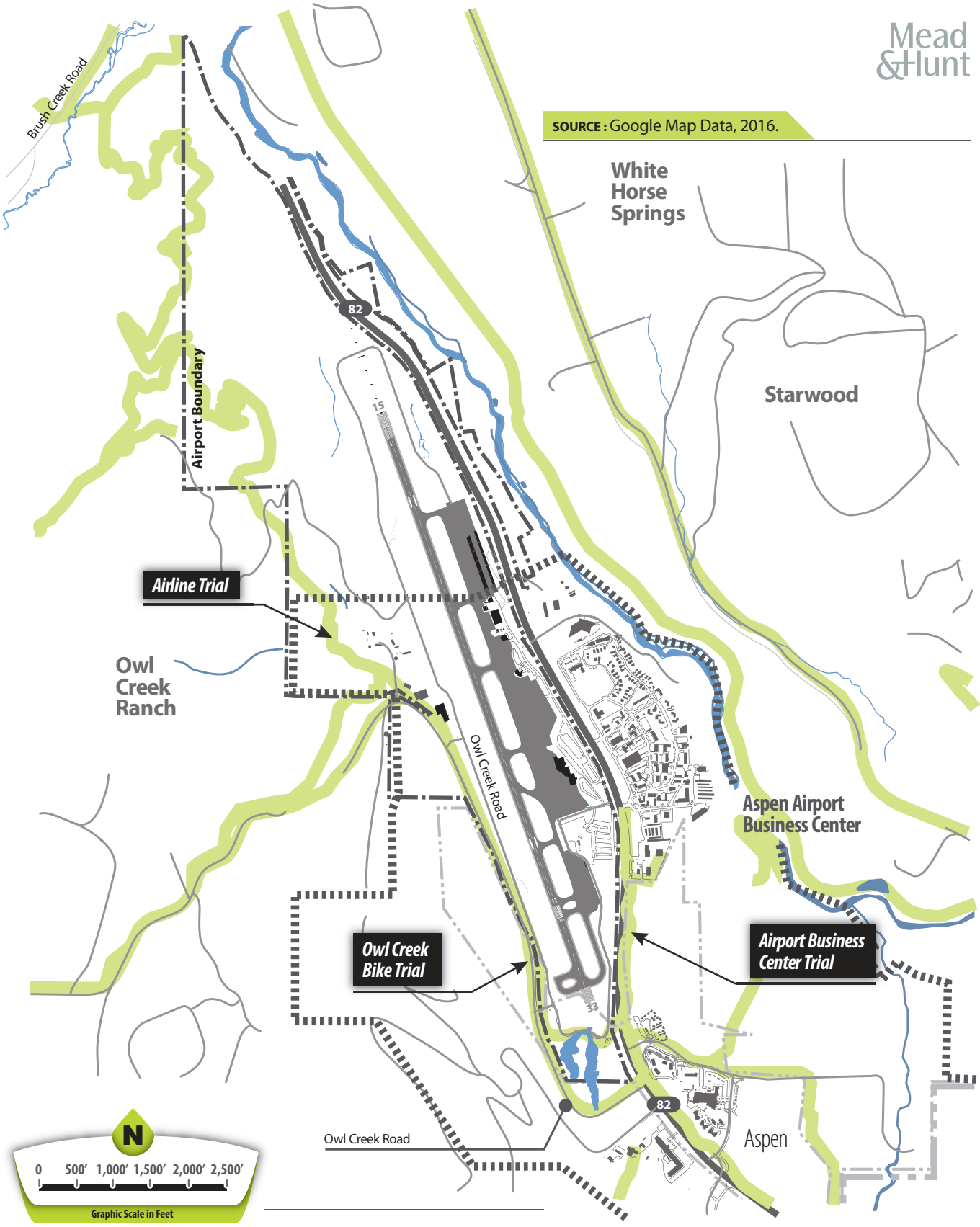

Figure 4.5-1 **Bike Paths within Airport Vicinity**

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4.5.2 Environmental Consequences

Based on the Affected Environment described above analyzed under Section 4(f) and 6(f) requirements, the following sections describe the anticipated environmental impacts, if any, for each of the alternatives. There are three "uses" of Section 4(f) resources that are considered:

- Physical Use: Actual physical taking of a Section 4(f) property, physical occupation of all or portion of the property, or alteration of structures or facilities located on the property.
- Temporary Use: Temporary use of a Section 4(f) resource that is adverse.
- Constructive Use: Direct or indirect impacts that substantially impair the activities, features and/or attributes of a Section 4(f) resource. This means that the value of the Section 4(f) resource, in terms of its prior significance and enjoyment, is substantially reduced or lost as a result of the proposed project.

4.5.2.1 No Action Alternative:

Because there would be no direct impacts related to the No Action, no historic properties, public recreational resources, or other Section 4(f) lands would be directly affected. However, the No Action Alternative would result in a change in noise due to a change in fleet mix over time. As shown in **Table 3-1** (Alternatives), jet air carrier aircraft will be phased out over time. This would alter the fleet mix, with a slow phase out of CRJ-700 aircraft. In the future, air carrier operations will be limited to turboprop activity, paired with an increase in GA charter jet operations to account for the reduction in service via the air carriers. However, as discussed in **Section 4.11**, Noise, there would not be any significant impacts to Section 4(f) resources as this area is already subject to aircraft noise.

4.5.2.2 Terminal Alternatives 1 and 2:

Terminal Alternatives 1 and 2 both contain the same disturbance footprint on the east side of the airport, which is an entirely pre-disturbed site. No historic sites, schools, or other Section 4(f) resources would be impacted. The closest recreational resource to the terminal improvements is the Airport Business Trail, which runs along the eastern side of Highway 82 and is connected to ASE via an underpass. Neither this trail nor the underpass would be affected by the Terminal Alternatives. The site plans for the terminal alternatives involve creating a better link to this underpass to allow better pedestrian access to the terminal in the future. Therefore, improvements associated the terminal alternatives could result in a benefit to Section 4(f) resources.

During construction of the Terminal Alternatives, temporary impacts could occur to the underpasses that access the terminal from the Airport Business Trail. However, these would be temporary and not significant.

4.5.2.3 Runway Alternative

Owl Creek Bike Path is the closest Section 4(f) resource to the proposed runway improvements and would need to be slightly relocated as part of the project. The Runway Alternative would require approximately 1,657 linear feet of the Owl Creek Bike Path to be shifted to the west by between 13 feet and 58 feet (**Figure 4.5-2**). Construction associated with the relocation of the trail would result in a temporary impact. ASE conducted coordination with users/owners of the bike path and found that the relocation of the bike path would not constitute a negative effect on the bike path, its uses, or its users (See letter in **Appendix 4**).

As shown in **Table 3-1** (Alternatives), the shift in the runway to meet FAA design standards would allow D-III aircraft to fly into ASE. This change in fleet mix would comprise a slow phase out of CRJ-700 aircraft, which would likely be replaced by a mix of next generation regional jets such as the CS100. Additionally, the analysis accounts for some 737 operations. Noise contours would shift slightly due to the change in fleet mix and the 80-foot runway shift, resulting in the 65 DNL noise contour being over areas of Airport Ranch, a historically eligible property on the west side of ASE. The Airport Ranch is currently on ASE property and subject to the noise and activity associated with airport use, and the slight change in the noise contours would not result in significant impacts to this resource, as described in **Section 4.8**. Further, changes in noise levels wouldn't be considered new intrusions as there is already current air traffic noise. The 65 DNL noise contour already encompasses portions of the Owl Creek Bike Path. Because this bike path is currently subject to this level of noise associated with ASE, the slight shift in noise would not substantially impair the use of this resource. Additionally, as stated above, ASE conducted coordination with owners of the bike path and found that the relocation of the bike path would not constitute a negative effect on the bike path, its uses, or its users (See letter in **Appendix 4**).

During construction, there would be temporary access restrictions to Owl Creek Bike Path during construction of the project and throughout the relocation of the section of bike path. It is anticipated that the bike path will be shut during construction of a retaining wall, but there is likely room in the CDOT ROW to either build a temporary bike path or allow users to use the road for a small section to minimize impacts. Construction is estimated to be about 6-9 months but with phasing and temporary routing, the bike path and/or road should be able to remain open during the majority of this time to minimize impacts. While Owl Creek may be closed for minor durations, these impacts would be temporary and would not be significant. Additionally, adequate notice will be provided prior to closure of the trail.

Therefore, there would not be any significant impacts on any Section 4(f) resources as a result of this alternative.

The FAA has determined that the proposed project will result in a de minimis impact to the Owl Creek Bike Path. A de minimis impact is one that, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures), results in a determination that the project would not adversely affect the activities, features, or attributes qualifying the resource for protection under Section 4(f). The FAA has informed Pitkin County of the intent to make a de minimis impact determination. The public is encouraged to provide comments to the FAA on the proposed de minimis finding. The FAA will make a final determination after considering comments from Pitkin County and the public and this determination will be included in the Final EA.

4.5.3 Minimization and Mitigation:

While there are no mitigation measures specifically implemented for this resource, best management practices, such as including a better link to trails as a result of the proposed projects, would be employed to reduce overall impacts of the project. Additionally, as noted above, the Owl Creek Bike Path and Road relocation will be phased to minimize closures of the bike path to allow access during the construction.

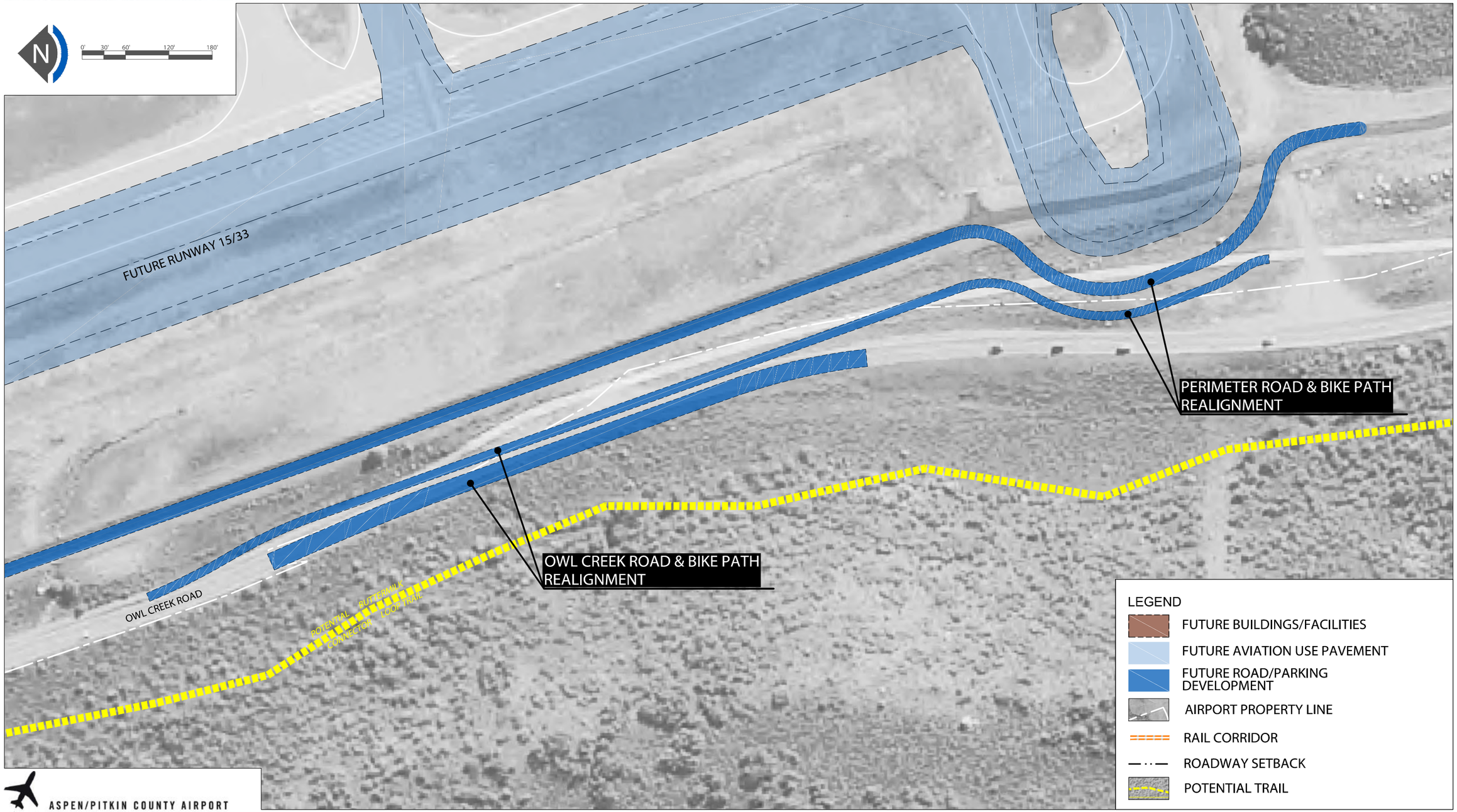

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Figure 4.5-2 Bike Path and Owl Creek Road Relocation

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4.6 Farmlands

Farmlands are defined as those agricultural areas considered important and protected by Federal, state, and local regulations. Important farmlands include all pasturelands, croplands, and forests considered to be prime, unique, or of statewide or local importance. The Farmland Protection Policy Act (FPPA), a subtitle of the Agriculture and Food Act of 1981, was passed by Congress with the intent to "...minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses..." (P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.). Consultation with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) can be necessary to determine if the FPPA applies to any land to be converted from non-agricultural use as a result of the proposed action.

As defined in FPPA, "farmland" includes prime farmland, unique farmland, and land of statewide or local importance. It is important to note that the FPPA states that farmland does not include land already in or committed to urban development. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can include forest land, pastureland, cropland, but not land committed to water storage or development.

4.6.1 Affected Environment

To determine whether prime or unique farmland soils or farmland soils of statewide or local importance are present in the proposed project area, data was downloaded from the 2016 USDA NRCS Web Soil Survey Geographic Database. **Figure 4.6-1**, Farmlands Soil Survey, shows that soils in the project area are classified as having no association with farmlands. The study area is defined as the area of disturbance for the projects. According to the NRCS soil survey, none of land within the project area is considered to be protected farmland.

4.6.2 Environmental Consequences

According to the NRCS soil survey, land located within the proposed project area is not considered to be prime or unique farmland, or farmland of statewide or local importance. Therefore, none of the alternatives would have an adverse impact on farmlands.

4.6.3 Minimization and Mitigation

No prime farmland, unique farmland, or farmland of statewide or local importance would be affected as a result of the Proposed Action. Therefore, no mitigation is required.

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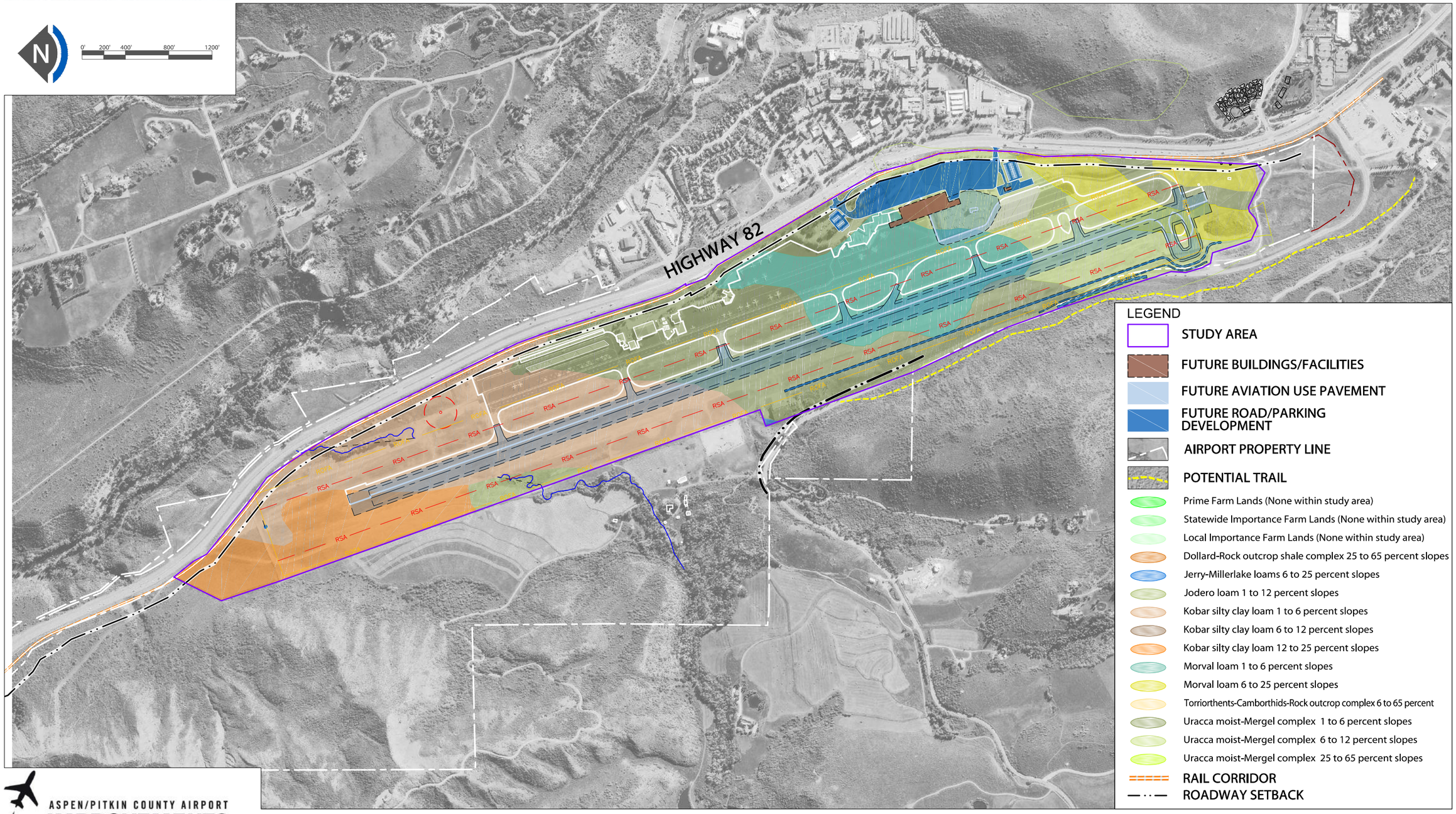

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Figure 4.6-1 **Farmlands Soil Survey**

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4.7 Hazardous Materials, Solid Waste, and Pollution Prevention

Hazardous materials, also referred to as dangerous goods, are any solid, liquid, or gas that can harm people, other living organisms, property or the environment. These materials may be radioactive, flammable, explosive, toxic, corrosive, a biohazard, an oxidizer, an asphyxiate, a pathogen, an allergen or may have other properties or characteristics that deem it hazardous in specific circumstances.

Four primary federal laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances, and wastes. The statutes most relevant to airports and the FAA in proposing actions to construct and operate facilities and navigational aids are:

- The Resource Conservation and Recovery Act (RCRA) (as amended by the Federal Facilities Compliance Act of 1992), governs the generation, treatment, storage and disposal of hazardous wastes
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments
- The Reauthorization Act of 1986 (SARA or Superfund), provides for consultation with natural resources trustees and cleanup of any release of a hazardous substance (excluding petroleum) into the environment.
- The Community Environmental Response Facilitation Act of 1992.

The Environmental Protection Agency (EPA) keeps detailed information on businesses dealing with hazardous materials, water discharge, Superfund sites, toxic releases and air emissions. Handling and disposal of hazardous materials is strictly regulated by federal, state and local agencies.

Solid Waste is defined by the implementing regulations of RCRA generally as any discarded material that meets specific regulatory requirements, and can include such items as refuse and scrap metal, spent materials, chemical by-products, and sludge from industrial and municipal waste water and water treatment plants (see 40 CFR § 261.2 for the full regulatory definition).

Pollution prevention describes methods used to avoid, prevent, or reduce pollutant discharges or emissions through strategies such as using fewer toxic inputs, redesigning products, altering manufacturing and maintenance processes, and conserving energy. The Pollution Prevention Act (42 U.S.C. §§13101-13109) requires pollution prevention and source reduction to reduce the impact waste has on the environment while in use and after disposal.

4.7.1 Affected Environment

Hazardous Materials: According to the EPA, there are no Superfund sites or EPA Cleanups on ASE property.[1] However, there are a few sites located on and near ASE that are permitted as small generators of hazardous wastes.[2] Small hazardous waste generators are expected to generate less than 100 kilograms of hazardous material per month. These generators are identified as low risk and generally include materials, such as fuel, oil, paint, pesticides, and fertilizers. The one actively permitted small generator on ASE property is the Aspen Base Operation, which is located near the Fixed Base Operator. No other hazardous waste sites have been identified.

Solid Waste: ASE generates municipal type solid waste and other wastes associated with the operation and maintenance of general aviation aircraft. Aspen's waste management system separates waste streams so that materials that can be recycled are captured and remaining materials are properly disposed.

The Pitkin County Landfill is located at mile marker 32 along Colorado Highway 82 in nearby Snowmass, between the Aspen Village and Brush Creek traffic signals. This facility accepts both municipal solid waste and non-municipal solid waste (such as construction and demolition waste). Rio Grand Place Recycling center is located next to the skate park, off Rio Grand Place, in Aspen. There are also waste management transfer stations in Basalt and Glenwood Springs, approximately 15 and 27 miles away respectively. Pitkin County residents receive free indoor compost collection bins from the city of Aspen. Evergreen Events offers curbside collection of organic materials. In 2013, Colorado outlawed illegal electronic waste, defined as items that plug in for power or use batteries, as these items can leak toxic materials. A Comprehensive Waste Diversion Plan for the Roaring Fork Valley was created in April 2016 for Pitkin County and the City of Aspen. This report indicated that the existing solid waste facility had a remaining lifespan of about 15 years.[3] This area could be expanded but only in a limited capacity. The plan included several preliminary options for increasing recycling diversion from the waste stream, and will be creating a 10-year strategy for recommendations. There are also several down valley landfills, several of which are in Glenwood Springs. ASE also has an existing Sustainable Construction Management Plan that addresses reducing waste, particularly construction/demolition waste.

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[1] Environmental Protection Agency, https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:73:::71:P71_WELSEARCH:CO%7CState%7CCO%7C%7C%7Ctrue%7Ctrue%7Ctrue%7Ctrue%7Ctrue%7Ctrue%7C%7C-1%7Csites%7CN%7Cbasic, accessed July 2016.

[2] Environmental Protection Agency, Enviromapper, https://map11.epa.gov/myem/efmap/index.html?ve=13,39.19002151489258,-106.81817626953125&pText=Aspen,%20CO, accessed July 2016.

[3] *Roaring Fork Valley Comprehensive Waste Diversion Plan, Phase 1*, prepared for Pitkin County and the City of Aspen, Weaver Consultants Group/LBA Associates, April 13, 2016.

4.7.2 Environmental Consequences

The sections below explain what, if any, environmental consequences are anticipated as a result of each alternative. Recommendations to prevent or mitigate these temporary impacts are discussed in **Section 4.7.3**.

4.7.2.1 No Action Alternative

This alternative would not require any disruption of land or soil and would not generate hazardous wastes or additional pollution. This alternative also would not lead to a change in volume of the existing solid waste.

4.7.2.2 Terminal Alternatives 1 and 2

Hazardous Materials: As stated above, there are no hazardous waste sites (such as Superfund or other hazardous waste clean-up sites) on ASE property. The terminal alternatives would occur on pre-disturbed land with no known hazardous waste sites impacted. There is one small hazardous waste generator on ASE property. Small hazardous waste generators are expected to generate less than 100 kilograms of hazardous material per month. These generators are identified as low risk; however, these sites would not be impacted by the Terminal Alternatives.

Construction activities can sometimes generate hazardous wastes and some construction materials consist of hazardous substances, such as fuel, oil, lubricants, paints, solvents, concrete-curing compounds, fertilizers, herbicides, and pesticides. The contractor would be required to implement proper practices that would minimize or prevent the release of hazardous substances into the environment. Any hazardous waste materials generated during construction of the terminal alternatives would be sent to an appropriately permitted facility.

Pollution Prevention: One concern for hazardous materials are associated with construction, when subsurface contamination may be encountered as part of construction or post-construction operations. ASE implements several best management practices to address pollution prevention initiatives. These include maintaining and updating a site-specific spill prevention control and countermeasure plan, storm-water pollution control plan, and properly handling and storing hazardous materials.

Waste material, such as chemicals, petroleum-based products, and solid and liquid waste, would be stored in areas specifically designed to prevent discharge into storm water runoff. Storage areas used for toxic materials can be designed with full enclosure in mind. For example, a dike could be built to prevent potential spills from spreading outside the storage area. In addition, construction equipment maintenance would be performed in a designated area. Other control measures, such as drip pans to contain petroleum products would be used during the project. Any spills would be cleaned up immediately and disposed of properly. These construction impacts would be temporary and not significant.

Solid Waste: There would be an increase in square footage intended to match current passenger needs. The alternative itself would not result in additional waste creation because it will match the existing passenger demand. The Terminal Alternatives would not create additional solid waste streams in the long term.

Construction activities would create temporary increases in construction and demolition waste. However, this increase would be short-term and would not put undue strain on land disposal services, as the facility still has a 15-year lifespan. These construction activities would be temporary, non-significant and reduced through best management practices. Additionally, use of ASE's Sustainable Construction Management Plan would help reduce the temporary construction solid waste impacts.

Pitkin County provides large recycling containers for the collection of cans, bottles, office paper, and newspapers inside ASE buildings and this would be extended into the new terminal building. The staff at ASE is responsible for the collection of the recyclable materials. Solid waste at ASE is collected by a private company contracted by the County. It is disposed of in the Pitkin County Landfill, located roughly four miles north/northwest of ASE.

4.7.2.3 Runway Alternative

As stated in the Terminal Alternatives, the Runway Alternative would occur on pre-disturbed ground, and contains no known hazardous material sites. ASE improvements would not result in notable increases in the generation or handling of hazardous materials or solid wastes. There is a potential for a temporary increase of solid waste as a result of construction of the proposed action. Construction activities would be temporary and non-significant in nature, and would not put undue strain on the landfill, particularly due to use of ASE's Sustainable Construction Management Plan, the purpose of which is to reduce construction impacts, including the generation of solid waste and pollution prevention. There is also a potential for removal of fill from the site to account for compliant safety areas. Per the Sustainable Construction Management Plan, the contractor could work to find suitable re-use for this fill in the area. If such a re-use is not found, the contractor would likely need to truck it to a disposal site down valley.

4.7.3 Mitigation and Minimization

The Terminal Alternatives and the Runway Alternative would not generate hazardous materials, nor would they create hazardous waste. ASE implements several best management practices to address pollution prevention initiatives. These include maintaining and updating a site-specific spill prevention control and countermeasure plan, storm-water pollution control plan, and properly handling and storing hazardous materials.

No significant adverse impacts related to solid waste are expected, as the impacts on construction waste are temporary. However, because the landfill is expected to reach capacity within 15 years, it is important to examine ways to reduce the amount of construction waste generated by the project. As stated above, ASE has a Sustainable Construction Management Plan with a goal that includes a reduction in the amount of construction waste generated at ASE. This plan would be implemented during construction to reduce the temporary construction impacts such as pollution prevention, and to address both solid waste and best management practices for hazardous wastes. If the landfill is unable to accept construction waste, the contractor would need to truck the materials to another facility, such as the Waste Management facility in Carbondale.

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4.8 Historical, Architectural, Archeological, and Cultural Resources

The National Historic Preservation Act (NHPA) and the Archeological and Historic Preservation Act (AHPA) govern the preservation of historic and prehistoric resources, encompassing art, architecture, archaeological, and other cultural resources. Section 106 of the NHPA requires that federal agencies take into account the effects of an undertaking on properties that are listed on the National Register of Historic Places (NRHP), or that are eligible for listing on the NRHP before a project or a permit may be approved.

The responsible Federal agency first determines whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are properties that are included in or eligible for listing in the NRHP. If the undertaking has the potential to affect historic properties, the Federal agency then defines the Area of Potential Effect (APE) in consultation with the State Historic Preservation Officer (SHPO). The APE is then reviewed to identify any potential historical resources. If no historic properties are present, then the Federal agency submits this information to the SHPO for their concurrence. Additional analyses are required if historic properties are identified to determine if the undertaking will impact the property.

4.8.1 Affected Environment

For this project, the APE generally follows the ASE property boundary and is specially focused on the eastern terminal area and the western edge of the existing runway. The project area initially included some ASE-owned parcels on the east side of Highway 82. However, due to scope refinements, no project activities are currently proposed for these parcels and they are considered outside the APE. An archaeological survey was conducted on the parcels prior to scope refinements and has been included in **Appendix 3** for informational purposes only. **Figure 4.8-1** illustrates the APE with an overlay of the expected projects.

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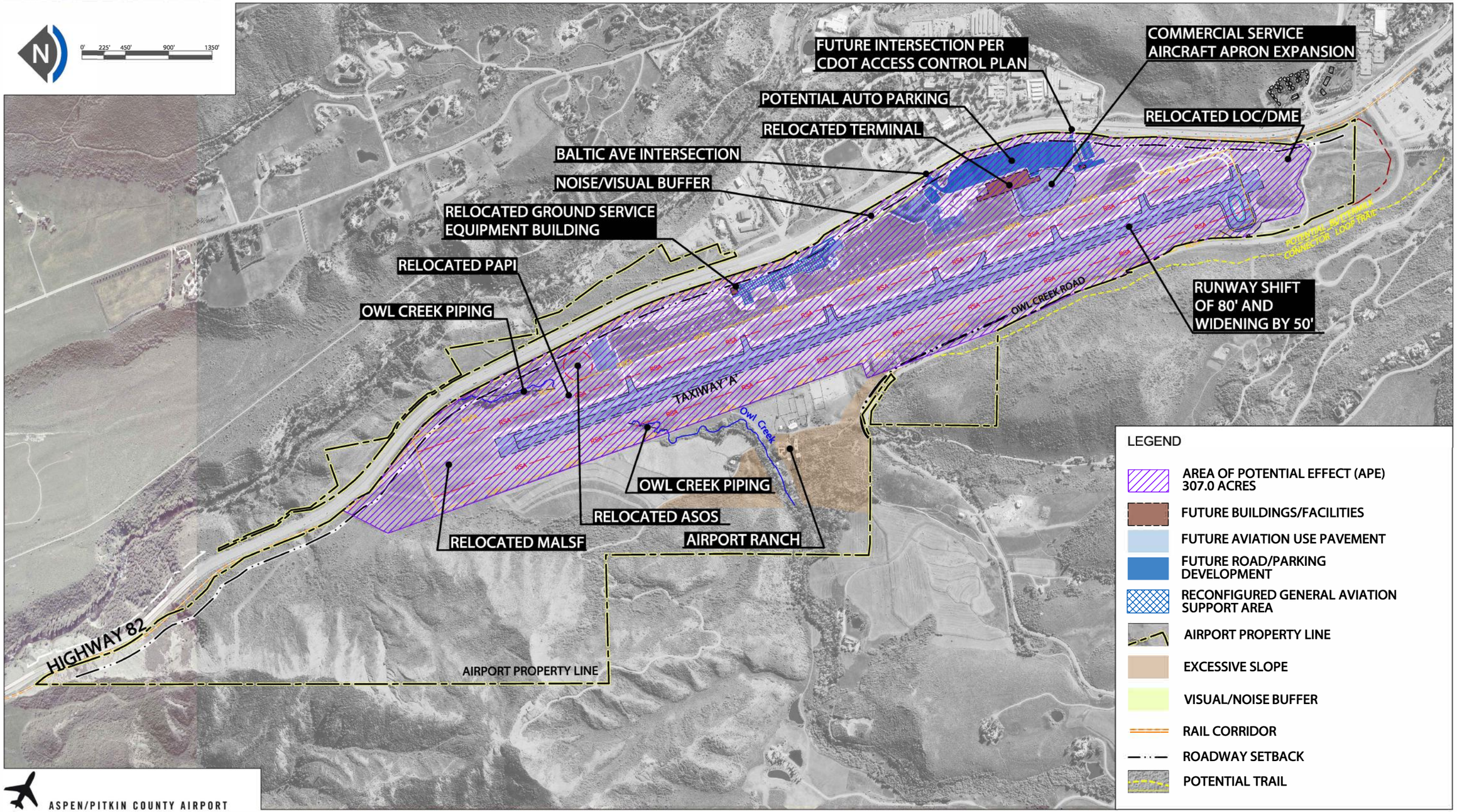

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Figure 4.8-1 **Area of Potential Effect (APE)**

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A records search of the NRHP indicated that there are 36 historically significant sites within Pitkin County[1]. The Maroon Creek Bridge is the closest National Register-listed historic resource to the APE. This bridge spans Maroon Creek approximately one mile southeast of the project area. The majority of the other 35 sites are located within the City of Aspen proper, south of ASE property, and all are located outside the project area. In addition to the records search, a Cultural Resources Survey was completed in September 2015 to encompass the entire ASE property.

The 2015 Cultural Resources Survey reviewed all properties at ASE including buildings, hangars, and offices related to operations at ASE. The National Register-eligible Airport Ranch (5PT.538) was the only historic property identified within the study area. The Airport Ranch, which was determined eligible in 1988, consists of approximately 463 acres, and retains its nine contributing buildings and structures. Its boundaries are the ASE boundary to the east, the 7,800-foot contour line to the west, Owl Creek Road to the South, and a row of trees to the north. The Airport Ranch is located on the west side of ASE property. The ranch is outside the secured area fence, which surrounds the perimeter separating ASE from the ranch property, and therefore, is located outside the APE. No other properties were found to meet the National Register Criteria for Evaluation within the APE, and none are over 50 years old or possess architectural or historical significance.

Most of ASE property is pre-disturbed, and previous archeological surveys have not identified any sites that are eligible for the National Register (See summary in **Appendix 3**). Previous surveys of ASE indicated that there were no archaeological resources of concern.

4.8.2 Environmental Consequences

4.8.2.1 No Action

The No Action Alternative would result in no development activities. Therefore, no direct impacts relative to archaeological, architectural, cultural, or historic sites would occur.

4.8.2.2 Terminal Alternatives 1 and 2

With Terminal Alternatives 1 and 2, the existing terminal would be torn down. As stated in the Cultural Resources Survey, none of the existing buildings that would be affected by the terminal area projects are eligible for inclusion in the NRHP. All terminal projects occur on the east side of ASE and would not affect the Airport Ranch, which is on the west side of ASE property. The FAA issued a No Historic Properties Affected finding on November 17, 2016.

[1] "National Register of Historic Places: Weekly List Actions". National Park Service, United States Department of the Interior. Retrieved on June 16, 2016 .https://www.nps.gov/nr/nrlist.htm

The Colorado SHPO requested additional information on the Airport Ranch in relation to the proposed projects. The FAA provided this information in an updated No Historic Properties Affected finding on January 31, 2017. The SHPO concurred with the finding in a letter dated February 6, 2017.

Construction impacts are distinguished from other impacts as those short-term sources of potential effects, such as noise, air quality, access, and vibration, which would only occur during the construction phase of the proposed project. There are no known historic or archeological resource sites that would be affected by such construction impacts. The closest resource (Airport Ranch) is not considered sensitive to potential impacts from noise or air quality.

If any unanticipated discoveries occur during construction activity, work in that area will stop immediatelyand both the FAA and the Colorado Historical Society, Office of Archaeology & Historic Preservation will be contacted.

4.8.2.3 Runway Alternative

The Runway Alternative shifts the runway and nearby Owl Creek Road. However, it would not impact the closest historic resource, Airport Ranch, which is outside the disturbance footprint for this project (See **Figure 4.8-1**). The 80-foot lateral shift of the runway would cause a shift in noise contours 80 feet closer to the Airport Ranch. However, since Airport Ranch is currently on ASE property and it is subject to the noise and activity associated with that use, it would not change the character of the property. Further, changes in noise levels wouldn't be considered new intrusions; as current air traffic noise already exisits. This means there would be no significant impact relative to historic properties. The FAA issued a No Historic Properties Affected finding on November 17, 2016. The Colorado SHPO requested additional information on the Airport Ranch in relation to the proposed projects. The FAA provided this information in an updated No Historic Properties Affected finding on January 31, 2017. The SHPO concurred with the finding in a letter dated February 6, 2017.

If any unanticipated discoveries occur during construction activity, work in that area will immediately stop and the FAA and the Colorado Historical Society, Office of Archaeology & Historic Preservation will both be contacted.

4.8.3 Minimization and Mitigation

No significant adverse effects on historical, architectural, cultural, or archaeological resources that are listed on the NRHP, or are eligible for listing on the NRHP, have been identified for any of the proposed alternatives. As such, no mitigation is necessary for these resources. The inadvertent discovery of subsurface archaeological or cultural resources is always a possibility. In such case, the FAA's standard protocols for the treatment of unanticipated discoveries during construction would apply. These protocols include measures for stopping construction if discoveries are made; having qualified archaeologists or other appropriate professionals examine the discovery; and consultation by the FAA with the SHPO, federally recognized tribes, and other parties as relevant to the specific nature of the discovery. During construction, the Airport Ranch will be avoided and identified as a protected area to ensure no staging or disturbance will occur to this area.

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4.9 Land Use

Aviation-related land use planning is integral to safe, sustainable operations. Ensuring compatibility requires an analysis of how the airport functions within the community and how the community can be impacted by the airport. Section 1502.16(c) of the CEQ Regulations requires the discussion of environmental impacts including "possible conflicts between the proposed action and the objectives of Federal, regional, State, and local land use plans, policies and controls for the area concerned." The FAA requires airport operators to ensure that actions are taken to establish and maintain compatible land uses around airports. Note that the study area analyzed for land use in this environmental assessment encompasses a larger area than the direct disturbance in order to incorporate local City of Aspen and Pitkin County land use planning considerations.

4.9.1 Affected Environment

The proposed projects would occur almost entirely on ASE property. The only work off ASE property is along Owl Creek to the northeast (which is located within Colorado Department of Transportation [CDOT] right-of-way).

4.9.1.1 Existing Land Use

The major land uses in the ASE environs include government/institutional (primarily ASE itself), open space/recreational, agricultural, and residential uses. Much of the area surrounding ASE is developed. The Airport Business Center (ABC), a mixed-use commercial/light industrial/residential complex, is located directly east of the ASE terminal area. The closest school to ASE is the Colorado Mountain College (CMC), which is located directly across Highway 82 in the North 40 Subdivision. There is a large area of open space associated with the North 40 residential development immediately east of ASE, which provides a buffer between ASE and residential uses of the North 40 development and other residential developments farther east. The North 40 development is the closest residential development to ASE and it includes deed 72 deed restricted year-round residences. In Summit County, deed restrictions have been established to further the County's goals related to providing affordable housing and workforce housing.

The North 40 HOA also owns and/or operates three parks. North 40 Park, the largest of the three parks, is owned by the North 40 HOA and is located east of the Airport Business Center across Highway 82, approximately 650 feet east of the commercial aircraft parking apron. Two smaller parks, Children's Memorial Park and Chuck Brandt Park, are located on the far eastern edge of the North 40 development.

The White River National Forest lies approximately 1.5 miles east of ASE on the eastern side of the Roaring Fork River. In addition, there are several areas of designated open space near ASE. Large tracts of land used for agriculture and low-density residential are located to the north and northeast of ASE. Residential developments to the north of ASE include the Brush Creek Village Subdivision, Woody Creek, and the W/J Subdivision.

Large residential lots account for most of the land use to the west and southwest of ASE. South of ASE are the Buttermilk Ski Area, the Maroon Creek Club, the Aspen Municipal Golf Course, and the City of Aspen itself. Immediately south of the runway on ASE property is a segment of the Owl Creek bike path, which is owned and maintained by Pitkin County. The City of Aspen recently constructed a new trail, which runs parallel to, and along the east side of, Owl Creek Road from the Buttermilk Ski Area to a point just south of the ASE Operations Center, where it intersects with Owl Creek Road. This trail is maintained by the City of Aspen. See **Figure 4.9-1** for existing land use patterns surrounding ASE.

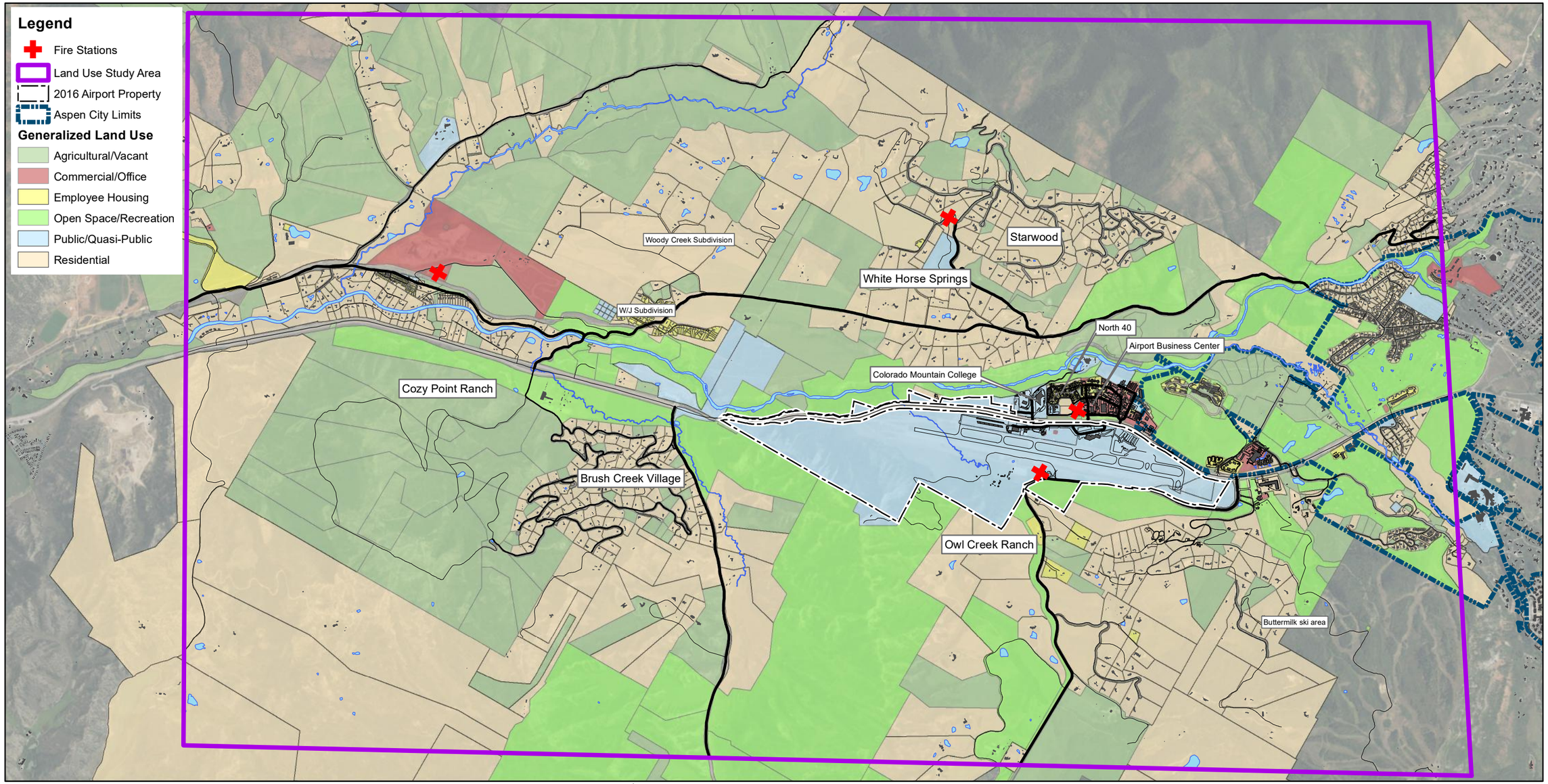

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Figure 4.9-1
Generalized Land Use Map

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4.9.1.2 Existing Zoning

The study area straddles the jurisdictions of Pitkin County and the City of Aspen, both of which administer their own zoning regulations. **Figure 4.9-2** illustrates both jurisdictions' zoning patterns in the area surrounding ASE. The City and County zoning regulations include aggressive growth management programs establishing an annual limit on the number of development rights issued for new residential dwelling units and commercial square footage. Both jurisdictions also have a long history of staunchly defending their planning and zoning regulations. Future development in the area is primarily guided by the physical limitations of the area surrounding ASE, the ownership patterns, the existing land uses, and the current land use plans and zoning ordinances of both jurisdictions.

4.9.1.2.1 Pitkin County Zoning

Most of the land surrounding ASE, and all the ASE property, is under the jurisdiction of Pitkin County. The county zone districts found in the area surrounding ASE include:

- RS-20 – Resource (20-acre minimum lot size)
- AR-10 – Agricultural Residential (10-acre minimum lot size)
- AR-2 – Residential (two-acre minimum lot size)
- AH - Affordable Housing (6,000-square-foot minimum lot size)
- AH/PUD – Affordable Housing (3,000-square-foot minimum lot size)
- Ski-Rec – Ski-Recreation
- PUB – Public
- P-I – Public Institutional (governmental, civic and educational use, humanitarian, health care, and other non-profit public purposes)
- B-2 – General Business (ABC)
- I – Industrial (ABC)

The entire ASE property is encumbered by five different zone districts: PUB, P-I, AR-2, AR-10, and RS-20. The PUB zone district designation is limited to parcels that were zoned prior to the 2006 Pitkin County Land Use Code amendment, and is no longer used as a zone district designation. Properties that retain the PUB zoning designation, which will continue to govern these lands, include ASE's main facilities; the Roaring Fork Transportation Authority bus maintenance facility; and the City of Aspen Snow Storage Site.

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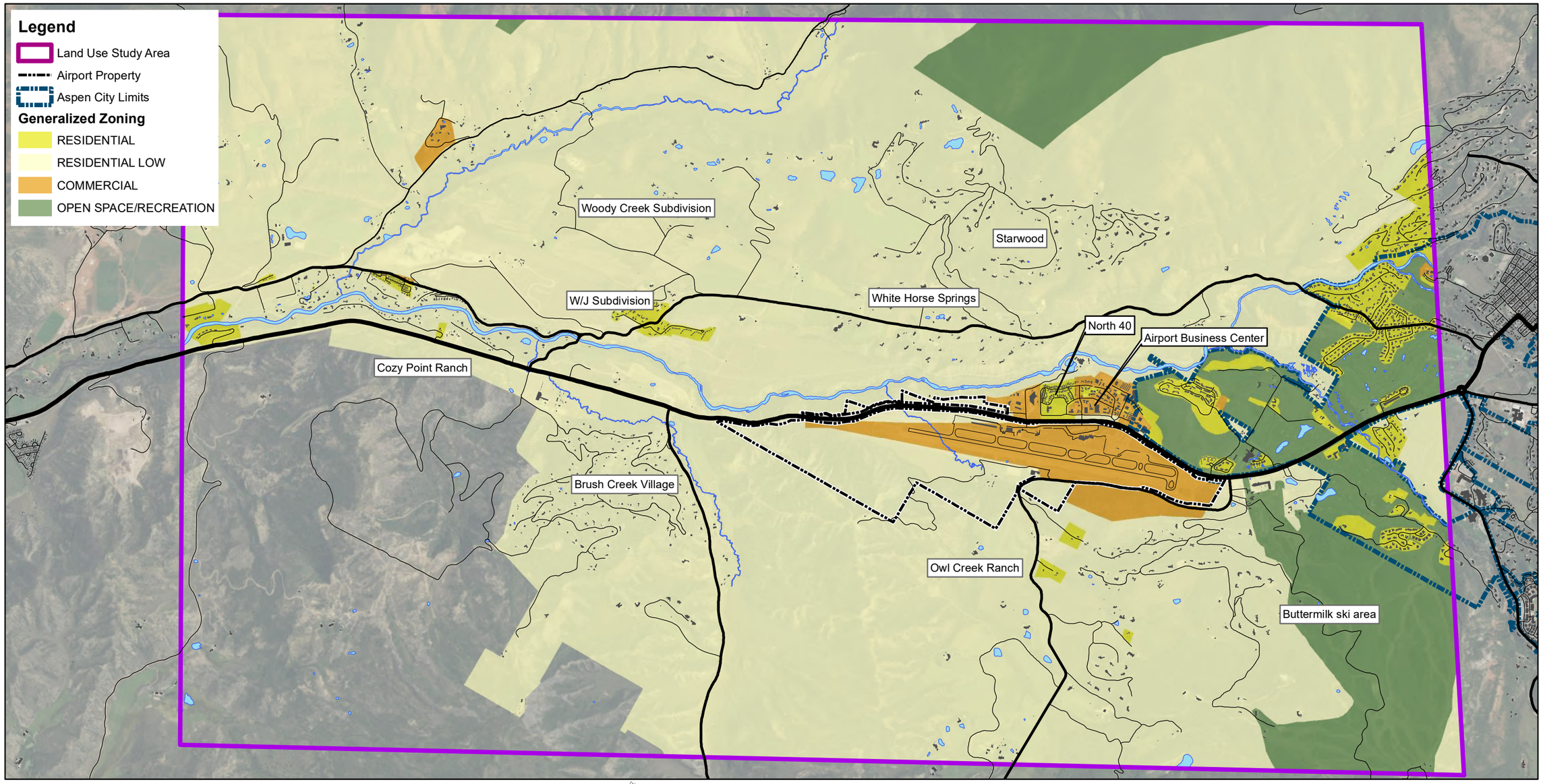

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Figure 4.9-2
Generalized Existing Zoning

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The Ski-Rec zone district encompasses the base area of the Buttermilk Ski Area southwest of ASE. The Ski-Rec zone district requires the preparation of a master plan prior to issuance of development permits. The master plan dictates the permitted uses and other standards and limitations for development. The current Buttermilk Mountain Ski Area Master Plan (Buttermilk Master Plan) was adopted in December of 2013 Several planned projects under the Buttermilk Master Plan were recommended, but none of these changes are located within the project area.

Just north of the Buttermilk Ski Area parking lot is the Stapleton Property, a large parcel that was previously leased by ASC and used for overflow parking. As part of the Owl Creek Road relocation project, the property was condemned and portions were conveyed to Pitkin County and CDOT. The condemnation decision included limitations on how the property can be used. The area north of the relocated Owl Creek Road (the ASE side of Owl Creek Road) is limited to airport uses and open space. The remainder of the property was reserved for the relocation of Owl Creek Road and Buttermilk Road as well as other transit and recreation parking, open space, and wetland mitigation.

The B-2 zone district encompasses most of the ABC, which is located directly across Highway 82, east of the existing passenger terminal area. There is little potential for any significant new development that would impact ASE operations or the proposed projects within the ABC since nearly all of this area has already been developed. Redevelopment could occur within the ABC; however, such redevelopment would most likely be of a similar character given the current zoning limitations and the private covenants that were established when the ABC was originally developed.

The large area of AH-PUD zoning located across Highway 82 from the commercial terminal and the GA aircraft apron is the North-40 subdivision. This subdivision includes a neighborhood of deed-restricted housing units; CMC; a soccer field; and a large undeveloped lot. The undeveloped lot is located along Highway 82 between CMC and the Fire Station, and represents the most significant development potential in the area surrounding ASE. The property has been considered for several potential commercial or institutional uses over time, but its future remains uncertain.

4.9.1.2.2 City of Aspen Zoning

The area southeast of ASE is, for the most part, within the City of Aspen. The following zone districts are located within the City of Aspen, close to ASE:

- C - Conservation
- RR – Rural Residential
- OS – Open Space
- P PD – Park Planned Unit Development (Maroon Creek Club Golf Course and Aspen Municipal Golf Course)
- OS PD – Open Space Planned Unit Development (associated with Maroon Creek Club)
- R/MFA PD – Residential Multi-Family (Maroon Creek Club)

- AH PD – Affordable Housing Planned Unit Development (Maroon Creek Club)
- AH PUD – Affordable Housing Planned Unit Development
- WP PD – Wildlife Preservation (Maroon Creek Club)
- SCI PD – Service/Commercial/Industrial (Pro-Build Site)

The zone district labels that are followed by a "PD" indicate that they were either approved as a Planned Development subject to a master plan or are contained within a Planned Development Overlay and may require the development of a master plan prior to issuance of a building permit. As a result, the development potential of a property for which a master plan or Final PD Development Plan has been approved may be largely governed by the specific provisions of the final planned development approval documents.

Most of the land within the nearby portion of the City is fully developed, approved for development, or in the process of being developed. The principal project in this area is the Maroon Creek Club (MCC), an upscale golf course/residential project, which was approved in the early 1990s and is in the development phase. It is located south of ASE and east of the Buttermilk Ski Area and Highway 82. Most of the land for the MMC project is zoned P PD and OS (open space) for the golf course.

The City of Aspen Municipal Golf Course is zoned P PD and is in the very southeast corner of the study area. Just southeast of ASE is an area zoned C for "conservation." This district is intended to conserve open space and to accommodate very low-density residential development.

The Burlingame Seasonal Housing/Music Associates of Aspen (MAA) Affordable Housing Project is located within the City of Aspen and was approved by the City in 1999. This subdivision is the closest residential area to the south end of the runway. When this project was approved, the City required that these units be constructed to maintain an interior sound level of 40 dB(A) and that proof of this sound level be provided prior to a certificate of occupancy being issued for any of the structures. In September 2000, several of the units were tested for sound attenuation based on single event noise that was assumed to be in the 75 dB(A) range. The tests found the interior noise levels to be below the required 40 dB(A).

The Annie Mitchell Housing Project is also located within the City of Aspen, directly across Highway 82, southeast of the ASE terminal building. The property was approved for 40 affordable housing units, which have all been constructed. It appears that no avigation easement was recorded for this property.

The Pro-Build Site consists of two parcels with a combined area of approximately 4.7 acres. The site is directly across Highway 82 from the ASE employee parking lot. The site currently contains a lumberyard and a building materials facility. The City of Aspen purchased the property with the intent of potentially combining it with the adjacent Burlingame Seasonal Housing (Parcel C) for a future affordable housing project potentially containing 100 or more units. That project has since been put on indefinite hold, and the City currently has a long-term lease with Pro-Build to allow the existing lumber yard/building materials uses to continue until 2025. The property was annexed by the City of Aspen in 2011, zoned SCI, and approved as a PD. Since PD approval has been granted for the existing use on the property, any change in use would require a PD amendment with a public hearing including the required notice.

4.9.1.3 Avigation Easements

An avigation easement is a property right acquired from a landowner which protects the use of airspace above a specified height and may impose limitations on the use of the land subject to the easement. The easement protects ASE's right to discharge noise, vibrations, and other such effects over the land subject to the easement. The protections include impacts associated with any aircraft currently operating at ASE as well as any other aircraft that may subsequently be permitted to operate at ASE. Typically, these agreements also include a provision that precludes the grantor of the easement from opposing any future improvements or expansion at ASE based on the adverse effect from such improvements. In recent years, the County has sought avigation easements in association with development applications both in the County and in the City of Aspen. **Figure 4.9-3** shows avigation easements near ASE and **Table 4.9-1** provides a list of properties for which avigation easements have been granted.

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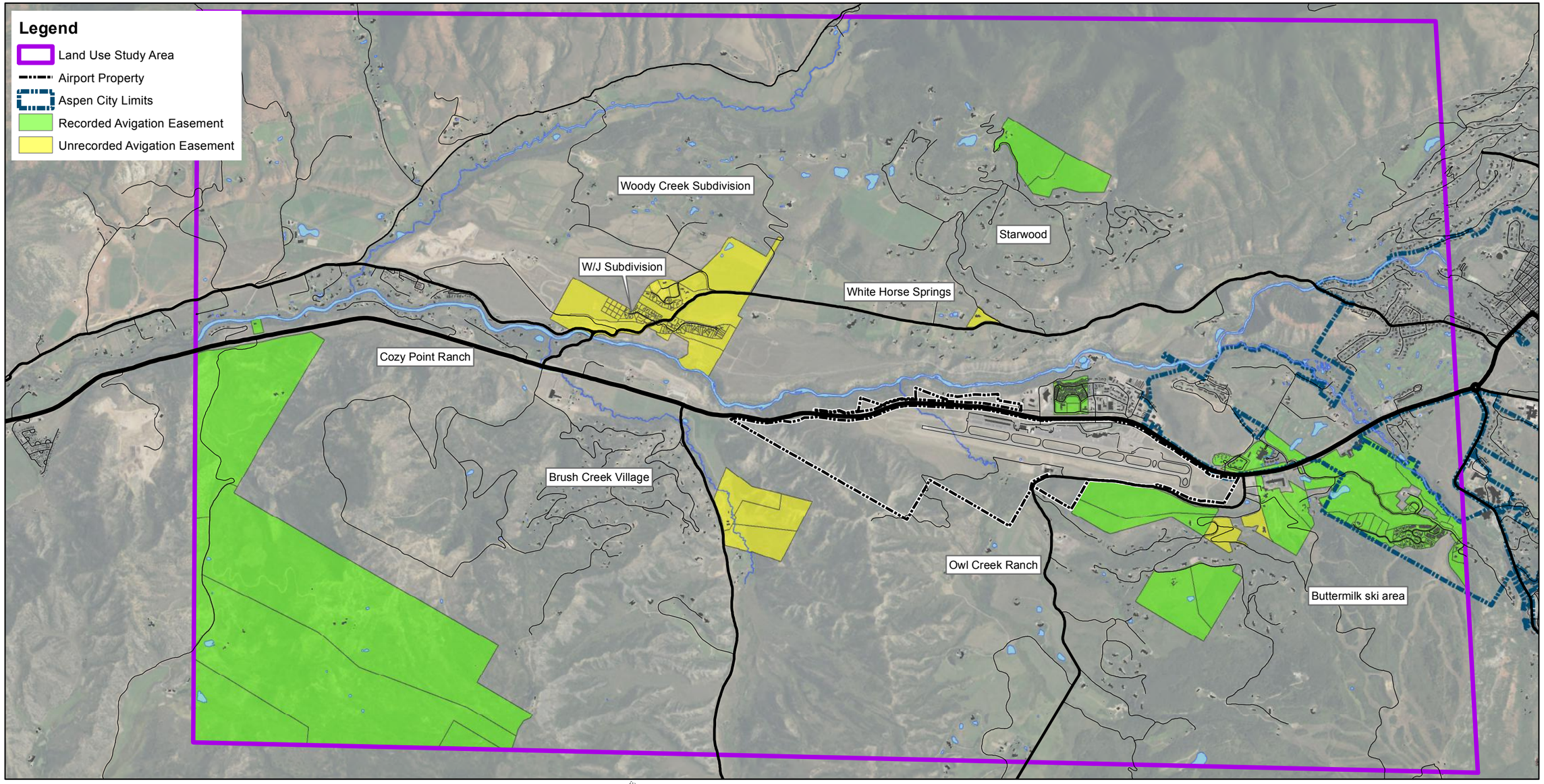

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Figure 4.9-3
Avigation Easement Map

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Table 4.9-1 Recorded Avigation Easements		
Grantor	**Date**	**Document**
Bidgle LLC (North 40)	8/9/1999	BOCC Res. #23-99
Brush Creek Ranch (Koutsoubos)		BOCC Res. #99-97
Buttermilk Meadows Subd. (Tiehack Partners) Buttermilk Ski Area Base	5/28/2014	BOCC Res. #232-00 Reception #611166
Casden, Alan		
City of Aspen (Burlingame/West Buttermilk Parcel)	5/10/2000	BOCC Ord. #20-00
Doremus, Jeanne & Andrew	5/27/1993	BOCC C. #93-80
Hunter, Robert & Patricia	5/10/2000	BOCC Ord. #27-00
Knyper, Mel	7/14/1992	BOCC C. #51-92
Music Associates of Aspen, Inc. (MAA)	8/9/1999	BOCC C. #109-99
Pearce Equities (Maroon Creek Golf)	8/23/1993	BOCC C. #109-93
Placer Enterprises	2/28/2001	BOCC Ord. #09-01
Placer Enterprises (Woods Lot Split)	3/3/2001	BOCC Ord. #98-17
Virginia Aspen Corp.	5/20/1981	
W/J Enterprises		
W/J Homeowners Association		BOCC Res. #98-217
Wildcat Ranch	4/29/2001	BOCC C. #57-91
Ziff, William	7/15/1992	BOCC C. #61-92

Source: Pitkin County Community Development Department

4.9.1.4 Future Land Use Planning

Several documents address future land use within the area surrounding ASE. These plans include the West of Maroon Creek Master Plan (WOMP), 2012 Aspen Area Community Plan (AACP), the Highway 82 Corridor Plan, the Woody Creek Master Plan, and the Owl Creek Master Plan. The following paragraphs provide a brief understanding of the key policies in each of these documents relative to the future development potential of the lands in the area surrounding ASE.

Although there are large areas of vacant or agricultural lands located within the vicinity of ASE, the potential for substantial new development within the study area (under current zoning) is not significant due to several factors. First, the terrain in some of the areas is very steep or is contained within the Roaring Fork River Valley. Second, significant portions of these areas are already developed to their maximum allowed density, and further development would require rezoning. Up-zoning is very rare in Pitkin County and would most likely be opposed by the community.

In addition, the Pitkin County Land Use Code (Section 7-90-20) includes criteria to analyze land compatibility near ASE to prevent the development of incompatible land uses. Pitkin County has an aggressive growth management program, limiting the number of development rights that can be issued in a single year. While development rights can be obtained through various exemptions from the growth management program, these exemptions are subject to review by the County and issues associated with potential conflicts with ASE and its continued safe operation would be considered.

West of Maroon Creek Master Plan (WOMP)

The WOMP was adopted in 2013 and covers the area from the Maroon Creek Bridge to the north end of ASE property. The intent of the WOMP is to take the vision, philosophy, and policies from the AACP and create clear land use guidance for future uses and decisions regarding the location and scale of development. The WOMP seeks to preserve the scenic quality of development within the planning area.

Regarding future development at ASE, the Scenic Guidelines of the WOMP call for the use of low-profile structures and earthen roofs. The guidelines also call for avoiding the use of landforms for screening that would result in a tunnel effect along the Highway, and maintaining as much existing vegetation as possible. The WOMP includes similar policy statements for the other activity nodes within the planning area.

One of the land use policies included in the WOMP discourages the development of additional free-market, single-family and duplex homes in the Highway 82 corridor. This is consistent with the future use and operation of ASE. The WOMP also resulted in the extension of the Urban Growth Boundary to include all the PUB-zoned land within ASE property, including the entire runway/taxiway complex and related facilities.

2012 Aspen Area Community Plan (AACP)

The AACP provides broad, overarching guidance as it relates to the land contained within the area covered by the WOMP. The 2012 AACP continues to support the UGB, which was originally adopted in the 2000 AACP. The UGB is intended to control urban sprawl and is used to evaluate rezoning applications and other land use change requests. The general intent of the UGB is to discourage urban-level development outside of the boundary through control of the extension of services and other measures.

Highway 82 Corridor Plan

The Highway 82 Corridor Plan includes recommendations regarding the physical appearance of facilities and developments along the Highway. This plan calls for the creation of a set of landscaping guidelines for land along the side of the Highway. These landscaping rules include recommendations for site design, landscape plantings, and outdoor lighting. Any developments at ASE will need to be consistent with this Plan.

Airport Design Guidelines
In 2014 ASE adopted the "Aspen/Pitkin County Airport Design Guidelines," which contain much more detailed standards and recommendations for future landscaping on ASE property. ASE's Design Guidelines should be the primary guide for assessing the compatibility of any contemplated landscape improvements for the land adjacent to Highway 82 along the length of ASE property.

Woody Creek Master Plan
The Woody Creek Caucus created the Woody Creek Master Plan with help from the Pitkin County Community Development Department. This Plan, which was adopted in 1991, is an amendment to the Down Valley Plan (adopted in 1987). However, this plan was not endorsed by the Board of County Commissioners. The Woody Creek Caucus submitted a plan amendment to the County for consideration, but the amendment was never adopted, and is, therefore, considered unenforceable. Noise is a concern with Woody Creek residents due to its close proximity to ASE and the departure flight path.

The Woody Creek Master Plan aims to maintain Woody Creek as low-density residential area. The plan prohibits high-density housing development and does not allow changes in zoning that would result in increased density or population larger than the expectation under the current zoning. These plans are general recommendations to prevent a high-density land use that may be incompatible with ASE.

Owl Creek Master Plan
The Owl Creek Master Plan was adopted by the Pitkin County Planning Commission in September 2003 and applies to the Owl Creek Caucus Area. The Owl Creek Caucus Area includes most of the land to the west of ASE. The Plan essentially calls for the existing large lot and rural land use pattern to be maintained. There are no policy statements in the Plan directly related to ASE.

The Plan also calls for rezoning most of the land within the Caucus to one of the large-lot, resource-preservation-oriented zone districts. This change in zoning would more accurately reflect the current land use pattern. In general, the Owl Creek Master Plan seeks to maintain the existing rural and low-density residential land use pattern, which is reasonably consistent with the continued operation of ASE.

4.9.2 Environmental Consequences
Aircraft noise has historically been the primary driver for airport land use compatibility issues. Noise related impacts are included in **Section 4.11**. The analysis that follows is related to existing and future land use, zoning, and local land use compatibility.

4.9.2.1 No Action Alternative

If the No Action Alternative were implemented, there would be no terminal improvements, no airfield improvements, and no land use changes. The No Action Alternative would not include acquisition of land or changes to land use or zoning. Therefore, the No Action Alternative would have no adverse impacts on land use compatibility surrounding ASE.

4.9.2.2 Terminal Alternatives 1 and 2

Similar to the No Action Alternative, neither Terminal Alternative would result in acquisition of land or impacts to land uses or zoning designations. Both Terminal Alternatives would include a relocated and expanded terminal facility, re-configured roadways and parking, and other associated projects. These improvements would be located entirely on pre-disturbed land on ASE property within the existing development area. Implementation of the terminal improvements would not result in the disruption of any communities, the relocation of residences or businesses, or result in any changes to existing or planned land uses.

Impacts to surface transportation resulting from the Terminal Alternatives is discussed in **Section 4.15**. Both Terminal Alternatives include a revised site plan that provides more direct connectivity with the existing RFTA transit stops, which is a positive impact of the proposed terminal project.

The terminal redevelopment project would require Location and Extent review pursuant to Section 2-30-30(h)(10) of the Pitkin County Land Use Code. The primary criteria for the Location and Extent review is conformance with the applicable comprehensive plan or master plan, which in the case of ASE, would include the 2012 AACP, WOMP, and the 2012 Airport Master Plan. All terminal improvements would conform with these land use plans.

Construction of the alternatives would not result in changes to land use or zoning codes. Best management practices will be employed during construction. No impacts to land use compatibility are anticipated as a result of construction of the terminal alternatives.

4.9.2.3 Runway Alternative

Runway Alternative includes shifting the runway 80 feet to the west and widening the runway from 100 to 150 feet. Projects associated with the runway alternative include the realignment of the perimeter road, Owl Creek Road and Owl Creek Bike Path, and the piping of Owl Creek.

The Runway Alternative is located almost entirely on ASE property. However, it would require the slight relocation of Owl Creek Road and the Owl Creek Bike Path, which are located on CDOT property. The road relocation would occur within the CDOT right-of-way and would be considered a compatible land use. Realignment of approximately 1,657 feet of the bike path 13 to 58 feet west of the existing path would not be considered to have a negative effect on the bike path, its uses, or its users. The adjacent land on the west side of Owl Creek Road is owned by the City of Aspen and has been preserved through a conservation easement held by the Aspen Valley Land Trust (AVLT).

The conservation easement limits the uses of the City-owned parcel to agriculture, recreation, and open space, including the construction and maintenance of a public recreation trail (Buttermilk Connector Trail). The trail had been completed at the time this document was being prepared but would not be affected by the Runway Alternative. The conservation easement ensures that the future use of the City-owned parcel will remain compatible with ASE operations and with the proposed terminal and runway projects.

Construction of the alternatives would not result in changes to land use or zoning codes. Best management practices will be employed during construction. No impacts to land use compatibility are anticipated as a result of construction of the Runway Alternative.

4.9.3 Minimization and Mitigation Measures

Neither the No Action Alternative nor the Terminal or Runway Alternatives would produce significant impacts to land use. Therefore, no mitigation is required. However, all improvements would conform with local land use plans, zoning codes, and the Airport Design Guidelines.

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4.10 Natural Resources and Energy Supply

Sections 1502.16(e) and (f) of the CEQ Regulations require that Federal agencies consider energy requirements, natural depletable resource requirements, and the conservation potential of alternatives and mitigation measures in NEPA documents. Additionally, consistent with NEPA and CEQ regulations, the FAA encourages the development of sustainable alternatives. The transportation system should be designed to include alternatives that are sensitive to the conservation of resources such as energy, pollution prevention, harmonization with the community environment, and to the concerns of the traveling public.

FAA Order 1050.1F states that, while the FAA has not established a threshold for significance relative to natural resources and energy supply, the proposed action should be examined for the potential to cause demand to exceed available or future supplies of these resources.

4.10.1 Affected Environment

Electricity service in the area is provided by Holy Cross Energy, and ASE purchases 100 percent renewable wind power. Water at ASE is provided by the City of Aspen through an 18-inch service line, except for the Airport Operations Center (AOC), where water is provided by the Borrego Water District. Except for the Airport Traffic Control Tower (ATCT), all buildings at ASE are serviced by, or can access, the sanitary sewer system that serves the general area including the Airport Business Center (ABC), other ASE facilities and surrounding commercial areas. The ATCT has an existing below-ground septic system.

The Roaring Fork Valley is somewhat isolated and often natural resource materials need to be brought in from other locations.

In 2015, a total of 6,064,282 gallons of Jet A was dispensed and 29,663 gallons of Avgas and in general is a relatively small amount compared to aviation nationwide.

4.10.2 Environmental Consequences

Energy requirements associated with airport improvements fall into two general categories: 1) changed demand for stationary facilities (e.g. airfield lighting and terminal building heating); and 2) the movement of air and ground vehicles, which can alter fuel consumption. To analyze potential impacts on natural resources and energy supply, the usage of electricity, water, and fuel was evaluated to determine potential impacts on supply and capacity as a result of the Terminal Alternatives and Runway Alternative.

4.10.2.1 No Action Alternative

There would be no significant impacts to natural resources or energy supply as a result of the No Action Alternative. The outdated terminal's energy use could negatively affect ASE in the future by continuing to operate on old, more energy intensive systems, which means less efficiency and higher costs.

The No Action would result in no development activities and there would not be an increase in consumption of natural resources, energy, or fuel in order to maintain the airfield in its current configuration. However, this alternative would restrict newer generation aircraft from flying into ASE. Generally, the newer generation aircraft are becoming more fuel efficient; subsequently, this alternative would prevent the newer, more fuel-efficient aircraft from flying into ASE. However, this is not expected to be significant. Therefore, the No Action Alternative would not result in significant impacts to natural resources or energy supply.

4.10.2.2 Terminal Alternatives 1 and 2

Construction of the Terminal Alternatives would require the use of building materials and water. Materials would be sourced locally, if possible. However, due to the remote nature of the valley, the proposed improvements could result in minor increases in fuel consumption for those materials that must be transported into the valley. This increase would be short-term, temporary, and relatively small compared to the overall amount of resources available. The use of fuel to transport materials in combination with fuel used to power construction vehicles is not anticipated to exceed the existing capacity or future availability of fuel in the area.

Both Terminal Alternatives are assumed to be the same size (around 140,000 square feet), and would require similar resources for construction and operation. The proposed terminal improvements represent an increase in square footage compared to the existing terminal. In general, it is assumed that larger square footage would require additional energy for heating, cooling and lighting. However, in this case, the existing terminal is old and relies on outdated energy systems and technology. It is anticipated that, while the overall energy consumption of the proposed larger terminal might increase, it could be partially offset by more efficient technology. The efficiency of the terminal would be improved by incorporating state of the art technology and building innovations. In terms of overall efficiency, best management practices identified in Airport Cooperative Research Program (ACRP) literature[1] would be considered in future design of the terminal.

[1] Turner, W.D., M. Verdict, B. Yazdani, H. Huff, and K. Clingenpeel, *ACRP Research Results Digest No. 2: Model for Improving Energy Use in U.S. Airport Facilities*, Transportation Research Board of the National Academies

These practices include:

- Reducing solar heat gain and lowering cooling demand by making exterior surfaces more reflective
- Using window films or other retrofit shade devices to reduce solar heat gain and improve occupant comfort
- Increasing levels of insulation
- Monitoring and managing exterior openings to reduce air movement and heat or cooling losses.

With the construction of the new terminal, aircraft would taxi to a location approximately 193 feet closer on average than the current terminal.

Due to the increased efficiencies expected by a new building, paired with ASE's commitment to purchasing renewable wind power, any potential increase in energy use is not expected to exceed existing or future available resources. Furthermore, materials would be locally sourced, if possible. Therefore, the Terminal Alternatives are not expected to result in any significant impacts to natural resources or energy supply.

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be recovered or reversed. During the construction of the Terminal Alternatives, natural and human-made resources would be expended. However, the resources expended (e.g., fossil fuels, electricity, construction materials) would be used in relatively small quantities and are not in short supply throughout the region or globally. Therefore, the project is not anticipated to result in an irreversible or irretrievable commitment of resources.

4.10.2.3 Runway Alternative

The Runway Alternative would require the relocation of runway and taxiway lights, but would not change energy consumption on the airfield. The shift of the runway and taxiway 80 feet to the west would result in slightly longer taxi distance (160 feet on average for total taxi distance). However, this increase in taxiing distance would not significantly impact use of fuel, nor would it affect National Ambient Air Quality Standards in the area (see **Section 4.1 Air Quality**).

The Runway Alternative would use building materials and water during the construction phase. Similar to the Terminal Alternatives, materials would be locally sourced, if possible, but would need to be transported in, if necessary. Due to the remote nature of the valley, the transportation of the materials could result in an increase of fuel consumption. The increase in fuel consumption would be short-term, temporary, and relatively small compared to the overall amount of resources available.

The use of fuel to transport fill material in combination with fuel used to power construction vehicles is not anticipated to exceed the existing capacity or future availability of fuel in the area. No known natural gas, geothermal, or other energy resources would be affected as a result of the Runway Alternative.

The Runway Alternative would not substantially change the use of aviation fuel consumption at ASE. It would allow for newer generation aircraft to use the Airport in the future, and it is predicted that over time these aircraft would be more efficient than the existing aircraft. Therefore, there would not be a significant increase in use of aviation fuel at ASE related to this project.

The Runway Alternative would not significantly increase the use of natural resources or energy in the area. Furthermore, materials would be locally sourced, if possible. Therefore, this alternative is not anticipated to result in significant impacts to natural resources or energy supplies.

An irreversible or irretrievable commitment of resources refers to impacts on or losses to resources that cannot be recovered or reversed. During the construction of the Runway Alternative, natural and human-made resources would be expended. However, the resources expended (e.g., fossil fuels, electricity, construction materials) would be used in relatively small quantities and are not in short supply throughout the region or globally. Therefore, the project is not anticipated to result in an irreversible or irretrievable commitment of resources.

4.10.3 Minimization and Mitigation

Because there would be no significant impacts to natural resources or the energy supply, no mitigation measures would be required. However, ASE has a Sustainable Construction Management Plan that will be used to minimize impacts relative to natural resources and energy supply. This includes looking seeking out local suppliers for resources and implementing other measures to reduce fuel and energy use. In addition, Pitkin County will explore obtaining FAA Voluntary Airport Low Emission (VALE) funding to help incorporate energy efficiency elements into the new terminal, including but not limited to preconditioned air and ground power units. The installation of preconditioned air and ground power to enables airlines to reduce their use of auxiliary power units, which would contribute to reducing aircraft energy use and greenhouse gas emissions. Additionally, ASE will consider applying for additional energy efficient grants such as under Section 512 of the FAA Modernization and Reform Act (FRMA) and Energy Efficiency in Buildings (Section 138 of the Airport Improvement Program), as well as potential local grants such as the Community Office for Resource Efficiency (CORE).

4.11 Noise and Compatible Land Use

To determine what, if any, impacts relative to noise could occur, studies of noise and compatible land use are done as part of the EA. Determining the Day-Night Noise Level (DNL) provides a means of measuring and mapping the potential impacts from airport noise relative to the land uses surrounding an airport. At the time this EA began, FAA Order 1050.1E, Environmental Impacts: Policies and Procedures was in effect and required use of the FAA's Integrated Noise Model (INM), Version 7.0d, to generate aircraft noise exposure contours. This Environmental Assessment was initiated previous to the FAA requirement of using the Aviation Environmental Design Tool (AEDT) for noise and air quality analysis. The use of INM for this EA is approved by FAA.

The DNL is the metric used in noise analyses. DNL is a cumulative sound level that provides a measure of the total sound energy during a specified time-period. DNL logarithmically averages the sound levels at a location over a 24-hour period, with a 10-dB weighted penalty added to all sounds occurring during nighttime hours between 10:00 p.m. and 6:59 a.m. The 10-dB penalty represents the added intrusiveness of noise that occurs during sleeping hours and because ambient sound levels during nighttime hours are typically lower than during daytime hours.

Estimates of noise impacts resulting from aircraft operations can be interpreted in terms of the probable effect on human activities associated with specific land uses. Suggested guidelines for evaluating land use compatibility with noise exposure was developed by the federal government and adopted by the FAA.

The FAA's INM, Version 7.0d, was used to generate aircraft noise exposure contours.[1] These contours were used to determine potential noise impacts for each of the With Project Alternatives. The INM produces noise contours, which consist of computer-generated lines connecting points of equal noise levels resulting from aircraft operations. *FAA Order 1050.1F*, which replaced *FAA Order 1050.1E*, states the 65 DNL is the required metric to analyze and determine if there is a significant impact. A significant impact is defined as an increase in noise of 1.5 dB or more to a noise-sensitive land use at the 65 DNL or greater contour.

[1] Note: This Environmental Assessment was initiated previous to the FAA requirement of using the Aviation Environmental Design Tool (AEDT) for noise and air quality analysis. The use of INM for this EA is approved by FAA.

4.11.1 Affected Environment

Analysis of the existing noise environment is based upon 2015 calendar year annual operational conditions. The development of the baseline conditions uses data from a variety of sources. The sources for this report include:

- Air Traffic Activity System (ATADS) tower counts (OPSNET),
- FAA Traffic Flow Management System Counts (TFMSC), and
- Terminal Area Forecast Reports (TAF).

The INM requires a variety of operational data to model the noise environment around an airport. These data include the following information, which are discussed in detail in the following paragraphs:

- Total Aircraft Activity Levels
- Aircraft Fleet Mix Categories
- Time of Day
- Runway Use
- Departure Climb Profile
- Flight Paths and Flight Path Utilization

4.11.1.1 Total Aircraft Activity Levels

The total aircraft operational levels were derived directly from the FAA's ATADS tower counts. The ATADS data showed a total of 39,224 annual operations for the 2015 base period, or an average of 107 operations per day (an operation is one takeoff or one landing). In Chapter 2, **Table 2-3**, *Summary of Aviation Activity Forecasts, 2015 – 2033* shows general aircraft categories such as single engine, twin, jet, helicopter, etc.

4.11.1.2 Aircraft Fleet Mix Categories

The Air Traffic Control categories are useful for air traffic purposes, but do not provide sufficient detail necessary for the noise analysis or the details that are often of interest to the general public. As a result, the breakdowns by aircraft fleet mix categories of aircraft operations are presented within this section. The categories are defined relative to type of aircraft (i.e., jet or propeller) as well as size and noise characteristic. The breakdown by these categories was determined from the different sources of operational data described above with the primary source being the ATADS. **Table 4.11-1** presents a more in-depth operational breakdown of the different types of aircraft for existing conditions (2015).

It is not possible to definitively categorize all of the operations into unique groups. For example, some general aviation propeller operations are actually unscheduled commuter propeller flights.

Similarly, some air taxi operations are small single-engine piston aircraft that may be categorized as general aviation piston, or vice versa. But these generally define the categories of operations that occur at ASE and will be used within this report.

4.11.1.3 Time of Day

In the DNL metric, any operations that occur after 10:00 p.m. and before 6:59 a.m. are considered more intrusive and their noise levels are penalized by adding 10 dBA, which is an effective doubling of the levels. Aircraft rarely operate during nighttime hours at ASE; the percentage of nighttime operations is less than one percent.

4.11.1.4 Runway Use

Another important consideration in developing the noise exposure contours is the percentage of time each runway is used. Wind speed and direction dictate the runway direction an aircraft uses. At ASE, due to the mountainous terrain, aircraft arrive and depart in the same direction, arriving on Runway 15 and departing on Runway 33.

TABLE 4.11-1
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS FOR EXISTING CONDITIONS (2015)

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701	11.92	0.34	12.26		8,950
Commuter Turboprop	DH8D	Bombardier Q-400	DHC830					0
Air Carrier Operations (Total)								**8,950**
Scheduled Commuter (less than 50 seats)	SB20	Saab 2000	SAAB20	0.05		0.05		**36**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	0.96		0.96		701
	CL30	Bombardier (Canadair) Challenger 300	CL600	4.48		4.48		3,268
	C500	Cessna 500/Citation I	CNA500	0.02		0.02		12
	C501	Cessna Citation Mustang	CNA501	0.03		0.03		24
	C510	Cessna Citation Mustang	CNA510	0.13		0.13		94
	C525	Cessna CitationJet/CJ1	CNA525C	0.45		0.45		331
	C25A	Cessna Citation CJ2	CNA55B	5.94	0.01	5.95	0.13	4,393
	C560	Cessna Citation V/Ultra/Encore	CNA560	1.20		1.20		876
	C650	Cessna III/VI/VII	CNA650	0.40	0.13	0.53		384
	C680	Cessna Citation Sovereign	CNA680	1.30	0.03	1.33		974
	C750	Cessna Citation X	CNA750	1.72		1.72		1,256
	J328	Fairchild Dornier 328 Jet	CRJ9-ER	0.01		0.01		8
	EA50	Eclipse 500	ECLIPSE500	0.13		0.13		98
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.31		0.31		225
	CRJ2	Bombardier CRJ-200	EMB14L	0.03		0.03		22
	FA10	Dassault Falcon/Mystère 10	FAL10	0.01		0.01		10
	FA20	Dassault Falcon/Mystère 20	FAL20	0.06		0.06		43
	FA50	Dassault Falcon/Mystère 50	FAL50	0.57		0.57		417
	F900	Dassault Falcon 900	FAL900	0.79		0.79		574
	G150	Gulfstream G150	G150	0.25		0.25		186
	GALX	1126 Galaxy/Gulfstream G200	G200	0.51		0.51		374
	GLF2	Gulfstream II/G200	GII	0.04		0.04		33
	GLF3	Gulfstream III/G300	GIIB	0.10		0.10		74
	GLF4	Gulfstream VI/G400	GIV	3.63		3.63		2,650
	GLF5	Gulfstream V/G500	GV	0.77		0.77		564
	HA4T	Hawker 4000	HK4000	0.10		0.10		69
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	1.97		1.97		1,438
	WW24	IAI 1124 Westwind	IA1124	0.06		0.06		41
	ASTR	IAI Astra 1125	IA1125	0.28		0.28		203
	LJ25	Bombardier Learjet 25	LEAR25	0.01		0.01		6
	LJ31	Bombardier Learjet 31/A/B	LEAR35	0.66		0.66		479
	LJ45	Bombardier Learjet 45	LEAR45	0.70		0.70		513
	LJ55	Bombardier Learjet 55	LEAR55	0.15		0.15		106
	LJ60	Bombardier Learjet 60	LEAR60	0.44		0.44		321
	MU30	Mitsubishi MU300/ Diamond I	MU3001	0.01		0.01		4
	H25A	BAe HS 125-1/2/3/400/600	SABR80	0.06		0.06		44
Business Jets Operations (Total)								**20,816**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.57		0.57		415
	BE30	Raytheon 300 Super King Air	BEC300	0.57		0.57		419
	BE9L	Beech King Air 90	BEC90	0.12		0.12		84
	BE9T	Beech F90 King Air	BEC9F	0.02		0.02		17
	AC90	Gulfstream Commander	CNA441	0.77		0.77		565
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		11
	P180	Piaggio P-180 Avanti	P180	0.05		0.05		35
	SW3	Fairchild Swearingen SA-226T	SAMER3	0.02		0.02		15
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.13		0.13		95
Twin Turbo Engine Operations (Total)								**1,662**
Single Turbo Engine Operations (Total)								**998**
Twin Piston Engine Operations (Total)								**2,097**
Single Piston Engine Operations (Total)								**3,935**
Helicopter Operations (Total)								**493**
Military Local (Total)								**81**
Military Itinerant (Total)								**156**
							Totals	**39,224**

Source: BridgeNet International, November 2016

4.11.1.5 Departure Climb Profile

The aircraft departure stage length is the distance the aircraft flies from ASE to its first destination. The stage length of a flight can be used as a rough surrogate for the aircraft departure weight. Generally, heavier aircraft climb at a slower rate, and thus the noise levels under the flight path are likely to be louder. The rate of climb of an aircraft is called the departure climb profile. The stage length assumption is used to determine the rate of climb of each of the different aircraft operating at the airport. The various stage length assumptions are associated with commercial jet operations and not for other categories of aircraft, which means the categories listed below all correlate to commercial service at ASE. The different stage lengths used in the INM model are listed below. Air carrier operations at ASE typically fall in the Stage Lengths 1 and 2 categories.

Stage Length 1:	0 to 500 nautical miles flight distance
Stage Length 2:	500 to 999 nautical miles flight distance
Stage Length 3:	1000 to 1499 nautical miles flight distance
Stage Length 4:	1500 to 2499 nautical miles flight distance
Stage Length 5:	2500 to 3499 nautical miles flight distance
Stage Length 6:	3500 to 4499 nautical miles flight distance
Stage Length 7:	+4500 nautical miles flight distance

The INM noise model contains different departure climb profiles for each of the aircraft contained in the model. These climb profiles define the rate of climb, speed, and engine thrust based upon the weight of the aircraft. Typically the flight distance stage length is used to assign the departure climb profile using flight distance data. However, flight distance does not always correlate to the departure climb profile.

4.11.1.6 Flight Paths and Flight Path Utilization

The FAA and ASE have established paths for aircraft arriving and departing from ASE. These paths are not precisely defined ground tracks, but represent a path along the ground over which aircraft generally fly. The identification of the location and use of the flight tracks is based upon the FAA's radar data. A full year of actual radar data were used in the development of the INM flight paths. The flight paths used in the noise model are derived from all the actual flight paths flown throughout the base period study year. As with the runway use, aircraft arrive and depart over the same geographic area, arriving from the north and departing to the north.

In the INM noise model, a flight path consists of a backbone or center flight path, and the dispersion or spread of all flights that use that backbone. A computer program was used to develop the INM flight paths from the actual radar flight track data. The program first assigns each aircraft operation to an air traffic control procedure. The software then calculates the average path of all the aircraft that flew those procedures.

Figure 4.11-1 shows the baseline DNL contour for existing conditions (2015) and the associated land uses within the contour; 182 acres are in the baseline 65 DNL contour. For existing conditions, no noise-sensitive land uses are located within the 65 DNL contour.

4.11.2 Environmental Consequences

The following sections provide the analysis for the No Action and With Project Alternatives for the terminal and runway improvements. In addition to the normal DNL analysis, for the Terminal project, single event noise exposure was analyzed in relation to the proposed noise wall, as the noise wall would primarily help with single events such as aircraft engine ground run-ups (i.e., when the engine is checked by advancing the throttles).

Noise contours were generated for existing (2015) and future (2023 and 2028) conditions and out year (2033) for the No Action and With Project. The year 2023 represents the opening year of the terminal project. The year 2028 represents five years thereafter, and includes regular operation of the terminal facility and the opening year of the runway alternative. The year 2033 represents regular operation of the relocated runway.

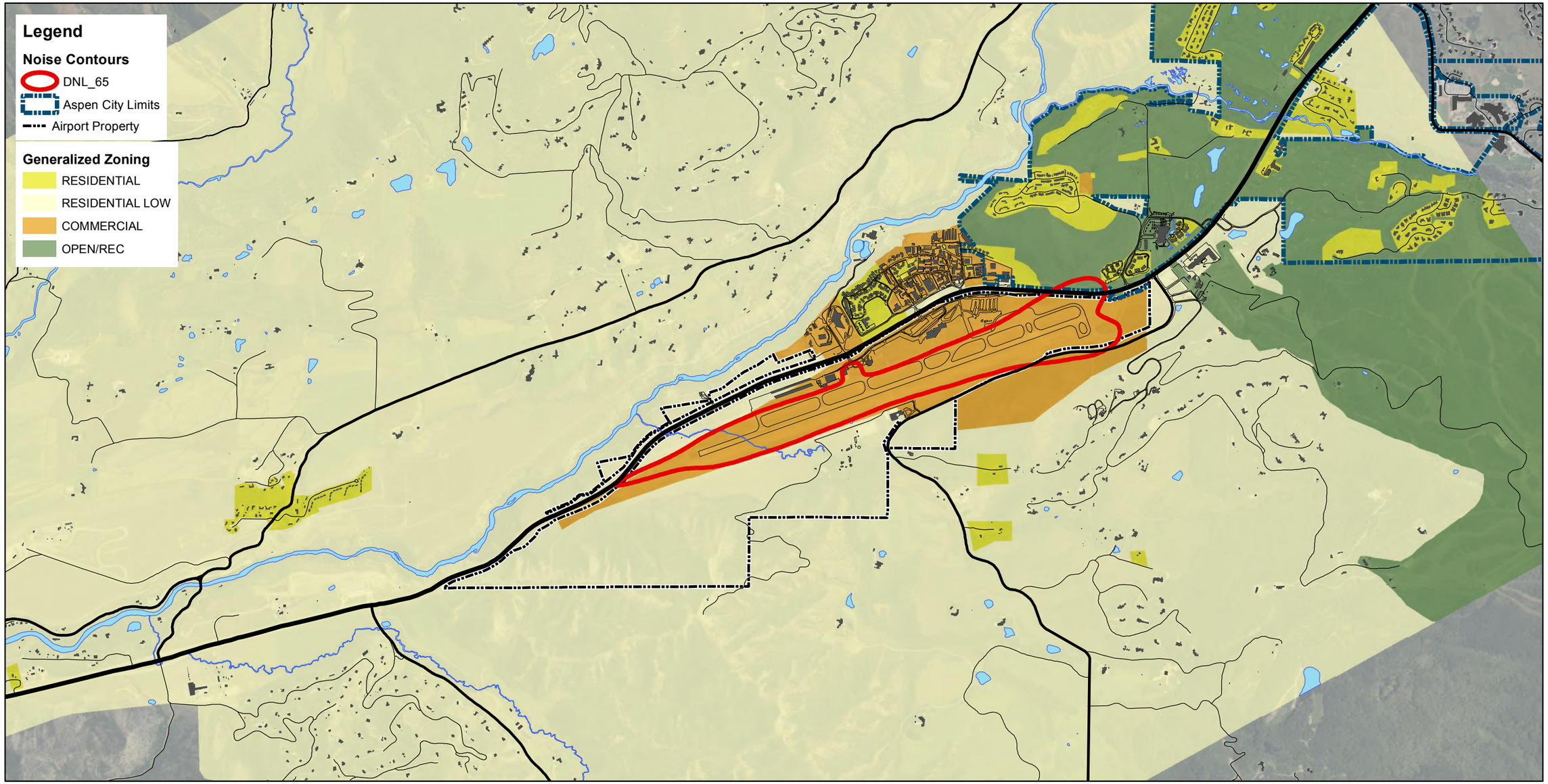

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Figure 4.11-1
Existing Conditions 65 DNL (2015)

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4.11.2.1 No Action Terminal Alternative

The future year 2023 was used to model potential effects for the opening year of the terminal project. The No Action Terminal Alternative would not result in operational changes at ASE; therefore, there would be no changes to the average annual noise contours. Similarly, the Terminal Alternatives would not result in operational changes at ASE; therefore, the DNL noise contours for the No Action and Terminal Alternatives are the same. **Table 4.11-2** presents an in-depth operational breakdown of the forecasted fleet mix for both the No Action and Terminal Alternatives. **Figure 4.11-2** shows the DNL contour for the No Action and Terminal Alternatives (2023) and the associated land uses within the contour. There are 165.2 acres in the 65 DNL contour. For the No Action, no noise-sensitive land uses are located within the 65 DNL contour. Using the threshold of significance in *FAA Order 1050.1F*, this action would not increase noise by 1.5 dB or more for a noise-sensitive area at the 65 DNL or higher. There are no homes or other noise sensitive uses located in the 65 DNL.

TABLE 4.11-2
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS FOR FUTURE YEAR NO ACTION & ACTION (2023)

2023 No Action and With Project: Terminal

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations - (wingspan less than 95')								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701	13.23	0.48	13.72		10,012
Air Carrier Operations (Total)								**10,012**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	0.89	0.00	0.89	0.00	653
	CL30	Bombardier (Canadair) Challenger 300	CL600	4.18	0.00	4.18	0.00	3,048
	C501	Cessna Citation Mustang	CNA501	0.03	0.00	0.03	0.00	23
	C510	Cessna Citation Mustang	CNA510	0.12	0.00	0.12	0.00	88
	C525	Cessna CitationJet/CJ1	CNA525C	0.42	0.00	0.42	0.00	309
	C25B	Cessna Citation CJ3	CNA55B	5.60	0.02	5.61		4,097
	C560	Cessna Citation V/Ultra/Encore	CNA560	1.12	0.00	1.12	0.00	817
	C650	Cessna III/VI/VII	CNA650	0.37	0.00	0.37	0.00	270
	C680	Cessna Citation Sovereign	CNA680	1.22	0.00	1.22	0.00	888
	C750	Cessna Citation X	CNA750	1.60	0.00	1.60	0.00	1,171
	EA50	Eclipse 500	ECLIPSE500	0.13	0.00	0.13	0.00	91
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.28	0.00	0.06	0.23	210
	CRJ2	Bombardier CRJ-200	EMB14L	0.03	0.00	0.00	0.03	21
	FA50	Dassault Falcon/Mystère 50	FAL50	0.53	0.00	0.53	0.00	389
	F900	Dassault Falcon 900	FAL900	0.73	0.00	0.73	0.00	535
	G150	Gulfstream G150	G150	0.24	0.00	0.24	0.00	173
	GALX	1126 Galaxy/Gulfstream G200	G200	0.48	0.00	0.48	0.00	349
	GLF4	Gulfstream IV/G400	GIV	3.38	0.00	3.38	0.00	2,470
	GLF5	Gulfstream V/G500	GV	0.72	0.00	0.72	0.00	526
	HA4T	Hawker 4000	HK4000	0.09	0.00	0.09	0.00	65
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	1.84	0.00	1.84	0.00	1,341
	ASTR	IAI Astra 1125	IA1125	0.32	0.00	0.32	0.00	230
	LJ35	Bombardier Learjet 35/36	LEAR35	1.81	0.00	1.81	0.00	1,324
	SBR1	North American Rockwell Sabre 40/60	SABR80	0.04	0.00	0.04	0.00	30
Business Jets Operations (Total)								**19,119**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.52		0.52		377
	BE30	Raytheon 300 Super King Air	BEC300	0.50		0.50		365
	BE60	Beech 60 Duke	BEC60	0.06		0.06		47
	BE9L	Beech F90 King Air	BEC90	0.10		0.10		76
	BE9T	Beech King Air 90	BEC9F	0.02		0.02		16
	C441	Cessna Conquest	CNA441	0.73		0.73		529
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		10
	SW3	Fairchild Swearingen SA-226	SAMER3	0.02		0.02		14
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.12		0.12		86
Twin Turbo Engine Operations (Total)								**1,526**
Single Turbo Engine Operations (Total)								**917**
Twin Piston Engine Operations (Total)								**1,926**
Single Piston Engine Operations (Total)								**3,614**
Helicopter Operations (Total)								**453**
Military Local (Total)								**30**
Military Itinerant (Total)								**107**
							Totals	**37,704**

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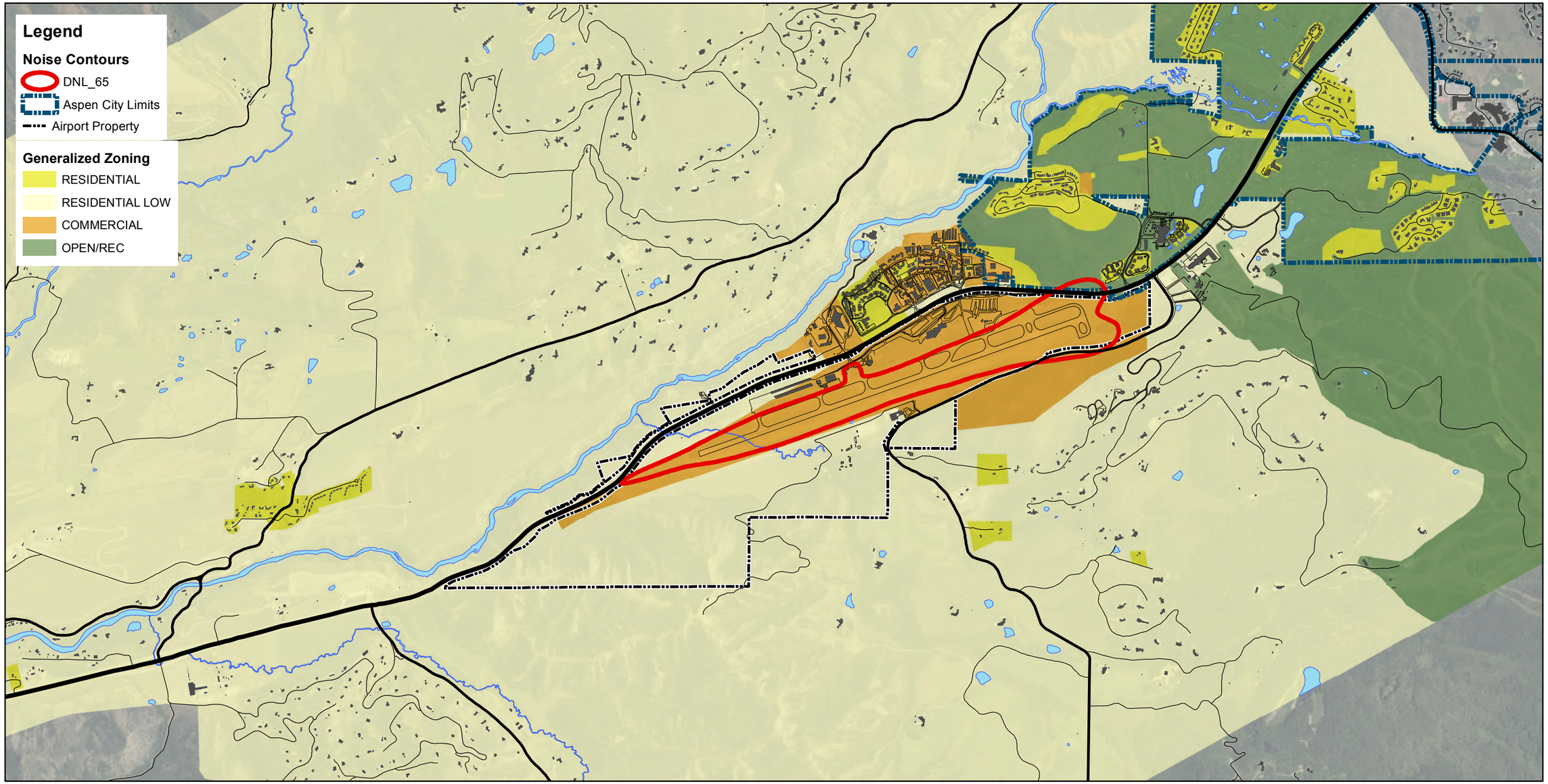

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Figure 4.11-2
Future Year No Action & Terminal Alternatives 65 DNL (2023)

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4.11.2.2 Terminal Alternatives 1 and 2

For the Terminal Alternatives, the location of the terminal and apron would change and there would be an addition of a noise wall/berm on the ramp between the aircraft parking area and the North 40 community. The location where the aircraft taxi and park will change. As with the No Action Terminal Alternative, there would be no operational changes, and there would be no significant noise impacts. **Section 4.11.2.1** details the DNL results of the No Action and Terminal Alternatives for future year 2023.

The inclusion of a noise wall in the Terminal Alternatives advocates for the completion of a noise analysis to determine the potential benefits of the noise wall. The purpose of the noise wall is to reduce single-event noise for the residences close to ASE on the other side of Highway 82. The analysis was conducted during the day using a steady, continuous sound of an auxiliary power unit (APU) modeled using the Lmax metric. Lmax is the maximum noise level an aircraft generates, for an aircraft. In this case, the Lmax metric represents the steady-state sound heard from the APU. This analysis used a single event metric, Lmax, to analyze the noise; there is no FAA-defined threshold of significance for use of this metric. Because no areas that would receive benefits relative to noise are within the 65 DNL noise contour, the noise wall may not be eligible for federal funding. However, because there would be single event benefits to residences, it was determined to keep this as a potential project. Funding would be examined if the project moved forward.

While there is not a defined threshold of significance in FAA Order 1050.1F, the FAA does have thresholds for reduction of interior noise levels of homes exposed to aircraft noise events at 65 DNL or higher. For homes in an airport-sponsored residential sound insulation program, the goal is to reduce the interior noise level by 5 dBA and that standard can be a guide to determine an appropriate wall height for mitigation.

The noise wall analysis was computed using an acoustical planning and modeling program called SoundPLAN (Version 7.4), created by Braunstein & Berndt GmbH. The aircraft noise modeling took topography into account and assumed hard ground surfaces throughout the study area.

The noise wall is to mitigate aircraft ground operations, which are primarily from aircraft parked on the ramp running APUs to provide power to the aircraft systems when the engines are off. The APU is a small jet engine, typically mounted in the tail, which can power systems on the ground instead of spooling up an engine. While there is potential to have ground power and preconditioned air integrated as part of the new terminal, there would be potential benefit from GA aircraft on the apron, which have limited future capability to have in ground power or preconditioned air options due to varied parking locations/snow removal issues on the GA apron. The parameters for the wall height were based on an APU mounted on a tail that would sit approximately 10 – 12 feet above the ground. This height was chosen because it represents the highest an APU will typically be located on an aircraft tail for the business jet fleet mix operating at ASE now and in the future.

The following parameters should be used in the design of the noise wall. The noise wall may be a combination of earthen berm and constructed wall.

- The total structure (wall and/or earthen berm) needs to be approximately 12 – 14 feet tall; high enough to break the line of sight between the aircraft APU and the community in the North 40 area, assuming a structure with a second story.
- The wall can be constructed of earth, wood, or concrete or some combination.
- The wall must have a minimum density of 20 kilograms/square meter.
- The structure must be approximately 600 linear feet long. It should run from the north intersection of W Airport Rd and Airport Road to the rental car parking lot at Atlantic Aviation.

Table 4.11-3 shows the Lmax noise levels (dbA) related to the noise wall, and **Figures 4.11-3** and **4.11-4**, show the noise contours with and without the noise wall for each height (10 feet and 14 feet, respectively). There were five wall heights analyzed; each of the wall heights resulted in a reduction of the noise at the homes in the North 40 area. The smallest reduction was 2.9 dbA using a 10-foot wall; the largest reduction was 5.7 dbA using a 14-foot wall. Using the above-referenced residential sound insulation guidelines of a 5 dbA interior reduction goal, the 14-foot wall would provide the most benefit for homes in the North 40 community.

Table 4.11-3 Noise Wall Analysis, LMAX DBA

Noise Wall	1st Floor Existing Worst Case Noise Level	2nd Floor Existing Worst Case Noise Level	1st Floor Noise Reduction With Wall	2nd Floor Noise Reduction With Wall
None	46.0	46.1	N/A	N/A
10-foot Wall	43.1	43.1	2.9	3.0
11-foot Wall	42.4	42.4	3.6	3.7
12-foot Wall	41.7	41.7	4.3	4.4
13-foot Wall	41.0	41.1	5.00	5.0
14-foot Wall	40.4	40.4	5.6	5.7

Source*:* BridgeNet International, 2016.

The proposed alternatives would result in short-term noise increases from construction activities, but these are expected to be short term, and not significant.

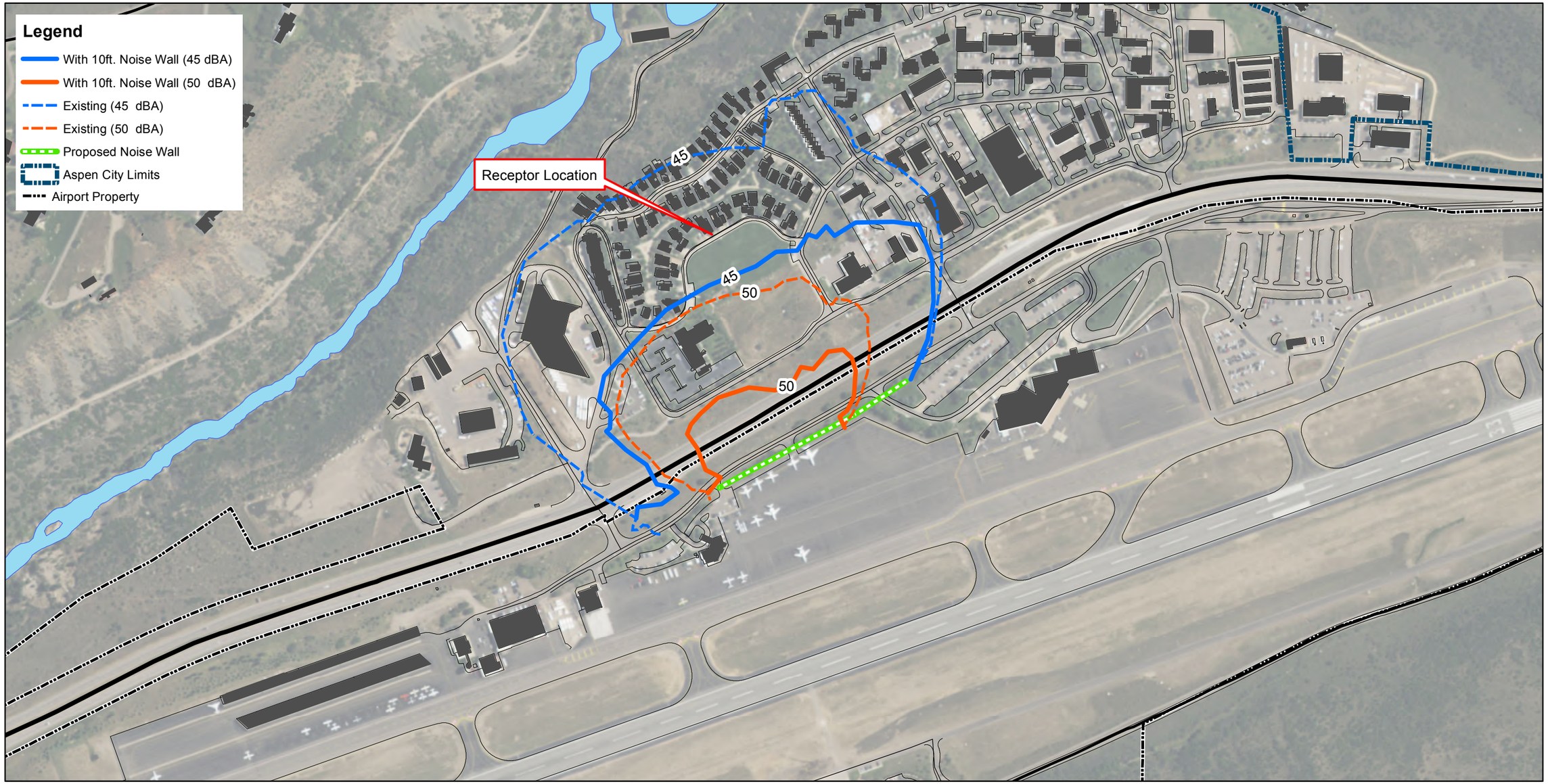

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Figure 4.11-3
10-ft. Noise Wall Project Contours

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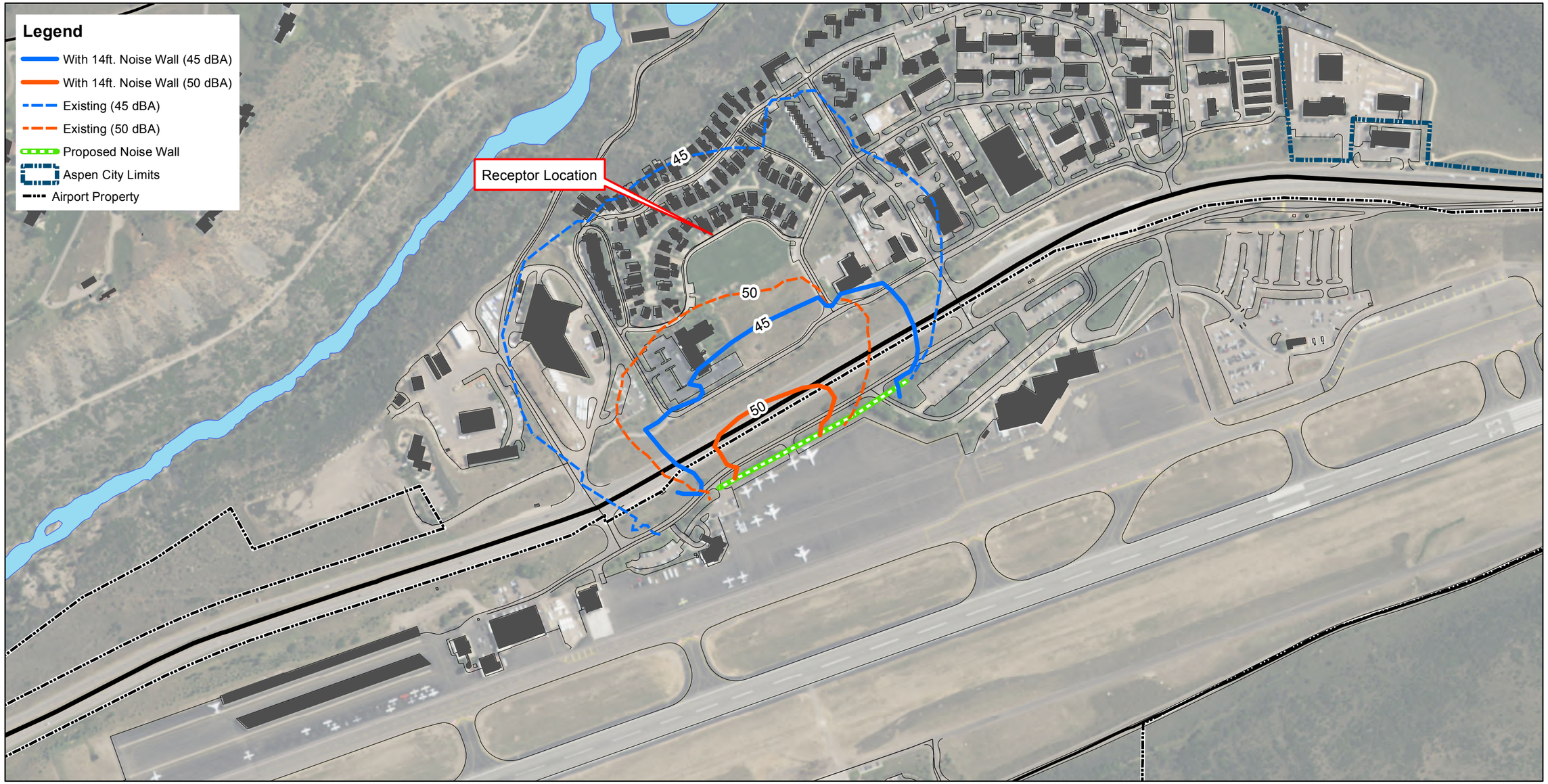

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Figure 4.11-4
14-ft. Noise Wall Project Contours

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4.11.2.3 No Action Runway Alternative

Similar to the No Action Terminal Alternative, the No Action Runway Alternative results in no operational changes. However, a change in noise would occur due to a change in fleet mix over time. As shown in **Table 2-3**, *Summary of Aviation Forecasts, 2015-2033*, the No Action would result in the phasing out of jet air carrier service over time as aircraft are being retired.

As that table shows, the fleet mix would change due to a slow phase out of CRJ-700 aircraft, to be replaced by a mix of turbo props with a number of operations being diverted to GA business jets that would still meet the wingspan restriction in the future.

For the No Action Runway Alternative, 2028 was used to model potential effects for the initial year of operation for runway improvements. For each of the future year No Action Runway analyses, the runway use and time of day remains the same; the only operational change is the fleet mix.

Future Year 2028 – No Action Runway

The first year of implementation assumes air carrier operations will be split 50/50 between CRJ-700 and turbo prop aircraft. A general change in fleet mix over time is expected as older aircraft are retired, and the business jet fleet is all Stage 3. For this scenario, the modeling assumed 15 percent of air carrier operations would be conducted by general aviation business jets and 85 percent of the remaining air carrier operations conducted by aircraft with a wingspan less than 95 feet. **Table 4.11-4** shows the aircraft fleet mix by aircraft type for the future year 2028 - No Action. **Table 4.11-8** shows the number of acres in the DNL noise contours while **Figure 4.11-5** shows the DNL noise contour for the first year of implementation (2028) for the No Action. There are 163.9 acres in the No Action (2028) 65 DNL noise contour. There are no noise sensitive uses in the 65 or greater DNL contour.

Out Year 2033 – No Action Runway

The out-year conditions assume a general change in fleet mix over time as older aircraft are retired. This condition assumes the business jet fleet is all Stage 3 and all CRJ-700 aircraft would be phased out. In this scenario, turbo propeller aircraft conduct air carrier operations, with 15 percent conducted by general aviation business jets and the rest of air carrier operations conducted by turbo props with wingspans less than 95 feet. **Table 4.11-5**, shows the aircraft fleet mix by aircraft type for the No Action out year (2033). **Table 4.11-8** shows the number of acres in the DNL noise contours while **Figure 4.11-6** shows the DNL noise contour for the Out Year (2033) - No Action. There are 162.3 acres in the No Action (2033) 65 DNL noise contour. There are no noise sensitive land uses located within the 65 or greater DNL contour.

TABLE 4.11-4
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS NO ACTION (2028)

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701	6.16	0.18	6.33		4,623
Commuter Turboprop	DH8D	Bombardier Q-400	DHC830	6.16	0.18	6.33		4,623
Air Carrier Operations (Total)								**9,245**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	1.06		1.06		772
	CL30	Bombardier (Canadair) Challenger 300	CL600	4.93		4.93		3,599
	C501	Cessna Citation Mustang	CNA501	0.02		0.02		13
	C510	Cessna Citation Mustang	CNA510	0.04		0.04		27
	C525	Cessna CitationJet/CJ1	CNA525	0.14		0.14		103
	C25A	Cessna Citation CJ2	CNA55B	0.50		0.50		364
	C560	Cessna Citation V/Ultra/Encore	CNA560	6.69	0.01	6.56	0.14	4,890
	C650	Cessna III/VI/VII	CNA650	1.32		1.32		965
	C680	Cessna Citation Sovereign	CNA680	0.44	0.14	0.58		423
	C750	Cessna Citation X	CNA750	1.44	0.03	1.47		1,073
	EA50	Eclipse 500	ECLIPSE500	1.90		1.90		1,384
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.01		0.01		9
	CRJ2	Bombardier CRJ-200	EMB14L	0.15		0.15		108
	FA10	Dassault Falcon/Mystère 10	FAL10	0.34		0.34		248
	FA20	Dassault Falcon/Mystère 20	FAL20	0.03		0.03		25
	FA50	Dassault Falcon/Mystère 50	FAL50	0.02		0.02		11
	F900	Dassault Falcon 900	FAL900	0.06		0.06		47
	G150	Gulfstream G150	G150	0.63		0.63		459
	GALX	1126 Galaxy/Gulfstream G200	G200	0.87		0.87		632
	GLF4	Dassault Falcon F7X	GIV	0.28		0.28		205
	GLF5	Gulfstream V/G500	GV	0.56		0.56		412
	HA4T	Hawker 4000	HK4000	0.05		0.05		36
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	0.11		0.11		81
	WW24	IAI 1124 Westwind	IA1124	4.00		4.00		2,919
	ASTR	IAI Astra 1125	IA1125	0.85		0.85		621
	LJ31	Bombardier Learjet 31/A/B	LEAR35	0.10		0.10		76
	LJ45	Bombardier Learjet 45	LEAR45	2.17		2.17		1,584
	LJ55	Bombardier Learjet 55	LEAR55	0.06		0.06		45
	LJ60	Bombardier Learjet 60	LEAR60	0.31		0.31		224
Business Jets Operations (Total)								**21,356**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.55		0.55		401
	BE30	Raytheon 300 Super King Air	BEC300	0.56		0.56		405
	BE9L	Beech King Air 90	BEC90	0.11		0.11		81
	BE9T	Beech F90 King Air	BEC9F	0.02		0.02		17
	AC90	Gulfstream Commander	CNA441	0.75		0.75		546
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		10
	SW3	Fairchild Swearingen SA-226T	SAMER3	0.02		0.02		15
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.13		0.13		92
Twin Turbo Engine Operations (Total)								**1,574**
Single Turbo Engine	C208	Cessna 208 Caravan	CNA208	0.40		0.40		293
	PC12	Pilatus PC-12	PC12	0.89		0.89		653
Single Turbo Engine Operations (Total)								**946**
Twin Piston Engine Operations (Total)								**1,987**
Single Piston Engine Operations (Total)								**3,729**
Helicopter Operations (Total)								**467**
Military Local (Total)								**30**
Military Itinerant (Total)								**107**
							Totals	**39,441**

Source: BridgeNet International, November 2016

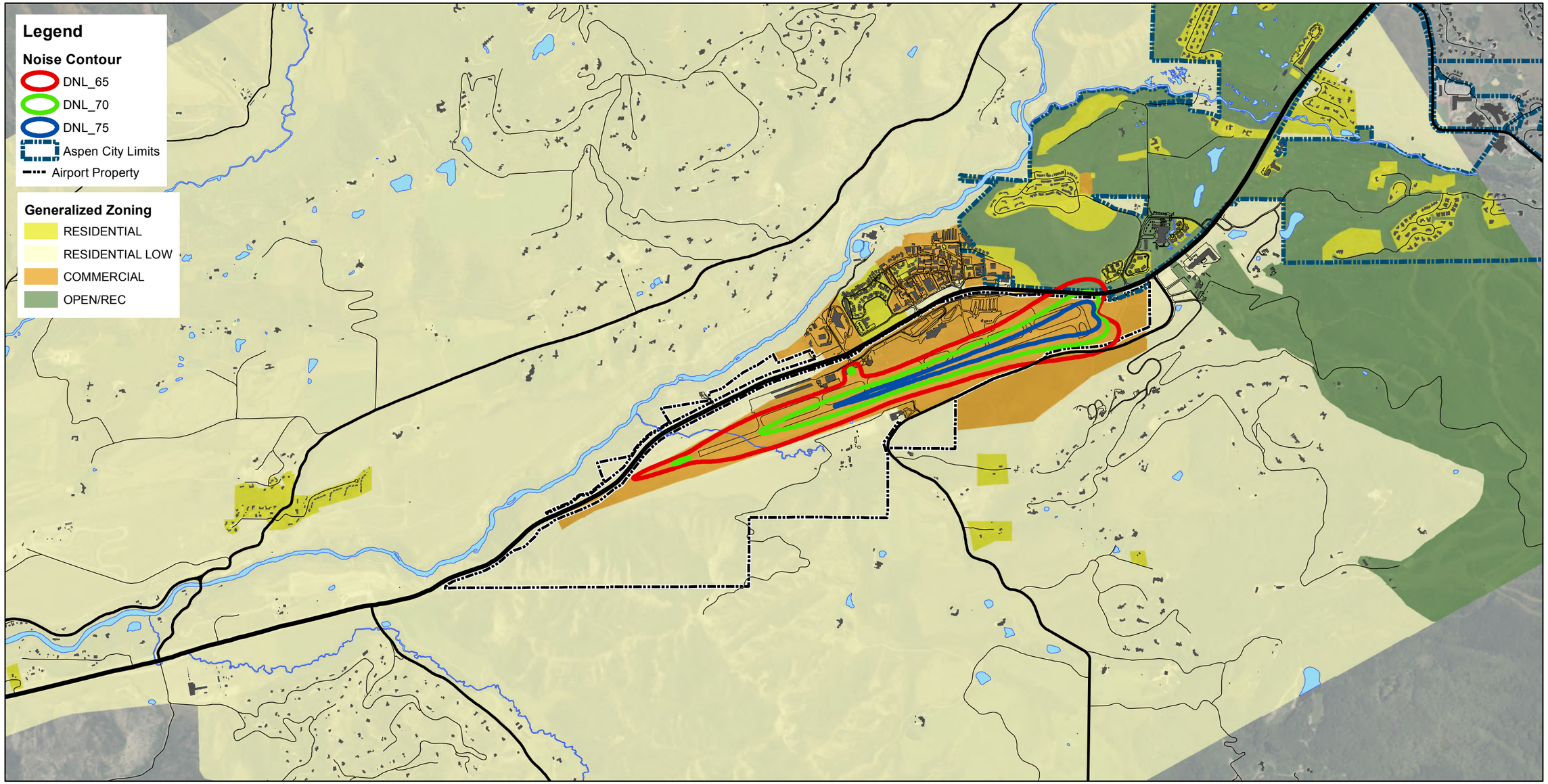

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Figure 4.11-5
Future Year (2028) No Action

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TABLE 4.11-5
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS NO ACTION (2033)

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations - (wingspan less than 95')								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701					0
Commuter Turboprop	DH8D	Bombardier Q-400	DHC830	13.27	0.48	13.75		10,037
Air Carrier Operations - (wingspan greater than 95')								
New generation regional jet		Bombardier C Series	C100					0
New generation jet		Boeing 737-MAX	737-MAX					0
Air Carrier Operations (Total)								**10,037**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	1.10		1.10		801
	CL30	Bombardier (Canadair) Challenger 300	CL600	5.12		5.12		3,735
	C501	Cessna Citation Mustang	CNA501	0.02		0.02		14
	C510	Cessna Citation Mustang	CNA510	0.04		0.04		28
	C525	Cessna CitationJet/CJ1	CNA525	0.15		0.15		107
	C25A	Cessna Citation CJ2	CNA55B	0.52		0.52		378
	C560	Cessna Citation V/Ultra/Encore	CNA560	6.94	0.01	6.81	0.15	5,074
	C650	Cessna III/VI/VII	CNA650	1.37		1.37		1,002
	C680	Cessna Citation Sovereign	CNA680	0.45	0.15	0.60		439
	C750	Cessna Citation X	CNA750	1.49	0.04	1.53		1,114
	EA50	Eclipse 500	ECLIPSE500	1.97		1.97		1,436
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.01		0.01		9
	CRJ2	Bombardier CRJ-200	EMB14L	0.15		0.15		112
	FA50	Dassault Falcon/Mystère 50	FAL50	0.35		0.35		257
	F900	Dassault Falcon 900	FAL900	0.07		0.07		49
	G150	Gulfstream G150	G150	0.65		0.65		476
	GALX	1126 Galaxy/Gulfstream G200	G200	0.90		0.90		656
	GLF4	Dassault Falcon F7X	GIV	0.29		0.29		212
	GLF5	Gulfstream V/G500	GV	0.59		0.59		427
	HA4T	Hawker 4000	HK4000	0.05		0.05		37
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	0.12		0.12		84
	WW24	IAI 1124 Westwind	IA1124	4.15		4.15		3,029
	ASTR	IAI Astra 1125	IA1125	0.88		0.88		644
	LJ31	Bombardier Learjet 31/A/B	LEAR35	0.11		0.11		79
	LJ45	Bombardier Learjet 45	LEAR45	2.25		2.25		1,644
	LJ55	Bombardier Learjet 55	LEAR55	0.06		0.06		47
	LJ60	Bombardier Learjet 60	LEAR60	0.32		0.32		232
Business Jets Operations (Total)								**22,125**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.57		0.57		414
	BE30	Raytheon 300 Super King Air	BEC300	0.57		0.57		418
	BE9L	Beech King Air 90	BEC90	0.12		0.12		84
	BE9T	Beech F90 King Air	BEC9F	0.02		0.02		17
	AC90	Gulfstream Commander	CNA441	0.77		0.77		564
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		11
	SW3	Fairchild Swearingen SA-226T	SAMER3	0.02		0.02		15
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.13		0.13		95
Twin Turbo Engine Operations (Total)								**1,625**
Single Turbo Engine Operations (Total)								**976**
Twin Piston Engine Operations (Total)								**2,050**
Single Piston Engine Operations (Total)								**3,848**
Helicopter Operations (Total)								**482**
Military Local (Total)								**30**
Military Itinerant (Total)								**107**
							Totals	**41,280**

Source: BridgeNet International, November 2016

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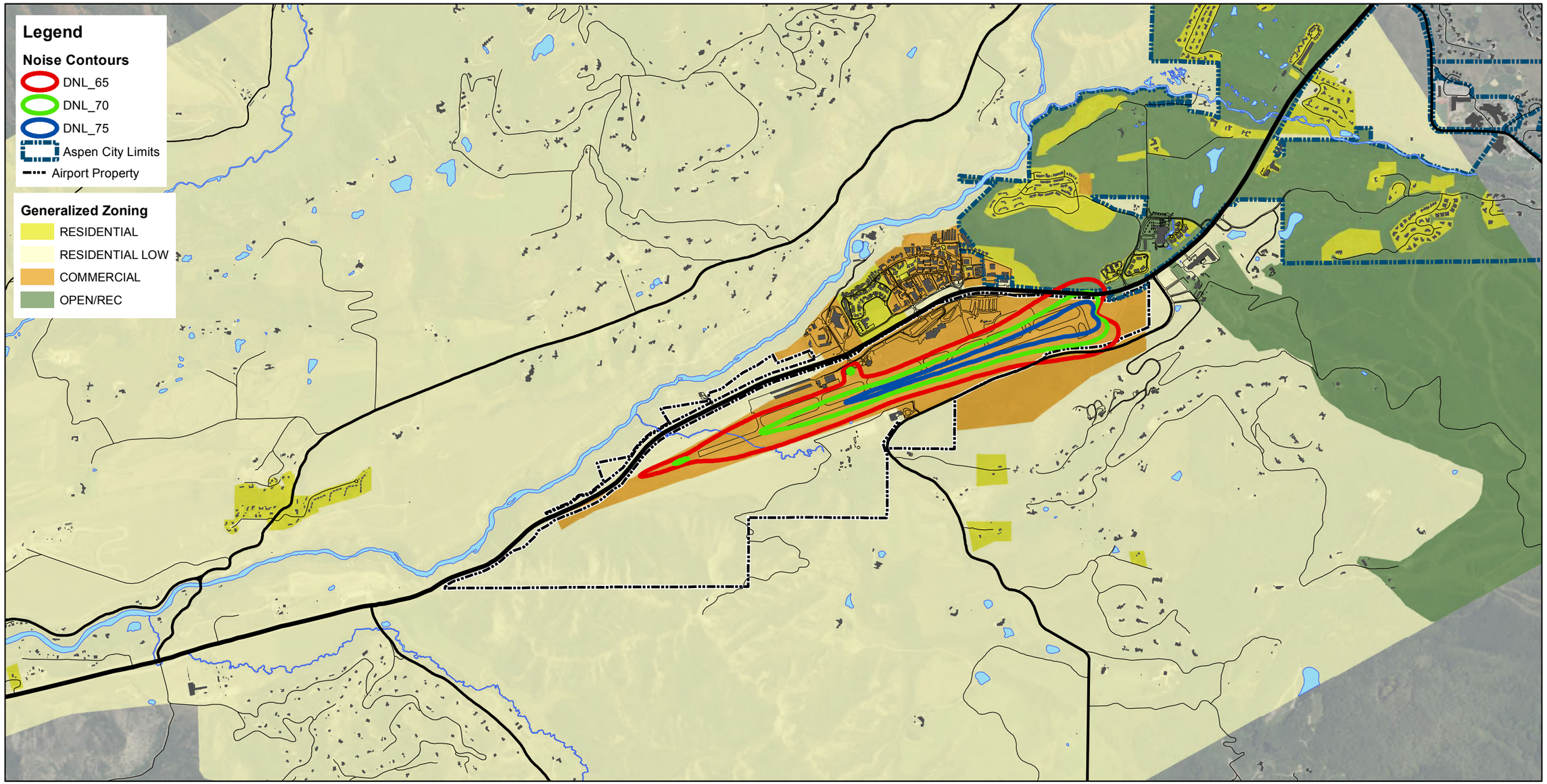

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Figure 4.11-6
Out Year (2033) No Action

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4.11.2.4 Runway Alternative

Noise changes for the Runway Alternative would result from a change in fleet mix and a shift in the runway location 80 feet to the west. As shown in **Table 2-3**, *Summary of Aviation Forecasts, 2015-2033*, the shift in the runway to meet FAA design standards would allow full D-III aircraft to fly into ASE. Therefore, the fleet mix as represented in that table would change, with a slow phase out of CRJ-700 aircraft. The CRJ-700 would likely be replaced by a mix of next generation regional jets such as the CS100. Additionally, the analysis here accounts for a number of 737 operations. Discussions with air carriers have indicated that the 737-MAX could potentially operate out of ASE with the runway relocation, but would likely operate under payload restrictions in certain conditions. While no air carrier has officially expressed interest in operating the 737-MAX out of ASE, it is a potential condition that the EA will address. Therefore, this EA will discuss the modeling assumptions for inclusion of a conservative fleet mix, including a number of operations by the 737-MAX in the future conditions (With Project).

The INM program does not contain noise profiles for new generation aircraft, including the Bombardier CS100 and Boeing 737-MAX; therefore, FAA-approved substitution aircraft were used to more accurately model noise. The INM contains a standard substitution for the Boeing 737-MAX, which is the 737-700. For the new Bombardier CS100 regional jet, this analysis will use a Boeing 737-700 with a 4-dB reduction to the standard arrival and departure Noise Power Distance Curve (NPD) noise data. This configuration was approved by the FAA's Office of Environment and Energy. A description of the substitution approval and process can be found in **Appendix 5**.

The proposed alternatives would result in short-term noise increases from construction activities, but these are expected to be short term, and not significant.

First Year of Implementation – 2028

The first year of implementation assumes a phase-in of regional jets with a wingspan greater than 95 feet. For this scenario, the modeling assumed continued use of turboprops, a reduction in the CRJ-700 (as it starts to be phased out of the fleet), and a small number of narrow-body commercial jet (Boeing 737-MAX). **Table 4.11-6** shows the detailed aircraft fleet mix for the future year (2028) Runway Alternative. **Table 4.11-8** shows the number of acres in the DNL noise contours while **Figure 4.11-7** shows the DNL noise contour for the first year of implementation (2028) – Runway Alternative. Compared to the 2028 No Action, there would be an increase in the 65 DNL contour of 7.6 acres for a total of 171.4 acres. Using the threshold of significance in *FAA Order 1050.1F*, this action would not increase noise by 1.5 dB or more for a noise-sensitive area at the 65 DNL or higher. There are no homes or noise sensitive land uses located in the 65 or greater DNL contour.

TABLE 4.11-6
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS WITH PROJECT RUNWAY (2028)

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations - (wingspan less than 95')								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701	4.58	0.13	4.71		3,439
Commuter Turboprop	DH8D	Bombardier Q-400	DHC830	4.58	0.13	4.71		3,439
Air Carrier Operations - (wingspan greater than 95')								
New generation regional jet		Bombardier C Series	C100	4.60	0.13	4.73		3,453
New generation jet		Boeing 737-MAX	737-MAX	0.75		0.75		547
Air Carrier Operations (Total)								**10,877**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	0.98		0.98		713
	CL30	Bombardier (Canadair) Challenger 300	CL600	4.55		4.55		3,324
	C501	Cessna Citation Mustang	CNA501	0.02		0.02		12
	C510	Cessna Citation Mustang	CNA510	0.03		0.03		25
	C525	Cessna CitationJet/CJ1	CNA525	0.13		0.13		96
	C25A	Cessna Citation CJ2	CNA55B	0.46		0.46		337
	C560	Cessna Citation V/Ultra/Encore	CNA560	6.18	0.01	6.06	0.13	4,516
	C650	Cessna III/VI/VII	CNA650	1.22		1.22		891
	C680	Cessna Citation Sovereign	CNA680	0.40	0.13	0.54		391
	C750	Cessna Citation X	CNA750	1.33	0.03	1.36		991
	EA50	Eclipse 500	ECLIPSE500	1.75		1.75		1,278
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.01		0.01		8
	CRJ2	Bombardier CRJ-200	EMB14L	0.14		0.14		100
	FA10	Dassault Falcon/Mystère 10	FAL10	0.31		0.31		229
	FA20	Dassault Falcon/Mystère 20	FAL20	0.03		0.03		23
	FA50	Dassault Falcon/Mystère 50	FAL50	0.01		0.01		10
	F900	Dassault Falcon 900	FAL900	0.06		0.06		44
	G150	Gulfstream G150	G150	0.58		0.58		424
	GALX	1126 Galaxy/Gulfstream G200	G200	0.80		0.80		584
	GLF4	Dassault Falcon F7X	GIV	0.26		0.26		189
	GLF5	Gulfstream V/G500	GV	0.52		0.52		380
	HA4T	Hawker 4000	HK4000	0.05		0.05		33
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	0.10		0.10		75
	WW24	IAI 1124 Westwind	IA1124	3.69		3.69		2,696
	ASTR	IAI Astra 1125	IA1125	0.79		0.79		574
	LJ31	Bombardier Learjet 31/A/B	LEAR35	0.10		0.10		71
	LJ45	Bombardier Learjet 45	LEAR45	2.00		2.00		1,463
	LJ55	Bombardier Learjet 55	LEAR55	0.06		0.06		42
	LJ60	Bombardier Learjet 60	LEAR60	0.28		0.28		207
Business Jets Operations (Total)								**19,724**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.55		0.55		401
	BE30	Raytheon 300 Super King Air	BEC300	0.56		0.56		405
	BE9L	Beech King Air 90	BEC90	0.11		0.11		81
	BE9T	Beech F90 King Air	BEC9F	0.02		0.02		17
	AC90	Gulfstream Commander	CNA441	0.75		0.75		546
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		10
	SW3	Fairchild Swearingen SA-226T	SAMER3	0.02		0.02		15
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.13		0.13		92
Twin Turbo Engine Operations (Total)								**1,574**
Single Turbo Engine Operations (Total)								**946**
Twin Piston Engine Operations (Total)								**1,987**
Single Piston Engine Operations (Total)								**3,729**
Helicopter Operations (Total)								**467**
Military Local (Total)								**30**
Military Itinerant (Total)								**107**
							Totals	**39,441**

Source: BridgeNet International, November 2016

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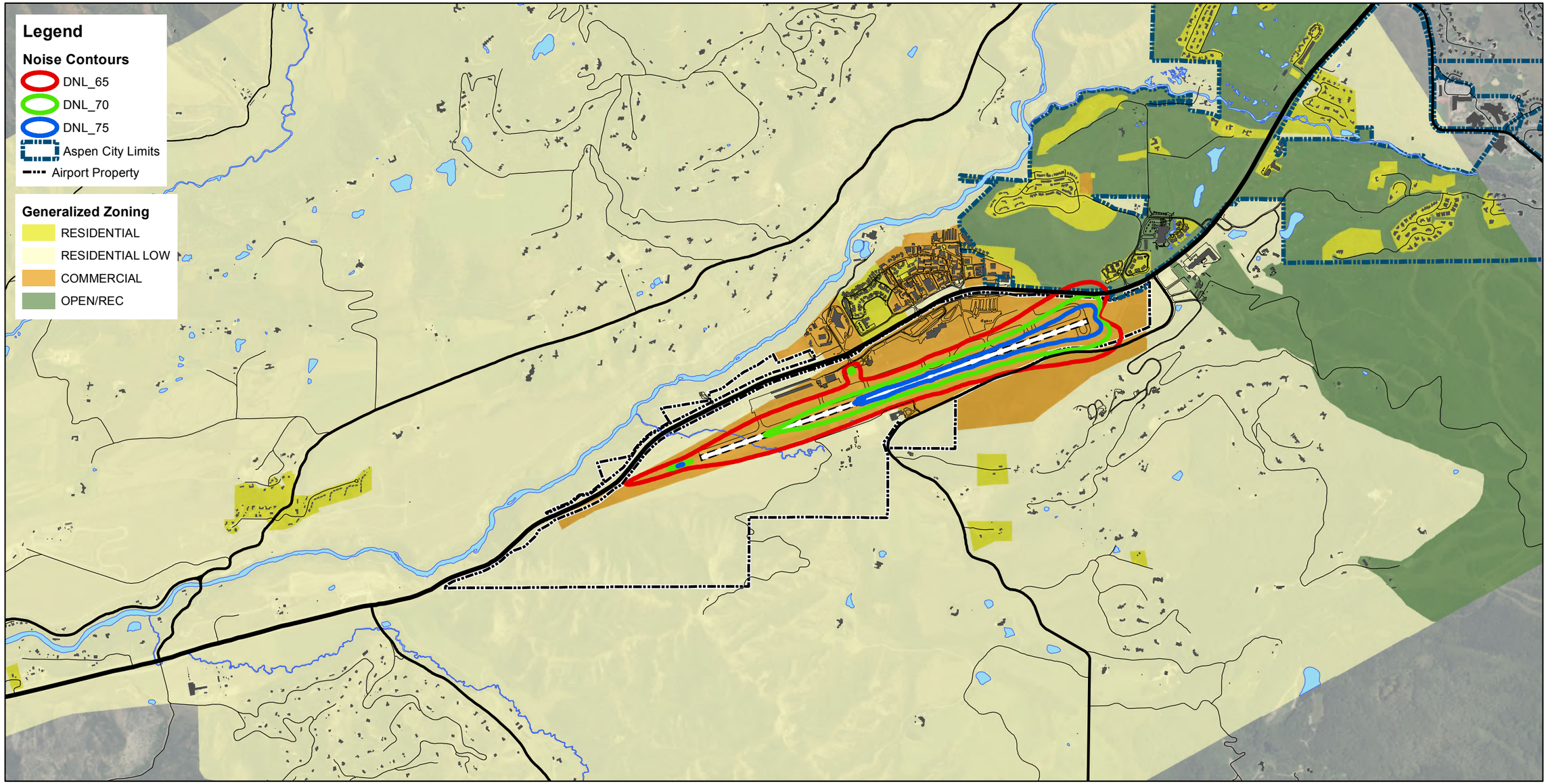

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Figure 4.11-7
Future Year (2028) With Project

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Out Year – 2033

The out year conditions assume a small number of turboprops will still be flying, with the majority of air carrier operations using new generation regional jets with wingspans greater than 95 feet and a small number of narrow-body commercial jet operations. **Table 4.11-7** shows the detailed aircraft fleet mix for the out year (2033) – Runway Alternative. **Table 4.11-8** shows the number of acres in the DNL noise contours while **Figure 4.11-8** shows the DNL noise contour for the out year (2033) – Runway Alternative. Compared to the 2033 No Action, there would be an increase in the 65 DNL contour of 12.6 acres for a total of 174.9 acres. Using the threshold of significance in *FAA Order 1050.1F*, this action would not increase noise by 1.5 dB or more for a noise-sensitive area at the 65 DNL or higher. There are no homes or noise sensitive land uses located in the 65 or greater DNL contour.

TABLE 4.11-7
DETAILED AIRCRAFT FLEET MIX ASSUMPTIONS WITH PROJECT RUNWAY (2033)

2033 With Project Runway: Out Year

Aircraft Category	ICAO Code	Description	INM Type	Daily Arrivals Day	Daily Arrivals Night	Daily Departures Day	Daily Departures Night	Annual Operations
Air Carrier Operations - (wingspan less than 95')								
Regional Jet	CRJ7	Bombardier CRJ-700	CRJ701					0
Commuter Turboprop	DH8D	Bombardier Q-400	DHC830	1.24	0.05	1.28		938
Air Carrier Operations - (wingspan greater than 95')								
New generation regional jet		Bombardier C Series	C100	12.20	0.44	12.64		9,228
New generation jet		Boeing 737-MAX	737-MAX	2.25		2.25		1,642
Air Carrier Operations (Total)								**11,808**
GA and Air Taxi Aircraft								
Business Jet	BE40	Raytheon/Beech Beechjet 400/T-1	BEC400	1.01	0.00	1.01	0.00	737
	CL30	Bombardier (Canadair) Challenger 300	CL600	4.71	0.00	4.71	0.00	3,436
	C501	Cessna Citation Mustang	CNA501	0.02	0.00	0.02	0.00	13
	C510	Cessna Citation Mustang	CNA510	0.03	0.00	0.03	0.00	26
	C525	Cessna CitationJet/CJ1	CNA525	0.14	0.00	0.14	0.00	99
	C25A	Cessna Citation CJ2	CNA55B	0.48	0.00	0.48	0.00	348
	C560	Cessna Citation V/Ultra/Encore	CNA560	6.38	0.01	6.26	0.13	4,668
	C650	Cessna III/VI/VII	CNA650	1.26	0.00	1.26	0.00	921
	C680	Cessna Citation Sovereign	CNA680	0.42	0.14	0.55	0.00	404
	C750	Cessna Citation X	CNA750	1.37	0.03	1.40	0.00	1,024
	EA50	Eclipse 500	ECLIPSE500	1.81	0.00	1.81	0.00	1,321
	E135	Embraer ERJ 135/140/Legacy	EMB135	0.01	0.00	0.01	0.00	9
	CRJ2	Bombardier CRJ-200	EMB14L	0.14	0.00	0.14	0.00	103
	FA50	Dassault Falcon/Mystère 50	FAL50	0.32	0.00	0.32	0.00	237
	F900	Dassault Falcon 900	FAL900	0.06	0.00	0.06	0.00	45
	G150	Gulfstream G150	G150	0.60	0.00	0.60	0.00	438
	GALX	1126 Galaxy/Gulfstream G200	G200	0.83	0.00	0.83	0.00	604
	GLF4	Dassault Falcon F7X	GIV	0.27	0.00	0.27	0.00	195
	GLF5	Gulfstream V/G500	GV	0.54	0.00	0.54	0.00	393
	HA4T	Hawker 4000	HK4000	0.05	0.00	0.05	0.00	34
	H25B	BAe HS 125/700-800/Hawker 800	HS1258	0.11	0.00	0.11	0.00	77
	WW24	IAI 1124 Westwind	IA1124	3.82	0.00	3.82	0.00	2,787
	ASTR	IAI Astra 1125	IA1125	0.81	0.00	0.81	0.00	593
	LJ31	Bombardier Learjet 31/A/B	LEAR35	0.10	0.00	0.10	0.00	73
	LJ45	Bombardier Learjet 45	LEAR45	2.07	0.00	2.07	0.00	1,512
	LJ55	Bombardier Learjet 55	LEAR55	0.06	0.00	0.06	0.00	43
	LJ60	Bombardier Learjet 60	LEAR60	0.29	0.00	0.29	0.00	214
Business Jets Operations (Total)								**20,354**
Twin Turbo Engine	AC95	Gulfstream Jetprop Commander 1000	AC95	0.01		0.01		6
	BE20	Beech 200 Super King	BEC190	0.57		0.57		414
	BE30	Raytheon 300 Super King Air	BEC300	0.57		0.57		418
	BE9L	Beech King Air 90	BEC90	0.12		0.12		84
	BE9T	Beech F90 King Air	BEC9F	0.02		0.02		17
	AC90	Gulfstream Commander	CNA441	0.77		0.77		564
	MU2	Mitsubishi Marquise/Solitaire	MU2	0.01		0.01		11
	SW3	Fairchild Swearingen SA-226T	SAMER3	0.02		0.02		15
	SW4	Swearingen Merlin 4/4A Metro2	SAMER4	0.13		0.13		95
Twin Turbo Engine Operations (Total)								**1,625**
Single Turbo Engine Operations (Total)								**976**
Twin Piston Engine Operations (Total)								**2,050**
Single Piston Engine Operations (Total)								**3,848**
Helicopter Operations (Total)								**482**
Military Local (Total)								**30**
Military Itinerant (Total)								**107**
							Totals	**41,280**

Source: BridgeNet International, November 2016

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Table 4.11-8 Summary of Noise Exposure in Acres						
DNL	**2015 Existing**	**2023 No Action Terminal and With Terminal**	**2028 No Action Runway and Out Year Terminal**	**2028 With Runway Project First Year of Implementation**	**2033 No Action Runway Out Year**	**2033 With Runway Project Out Year**
65 DNL	182.0	165.2	163.9	171.4	162.3	174.9
70 DNL	77.5	69.9	70.2	72.6	69.9	80.6
75 DNL	28.9	25.4	25.6	27.2	25.5	30.7

Source: BridgeNet International, 2016

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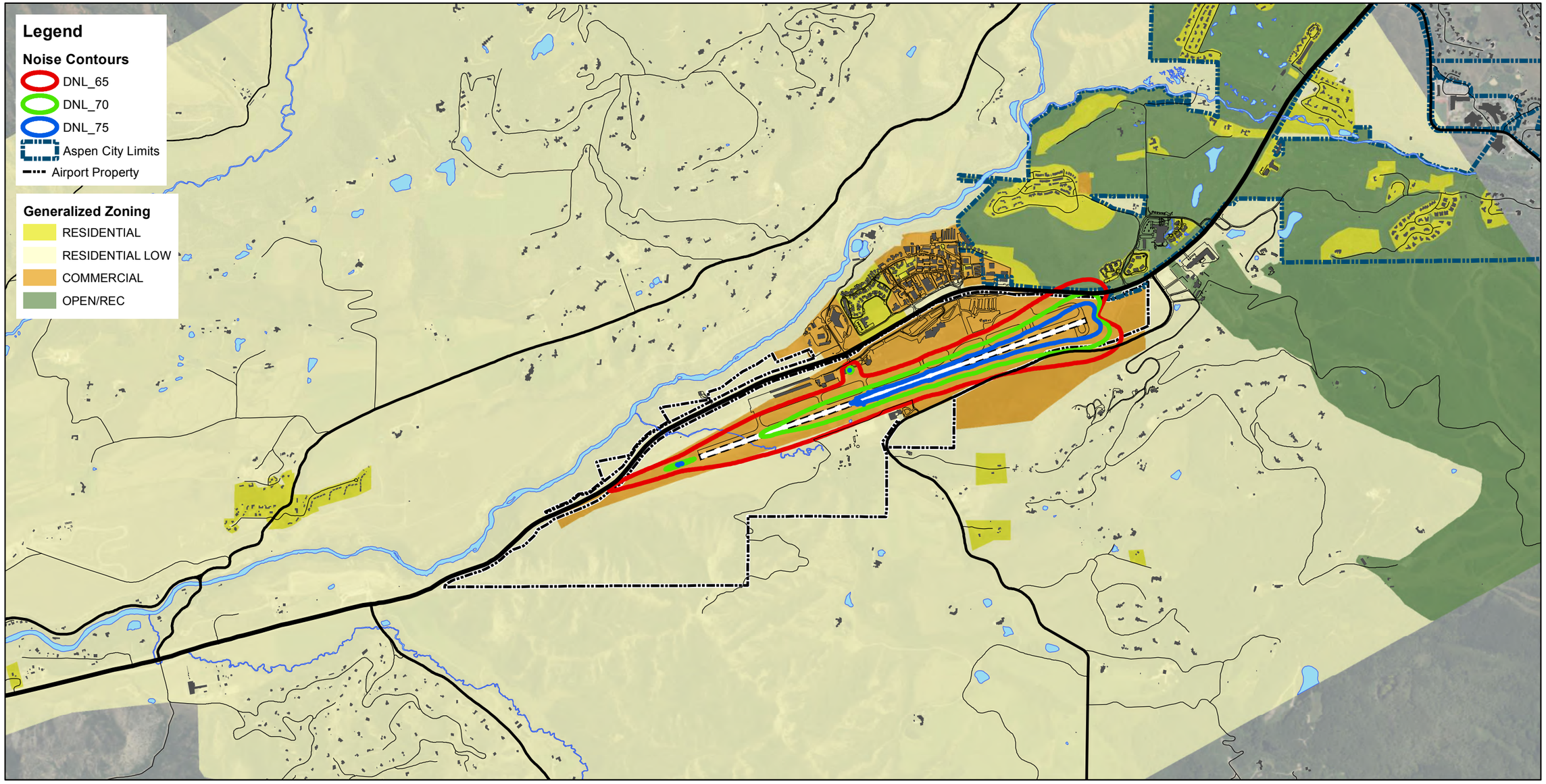

0 1,000 2,000 4,000
Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
City of Aspen/Pitkin County GIS/Mapping Department

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Figure 4.11-8
Out Year (2033) With Project

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4.11.3 Minimization and Mitigation

The alternatives presented in this report do not increase the population or noise sensitive uses within the 65 DNL noise contour. Since there is not an increase of noise sensitive uses within the 65 DNL noise contour, there is no required mitigation. Additionally, the project includes a noise wall to help reduce existing single event noise from the general aviation apron. This would reduce single-event noise for the residences on the other side of Highway 82.

4.11.4 Additional Considerations

In May 2017, the FAA's WSA OSG determined that ASE air traffic control's (ATC) techniques of modifying an aircraft's flight path while on the LINDZ EIGHT departure procedure was not in line with FAA rules and regulations. As a result, the FAA suspended the technique causing an increase in separation distances between arriving aircraft, which has decreased the number of operations per hour. Though ASE is able to accommodate the same number of flights on a daily basis, the flights are now spread out throughout the day. Though this is slightly different from what was analyzed in this EA, it would not result in a change in the impacts disclosed since the total number of daily operations have remained the same. The FAA is working diligently to return ASE to pre-May 2017 operational rates and conditions with the publishing of a VFR Departure Procedure, the COZY ONE, in October of 2017 and amending ATC techniques.

During the fall of 2017, the FAA will begin developing Performance Based Navigation (PBN) procedures in order to increase operational efficiency and safety. This review process could take up to two years to complete and will consider the proposed actions included in this EA. Any changes to existing published procedures or any new procedures identified as part of this process will be analyzed in a separate NEPA document.

4.12 Socioeconomics, Environmental Justice, Children's Health and Safety

Airport activity can impact the growth, movement, and development patterns of communities. In this section, socioeconomic conditions are evaluated to determine the potential impacts of the proposed terminal and runway projects. Potential impacts associated with children's health and environmental justice are included in this discussion.

Socioeconomic Environment. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s).

Environmental Justice. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from a proposed project. Meaningful Involvement means that people have an opportunity to participate in decisions about activities that may affect their environment and/or health and their concerns are considered in the decision-making process. Executive Order 12989, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations,* requires Federal agencies to incorporate environmental justice impacts into their planning processes.

Children's Environmental Health and Safety Risks. Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* agencies are encouraged to identify potential impacts and ensure that their policies, programs, activities, and standards address disproportionate risks to children.

4.12.1 Affected Environment

Aspen is both a mountain town and resort destination, which is reflected in its continued economic growth and investment in tourism and travel. According to the Colorado Department of Local Affairs, tourism is a large economic generator in Pitkin County, comprising 33.8% of the County's employment base; retail makes up 9.1%. Because of the high dependence on tourism activities, the area depends on transportation, including ASE, to provide access for the tourist population.

4.12.1.1 Demographics

4.12.1.1.1 Existing Population

Table 4.12-1 below shows population data for the City of Aspen, Town of Snowmass Village, and Pitkin County, and compares these populations to the State of Colorado and Western Slope Region. Based on data maintained by the Colorado State Demography Office (SDO), the combined full-time resident population of Aspen and Snowmass Village was approximately 9,962 in 2015.

The population for all of Pitkin County was estimated at 17,845. The racial composition for Pitkin County in 2015 from the Colorado State Demography Office is American Indian non-Hispanic (0.4%), Asian non-Hispanic (1.6%), Black non-Hispanic (0.6%), Hispanic (9.9%), White non-Hispanic (87.5%).[1]

Figure 4.12-1 shows the average annual growth rate for Aspen, Snowmass Village, and Pitkin County as well as the Western Slope region and the State of Colorado. The growth rate for the City of Aspen (1.3%) and Pitkin County (0.8%) remains below the 2.0% historic growth limit objective identified in past planning documents for the City and County.[2] The average annual growth rate for Snowmass Village was higher than the City of Aspen, Pitkin County, and the State of Colorado. However, given the relatively small population of Snowmass Village, this translated to a population increase of just over 1,000 people over the 15-year period. The population of Aspen and Pitkin County can be described as stable and aging. Nearly 47% of the County's population is 45 or older.

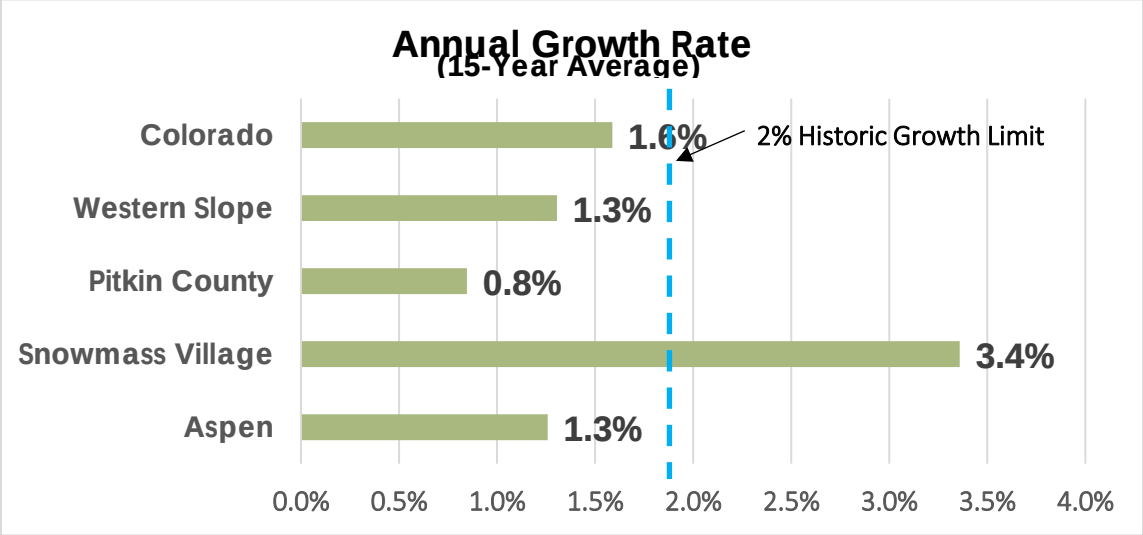
Table 4.12-1 Population Data (2000-2015)

	2000	2005	2010	2015
Aspen	5,914	6,399	6,659	7,099
Snowmass Village	1,822	2,278	2,826	2,863
Pitkin County	15,764	16,136	17,156	17,845
Western Slope	467,910	502,992	552,463	564,885
Colorado	4,338,831	4,662,534	5,050,332	5,456,584

Source: Colorado SDO Estimates

[1] Colorado State Demography Office, Population Forecast by County, Age, Race and Gender (2015).
[2] City of Aspen and Pitkin County. Aspen Area Community Plan, 1993 and 2000.

Figure 4.12-1



Source: Colorado SDO Estimates

4.12.1.1.2 Population Projections

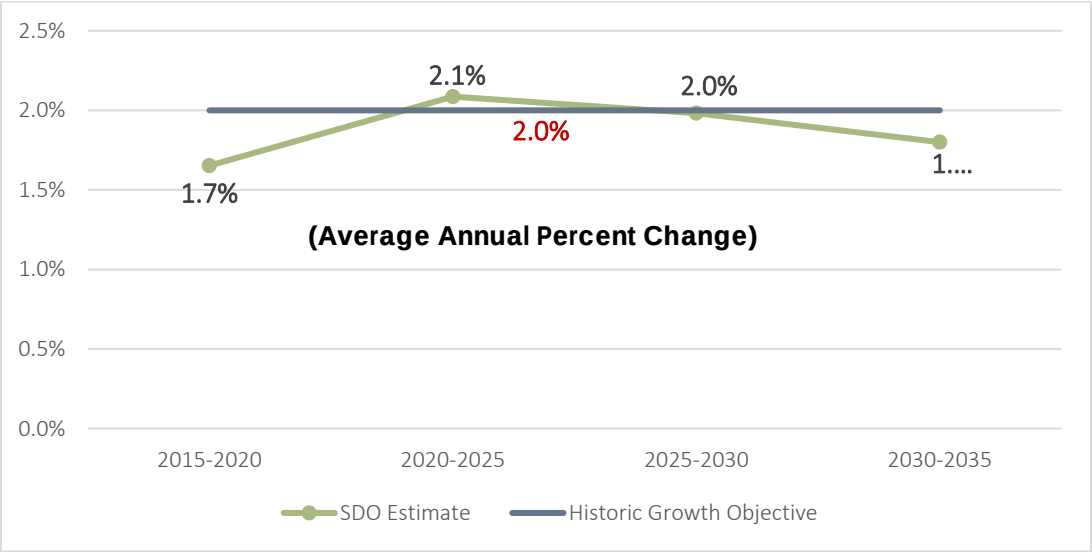
Table 4.12-2 shows population projections for Pitkin County at 5-year increments from 2020 to 2035, which spans the 20-year planning period this EA analyzed. The Colorado SDO prepares these projections, which were last done in 2015. The SDO calculates projections based on average annual growth rate estimates for each 5-year increment. **Figure 4.12-2** plots these growth rates and illustrates that they are generally less than the 2.0% growth limit objective found in past planning documents and greater than the historic rate of growth that occurred from 2000 to 2015.

Table 4.12-2 Population Projections (Pitkin County), 2020 to 2035

2020	2025	2030	2035
19,351	21,456	23,668	25,877

Source: Colorado SDO

Figure 4.12-2
Estimated Growth Rate vs Historic Growth Objective (Pitkin County)



Source: Colorado SDO

Based on a 2015 population of 17,845, it is anticipated that Pitkin County's population will grow by just over 8,000, or 45%, over the 20-year planning period. This includes anticipated growth within the municipalities of Aspen, Snowmass Village, and the portion of the Town of Basalt located within Pitkin County.

4.12.1.1.3 Households and Income

Table 4.12-3 shows the household data for Pitkin County, the City of Aspen, and Snowmass Village. The housing vacancy rate for the Aspen/Snowmass Area reflects the dominance of second homes especially when compared to the statewide rate. The annual vacancy rate nationwide was 2.1% in 2014[3], compared to 36.3% in Pitkin County, 40.0% in Aspen, and 43.0% in Snowmass Village. In 2014, a combined total of 8,401 housing units were within the City of Aspen and Snowmass Village, 4,970 of which are occupied by permanent residents.

[3] US Census Bureau, American Community Survey 5-Year Estimates, Selected Housing Characteristics, 2010-2014.

Table 4.12-3 Regional Household Data (2014)						
Geographic Area	**Household Population**	**Persons Per Household**	**Total Housing Units**	**Occupied Housing Units**	**Vacant Housing Units**	**Vacancy Rate**
Aspen	6,798	1.88	6,021	3,613	2,408	40.0
Snowmass Village	2,879	2.12	2,380	1,357	1,023	43.0
Basalt	3,919	2.41	1,941	1,626	315	16.2
Pitkin County	17,573	2.10	13,168	8,388	4,780	36.3
Colorado	5,235,736	2.49	2,273,441	2,099,694	173,747	7.6

Source: Colorado SDO - Vintage 2014
Note: Numbers for Pitkin County, other than persons per household, include Aspen, Snowmass Village, and part of Basalt.

4.12.1.1.3.1 Affordable Housing Inventory

Due to the extraordinarily high property values in Pitkin County, particularly in the resort communities of Aspen and Snowmass Village, the City of Aspen and Pitkin County have historically sought to provide enough affordable housing to accommodate a substantial percentage of the workforce.[2] As of 2016, the Aspen/Pitkin County Housing Authority (APCHA) maintains an inventory of 2,931 affordable housing units, including deed restricted units owned and/or managed by other entities.[4] Of these units, 55% are ownership units and 45% are rental units. There are also additional employee housing units in the community provided by employers, not included in this inventory. The Aspen Skiing Company provides approximately 600 seasonal beds in units throughout the Roaring Fork Valley. The Town of Snowmass Village Housing Office manages an additional 423 units. The combined affordable housing units managed by APCHA and the Town of Snowmass Village represent over 25% of Pitkin County's total housing stock of 13,168 units and nearly 40% of the occupied housing units within the County. Since the units owned by the Aspen Skiing Company are not deed restricted and can be sold or used as free-market units, they are not included in the affordable housing inventory.

Residential development in Pitkin County has been recovering in recent years from the economic downturn of the late 2000s. **Table 4.12-4** shows the number of residential building permits issued each year since 2010 by the City of Aspen, Snowmass Village, and Pitkin County, including remodels and new dwelling units. The development economy had still not rebounded in 2011 when the number of permits issued decreased by 28%. However, since 2011 the number of permits has increased each year.

[4] Aspen/Pitkin County Housing Authority, Policy Study: Aspen Pitkin County Housing Authority Affordable Housing Guidelines, February 2016.

Table 4.12-4 Residential Building Permits (Annual)							
Geographic Area	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**TOTAL**
Aspen	299	273	259	292	337	362	1,822
Snowmass Village	126	25	77	96	113	102	539
Pitkin County	102	79	81	121	111	115	609
TOTAL	**527**	**377**	**417**	**509**	**561**	**579**	**2,970**

Source: City of Aspen, Town of Snowmass Village, and Pitkin County Building Departments.
Note: Numbers include remodels as well as new housing units.

4.12.1.1.3.2 Income

Table 4.12-5 below provides household income data for Aspen, Snowmass Village, and Pitkin County for 2015. The median income for Pitkin County was $71,196 as of 2015. Snowmass Village currently has the highest median income in the study area at $75,596. However, the household size in Snowmass Village is slightly larger than in Aspen, which might account for part of the median income difference.

Table 4.12-5 Household Income Estimate (2015)						
	Pitkin County		Aspen		Snowmass Village	
	Households	Percent	Households	Percent	Households	Percent
Income Levels						
Less than $10,000	337	4.5%	155	3.6%	182	5.6%
$10,000 to $14,999	278	3.7%	103	2.4%	175	5.4%
$15,000 to $24,999	481	6.4%	389	9.0%	92	2.8%
$25,000 to $34,999	596	7.9%	176	4.1%	420	12.9%
$35,000 to $49,999	917	12.1%	605	14.0%	312	9.6%
$50,000 to $74,999	1,290	17.0%	871	20.2%	419	12.9%
$75,000 to $99,999	945	12.5%	482	11.2%	463	14.2%
$100,000 to $149,999	1,337	17.7%	814	18.8%	523	16.1%
$150,000 to $199,999	601	7.9%	297	6.9%	304	9.4%
$200,000 or more	788	10.4%	427	9.9%	361	11.1%
Total households	**7,570**	**NA**	**4,319**	**NA**	**3,251**	**NA**
	Dollars	**Value**	**Dollars**	**Value**	**Dollars**	**Value**
Persons Per Household		**2.10**		**1.88**		**2.12**
Median household income	**$71,196**		**$70,258**		**$75,596**	
Mean household income	**$120,810**		**$129,115**		**$109,776**	

Source: US Census Bureau American Fact Finder 5-Year Dataset (2011-2015)

While the median income within the region is relatively high, the cost of living is also very high, which makes many families vulnerable to changes in the economy. Housing cost is also significantly higher than in other parts of Colorado. **Table 4.12-6** shows the percent of homeowners and renters who are spending more than 35% of their income on housing costs. More than one-third of Pitkin County homeowners fall into this category, which places the County 15th in the State. Most financial planners recommend that mortgage payments not exceed 30% of income.

Table 4.12-6 Owners/Renters Spending More than 35% of Income on Housing Costs				
Geographic Area	**Mortgage Owners**		**Renter-Occupied Units**	
	Estimate (%)	**Statewide Rank (of 64)**	**Estimate (%)**	**Statewide Rank (of 64)**
Colorado	24.3	n/a	42	n/a
Pitkin County	34.2	15	31.9	29
Eagle County	31.2	25	34.7	47
Garfield County	37.8	5	42.1	2
Gunnison County	28.6	27	39.7	30

Source: US Census Bureau, American Community Survey 5-Year Estimates
https://demography.dola.colorado.gov/census-acs/american-community-survey-data/#american-community-survey-data-for-colorado

2015 US Census Bureau data indicates that 8.6% of Pitkin County families with dependent children are living below the poverty threshold.[5] Poverty in the traditional sense is not a particularly pressing issue within the study area. However, being able to afford adequate housing is a significant and growing issue especially for young families in the region.

4.12.1.2 Economy

The economy of Pitkin County, particularly in the upvalley communities of Aspen and Snowmass Village, relies heavily on tourism for employment, earnings, and business growth. **Table 4.12-7** shows employment and payroll data for Pitkin County broken down by business sector for 2014, which is the most current data available. The total economy generates more than $610 million in annual payroll. The business sectors most reliant on tourism (accommodations and food service; arts, entertainment and recreation; and retail trade) comprise 10,557 (62.5%) of the total jobs. This reliance on tourism also means the area depends on transportation, including ASE, to provide access for the tourist population.

[5] U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates.

Table 4.12-7 Pitkin County Employment and Payroll (2014)				
Business Sector	**Number of Establishments**	**Paid Employees**	**First-quarter Payroll ($1,000)**	**Annual Payroll ($1,000)**
Total for all sectors	**1,576**	**16,880**	**167,158**	**610,653**
Agriculture, forestry, fishing, and hunting	4	16	82	371
Mining, quarrying, and oil and gas extraction	2	19	**d**	**d**
Utilities	2	19	**d**	**d**
Construction	166	528	7,187	35,757
Manufacturing	16	132	1,194	5,833
Wholesale trade	15	43	541	3,014
Retail trade	231	1,544	13,831	52,610
Transportation and warehousing	22	222	2,058	6,724
Information	27	164	3,379	12,717
Finance and insurance	59	234	6,614	25,151
Real estate and rental and leasing	223	959	8,837	42,789
Professional, scientific, and technical services	241	669	10,213	47,247
Management of companies and enterprises	10	382	4,283	23,538
Administrative and support and waste management and remediation services	103	829	7,037	33,782
Educational services	27	418	4,131	17,035
Health care and social assistance	70	731	11,285	47,083
Arts, entertainment, and recreation	50	3,303	**S**	71,519
Accommodation and food services	170	5,710	45,686	143,327
Other services (except public administration)	133	956	10,190	40,435
Industries not classified	5	2	**S**	154

d: Withheld to avoid disclosing data for individual companies.

S: Withheld because estimate did not meet publication standards.

16: Based on 2013 data.

19: Based on high end of range for "a" reporting (0 to 19 employees) used when other data must be withheld due to disclosure.

3303: Derived by subtracting employees in all other sectors from total and cross checked with US Census Bureau Economy-wide Key Statistics for 2012 (2012 Economic Census of the United States).

Source: U.S. Census Bureau, 2014 County Business Patterns.

Much of the tourism business in Aspen and Snowmass Village is linked to the ski industry, though summer activities such as hiking and camping in the surrounding White River National Forest are a growing component of the tourism economy. Special events such as the Jazz Aspen/Snowmass, Aspen Food and Wine Classic, the Aspen Music Festival, and the Aspen Film Festival also contribute significantly to the tourism economy.

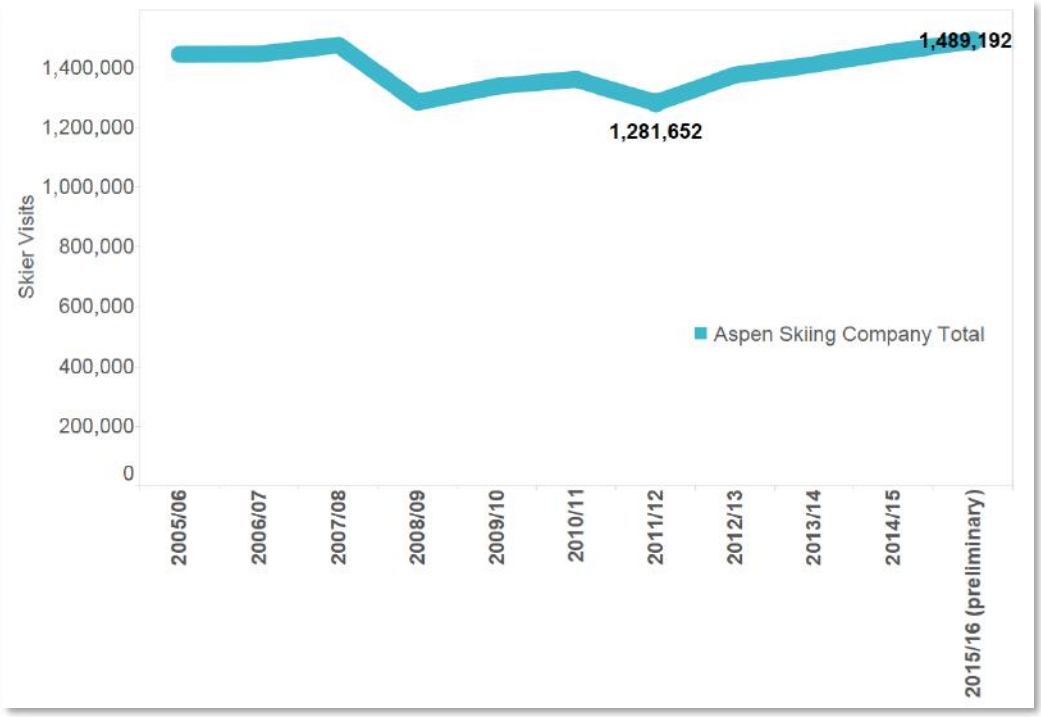
4.12.1.2.1 Tourist Activity

Skier Visits: Skiing, snowboarding, and the appeal of mountain recreation is a fundamental driver of the Aspen/Snowmass Area economy, either directly or indirectly. The number of annual skier visits to the Aspen/Snowmass Area has remained relatively stable over the past 30 years. There were close to 1.5 million skier visits at Aspen Skiing Company's four mountains during the 2015-2016 ski season. According to Economics Research Associates[6], this translates to approximately 200,000 individual skiers coming to the area on an annual basis, in addition to local skiers.

As illustrated on **Figure 4.12-3**, Skier visits to the Aspen Skiing Company's four resorts in the Aspen/Snowmass area has been increasing steadily since the 2011-12 ski season. Over the four years from 2012 to 2016, skier visits increased 16.2%.

[6] Economics Research Associates (ERA), The Aspen Economy; prepared for the City of Aspen, Pg. 20, October 2008.

Figure 4.12-3



Source: Aspen Skiing Company, 2016

The Aspen Skiing Company conducts an annual skier survey that provides detailed information on a variety of travel and lodging behaviors. In their 2015-16 skier survey, approximately 80% of skiers visiting the Aspen/Snowmass Area as part of an overnight trip stayed in rented accommodations as opposed to a home owned by a friend or family.

Other Tourism: There are numerous other events and recreational opportunities in the Aspen/Snowmass Area on a year-round basis. Some examples include the Aspen Music Festival, Aspen Food and Wine Classic, Aspen Film Festival, and Jazz Aspen/Snowmass. Little data is available to quantify the number of visitors these other events contribute to the overall tourism economy annually.

Many visitors also come to the Aspen/Snowmass Area for the outdoor recreational opportunities available within the White River National Forest and on other nearby public lands. **Table 4.12-8** shows the recent trend in visits to the White River National Forest. The data for this table came from a visitor survey that the Forest Service conducts every five years. The last survey was conducted 2012. During the five years between 2007 and 2012, visitation increased by 55%. Skier visits are included in the "Day Use Developed Site Visits" category.

Most of the increase comes from non-skier activities including hiking and camping, which occur primarily during summer months. This fact, along with the growing number and popularity of special events in the Aspen/Snowmass Village Area, helps explain why summer lodging occupancy has been increasing in recent years. Occupancy data shows July has been the peak month for four of the last six years. More information regarding lodging occupancy is provided later in this section.

Table 4.12-8 White River National Forest Area Annual Visitation

Visit Type	Visits (1,000s)		Change
	2007	2012	
Total Estimated Site Visits[1]	**10,837**	**14,224**	**31.3%**
Day Use Developed Site Visits	8,536	9,387	10.0%
Overnight Use Developed Site Visits	209	172	-17.7%
General Forest Area Visits	1,858	4,170	124.4%
Designated Wilderness Visits[2]	233	496	112.4%
Total Estimated National Forest Visits[3]	**7,903**	**12,287**	**55.5%**
Special Events and Organized Camp Use[4]	19	47	141.9%

Source: US Forest Service, 2012

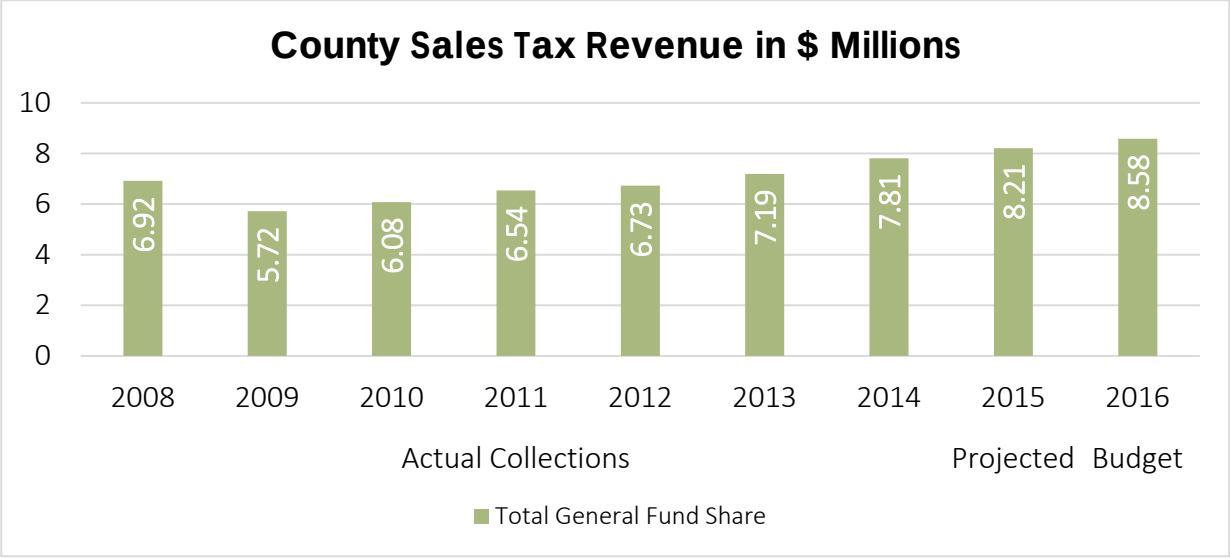
Notes:

1. A Site Visit is the entry of one person onto a National Forest site or area to participate in recreation activities for an unspecified period.
2. Designated Wilderness visits are included in the Site Visits estimate.
3. A National Forest Visit is the entry of one person into a national forest to participate in recreation activities for an unspecified period. A National Forest Visit can be composed of multiple Site Visits.
4. Special events and organizational camp use are not included in the Site Visit estimate, only in the National Forest Visits estimate. Forests reported the total number of participants and observers so this number is not estimated; it is treated as 100% accurate.

4.12.1.2.2 Retail Sales Tax Revenue

Retail sales, for which the growth trends can be inferred from retail sales tax revenues, are another valuable indicator of economic conditions. The County's retail sales tax revenue has been increasing in recent years as shown in **Figure 4.12-4**. Total sales tax collections declined by 17.3% from 2008 to 2009 due to the recession. However, between 2009 and 2015, sales tax revenues increased at an average annual rate of approximately 6.2%, and in 2013, once again exceeded the revenues generated in 2008. The 2016 budget also projected a sales tax revenue increase of 4.5%. The County is forecasting an annual increase in sales tax revenues of 3.5% for budget years 2017 through 2020 in the most recent report. Sales tax revenues are highly dependent upon the tourist economy, for which ASE is a significant driver.

Figure 4.12-4



Source: Pitkin County 2016 Budget Report

4.12.1.2.3 Lodging

Much of the information in this section comes from a study prepared by DestiMetrics, LLC on behalf of Stay Aspen Snowmass.[7] DestiMetrics is an organization that specializes in providing market data and advice to tourism-dependent businesses in the North American mountain travel industry. This is the third such study that DestiMetrics has prepared for the Aspen/Snowmass lodging market, though for the prior two versions, completed in 2009 and 2012, the company was known as MTRIP, LLC. The current version was completed in May 2015.

The City of Aspen conducted an analysis of the existing lodging inventory within the City limits in 2013.8 The City's report shows a slightly higher occupancy rate compared to the data provided by DestiMetrics. The analysis in this EA used occupancy data provided by DestiMetrics for several reasons. First, the data in the City's report is limited to the City of Aspen and does not provide comparable data for Snowmass Village. Next, the occupancy data in the City's report was obtained from The Rocky Mountain Lodging Report. This report provides data on hotels throughout Colorado, but does not include timeshare condominiums, which constitute a significant percentage of the Aspen/Snowmass Village lodging inventory. Also, the Rocky Mountain Lodging Report states that it does not survey every hotel in Colorado or Aspen. The DestiMetrics analysis incorporates hotels, condominiums, bed and breakfast facilities, and other short-term vacation rentals and is focused exclusively on the lodging inventory in Aspen and Snowmass Village.

[7] DestiMetrics LLC, "Stay Aspen Snowmass Transient Inventory Study," May 2015.

The DestiMetrics study provides an inventory and analysis of short-term rental units and pillows in Aspen and Snowmass Village as of May 31, 2015 (see **Tables 4.12-9** through **4.12-12** on the following pages). The term "pillows" or "pillow count" represents the number of people that be accommodated, which is helpful when considering the actual capacity of a given lodging facility or in the lodging market as a whole. The inventory includes hotel/lodge units, condominiums, private homes (handled by a property management company), and bed and breakfast units (one property). Rental-by-Owner (RBO) units are units rented for short-term use directly by the property owner through one of several direct channels, where no professional lodging or property management company is involved in the rental process that were inventoried separately and are not included in the overall units/pillows counts identified in **Tables 4.12-9** through **4.12-12**. RBO units are addressed later in this section. Fractional ownership units are included in the units/pillows counts in the DestiMetrics study.

Existing Lodging Inventory: There are currently 3,891 units, offering a total of 17,200 pillows, in the Aspen/Snowmass Area per the 2015 DestiMetrics report. **Table 4.12-9** breaks down the units and pillows by location. Aspen lodging properties provide 54% of the total short-term rental units, while Snowmass provides 46% of the total units. The available pillows are more evenly distributed between the two communities. **Table 4.12-10** below compares the inventory of lodge units and pillows for 2009, 2012, and 2015. The current inventory contains 64 fewer lodge units and 276 fewer pillows as compared to the inventory identified in the 2009 MTRIP report. However, the RBO market has more than offset this reduction. Additional information regarding the RBO market is provide later in this section.

Table 4.12-9 Lodge Units/Pillow by Location

Unit and Pillows by Location	Aspen	Snowmass	All
Units by Location	2,091	1,800	3,891
Pillows by Location	8,663	8,537	17,200

Note: Above tables include Fractional Ownership units but not RBO units/pillows
Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

Table 4.12-10 Combined Units & Pillows Comparison 2009, 2012, & 2015

	2009	2012	2015
Units	3,955	4,115	3,891
Pillows	17,476	18,857	17,200

Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

Table 4.12-11 breaks down the existing lodge unit inventory by type. A similar breakdown for the existing inventory of lodge pillows is provided in **Table 4.12-12**. Comparing this information reveals that traditional hotel/lodge rooms make up the bulk of the lodging units (51.7% of the total compared to 45% for condominiums). However, the reverse is true for pillows with condominiums providing 55% of the total and traditional hotel/lodge rooms providing only 38% of pillows.

Table 4.12-11 Lodge Units by Type/Location					
	Hotel/Lodge	**Condominium**	**Private Home**	**Bed and Breakfast**	**All**
Aspen	1,178	839	64	10	2,091
Snowmass	835	916	49	0	1,800
Total	**2,013**	**1,755**	**113**	**10**	**3,891**

Note: Above tables include Fractional Ownership units but not RBO units/pillows.
Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

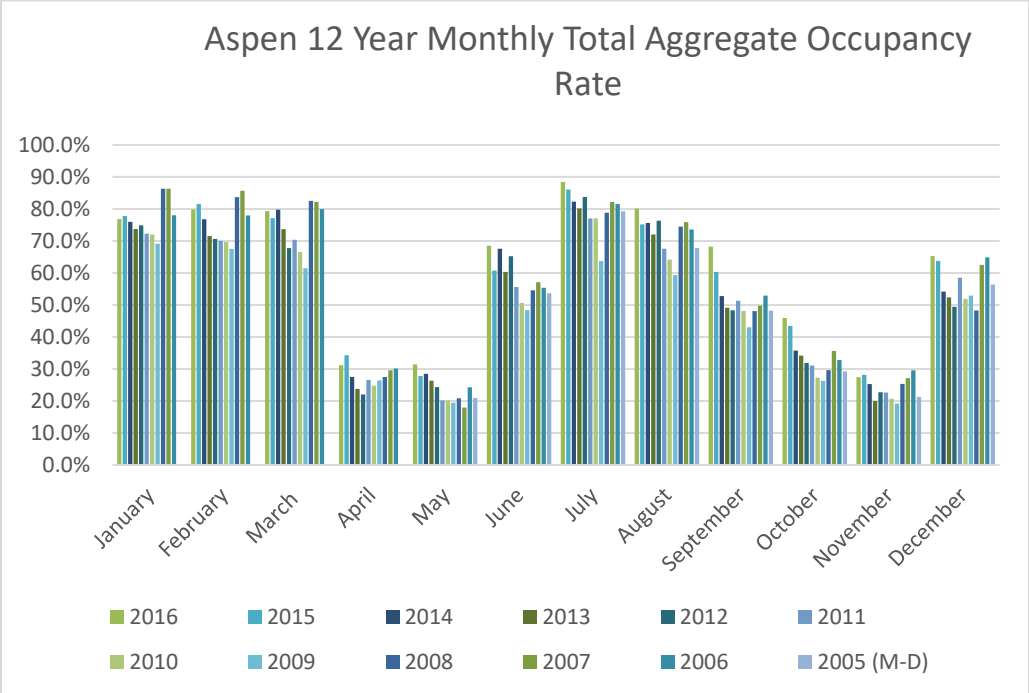
Table 4.12-12 Lodge Pillows by Type/Location					
	Hotel/Lodge	**Condominium**	**Private Home**	**Bed and Breakfast**	**All**
Aspen	3,644	4,401	592	26	8,663
Snowmass	2,946	5,009	582	0	8,537
Total	**6,590**	**9,410**	**1,174**	**26**	**17,200**

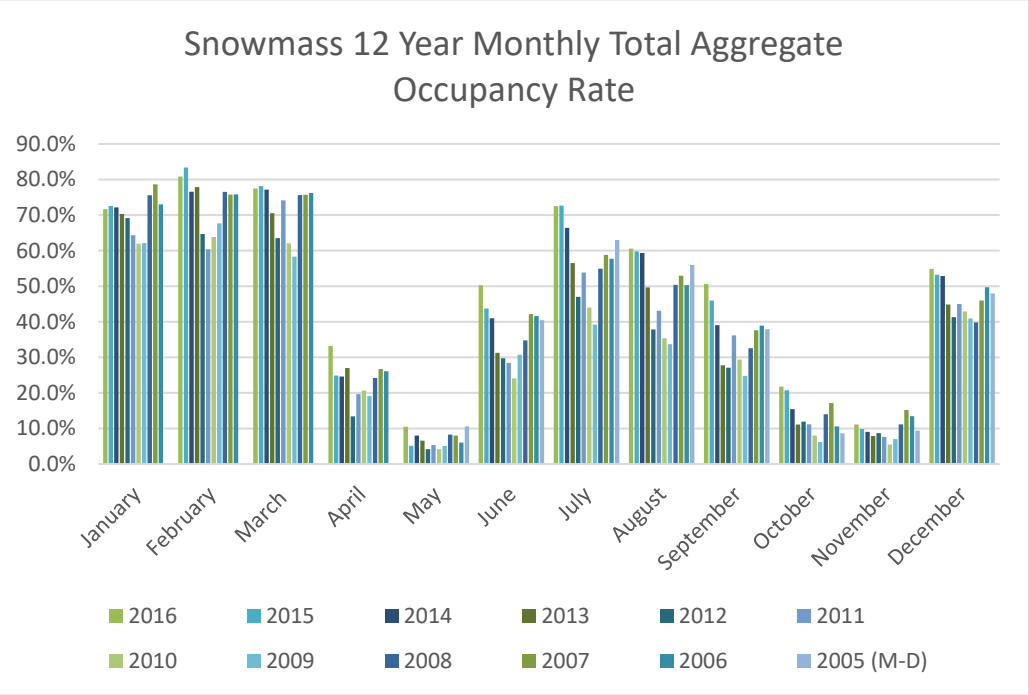
Note: Above tables include Fractional Ownership units but not RBO units/pillows.
Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

Historic Occupancy: As shown in the tables above, the Aspen/Snowmass Area has a substantial inventory of lodge units and pillows. **Figure 4.12-5** below shows monthly occupancy from 2005 to 2016 for both Aspen and Snowmass Village. For several years prior to the economic downturn of the late 2000s, occupancy rates in Aspen had been approaching "practical capacity" for many holidays and weekends during peak winter and summer months. Practical capacity has been approximated at 90% of total capacity during holidays and other peak times and 80% of total capacity for all other times. From 2008 to 2009, occupancy rates dropped dramatically in both Aspen and Snowmass Village. Since then, occupancy rates for the peak months have been generally increasing.

While occupancy rates have been improving, winter rates in Aspen have not yet reached the levels experienced during the pre-recession years from 2005 to 2008. Winter occupancy rates in Snowmass Village are at or slightly above where they were prior to the recession. However, occupancy rates in Snowmass Village are significantly lower than in Aspen, particularly during non-peak months. Except for the month of July in Aspen, when the 2016 rate exceeded 88%, occupancy rates in both Aspen and Snowmass Village remain below practical capacity. While there appears to be some room for visitor growth in both communities, the data shows that Snowmass Village has more capacity for growth than Aspen.

Figure 4.12-5
Aggregate Occupancy Rate for Aspen and Snowmass





Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

Potential Future Lodging Capacity: Several resort lodging projects have been approved for development in Aspen and Snowmass Village that have yet to be built. The units and pillows associated with these projects are not included in the existing lodging. **Table 4.12-13** shows the units and pillows associated with approved-unbuilt projects and is intended to provide a sense of the number of additional pillows that could be added to the lodging inventory in the coming years. Except for the Aspen Club project, which is currently under construction, it is unknown when these units and pillows will become available. While there are other lodging projects currently under review by the City of Aspen, the units and pillows for these projects were not included in **Table 4.12-13** because there is no guarantee that these projects will be approved.

Table 4.12-13 Potential Future Lodge Units/Pillows by Location (Short-term Rentals)

Property Name	Property Type	Location	Units	Pillows	Status
Molly Gibson Redevelopment*	Hotel/Lodge	Aspen	14	30	Approved
Aspen Club	Timeshare	Aspen	20	140	Approved
Sky Hotel Redevelopment*	Hotel/Lodge	Aspen	14	54	Approved
Hotel Aspen Remodel*	Hotel/ Lodge	Aspen	9	18	Approved
Base 1 Lodge	Hotel/Lodge	Aspen	36	72	Approved
Lift 1 Lodge	Hotel/Lodge	Aspen	84	168	Approved
Limelight Hotel	Hotel/Lodge	Snowmass	102	204	Approved
Viceroy Annex**	Condo/Timeshare	Snowmass	11	34	Approved
		Total	**290**	**720**	

* Numbers for units and pillows reflect new or additional units and pillows.
** Based on 50% units with 2 beds and 50% with 1 bed.
Source: City of Aspen Staff and Online Records Archive; Town of Snowmass Village Staff.

The approved projects represent a 7.5% increase in lodging units and 4.2% increase in pillows over the current inventory.

RBO Market: Due in part to the efforts of internet companies like HomeAway, AirBnB, VRBO and others, the RBO market has surged in recent years. RBO units are short-term units that are rented to transient guests by the owner through one of several direct channels, but where no professional lodging or property management company is involved in the rental process. The 2015 DestiMetrics report includes a cursory estimate of the number of RBO units and pillows in the Aspen/Snowmass area based on information obtained from HomeAway (see **Table 4.12-14** below). This information shows that in 2015 there were approximately 790 units and 3,761 pillows provided by RBO units.

Table 4.12-14 RBO Inventory Compared to Traditional Lodging		
	HomeAway	**Aspen Snowmass Traditional Market**
Units	790	3,891
Pillows	3,761	17,200

Source: DestiMetrics, "Stay Aspen Snowmass Transient Inventory Study," May, 2015.

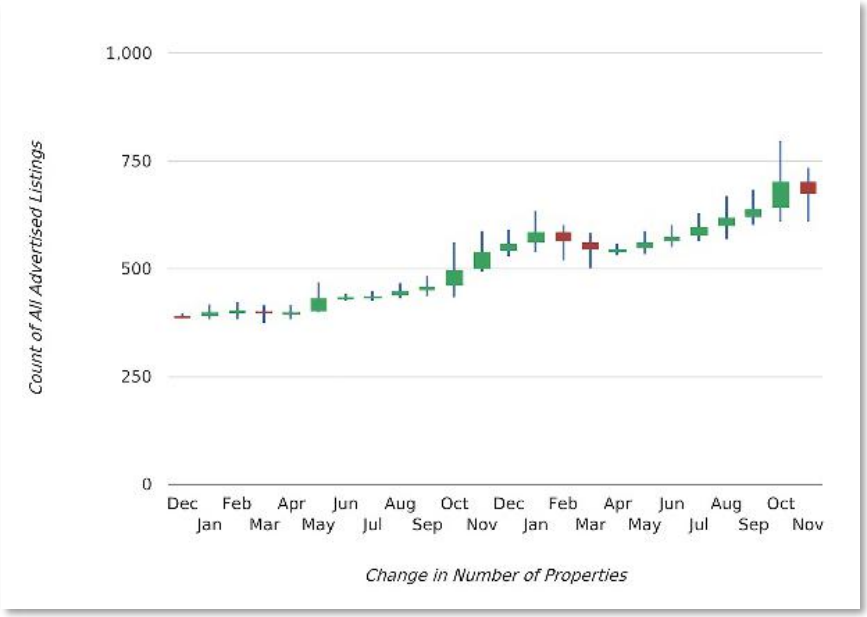
The RBO market is complicated and its effect on the traditional lodging market and the resort economy are not yet well understood. The RBO market is relatively new and market analysts, like DestiMetrics, have not yet compiled much data, especially multi-year data, which would allow for a better understanding of market trends and forecasting. This may be due in part to the fact that the owners of the units are often reluctant to share information for privacy and other reasons. In addition, many RBO units are occupied by their owners, either on a part-time or full-time basis, and may only be available for short-term rental sporadically. Consequently, it is difficult to determine the number of RBO pillows available on any given night.

Given the large inventory of second homes in and around Aspen, the potential supply of RBO vacation rentals is significant. Presently, RBO units are generally viewed positively, and no plans to further regulate them exist at this time.

Information obtained from AirBnB indicated that the number of active listings in Aspen and Snowmass Village reached 994 by November 2016. This represents an increase of 17% (more than 120 units) since the completion of the DestiMetrics inventory in May of 2015.[9] **Figures 4.12-6** and **4.12-7** illustrate the trend in RBO property listings in Aspen and Snowmass Village over the two-year period starting in December 2014 and ending November 2016. Note that the data in **Figures 4.12-6** and **4.12-7** represent all listings, including single rooms within a home or other unit, while the DestiMetrics inventory excludes individual rooms. The 120-room increase quoted above excludes the individual rooms to avoid overstating the growth in new RBO units. The green bars in **Figures 4.12-6** and **4.12-7** represent an increase in the number of units listed over the course of the month while the red bars indicate a reduction. In addition to showing the overall growth in the RBO inventory, these figures illustrate that growth in RBO units in the Aspen area has been steadier than in the Snowmass Village area. In the Snowmass area, the number of units listed has grown dramatically since June of 2015.

[9] AirDNA Market Reports for Aspen and Snowmass Village – 11/2016.

Figure 4.12-6
RBO Unit Listing Trends – Aspen Area



Source: AirDNA Market Report for Aspen – 11/2016.

Figure 4.12-7
RBO Unit Listing Trends – Snowmass Village Area

Source: AirDNA Market Report for Snowmass Village – 11/2016.

While the RBO market is complicated and difficult to predict, it appears that RBO units have become more widely accepted, and that the number of available RBO units is growing substantially. Based on available data from DestiMetrics and AirBnB, as of May 2015, the RBO market represented 20% of the total short-term rental units in Aspen and Snowmass Village; by November 2016, the RBO market had grown to more than 23%.

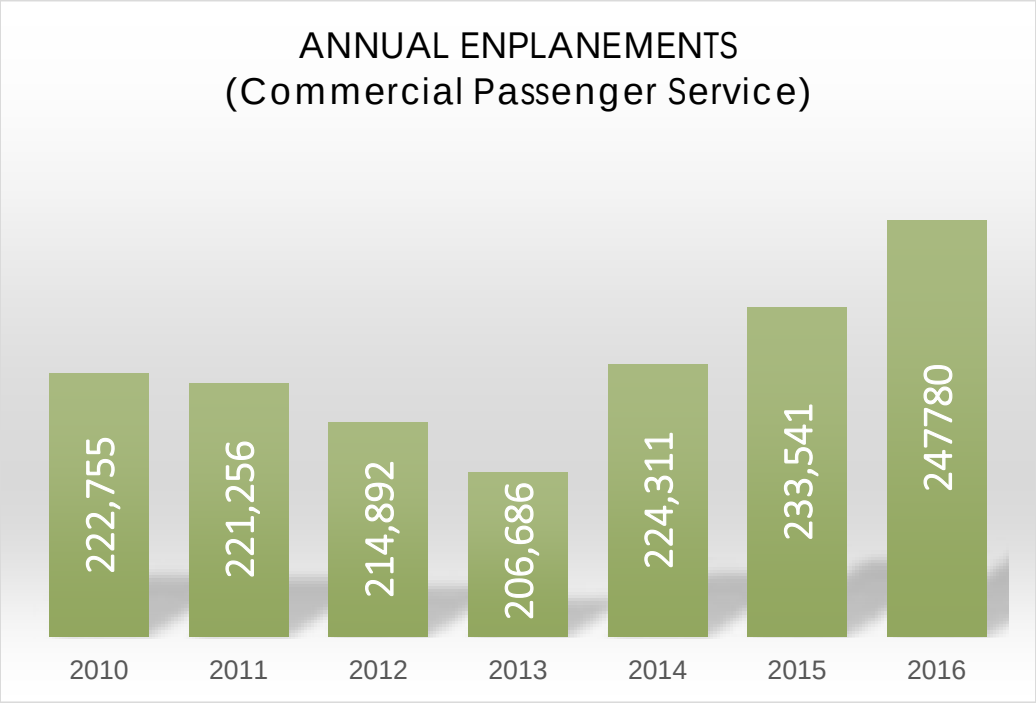
4.12.1.2.4 Aspen/Pitkin County Airport

ASE is the base for 82 general aviation aircraft and provides commercial passenger service, currently offering 22 flights daily by United, Delta, and American Airlines. On-airport services include scheduled passenger service, general aviation services, charter service, aviation fueling, aircraft maintenance, aircraft rental, flight training, and car rental. Atlantic Aviation is the onsite fixed-base operator.

Flight Operations and Enplanements: As illustrated on **Figure 4.12-8** commercial passenger enplanements have been increasing steadily since 2013 and there were approximately 247,780 enplanements in 2016. ASE managed approximately 40,322 total aircraft operations in 2016, including 9,227 air carrier operations, 10,063 air taxi operations, and 16,178 general aviation operations.[10]

[10] Federal Aviation Administration Terminal Area Forecast Database - 2016.

Figure 4.12-8



Sources: 2010 – 2013: Jviation Aviation Activity Forecast Update Chapter, ASE Future Air Services Study; 2014: ASE Passenger Report (2015); 2015: Mead & Hunt, Summary of Aviation Activity Forecast, 2015-2033; 2016: Federal Aviation Administration TAF Database.

Employment: There are currently approximately 560 people who work at ASE.[11] These people provide services in administration, passenger terminal, security screening, rental car, on-airport parking, general aviation, aircraft fueling, aircraft maintenance, facility maintenance, airport operations, and emergency services. Employment includes full-time, part-time, and seasonal positions. Construction related employment associated with periodic capital improvements are not included in this total.

Operating Revenues and Expenses: ASE's operating revenues come from several sources, all of which are fees or rental income from various services or facilities provided on ASE property.

11 The State of Colorado, Department of Transportation, Division of Aeronautics, 2013 Economic Impact Study for Colorado Airports.

ASE receives no general fund money from Pitkin County or any other local government. A substantial portion of operating funds comes from airline landing fees and terminal rental fees. Other significant sources of revenue include general aviation landing fees, rental car concessions and space rental fees, public parking fees, and fuel flowage fees.

Commercial airline service is directly or indirectly responsible for nearly 65% of ASE's total annual operating revenue. In 2015, commercial airlines paid $3,203,121 in landing fees and terminal rental fees. Other revenues indirectly associated with commercial passenger service include public parking and rental car concessions and space rental fees. Most public parking and rental car use is by commercial airline passengers. These fees constituted an additional $2,398,000 in revenue in 2015. This number does not include fuel flowage fees, which are paid by both the commercial airlines and general aviation users. General aviation users and businesses paid nearly $2,000,000 in fees in 2015, including $1,611,758 in general aviation landing fees.

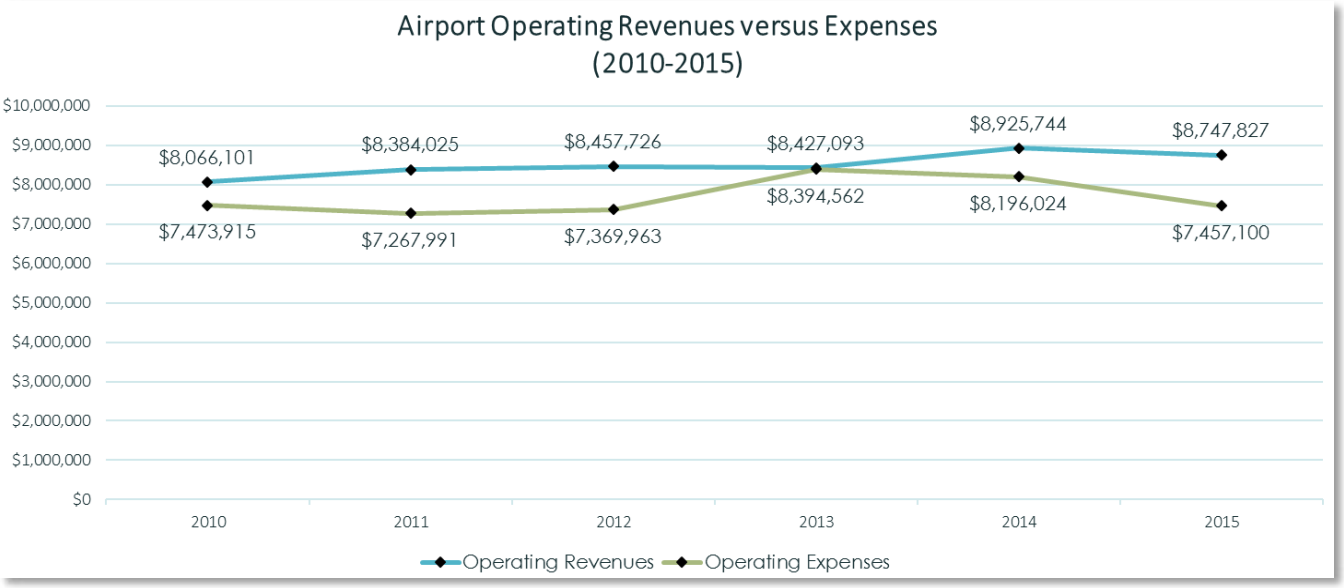
Operating revenues for 2015 totaled $8,747,827, which was a slight reduction from 2014. Operating expenses for 2015 were $7,457,100, resulting in a surplus of $1,290,727. **Table 4.12-15** compares total operating revenues and expenses from 2010 through 2015. As illustrated by **Figure 4.12-9**, operating revenues have been relatively stable during these years, at an average of approximately $8,500,000. Revenues have exceeded expenses every year over this period and surpluses have averaged approximately $808,000 annually. The revenue numbers do not include non-operating revenues, which for 2015 were approximately $545,000. Non-operating revenues vary from year to year and typically come from investment income and taxes from fuel sales.

Table 4.12-15 Aspen/Pitkin County Airport Operating Revenues vs Expenses (2010-2015)

	2010	2011	2012	2013	2014	2015
Operating Revenues	$8,066,101	$8,384,025	$8,457,726	$8,427,093	$8,925,744	$8,747,827
Operating Expenses	$7,473,915	$7,267,991	$7,369,963	$8,394,562	$8,196,024	$7,457,100
Surplus	$592,186	$1,116,034	$1,087,763	$32,531	$729,720	$1,290,727

Source (2010 - 2014): Federal Aviation Administration, Airport Compliance Activity Tracking System (CATS) Database (2010 - 2014)
Source (2015): Leibowitz and Horton, Aspen/Pitkin County Airport Financial Implementation Analysis Re: Environmental Assessment Airport Improvements (11/30/2016)

Figure 4.12-9



Source (2010 - 2014): Federal Aviation Administration, Airport Compliance Activity Tracking System (CATS) Database (2010 - 2014)
Source (2015): Leibowitz and Horton, Aspen/Pitkin County Airport Financial Implementation Analysis Re: Environmental Assessment Airport Improvements (11/30/2016)

Capital Improvement Funds: ASE has made significant improvements to both airside and landside facilities over the years. These improvements contribute to the local economy by creating jobs in construction, engineering, and professional services and through the use of local construction materials. Most infrastructure improvements and maintenance is paid for with non-local funds.

Funds for capital improvements come from several sources including the FAA's Airport Improvement Program as well as FAA-approved Passenger Facility Charges (PFCs). In addition, the State of Colorado Department of Transportation (CDOT) also provides grants for eligible capital improvements. The State's contribution is typically a small fraction of the funds provide by the FAA.

In 2015, federal and state grant funds for ASE totaled $3,075,667. This number varies from year to year depending on the specific projects to be funded. Over the six years from 2010 to 2015, ASE received over $30,000,000 in federal and state funds for capital improvement projects, infrastructure maintenance, and related engineering and planning studies. This includes approximately $18,500,000 received in 2011 and 2012 for the runway extension.

Current economic benefits to the community: Every five years the CDOT Division of Aeronautics analyzes the economic impacts of commercial and public-use general aviation airports throughout the state. The analysis measures these impacts in terms of jobs, payroll, and annual economic activity or output. The *2013 Economic Impact Study for Colorado Airports* provides the most recent analysis. Because commercial enplanements have increased at ASE since the study was conducted, the findings of the study should be considered conservative. Present-day economic annual impacts are likely to be higher than the figures reported in the 2013 Study.

The methodology used in the State's Economic Impact Study includes obtaining data related to the airports' operation as well as visitor estimates, capital investments, and data from airport tenants. These data, which include wages, fuel sales, and rental car revenues, among many other economic factors, are referred to as the initial economic impacts. Initial economic impacts recirculate in the local economy, generating successive rounds of spending, employment and payroll in other sectors of the economy.

Economic impacts are summarized by three factors: jobs, payroll, and output. Jobs include both full-time and part-time positions. Part-time positions were translated into a full-time-equivalent metric (FTE). Payroll in the CDOT report includes wages and benefits for employees whose jobs are in some way supported by airport/aviation-related activities. Output represents total annual economic activity, sales, or spending within the community. For airports and tenants, output is commensurate with annual spending needed to support their operation; for visitors, output is the sum of all visitor-related spending; and for capital improvements, output is the sum of all private, local, state, and federal related investment at the airport.

Economic impacts are also categorized based on whether they relate to activities that take place primarily on the airport itself or to activities that occur off-airport. On-airport impacts include the employment that supports the administration, operation, and maintenance of the airport, as well as tenant businesses and investment in capital improvement projects. Off-airport impacts include spending on hotels, food/beverage, local transportation, retail goods, and recreation and entertainment by visitors who arrive via the Airport. **Table 4.12-16** summarizes on-airport, off-airport, and total economic benefits of ASE to the local economy, as reported in CDOT's 2013 Study.

The existing economic benefits summarized in **Table 4.12-16** do not include local and state tax revenues. Visitors pay taxes on lodging, rental cars, restaurant meals, and other purchases. Workers whose jobs are supported by airports and visitor spending also pay sales tax and state income taxes. According to the 2013 Economic Impact Study, annual local and state taxes linked to the operation of ASE totaled $47.0 million in 2013.

Table 4.12-16 Annual Economic Benefit of Aspen/Pitkin County Airport			
	Jobs	**Payroll**	**Output**
On-Airport (Annual Airport, Tenant, and Capital Improvement Impact)			
Initial	561	$39,836,000	$121,865,000
Multiplier	485	$19,660,000	$63,754,000
Total	**1,046**	**$59,496,000**	**$185,619,000**
Off-Airport (Annual Visitor Economic Impact)			
Commercial Airline Visitors			
Initial	4,682	$134,432,000	$377,935,000
Multiplier	1,642	$60,393,000	$194,177,000
Total	**6,324**	**$194,825,000**	**$572,112,000**
General Aviation Visitors			
Initial	697	$19,772,000	$54,781,000
Multiplier	243	$8,912,000	$28,630,000
Total	**940**	**$28,684,000**	**$83,411,000**
Total Economic Impact	**8,310**	**$283,005,000**	**$841,142,000**

Source: *2013 Economic Impact Study for Colorado Airports*, Colorado Department of Transportation Division of Aeronautics.

4.12.2 Environmental Consequences

4.12.2.1 No Action Terminal Alternative

The No Action Alternative would involve no changes to the terminal area. While the No Action would have no adverse impacts on children's health, or environmental justice activities, there could be negative socioeconomic impacts since the Terminal would operate with continued spatial constraints, which could have a negative impact on tourism.

4.12.2.2 Terminal Alternatives 1 and 2

The proposed project includes replacement of the existing commercial passenger terminal to meet passenger and staff needs and a reconfiguration of the terminal area including roadways and parking. This EA evaluated two terminal replacement alternatives; however, the two alternatives are very similar. From the standpoint of socioeconomic, environmental justice and children's environmental health and safety risks, there are no appreciable differences. Therefore, the following findings apply equally to both terminal replacement alternatives.

Socioeconomic Environment. The new terminal and associated terminal area projects are not anticipated to have any negative direct or indirect socioeconomic impacts either during construction or following project completion. Access to businesses on the east side of ASE and at the Airport Business Center (ABC) could have temporary changes to traffic patterns due to construction; however, these changes would still provide access. Additionally, because the terminal would be completed in a phased approach, the existing terminal would remain open during construction of the new terminal. Therefore, any of the businesses within the terminal itself would not be significantly affected.

Also, both Terminal Alternatives would induce temporary positive socioeconomic impacts within the region as a result of construction activity. These impacts would benefit Pitkin County and the Roaring Fork Valley during the multi-year phased construction process by increasing employment opportunities and expenditures on local services and materials. The terminal alternatives would also provide minor long-term positive socioeconomic impacts due to expanded concessions and increased visitor use. The proposed terminal replacement project may result in visitors and residents spending additional time at ASE. The proposed terminal alternatives would include increased concession space, which could also create positive economic benefits through increased passenger spending.

Environmental Justice.

Terminal replacement would not increase noise, rather it would result in only a slight change to the location of ground related noise due to the change in the air carrier aircraft apron parking configuration. Additionally, both Terminal Alternatives would include a noise wall that would help reduce the single event ground noise levels from Auxiliary Power Unit use on the general aviation apron area. For residents near ASE, this change would be positive.

Since the Terminal Alternatives are not expected to significantly increase the number of employees who work at ASE, no appreciable burden on the existing housing inventory is anticipated. Therefore, the Terminal Alternatives are not expected to result in any substantial negative or otherwise disproportionate impacts to any specific population groups.

However, the community continues to struggle in the effort to provide affordable housing for the local workforce. Given the high cost of housing in Pitkin County, most new employees at ASE would either need to live in affordable housing or commute from down-valley. Redevelopment of the commercial passenger terminal is considered a public project, and the County will determine whether the projects need to provide affordable housing.

Children's Environmental Health and Safety Risks. There are no schools, parks, or playgrounds within the Study Area or within the 65 DNL or greater noise contour that might be affected by noise or other impacts associated with the proposed Terminal Alternatives (See **Section 4.11**).

4.12.2.3 No Action Runway Alternative

For the No Action Alternative, the runway would continue to operate under the use restrictions described earlier. As a result, no commercial service jet aircraft would be able to operate in or out of ASE in the future due to the phasing out of existing regional jet aircraft, which have a narrower wingspan. This would likely result in a form of reduced commercial service to ASE. Some commercial service would likely continue in the future case, but it would need to be operated exclusively by turboprops.

Socioeconomic Environment. The economy in the Aspen/Snowmass Village area relies heavily on tourism and the transportation network. Without regional jet service, some tourists will choose other resorts for their vacation destination. This is a concern for the out years, when advances in jet aircraft technology and manufacturing will make air travel more convenient and more comfortable for those resort communities where jet service is available. **Table 4.12-17** compares the economic benefits associated with the No Action and With Project Runway Alternatives for the forecast years 2023, 2028, and 2033. This table highlights in red the potential lost economic benefit associated with the No Action Alternative as compared to the With Project Alternative.

The numbers in **Table 4.12-17** are based on the FAA-approved enplanement forecast and the estimate for visitor spending obtained from the 2013 CDOT Economic Impact Study for Colorado Airports. That same report also found that 74.4% of commercial airline passengers who arrive at ASE are visitors. The numbers in **Table 4.12-17** are conservative since they reflect per/visitor spending for 2013 and no adjustment has been made to reflect inflation to present day.

Table 4.12-17 Economic Benefits of New Visitors (Annual)							
	2023	2028			2033		
	No Action (Runway)	No Action (Runway)	With Project (Runway)[3]	Reduction w/o Runway Project	No Action (Runway)	With Project (Runway)	Reduction w/o Runway Project
Enplanement Increase (over 2015)	29,612	25,319	62,599	37,280	47,495	99,718	52,223
Additional Visitors[1]	22,031	18,837	46,574	27,736	35,336	74,190	38,854
Annual Visitor Spending[2]	**$50,694,085**	**$43,344,710**	**$107,165,982**	**$63,821,272**	**$81,308,780**	**$170,711,631**	**$89,402,851**

[1] Enplanement increase, from the CDOT, Division of Aeronautics, *2013 Economic Impact Study for Colorado Airports*

[2] Based on estimate of visitor spending from the CDOT, Division of Aeronautics, *2013 Economic Impact Study for Colorado Airports* ($2,301/visitor)

[3] First year of relocated runway implementation

Note: all scenarios assume commercial passenger Terminal Redevelopment

Source: TGMC, llc

Table 4.12 shows that by 2033 the No Action Alternative could translate to **an economic loss of nearly $90 million annually** for the communities within the region, as compared to the With Project Runway Alternative. This potential loss would have the greatest impact on tourism sectors of the economy including food services, lodging, arts, entertainment, recreation, and retail trade. Since retail sales tax is a major component of local government general fund revenues, government services and employment could also be affected. Therefore, the restriction of commercial jet service in the future could result in negative socioeconomic impacts to the area.

Environmental Justice. Because the No Action Runway would result in no significant noise or relocation impacts, there would be no environmental justice impacts. The loss of commercial service will affect the entire tourism-based economy. Because it is expected to impact the entire tourism industry in the valley, it is not expected to disproportionately impact any minority or low-income population.

Children's Environmental Health and Safety Risks. Because the No Action Runway would result in no significant noise or relocation impacts, there would be no impacts to children's health and safety.

Construction Impacts: Construction impacts relative to the Terminal Alternatives 1 and 2 would relate to the temporary economic benefit to the valley from construction activities. Each project would bring additional jobs and spending to the valley. A rerouting of traffic is expected to occur during construction to relocate the runway relocation during the piping of Owl Creek, but these impacts would be temporary and not significant.

4.12.2.4 Runway Alternative

The Runway Alternative would eliminate the existing use restrictions by relocating the current runway 80 feet to the west, thus complying with FAA standards for the runway/taxiway separation. This alternative would likely have significant positive socioeconomic effects. The ability for commercial airlines to freely operate aircraft under this alternative would accommodate continued growth in tourism, which is the primary economic driver in the region.

The community acknowledges that the existing regional jet service being provided at ASE has been a significant contributor to the success of the existing tourism economy. The proposed runway relocation would continue to support economic growth in the region consistent with community objectives.

The proposed runway relocation can be thought of as a continuation of the status quo at ASE in terms of commercial passenger service since it would allow for regional jet service similar to the service currently being offered.

Socioeconomic Environment. The Runway Relocation is not anticipated to have any negative direct or indirect socioeconomic impacts either during construction or following project completion. Businesses at ASE would not be negatively impacted by the project because no on-airport development areas or airport access would be affected. Traffic on Owl Creek Road from construction activities could be affected temporarily, but it would not affect any businesses.

Also, the Runway Alternative would induce temporary positive socioeconomic impacts within the region due to construction activity. These impacts would benefit Pitkin County and the Roaring Fork Valley during the multi-year phased construction process by increasing employment opportunities and spending on local services and materials.

The off-airport economic benefits of the runway relocation could be very substantial. The future enplanement estimates contained in the FAA-approved forecast (see **Table 2-3**) shows growth in commercial air service enplanements over the planning period (2015 – 2033). However, the growth in enplanements would also generate economic benefits as a result of the dollars spent in the local economy. **Table 4.12-17** from the No Action Runway discussion shows the amount of money that would enter the local economy annually due to spending by the potential additional visitors generated by the proposed runway relocation project for each of the forecast years (not adjusted for inflation).

By 2028 the runway relocation could result in an increase of 46,574 annual visitors with an initial off-airport economic benefit of approximately $107,166,000. By 2033 the initial economic benefit of the runway relocation could rise to nearly $170,712,000. These figures do not include the additional economic benefits created by the "multiplier effect" described earlier in this chapter in association with the current economic benefits of ASE.

Impact of With Project Runway Alternative on Aspen/Snowmass Lodging: One question raised with respect to the potential growth in visitors associated with the runway relocation is how it will impact existing and planned short-term rental facilities in Aspen and Snowmass Village. As discussed earlier in this chapter, there is limited room to accommodate additional visitors in the existing lodging inventory based on historic occupancy data. However, additional lodging facilities, that have yet to be built, have received development approvals in both Aspen and Snowmass Village. In addition, there has been significant growth in the number of RBO units, which were not included in the DestiMetrics units/pillows counts. **Table 4.12-18** shows the number of potential new lodging guests given these factors and the forecast enplanements associated with the proposed runway relocation alternative.

Table 4.12-18 New Lodging Guests (Annual)

Forecast Scenarios	Enplanement Increase (Over 2015)	Visitors[1]	New Lodge Guests[2]
2028 w/Project	62,599	46,574	27,944
2033 w/Project	99,718	74,190	44,514

[1] Enplanement increase x .744, from the CDOT, Division of Aeronautics report, *2013 Economic Impact Study for Colorado Airports*)

[2] Visitors x .60, from Aspen's Lodging Sector- Lodging Demand and Economics Report (2013)

Source: TGMC, llc

Since lodging capacity and occupancy are often referenced monthly, the new lodging guests have been assigned to the months of the year for comparison. This was done by combining the Aspen and Snowmass Village average monthly occupancy data for the last five full years (2011 - 2016). **Table 4.12-19** shows the number of potential new lodge guests by month for the forecast years using this approach.

Table 4.12-19 New Lodging Guests by Month		
	2028	**2033**
January	3,430	5,465
February	3,520	5,608
March	3,511	5,592
April	1,214	1,934
May	780	1,242
June	2,372	3,779
July	3,412	5,434
August	2,982	4,749
September	2,192	3,492
October	1,238	1,972
November	789	1,257
December	2,504	3,989

Source: TGMC, llc

To determine whether the new monthly lodge guests can be accommodated, the potential additional monthly lodging capacity associated with the approved/unbuilt lodging projects (see **Table 4.12-13**) and the existing RBO units was calculated. Due to the unpredictable nature of RBO units, the calculations used different assumptions for the capacity of these units versus the approved/unbuilt lodging units.

Monthly Capacity for Approved/Un-built Lodge Pillows: To establish a monthly capacity for comparison, the total number of future pillows from **Table 4.12-13** must be converted to a monthly capacity. In addition, the monthly capacity must be modified to reflect practical capacity. For this analysis, practical capacity was assumed to be 80% of total capacity on a year-round basis. This is a conservative estimate since practical capacity can be as high as 90% during peak periods. To determine the monthly capacity, the practical capacity is multiplied by a factor based on the average length of stay. According to the Aspen Skiing Company's most recent On-mountain Survey, the average length of stay is seven nights. Based on a seven-night stay, the formula for determining monthly practical capacity for the potential future lodging units is as follows:

Monthly practical capacity of future lodging pillows: (720 × .8) × 4.4 = 2,534

Monthly Capacity for RBO Pillows: The approach for calculating the capacity for RBO pillows is the same as described above for the approved/un-built lodge pillows except for using a practical capacity of 50% to account for the fact that the availability of RBO units tends to be more unpredictable and sporadic. Based on a seven-night stay, the formula for determining monthly practical capacity for the RBO units/pillows shown in the 2015 DestiMetrics inventory is as follows:

Monthly practical capacity of future lodging pillows: (3,761 × .5) × 4.4 = 8,274
Combined monthly practical capacity = 10,808 pillows

Comparing the combined monthly practical capacity with **Table 4.12-19** shows that the capacity of the RBO units and the future lodging units is nearly double the number of potential new lodging guests, even for the peak months in 2033. The capacity of the RBO units alone significantly exceeds the potential new monthly lodge guests. Therefore, the proposed runway relocation would not exceed the future capacity of the Aspen/Snowmass Area lodging inventory and would not create development pressure for additional lodging units or pillows.

Environmental Justice. Evaluating Environmental Justice determined whether the Runway Alternative would unequally distribute negative effects to special population groups. There would be no negative noise or relocation impacts on any population groups. The Runway shift would change the fleet mix to the newer commercial service aircraft, which are generally quieter than their CRJ-700 predecessors. Therefore, the Runway Alternative is not expected to result in any substantial negative or otherwise disproportionate impacts to any specific population groups within the Study Area.

Children's Environmental Health and Safety Risks.
The Runway Alternative is not expected to result in any environmental health risks or safety risks for children. No schools, parks, or playgrounds are within the Study Area or within the 65 DNL or greater noise contour that might be affected by noise or other impacts associated with the Runway Alternative (See **Section 4.11**).

Construction Impacts: Construction impacts relative to the Runway Alternative would relate to the temporary economic benefit to the valley from construction activities. Each project would bring additional jobs and spending to the valley. A rerouting of traffic is expected to occur during construction to relocate the runway relocation during the piping of Owl Creek, but these impacts would be temporary and not significant.

4.12.3 Mitigation and Minimization
There are no significant impacts relative to the With Project Alternatives for either the Terminal Alternatives 1 and 2 or the Runway Alternative. Therefore, no mitigation would be needed. Best management practices relative to construction road relocation or impacts on travelers would help minimize temporary impacts relative to construction.

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4.13 Visual Effects

The FAA defines visual effects as those impacts involving "light emissions; and visual resources and visual character."[1] Light emissions include any light that radiates from a light source into the surrounding environment. Visual resources include natural or manmade landscape features that are visually important or have unique characteristics while visual character refers to the overall visual makeup of the existing environment. Visual effects deal broadly with the extent to which the proposed alternatives would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. While there are no federal thresholds of significance for visual effects, these impacts deal broadly with the extent of the contrast between development and the existing environment, and whether the surrounding communities object to this contrast.

4.13.1 Affected Environment

ASE is in a historic mountain resort community that places strong value on visual quality and character. The notable scenic quality is the result of careful coordination of local development and natural landscape. Local ordinances, plans, and regulations guide the area's landscape and visual character. For example, the entire airport property is situated within the Scenic View Protection Areas associated with Colorado Highway 82 and Owl Creek Road and the final design must meet the standards outlined in the Pitkin County Land Use Plan to protect these resources.[2] The West of Maroon Plan (WOMP) is another important document that dictates local visual impacts, and the projects would need to meet requirements laid out in the WOMP. The projects must also meet the Airport Design Guidelines, which were developed tied closely to the WOMP. The Airport Design Guidelines state:

> "These guidelines are grounded in the belief that simple, strong design solutions that utilize indigenous materials and quality craftsmanship are the best way to create projects that honor the community's values relative to architecture, site design and community planning…The guidelines encourage reintroduction of the native mountain landscape throughout the airport, and reap the resulting environmental benefits…The guidelines ensure the implementation of projects in a manner consistent with community values, which reflect high standards for quality, environmental sensitivity, neighborhood compatibility, and sustainability."[3]

ASE is adjacent to Colorado Highway 82, which connects ASE to the City of Aspen. Pitkin county residences, businesses, and infrastructure extend along the highway up into the foothills above the highway. The natural scenery is characterized by grassland, meadows, clusters of Aspen trees, forests of pine and spruce, and rolling ski hills. Views from points surrounding ASE capture aesthetically pleasing vistas of Rocky Mountain peaks and natural landscapes.

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[1] Federal Aviation Administration Order 1050.1f, Effective 7/16/15, http://www.faa.gov/documentlibrary/media/order/faa_order_1050_1f.pdf

2 Pitkin County Land Use Code, Section 7-20-120.

[3] Airport Design Guidelines, April 2014.

The valley's general topography makes ASE slope an average of two percent consistently along the runway down valley, which affects how a building can fit into the landscape (**Figure 4.13-1**). Both alternatives take advantage of the existing topography at ASE by situating the proposed terminal facility to accommodate the steep site grades.

Federally-required lighting for security, obstruction identification, and navigation are the primary sources of light emissions from ASE. Airport visual and electronic aids consist of instruments and equipment that assist pilots with navigation on the airfield and within the vicinity of ASE while in flight. The existing runway is equipped with Medium Intensity Runway Lights (MIRL) owned by ASE. Runway 15 has Precision Approach Path Indicator (PAPI) lights and a Medium Intensity Approach Lighting System with Sequenced Flashing Lights (MALSF) both owned by the FAA. The MALSF is an approach lighting system that stretches from the threshold of Runway 15 north, 1,400 feet along the extended centerline of Runway 15 and provides enhanced visual guidance to aircraft making a landing approach to ASE during periods of low visibility. Runway 33 is equipped with Runway End Identifier Lights (REIL) which is owned by ASE.

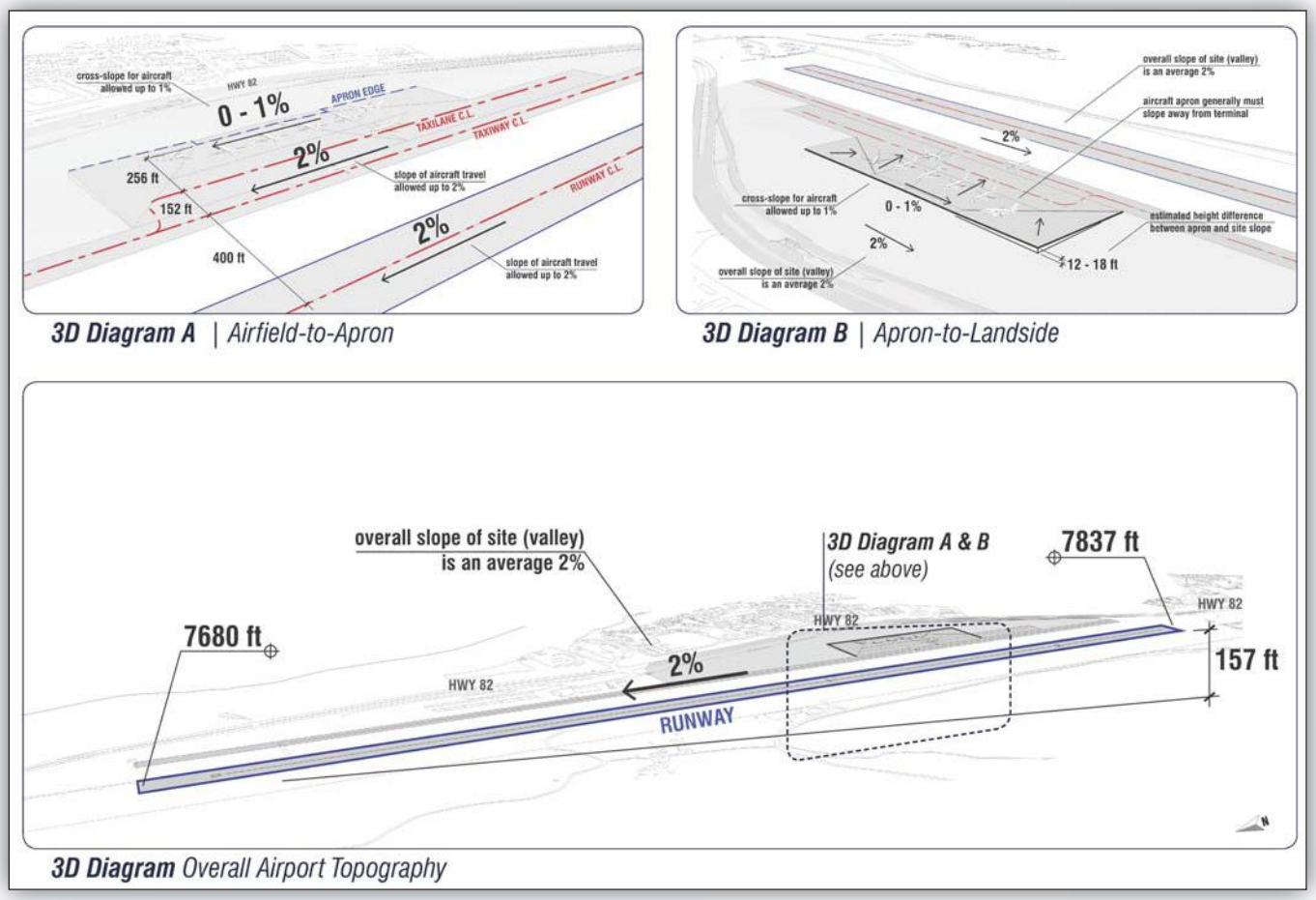

Figure 4.13-1 **Topography**

4.13.2 Environmental Consequences

4.13.2.1 No Action

The No Action Alternative would not alter the existing lighting patterns or visual environment at ASE.

4.13.2.2 Terminal Alternatives

To best evaluate potential impacts to visual quality, two terminal alternatives were developed with high level concepts for the visual rendering. These can be seen in **Figure 4.13-2** (Terminal Alternative 1 – Ridge Concept) and **4.13-3** (Terminal Alternative 2 – Pavilion Concept). It is important to note that these alternatives represent a range of building alternatives for visual impact analysis. However, they do not represent final design. Final design will occur after the environmental assessment (EA) is completed, and final design elements will be reviewed relative to local standards prior to being constructed.

Figure 4.13-2 **Terminal Alternative 1 - Ridge Concept**

Figure 4.13-3 **Terminal Alternative 2 - Pavillion Concept**

Viewpoint selection criteria were developed. These criteria included visual areas of interest, vantage points from nearby neighborhoods, and viewpoints of high scenic value; they comprise differing angles and elevations surrounding ASE. Community input guided selection of the six viewpoints for visual analysis: Trentaz Road, McLain Flats Road, Colorado Highway 82 northbound, Buttermilk Road, Owl Creek Road, and Colorado Highway 82 southbound (**Figure 4.13-4).** Below are descriptions of each viewpoint and references to the associated Figures. Note that each Figure contains the No Action (top), Terminal Alternative 1 (middle), and Terminal Alternative 2 (bottom).

Trentaz Road

The Lower Trentaz Road observation point sits elevated with views out onto the Roaring Fork Valley. This location (**Figure 4.13-5**) was chosen due to its views of the surrounding environs, the Elk Mountains, the ski resorts of Snowmass, Buttermilk, and Aspen, and of ASE. This viewpoint was also used to model nighttime views (**Figure 4.13-11**).

McLain Flats Road

The McLain Flats Road observation point is located adjacent to Gavin Gulch and alongside numerous residential properties. This location (**Figure 4.13-6**) was chosen because it provides a view of the proposed terminal alternatives from the residential areas to the east.

Colorado Highway 82 Northbound

The Colorado Highway 82 Northbound observation point is located on the east side of ASE facing north. This location (**Figure 4.13-7**) parallels ASE property and was chosen due to its high use by both locals and tourists and its vantage point of the proposed project area.

Buttermilk Road

The Buttermilk Road observation point is located on the west side of the project area. This location (**Figure 4.13-8**) was chosen for its unobstructed viewpoint of the project area, and because it lies near locally popular and accessible walking and biking trails.

Owl Creek Road

This location is situated west of ASE along a paved two-lane road. The vantage point was chosen due to the clear view of the proposed projects from the west side looking east. The proposed terminal alternatives and runway alternative are clearly visible from the ground level, without obstructions (**Figure 4.13-9**).

Colorado Highway 82 Southbound

The Colorado Highway 82 Southbound observation point is located adjacent to the ASE airfield facing south towards the city of Aspen (**Figure 4.13-10**). This viewpoint was chosen as Colorado Highway 82 is the main artery connecting Aspen with Interstate 70, and it provides a direct view of the proposed project area.

SOURCE: Google Map Data, 2016.

Figure 4.13-4 **Visual Observation Points**

Future Potential Terminal Location

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Common to both alternatives: Visual elements associated with both terminal alternatives include a relocated and expanded terminal facility, re-configured roadways and parking, an expansion of the air carrier apron, and a new noise wall located near the general aviation apron. Both Terminal Alternative visualizations also indicate the runway shift and widening, but the impacts of these projects are described in section **4.13.2.4 Runway Alternative**.

To reduce visual impact to the community, the design of the terminal facility would reflect the community vision, incorporating colors and textures that fit into the landscape visually and aesthetically by complementing the surrounding area. Landscaped areas and a potential green roof would provide aesthetic views from vantage points outside of the terminal. Sky-lights and large windows would optimize daylight within the terminal, and a large window would provide scenic views of Buttermilk Ski Area for travelers inside the terminal.

Both site plans (**Figure 3-3**) are very similar in terms of visual effects. The greater expanse of pavement associated with roadway and parking reconfiguration would not have a significant impact on visual quality, as it would be similar to the existing visual character of ASE, and would not diminish the visual quality of the area. Existing trees would be kept to the extent possible to screen changes to the landscape from Highway 82.

Light emissions associated with the proposed terminal area improvements would be similar to those of the existing terminal. Additional lights from the terminal facility or parking areas would be shielded per the Design Guidelines to minimize impacts. Therefore, the terminal alternatives would not result in significant adverse environmental light emissions impacts (**Figure 4.13-11**).

Short-term, temporary visual impacts would occur during construction of the terminal area improvements. These impacts would include views of construction equipment, placement of fill, and construction related light emissions.

Terminal Alternative 1: This alternative comprises a "split-level" concept where terminal functions are generally located on a single level, and the split level provides an opportunity to fit within the existing grade (see **Figure 4.13-1** and **Figure 4.13-2**). Situating the facility in this way accommodates the existing topography at ASE and reduces visual impacts.

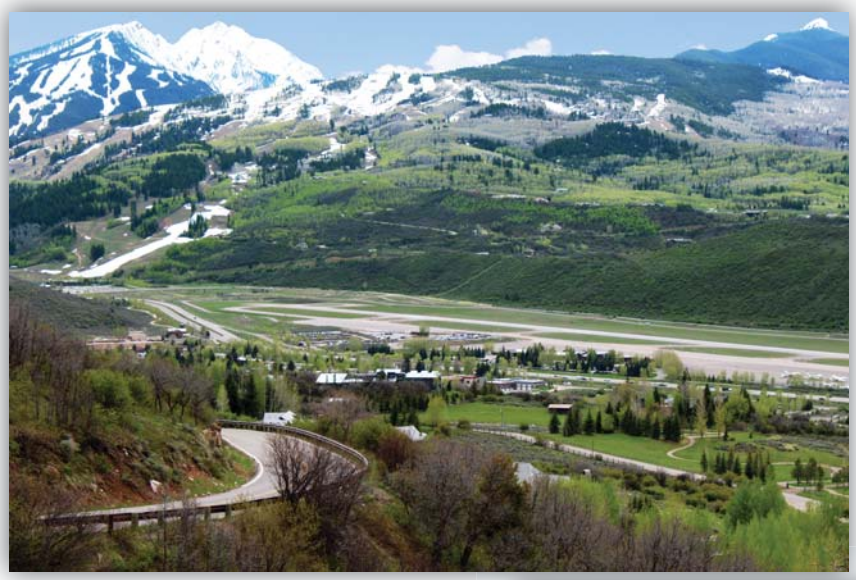
The design concept for this alternative would include a low profile roof that "hugs" the landscape to create a neighborhood scale, making it approachable from a user perspective. From the perspectives of the six identified viewpoints, one would see the angular, arching roof of the terminal facility and the re-located roadways. Views from higher elevations (i.e., Trentaz Road, McLain Flats, and Buttermilk) would be able to better see the broader expanse of the roof of the proposed new terminal (see **Figures 4.13-5, 4.13-6, and 4.13-8**). Views from lower elevations would show the change in lateral relocation north of the existing terminal (see **Figures 4.13-7**, **4.13-9**, and **4.13-10**).

Improvements associated with this alternative would not significantly change the overall visual character of ASE. The visual perception of proposed terminal improvements would not block existing scenic views and would be inconsequential from the identified viewpoints. Therefore, significant visual impacts are not anticipated as a result of this alternative.

Terminal Alternative 2: Terminal Alternative 2 combines a nested and two-story design concept that stacks the levels of the terminal facility. To minimize visual impacts, it incorporates a setback appearance to reduce visual intrusion within the landscape. Additionally, the stepped building footprint reduces the overall scale of the building (**Figure 4.13-3**).

Views from higher elevations would show the terminal roof and re-located roadways (see **Figures 4.13-5**, **4.13-6**, and **4.13-8**). The roof design for Terminal Alternative 2 is flat, matching the topography of the adjacent airfield. The views from Colorado Highway 82 and Owl Creek Road would show the shift in location of the new terminal building north of the existing terminal facility (see **Figures 4.13-7**, **4.13-9**, and **4.13-10**).
Similar to Terminal Alternative 1, this alternative would not impede any scenic views and would not diminish the existing character of the area. Temporary impacts to visual resources could result from construction activities. Construction equipment and associated materials would be visible from the viewpoints analyzed above. However, these impacts would not be significant and would be short-term.

Therefore, this alternative would not have a significant impact on visual resources.



No Action

Alternative 1

Alternative 2

Figure 4.13-5 **Trentaz Road Alternatives**

No Action

Alternative 1

Alternative 2

Figure 4.13-6 **McClain Flats Alternatives**

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No Action

Alternative 1

Alternative 2

Figure 4.13-7 **Colorado 82 North Bound Alternatives**

No Action

Alternative 1

Alternative 2

Figure 4.13-8 **Buttermilk Alternatives**

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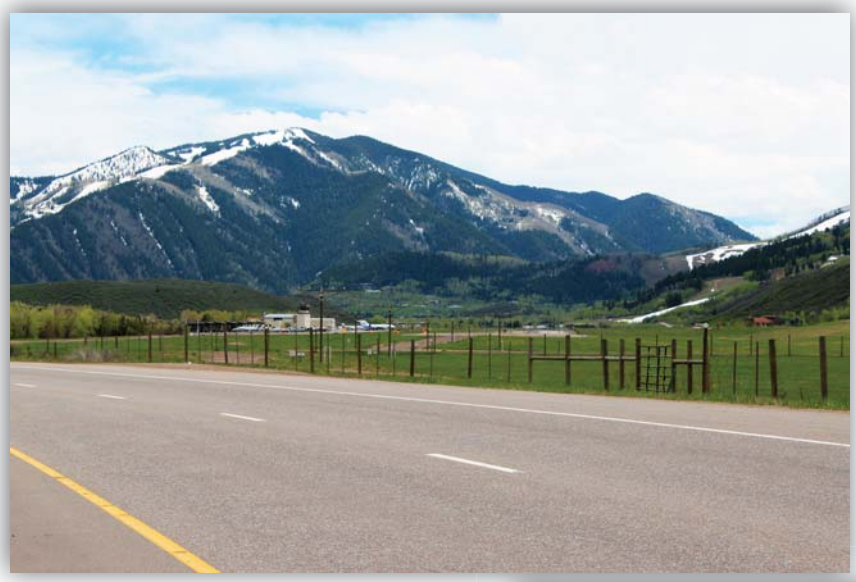
No Action

Alternative 1

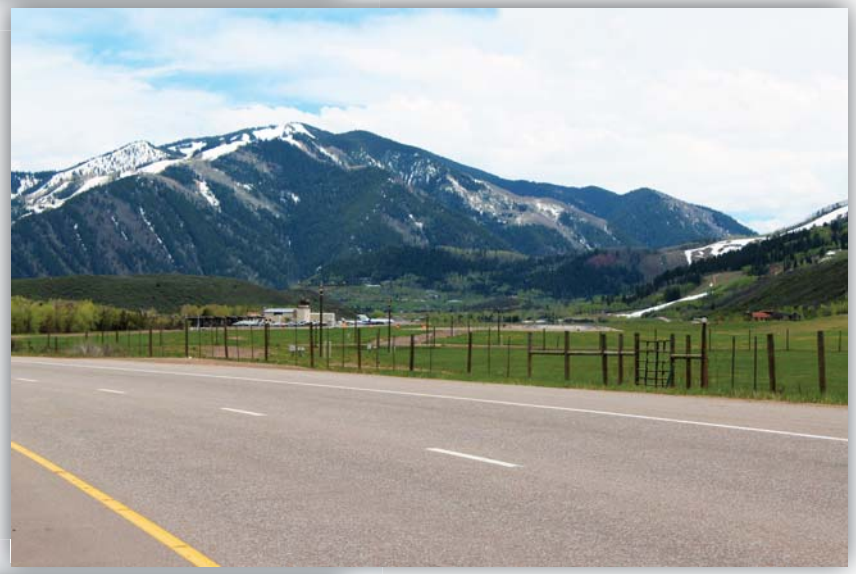
Alternative 2

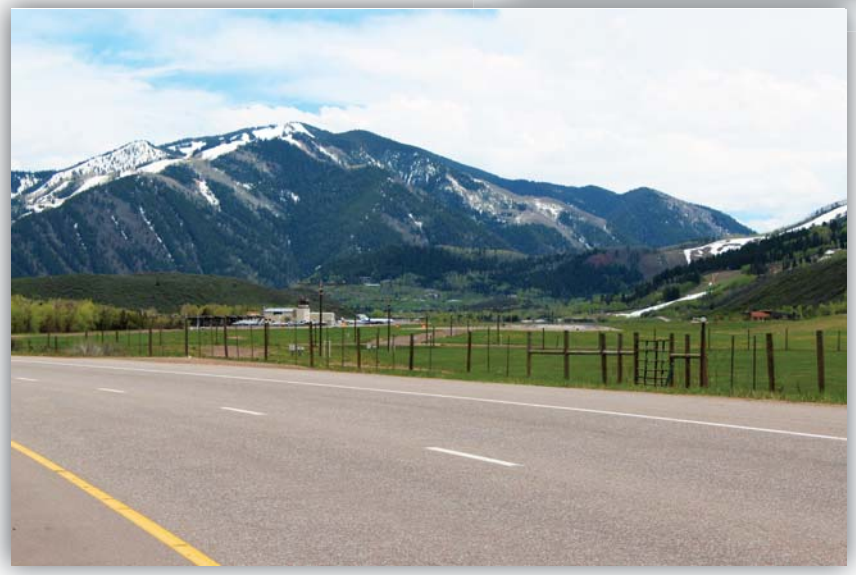
Figure 4.13-9 **Owl Creek Road Alternatives**



No Action

Alternative 1





Alternative 2

Figure 4.13-10 **South Bound Alternatives**

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No Action

Alternative 1

Alternative 2

Figure 4.13-11 **Nighttime View - Trentaz Road Alternatives**

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4.13.2.3 Runway Alternative

Slight changes in views would result from an increase in the amount of pavement due to the widening of the runway. Potential runway pavement would be similar in appearance to the existing runway pavement. The visual perception of the proposed 50-foot increase in runway width would be inconsequential from the identified viewpoints. Therefore, the visual impact of the added pavement would not be significant.

The re-located runway, equipment, and lighting would be similar in appearance to existing conditions. The appearance of the NAVAIDS and lighting would not change significantly and would be re-located to maintain a similar relationship to the runway. The potential new location of these elements would be closer to west side of ASE; therefore, these elements could be more visible to viewpoints west of ASE. However, because the visual character would not change drastically from existing conditions, these improvements are not expected to result in any significant impacts (**Figure 4.13-11**).

Similarly, relocation of the perimeter road, Owl Creek Road, and Bike Path and the piping of Owl Creek would not result in significant impacts to visual character. The visual appearance of these elements would not change, and would therefore not have any significant impacts on the visual environment. Temporary impacts to visual resources could result from construction activities. Construction equipment and associated materials would be visible from the viewpoints analyzed above. However, these impacts would not be significant and would be short-term.

4.13.3 Minimization and Mitigation Measures

There would be no significantly adverse impacts to the visual character or to visual resources as a result of the Proposed Action. Therefore, no mitigation is required. All final design would need to go through local approvals and meet local planning standards, including the Airport Design Guidelines and the Highway 82 Corridor Plan Standards, which would minimize any visual changes to the environment per those standards.

4.14 Water Resources (Including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Water resources, which include surface waters and groundwater, provide drinking water and support recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, groundwater, floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system. Disruption of any one part of this system can have consequences to the functioning of the entire system.

Surface and Groundwater: Surface waters include streams, rivers, lakes, ponds, estuaries, and oceans. Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as to wells, springs, and other water sources.

The Clean Water Act (CWA), officially titled the Federal Water Pollution Control Act, contains broad legislation enabling development of water quality standards and management practices. This statutory authority is supported by the Fish and Wildlife Coordination Act that regulates water impoundment projects, and the Safe Drinking Water Act that regulates projects that might contaminate aquifers used as principal drinking water sources.

Wetlands and Non-Wetland Water Features: Executive Order 11990, *Protection of Wetlands*, and Department of Transportation DOT Order 5660.1A, *Order on Preservation of the Nation's Wetlands*, require Federal agencies to avoid and minimize the impact of construction projects on wetlands. Wetlands are defined as areas inundated by surface or groundwater with a frequency sufficient to support vegetation or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction. Waters of the US are within the jurisdiction of the US Army Corps of Engineers (USACE) pursuant to the CWA. Waters of the US include waters that are used or could be used for interstate commerce. These include wetlands, ponds, lakes, territorial seas, rivers, tributary streams, including any definable intermittent waterways, and some ditches below the Ordinary High Water Mark. Manmade water bodies are also included, such as quarries and ponds no longer actively being mined or constructed. Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries and refuges are all considered special aquatic sites that involve more rigorous regulatory permitting requirements

Floodplains: Executive Order 11988 directs Federal agencies to take action to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Based upon the available Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Pitkin County, Colorado, there are no Special Flood Hazard Areas, Floodway Areas, or Other Flood Areas on Airport property. Floodplains are those areas subject to a one percent or greater chance of flooding in any given year.

Wild and Scenic Rivers: The Wild and Scenic Rivers Act describes those rivers protected as free flowing rivers, possessing "outstanding or remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values."

4.14.1 Affected Environment

4.14.1.1 Surface and Groundwater

Within the survey area, and as shown in **Figure 4.14-1**, Owl Creek runs from the southwest to the northeast on ASE property, crossing the runway and eventually discharging into the Roaring Fork River, which then flows into the Colorado River, a navigable water. Owl Creek is a non-wetland water feature also known as a "waters of the US." Additional non-wetland surface waters include two small tributaries to Owl Creek and four ditches, also considered non-wetland water features. The ditches, a part of an irrigation system, are all controlled surface water features.

According to the United States Geological Survey (USGS), the western part of Pitkin County is located within the Colorado plateaus aquifers system, but this aquifer system does not lie beneath the study area. A surficial, mountainous aquifer associated with the Roaring Fork River underlies the study area just north of ASE and the City of Aspen. However, this area is not considered to be a major aquifer because the alluvium in the valley is thin, narrow, and discontinuous.

In general, ASE property has a consistent gradual slope, following the grade of the Valley north toward the Town of Basalt. ASE's storm water is conveyed east from ASE buildings, roads, and parking areas to a drainage swale along the west side of the Airport Frontage Road. The swale is a combination of open ditches and culverts under roadways. Storm water run-off collected on the east side of ASE eventually flows into the open meadow north of the fixed base operator (FBO) apron. The remaining water that does not percolate into this open meadow flows into the Owl Creek drainage; this creek eventually flows into the Roaring Fork River.

The City of Aspen provides ASE's water through an 18-inch service line. The service line is located in the road Right-of-Way (ROW) on the western side of Highway 82 from Owl Creek Road to BMC West. At BMC West, the line crosses under Highway 82 to provide service to the Aspen Airport Business Center (AABC) area. The line crosses under Highway 82 at the AABC gas station, and runs from ASE's main entry to a point just east of the ATCT, where the service line terminates. With the exception of the ATCT, all buildings on the Airport are serviced by (or can access) the sanitary sewer system that serves the general area including the AABC, ASE, and surrounding commercial area. The ATCT has an existing below-ground septic system.

Several water wells and an aquifer associated with the Buttermilk Metropolitan water district used to be at the southern end of the project area. Since the runway extension in 2012, these wells have been capped and the residences were placed on City of Aspen water. Therefore, these wells are no longer active.

A construction project in 2012 for the deicing ramp installed a system that captures the flows from the deicing operations and sends them to an underground collection tank. This collection system is only in operation during times when deicing is occurring. During warmer months, the water is diverted to a subsurface drainage system that sends the flows north to the area of the commercial ramp. From there the flows are piped towards the short-term parking lot and outfall into swales alongside the ASE frontage road, and then flow to the north toward Owl Creek. The majority of the glycol used for deicing is collected in the tank and any residual glycol that may enter the storm system would be very minimal.

4.14.1.2 Wetlands and Non-Wetland Water Features

In 2015, a detailed site survey documented the presence of wetlands and water resources located on ASE property. **Appendix 6** includes the detailed survey information and wetlands analysis, and **Figure 4.14-1** illustrates the main water features, which are summarized below:

Tributaries
Tributaries 1 and 2, located on the Sardy homestead, are open channels with Tributary 1 (420 feet long) being dry and surrounded by grasses (Photograph 10 – **Appendix 1**). Tributary 2 is dry for approximately 40 feet ending in a dug out and ponded area with standing water approximately 3 feet wide and 6 inches deep (Photograph 11– **Appendix 1**).

Ditches
Four ditches (Ditch 1-4) identified in the northwestern portion of the survey area are part of the airport water system and convey hydrology to various sections of the northwest portion of airport property to irrigate ranching operations in the area. All of these ditches are associated with control features that can be used to calibrate or terminate flows within the ditches

Ditch 1 (616 LF) is located near the western survey area boundary just north of Owl Creek in the northwestern portion of the survey area. This feature appears to deliver water to the irrigation system that serves the hay meadows in the northwest corner of the ASE property.

Ditch 2 (1,306 LF) runs along the western edge of the irrigated hay meadow and appears to convey irrigation waters down gradient towards Owl Creek.

Ditch 3 (2,400 feet long) flows east from a headgated and culverted area at the crossroads of Owl Creek Road and an airport service road, then parallels the airport runways until it joins Owl Creek within the airport operations area. The upper portion of Ditch 3 supports hawthorn, narrowleaf cottonwood, willow, rushes, manna grass (*Glyceria grandis*) and sedge. This portion of the ditch is approximately 1 foot wide by 3 inches deep. The portion of Ditch 3 that parallels the airport runway supports cattail (*Typha latifolia*), manna grass, redtop, and other herbaceous species. This portion of Ditch 3 is 3 feet wide by 8 inches deep.

Ditch 4 (306 LF) is a small ditch, 1 foot wide by 1 inch deep, that flows northeasterly from a headgate through a grassland/sagebrush area. A portion of this ditch is piped underground to join Ditch 3.

Wetlands

Based on the site visit in September 2015 and a wetland delineation that was verified by the USACE in September 2016, three wetland areas (identified as Wetlands A, B and C in the wetland delineation report) exist within the survey area. Associated with Owl Creek, Wetland A is approximately 3.0 acres at the northern end of the survey area (Photograph 8 – **Appendix 1**). Wetland A supports narrowleaf cottonwood, Bebb's willow (*Salix bebbiana*), beaked sedge and manna grass. Wetland A includes 1,890 LF of Owl Creek, which is likely considered a water of the US and is regulated by the USACE.

Wetland B is 0.05-acre of scrub-shrub wetland located along a ditch just north of the operations center. Wetland B includes a dominance of Booth's willow (*Salix boothii)* and narrowleaf cottonwood (*Populus angustifolia*) with an understory comprised of wetland species such as creeping bentgrass (*Agrostis stolonifera),* American brooklime (*Veronica Americana*). This wetland provides limited habitat and wetland functions due to size and the fact that the hydrology that supports this wetland is controlled as part of the airport water system and can be initiated or terminated based on airport water needs.

Wetland C is an emergent wetland area located at the southern end of the runway. This area was identified in association with a previous runway expansion and bike path construction. The area totals 1.3 acres and is part of two branches of stream course that enter the area from the south. Drainage from this area is piped underneath airport facilities. Vegetation supported in Wetland C is comprised mostly of sedge species (*Carex aquatilis, Carex nebrascensis*) with the establishment of some cattail (*Typha latifolia*) (Photograph 12 – Appendix 1). Wetland C provides low habitat diversity, low habitat value for fish and wildlife, little in the way of flood protection, some water quality improvement, some bank stabilization, low food chain support, moderate maintenance of the hydrologic cycle, and low quality with respect to food production, educational research, recreation and heritage.

Finally, a small, constructed detention feature is located north of Wetland C (Photograph 14 – **Appendix 1**). This pond receives water from the wetland, which stores and releases the water to a culvert that likely follows in a northeasterly direction off the airport property.

On September 20, 2016, the USACE issued a letter concurring with the wetland delineation performed in 2015 and issued a pre-jurisdictional determination that identifies wetlands and non-wetland water features within the survey area (Appendix 6). Three mapped wetlands exist within survey area, but no wetlands are located within the project area.

4.14.1.3 Floodplains

According to FEMA's floodplain maps, the 100-year floodplain from Owl Creek intersects ASE property; this floodplain is located on the northern side of the property as seen in **Figure 4.14-2**. Portions of this floodplain are located within the project area, relative to the Owl Creek areas within the airport fence line proposed for piping.

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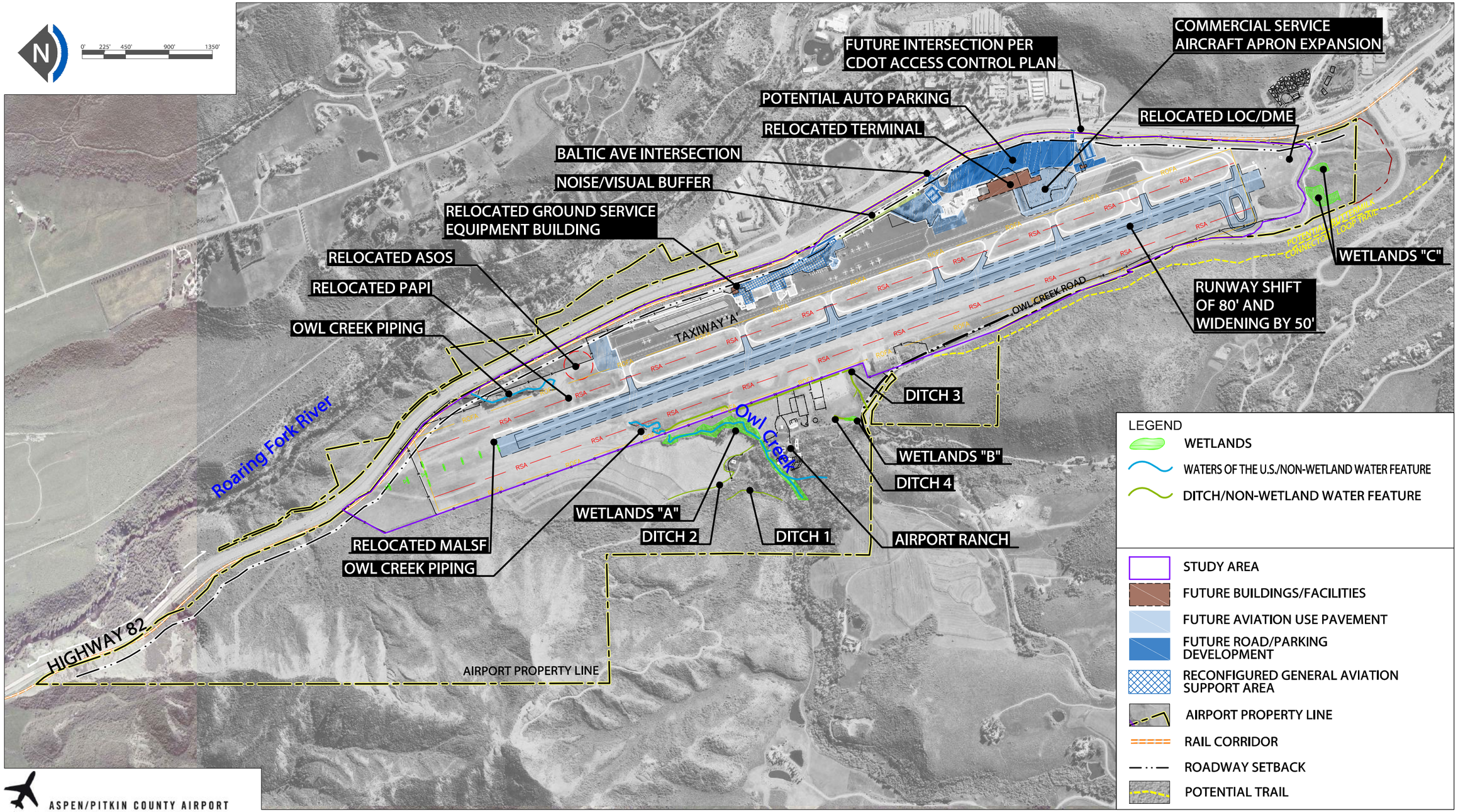

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Figure 4.14-1 **Wetlands & Water Features Near Airport**

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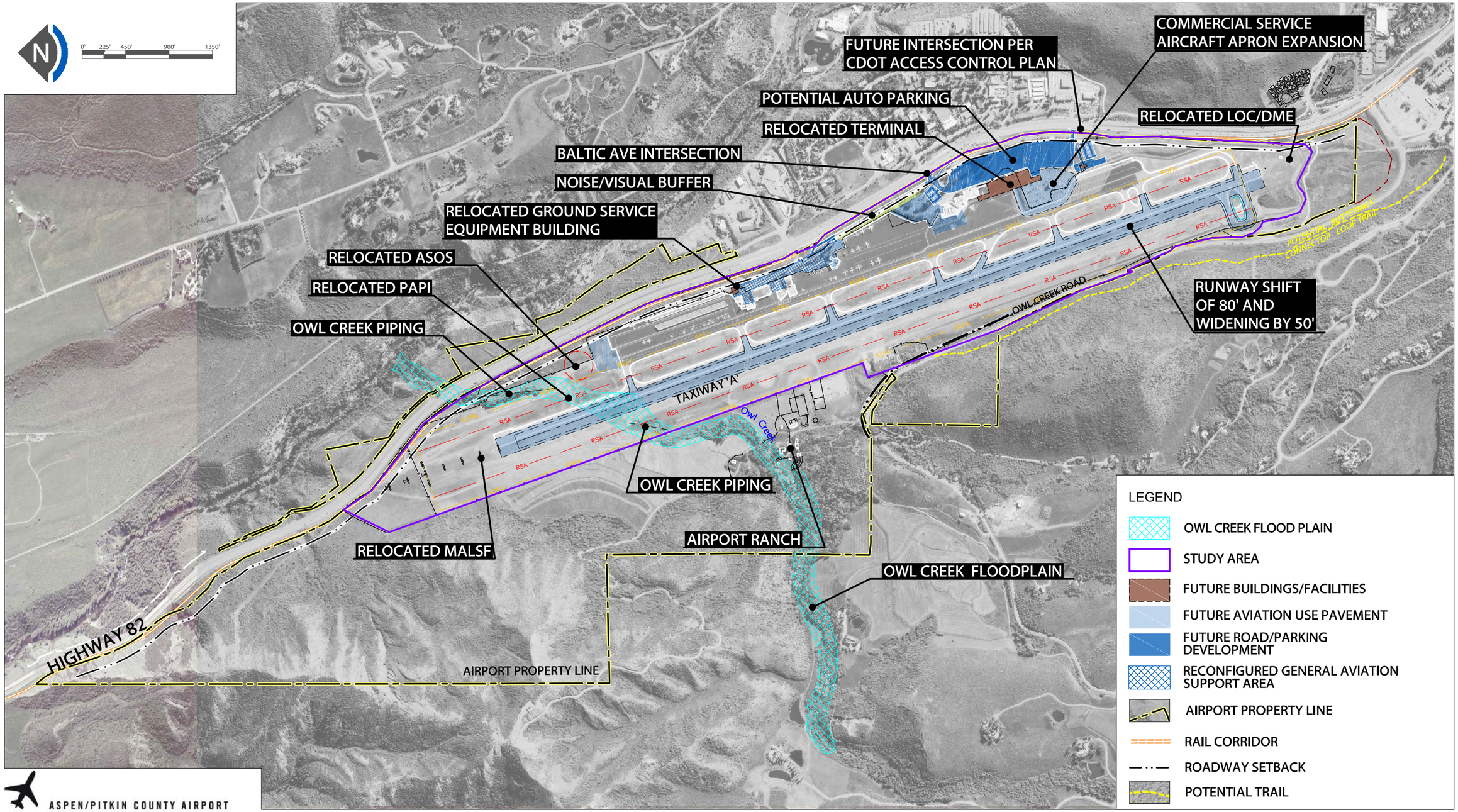

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Figure 4.14-2 **Owl Creek Floodplain**

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4.14.1.4 Wild and Scenic Rivers

No wild and scenic rivers, as designated by the U.S. Department of the Interior, National Park Service, are located in the vicinity of ASE. Therefore, there would be no impacts relating to Wild and Scenic Rivers and this resource category is not discussed further.

4.14.2 Environmental Consequences

4.14.2.1 No Action Alternative

This alternative does not include any development and therefore, would not adversely impact any wetlands, floodplains, or water resources.

4.14.2.2 Terminal Alternatives 1 and 2

The Terminal Alternatives include development within the entirely pre-disturbed terminal area on the east side. No wetlands, floodplains, or other water resources are included in this area. Therefore, neither of these alternatives would have any direct impacts on wetlands, floodplains, or other water resources.

Both terminal alternatives would result in a slight increase in impervious surface on the east side, due to a larger terminal footprint and the larger apron size. Stormwater runoff from paved airport surfaces typically contains low concentrations of some metals, petroleum compounds, rubber compounds and glycol that has dripped from planes being deiced. Additionally, compounds used to melt ice and snow can be present in the stormwater runoff and can potentially impact groundwater quality. These alternatives would require a change to the National Pollution Discharge Elimination System (NPDES) Permit for ASE in the project area to account for the increase in stormwater runoff and meet stormwater runoff requirements. A construction dewatering permit would be needed if any construction dewatering were to take place and the Storm Water Management Plan (SWMP) for the Airport would need to be updated.

On occasion, ASE has had high BOD and COD at two of the outfalls. The Terminal Alternatives would result in a relocation of some of the impervious surfaces and a reconfiguration of the stormwater drainage that would help balance the drainage. The deicing pad runoff would continue to flow into an underground storage tank under the Terminal Alternatives, capturing the majority of glycol. Surface flows when deicing operations are not occurring will be captured in a subsurface drainage system that ties to a new trench drain and drainline that will also capture the flows on the commercial ramp. This storm water will flow to the north and be directed to a drainage feature that will be installed just south of where the existing terminal building sits. This drainage feature will need to meet the FAA wildlife Advisory Circular to not create a wildlife hazard.

This drainage feature will slow the storm water runoff flows down and provide a place for any sediment to settle. Then, the storm water will be directed to a drainage swale along the airport frontage road that will carry the runoff toward Owl Creek. Because the majority of the glycol used for deicing periods is collected in the tank, any residual glycol that may get into the storm system would be very minimal. Therefore, the Terminal Alternatives would not have any significant impacts on water quality and no impacts to wetlands.

4.14.2.3 Runway Alternative

Ground water/Surface Water

The Runway Alternative would slightly change the drainage patterns, but would not substantially change or impact the existing drainage system or the aquifers on or near ASE property. Since this project would not result in an increase in aircraft operations, it would not affect the concentration of this runoff.

The Runway Alternative would require a change to the NPDES Permit for ASE due to a change in the amount of storm water runoff, a construction dewatering permit if any construction dewatering were to take place, and an update to the SWMP for ASE.

Based on the thresholds of significance outlined in *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures*, the Runway Alternative would not exceed water quality standards, contaminate public drinking water, or contaminate an aquifer used for public water.

Wetlands and Waters of the US

The Runway Alternative would not impact wetland areas, but 1,670 feet of Owl Creek, a non-wetland water feature also known as a water of the US, would be disturbed by piping (**Figure 4.14-3**). Sections of Owl Creek on either side of the runway within the study area would be impacted. These sections of Owl Creek are within a 100-year floodplain. Since Owl Creek is a water of the US, no wetlands would be impacted as a result of the Runway Alternative.

At the time of the field study in 2015 and again during a site visit in 2016, the sections of Owl Creek located on either side of the runway had been disturbed and maintained to prevent wildlife hazards. On the west side of the runway, vegetation along Owl Creek is mowed giving the creek the appearance of a meandering ditch. On the east side of the runway within the study area, riparian plants, which include herbaceous species and cottonwoods, have been mowed and the trees trimmed. The surface water of the creek flows well below its floodplain.

Piping of Owl Creek will result in the loss of open water and disturb vegetation, the consequences of which were described in **Section 4.2.5**. Since the piping of Owl Creek will reduce sedimentation and wildlife hazards, this is viewed as beneficial.

However, piping Owl Creek will also reduce access to 1,670 LF of Owl Creek. Organisms that cannot access the piped section of the creek are likely to migrate to habitat that is of better quality and adjacent to the piped section (see Section 4.2 Biological Resources). Open channel sections outside of ASE fenced area will be available to migrating organisms.

The piping of Owl Creek would also protect the area within the fence line from stormwater runoff from the runway and taxiway. Relocating and widening the runway would alter the drainage and stormwater runoff slightly, but the design and permitting would account for this relocation and added impervious surface.

As required by the CWA, the impact to Owl Creek will require a permit from the USACE and mitigation for this impact, as discussed in the mitigation section later in this chapter. Minimization as it relates to alternatives analysis is also included in **Chapter 3, Alternatives.**

Impacts to Owl Creek warrant an Individual Permit, per discussions with USACE, due to the length of stream that will be placed in a culvert. However, there are potential stream habitat restoration projects in the area that would, through a stream functional assessment process, serve to mitigate the loss of the less than ideal quality of Owl Creek that is within ASE property. Further, the selection of the Runway Alternative via the Air Service Study, as described in **Chapter 3, Alternatives**, met the FAA standards at a minimum while avoiding all impacts to wetlands and minimizing impacts to Owl Creek. Two steps of avoidance and minimization are important to the process of permitting such a project, and having available mitigation sites and a process that allows assessment of the quality of Owl Creek speaks to the ability to issue an individual permit.

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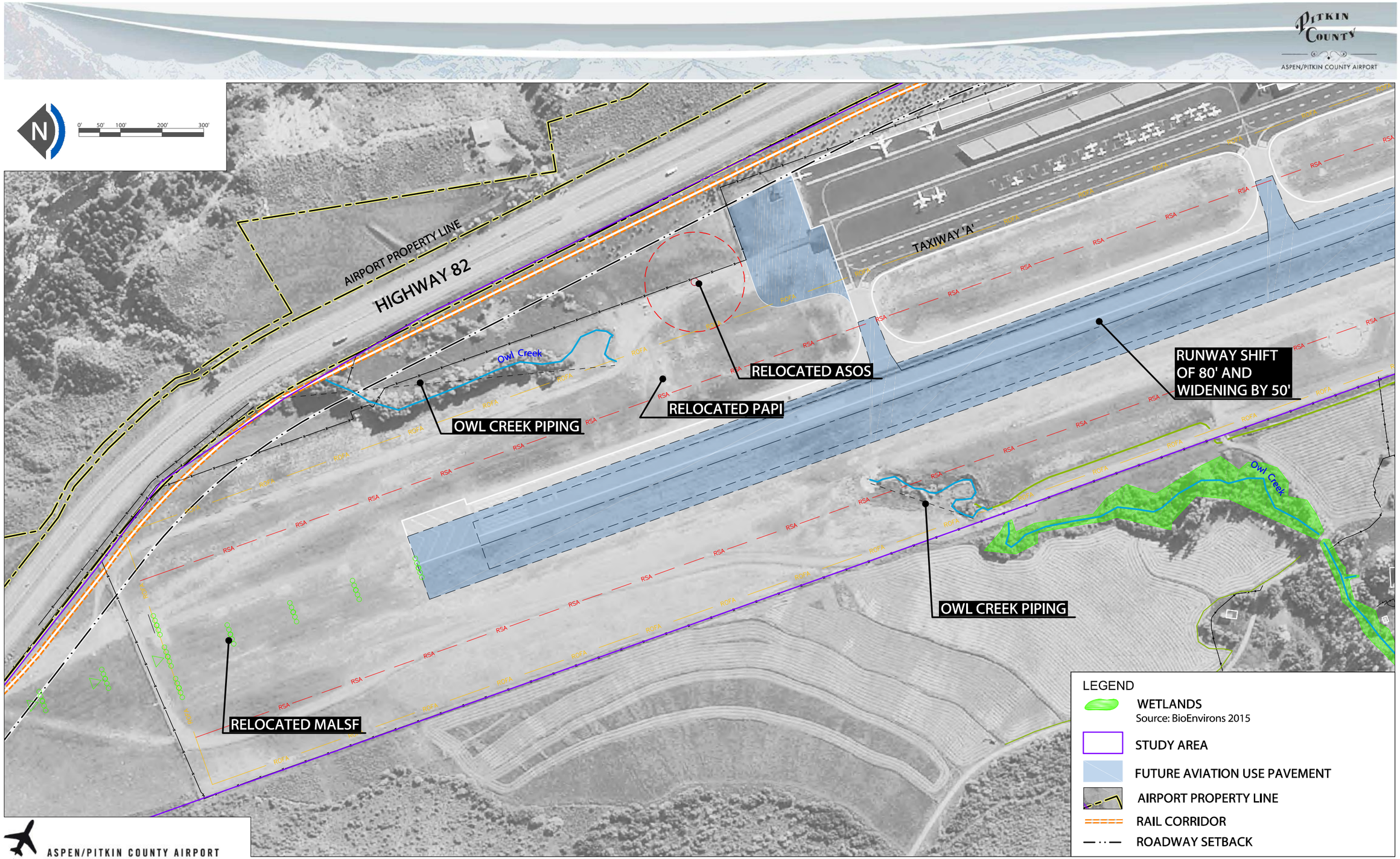

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Figure 4.14-3 **Owl Creek Piping Detail**

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Floodplains

The Runway Alternative would result in direct impacts to the existing Owl Creek floodplains with the piping of Owl Creek. The Runway Alternative would be designed to maintain the conveyance and storage capacity of the existing FEMA floodplain. Coordination with FEMA will be maintained throughout the project to avoid and minimize impacts to floodplains.

Impacts to designated floodplains were examined based on the thresholds of significance for floodplains. The threshold of significance for floodplains is discussed in *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures,* which states that floodplain impacts would be significant pursuant to the NEPA if it results in notable adverse impacts on natural and beneficial floodplain values.

Despite the proposed floodplain modifications within the project study area, the existing drainage patterns downstream of ASE (i.e., Roaring Fork) will not be changed as a result of the proposed project. Because of this, all floodplain related modifications would be limited to within the defined project study area. However, these changes would not result in significant impacts to the floodplain because they would not result in (1) a considerable probability of loss of human life, (2) likely future damage associated with the encroachment that could be substantial in cost or extent, or (3) a notable adverse impact on the floodplain's natural and beneficial floodplain values.

4.14.3 Minimization and Mitigation

Waters of the US and wetlands are regulated by the USACE with oversight from the US EPA. For a project to be permitted, it must be demonstrated that, to the extent practicable, steps must be taken to avoid impacts, minimize impacts, and provide compensation for unavoidable impacts.

While no impacts to wetlands will occur as a result of the No Action, Terminal Expansion Alternatives, or Runway Alternative, the piping of Owl Creek warrants permitting through Section 404 of the CWA. When water features are piped, fill materials are typically placed under the pipe within the original creek bed, and this action constitutes a discharge regulated under Section 404. ASE has taken steps to avoid impacts to wetlands and waters of the US by selecting alternatives that do not impact the three wetlands identified in the survey area. The minimization effort relative to the alternatives analysis is included in Chapter 3, Alternatives. ASE further minimized impacts to waters of the US by selecting the Terminal Alternatives and Runway Alternative with the smallest impacts to Owl Creek. Only sections of Owl Creek within the fenceline that pose wildlife hazards to ASE and that were previously managed to reduce vegetative cover will be piped.

The discharge of fill material to Owl Creek warrants some type of mitigation. Mitigation will be finalized during the permitting efforts, but could include improvements to a degraded stream system in ASE's vicinity. Improvements can include streambank stabilization, improvement of riparian habitat, and instream improvements among other means of stream restoration. Several stream systems are within the vicinity of ASE and include, but are not limited, to the Roaring Fork River, Brush Creek, Maroon Creek, and Hunter Creek.

Additionally, to avoid adverse impacts to the floodplain, the Runway Alternative would require design of the piping of Owl Creek to maintain flood storage capacity on ASE property.

Best Management Practices (BMP) would be employed in the implementation of the Terminal Alternatives and the Runway Alternative to avoid impacts to water resources and to meet the federal, state, and local stormwater requirements. All necessary permits and approvals for the project would be obtained before construction activities take place. BMPs could include:

- Erosion and sediment control, such as surface protection for slopes, sediment capture, and runoff management;
- Installation of silt curtains and berms, to the extent possible, to isolate the work area during fill placement to prevent temporary impacts on water quality in Owl Creek;
- Conducting all work in accordance with permit stipulations (i.e., USACE 404 Permit, Title 41, and State Consistency Determination);
- Fueling or servicing vehicles or equipment at least 100 feet from any wetlands or waters of the US with the exception of low-mobility equipment; and
- Scheduling in-water construction to avoid times when most vulnerable species are most likely be present.

Mitigation for water quality impacts could include flow control and treatment BMPs in accordance with federal, state, and local regulations. Flow control BMPs are methods to reduce or prevent development-related increases in stormwater runoff at or near the source of the increases. Source control and runoff treatment BMPs are methods of reducing pollutants from entering the stormwater runoff and treating pollutant runoff as part of the storm drainage system. For example, stormwater pollution and erosion would be prevented by implementing measures including sedimentation basins, silt traps, catch basins, and drip pans and following the NPDES permit. The contractors would implement BMPs following FAA Advisory Circular 150/5370-10A, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*, to avoid and minimize risk of impact to any surface water resources adjacent to the proposed project area during the construction phase.

4.15 Traffic Study

Congestion levels generally worsen when vehicle volumes exceed roadway capacity or in the event of an incident. In addition, construction has the potential to increase congestion and reduce capacity. The traffic study records the analysis of potential impacts each of the proposed projects relative to traffic on and near ASE (signal at Baltic Avenue and highway CO-82).

4.15.1 Affected Environment

The transportation network in the vicinity of ASE consists of arterial highway CO-82, Owl Creek Road, and ASE access roads. Highway CO-82 runs north/south and is the primary access to both ASE and the City of Aspen. Owl Creek Road provides access west of ASE to Snowmass Ski resort. The intersections in the vicinity of ASE consist of a signalized intersection at Baltic Avenue and CO-82 and a non-signalized intersection at Service Center Road and CO-82. In addition to the two intersections, a slip-lane ramp connects W. Airport Road to CO-82 southbound towards Aspen. Level of service (LOS) is related to the delay per vehicle in terms of number of seconds, as seen in the table from the Highway Capacity Manual, (**Table 4.15-1**). As of 2015, the intersection at Baltic Avenue and CO-82 operates at a LOS D with an overall delay of 40.7 seconds per vehicle. LOS D is considered the existing condition.

Table 4.15-1 Level of Service

Level of Service	Control Delay Seconds/vehicle
A	≤10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Source: *Highway Capacity Manual*, 2010.

4.15.2 Environmental Consequences

The following sections discuss the analysis for the No Action and Development Alternatives for the terminal and runway improvements. The primary metric used to assess traffic conditions surrounding ASE was the performance of the signalized intersection at Baltic Avenue and CO-82. As stated above, as of 2015, the intersection operates at a LOS D with an overall delay of 40.7 seconds per vehicle.

The traffic analysis relied on traffic volume and traffic forecast data for CO-82 from the CDOT and traffic counts provided by Pitkin County. The analysis also used ground vehicle movement data calculated from a curbfront user survey and forecasted enplanements (see **Appendix 7**). Data entered into Highway Capacity Software, a traffic simulation program, centralized information to evaluate the performance of the Baltic Avenue and CO-82 intersection based on standards set by the Highway Capacity Manual (HCM).

Traffic analysis was performed under the assumption that no changes would be made to the overall layout of the transportation network beyond minor geometric reconfigurations of intersections and airport roadways to accommodate future traffic and the relocation of the terminal and associated roadways. It was also assumed that trips originating at ASE and turning onto CO-82 southbound would be split 50/50 between the existing intersection at Baltic Avenue and the slip-lane on-ramp. The results of a study done by Jviation as part of the Master Plan indicated 54 percent of the traffic was assumed to head up-valley to Aspen and the rest of the traffic heads down-valley.

To determine potential impacts from terminal and runway improvements, passenger forecasts (developed as part of a 2015 ALP Update) were used to project ground vehicle movements that can be attributed to ASE users (see **Appendix 7 - Traffic**). These ground vehicle movements each represent a roundtrip vehicle movement, which is a trip to ASE to drop-off the passenger and a trip from ASE back to the vehicle's origin.

Ground vehicle movements were developed relative to the estimated number of annual enplanements for each project and the No Action. These ground movements were evaluated for annual, peak month, and peak hour vehicle trips. **Table 4.15-2** below presents the ground vehicle movements that can be attributed to ASE users for the various passenger enplanement levels.

Table 4.15-2 Ground Vehicle Movements

Vehicle Type		2016 Actual	2023 No Action and With Project Terminal	2028 No Action Runway (Out Year Terminal)	2028 Runway With Project – First Year of Impl.	2033 No Action Out Year	2033 Runway With Project Out Year
Projected Passenger Enplanements		233,541	263,153	258,860	296,140	281,036	333,259
Total Annual Vehicles		177,965	200,531	197,259	225,668	214,158	253,954
Peak Month	15.7%	27,941	31,483	30,970	35,430	33,623	39,871
Average Day	1/30	931	1,049	1,032	1,181	1,121	1,3299
Peak Hour	15.9%	148	167	164	188	178	211

Note: Vehicle movements each represent a roundtrip movement, which is a trip to the airport to drop off a passenger and a trip from the airport back to the vehicle's origin.
Sources: Projected Passenger Enplanements 2015 ALP Update – Forecast Chapter, Jviation 2015, Mead & Hunt Peak Month and Peak Hour percentages – 2008 Airport Master Plan Update. Vehicle Movements, Mead & Hunt 2016.

Table 4.15-3 below presents the forecast LOS and average intersection delay for each of the alternatives. An impact to surface transportation was identified if traffic conditions (LOS) for the intersection were degraded substantially relative to existing conditions.

Table 4.15-3 Intersection Performance by Year

	2016 Actual	2023 No Action and With Project Terminal	2028 No Action Runway (Out Year Terminal)	2028 Runway With Project – First Year of Impl.	2033 No Action Out Year	2033 Runway With Project Out Year
Forecast LOS	D	D	D	D	D	D
Intersection Delay (seconds/vehicle)	40.7	45.8	49.1	50.1	52.4	61.1
Change		+0 seconds		+1 seconds		+8.7 seconds

Source: Mead & Hunt, 2016.

4.15.2.1 No Action Alternative

The No Action Alternative would not result in a substantial change to the traffic conditions. As previously shown in **Table 4.15-2**, vehicle movements would increase in the future due to the anticipated projected growth at ASE that would occur with or without the proposed projects. As described in **Chapter 2**, while No Action relative to the runway would not change the overall number of operations expected at ASE, the total number of enplanements would reduce compared to Runway Alternative. The No Action would represent a reduction in enplanements compared to Runway Alternative due to the reduction in commercial jet service, as the CRJ-700s are slowly phased out of the commercial fleet over time. As the CRJ-700s are phased out, they would be replaced with turboprops and other GA jets that fit within the wingspan restriction, reducing the overall enplanements compared to Runway Alternative in both the 2028 and 2033 scenarios.

As seen in **Table 4.15-3**, the intersection at Baltic Avenue and CO-82 would continue to operate at LOS D in 2028 and 2033. Therefore, the No Action Alternative would have no significant effect on traffic conditions.

4.15.2.2 Terminal Alternatives 1 and 2:

As noted above, a slight increase in enplanements is expected as part of normal growth which would be the same for both the No Action and Terminal Alternatives 1 and 2. The 2028 No Action is considered to be the out year for the Terminal Alternatives 1 and 2 With Project.

The potential impacts of the No Action and the Development Terminal Alternatives would be the same since the proposed terminal improvements would not have any impact on the number of enplanements forecast at ASE. Similar to the No Action Alternative, vehicle movements would increase in the future due to more enplanements; however, these increases are expected to occur whether or not the terminal improvements are implemented. The intersection at Baltic Avenue and CO-82 would continue to operate at LOS D.

Minor modifications to the surface traffic routing at ASE could occur with implementation of the Terminal Alternatives, but the airport roads would tie into existing intersections and would not substantially alter the traffic accessing ASE or CO-82. There would be short-term impacts to traffic relative to construction activities. Construction activities are generally temporary in nature and could include short-term impacts. Implementing either Terminal Alternative would result in temporary changes to surface transportation traffic patterns, specifically airport access roads during construction. Because parking would be undersized, it is anticipated that either more people will use rideshare, public transit, shuttles or taxis to the Airport, which is a goal of the community. This should not substantially impact traffic (though it may have a small reduction in trips), it could add to circling time if people who wish to park cannot find a spot.

Routes used for the transportation of materials or construction equipment on the surface roads to the Airport would be selected to minimize impacts to the local surface transportation network. Additionally, the contractor would use standard construction traffic techniques to maintain traffic during construction and follow the ASE Sustainable Construction Management Plan for ASE.

Overall, implementation of the Terminal Alternatives would not have a significant effect on surface transportation in either 2023 or in the out year of 2028.

4.15.2.3 Runway Alternative

The proposed Runway Alternative would have a higher number of enplanements compared to the No Action Alternative at ASE due to an expected reduction in seats in the No Action Alternative. Over time, while the total number of operations would stay the same, enplanements would be higher than the No Action due to the phasing out of commercial aircraft in the No Action scenario. These enplanements would represent additional trips compared to the No Action on the roadways and intersections on and surrounding ASE; however, these trips would represent the same number of trips as under the existing forecasts. The potential impacts of these additional trips are described below for the year of implementation (2028) and out year (2033).

Additionally, the Runway Alternative would result in a long-term relocation of Owl Creek Road. However, this relocation is within the existing CDOT right of way and would not result in any significant impacts from this relocation.

Construction activities are generally temporary in nature and could include short-term impacts. The Runway Alternative would result in temporary changes to the traffic patterns on Owl Creek Road during construction. However, these impacts would be temporary and not significant.

Routes used for the transportation of materials or construction equipment on the surface roads to the Airport would be selected to minimize impacts to the local surface transportation network. Additionally, the contractor would use standard construction traffic techniques to maintain traffic during construction and follow ASE's Sustainable Construction Management Plan.

Year of Implementation – 2028

In 2028, the Runway Alternative would result in an increase in enplanements compared to the No Action (which shows a reduction in enplanements due to loss of jet commercial service), and therefore, an increase in passenger trips over the No Action. These passenger trips are anticipated to result in an average 1,181 daily vehicle trips including 188 peak-hour trips.

With the runway project implementation scenario (2028) the Baltic Avenue and CO-82 intersection would continue to operate at an LOS D with an average delay of 50.1 seconds per vehicle. Because the LOS remains the same in both the No Action and With Project scenarios, the implementation of the runway improvements would not have a significant impact on the surrounding surface transportation network.

Out Year – 2033

In 2033, the Runway Alternative would result in an increase in enplanements compared to the No Action (which shows a reduction in enplanements due to loss of commercial jet service), and therefore, an increase in passenger vehicle trips compared to the No Action. These passenger trips are anticipated to result in an average 1,329 daily vehicle trips including 211 peak-hour trips.

With the runway project implementation scenario (2033), the Baltic Avenue and CO-82 intersection is forecast to operate at an LOS E with an average delay of 61.1 seconds per vehicle. An LOS E reflects an intersection that operates at capacity and is considered typical for an urban, crowded four-way intersection where major traffic movements conflict with turns. Although the LOS will decrease in relation to the No Action (2033) scenario, the intersection will still function. Therefore, it can be determined that the proposed runway improvements would not have a significant impact on the surrounding surface transportation network.

4.15.3 Minimization and Mitigation

Because the proposed actions would not result in a significant impact to surface transportation, no mitigation measures would be implemented. A long-term plan is ready to develop an additional intersection to the south of Baltic Avenue, which can be developed earlier than planned if the growth occurs outside the forecast assumptions within this study.

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4.16 Cumulative Impacts

CEQ's regulations for implementing NEPA define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR §1508.7). NEPA requires that cumulative effects be evaluated along with the direct and indirect effects of the Alternatives. The level of analysis and scope of cumulative effect assessment are typically commensurate with the potential impacts, resources affected, project scale, and other factors. As with direct and indirect effects, the No Action Alternative serves as the baseline against which to evaluate cumulative effects.

In this section, the past, present, and reasonably foreseeable projects are discussed. The focus of the cumulative impact analysis will be on those resources that are either directly or indirectly impacted by the proposed projects.

4.16.1 Affected Environment

4.16.1.1 Past, Present and Reasonably Foreseeable Projects

To adequately understand the potential environmental affects related to cumulative impacts, it is important to document the past, present, and reasonably foreseeable projects. For purposes of the proposed projects, the review of past projects follows the desk reference guidance, "Present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and alternative(s)." Present actions are those that are occurring in the same general time frame that could have cumulative impacts on elements such as traffic or noise. Reasonably foreseeable projects include actions that are not remote or speculative (generally meaning they are included in planning documents). In addition to the runway extension project, most of the past projects relate to traffic improvements on Highway 82, housing/affordable housing and alternative transportation (bike paths, transit linkages).

Past Projects

- ASE Runway Extension
- RFTA BRT System
- RFTA Bus Lane
- Park-N-Ride at Owl Creek and Highway 82
- Maroon Creek Bridge Replacement
- Highway 82 Expansion to 4-lane
- Airline Trail
- Buttermilk Connector Trail (constructed 2015)
- Burlingame Ranch Phase II
- Snowmass Base Village (40 percent built out)

Present Projects

- Grand Avenue Bridge Replacement – Completion Spring-2018
- RFTA Integrated Transportation Systems Plan (includes evaluation of the entrance to Aspen and potential recommendations for transit and other transportation system improvements and programs)

Reasonably Foreseeable Future Projects

- Brush Creek Transit Center and Intercept Lot (expansion – pavement, lighting etc. for 200 spaces)
- Town of Snowmass Village Base Village (PUD Amendment for remaining 60 percent under review by Town)

4.16.1.2 Resources and Actions Considered

Several resources categories would have no impact and therefore would have no potential for cumulative impacts. The categories that are excluded from further discussion are Coastal Resources, Farmlands, Historic Resources, Hazardous Materials, Land Use, and Visual Impacts. The other resource categories are considered in the section below.

4.16.2 Environmental Consequences

The cumulative effects analysis necessarily involves assumptions, uncertainties, and data sets that may be incomplete. When considering the significance of the cumulative effects, the same thresholds of significance used in identifying significant project-related effects are used, and such thresholds of significance are defined in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*. Where FAA Order 1050.1F has not established significance thresholds, it can be difficult to determine levels beyond which cumulative effects significantly degrade a resource. Local, state, and federal standards for some resources would still apply, and other goals or objectives from land use management plans and other guiding programs may also be helpful. The analyses contained in this EA identify any defined thresholds. Where numerical thresholds are not available or cannot be determined, impacts are typically described in relative terms of magnitude.

Air Quality: Because the proposed projects would generate emissions during construction as well as ongoing operational emissions, consideration was given to air quality implications for all past, present, and future actions. The pollutant of concern is PM_{10} because Pitkin County is in a maintenance area for this pollutant; therefore, cumulative impacts are considered for this pollutant. The proposed terminal and airfield projects are expected to result in short-term construction emissions as well as emissions in the out year, both of which are considered de minimis for PM_{10}.

These emissions are substantially lower than the de minimis threshold (see **Table 4.1-10** – less than 1 ton PM_{10} relative to the threshold of 100 tons per year). Other past, present, and reasonably foreseeable projects would add PM_{10} emissions, but if considered in combination, would collectively be small and primarily temporary related to construction. Because the additional projects are generally temporary in nature and small, cumulative air quality impacts are not expected to be significant.

Climate: The cumulative impact of the proposed terminal and airfield projects on the global climate when added to other past, present, and reasonably foreseeable future actions is not currently scientifically predictable. Aviation has been calculated to contribute approximately 3% of global carbon dioxide (CO_2) emissions; this contribution may grow to 5% by 2050. Actions are underway within the U.S. and by other nations to reduce aviation's contribution through such measures as new aircraft technologies to reduce emissions and improve fuel efficiency, renewable alternative fuels with lower carbon footprints, more efficient air traffic management, market-based measures and environmental regulations including an aircraft CO2 standard. The U.S. has ambitious goals to achieve carbon-neutral growth for aviation by 2020 compared to a 2005 baseline, and to gain absolute reductions in greenhouse gas emissions by 2050.

At present, there are no calculations of the extent to which measures individually or cumulatively may affect aviation's CO2 emissions. Moreover, there are large uncertainties regarding aviation's impact on climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., NASA, NOAA, EPA, and DOE), has developed the Aviation Climate Change Research Initiative (ACCRI) to advance scientific understanding of regional and global climate impacts of aircraft emissions, with quantified uncertainties for current and projected aviation scenarios under changing atmospheric conditions.

Section 4(f): The Terminal Alternatives would have no impact on any Section 4(f) resources. While the Runway Alternative would require the relocation of the Owl Creek Bike Path, this relocation was determined to not adversely affect the use of the bike path. Additionally, no 4(f) resources would be significantly affected by noise. Therefore, there would be no cumulative impacts to Section 4(f) resources as a result of either Proposed Action.

Socioeconomic: There would be no significant impacts under the No Action or Terminal Alternatives 1 and 2 relative to socioeconomic impacts, children's health and safety or environmental justice. Therefore, there would be no potential for cumulative impacts as a result of the Terminal Alternatives. The highest potential for large cumulative impacts is relative to the No Action Runway Alternative. Under the No Action for the Runway, with loss of commercial service, there would be a substantial impact on the economy of the Roaring Fork Valley. This is unusual in that in this case, the No Action would provide the largest socioeconomic impact. This impact would likely create induced impacts relative to the economy within the valley. Most of the other past, present and reasonably foreseeable projects in the area (such as the enhancements to roadways, bridges and housing) would provide benefits to the economy. Therefore, the No Action, while it would provide large negative socioeconomic impact in the area would not have cumulative negative impacts relative to other project as the other projects would generally benefit the economy.

Water Resources: There are no impacts to wetlands under the Terminal Alternatives or the Runway Alternative; however, 1,670 LF of Owl Creek would be piped. The projects would occur in areas where the open channel, and riparian and floodplain area of Owl Creek have been maintained to improve safety conditions.

Based on the Air Service Study, the Runway Alternative meets the minimum FAA safety standards while reducing impacts to Owl Creek, its riparian area, and wetlands. The proposed reconfiguration purpose and need entails widening the runway and increasing the distance between the taxiway and the runway, and is not directed towards increasing capacity; therefore, cumulative impacts to water resources such as increased development near the ASE are unlikely to occur in the present and reasonable future. None of the other past or present projects listed above have had a significant impact on Owl Creek. Additionally, none of the reasonably foreseeable projects listed above would impact Owl Creek. Therefore, there are no known cumulative impacts on Owl Creek as a result of past, present or reasonably foreseeable projects.

Based on the analysis described above, there would be no significant cumulative impacts as a result of the proposed actions.

Chapter 5 Public Involvement

Public involvement is a vital component of the NEPA process. The EA started with scoping in 2015 that included the development of a Community Input Committee (CIC). CIC and public meetings occurred on February 23, 2015; April 16, 2015; September 10, 2015; October 22, 2015; February 16/17, 2016; September 29, 2016 and January 19, 2017. Five notices for each public meeting were placed in the local papers, online, via radio on the local station, as well as through social media and press releases. Comments were accepted at all these meetings. Presentations to the BOCC were made throughout the project and these meetings were open to the public. Pitkin Connect Online Public Town Hall was utilized throughout the process to gather input on various topics. The Draft EA was released for agency and public review on August 23, 2017. Comments were accepted through October 3, 2017. To facilitate comments, public hearings were held on September 25 and 26, 2017. 30 comments from the public were received during the public comment period. Outreach materials, comments, notices of the meetings, and responses to comments are contained within Appendix 11 of the Final Environmental Assessment (FEA).

Chapter 6 Preparers

The following people were primarily responsible for the preparation of this Environmental Assessment

Mead & Hunt, Inc.
Kate Andrus, AICP
Project Management, Environmental Analysis, Alternatives Analysis, Document Preparation and Review Public Involvement Coordination

Christopher Ball
Traffic Study

James Bullard
Document Preparation and Review

Ryk Dunkelberg, Esq.
Principal, Public Involvement Coordination

Heather Flynn
Environmental Analysis, Document Preparation and Review

Ryan Hayes, C.M.
Noise Analysis, Document Review

Lauren Rasmussen
Document Preparation and Review

Brad Rolf, P.E.
Document Review, Environmental Analysis

Tim Smith
Historic Preservation

Jennifer Wolchansky, AICP
Document Review, Environmental Analysis

Gensler, Inc.
Brent Mather
Design Director - Architecture

Adam Ambro
Senior Associate - Architecture

Jonas Philipsen
Design Director - Architecture

Charles Cunniffe Architects, Inc.
Charles Cunniffe
Architect

Scott Smith
Architect

TG Malloy Consulting, Inc.
Tim Malloy
Socioeconomic Analysis, Land Use, Local Coordination

Jviation, Inc.
Paul Fiore
Design

Hilary Fletcher
Community and Government Coordination

J.D. Ingram, P.E.
Principal, Engineering and Design

BlueGreen
Sheri Sanzone, Principal
Landscape Architecture

Samuel Baucum
Landscape Architecture

Synergy Consultants
Mary Vigilante, President
Air Quality, Climate, NEPA Analysis

BridgeNet International
Paul Dunholter, President
Noise Study

Cindy Gibbs
Noise Study

Leibowitz-Horton
Steve Horton, Principal
Financial Analysis

Kaplan Kirsch & Rockwell
Catherine Van Hueven, Esq.
Legal Support

Peter Kirsch, Esq.
Legal Support

Bioenvirons
Tim Lapello
Water Resources, Biological Resources

Appendix 1
Biological Survey Photographs

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
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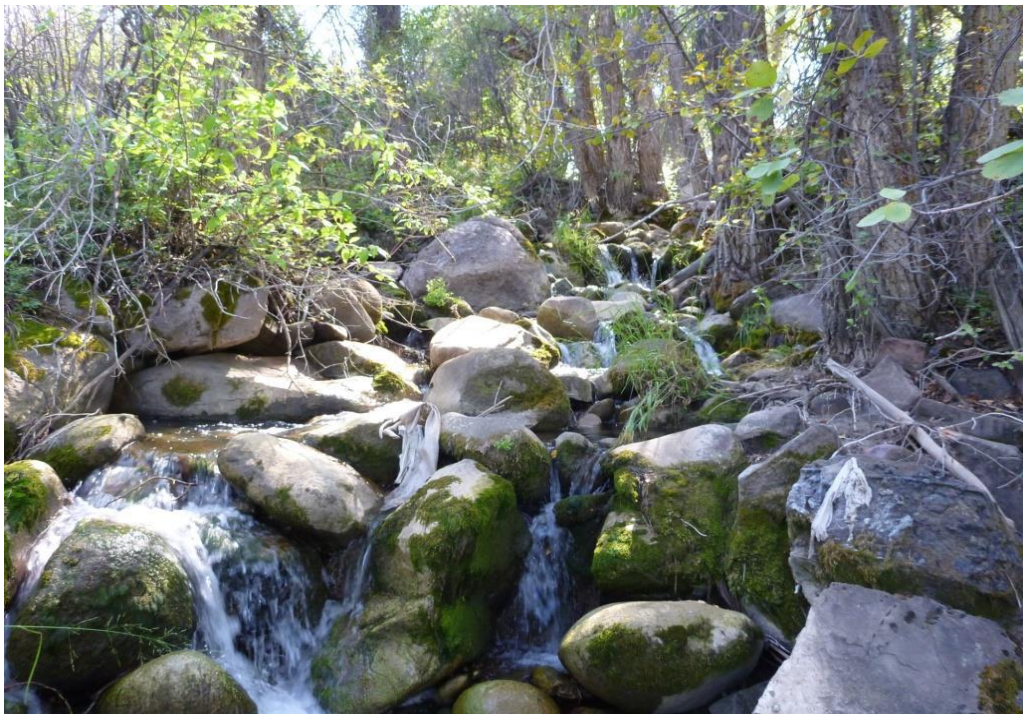
Biological Resources Photographs



Photograph 1:
Photograph taken Sept 8, 2015 of a reach of Owl Creek outside of the project area. Photograph exhibits the step drop of Owl Creek as it descends to the Roaring Fork River to the northeast of the airport (Pitkin County, Co.)

Photograph 2:
Photograph taken looking over typical Seeded/graded plant community that exists in the western, eastern and far southern portion of the project area (Pitkin County, Co.)

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Photograph 3:
Photograph taken looking south at Seeded/graded plant community in the southern portion of project area (Pitkin County, Co.)

Photograph 4:
Photograph taken Sept 8, 2015 looking north at a portion of the irrigated and mowed hay meadow that exists in the northwest section of the project area adjacent to the Owl Creek riparian area (Pitkin County, Co.)

Photograph 5. Photograph taken Sept 8, 2015 looking north over a small seeded grassland that is adjacent to Owl Creek Road in the southern portion of the project area (Pitkin County, Co.)

Photograph 6. Photograph taken Sept 8, 2015 looking east at an example of the sagebrush community that exists within the project area. This area is located just west of the gravel pad in the western portion of the project area (Pitkin County, Co.)

Photograph 7. Photograph taken Sept 8, 2015 looking northeast at a portion of the riparian area that runs along Owl Creek to the west of the runway (Pitkin County, Co.)

Photograph 8. Photograph taken Sept 8, 2015 looking east at the wetland area that is supported by the western reach of Owl Creek (Pitkin County, Co.).

Photograph 9. Photograph taken Sept 8, 2015 looking north down a reach of Owl Creek in the eastern section of the project area (Pitkin County, Co.)

Photograph 10. Photograph taken Sept 8, 2015 looking west at Tributary 1 in the northwestern portion of the project area (Pitkin County, Co.)

Photograph 11. Photograph taken Sept 8, 2015 looking north at the location of Tributary 2 (Pitkin County, Co.)

Photograph 12. Photograph taken looking east at the created wetlands that are situated in the southern section of the project area near the bike path (Pitkin County, Co.)

Photograph 13. Photograph taken Sept 8, 2015 looking north at the Sardy homestead in the Northwest section of the project area

Photograph 14. Photograph taken looking east at the detention pond that is located at the southern end of the runway (Pitkin County, Co.)

Appendix 2
USFWS Coordination

ASPEN/PITKIN COUNTY AIRPORT
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ASPEN/PITKIN COUNTY AIRPORT
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BIO - ENVIRONS
114 N Boulevard, Ste 206
Gunnison, Colorado 81230
970.641.8749 P
tim.bioenvirons@gmail.com

U.S. FISH AND WILDLIFE SERVICE
☒ NO CONCERNS
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☐ NO COMMENT
Ann Tim 12/15/15
WESTERN COLORADO SUPERVISOR (DATE)
TAILS: 06E24100-2016-TA-0070

December 3, 2015

FWS
Attn. Ann Timberman
445 W Gunnison Ave, Suite 240
Grand Junction, CO 81501

Dear Ms. Timberman:

We are requesting information on endangered, threatened, or candidate species in the vicinity of a proposed runway and taxiway improvement project at the Aspen/Pitkin County Airport located in Section 3 of Township 10S, Range 85W, and Sections 27 and 34 of Township 9S, Range 84W 6th P.M., (39° 13' 24.8" N, 106° 52' 1.5" W). The Aspen/Pitkin County Airport is requesting this information for preparation of their Environmental Assessment documents.

By way of past correspondence, in 2009 we requested review and confirmation regarding endangered, threatened, or candidate species in the vicinity of a proposed runway extension at the Aspen/Pitkin County Airport in the same vicinity as the current project. We received a letter dated August 6, 2009 from FWS concurring that no adverse effect on identified species would occur. That letter is attached.

We recently visited the FWS ECOS critical habitat website and found that no critical habitat was identified in Pitkin County. However, we would like to confirm that no further consultation with the FWS is required at this time.

We have also conducted field investigations associated at the project site in September of 2015 and did not observe any threatened, endangered or candidate species or critical habitat within or in the vicinity of the project area.

We are also requesting confirmation of our findings based on current FWS protocol regarding this investigation.

We appreciate your timely response to this request. If you have any additional comments at this time, we would very much appreciate your input. Thank you.

Sincerely,

Tim Lapello
Bio-Environs

RECEIVED
DEC 09 2015
Ecological Services
Grand Junction, CO

U.S. FISH AND WILDLIFE SERVICE
☒ CONCUR NO EFFECT
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☐ NO COMMENT
Patricia S. Gelatt 8/6/09
WESTERN COLORADO SUPERVISOR (DATE)

Bio-Environs
114 N Boulevard Ste. 206
Gunnison, Co. 81230
970.641.8749
bioenvirons@gunnison.com

RECEIVED
AUG 06 2009
Ecological Services
Grand Junction, CO

August 3, 2009

USFWS
Attn. Patricia Gelatt
764 Horizon Drive, Building B
Grand Junction, CO 81506-3946

Dear Ms. Gelatt:
We are requesting information on endangered, threatened, or candidate species in the vicinity of a proposed runway extension at the Aspen/Pitkin County Airport located in Section 3 of Township 10S, Range 85W, and Sections 27 and 34 of Township 9S, Range 84W 6th P.M., (39° 13' 24.8" N, 106° 52' 1.5" W). The Aspen/Pitkin County Airport is requesting this information for preparation of their Environmental Assessment documents.

We originally requested this information with a letter in April, 2008. Based on a phone conversation on October 2, 2008 the USFWS directed us to visit the USFWS ECOS critical habitat website. The USFWS indicated that if critical habitat was identified within the project area we were directed to proceed with further consultation. Based on information provided by the website, no critical habitat was identified in Pitkin County and further consultation with the USFWS was not required at that time.

We have also conducted field investigations at the project site in July of 2008 and did not observe any threatened, endangered or candidate species or critical habitat within or in the vicinity of the project area.

Based on several phone conversations and guidance provided by Mr. Terry Ireland of the USFWS Grand Junction, Colorado office, we have also conducted further research through the review of a re-evaluation titled *Wildlife Resources and Threatened and Endangered Species-Technical Report, State HWY 82/ Entrance to Aspen, Environmental Reevaluation.* This re-evaluation of wildlife resources was completed in February 20, 2007 in association with a CDOT project to expand State HWY 82 in the Aspen/Pitkin County Airport area. Portions of the highway expansion are adjacent to the Aspen/Pitkin County Airport, and therefore include similar habitat and associated plant communities that are common to the State Hwy 82 corridor. The CDOT report concludes that there will be no impacts to threatened and endangered or candidate species associated with the Hwy 82 expansion.

We have also consulted via a phone conversation with Mr. Phil Nyland, a Wildlife Biologist with the White River National Forest Service, regarding any effects to the Canada lynx in this area. Mr. Nyland requested that we refer to the aforementioned CDOT report and review the results documented in the report. In this report Mr. Nyland

states that he does not believe "that the work within the State Highway 82 corridor would present (sic) affect the Canada lynx or its habitat".

Based on these findings, we are requesting your concurrence that there will be no impacts to federally Threatened, Endangered or Candidate species associated with the proposed runway extension at the Aspen/Pitkin County Airport.

We appreciate your timely response to this request. If you have any additional comments at this time, we would very much appreciate your input. Thank you.

Sincerely,

Tim Lapello
Bio-Environs

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Denver Airports District Office
26805 East 68th Avenue, Suite 224
Denver, CO 80249-6361

August 2, 2017

Ms. Ann Timberman
US Fish and Wildlife Service
Western Colorado Ecological Service Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711

Dear Ms. Timberman:

The Federal Aviation Administration (FAA) would like to request informal consultation under the Endangered Species Act for the proposed improvement projects at the Aspen/Pitkin County Airport (ASE) in the City of Aspen, Pitkin County, Colorado.

Pitkin County, as owner and operator of ASE, is proposing to reconfigure Runway 15/33 and improve the terminal building (Attachment A):

- Runway 15/33 Reconfiguration
  - Shift the runway 80 feet to the west;
  - Widen the runway from 100 feet to 150 feet;
  - Realign the perimeter road, Owl Creek Road, and Owl Creek Bike Path;
  - Relocate navigational aids (NAVAIDs) and runway/taxiway lighting;
  - Rescind Pitkin County's wingspan and aircraft weight restriction policy;
  - Piping of Owl Creek within ASE property; and
  - Amending flight procedures to accommodate shift in runway location.
- Terminal Improvements
  - Construction of replacement terminal and associated parking;
  - Re-configure the terminal roadway and recirculation roadway;
  - Integrate the new terminal with public transit;
  - Relocate ancillary facilities, such as rental car facilities;
  - Demolition of existing terminal;
  - Expanding the commercial aircraft apron; and
  - Construction of a noise barrier along the general aviation apron.

The following species could be found in the project area: Canada Lynx (Lynx canadensis); North American Wolverine (Gulo gulo luscus); Mexican Spotted Owl (Strix occidentalis lucida); Yellow-billed Cuckoo (Coccyzus americanus); Bonytail Chub (Gila elegans); Colorado Pikeminnow (Ptychocheilus lucuis); Greenback Cutthroat Trout (Oncorhynchus clarki stomias); Humpback Chub (Gila cypha); Razorback Sucker (Xyrauchen texanus); and the Ute Ladies'-tresses (Spiranthes diluvialis). However, a field survey conducted in September 2015 confirmed that none of these species occur in the project area and confirmed the absence of suitable habitat.

The FAA has therefore determined that the project will have No Effect on endangered or threatened species. The FAA respectfully requests the US Fish and Wildlife Service to provide written concurrence with our effect determinations. If you have any comments, questions, or concerns regarding the analyses and conclusions used to determine the potential effects of the proposed project on ESA resources, or have any questions regarding the project, please do not hesitate to contact me.

Sincerely,

Kandice Krull
Environmental Protection Specialist
Kandice.krull@faa.gov
303-342-1261

Enclosures

Appendix A

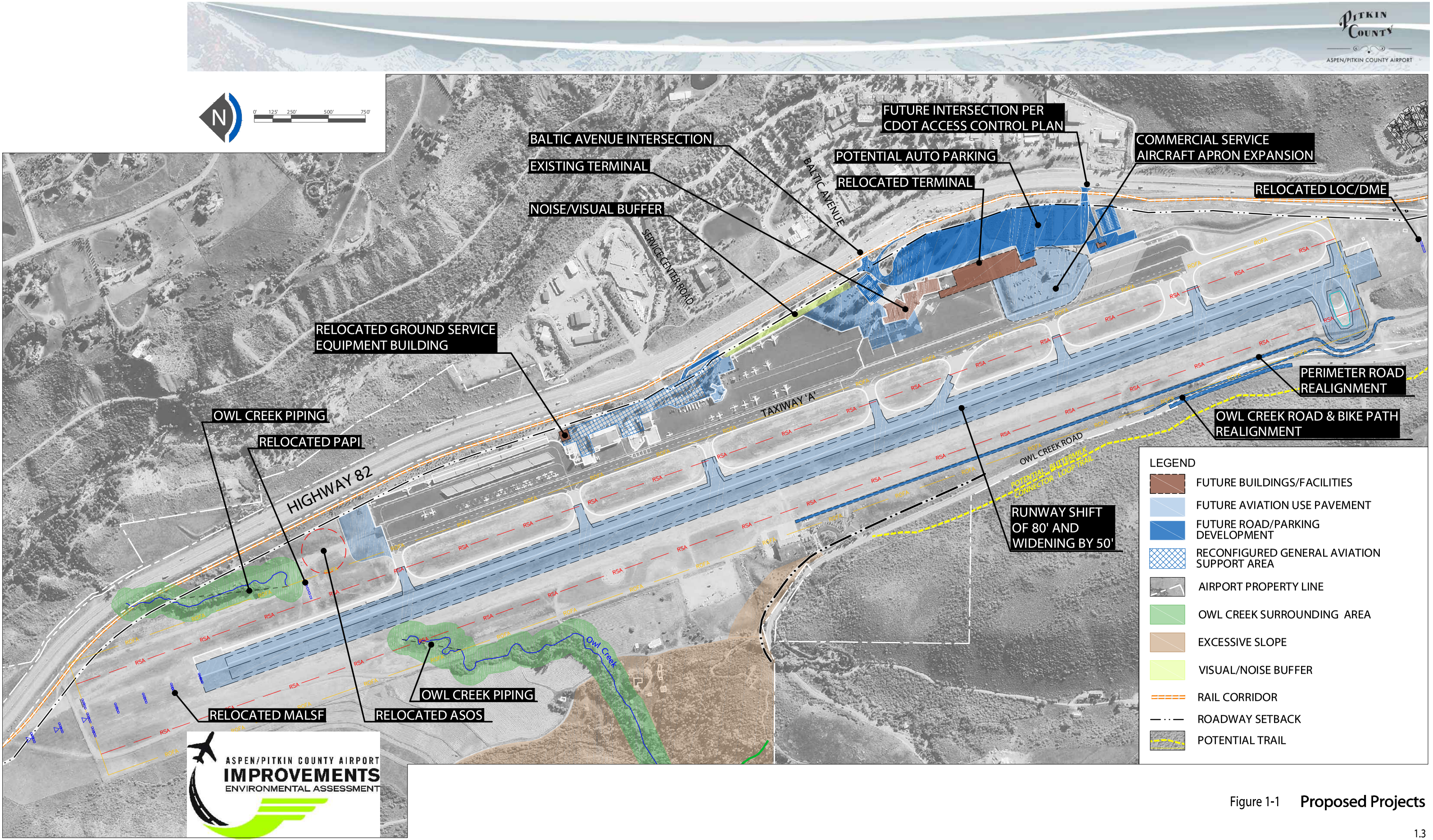


Figure 1-1 **Proposed Projects**

Appendix B

BIO - ENVIRONS
114 N Boulevard, Ste 206
Gunnison, Colorado 81230
970.641.8749 P
tim.bioenvirons@gmail.com

U.S. FISH AND WILDLIFE SERVICE
☒ NO CONCERNS
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☐ NO COMMENT
Dan Tah 12/15/15
WESTERN COLORADO SUPERVISOR (DATE)
TAILS: 06E24100-2016-TA-0070

December 3, 2015

FWS
Attn. Ann Timberman
445 W Gunnison Ave, Suite 240
Grand Junction, CO 81501

Dear Ms. Timberman:

We are requesting information on endangered, threatened, or candidate species in the vicinity of a proposed runway and taxiway improvement project at the Aspen/Pitkin County Airport located in Section 3 of Township 10S, Range 85W, and Sections 27 and 34 of Township 9S, Range 84W 6th P.M., (39° 13' 24.8" N, 106° 52' 1.5" W). The Aspen/Pitkin County Airport is requesting this information for preparation of their Environmental Assessment documents.

By way of past correspondence, in 2009 we requested review and confirmation regarding endangered, threatened, or candidate species in the vicinity of a proposed runway extension at the Aspen/Pitkin County Airport in the same vicinity as the current project. We received a letter dated August 6, 2009 from FWS concurring that no adverse effect on identified species would occur. That letter is attached.

We recently visited the FWS ECOS critical habitat website and found that no critical habitat was identified in Pitkin County. However, we would like to confirm that no further consultation with the FWS is required at this time.

We have also conducted field investigations associated at the project site in September of 2015 and did not observe any threatened, endangered or candidate species or critical habitat within or in the vicinity of the project area.

We are also requesting confirmation of our findings based on current FWS protocol regarding this investigation.

We appreciate your timely response to this request. If you have any additional comments at this time, we would very much appreciate your input. Thank you.

Sincerely,

Tim Lapello
Bio-Environs

RECEIVED
DEC 09 2015
Ecological Services
Grand Junction, CO

Appendix 3
Historic and Archaeological Appendix

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Mead & Hunt
1743 Wazee Street, Suite 400
Denver, Colorado 80202
303-825-8844
meadhunt.com

October 11, 2016

Mr. John Kinney
Aspen/Pitkin County Airport
0233 East Airport Road Suite A
Aspen, CO 81611

Subject: Cultural Resource Survey
Aspen/Pitkin County Airport Improvements Environmental Assessment
City of Aspen, Pitkin County, Colorado

Dear Mr. Kinney:

Mead & Hunt, Inc. (Mead & Hunt) was retained by the Aspen/Pitkin County Airport (Airport) to provide planning services for a proposed terminal redevelopment and runway shift project. This project is an outgrowth of the Airport Master Plan that was prepared and submitted to the Federal Aviation Administration in 2012 and then updated as part of the 2015 Air Service Study and the 2016 Airport Layout Plan Update. This cultural resource survey is intended to identify historic resources early in the planning process so that future design and construction activities can take identified historic properties into account. These identification efforts facilitate compliance with Section 106 of the National Historic Preservation Act (Section 106).

Architecture and History Survey

Study Area

The Airport is located approximately 5 miles northwest of Aspen, Colorado, in Township 9S, Range 85W, Sections 27, 28, 33, and 34, and Township 10S, Range 85W, and Section 3. The study area for architectural and historical resources was defined to include all buildings, structures, and objects located within the boundaries of existing Airport property, including the parcel along the east side of Highway 82 (see Attachment A for a map of the study area). This area accounts for resources that may be directly or indirectly impacted by project activities.

Survey Methodology

The objective of the survey was to identify historic properties within the study area that appeared to meet the National Register of Historic Places (National Register) Criteria for Evaluation. In order to meet the National Register Criteria, a property must be at least 50 years in age (or more recent construction that possesses exceptional significance), retain integrity, and possess architectural or historical significance.

Prior to field survey, historians from Mead & Hunt reviewed records and reports for previously recorded cultural resources in the study area from the Colorado Office of Archaeology and Historic Preservation (OAHP). Below is a list of previous cultural resource surveys conducted on airport property:

- 1988 – The Colorado Department of Highways conducted a survey for an improvement project along State Highway 82 between Basalt and Aspen. This survey identified the Airport Ranch (5PT.538) as potentially eligible for listing in the National Register as a "relatively intact example of an early ranch in the Roaring Fork Valley, and as a good example of the type of evolution a ranching property undergoes over the years." The OAHP officially determined the Airport Ranch eligible for the National Register in July 1988. Attachment B includes a copy of the 1988 inventory form.

- May 2006 – Metcalf Archaeological Consultants, Inc. (MAC) conducted a survey at the Pitkin County Airport, which identified an additional outbuilding, a pioneer log structure related to the Airport Ranch, and the Stapleton Brothers Ditch (5PT.1188.1). The Stapleton Brothers Ditch was recommended as not eligible for the National Register and the OAHP officially determined the ditch not eligible in February 2007. The official eligibility determination for the Airport Ranch did not change as a result of this survey and the log structure was recommended as noncontributing to the Airport Ranch complex.

- 2008 – MAC conducted a survey for a runway extension at the Pitkin County Airport. No historic resources were identified within the study area for this project.

- May 2009 – MAC conducted an archaeology survey for an Airport Master Plan update. A new segment of the previously recorded Wiese Upper Ditch (5PT1176), which was previously determined eligible for the National Register, was documented during the survey. However, the newly identified segment was recommended not eligible since it did not retain the essential elements of historic integrity to be considered contributing to the overall resource.

- August 2009 – Mead & Hunt conducted a field review of the airport property as part of an update to the Airport Master Plan. The National Register-eligible Airport Ranch (5PT.538) was the only historic property identified. Extant ranch-related resources documented during the survey included a log house, log shed, log outbuilding, concrete block pump house, frame barn, hip roof frame house, approximately four frame sheds, one metal shed, and a modern trailer. The Airport Ranch consists of approximately 463 acres, based on the 1988 inventory form and confirmed in the field, and its boundaries correspond to the fence line on the east, 7,800-foot contour line on the west, Owl Creek Road on the south, and a row of trees on the north.

Survey Results

Historians with Mead & Hunt conducted a field review of the study area on September 30, 2015. The field review of properties included buildings, hangars, and offices related to operations at the Airport. None of the airport-related properties are at least 50 years old and they do not possess architectural or historical significance and therefore do not meet the National Register Criteria of Evaluation.

Field review also included a review of the National Register-eligible Airport Ranch (5PT.538), which was the only historic property identified within the study area. The ranch, determined eligible in 1988, retains

its nine contributing buildings and structures. Since the 2009 survey the property has been improved with the removal of non-historic additions to two buildings, which does not impact the historic integrity of individual resources or the overall ranch complex. Other buildings have been stabilized with the enclosure of windows and rope anchors and the historic setting has been improved with the removal of a non-contributing modern trailer. Post-2009 alterations to protect and stabilize ranch-related buildings are summarized below and illustrated in Attachment C.

- Frame house – An attached garage (non-historic) and two shed roof additions removed; windows and doors covered with plywood; exterior asbestos cladding removed at certain locations revealing original clapboard; building overall remains intact.

- Log house – Windows covered with plywood but remains unchanged and intact.

- Frame shed/stable – An attached addition (non-historic) removed but remains intact.

- Frame shed and metal bin – Shed is tied to adjacent tree for stabilization purposes but both remain unchanged and intact.

The historic boundary for the Airport Ranch, unchanged since the 1988 determination, includes approximately 463 acres with boundaries defined as the Airport fence line on the east, 7,800-foot contour line on the west, Owl Creek Road on the south, and a row of trees on the north. A map of the historic boundary is included in Attachment A. The Airport Ranch remains relatively intact based on information included on the original inventory form, subsequent studies, and field observations in 2015.

Recommendations

The Airport Ranch (5PT.538) is officially determined eligible for the National Register and will need to be taken into account in future Airport activities in order to comply with requirements in Section 106. No other known listed, determined eligible, or potentially eligible historical resources have been identified within the Airport property boundary or within the project area. An archaeological survey is pending and anticipated to commence in spring 2016, at which time a separate report will be prepared.

Please submit these findings to the FAA to forward to the OAHP. Additional copies have been provided for your convenience. If you have any questions or require additional information, please contact me at (916) 971-3961 or timothy.smith@meadhunt.com.

Sincerely,

MEAD & HUNT, Inc.

Timothy Smith
Historic Preservation

Attachments

Attachment A. Project Location Map

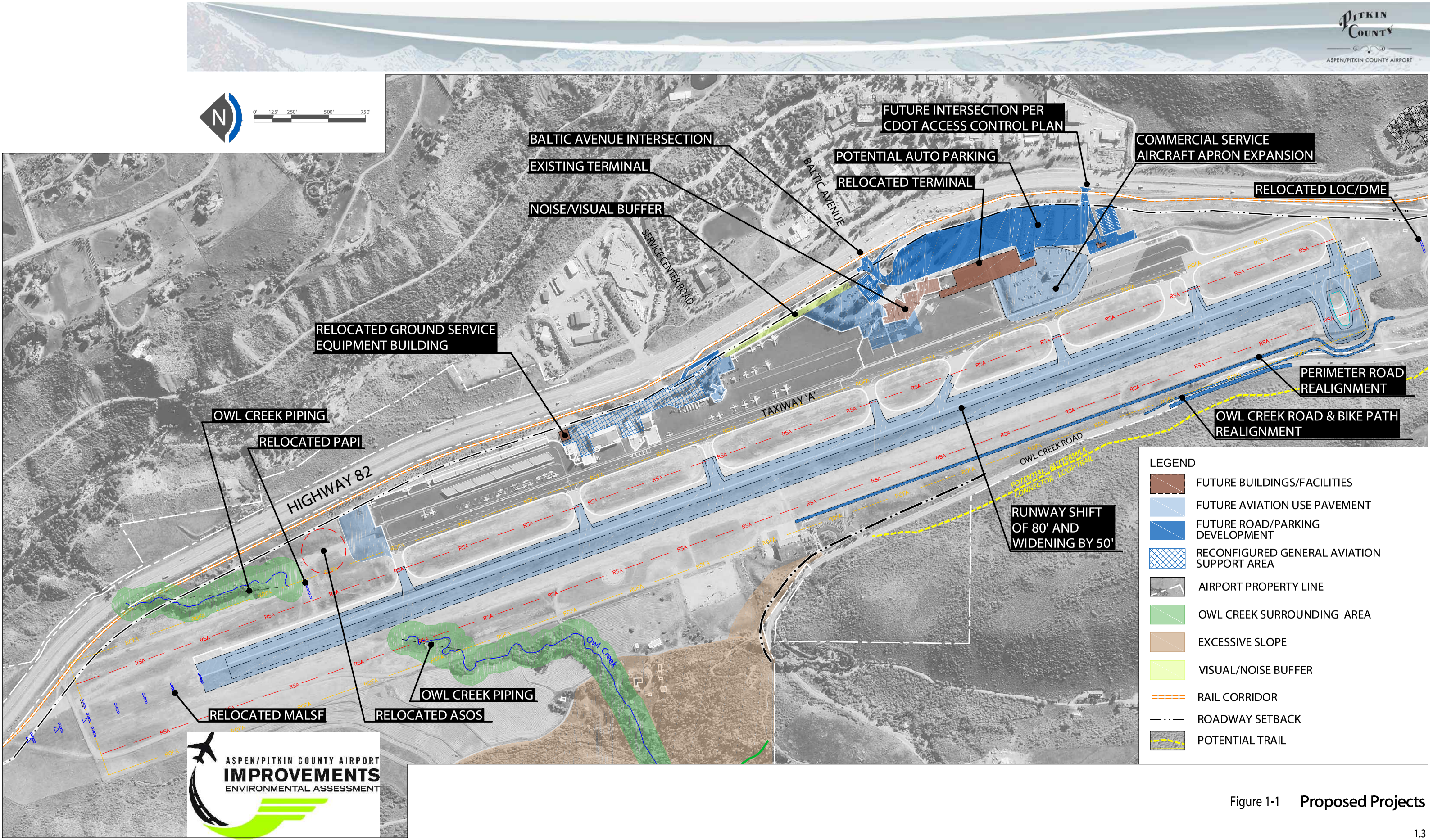


Figure 1-1 **Proposed Projects**

Attachment B. 1988 Airport Ranch Inventory Form

. ORADO CULTURAL RESOURCE SURVEY Office of Archaeology and Historic Preservation 1300 Broadway, Denver, CO 80203

INVENTORY RECORD

IMPORTANT: COMPLETE THIS SHEET FOR EACH RESOURCE PLUS EITHER AN ARCHAEOLOGICAL AND/OR HISTORICAL/ARCHITECTURAL COMPONENT FORM.

NOT FOR FIELD USE
✓ DET. ELIG. 7/29/88 C
___ DET. NOT ELIG.
___ NOMINATED
LISTED, DATE ___

MAPPED

I. IDENTIFICATION: 1)Resource No. 5PT 538 2)Temp. No. ___

3)Resource Name Airport Ranch 4)Project Name SH 82 Aspen to Basalt

5)Category: Arch. Site__, Hist./Archit. Structure xx, Hist./Archit. District__.

6)(For Arch. site)In a District:yes__no__;Name n/a

II. LOCATION: 7)Township 9S ;Range 85W ; ___ ¼ of ___ ¼ of ___ ¼ of SW ¼ of

Section 34 ; P.M. Sixth . 8)County Pitkin

9)USGS QUAD Aspen ;7.5xx15__;Date 1960 Attach photocopy portion of Quad. Clearly show site. 10)Other maps ___

11)Dimensions ___mX___m 12)Area ___sq.m(÷4047=) 25 acres

13)UTM Reference: (One UTM centered on resource may be given for resource under 10 acres.)

A. 13;338560mE;4343200mN. B. 13;338580mE;4342780mN. SEE Attached Revised

C. 13;338320mE;4342820mN. D. 13;338270mE;4343180mN.

E. 13; 338420 4342880

14)Address Owl Creek Road Lot___Block___Addition___

III. MANAGEMENT DATA: 15)Field Assessment: Eligible x Not Eligible___Need Data___

16)Owner/Address Walter Paepcke Trust and John Spachner Trust (undivided half interests)

17)Gov't Involvement: County__State__Federal__Private x: Agency ___

18)Disturbance:none x light__moderate__heavy__total__;Explain ___

19)Threats to Resource:Water Erosion__Wind Erosion__Animal Activity__Neglect__Vandalism__ Recreation__Construction xx;Comments proposed widening and new alignments on SH 82

20)Management Recommendations none

V. REFERENCE: 21)State/Fed. Permit Nos. n/a

22)Photo Nos. 87-12 #14-19 ,on file at CDOH

23)Report Title FC 082-1(14) East of Basalt to Aspen

24)Recorder S Pearce 25)Recording Date June 1988

26)Recorder Affiliation CDOH 27)Phone No. 757-9786

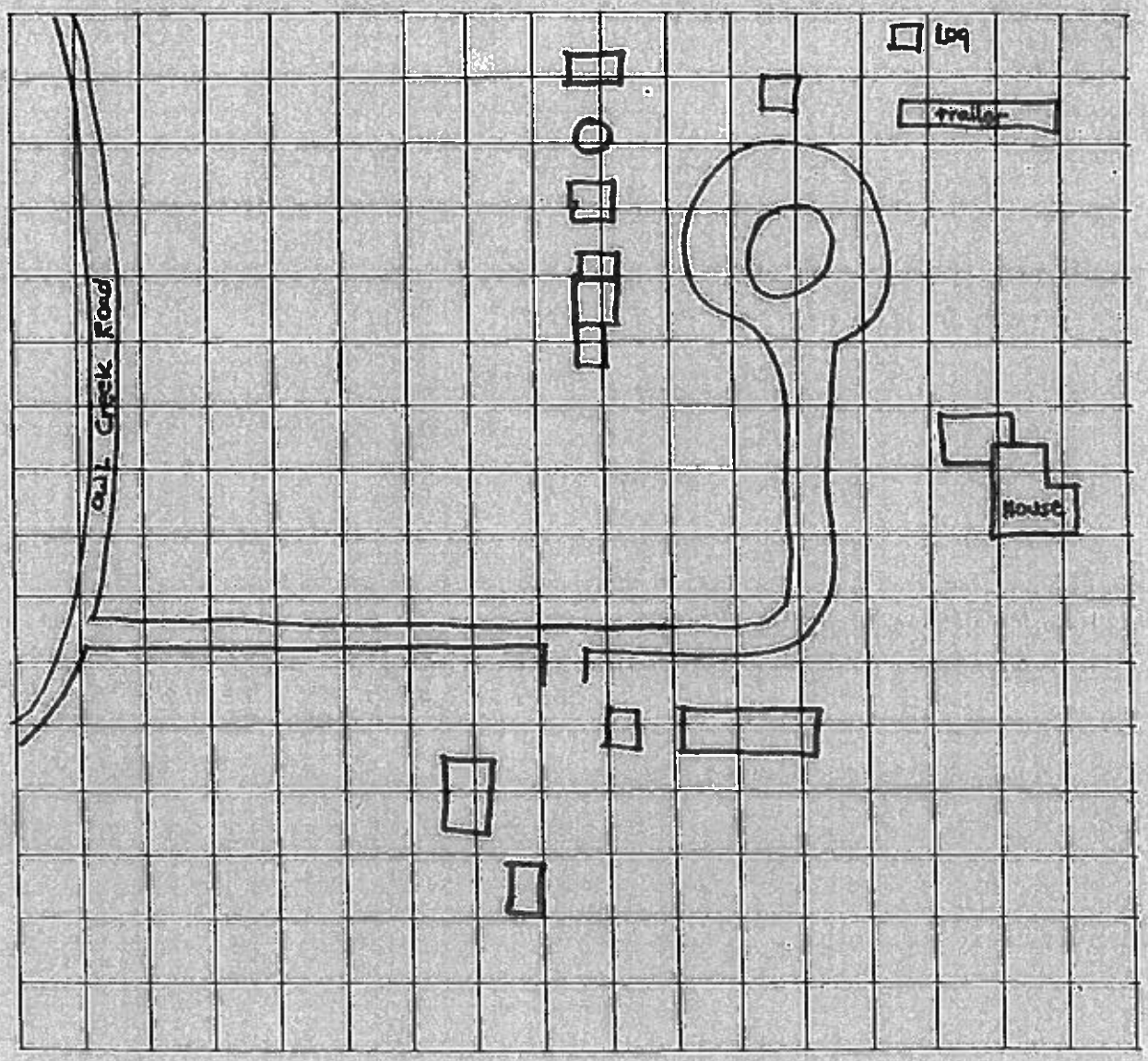
Form No. 619

Resource No._____

V. SKETCH MAP: Map all features and show the boundaries of the resources. Show all major topographic features, permanent modern features, and vegetation zones as appropriate. Give names of features, streets and addresses if known. Provide scale, key and direction.

scale:

key:



true____

mag.____

28) Location/Access:

SH 82 west from Aspen to Owl Creek Road (just south of Sandy Airport). Travel north on road to sharp bend before steep hill. Ranch is at the end of the private drive

29) Boundary Description:

Airport boundaries on the ~~easty~~ east, 7800 foot contour line on the west, Owl Creek Road on the south and a row of trees on the north

30) Boundary Justification: Visual boundaries (actual legal boundaries are 463 acres)

Attachment C. Airport Ranch Photographs

Photo 1. Airport Ranch (2009). Hip roof frame house with attached garage, view facing north.

Photo 2. Airport Ranch (2015). Hip roof frame house with non-historic attached garage and two shed roof additions (non-historic) removed. Windows and doors covered with plywood for stabilization, original clapboard remains underneath asbestos siding.

Photo 3. Airport Ranch (2009). Log house, view facing southwest.

Photo 4. Airport Ranch (2015). Windows on log house now covered with plywood for stabilization but otherwise unchanged.

Photo 5. Airport Ranch (2009). Frame barn, view facing southwest.

Photo 6. Airport Ranch (2015). Frame barn remains unchanged.

Photo 7. Airport Ranch (2009). Log shed, view facing west.

Photo 8. Airport Ranch (2015). Log shed remains unchanged.

Photo 9. Airport Ranch (2009). Frame shed/stable, view facing northeast.

Photo 10. Airport Ranch (2015). Non-historic side addition (north elevation) and shed roof canopy along east side removed but remains intact.

Photo 11. Airport Ranch (2009). Frame shed and metal bin, view facing south.

Photo 12. Airport Ranch (2015. Frame shed is tied to tree for stabilization purposes but both remain unchanged.

Photo 13. Airport Ranch (2009). Frame shed and modern trailer, view facing southwest.

Photo 14. Airport Ranch (2015). Modern trailer removed.

Photo 15. Airport Ranch (2009). Concrete block pump house, view facing west.

Photo 16. Airport Ranch (2015). Concrete block pump house remains unchanged.

Photo 17. Airport Ranch (2009). Log outbuilding, view facing northwest.

Photo 18. Airport Ranch (2015). Log outbuilding remains unchanged.

Photo 19. Airport Ranch (2015). Overview of ranch setting, view facing west.

Photo 20. Airport Ranch (2015). Overview of ranch setting, view facing east.

Photo 21. Airport Ranch (2015). Overview of ranch setting, view facing northwest.

Mead & Hunt
1743 Wazee Street, Suite 400
Denver, Colorado 80202
303-825-8844
meadhunt.com

July 9, 2018

Kandice Krull
Federal Aviation Administration, Denver ADO
26805 E. 68th Avenue, Suite 224
Denver, CO 80249-6361

Subject: Cultural Resource Survey Clarification
Aspen/Pitkin County Airport Improvements Environmental Assessment
City of Aspen, Pitkin County, Colorado

Dear Ms. Krull:

Mead & Hunt, Inc. (Mead & Hunt) was retained by the Aspen/Pitkin County Airport (Airport) to provide planning services for a proposed terminal redevelopment and runway shift project. This project is an outgrowth of the Airport Master Plan that was prepared and submitted to the Federal Aviation Administration in 2012 and then updated as part of the 2015 Air Service Study and the 2016 Airport Layout Plan Update.

Architectural, Historical and Archeological Survey Area

The Airport is located approximately 5 miles northwest of Aspen, Colorado, in Township 9S, Range 85W, Sections 27, 28, 33, and 34, and Township 10S, Range 85W, and Section 3. The study area for architectural and historical resources was defined to include all buildings, structures, and objects located within the boundaries of existing Airport property. This letter certifies that the airport survey area included the area north of the runway all the way to the fence-line and the analysis includes the area for the MALSF.

Additionally, for archeological the entire area north of the runway was previously surveyed during May 2009. This area is entirely pre-disturbed, graded and actively mowed. It was determined during scoping that an additional archeological survey was not needed due to the active disturbance of the area in question. This area was fully considered in the analysis of the EA.

Sincerely,

MEAD & HUNT, Inc.

Timothy Smith
Historic Preservation

Pitkin County Airport Survey Project: Report of the Class III Cultural Resource Inventory, Pitkin County, Colorado

by
Amy Nelson

Lead Agency
Federal Aviation Administration

Prepared by
Metcalf Archaeological Consultants, Inc.
P.O. Box 899
Eagle, CO 81631

Prepared for
Mead & Hunt, Inc.
1743 Wazee Street, Suite 40
Denver, CO 80202

Melissa Elkins
Principal Investigator

September 2016

FOR OFFICIAL USE ONLY: DISCLOSURE OF SITE LOCATIONS PROHIBITED (43CFR 7.18)

Abstract

Metcalf Archaeological Consultants, Inc. (Metcalf) was contracted by Mead and Hunt, Inc. to conduct a Class III cultural resource inventory for the Federal Aviation Administration (FAA) on Pitkin County Airport property in Pitkin County, Colorado. The inventory was conducted as part of an effort to update the airport's master plan and was implemented to satisfy federal requirements governing surface impacts to the property. At the time of this inventory no specific developments were planned in the project area. The project area is located approximately four miles north-northwest of Aspen, Colorado in Township 9S Range 85W Sections 27 and 34. The Area of Potential Effect (APE) consists of five irregularly-shaped blocks outside the fenced airport boundary as well as a linear corridor connecting the five parcels. Of the approximately 19.8 acres in the project area, 19.2 acres were intensively surveyed. A small block of previously surveyed land overlapped the southeastern portion of the APE and was re-inventoried as part of the current project. Approximately 0.63 acres within the project area were not intensively surveyed. This acreage includes 0.1 acres that exhibited dense vegetation on a steep slope, and 0.53 acres within a disturbed dirt parking area and paved road.

Fieldwork was conducted on July 8, 2016 by Metcalf archaeologist Amy Nelson. Inventory resulted in the discovery and documentation of one new segment of a historic linear resource, a segment of Colorado State Highway 82 (SH 82). Other segments of this road have been documented in Pitkin (5PT505.1 to 5PT505.16; 5PT606.1 and 5PT606.2) and Lake Counties (5LK128 and 5LK 487) but appear to be a mix of segments of SH 82 and abandoned segments of earlier toll roads. All of the segments are documented for their association with Independence Pass rather than with the state highway. Because of a certain amount of confusion over the association between these different segments and the current alignment of the entire extent of SH 82 from Glenwood Springs to Twin Lakes, the current segment was given a new Smithsonian number, 5PT1363.1. Metcalf recommends that the entire resource, 5PT1363.1 is eligible for the National Register of Historic Places (NRHP) under Criteria A and C. Metcalf further recommends that the recorded segment, 5PT1363.1, does not retain the essential elements of historic integrity and, therefore, does not support the entire resource's overall assessment of NRHP eligible. Metcalf recommends a finding of *no historic properties affected* for the APE as defined at the time of inventory.

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APPENDIX A: Cultural resource location map (agency copies only; not for public distribution)
APPENDIX B: Cultural resource forms (agency copies only; not for public distribution)

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Figure 1: Project location map……..2

Introduction

Metcalf Archaeological Consultants, Inc. (Metcalf) was contracted by Mead and Hunt, Inc. to conduct a Class III cultural resource inventory for the Federal Aviation Administration (FAA) on Aspen Airport property in Pitkin County, Colorado. The inventory was conducted as part of an effort to update the airport's master plan and was implemented to satisfy federal requirements governing surface impacts to the property. At the time of this inventory no specific developments were planned in the project area. The project area is located approximately four miles north-northwest of Aspen, Colorado in Township 9S Range 85W Sections 27 and 34. The Area of Potential Effect (APE) consists of five irregularly-shaped blocks outside the fenced airport boundary as well as a linear corridor connecting the five parcels. Of the approximately 19.8 acres in the project area, 19.2 acres were intensively surveyed. A small block of previously surveyed land overlapped the southeastern portion of the APE and was re-inventoried as part of the current project. Approximately 0.63 acres within the project area were not intensively surveyed. This acreage includes 0.1 acres that exhibited dense vegetation on a steep slope, and 0.53 acres within a disturbed dirt parking area and paved road.

Fieldwork was conducted on July 8, 2016 by Metcalf archaeologist Amy Nelson. Inventory resulted in the discovery and documentation of one new segment of a historic linear resource, a segment of Colorado State Highway 82 (SH 82) that is adjacent to, but not within, the project boundary. Other segments of the state highway on Independence Pass have been documented in Pitkin County but the recordings appear to be a mix of segments of SH 82 (5PT505.1 to 5PT505.3) and abandoned segments of earlier toll roads. (5PT505.4 to 5PT505.16; 5PT606.1 and 5PT606.2). Documentation of linear resources in Lake County (5LK128 and 5LK 487) also appear to be remnants of earlier toll roads on Independence Pass. Because of a certain amount of confusion over the association between these different segments and the current alignment of the entire extent of SH 82 from Glenwood Springs to Twin Lakes, the current segment was given a new Smithsonian number, 5PT1363.1. Metcalf recommends that the entire resource, 5PT1363, is eligible for the National Register of Historic Places (NRHP) under Criteria A and C. Metcalf further recommends that the recorded segment, 5PT1363.1, does not retain the essential elements of historic integrity and, therefore, does not support the entire resource's overall assessment of NRHP eligible. Metcalf recommends a finding of *no historic properties affected* for the APE as defined at the time of inventory.

Effective Environment

Physiographically, the project area is in the West Elk Mountains of the Southern Rocky Mountains province (Taylor 1999) along the western terrace above the Roaring Fork floodplain. The floodplain is relatively flat, but is surrounded on both sides by steep, forested ridges and slopes; much of the immediate area is dominated by the airport and other commercial and residential developments. Project elevations range from 7,680 to 8,200 feet above sea level. Soils in the survey area are alluvial, brown silty loam with considerable rock debris.

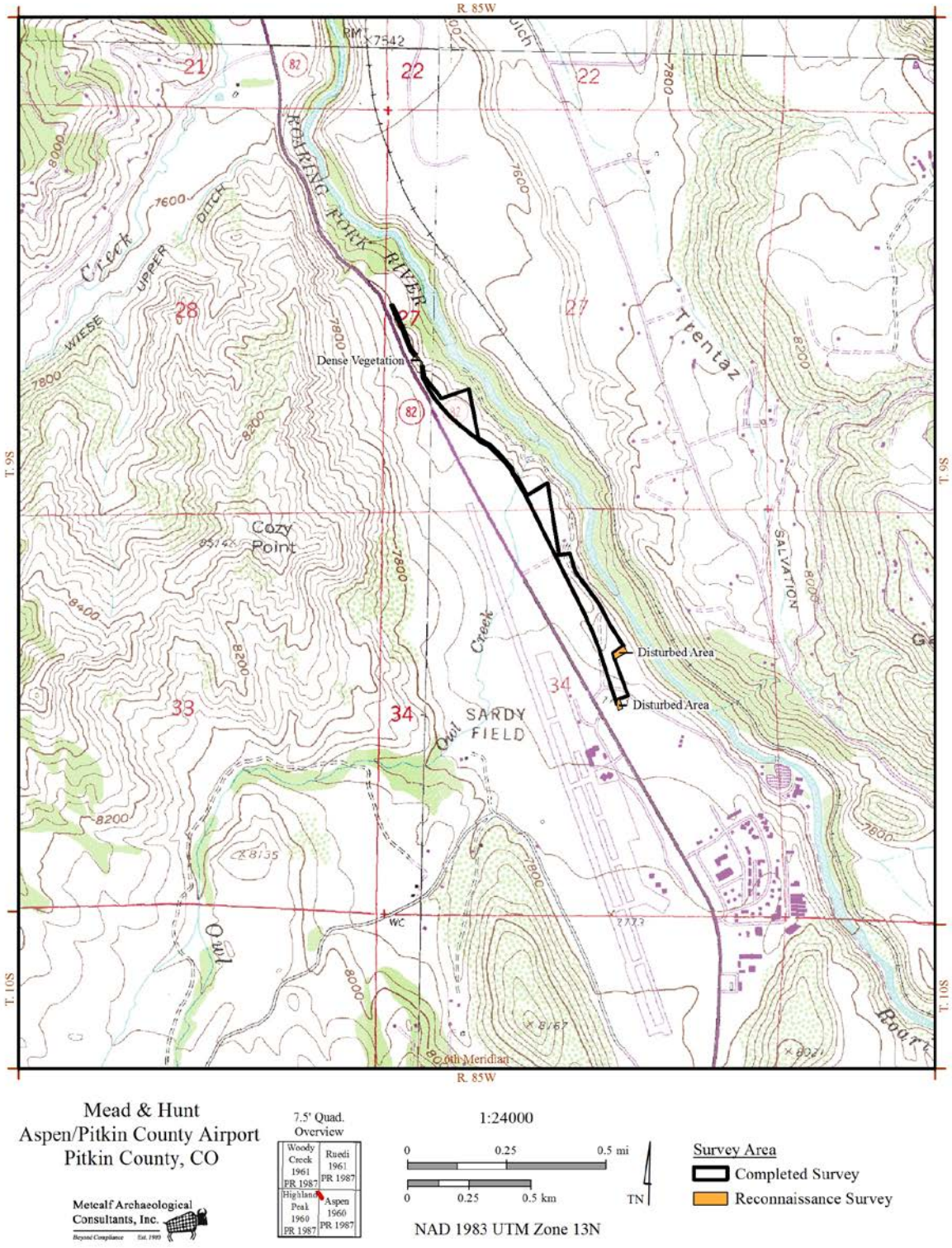

Figure 1: Project location map (*Areas designated as Reconnaissance Survey were not inventoried to Class III standards)

Local bedrock in the project area is Pennsylvanian sedimentary rocks comprised primarily of shale, sandstone, quartzite, limestone, and dolomite (Taylor 1999). Vegetation in the immediate project area consists of sage, prickly pear cactus, wildflowers, willows, and dense oakbrush on the east facing slopes to the river and on the north and south facing slopes of the east-flowing drainages coming off the Elk Mountains to the west.

Much of the moisture in the area is received as snowfall (Soil Conservation Service 1972). The area drains to the north via the Roaring Fork River which empties into the Colorado River near Glenwood Springs. Mule deer and elk are the most common artiodactyls in the area, and migrate between vegetation zones on a seasonal basis. These animals spend winters in the lower to middle elevation zones, generally in areas forested by pinyon and juniper, where snows are not excessively deep and browse is available. With the arrival of spring, most individuals migrate to the higher elevations to take advantage of the abundant vegetation that flourishes in the short growing season. Large carnivores and omnivores may also follow the seasonal movements of the artiodactyls.

Historically, the area's land use was related primarily to mining, livestock grazing and, by the mid-1940s, the ski industry. Current land use in the vicinity includes airport activities, residential homes, and activities related to tourism.

Weather at the time of fieldwork was warm and dry and conditions were good for the discovery of cultural resources. Environmental constraints included steep terrain, dense vegetation that obscured the ground surface and previous construction disturbances. Ground visibility varied from 60 to 80 percent on the terrace edge to 0 to 20 percent on the steeper slopes of the drainages.

Previous Work and Culture History

Previous Work

A files search was conducted through the Office of Archaeology and Historic Preservation (OAHP) online database, *Compass*, on June 15, 2016. GIS data was also requested on June 6 and received from the OAHP on June 15, 2016. A one-mile buffer around the project area was searched and includes sections 21, 22, 26 to 28, and 33 to 35 in T. 9S, R. 85W and sections 2 to 4 in T. 10S, R 85W. The 1882, 1888, and 1917 General Land Office (GLO) plats for T. 9S, R.85W were inspected for linear features, such as roads and ditches, and other features, such as houses or buildings (http://www.glorecords.blm.gov/). Additionally, the Aspen (1960, PR 1987) and Highland Peak (1960, PR 1987) USGS topographic maps were examined to determine if any historic resources exist in the project area. Historic USGS maps for Aspen (1893) and Mount Jackson (1909) and a 1936 Colorado State Highway map were also examined. The Colorado Midland Railroad appears on the 1888 and 1917 GLO plats as well as the 1893 Aspen and 1909 Mount Jackson maps and appears to follow a similar route to Hwy 82 where it

parallels the project area. Hwy 82 is depicted as a state highway on the 1936 map. Local roads that appear on the 1888 GLO plat appear to have been obliterated by agricultural fields by 1917. Two local roads that appear on the 1960 Aspen USGS map were discernible in places in the project area but were not documented because they are unnamed on all maps and appear to have been used only for access to local residences, fields, or the river.

The *Compass* files search revealed that 17 Class III cultural resource inventory projects have been conducted within one mile of the project area (Table 1). Previous projects include eight linear projects relating to railroads, pipelines, highways or roads, or buried electric lines; and nine block inventories conducted by the Pitkin County Airport, the Colorado Department of Transportation or the Bureau of Land Management. One block inventory was also completed on private land.

Table 1. Cultural resource inventories within a one mile radius of the project area.

OAHP Report No.	Project Type	Report Title	Company	Year
MC.CH.R94	Linear	A CLASS III CULTURAL RESOURCES SURVEY OF THE ROARING FORK RAILROAD AUTHORITY ENVIRONMENTAL IMPACT STATEMENT, GLENWOOD SPRINGS TO BRUSH CREEK TRANSPORTATION CORRIDOR, EAGLE, GARFIELD, AND PITKIN COUNTIES, COLORADO	WCRM	2000
MC.LM.R122	Linear	HOLY CROSS BASALT TO ASPEN 115 KV REBUILD PROJECT EAGLE AND PITKIN COUNTIES, COLORADO CLASS III CULTURAL RESOURCE INVENTORY²LIMITED TESTING OF 5PT596 ADDENDUM TO: HOLY CROSS BASALT TO ASPEN 115KV REBUILD PROJECT EAGLE AND PITKIN COUNTIES, COLORADO CLASS III CULTURAL RESOURCE INVENTORY	Metcalf	1996
MC.PA.R78	Block	CLASS III CULTURAL RESOURCES SURVEY FOR THE ROARING FORK TRANSPORTATION AUTHORITY BUS RAPID TRANSIT PROJECT ALONG COLORADO STATE HIGHWAY 82, GARFIELD, EAGLE, AND PITKIN COUNTIES, COLORADO	Parsons	2010
PT.CH.NR6	Linear	AN INTENSIVE CULTURAL RESOURCES INVENTORY ALONG A SEGMENT OF OWL CREEK ROAD NORTH OF ASPEN, PITKIN COUNTY, COLORADO (CDOT SHO C570-012)	CDOT	2004
PT.CH.R1	Block	SURVEY REPORT PROJECT FC 082-1(14) EAST OF BASALT TO ASPEN	Dept. of Highways	1988
PT.CH.R2	Linear	AN ARCHAEOLOGICAL INVENTORY OF THE STATE HIGHWAY 82 - BRUSH CREEK ROAD INTERSECTION BETWEEN BASALT AND ASPEN, PITKIN COUNTY, COLORADO (STR-FC(CX) 082-1(14))	Centennial	1993
PT.CH.R4	Block	AN INTENSIVE CULTURAL RESOURCES SURVEY OF SIX PARCELS ASSOCIATED WITH STATE HIGHWAY 82 IMPROVEMENTS WEST OF ASPEN, PITKIN	CDOT	1996

OAHP Report No.	Project Type	Report Title	Company	Year
		COUNTY, COLORADO (PROJECT STA 082A-008)		
PT.CO.R1	Linear	KINDER MORGAN RETAIL BRUSH CREEK 6 INCH PIPELINE, PITKIN COUNTY, COLORADO: RESULTS OF AN INTENSIVE CULTURAL RESOURCE INVENTORY (URS 22238253.00003)	URS	2005
PT.FA.R1	Block	DOCUMENTATION OF TWO HISTORIC RESOURCES AT THE ASPEN AIRPORT, PITKIN COUNTY, COLORADO	Metcalf	2006
PT.FA.R2	Block	ASPEN AIRPORT RUNWAY EXTENSION, AN INTENSIVE CULTURAL RESOURCES INVENTORY FOR TATANKA HISTORICAL ASSOCIATES, INC. IN PITKIN COUNTY, COLORADO	Metcalf	2008
PT.FA.R3	Block	MEAD AND HUNT, INC. AIRPORT SURVEY PROJECT: REPORT OF THE CLASS III CULTURAL RESOURCES INVENTORY, PITKIN COUNTY, COLORADO	Metcalf	2009
PT.FS.NR40	Block	A CLASS III CULTURAL RESOURCE INVENTORY OF 3 SMALL PARCELS NEAR ASPEN IN PITKIN COUNTY, COLORADO (S#1110)	BLM-GSRA	1990
PT.LG.R24	Linear	CLASS III CULTURAL RESOURCES INVENTORY REPORT FOR THE PROPOSED ASPEN VALLEY 10 INCH PIPELINE FOR SOURCEGAS IN PITKIN COUNTY, COLORADO (GRI # 2013-69)	Grand River Inst.	2013
PT.LM.NR10	Block	A CLASS III CULTURAL RESOURCE INVENTORY OF 5 SMALL PARCELS WITHIN ASPEN IN PITKIN COUNTY, COLORADO (S#1108)		1989
PT.LM.NR3	Block	OWL CREEK BLM PARCEL (S#865)	BLM-GSRA	1984
PT.RE.R1	Linear	HOLY CROSS ENERGY SNOWMASS BURIED ELECTRIC LINE, CLASS III CULTURAL RESOURCE INVENTORY, PITKIN COUNTY, COLORADO	Metcalf	2003
PT.SC.NR7	Block	PITKIN COUNTY LIMITED-RESULTS CULTURAL RESOURCE SURVEY FORM ON PRIVATE LANDS - RED BUTTE FARMING LLC (GLSP10-020)	NRCS	2010

The 17 previous inventories resulted in the documentation of 12 cultural resources including four historic ranch/homestead or habitation sites, one historic townsite, one historic schoolhouse, two historic ditches, one road, one railroad segment, one railroad depot and one prehistoric isolated find (Table 2). None of these resources are located within the current project area boundaries.

Table 2. Previously documented cultural resources within one mile radius of project area.

Site No.	Type	Site Name	Description	NRHP	In APE?
5PT123	Historic	Denver and Rio Grande Railroad	Railroad	E-OAHP	No
5PT492	Historic	Aspen Depot	D&RG Railroad depot	NE	No

Site No.	Type	Site Name	Description	NRHP	In APE?
5PT500	Historic	Rathbone townsite	Abandoned townsite	Unevaluated	No
5PT538	Historic	Airport Ranch	Ranch	E-OAHP	No
5PT540	Historic	Brush Creek School	Schoolhouse	NE-OAHP	No
5PT595	Historic		Habitation	NE-OAHP	No
5PT602	Historic	Stapleton/Owl Creek Ranch	Ranch	NE	No
5PT613	Prehistoric IF	--	Debitage	NE	No
5PT871	Historic	--	Homestead	E	No
5PT1176.1	Historic	Brush Creek Road	Road	NE-OAHP	No
5PT1178.1	Historic	--	Ditch	NE-OAHP	No
5PT1188.1	Historic	Stapleton Brothers Ditch	Ditch	NE-OAHP	No

Culture History

Prehistoric culture history is summarized in the context for the Northern Colorado River Basin (Reed and Metcalf 1999); a historic context is provided in Mehls (1982) and Church et al. (2007). The reader is referred to those documents for specific discussions of the culture history and research issues of the general area.

Briefly, archaeological reconstructions for the mountains include the PaleoIndian Era (ca. 13,400 to 8,400 BP), the Archaic Era (ca. 8,400 to 2,000/1,500 BP), the Formative Era (ca. 2,400 to 700 BP), and the Protohistoric Era (ca. 700 to 100 BP). In the northern Colorado Basin, the PaleoIndian era is represented by four traditions that can be distinguished primarily on the basis of projectile points and, to a lesser extent, by subsistence strategies. The four traditions include Clovis, Goshen, Folsom, and Plano (Reed and Metcalf 1999:56). PaleoIndian cultural resources are limited, and usually consist of isolated diagnostic projectile points. Based on Reed and Metcalf (1999:59), no PaleoIndian sites have been recorded in Pitkin County.

The Archaic era encompasses a long period that archaeologists have envisioned as a relatively stable period of time when a broad-based, hunter-gatherer lifeway was practiced (Reed and Metcalf 1999:71). It contrasts with the preceding PaleoIndian era in that the lifeway was less mobile and was more focused on the use of local resources on a scheduled, seasonal basis. The main technological marker is a transition from the use of lanceolate projectile points to the use of stemmed and notched varieties, and a distinct increase in the overall variability in point styles. Reed and Metcalf (1999:79) break the Archaic era into four periods, although they suggest other temporal frameworks may also be acceptable. This four-part scheme includes the Pioneer period (8350 to 6450 BP), the Settled period (6450 to 4450 BP), the Transitional period (4450 to 2950 BP), and the Terminal period (2950 to 1950 BP [AD 1]).

Archaic-age sites are greater in number than PaleoIndian sites, and include a variety of site types representing a mobile lifestyle centered on hunting and the gathering of wild foods. Ground stone occurs in greater numbers after the PaleoIndian era, and probably represents an increasing reliance on vegetable foods. Higher frequencies of radiocarbon samples dating to the Late Archaic have been interpreted as an indication of increased population in the Late Archaic (Black 1986). Based on several excavations in the mountains, including Yarmony House (Metcalf and Black 1991), Black has developed a model of Early Archaic lifeways which proposes that Early Archaic use of mountain settings was year-round, rather than seasonal in which they migrate out of the mountains to over-winter in milder climates.

Within Colorado and the entire surrounding region, cultural systems were changing during the Formative era, as suggested by widespread adoption of horticulture in the Southwest, and the variable use of cultigens by the Fremont to the west and Early Ceramic Period peoples to the east (Reed and Metcalf 1999:140). Although the current project area is quite removed from archaeological sites containing evidence of Formative era cultures including the Anasazi and the Fremont, there are a few sites dating to this time period in surrounding counties (Reed and Metcalf 1999:143). The Aspen Tradition is proposed as a taxonomic unit for use in describing the variability among non-horticultural cultural systems in the Northern Colorado River Basin between approximately 400 BC and AD 1300 (Reed and Metcalf 1999:141).

A shift to the use of bow-and-arrow technology, the adoption of cultigens and ceramics by some groups, and a gradual broadening, or intensification, of the hunted and gathered subsistence base marks the beginning of the Aspen Tradition west of the Continental Divide. There is also an apparent shift in group mobility patterns, and an apparent increase in reliance on the use of prepared firepits for food processing. Sites of this age are common, but often show very little change in lifestyle compared to Archaic era groups. Perhaps due to better preservation, site types such as eagle traps, wickiups, and rock art, are also associated with this Tradition.

The Protohistoric era refers to aboriginal occupation of western Colorado between the end of horticultural-based subsistence practices of the Formative era and the final expulsion of the Ute tribe to reservations in AD 1881 (Reed and Metcalf 1999:146). Protohistoric era groups in the Northern Colorado River Basin were highly mobile hunters and gatherers. Before extensive exposure to Euroamerican culture, these groups often used wickiups for shelter, manufactured brown ware ceramics, and hunted with bows and arrows. Desert Side-notched and Cottonwood Triangular projectile points are diagnostic of this time period.

The Utes made contact with the exploring Spanish in the early 1600s. By the second half of that century, the Utes occupying the Northern Colorado River Basin had obtained enough horses to elevate themselves to an equestrian lifeway. The use of the horse permitted the expansion of annual territories and increased cultural contacts with other groups, especially the inhabitants of the Great Plains, and the Pueblos and the Spanish to the South. Euroamerican artifacts are often found in Protohistoric era components dating to late in the period.

The Historic Period in this area begins roughly when the Aspen area was first visited by the Hayden surveying party during 1873-1874. Beginning with the early gold rush that began in 1859, Colorado's mining industry was a significant contributor to the state's economic, political, and social development. This trend continued as the industry expanded with the discovery of silver, copper, lead and zinc in the central mountain region and resulted in population explosions in mining camps and nearby supply centers. Technological advances such as smelting allowed these ores to be more successfully processed and contributed to the increase in mine production. Wagon roads and railroads were essential to the transportation needs of the mining industries and the communities that surrounded them. At times, wagon roads were the only access to in the narrow and steep mountain canyons. Some of these wagon roads and railroad grades later became part of the state highway system. In 1879 prospectors from Leadville came into the Aspen area searching for mineral wealth, which was found in abundance (Rohrbough 1985). Towns such as Aspen became supply, processing, and transportation hubs for the mining industries in the Central Mountain region.

The road over Independence Pass has been an important link in the state's transportation network since 1879 when Aspen became the center of a silver mining boom. The route provides a direct connection between Aspen and Leadville, which are 59 miles apart via Independence Pass (as compared to 139 miles via Tennessee Pass and Glenwood Springs). A toll road built between 1879 and 1882 by Aspen citizens provided access to and from the mines east of Aspen. After the construction of the toll road, Pitkin County purchased the portion of the road within its boundaries. In the late 1880s, the Denver & Rio Grande Railroad and the Colorado Midland Railroad entered Aspen from the north via Glenwood Springs, providing a more reliable method to transport the ores mined near Aspen to larger markets.

Aspen boomed until the Silver Panic of 1893, after which the town was nearly abandoned. A handful of miners, and a few farmers and ranchers kept the community alive. In the mid-1940s, the ski industry pioneered a revival of Aspen, which has grown in popularity ever since.

Statement of Objectives/Research Design

This project involved federal surface administered by the Federal Aviation Administration (FAA). Following state and federal policies and regulations implementing the National Historic Preservation Act (Public Law 89-665) as amended, the project area was inventoried to identify any cultural resources within the APE. Any discovered cultural resources were to be evaluated for eligibility to the NRHP under the Criteria for Eligibility (36 CFR 60.4). Management recommendations for treatment of any discovered resources were to be made in accordance with their recommended NRHP evaluations and potential impacts.

Prehistoric resources are most often evaluated under Criterion D, for their potential to yield information important to studies of prehistory. Significant information potential in a

prehistoric site requires that the site contain intact cultural deposits or discrete activity areas that can be securely associated with a temporal period or named cultural group. The potential for intact deposits or cultural/temporal associations may be inferred from surface evidence of cultural features or undisturbed Holocene deposits, and the presence of temporally or culturally diagnostic artifacts. Historic resources may be evaluated under any of the Criteria. However, in the absence of structural features or documented association with significant historic events or important contributions of persons significant in history, historical resources are evaluated under essentially the same criteria as prehistoric resources.

Expected Results

The files search results provide an indication of the number, types, and distribution of cultural resources in the immediate vicinity of the Pitkin County Airport Project. Expectations for cultural resources in the area were low. Although both historic and prehistoric resources have been identified in the surrounding area, the project parcels are small and have been subjected to considerable disturbances including construction relating to residential homes, parking lots, and roads. Although not strictly within the defined APE, State Highway 82 runs adjacent to the project area and was a known historic linear resource.

Field/Lab Methods

The project area was covered using standard pedestrian transects spaced no more than 20 meters apart. Of the 19.81 acres in the project area (Figure 1), 0.63 acres were not inventoried because they were too densely vegetated (0.1 acres) or because they exhibited previous disturbances (0.53 acres). Because ground visibility was moderate to poor throughout much of the APE, special attention was paid to areas such as animal burrows and cutbanks that afforded views of subsurface contexts.

If cultural materials were encountered, the immediate area was to be intensively examined to determine the nature and extent of the resource. Metcalf defines sites as five or more artifacts; or a feature, structure, or trail; or any combination of these elements meeting OAHP criteria in a discrete location that is believed to represent the locus of patterned human activity. An isolated find is defined as four or fewer artifacts without evidence of, or potential for, additional cultural materials or features in the immediate vicinity. An isolated find can also represent a single event or many pieces of a single artifact. Once defined, resources were recorded on OAHP forms. A handheld GPS unit that digitally depicted the APE was utilized. The GPS is a Trimble GeoXT6000 unit, georeferenced to UTM zone 13, NAD 83.

No artifacts were collected. Digital photographs were taken of newly recorded resources. A physical datum was not placed at the linear resource recorded as part of this inventory. All field documentation, original records, digital images and copies of this report are on file at the Metcalf office in Eagle, Colorado.

Results and Management Recommendations

This inventory resulted in the documentation of one segment of a known, historic linear resource, a segment of Colorado State Highway 82 (5PT1363.1). Appendix A includes a site location map. Site forms are found in Appendix B.

5PT1363.1 (State Highway 82)

Site Description. Site 5PT1363.1 is a newly documented segment of Colorado State Highway 82 (SH 82). SH 82 is located on Colorado's Western Slope and extends 85.29 miles in total from Glenwood Springs to Twin Lakes. From Glenwood Springs the highway travels southeast up the Roaring Fork River Valley to Aspen then continues to the southeast and east over Independence Pass where it ends at its intersection with State Highway 24 near the town of Twin Lakes. The Roaring Fork River is a northwest flowing river that originates in the Sawatch Mountains on Independence Pass and terminates near Glenwood Springs at its confluence with the Colorado River. The documented segment of SH 82 is located about four miles northwest of Aspen where it traverses a terrace along the western bank of the river at the base of the Elk Mountains. Deposits on the river terrace are silty and cobbly alluvium deposited by the fast flowing Roaring Fork River. Site 5PT1363.1 is adjacent to the Aspen Pitkin County Airport and this segment of highway serves as part of the busy entrance into the airport and the town of Aspen. At this location, SH 82 is a modern four lane highway that appears to deviate significantly from the original state highway route. In addition to the airport, the highway is encompassed by modern commercial and residential construction. Immediately to the east of the highway, the current project area includes some small parcels of undeveloped or minimally disturbed airport land along the terrace edge. Vegetation in these areas consists of sage, prickly pear cactus, wildflowers, willows, and dense oakbrush on the east facing slopes to the river and on the north and south facing slopes of the east-flowing drainages coming off the Elk Mountains to the west.

The recorded segment trends northwest to southeast and measures approximately 6,682 feet long and about 90 feet wide. It is a paved and maintained four lane divided highway that accommodates a high density of traffic. Much of the segment is bordered by concrete barriers and the road utilizes bridges to pass over three east-flowing drainages. All three bridges are of modern concrete construction. Throughout the 1990s and 2000s, the road has been subject to multiple rerouting and widening projects conducted by the Colorado Department of Transportation. A small portion (approximately 1665 feet) of the recorded segment appears to follow the original route of the highway; however, most of the segment has been rerouted.

The portion of SH 82 between Glenwood Springs and Aspen provides the only year-round state highway access to Aspen while the portion of the route over Independence Pass between Aspen and Twin Lakes/US 24 is open seasonally from Memorial Day through early November depending on snow. The high point of the highway, Independence Pass at 12,096 feet, is about twenty miles east of Aspen.

State Highway 82 is an original state highway with its period of significance during the 1920s. In 1911, the newly formed Colorado Highway Commission approved the addition of SH 82 to the state highway system, and construction took place on the east side of the pass between 1916 and 1923. The first motorized vehicles traveled over the pass in 1924. This improved road served the development of industry when mining was revived between Leadville and Aspen in the early 1920s (ACRE 2002, Autobee and Dobson-Brown 2003, CDOT, Salek 2011).

The development of SH 82 has roots much earlier in the history of Western Colorado. Beginning with the early gold rush that began in 1859, Colorado's mining industry was a significant contributor to the state's economic, political, and social development. This trend continued as the mining industry expanded with the discovery of silver, copper, lead and zinc in the central mountain region and resulted in population explosions in mining camps and nearby supply centers. Wagon roads and railroads were essential to the transportation needs of the mining industries and the communities that surrounded them. At times, wagon roads were the only access to mining towns in narrow and steep mountain canyons. With improved access, towns such as Aspen became supply, processing, and transportation hubs for early mining industries in the Central Mountain region. Some of these wagon roads and railroad grades later became part of the state highway system and, in the case of Aspen, SH 82 contributed to a revival of silver mining in the 1920s and its later rebirth as one of the premier tourist destinations in the state.

SH 82 has been an important link in the state's transportation network since Aspen became the center of a silver mining boom. Silver discoveries around Aspen during the late 1870s led to increased road building activity in an effort to improve transport of ore from the remote mountain community to refineries in Leadville. Previously, mule trains were used to transport supplies and ore between Aspen and Leadville but the trip was difficult and costly (Mehls 1982:76). Better maintained toll roads over mountain passes solved some of these problems and, in the early 1880s, B. Clark Wheeler and others with a stake in Aspen mining formed the Aspen, Hunter Creek, and Leadville Toll Road Company to build and operate a toll road over Independence Pass from Aspen to Twin Lakes, south of Leadville. The route was shorter than those currently in use that travelled over Taylor Pass and through Buena Vista and the road immediately improved access to Aspen but the route was still arduous and was impassable for much of the year primarily because of winter snow (Mehls 1982:77). Before long, an easier route reached Aspen from the north via the Grand Valley and Glenwood Springs. These northern toll roads followed the narrow Roaring Fork River Valley and were constructed in the valley throughout the late 1880s with a toll road stretching from Carbondale to Aspen opening in 1885 (Mehls 1982:78). The road to the north opened access to larger markets for ore in Grand Junction and the Front Range.

Also seeking to profit from silver mining in Aspen, The Denver and Rio Grande Railroad reached Aspen in 1887 followed closely by the Colorado Midland Railroad in 1888. The Colorado Midland Railway Company was founded in 1883 by H.D. Fisher and other Colorado Springs businessmen. The railway was designed and built as a standard gauge line to more

easily interchange with the major railroads of Colorado Springs and was the first standard gauge line to penetrate Colorado's Rockies via a route over Ute Pass west of Colorado Springs and on to Leadville via Trout Creek Pass. After railroad service arrived in Aspen, use of the toll road over Independence Pass waned and, when the silver mines closed in the 1890s, the road was mostly abandoned (Mehls 1982). But, transport of both people and supplies via railroad was also costly and generated extreme competition between the different rail lines. As a result of this competition, the Midland went out of business by 1920 (Mehls 1982).

In 1911, the newly formed Colorado Highway Commission approved the addition of SH 82 to the state highway system (www.codot.gov/projects/SH82/corridor-history; Salek 2011). Concentrating first on automobile tourism using Independence Pass, and encouraged to make road improvements through the Good Roads Movement (ACRE 2002), Aspen citizens again worked to open and improve the route over Independence Pass. Construction took place on the east side of the pass between 1916 and 1923 (Salek 2011). The improved automobile road deviated from the original toll road, which was characterized as being very narrow with sharp and dangerous curves and grades as steep as 12 and 14 percent (Salek 2011). Curves and steep grades had to be rebuilt for automobiles and the state did this in sections causing some sections of the original toll road to be abandoned. The first motorized vehicles traveled over the pass in 1924. This improved road served the development of industry when mining revived between Leadville and Aspen in the early 1920s. The highway was also known as the Roaring Fork Route on early tourist maps and brochures and the first federal aid system in 1923 included the route as No. 82. The last section built on Independence Pass, known as the Weller Grade, had a maximum grade of 6.6 percent and a width up to 17 feet, including cement rubble masonry headwalls, rustic log guard rails, and cement rubble masonry retaining and guard rails in the Weller Grade section.

SH 82 also incorporated parts of the Colorado Midland Railway route to extend the highway to the north. The railroad tracks were pulled up around 1919 and the railroad bed in parts of the Roaring Fork Valley were converted for automobile use (Mehls 1982:94). In 1937, four miles between Glenwood Springs and Carbondale was paved; the remainder of the road to Aspen was paved in 1938. The last section of SH 82 to be paved over Independence Pass was done by 1969.

An expressway was completed from Glenwood Springs halfway to Carbondale by 1966 and to Carbondale by 1972. CDOT widened the highway between Glenwood Springs and Aspen due to population growth in the Roaring Fork Valley that began in the 1980s. Environmental sensitivity required a unique design, and the preferred alternative featured a divided expressway with a design similar to the stacked viaduct of I-70 in Glenwood Canyon. The highway also has managed High Occupancy Vehicle (HOV) lanes between Basalt and Aspen that CDOT has said are the first rural HOV lanes in the country (Salek 2011). Four lanes were completed from Aspen northwest to Basalt in various phases between 1996 and 2000 (CDOT).

Today, SH 82 serves as the main artery for traffic getting from I-70 south to towns in the

Roaring Fork Valley which serve as year round tourist destinations. In the winter, it is the only way to get to Aspen; in summer, Independence pass serves as a more scenic route.

Sixteen segments of road have been documented in Pitkin County on Independence Pass (5PT505.1 through 5PT505.16) but they appear to be a mix of portions of the current paved alignment of SH 82 (5PT505.1 to 5PT505.3) and unpaved and abandoned segments of the Independence-Twin Lakes-Roaring Fork Toll Road that are not associated with the current alignment of SH 82. The entire resource, 5PT505, is recommended as eligible for the National Register of Historic Places (NRHP) with SHPO concurrence. 5PT.606.1 and 5PT.606.2 are also associated with unpaved segments of the older road known as Independence Pass Toll Road. This resource is also recommended as eligible for the NRHP and both segments are recommended as contributing to the overall eligibility of the resource. Segments of the highway were also documented in Lake County on the east side of the Continental Divide as 5LK.128 in 1975 and 5LK.487 but these recordings were completed in the 1970s and do not provide eligibility recommendations or historical information. All of these resources cite their association with Independence Pass and/or previous Independence Pass toll roads rather than SH 82. Because of this mix of paved segments of SH 82 and abandoned toll road segments that are recorded under a single Smithsonian number (5PT505), the currently documented segment of SH 82 which is west of Aspen and not on Independence Pass, has been given a separate Smithsonian number, 5PT1363.1. In addition to the documented road segments, bridges associated with SH 82 and listed or eligible for the NRHP include Maroon Creek Viaduct (5PT136), which was originally a bridge on the Midland Railroad, and the Glenwood Springs Viaduct, also known as the Grand Avenue Viaduct (5GF2717), which will be demolished as part of the realignment of SH 82 in Glenwood Springs.

Eligibility and Management Recommendations. SH 82 is an original 1920s state highway. The northern and eastern portions of the highway have somewhat different histories but both generally followed the path of toll roads or railroads that first opened up the remote mountain silver mines surrounding Aspen to ore markets and later provided improved roads that opened the area to automobile tourism and a 1920s mining revival. Portions of the highway in the Roaring Fork River Valley made use of abandoned railroad beds built by the Colorado Midland Railroad and segments of the highway over Independence Pass made use of older toll roads. However, over the years, beginning around 1912 and extending into the 1960s, the highway required engineering innovations that allowed the Colorado Department of Highways to navigate the remote mountain terrain of Independence Pass as well as the narrow Roaring Fork River Valley. As a result, the entire resource, 5PT1363, is recommended as eligible for the NRHP under Criteria A and C.

SH 82 is an important example of an early and prominent project of the Colorado Highway Department under Criterion A because it has a direct and important association with the development of automobile tourism and recreational pursuits into the high country. The state highway also supported the mineral extraction industry by providing access to area mines that revived around Aspen in the 1920s. As such it possesses significance in the areas of

Transportation, Recreation, and Industry (Mining) under Criterion A. SH 82 also possesses significance under Criterion C in the area of Engineering. Beginning in 1924, automobiles began to access the highway that had been specifically redesigned and improved by the Colorado Department of Highways to address challenging mountain conditions. Structures such as the Maroon Creek Viaduct and Glenwood Springs/Grand Avenue Viaduct and the design of the highway over Independence Pass exemplify bold engineering solutions by the Colorado Highway Department to address the extreme challenges associated with constructing highways over mountain passes and in challenging terrain.

Metcalf recommends that segment 5PT1363.1 of SH 82 does not support the NRHP eligibility of the entire resource. Since at least the 1990s, the portion of the road adjacent to the Pitkin County Airport has been realigned, widened, and modernized so that the existing road segment is now a busy four lane, divided highway. A small portion of the segment appears to follow the original path of the road but most of the segment has been realigned. As such, segment 5PT1363.1 no longer retains integrity of location, design, workmanship, or materials. Likewise, the Pitkin County airport parallels the west side of the road segment. The southern end of the segment is at a busy intersection surrounded by other commercial and residential construction all of which compromise intregrity of setting, feeling and association. At this location, SH 82 serves as the busy entrance to the local airport and to the town of Aspen.

Evaluation of Research

Despite the presence of previously documented historic resources and one prehistoric isolate within a one mile radius of the current project area, expectations for cultural resources within the current APE were low given the small parcels for survey and the amount of modern disturbance within them. Those expectations were met as the only new site documentation for this project is a segment of SH 82, a known historic resource that parallels the western project boundary. Because field conditions were generally good and because the number and distribution of cultural resources met expectations, there is little potential for unidentified resources in the APE. Therefore, the originally stated goal of identifying and evaluating all cultural resources within the APE has been met.

Summary and Conclusions

Metcalf conducted a Class III cultural resource inventory for the Aspen Airport's master plan update in Pitkin County, Colorado. A total of 19.2 acres was intensively inventoried. Inventory resulted in the discovery and documentation of one segment of Colorado State Highway 82 (5PT1363.1). The entire resource (5PT1363) is recommended as eligible for the NRHP under Criteria A and C. Metcalf further recommends that the newly recorded segment, 5PT1363.1, does not retain the essential elements of historic integrity and, therefore, does not support the entire resource's overall assessment of NRHP eligible. As a result, Metcalf recommends a finding of *no historic properties affected* for the APE as defined at the time of inventory.

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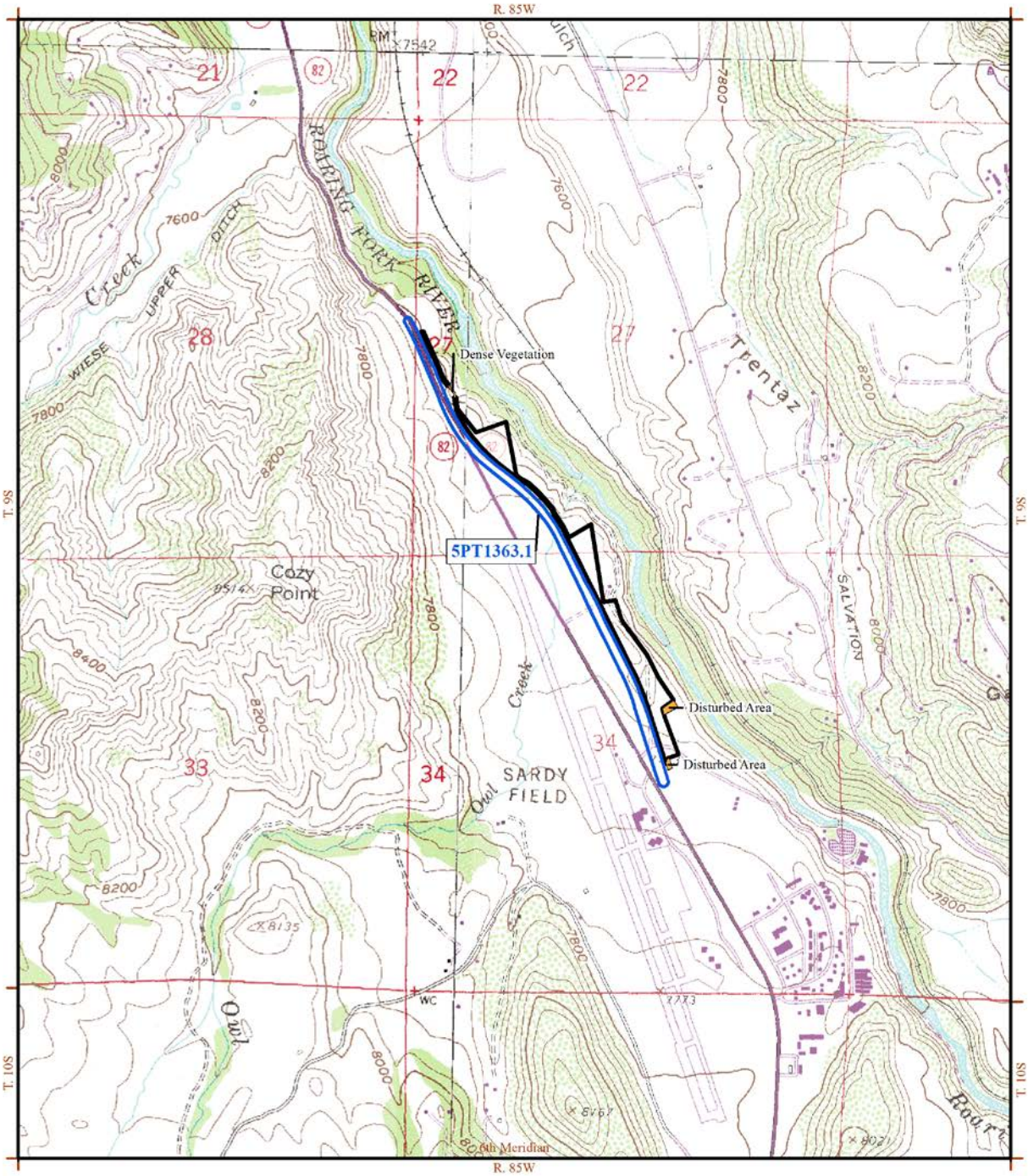
APPENDIX A: Cultural resource location map.
(**Agency copies only; not for public distribution**)



Mead & Hunt
Aspen/Pitkin County Airport
Pitkin County, CO

Metcalf Archaeological Consultants, Inc.

7.5' Quad. Overview

Woody Creek 1961 PR 1987	Ruedi 1961 PR 1987
Highland Peak 1960 PR 1987	Aspen 1960 PR 1987

1:24000

0 0.25 0.5 mi

0 0.25 0.5 km

TN

NAD 1983 UTM Zone 13N

Resource Boundary

Survey Area

Completed Survey

Reconnaissance Survey

APPENDIX B: Cultural resource forms
(**Agency copies only; not for public distribution**)

HISTORY Colorado

February 6, 2017

Kandice Krull
Environmental Protection Specialist
FAA – Denver Airport District Office
26805 E. 68th Avenue, Suite 224
Denver, CO 80249-6361

Re: Updated Determination of Effect for the Aspen-Pitkin County Airport (CHS #71361)

Dear Ms. Krull:

Thank you for your correspondence dated January 31, 2017 and received on February 3, 2017 by our office regarding the consultation of the above-mentioned project under Section 106 of the National Historic Preservation Act (Section 106).

After review of the provided information, we do not object to the proposed Area of Potential Effects (APE) for the proposed project. After review of the provided survey information we concur that segment 5PT.1363.1 does not support the overall eligibility of resource 5PT.1363 for the National Register of Historic Places. We also concur that resource 5PT.538 is eligible for the National Register of Historic Places.

After review of the scope of work and assessment of adverse effect, our previous concurrence with the recommended finding of *no adverse effect* [36 CFR 800.5(d)(1)] under Section 106 for resource 5PT.1363, including segment 5PT.1363.1 remains. After review of the provided updated information, we concur with the recommended finding of *no historic properties affected* [36 CFR 800.4(d)(1)] under Section 106 for resource 5PT.538..

Should unidentified archaeological resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR 60.4) in consultation with our office pursuant to 36 CFR 800.13. Also, should the consulted-upon scope of the work change please contact our office for continued consultation under 36 CFR 800.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Jennifer Bryant, our Section 106 Compliance Manager, at (303) 866-2673 or jennifer.bryant@state.co.us.

Sincerely,

for:
Steve Turner, AIA
State Historic Preservation Officer

Received
FEB 13 2017
By:
FAA DEN ADO

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Denver Airports District Office
26805 E 68th Avenue, Suite 224
Denver, CO 80249-6361

January 31, 2017

Mr. Steve Turner
State Historic Preservation Office
1200 Broadway
Denver, CO 80203

Re: Updated Determination of Effect for the Aspen-Pitkin County Airport

Dear Mr. Turner:

The Federal Aviation Administration (FAA) issued a Section 106 finding of a *No Historic Properties Affected* for the proposed improvement projects at the Aspen-Pitkin County Airport (Airport) on November 17, 2016. Your office requested additional information on the potential impacts to resource 5PT.538 in a letter dated December 2, 2016. The purpose of this letter is to provide the additional information requested.

Resource 5PT.538 (Airport Ranch) is eligible for listing on the National Register of Historic Places. The edge of the historic boundary for Airport Ranch closest to the proposed project corresponds to the Airport fence line. The Airport fence line is approximately 455 feet west of the existing runway. The proposed project includes shifting the runway to west by 80 feet. Construction activities should be at least 300 feet from the edge of the boundary of the resource and 640 feet from the closest structure associated with Airport Ranch. Based on this information, the FAA still finds the No Historic Properties Affected finding to be applicable. The FAA respectfully requests the Colorado State Historic Preservation Office to provide written concurrence with the Section 106 determination.

If you have any comments, questions, or concerns regarding the analyses and conclusions used to determine the potential effects of the proposed project on historic, cultural, and archaeological resources, or have any questions regarding the project, please do not hesitate to contact me.

Sincerely,

Kandice Krull
Environmental Protection Specialist
FAA - Denver Airport District Office
303-342-1261

Enclosures

Management Data Form

A *Management Data Form* should be completed for each cultural resource recorded during an archaeological survey. Isolated finds and revisits are the exception and they do not require a *Management Data Form*. Please attach the appropriate component forms and use continuation pages if necessary. Fields can be expanded or compressed as necessary.

1. **Resource Number**: 5PT1363.1

2. **Temporary Resource Number**:

3. **Attachments (check as many as apply)**
- ☐ Prehistoric Archaeological Component
- ☐ Historic Archaeological Component
- ☐ Historic Architectural Component Form
- ☒ Linear Component
- ☒ Sketch/Instrument Map (required)
- ☒ U.S.G.S. Map Photocopy (required)
- ☒ Photograph(s) (required)
- ☐ Other, specify:

4. **Official determination (OAHP use only)**
- ☐ Determined Eligible NR\SR _____
- ☐ Determined Not Eligible NR\SR _____
- ☐ Nominated _____
- ☐ Need Data NR\SR _____
- ☐ Contributing to NR Dist.\SR Dist. _____
- ☐ Not Contributing to NR Dist.\SR Dist. _____
- ☐ Supports overall linear eligibility NR\SR _____
- ☐ Does not support overall linear eligibility NR\SR _____

I. IDENTIFICATION

5. **Resource Name**: Colorado State Highway 82

6. **Project Name/Number**: Pitkin County Airport

7. **Government Involvement**: ☐ Local ☐ State ☒Federal
Agency: Federal Aviation Administration

8. **Site Categories (check as many as apply)**:
Prehistoric: ☐ archaeological site ☐ paleontological site ☐ In existing National Register District
National Register District name:
Historic: ☐ archaeology site ☐ building(s) ☒structure(s) ☐ object(s) ☐ In existing National Register District
National Register District name:

9. **Owner(s) Name and Address**: Colorado Department of Transportation

10. **Boundary Description and Justification**: Extent of road surface and 75 ft right of way (total width) of Colorado State Highway 82 (Hwy 82) within the project Area of Potential Effect (APE)

11. **Site/Property Dimensions** Length: 2036.7m Width: 27.4m Area: 62,108 m^2 Acres (m^2/4047): 15.3

Area was calculated as: ☐ Length x Width (rectangle/square) ☐ Length x Width x 0.785 (Ellipse) ☒ GIS

II. LOCATION

12. **Legal Location**

PM	6th	Township	9S	Range	85W	Section	27	SW	¼	NW	¼
PM	6th	Township	9S	Range	85W	Section	27	S	½	SW	¼
PM	6th	Township	9S	Range	85W	Section	27	NW	¼	SW	¼
PM	6th	Township	9S	Range	85W	Section	34	E	½	NW	¼

If section is irregular, explain alignment method:

13. **USGS Quad**: Aspen 1960 (PR 1987); Highland Peak 1960 (PR 1987)

14. **County**: Pitkin

15. **UTM Coordinates**: Datum used ☐ NAD 27 ☒ NAD 83 ☐ WGS 84 Other:

A. Zone 13 337907 mE 4245200 mN (north end)

B. Zone 13 338251 mE 4344625 mN (south end)

C. Zone __; _____ mE _____ mN

D. Zone __; _____ mE _____ mN

16. **UTM Source**: ☒ Corrected GPS/rectified survey (<5m error) ☐ Uncorrected GPS ☐ Map template
Other (explain):

17. **Site elevation** (feet): 7560-7680 ft.

18. **Address**: Lot: Block: Addition:

19. **Location/Access**: The recorded segment of Highway 82 runs parallel to the Pitkin County airport which is located approximately four miles northwest of the town of Aspen.

III. NATURAL ENVIRONMENT/SITE CONDITION

20. **General Description** (should include both on site as well as geographical setting with aspect, landforms, vegetation, soils, depositional environment, water, ground visibility): Site 5PT1363.1 is a newly documented segment of Colorado State Highway 82 (SH 82). SH 82 is located on Colorado's Western Slope and extends 85.29 miles in total from Glenwood Springs to Twin Lakes. From Glenwood Springs the highway travels southeast up the Roaring Fork River Valley to Aspen then continues to the southeast and east over Independence Pass where it ends at its intersection with State Highway 24 near the town of Twin Lakes. The Roaring Fork River is a northwest flowing river that originates in the Sawatch Mountains on Independence Pass and terminates near Glenwood Springs at its confluence with the Colorado River. The documented segment of SH 82 is located about four miles northwest of Aspen where it traverses a terrace along the western bank of the Roaring Fork River at the base of the Elk Mountains. Deposits on the river terrace are silty and cobbly alluvium deposited by the fast flowing Roaring Fork River. Site 5PT1363.1 is adjacent to the Aspen Pitkin County Airport and this segment of highway serves as part of the busy entrance into the airport and to the town of Aspen. At this location, SH 82 is a modern four lane highway that appears to deviate significantly from the original state highway route. In addition to the airport, the highway is encompassed by modern commercial and residential construction. Immediately to the east of the highway, the current project area includes some small parcels of undeveloped or minimally disturbed airport land along the terrace edge. Vegetation in these areas consists of sage, prickly pear cactus, wildflowers, willows, and dense oakbrush on the east facing slopes to the river and on the north and south facing slopes of the east-flowing drainages coming off the Elk Mountains to the west. Ground visibility varied from 60 to 80 percent on the terrace edge to 0 to 20 percent on the steeper slopes of the drainages.

21. **Soil depth (cm) and description**: Sediments are silty loam alluvium with dense gravels and cobbles of unknown depth.

22. **Condition**

a. Architectural/Structural
- ☐ Excellent
- ☐ Good
- ☒ Fair
- ☐ Deteriorated
- ☐ Ruin

b. Archaeological/Paleontological
- ☐ Undisturbed
- ☐ Light disturbance
- ☐ Moderate disturbance
- ☒ Heavy disturbance
- ☐ Total disturbance

23. **Describe condition**: The original road has been completely replaced by a four lane modern highway with modern cement bridges that no longer follows the original route of State Highway 82.

24. **Vandalism**: ☐Yes ☒ No

Describe:

IV. NATIONAL/STATE REGISTER ELIGIBILITY ASSESSMENT

25. **Context or Theme**: Highways to the Sky: A Context and History of Colorado's Highway System, Colorado Department of Transportation; Colorado History: A Context for Historical Archaeology (Church et al. 2007)

26. **Applicable National Register Criteria**:
- ☒ A. Associated with events that have made a significant contribution to the broad pattern of our history
- ☐ B. Associated with the lives of persons significant in our past
- ☒ C. Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- ☐ D. Has yielded, or may be likely to yield, information important in history or prehistory
- ☐ Does not meet any of the National Register criteria
- ☐ Qualifies under exceptions A through G. List exception(s):

27. **Applicable State Register Criteria**:
- ☒ A. Property is associated with events that have made a significant contribution to history
- ☐ B. Property is connected with persons significant in history
- ☒ C. Property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ D. Property is of geographic importance
- ☐ E. Property contains the possibility of important discoveries related to prehistory or history
- ☐ Does not meet any of the State Register criteria

28. **Area(s) of significance**: Transportation, Recreation, Industry (Mining)

29. **Period(s) of significance**: The period of significance for SH 82 is during the 1920s – SH 82 is an original 1920s state highway. In 1911, the newly formed Colorado Highway Commission approved the addition of SH 82 to the state highway system, and construction took place on the east side of the pass between 1916 and 1923. The first motorized vehicles traveled over the pass in 1924. This improved road served the development of industry when mining revived between Leadville and Aspen in the early 1920s (ACRE 2002, Autobee and Dobson-Brown 2003, CDOT, Salek 2011).

30. **Level of significance**: ☐ National ☒ State ☒ Local

31. **Statement of significance**: SH 82 is an original 1920s state highway. The northern and eastern portions of the highway have somewhat different histories but both generally followed the path of toll roads or railroads that first opened up the remote mountains silver mines surrounding Aspen to ore markets and later provided improved roads that opened the area to automobile tourism and a 1920s mining revival. Portions of the highway in the Roaring Fork River Valley make use of abandoned railroad beds built by the Colorado Midland Railway Company and segments of the highway over Independence Pass made use of older toll roads. However, over the years, beginning around 1912 and extending in to the 1960s, the highway required engineering innovations that allowed the Colorado Highway Department (CHD) to navigate the remote mountain terrain of Independence Pass as well as the narrow Roaring Fork River Valley. As a result, the entire resource, 5PT1363 is recommended as eligible for the NRHP under Criteria A and C.

SH 82 is an important example of an early and prominent project of the Colorado Highway Department under Criterion A because it has a direct and important association with the development of automobile tourism and recreational pursuits into the high country. The state highway also supported the mineral extraction industry by providing access to area mines that revived around Aspen in the 1920s. As such it possesses significance in the areas of Transportation, Recreation, and Industry (Mining) under Criterion A. SH 82 also exhibits significance under *Criterion C* in the area of Engineering. Beginning in 1924 automobiles began to access the highway that had been specifically redesigned and improved by the Colorado Department of Highways to address challenging mountain conditions. Structures such as the Maroon Creek Viaduct and Glenwood Springs/Grand Avenue Viaduct and the design of the highway over Independence Pass exemplify bold engineering solutions by the CHD to address the extreme challenges associated with constructing highways over mountain passes and in challenging terrain.

32. **Statement of historic integrity related to significance**: Segment 5PT1363.1 of SH 82 does not support the eligibility of the entire resource. Since at least the 1990s, the portion of the road adjacent to the Pitkin County Airport has been realigned, widened and modernized so that the existing road segment is now a busy four lane, divided highway. A small portion of the segment appears to follow the original path of the road but most of the segment has been realigned. As such, segment 5PT1363.1 does not retain integrity of location, design, workmanship, or materials. In addition, the Pitkin County airport parallels the west side of the road segment. The southern end of the segment is at a busy intersection surrounded by other commercial and residential construction all of which compromise intregrity of setting, feeling and association. At this location, SH 82 serves as the busy entrance to the local airport and to the town of Aspen.

33. **National Register Eligibility Field Assessment**: ☒ Eligible ☐ Not eligible ☐ Need data
Linear Segment Evaluation (if applicable): ☐ Supporting ☒ Non Supporting
34. **Status in an Existing National Register District**: ☐ Contributing ☐ Non-contributing
35. **State Register Eligibility Field Assessment**: ☐ Eligible ☐ Not eligible ☐ Need data
36. **Status in an Existing State Register District**: ☐ Contributing ☐Non-contributing
37. **National/State Register District Potential**: ☐ Yes ☒ No Describe:
38. **Cultural Landscape Potential**: ☐ Yes ☒ No Describe:
39. **If Yes to either 37 or 38, is this site**: ☐ Contributing ☐ Non-contributing Explain:

V. MANAGEMENT AND ADMINISTRATIVE DATA

40.**Threats to Resource**: ☐ Water erosion ☐ Wind erosion ☐ Grazing ☐ Neglect ☐ Vandalism
☐Recreation ☒ Construction ☐ Other (explain):

41. **Existing protection** ☒ None ☐ Marked ☐ Fenced ☐ Patrolled ☐ Access controlled
Other (specify):
Comments:

42. **Local landmark designation**: 43. **Easement**:

44. **Recorder's Management Recommendations**: No further work is recommended for the current project

VI. DOCUMENTATION

Management Data Form

Resource Number: 5PT1363.1 **Temporary Resource Number**:

45. **Previous actions accomplished at the site**: ☐ Tested ☐ Partial excavation ☐ Complete excavation

Date(s):

a. Excavations:

b. Stabilization: Date(s):

c. HABS/HAER documentation [date(s) and numbers]:

d. Other:

46. **Known collections/reports/interviews and other references (list)**:

47. **Primary location of additional data**:

48. **State or Federal Permit number**: CO State 2016-74, expires 02282017

49. **Collection**: Artifact collection authorized: ☒ Yes ☐ No Were artifacts collected: ☐ Yes ☒ No

Artifact repository:

Collection method: ☐ Diagnostics ☐ Grab Sample ☐ Random Sample

Other (specify):

50. **Photograph Numbers**: Digital Photo Roll 16-057, Images 447-451

Files or negatives stored at: Metcalf Archaeological Consultants, Inc., Golden, CO

51. **Report title**: Mead and Hunt, Inc., Pitkin County Airport Survey Project: Report of the Class III Cultural Resource Inventory, Pitkin County, Colorado

52. **Recorder(s)**: Amy Nelson **Date**: 07/08/2016

53. **Recorder affiliation**: Metcalf Archaeological Consultants, Inc.

Phone number/Email: (303) 425-4507/mac@metcalfarchaeology.com

NOTE: Please attach a site map, a photocopy of the USGS 1:24000 map indicating resource location, and photographs.

History Colorado - Office of Archaeology & Historic Preservation
1200 Broadway, Denver, CO 80203
303-866-3395

COLORADO CULTURAL RESOURCE SURVEY
Linear Component Form

OAHP 1418
Rev. 11/2010

This form should be completed for each linear resource or linear segment. Use this form in conjunction with the *Management Data Form.* Call OAHP staff (303-866-5216) prior to assigning a resource number.

I. Resource Identification

1. **Resource Number**: 5PT1363.1 2. T**emporary Resource Number**:

3. **Site Name**: Colorado State Highway 82

4. **Record of**: ☐ Entire resource ☒ Segment

II. Resource Description

5. **Resource Type**: ☒ Road ☐ Railroad ☐ Trail ☐ Ditch/Canal

Other (specify):

6. **Component Description**: The recorded segment is a portion of State Highway 82 beginning immediately north of the Pitkin County Airport and about four miles north/northwest of the town of Aspen, Colorado. It runs along a terrace on the west bank of the Roaring Fork River through the narrow valley at the base of the Elk Mountains generally paralleling the river. This portion of the highway serves as the busy entrance into Aspen. The segment trends northwest to southeast and measures approximately 6,682 ft long and about 90 ft wide. It is a paved and maintained four lane divided highway that accommodates a high density of traffic. Much of the segment is bordered by concrete barriers and the road utilizes bridges to pass over three east-flowing drainages. All three bridges are of modern concrete construction. Throughout the 1990s and 2000s, the road has been subject to multiple rerouting and widening projects conducted by the Colorado Department of Transportation. A small portion (approximately 1665 ft) of the recorded segment appears to follow the original route of the highway; however, most of the segment has been rerouted.

SH 82 extends from Glenwood Springs to Twin Lakes, Colorado. The portion of the highway between Glenwood Springs and Aspen provides the only year-round state highway access to Aspen while the portion of the route over Independence Pass between Aspen and Twin Lakes/US 24 is open seasonally from Memorial Day through early November depending on snow. The high point of the highway, Independence Pass at 12,096 feet, is about twenty miles east of Aspen.

7. **Original use**: transportation

8. **Current use**: transportation

9. **Modifications (describe and include dates)**: No traces of the original road are present at this location. The highway is a modern and busy four lane highway with three modern concrete bridges.

10. **Extent of Entire Resource**: State Highway 82 (SH 82) follows an 85.29 mile route through Eagle, Garfield, Pitkin, and Lake Counties that connects the communities of Glenwood Springs, Carbondale, Basalt and Aspen west of the Continental Divide with the small village of Twin Lakes and US Highway 24 on the east side of the Continental Divide.

11. **Associated Artifacts**: none

12. **Associated Features or Resources**: none

III. Research Information

13. **Architect/Engineer**: unknown

Source(s) of Information:

14. **Builder**: Colorado Highway Department

Source(s) of Information: www.codot.gov/projects/SH82/corridor-history; ACRE 2002, Autobee and Dobson-Brown 2003, CDOT, Salek 2011

15. **Date of Construction / Date Range**: 1920s to 1969 but continues to be realigned, widened, and maintained to the present day.

Source(s) of Information: www.codot.gov/projects/SH82/corridor-history; ACRE 2002, Autobee and Dobson-Brown 2003, CDOT, Salek 2011

16. **Historical / Archival Data**: Beginning with the early gold rush that began in 1859, Colorado's mining industry was a significant contributor to the state's economic, political, and social development. This trend continued as the mining industry expanded with the discovery of silver, copper, lead and zinc in the central mountain region and resulted in population explosions in mining camps and nearby supply centers. Wagon roads and railroads were essential to the transportation needs of the mining industries and the communities that surrounded them. At times, wagon roads were the only access to mining towns in narrow and steep mountain canyons. With improved access, towns such as Aspen became supply, processing, and transportation hubs for early mining industries in the Central Mountain region. Some of these wagon roads and railroad grades later became part of the state highway system and, in the case of Aspen, contributed to its rebirth as one of the premier tourist destinations in the state.

SH 82 has been an important link in the state's transportation network since Aspen became the center of a silver mining boom. Silver discoveries around Aspen during the late 1870s led to increased road building activity in an effort to improve transport of ore from the remote mountain community to refineries in Leadville. Previously, mule trains were used to transport supplies and ore between Aspen and Leadville but the trip was difficult and costly (Mehls 1982:76). Better maintained toll roads over mountain passes solved some of these problems and, in the early 1880s, B. Clark Wheeler and others with a stake in Aspen mining formed the Aspen, Hunter Creek, and Leadville Toll Road Company to build and operate a toll road over Independence Pass from Aspen to Twin Lakes, south of Leadville. The route was shorter than those currently in use that travelled over Taylor Pass and through Buena Vista and the road immediately improved access to Aspen but the route was still arduous and was impassable for much of the year primarily because of winter snow (Mehls 1984:77). Before long, an easier route reached Aspen from the north via the Grand Valley and Glenwood Springs. These northern toll roads followed the narrow Roaring Fork River Valley and were constructed in the valley throughout the late 1880s with a toll road stretching from Carbondale to Aspen opening in 1885 (Mehls 1982:78). The road to the north opened access to larger markets for ore in Grand Junction and the Front Range.

Also seeking to profit from silver mining in Aspen, The Denver and Rio Grande Railroad reached Aspen in 1887 followed closely by the Colorado Midland Railroad in 1888. The Colorado Midland Railway Company was founded in 1883 by H.D. Fisher and other Colorado Springs businessmen. The railway was designed and built as a standard gauge line to more easily interchange with the major railroads of Colorado Springs and was the first standard gauge line to penetrate Colorado's Rockies via a route over Ute Pass west of Colorado Springs and on to Leadville via Trout Creek Pass. After railroad service arrived in Aspen, use of the toll road over Independence Pass waned and, when the silver mines closed in the 1890s, the road was mostly abandoned (Mehls 1982). But, transport of both people and supplies via railroad was also costly and generated extreme competition between the different rail lines. As a result of this competition, the Midland went out of business by 1920 (Mehls 1982).

In 1911, the newly formed Colorado Highway Commission approved the addition of SH 82 to the state highway system (CDOT; Salek 2011). Concentrating first on automobile tourism using Independence Pass, and encouraged to make road improvements through the Good Roads Movement (ACRE 2002), Aspen citizens again worked to open and improve the route over Independence Pass. Construction took place on the east side of the pass between 1916 and 1923 (Salek 2011). The improved automobile road deviated from the original toll road, which was characterized as being very narrow with sharp and dangerous curves and grades as steep as 12 and 14 percent (Salek 2011). Curves and steep grades had to be rebuilt for automobiles and the state did this in sections causing some sections of the original toll road to be abandoned. The first motorized vehicles traveled over the pass in 1924. This improved road served the development of industry when mining revived between Leadville and Aspen in the early 1920s. The highway was also known as the Roaring Fork Route on early tourist maps and brochures and the first federal aid system in 1923 included the route as No. 82. The last section built on Independence Pass, known as the Weller Grade, had a maximum grade of 6.6 percent and a width up to 17 feet, including cement rubble masonry headwalls, rustic log guard rails, and cement rubble masonry retaining and guard rails in the Weller Grade section.

SH 82 also incorporated parts of the Colorado Midland Railroad route to extend the highway to the north. The railroad tracks were pulled up around 1919 and the railroad bed in parts of the Roaring Fork Valley were converted for automobile use (Mehls 1982:94). In 1937, four miles between Glenwood Springs and Carbondale was paved; the remainder of the road to Aspen was paved in 1938. The last section of SH 82 to be paved over Independence Pass was done by 1969 (Salek 2011).

An expressway was completed from Glenwood Springs halfway to Carbondale by 1966 and to Carbondale by 1972. CDOT widened the highway between Glenwood Springs and Aspen due to population growth in the Roaring Fork Valley that began in the 1980s. Environmental sensitivity required a unique design, and the preferred alternative featured a divided expressway with a design similar to the stacked viaduct of I-70 in Glenwood Canyon. The highway also has managed High Occupancy Vehicle (HOV) lanes between Basalt and Aspen that CDOT has said are the first rural HOV lanes in the country (Salek 2011). Four lanes were completed from Aspen northwest to Basalt in various phases between 1996 and 2000 (www.codot.gov/projects/SH82/corridor-history).

Today, SH 82 serves as the main artery for traffic getting from I-70 south to towns in the Roaring Fork Valley which serve as year round tourist destinations. In the winter, it's the only way to get to Aspen; in summer, Independence pass serves as a more scenic route.

Sixteen segments of road have been documented in Pitkin County on Independence Pass (5PT505.1 through 5PT505.16) but they appear to be a mix of portions of the current paved alignment of SH 82 (5PT505.1 to 5PT505.3) and unpaved and abandoned segments of the Independence-Twin Lakes-Roaring Fork Toll Road that are not associated with the current alignment of SH 82. The entire resource, 5PT505 is recommended as eligible for the National Register of Historic Places (NRHP) with SHPO concurrence. 5PT.606.1 and 5PT.606.2 are also associated with unpaved segments of the older road known as Independence Pass Toll Road. This resource is also recommended as eligible for the NRHP and both segments are recommended as contributing to the overall eligibility of the resource. Segments of the highway were also documented in Lake County on the east side of the Continental Divide as 5LK.128 in 1975 and 5LK.487 but these recordings were completed in the 1970s and do not provide eligibility recommendations or historical information. All of these resources cite their association with Independence Pass and/or previous Independence Pass toll roads rather than SH 82. Because of this mix of paved segments of SH 82 and abandoned toll road segments that are recorded under a single Smithsonian number (5PT505), the currently documented segment of SH 82 which is west Aspen and not on Independence Pass, has been given a separate Smithsonian number, 5PT1363.1. In addition to the documented road segments, bridges associated with SH 82 and listed or eligible for the NRHP include Maroon Creek Viaduct (5PT136), which was originally a bridge on the Midland Railroad, and the Glenwood Springs Viaduct, also known as the Grand Avenue Viaduct (5GF2717), which will be demolished as part of the realignment of SH 82 in Glenwood Springs (Autobee and Dobson-Brown 2003).

17. **Cultural Affiliation and Justification**: American based on archival records and historic maps.

IV. Management Recommendations No further work is recommended for the current project

18. **Eligibility of Entire Resource**

☒ Eligible ☐ Not Eligible ☐ Need Data Is this an official determination? ☐ Yes ☒ No

Remarks / Justification: SH 82 is an original 1920s state highway. The northern and eastern portions of the highway have somewhat different histories but both generally followed the path of toll roads or railroads that first opened up the remote mountains silver mines surrounding Aspen to ore markets and later provided improved roads that opened the area to automobile tourism and a 1920s mining revival. Portions of the highway in the Roaring Fork River Valley make use of abandoned railroad beds built by the Colorado Midland Railway Company and segments of the highway over Independence Pass made use of older toll roads. However, over the years, beginning around 1912 and extending in to the 1960s, the highway required engineering innovations that allowed the Colorado Highway Department (CHD) to navigate the remote mountain terrain of Independence Pass as well as the narrow Roaring Fork River Valley. As a result, the entire resource, 5PT1363 is recommended as eligible for the NRHP under Criteria A and C.

SH 82 is an important example of an early and prominent project of the Colorado Highway Department under Criterion A because it has a direct and important association with the development of automobile tourism and recreational pursuits into the high country. The state highway also supported the mineral extraction industry by providing access to area mines that revived around Aspen in the 1920s. As such it possesses significance in the areas of Transportation, Recreation, and Industry (Mining) under Criterion A. SH 82 also exhibits significance under Criterion C in the area of

Engineering. Beginning in 1924 automobiles began to access the highway that had been specifically redesigned and improved by the Colorado Department of Highways to address challenging mountain conditions. Structures such as the Maroon Creek Viaduct and Glenwood Springs/Grand Avenue Viaduct and the design of the highway over Independence Pass exemplify bold engineering solutions by the CHD to address the extreme challenges associated with constructing highways over mountain passes and in challenging terrain (ACRE 2002, Autobee and Dobson-Brown 2003, CDOT, Salek 2011).

19. **Evaluation of integrity of the segment of the entire linear resource being recorded** (Complete only if "Segment" under item 4 is checked and the entire resource is marked as Eligible under item 18)

☐ Supporting ☒ Non-supporting ☐ Not applicable

Remarks / Justification: Segment 5PT1363.1 of SH 82 does not support the eligibility of the entire resource. Since at least the 1990s, the portion of the road adjacent to the Pitkin County Airport has been realigned, widened and modernized so that the existing road segment is now a busy four lane, divided highway. A small portion of the segment appears to follow the original path of the road but most of the segment has been realigned. As such, segment 5PT1363.1 no longer retains integrity of location, design, workmanship, or materials. Likewise, the Pitkin County airport parallels the west side of the road segment. The southern end of the segment is at a busy intersection surrounded by other commercial and residential construction all of which compromise integrity of setting, feeling and association. At this location, SH 82 serves as the busy entrance to the local airport and to the town of Aspen.

20. **Recorder(s)**: Amy Nelson 21. **Date**: 07/08/2016

Colorado Historical Society - Office of Archaeology & Historic Preservation
1560 Broadway, Suite 400 Denver, CO 80202
303-866-3395

References Cited:

Associated Cultural Resource Experts (ACRE)
2002 *Highways to the Sky: A Context and History of Colorado's Highway System.* Submitted to Colorado Department of Transportation. Ms. on file, Colorado Office of Archaeology and Historic Preservation, Denver.

Autobee, Robert and Deborah Dobson-Brown
2003 *Colorado State Roads and Highways, National Register of Historic Places Multiple Property Submission.* Associated Cultural Resource Experts (ACRE). Ms. on file, Colorado Office of Archaeology and Historic Preservation, Denver.

CDOT www.codot.gov/projects/SH82/corridor-history. Accessed August 2016.

Mehls, Steven F.
1982 *The Valley of Opportunity: A History of West-Central Colorado.* Bureau of Land Management Cultural Resource Series, Number 12, Denver.

Salek, M.E.
2011 *The Highways of Colorado.* Electronic document, http://www.msalek.com/colo. Accessed on 8/5/2016.

Resource Number: 5PT1363.1 **Temporary Resource Number**:

SITE PHOTOS

5PT1363.1: State Highway 82, view south/southeast from north end of recorded segment. Digital Photo Roll 16-057, Image 451. Photo taken 7/7/2016 by A. Nelson.

5PT1363.1: State Highway 82, view south/southeast from approximate midpoint of recorded segment. Digital Photo Roll 16-057, Image 447. Photo taken 7/7/2016 by A. Nelson.

SITE PHOTOS

5PT1363.1: State Highway 82, view north/northwest from approximate midpoint of recorded segment. Digital Photo Roll 16-057, Image 448. Photo taken 7/7/2016 by A. Nelson.

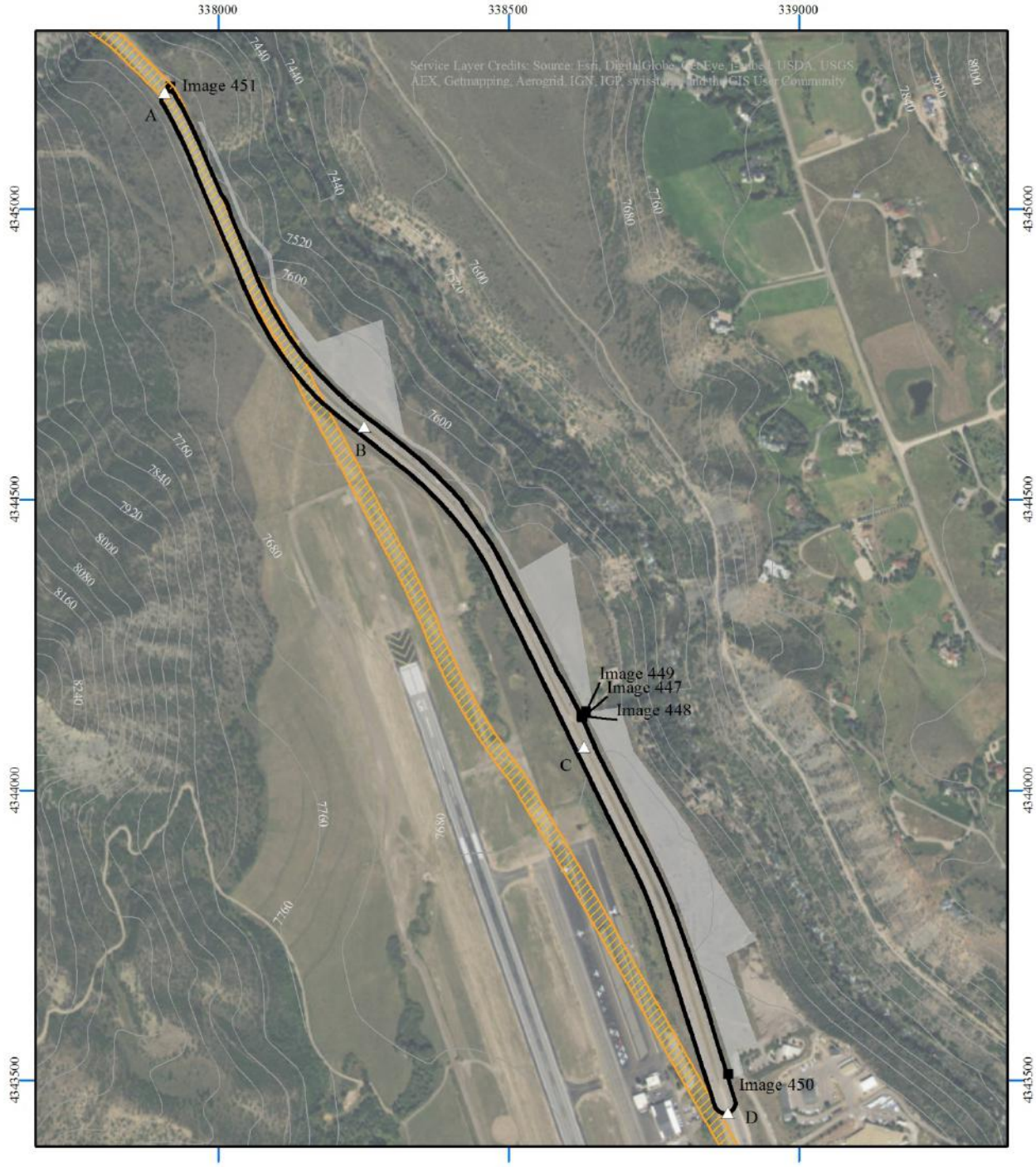
5PT1363.1: State Highway 82, view west from approximate midpoint of recorded segment. Digital Photo Roll 16-057, Image 449. Photo taken 7/7/2016 by A. Nelson.

SITE PHOTOS

5PT1363.1: State Highway 82, view north/northwest from approximate southern end of recorded segment. Digital Photo Roll 16-057, Image 450. Photo taken 7/7/2016 by A. Nelson.

Resource Number: 5PT1363.1 **Temporary Resource Number**:

SITE SKETCH MAP



Mead & Hunt
Aspen/Pitkin County Airport
Pitkin County, CO
5PT1363.1

Metcalf Archaeological Consultants, Inc.

1:10800

0 450 900 ft

0 200 m

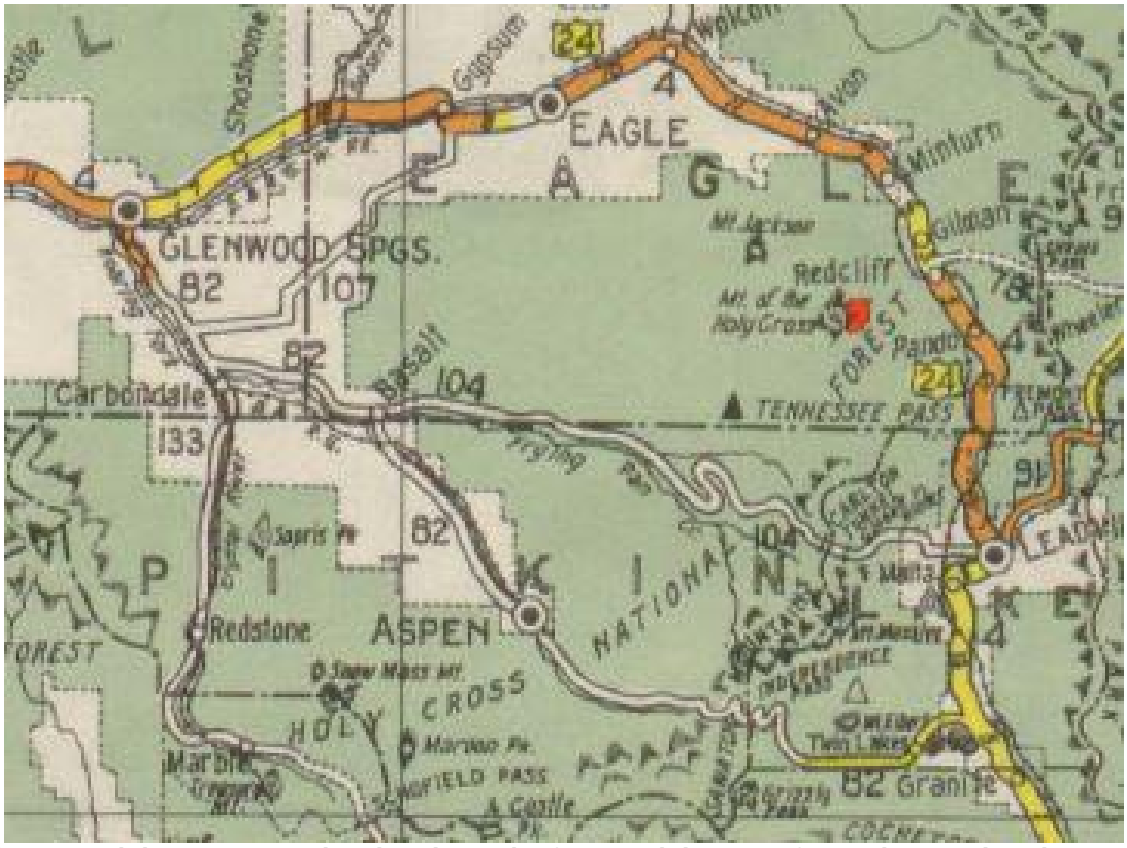
TN

NAD 1983 UTM Zone 13N

Photo Point
UTM Points
Contour Line (40 ft.)
Resource Boundary
1960 -1987 Alignment
Current Alignment
Survey Area

Resource Number: 5PT1363.1 **Temporary Resource Number**:

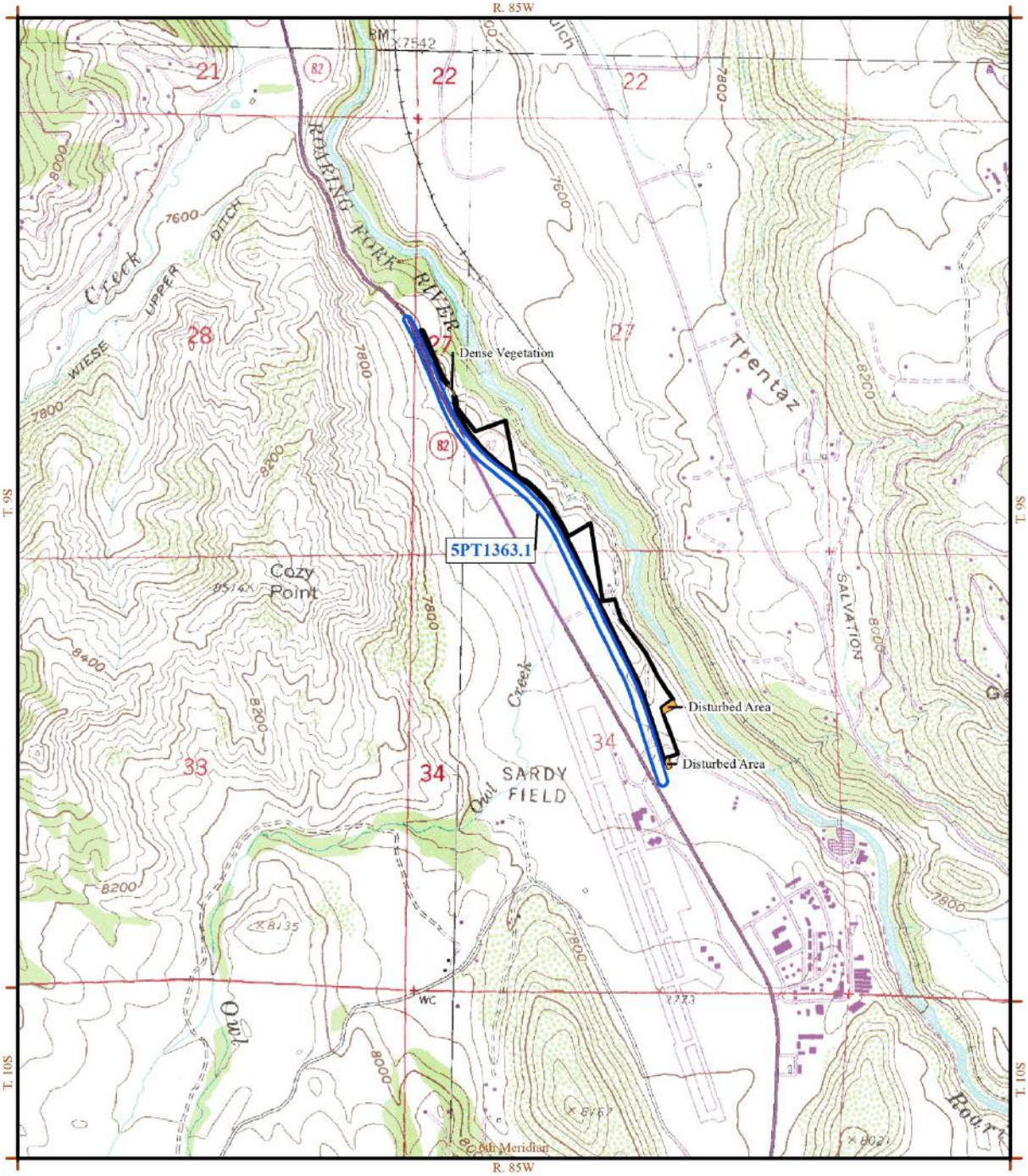
HISTORIC MAP



Colorado State Highways maps showing the path of State Highway 82 from Glenwood Springs travelling southeast through Aspen then east to Twin Lakes.

Resource Number: 5PT1363.1 **Temporary Resource Number**:

SITE LOCATION MAP



Mead & Hunt
Aspen/Pitkin County Airport
Pitkin County, CO

Metcalf Archaeological Consultants, Inc.

7.5' Quad. Overview

Woody Creek 1961 PR 1987	Ruedi 1961 PR 1987
Highland Peak 1960 PR 1987	Aspen 1960 PR 1987

1:24000

0 0.25 0.5 mi

0 0.25 0.5 km

TN

NAD 1983 UTM Zone 13N

Resource Boundary

Survey Area

Completed Survey

Reconnaissance Survey

HISTORY Colorado

January 26, 2016

Kandice Krull
Environmental Protection Specialist
FAA-Denver Airport District Office
26805 E 68th Avenue, Suite 224
Denver, CO 80249-6361

Re: Scoping Meetings for Aspen/Pitkin County Airport Environmental Assessment (EA) for Airport Improvements (HC # 69520)

Dear Ms. Krull,

Our office received correspondence dated January 14, 2016 and received January 19, 2016 from Mead & Hunt for the above referenced public scoping meetings in Aspen and Snowmass, Colorado in February 2016. We appreciate the invitation, but will be unable to attend. In lieu of attendance, we offer the following comments:

Our office represents the State of Colorado consulting under Section 106 of the National Historic Preservation Act (Section 106) on potential effects to cultural resources eligible to the National Register of Historic Places (NRHP) from projects funded in whole or in part under the direct or indirect jurisdiction of a Federal agency (36 CFR 800.16 (7)). Federal involvement by the Federal Aviation Administration (FAA) indicates that this project will be subject to Section 106.

The proposed airport improvements may affect cultural resources. Once an area of potential effect is refined by the FAA, we recommend identification of cultural resources in order to comment on potential direct and indirect effects to cultural resources under Section 106. Early identification of cultural resources within the proposed project area can inform project planning, potentially avoiding or minimizing adverse impacts to resources eligible to the NRHP.

We appreciate the opportunity to provide comment at the public scoping meeting. If we may be of further assistance, please do not hesitate to contact Katie Arntzen, our Section 106 Compliance Manager, at (303) 866-4608 or katie.arntzen@state.co.us.

Sincerely,

for Steve Turner, AIA
State Historic Preservation Officer

cc:
Kate Andrus
Mead & Hunt
1743 Wazee Street, Suite 400
Denver, CO 80202

Appendix 4
DOT Section 4(f) Letter

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

U.S. Department
of Transportation
**Federal Aviation
Administration**

Northwest Mountain Region
Denver Airports District Office
26805 E 68th Ave, Suite 224
Denver, CO 80249-6361

August 15, 2017

Mr. Jon Peacock
Pitkin County Manager
530 East Main Street, #3
Aspen, CO 81611

Re: Draft Section 4(f) de minimis finding for the Proposed Improvement Projects at the Aspen/Pitkin County Airport

Dear Mr. Peacock:

The Aspen/Pitkin County Airport (ASE), in cooperation with the Federal Aviation Administration (FAA), is proposing various improvement projects. These improvements include the reconfiguration of Runway 15/33 and the construction of a new terminal building. Portions of the runway reconfiguration project will impact the Owl Creek Trail (Trail). The Trail has been identified as a Section 4(f) resource.

Section 4(f) of the US Department of Transportation (DOT) Act requires the DOT to make an effort to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites. It also prohibits the use of Section 4(f) resources if a feasible and prudent alternative is available. In accordance with the requirements of Section 4(f), the FAA has issued the attached draft Section 4(f) *de minimis* finding for the proposed improvements at ASE.

The impacts of a project may be determined to be *de minimis* if:

1. The use of the Section 4(f) resource, together with any avoidance, minimization, and mitigation, does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f);
2. The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, or attributes of the Section 4(f) resource; and
3. The official with jurisdiction over the resource, after being informed of the public comments and the FAA's intent to make the *de minimis* impact finding, concur in writing that the project will not adversely affect the activities, features, or attributes that qualify the property for protection under Section 4(f).

The FAA respectfully requests for you to review the draft finding. The draft Section 4(f) *de minimis* finding will be released for public review at the same time as the Draft EA for the proposed improvement projects. The public comment period will close on October 3, 2017. The FAA will ensure that you receive any comments that are submitted on the proposed impacts to the Trail. The FAA will then revise the finding based on comments and request, if still appropriate, that you provide written concurrence with the *de minimis* impact finding.

If you have any comments, questions, or concerns regarding the analyses used to determine the potential effects of the proposed project on Section 4(f) resources, or have any questions regarding the project, please do not hesitate to contact Kandice Krull at Kandice.krull@faa.gov or 303-342-1261.

Sincerely,

John P. Bauer, Manager
Denver Airports District Office
(303) 342-1259

Enclosure: Draft Section 4(f) *de minimis* finding

Cc: John Kinney, Aspen/Pitkin County Airport Manager
Mark Kuhn, City of Aspen Trails Manager
Mead & Hunt

Department of Transportation
Federal Aviation Administration Denver Airports District Office
FINAL SECTION 303(c)/4(f) DE MINIMIS FINDING
For the Aspen/Pitkin County Airport
City of Aspen, Pitkin County, Colorado

I. Introduction - Section 4(f)

Section 4(f) was initially codified in Title 49 United States Code (USC) § 1653(f) (Section 4(f) of the USDOT Act of 1966). In 1983, § 1653(f) was reworded and recodified as Title 49 USC § 303 but is still commonly referred to as Section 4(f). Congress amended Section 4(f) in 2005 when the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted.

Section 4(f) declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." In addition:

> Section 4(f) prohibits the use of land of significant publicly owned public parks, recreation areas, wildlife and waterfowl refuges, and land of a historic site for transportation projects unless the Administration determines that there is no feasible and prudent avoidance alternative and that all possible planning to minimize harm has occurred.

De minimis impacts related to historic sites are defined as the determination of either "no adverse effect" or "no historic properties affected" in compliance with Section 106 of the National Historic Preservation Act. For publicly owned parks, recreation areas, and wildlife/waterfowl refuges, d*e minimis* impacts are defined as those that do not "adversely affect the activities, features, and attributes" of the Section 4(f) resource. *De minimis* impact determinations are based on the degree of impact after the inclusion of any measure(s) to minimize harm.

II. Project Description

The Aspen/Pitkin County Airport (ASE) is located about three miles northwest of Aspen's Central Business District. Pitkin County, as owner and operator of ASE, is proposing to reconfigure Runway 15/33 and improve the terminal building (Figure 1).

Pitkin County currently limits the size of aircraft that can operate at ASE through Section 10.12.030(C) of the Pitkin County Code. This section, adopted in 2001, prohibits the operation of aircraft with "a tip-to-tip wingspan of greater than 95 feet." The wingspan restriction was required because ASE could not satisfy all of the applicable Federal Aviation Administration (FAA) design standards without significant improvements. Airlines are changing their aircraft fleet in response to air travel demand and it is expected that the aircraft serving ASE, which meet the County's wingspan and weight limit, will eventually be withdrawn from service in favor of larger aircraft with greater wingspan and passenger seating. Unless the current wingspan policy is rescinded, ASE risks the loss/reduction of commercial passenger service. Before the County can rescind its current policy, FAA will require that the airfield be brought into compliance with current airfield design standards. The purpose of the runway reconfiguration is to enable ASE to accommodate anticipated aircraft in the future and bring the airfield into compliance with the FAA airfield design criteria, which provide for safe separation of aircraft movement on the airfield.

The existing terminal and apron are unable to efficiently accommodate existing and forecasted passenger demand. The purpose and need for improvements to the passenger terminal are related to deficiencies in the current terminal, issues associated with the current roadway configuration and passenger parking, and deficiencies in the apron area.

The proposed projects include:

- Runway 15/33 Reconfiguration
  - Shift the runway 80 feet to the west;
  - Widen the runway from 100 feet to 150 feet;
  - Realign the perimeter road, Owl Creek Road, and Owl Creek Bike Path;
  - Relocate navigational aids (NAVAIDs) and runway/taxiway lighting;
  - Rescind Pitkin County's wingspan and aircraft weight restriction policy;
  - Piping of Owl Creek within ASE property; and
  - Amending flight procedures to accommodate shift in runway location.
- Terminal Improvements
  - Construction of replacement terminal and associated parking;
  - Re-configure the terminal roadway and recirculation roadway;
  - Integrate the new terminal with public transit;
  - Relocate ancillary facilities, such as rental car facilities;
  - Demolition of existing terminal;
  - Expanding the commercial aircraft apron; and
  - Construction of a noise barrier along the general aviation apron.

III. Description of Section 4(f) Resource and Potential Impacts

The Owl Creek Trail connects Aspen to Snowmass Village starting from Buttermilk Ski area and crossing the Owl Creek drainage to connect to the Snowmass trail system at the Owl Creek/Brush Creek divide. The Owl Creek Trail runs along Owl Creek Road on the western edge of ASE and crosses through ASE property on the south side. The path is owned and maintained by Pitkin County.

The runway reconfiguration requires the shifting of approximately 1,657 linear feet of Owl Creek Trail to the west. The total shift will be between 13 and 58 feet (Figure 2). During construction, there would be temporary access restrictions to Owl Creek Trail. It is anticipated that the bike path will be closed during construction of a retaining wall, but there is likely room in the right-of-way to either build a temporary bike path or allow users to use Owl Creek Road for a small section to minimize impacts to users. The exact method to minimize impacts will be determined during final design. Construction is estimated to be about 6-9 months but with phasing and temporary routing, the bike path and/or road will remain open during the majority of this time to minimize impacts. Adequate notice will be provided prior to any closure of the Owl Creek Trail.

The project will have a *de minimis* impact on the physical characteristics of the trail, and will not adversely affect the activities, features, and attributes that qualify the trail for protection under Section 4(f).

IV. Discussion of Coordination

The public was offered an opportunity to comment on this Section 4(f) *de minimis* finding during the public comment period for the Draft EA. The public had 30 days to comment on the proposed project, the potential impacts, and this finding.

The FAA notified Pitkin County (official with jurisdiction over the Owl Creek Trail) of the intent to proceed with a *de minimis* Section 4(f) finding in a letter dated August 15, 2017. The FAA followed-up with Pitkin County after the completion of the public comment period to seek concurrence with the *de minimis* finding. Pitkin County concurred with the finding in an email dated March 4, 2018.

V. Preliminary Finding

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with Title 49 USC § 303 and other applicable environmental requirements. The proposed Federal action will not significantly affect the Owl Creek pedestrian/bike trail and constitutes a *de minimis* Section 4(f) impact.

John Bauer, Manager
Federal Aviation Administration
Denver Airport District Office

APRIL 3, 2018

Date

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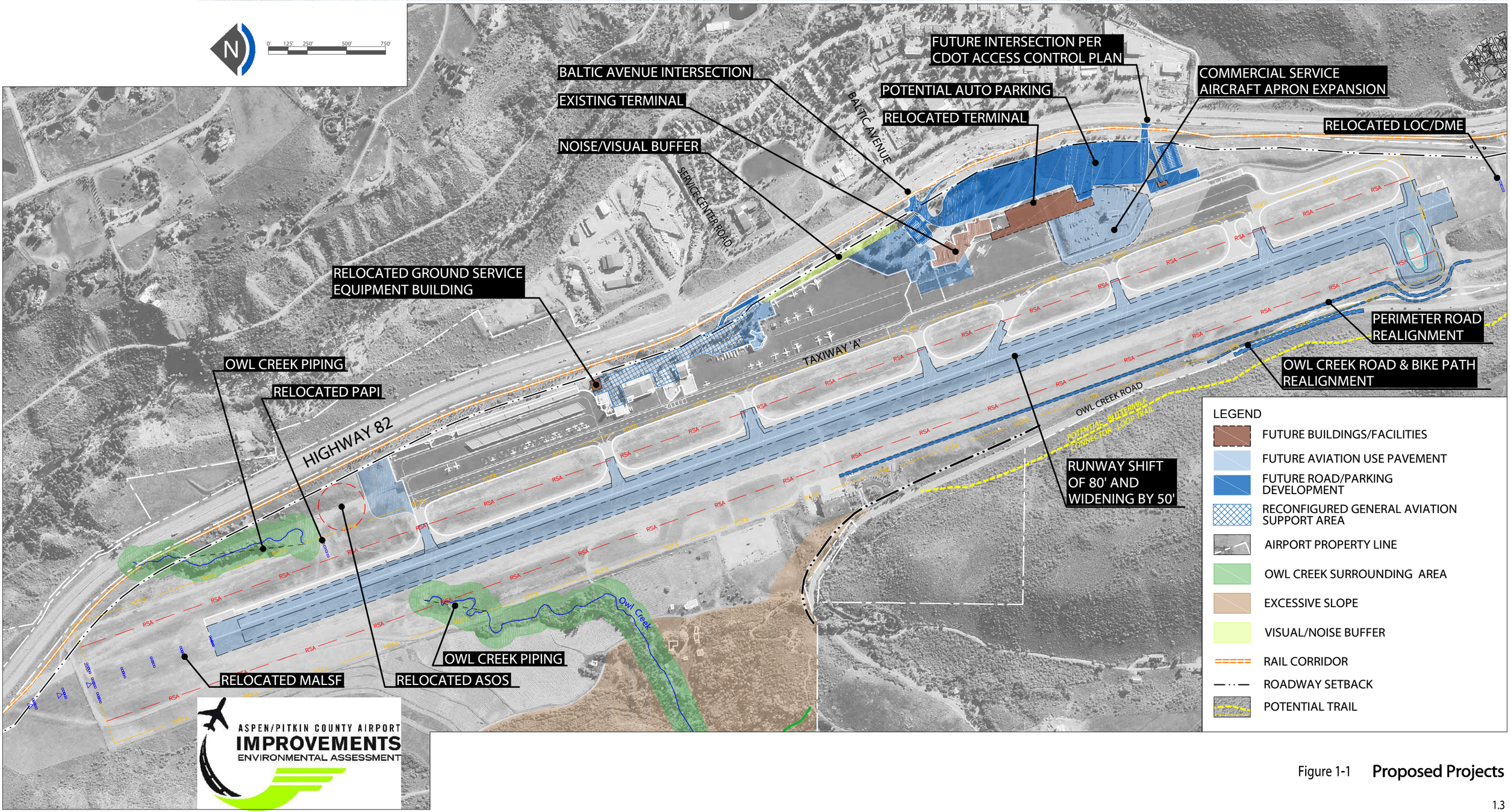

Figure 1-1 **Proposed Projects**

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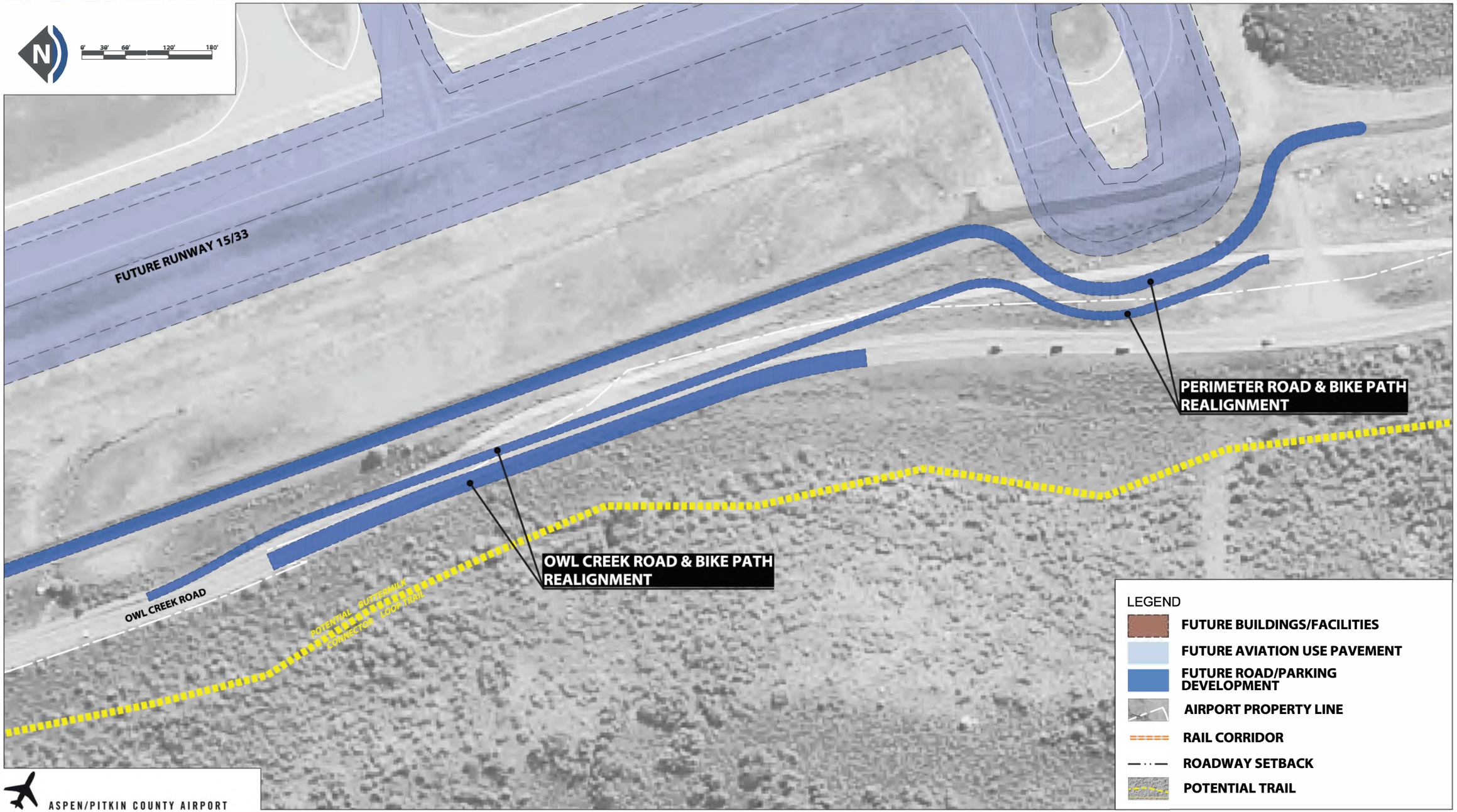

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Figure 2 **Bike Path and Owl Creek Road Relocation**

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PITKIN COUNTY

BOARD OF COUNTY COMMISSIONERS

530 E. Main Street, 3rd Floor
Aspen, Colorado 81611
phone (970) 920-5200
fax (970) 920-5198

July 18, 2016

Ms. Kandice Krull
Environmental Specialist, FAA
Denver Airports District Office
26805 E. 68th Avenue, Suite 224
Denver, Colorado 80249

Dear Ms. Krull:

This letter is to confirm that Pitkin County is the owner of and has jurisdiction over the bike path that traverses a portion of the Aspen/Pitkin County Airport. The County has reviewed the plans for the proposed runway relocation and has been extensively involved in the overall planning of that relocation. As a result, we have reviewed the relocation plans for the bike path as well, have offered our input and are satisfied with the proposed plans to relocate the path. The County recognizes the need to relocate a portion of the bike path to accommodate the proposed runway relocation and does not consider the relocation a significant impacts as it will result in minimal impairment to the continued use of the bike path.

The County has determined that the bike path is used solely for recreational purposes which will be fully mitigated by the planned relocation, that the portion of the bike path that will be relocated does not have local significance and that the relocation will not adversely affect any feature, attributes or activities of the bike path or the users of the bike path.

Thank you very much for the opportunity to present this information to you and please do not hesitate to call if you have additional questions. The County looks forward to working with the Airport and the FAA on this project.

Sincerely,

Jon Peacock
Pitkin County Manager

From: Jon Peacock
To: Kandice.Krull@faa.gov
Cc: John Kinney; Kate Andrus
Subject: Re: Aspen-Pitkin County Airport Improvement Project
Date: Sunday, March 4, 2018 11:13:14 AM

Hello Kandice,

This e-mail in to confirm the de minimis impact finding of the affect of reconfiguring Runway 15/33 and construction of a new terminal at the Aspen Pitkin County Airport on the Owl Creek Trail. The reconfiguring Runway 15/33 and construction of a new terminal will not adversely affect the activities, features or attributes that qualify the Owl Creek Trail for protection under Section 4(f).

Please let me know if you have any questions or need any additional information.

Best,

Jon Peacock

On Thu, Feb 15, 2018 at 1:19 PM, <Kandice.Krull@faa.gov> wrote:

> Mr. Peacock,
>
> Back in August, I sent you a letter letting you know of the FAA's intent to pursue a Section 4(f) de minimis finding for the proposed improvement project at ASE. As I mentioned in the letter, the FAA can use a de minimis finding if:
>
> 1. The use of the Section 4(f) resource, together with any avoidance, minimization, and mitigation, does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f);
>
> 2. The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, or attributes of the Section 4(f) resource; and
>
> 3. The official with jurisdiction over the resource, after being informed of the public comments and the FAA's intent to make the *de minimis* impact finding, concur in writing that the project will not adversely affect the activities, features, or attributes that qualify the property for protection under Section 4(f).
>
> The public comment period ended on October 3, 2017 and we did not receive any comments related to the de minimis finding. I have attached the August letter and the public comments that were received on the Draft EA.
>
> To be able to finalize the finding, I just need your concurrence in writing that the project

will not adversely affect the activities, features or attributes that qualify the property for protection under Section 4(f). A reply to this email would be sufficient.

Please let me know if you have any questions or concerns.

Thanks

Kandice

Kandice Krull

Environmental Protection Specialist

FAA - Denver Airports District Office

303-342-1261

--

Jon Peacock, County Manager
Pitkin County
530 E. Main St. 3rd Floor
Aspen, CO 81611

(970)920-5067 (office)
(970)471-8550 (cell)

Please note: In August, we moved our offices to 123 Emma Road #106, Basalt, CO 81621. The office is in the building with Ho Palace and Subway off the Basalt round-about on the north side of Hwy 82.

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Mead & Hunt
1743 Wazee Street, Suite 400
Denver, Colorado 80202
303-825-8844
meadhunt.com

July 10, 2018

Kandice Krull
Federal Aviation Administration, Denver ADO
26805 E. 68th Avenue, Suite 224
Denver, CO 80249-6361

Subject: MALSF Clarification
Aspen/Pitkin County Airport Improvements Environmental Assessment
City of Aspen, Pitkin County, Colorado

Dear Ms. Krull:

Mead & Hunt, Inc. (Mead & Hunt) was retained by the Aspen/Pitkin County Airport (Airport) to provide planning services for a proposed terminal redevelopment and runway shift project. This project is an outgrowth of the Airport Master Plan that was prepared and submitted to the Federal Aviation Administration in 2012 and then updated as part of the 2015 Air Service Study and the 2016 Airport Layout Plan Update.

This letter certifies that the airport survey area included the area north of the runway all the way to the fence-line and the analysis includes the area for the MALSF. It was cut off of several of the graphics due to scale, but the analysis contained within the EA considered the potential impacts relative to the relocation of the MALSF. The area is entirely pre-disturbed, graded and actively mowed.

Sincerely,

MEAD & HUNT, Inc.

Kate Andrus

Kate Andrus
Project Manager

Appendix 5
Supplemental Noise and Aircraft Substitution

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Appendix Integrated Noise Model Substitutions

Summary

The FAA's Integrated Noise Model (INM), Version 7.0d, was used to generate aircraft noise exposure contours for this project.[1] These contours were used to determine potential noise impacts for each of the development alternatives. The INM is the required computer program used to identify the location of aircraft noise in an airport's environs per *FAA Order 1050.1E*, which was the Order that was used for rulemaking at the start of this EA. The INM program contains noise profiles for many, but not all, aircraft operating in the National Airspace System (NAS). For aircraft that do not have their own noise profile, INM assigns a standard substitute aircraft. Many newer generation aircraft that are scheduled to be flying in the NAS within the planning horizon of this document do not have a noise profile or a standard substitution.

In this EA, there is one new generation aircraft that does not have a noise profile or substitution, the Bombardier CS100. Since INM does not contain noise profiles for the Bombardier CS100, an FAA-approved substitution aircraft was used to more accurately model noise. In order to use a non-standard aircraft substitution, the project team must request permission from the FAA's Office of Environment and Energy (AEE). For the new Bombardier CS100 regional jet, this project will use a Boeing 737-700 with a 4-dB reduction to the standard arrival and departure Noise Power Distance Curve (NPD) noise data. This configuration was approved by AEE.

This appendix contains two documents – the letter submitted to the FAA by the project team describing the reason for the substitution request and the FAA substitution approval.

[1] Note: This Environmental Assessment was initiated previous to the FAA requirement of using the Aviation Environmental Design Tool (AEDT) for noise and air quality analysis. The use of INM for this EA is approved by FAA.

October 5, 2016

Sean Doyle
Environmental Protection Specialist AEE-100
Office of Environment and Energy
Federal Aviation Administration

Dear Sean:

Re: INM Substitutions for CS-100 Aircraft for Aspen/Pitkin County Environmental Assessment

We are writing to request substitutions for aircraft contained in the Integrated Noise Model (INM) for the Aspen/Pitkin County Airport (ASE) Environmental Assessment (EA) noise analysis. Please note that it has been specifically agreed upon that this EA will utilize the INM and not the AEDT. Our recommendations for substitution aircraft are included below, along with background and technical information supporting these recommendations. We are proposing to create a custom aircraft to model for the CS100 new Regional Jet. It would be based upon the performance and noise data of the 737700 aircraft, the jet that is closest in size and configuration to the CS100, but with adjustments to the noise curve data.

Problem Statement. The Environmental Assessment is being prepared for a new terminal and a runway shift for Aspen/Pitkin County Airport. The current runway configuration has a non-standard condition of 320 feet separation between the runway and taxiway, limiting the operations to aircraft with a wing span of 95 feet or less, operating with a Modification to Standards. With the high airport altitude, challenging terrain, weather, runway length and wing span limitation, this effectively limits the airport to the CRJ-700 aircraft for commercial jet service, or turboprops. This runway shift will meet Airport Design Group D-III Standards and will allow aircraft contained in that group to operate at the Airport in the future. The CRJ-700 is expected to be phased out of the fleet in the project study period and to be replaced by new generation regional jets with wing spans greater than 95 feet.

The EA will evaluate the noise effects for two future years, 2028 and 2033. The No-Project case assumes that commercial service will be provided by the CRJ-700 and turboprops only. For the No Project case, commercial service will only be possible with turboprop aircraft given that there will not any planned viable regional jet with a wing span under 95 feet. The With-Project case assumes in the 2028 time frame that passenger service will be accommodated by a mix of CRJ-700 aircraft, small narrow body jets, turboprops and new generation regional jets. By 2033, the CRJ-700 aircraft are anticipated to be completely retired from the fleet and that for the With-Project case, commercial service will be provided by the new generation regional jets, small narrow body jets and turboprops.

The ASE noise analysis is unique in that the project assumes that the current regional jet fleet operating at the airport today will not be operating at the airport in the future but will be replaced by new generation regional jets and potential narrow body aircraft, as the current generation regional jets are expected to be retired. Without the runway shift, it is assumed that only turboprop aircraft will be operating at the airport under the No Project scenario as the new generation regional jets and narrow body aircraft will exceed the design criteria for runway/taxiway separation.

The community is concerned that the noise modeling for the future conditions reflect the most reasonable representation of future noise levels associated with future generation regional jets, and not reflect noise levels associated with regional jets that are anticipated to be out of the fleet. The No-Project conditions assume there will no longer be commercial jet service at the airport, while the With-Project conditions assume the service will be with new generation aircraft. There is a concern that using noise levels from current fleet would overstate the noise associated with the With-Project conditions when compared to the No-Project conditions.

The new generation regional jets being manufactured can be accommodated at ASE with the relocated runway; the community is concerned that the EA reflect, as accurately as possible, those associated noise contours. There are no new generation regional jet aircraft in the INM; therefore, we need to identify aircraft in the INM that can be substituted for the new generation regional jets that will most accurately reflect future noise levels. A community concern is that using current regional jet noise equivalent aircraft contained in the noise model for the future project conditions would overstate the noise effects and would not be a reasonable representation of future noise levels.

Project Background. ASE had 39,193 annual operations in 2015, with 6,859 commercial service operations with the CRJ-700 and 2,884 commuter prop operations with the Q400, The Q400 stopped serving the Airport in early 2016. There were also 20,271 corporate jet operations and 9,179 other propeller aircraft operations.

The airport is located in a valley with challenging terrain conditions that affect the departure, arrival and missed approach procedures. Aircraft takeoff and land from the same direction operating in contra flow. In addition to the terrain, the airports high elevation (7,800 feet), runway length (8,000 feet), heat in the summer and snow in the winter limit the types of aircraft to those that have the performance to operate in these challenging conditions and operate in a manner that is financially viable for the airline.

Currently, the only regional jet that meets these performance requirements with a 95' wing span is the CRJ-700. No commercial jets are able to operate under current conditions. With the runway shift, new generation regional jets including the CS100, Mitsubishi MRJ and the Embraer EMB190 E2 may potentially have the performance necessary to operate financially viable service into Aspen. Bombardier, the manufacture, has stated that the CS100 can operate at ASE, thus it is the aircraft that will be used to represent new generation regional jets at the airport. The Boeing 737-700 is also assumed to potentially be able to operate at ASE; however, it is uncertain at this time if it could be done so economically given the challenges stated above.

Industry Information. Some of the new generation aircraft are still undergoing certification testing; these aircraft are in the final stages of testing and entering into production have not all released certificated noise data. Information about the noise profile of these aircraft was gathered from the manufacturers and users.

The new generation regional jets, Airbus Nero and Boeing 737 MAX are known to be quieter than an equivalent size current generation aircraft; however, they are not yet in the INM noise model most of the new aircraft do not have published noise certification data. The new generation aircraft are all based upon the same new generation engine technology, therefore we are providing noise data for like sized aircraft that will have similar noise profiles

Bombardier CS100, C Series aircraft

Information for the CS100 was gathered from Bombardier EASA. The CS100 will be using PW1500G engines with the highest bypass ratio on the market of 12:1. The C Series noise footprint is four times smaller than aircraft currently in production using a 500 nautical mile flight for comparison. The cumulative EPNdB is predicted to be 255, which is a sum of all the certification measurement points.

http://commercialaircraft.bombardier.com/content/dam/Websites/bca/literature/cseries/Bombardier-Commercial-Aircraft-CSeries-Brochure-en.pdf.pdf

At the Paris Air Show in June 2015, Bombardier announced the C Series aircraft is 20 EPNdB(i) below the Federal Aviation Administration Stage 4 guideline.

EASA (European Aviation Safety Agency) has provided certification noise data for the CS100 aircraft. This data is presented in **Appendix A**. The results show that the range in the cumulative EPNdB was measured to be 257.1 to 258.3, depending upon the certification weight. The average was 257.6.

Proposed CS100 Custom Aircraft. The data provided by EASA stated that the combined noise certification of all three measurement points is measured to be 257.6 EPNdB, and that the aircraft will be the quietest in its class. A combined noise certification level for a number of different aircraft types are presented in **Table 1**. This includes the CRJ-700, which is the current aircraft, the 737700, which is the one closest in size and configuration to the 737700 per the FAA substitution guidelines. EASA noise certification data for these and other aircraft types are presented in Appendix B. Note that this is the same total certification value as the Bombardier Q400 turboprop (DHC-8-402Q). Note also that the only existing aircraft presented in Table 2 that is capable of operating at ASE is the CRJ700.

Table 1 presents the EASA certification data for each of the measurement points as well. The data shows that on average the CS100 is 4.8 dB quieter on sideline noise, 5.7 dB quieter on takeoff and 4.3 dB quieter on approach than the 737700. This is similar to the predicted stated values that these new generation aircraft are around 4 dBA quieter on takeoff and 2 dBA quieter on approach for an equivalent size aircraft. The 737700 is a somewhat larger aircraft than the CS100, thus the noise differences are also somewhat larger.

Table 1
Noise Certification Data for Comparative Regional and Commercial Jet Aircraft

Manufacturer	Model	Engine	MTOW (lbs)	MLW (lbs)	EPNdB			
					SL	TO	AP	Total
Bombardier	CRJ-701ER	CF34-8C5	74,100	67,000	89.5	82.4	92.6	264.5
Bombardier	CRJ-200LR	CF34-3B1	50,800	46,700	82.4	77.6	92.2	252.2
Embraer	ERJ-145LR	AE3007-A1	45,900	41,900	85.0	80.0	92.6	257.5
Embraer	ERJ-190-200AR	CF34-10E5	111,294	99,751	92.2	85.1	92.7	269.9
Boeing	**737-700**	**CFM56-7B24**	**146,000**	**128,650**	**92.9**	**83.7**	**95.8**	**272.4**
Bombardier	CS-100	PW1524G	129,400	115,500	**88.1**	**78.0**	**91.5**	**257.6**
Delta dB	737700 vs CS100				-4.8	-5.7	-4.3	-14.8

Source: EASA, Average for all measurements of each type/engine.

The consulting team proposes to create a new custom aircraft for the CS100 aircraft that is based upon the 737700 aircraft assumptions contained in the INM noise model. The custom aircraft would be a duplicate of the 737700, with adjustments only to the noise curve data. The changes proposed are to reduce the noise values on approach by 4 dB and on departure by 4 dB. All other database values are assumed to be the same as the 737700.

The area of greatest concern on noise modeling is the departure ground roll sideline noise, that is departure noise based. The 737700 aircraft is the closest existing regional jet in terms of size and engine configuration. Noise wise this results in an aircraft that is similar in noise to the existing CRJ700 that operates there today. The custom CS100 will have the same performance assumptions as the 737700, but will be 4 dB quieter on approach and 4 dB quieter on takeoff than the 737700 in the INM noise model.

The custom Aircraft create for the CS100 aircraft was generated using the following assumptions.

1. The 737700 aircraft performance data was used to represent the CS100 aircraft. The tables copied from the 737700 were duplicated and used for the CS100 include:
    a. PROCEDUR departure (ICAO_B All stage lengths flown at ASE)
    b. PROCEDUR arrival (STANDARD)
    c. THR_JET
    d. FLAPS
2. The noise curve data (NPD_CURV) for the 737700 aircraft (CF567B) was used for the CS100 aircraft with the following adjustments.
    a. The arrival noises values were reduced by 4 dB
    b. The departure noises values were reduced by 4 dB

These tables described above for the custom CS100 are presented the following pages.

PROCEDUR										
ACFT_ID	OP_TYPE	PROF_ID1	PROF_ID2	STEP_NUM	STEP_TYPE	FLAP_ID	THR_TYPE	PARAM1	PARAM2	PARAM3
CS100	A	USER	1	1	D	T_ZERO		6000	250	3
CS100	A	USER	1	2	D	T_5		3000	171	3
CS100	A	USER	1	3	D	A_15		1500	140	3
CS100	A	USER	1	4	D	A_40		1000	133	3
CS100	A	USER	1	5	L	A_40		304.7	0	0
CS100	A	USER	1	6	B	A_40	V	2741.9	116	40
CS100	A	USER	1	7	B	-NONE-	L	0	30	10
CS100	D	USER	1	1	T	T_5	T	0	0	0
CS100	D	USER	1	2	C	T_5	T	1000	0	0
CS100	D	USER	1	3	A	T_01	T	1888.7	195.1	0
CS100	D	USER	1	4	C	T_ZERO	C	3000	0	0
CS100	D	USER	1	5	A	T_ZERO	C	2159.3	250	0
CS100	D	USER	1	6	C	T_00H	C	5500	0	0
CS100	D	USER	1	7	C	T_00H	C	7500	0	0
CS100	D	USER	1	8	C	T_ZERO	C	10000	0	0
CS100	D	USER	2	1	T	T_5	T	0	0	0
CS100	D	USER	2	2	C	T_5	T	1000	0	0
CS100	D	USER	2	3	A	T_01	T	1814.3	197.7	0
CS100	D	USER	2	4	C	T_ZERO	C	3000	0	0
CS100	D	USER	2	5	A	T_ZERO	C	2058.1	250	0
CS100	D	USER	2	6	C	T_ZERO	C	5500	0	0
CS100	D	USER	2	7	C	T_ZERO	C	7500	0	0
CS100	D	USER	2	8	C	T_00H	C	10000	0	0
CS100	D	USER	3	1	T	T_5	T	0	0	0
CS100	D	USER	3	2	C	T_5	T	1000	0	0
CS100	D	USER	3	3	A	T_5	T	1619	175.6	0
CS100	D	USER	3	4	A	T_01	T	1840.6	200.4	0
CS100	D	USER	3	5	C	T_ZERO	C	3000	0	0
CS100	D	USER	3	6	A	T_ZERO	C	1958.4	250	0
CS100	D	USER	3	7	C	T_ZERO	C	5500	0	0
CS100	D	USER	3	8	C	T_ZERO	C	7500	0	0
CS100	D	USER	3	9	C	T_ZERO	C	10000	0	0

THR_JET						
ACFT_ID	THR_TYPE	COEFF_E	COEFF_F	COEFF_GA	COEFF_GB	COEFF_H
CS100	B	29618.1	-24.596	-0.273000	0.00000	-249.1
CS100	C	22106.7	-23.71468	0.165546	0.00000650000	0.000
CS100	S	29335.5	-28.632	-0.105000	0.00000	-195.6
CS100	T	23534.8	-29.3547	0.308407	0.00000	0.000

FLAPS					
ACFT_ID	OP_TYPE	FLAP_ID	COEFF_R	COEFF_C_D	COEFF_B
CS100	A	A_15	0.1048	0.4122	0
CS100	A	A_30	0.1194	0.3986	0
CS100	A	A_40	0.1434	0.3907	0
CS100	D	T_00H	0.063	0	0
CS100	D	T_01	0.062	0.4329	0.0097
CS100	D	T_05A	0.07	0	0
CS100	D	T_10	0.0858	0.4112	0.0089
CS100	D	T_15	0.0889	0.406	0.0087
CS100	D	T_25	0.0932	0.4021	0.0086
CS100	D	T_5	0.0749	0.4251	0.0093
CS100	D	T_ZERO	0.0552	0	0

NPD_CURV													
NOISE_ID	NOISE_TYPE	OP_MODE	THR_SET	L_200	L_400	L_630	L_1000	L_2000	L_4000	L_6300	L_10000	L_16000	L_25000
PW1500G	S	A	3000	91.5	87.3	84.2	80.9	75.5	69.3	64.3	59.2	51.9	45.6
PW1500G	M	A	3000	89	81.9	77.1	72.1	64	55.2	48.5	41.6	33.5	25.3
PW1500G	P	A	4000	102.6	95.3	90	84.3	75.3	65.6	58.4	50.7	40.6	29.7
PW1500G	P	A	5000	103.4	95.9	90.7	85	76	66.4	59.3	51.7	42.1	31.6
PW1500G	P	A	6000	104	96.6	91.3	85.6	76.7	67.2	60.1	52.6	44	33.7
PW1500G	P	A	7000	104.6	97.1	91.9	86.2	77.3	67.8	60.7	53.4	46	36
PW1500G	E	A	3000	94.8	90.2	86.7	82.9	76.7	69.1	63.5	57.2	48	36.6
PW1500G	M	A	7000	91	83.9	79	74	66.1	57.5	51.2	44.7	37.8	30.5
PW1500G	M	A	5000	90.1	83	78.2	73.2	65.2	56.5	50.1	43.4	35	27.1
PW1500G	M	A	4000	89.6	82.5	77.7	72.6	64.7	55.9	49.4	42.6	33.8	25.7
PW1500G	M	A	6000	90.6	83.5	78.7	73.6	65.7	57.1	50.7	44.1	36.4	28.9
PW1500G	S	A	4000	92.2	87.9	84.8	81.6	76.2	70.1	65.4	60.3	52.8	46.7
PW1500G	S	A	5000	92.7	88.5	85.4	82.1	76.8	70.8	66.1	61.2	54	48.4
PW1500G	S	A	6000	93.2	89	85.9	82.7	77.4	71.5	66.9	62	55.4	50.3
PW1500G	S	A	7000	93.7	89.4	86.4	83.1	77.9	72	67.5	62.7	56.8	51.6
PW1500G	E	A	7000	97.3	92.7	89.1	85.5	79.7	72.9	67.4	61.8	54.5	45.6
PW1500G	E	A	6000	96.8	92.2	88.6	85	79.1	72.1	66.6	60.9	52.5	43.1
PW1500G	E	A	5000	96.2	91.6	88.1	84.3	78.3	71.2	65.7	59.8	50.7	40.6
PW1500G	E	A	4000	95.6	91	87.4	83.6	77.6	70.2	64.7	58.6	49.2	38.4
PW1500G	P	A	3000	101.8	94.5	89.2	83.5	74.4	64.7	57.4	49.6	39.9	27.9
PW1500G	E	D	13000	99.1	94.9	91.6	88.3	82.8	76.5	71.8	65.9	59.6	54.8
PW1500G	E	D	23500	107.8	104	101.2	98.3	93.5	88.2	83.9	78.2	72.5	66.3
PW1500G	E	D	16000	101.4	97.3	94.2	91	85.7	79.6	75	69.3	63	57.6
PW1500G	E	D	10000	96.3	92	88.6	85.1	79.5	72.8	68	62	56.2	51.7
PW1500G	E	D	19000	103.5	99.6	96.5	93.4	88.3	82.5	78	72.3	66.5	60.6
PW1500G	M	D	10000	91.2	83.9	79.6	74.8	67.3	59	53.3	46.4	40.2	32.9
PW1500G	M	D	13000	94.1	87	82.7	78	70.5	62.3	56.7	49.9	42.9	35.6
PW1500G	M	D	16000	96.5	89.7	85.3	80.6	73.3	65.2	59.5	52.8	45.4	38.1
PW1500G	M	D	23500	103.2	96.9	92.5	87.9	80.7	72.8	67.4	60.6	53.7	46.4
PW1500G	S	D	23500	104.4	100.5	98	95.3	91	85.9	82.4	77.5	71.5	65.5
PW1500G	P	D	10000	104.1	97.1	92.4	87.1	78.8	69.6	63.1	55.5	49	39.9
PW1500G	P	D	13000	107	100.1	95.4	90.3	82.2	73.1	66.8	59.4	52.9	44
PW1500G	P	D	16000	109.5	102.6	98	93	85	76.1	70	62.7	56.2	47.2
PW1500G	P	D	19000	111.7	104.9	100.3	95.4	87.6	78.9	72.9	65.7	59.2	50.2
PW1500G	P	D	23500	116.2	109.5	105	100.3	92.9	84.5	78.8	71.4	64.9	56.2
PW1500G	S	D	10000	92.3	88.1	85.4	82.3	77.4	71.9	68	63	57.3	47.9
PW1500G	S	D	13000	95.2	91.2	88.4	85.4	80.7	75.3	71.4	66.5	60.5	52.1
PW1500G	S	D	16000	97.7	93.6	91	88.1	83.4	78.1	74.3	69.5	63.3	56
PW1500G	S	D	19000	99.9	95.9	93.3	90.5	85.9	80.7	77	72.2	66.3	59.7
PW1500G	M	D	19000	98.7	92	87.7	83.1	75.7	67.7	62.1	55.5	48.2	40.9

Summary. The consulting team proposes to use a custom aircraft to model the noise from the new CS100 regional jet. It would be based upon the performance and noise data of the 737700 aircraft, the jet that is closest in size and configuration to the CS100, but with adjustments to the noise curve data. This noise curve data would be reduced by 4 dB on approach and 4 dB on takeoff.

Thank you for your assistance and consideration. Let me know if you need additional information to make your determination.

Regards,

Paul Dunholter, P.E.
President
BridgeNet International

Attachment: Appendices

TYPE-CERTIFICATE DATA SHEET FOR NOISE

No. EASA.IM.A.570

for

BD-500-1A10 (CS100)

Type Certificate Holder:
Bombardier Inc.
800 boul. René-Lévesque Ouest
H3B1Y8, Montréal
Québec, Canada

For models: BD-500-1A10 (CS100)

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Type Certificate Holder[1] **Bombardier Inc.**

Aircraft Type Designation[1] **BD-500-1A10**
(Commercial Designation **CSeries CS100**)

Engine Manufacturer[1] **Pratt & Whitney Canada Corp.**

Engine Type Designation[1] **PW1524G**

Additional modifications essential to meet the requirements or needed to attain the certificated noise levels[1] **None**

Noise Certification Basis **ICAO Annex 16, Volume I** Edition / Amendment **Edition 6 / Amendment 10** Chapter[1] **4**

EASA Record No.	Maximum Mass		Lateral EPNL		Flyover EPNL		Approach EPNL		See Note
	Take-off[1] (kg)	Landing[1] (kg)	Level[1]	Limit	Level[1]	Limit	Level[1]	Limit	
A19117	**60,781**	**52,390**	**88.0**	**96.0**	**78.8**	**90.4**	**91.5**	**99.9**	**-**
A19123	**59,000**	**52,390**	**88.1**	**95.9**	**78.1**	**90.2**	**91.5**	**99.8**	**-**
A19124	**58,000**	**52,390**	**88.1**	**95.9**	**77.8**	**90.1**	**91.5**	**99.7**	**-**
A19125	**57,000**	**52,390**	**88.2**	**95.8**	**77.4**	**90.0**	**91.5**	**99.6**	**-**

[1] See Note 1.

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TCDSN EASA.IM.A.570 Notes

1. In cases where it is appropriate to issue a noise certificate, items so marked shall be included on EASA Form 45.

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Change Record

Issue	Date	Changes
Issue 1	16 June 2016	Initial Issue

-END-

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Appendix B
EASA Aircraft Noise Certification Data

Manufacture	Model	MTOW (KG)	MLW (KG)		Engine Model	Lateral Level	Lateral Limit	Flyover Level	Flyover Limit	Approach Level	Approach Limit	Total
EMB145												
Embraer	EMB 145	22,000	19,300	RR	AE3007 A1	84.9	94.0	81.0	89.0	92.5	98.0	258.4
Embraer	EMB 145	22,000	19,300	RR	AE3007 A1	84.9	94.0	81.0	89.0	92.5	98.0	258.4
Embraer	EMB 145	22,000	19,300	RR	AE3007 A1/1	84.9	94.0	81.0	89.0	92.5	98.0	258.4
Embraer	EMB 145	20,990	18,700	RR	AE3007 A	85.0	94.0	80.1	89.0	92.6	98.0	257.7
Embraer	EMB 145	20,600	18,700	RR	AE3007 A	85.1	94.0	79.8	89.0	92.6	98.0	257.5
Embraer	EMB 145	19,990	18,700	RR	AE3007 A	85.1	94.0	79.2	89.0	92.6	98.0	256.9
Embraer	EMB 145	21,990	19,300	RR	AE3007 A1	84.9	94.0	81.0	89.0	92.5	98.0	258.4
Embraer	EMB 145	20,990	19,300	RR	AE3007 A1	85.0	94.0	80.1	89.0	92.5	98.0	257.6
Embraer	EMB 145	20,900	18,700	RR	AE3007 A1	85.0	94.0	80.1	89.0	92.6	98.0	257.7
Embraer	EMB 145	20,600	18,700	RR	AE3007 A1	85.1	94.0	79.8	89.0	92.6	98.0	257.5
Embraer	EMB 145	19,990	19,300	RR	AE3007 A1	85.1	94.0	79.2	89.0	92.5	98.0	256.8
Embraer	EMB 145	19,990	18,700	RR	AE3007 A1	85.1	94.0	79.2	89.0	92.6	98.0	256.9
Embraer	EMB 145	20,990	19,300	RR	AE3007 A1/1	85.0	94.0	80.1	89.0	92.5	98.0	257.6
Embraer	EMB 145	20,990	18,700	RR	AE3007 A1/1	85.0	94.0	80.1	89.0	92.6	98.0	257.7
Embraer	EMB 145	20,600	18,700	RR	AE3007 A1/1	85.1	94.0	79.8	89.0	92.6	98.0	257.5
Embraer	EMB 145	19,990	19,300	RR	AE3007 A1/1	85.1	94.0	79.2	89.0	92.5	98.0	256.8
Embraer	EMB 145	19,990	18,700	RR	AE3007 A1/1	85.1	94.0	79.2	89.0	92.6	98.0	256.9
Embraer	EMB 145	21,990	19,300	RR	AE3007 A1P	84.9	94.0	81.0	89.0	92.5	98.0	258.4
Embraer	EMB 145	20,990	19,300	RR	AE3007 A1P	85.0	94.0	80.1	89.0	92.5	98.0	257.6
Embraer	EMB 145	20,990	18,700	RR	AE3007 A1P	85.0	94.0	80.1	89.0	92.6	98.0	257.7
Embraer	EMB 145	20,600	18,700	RR	AE3007 A1P	85.1	94.0	79.8	89.0	92.6	98.0	257.5
Embraer	EMB 145	19,990	19,300	RR	AE3007 A1P	85.1	94.0	79.2	89.0	92.5	98.0	256.8
Embraer	EMB 145	19,990	18,700	RR	AE3007 A1P	85.1	94.0	79.2	89.0	92.6	98.0	256.9
AVERAGE		**20,833**	**18,987**			**85.0**		**80.0**		**92.6**		**257.5**
	(LBS)	**45,928**	**41,859**									
EMB195												
Embraer	ERJ 190-200	52,290	45,800	GE	CF34-10E5	91.7	95.5	87.4	89.5	92.9	99.3	272.0
Embraer	ERJ 190-200	50,790	45,000	GE	CF34-10E5	91.8	95.4	86.5	89.3	92.8	99.2	271.1
Embraer	ERJ 190-200	48,790	45,000	GE	CF34-10E5	91.8	95.2	85.4	89.1	92.8	99.1	270.0
Embraer	ERJ 190-200	52,290	45,800	GE	CF34-10E5A1	92.9	95.5	86.2	89.5	92.9	99.3	272.0
Embraer	ERJ 190-200	50,790	45,000	GE	CF34-10E5A1	93.0	95.4	85.4	89.3	92.8	99.2	271.2
Embraer	ERJ 190-200	48,790	45,000	GE	CF34-10E5A1	93.1	95.2	84.3	89.1	92.8	99.1	270.2
Embraer	ERJ 190-200	52,290	45,800	GE	CF34-10E5	91.3	95.5	86.4	89.5	92.6	99.3	270.3
Embraer	ERJ 190-200	50,790	45,000	GE	CF34-10E5	91.3	95.4	85.4	89.3	92.5	99.2	269.2
Embraer	ERJ 190-200	48,790	45,000	GE	CF34-10E5	91.3	95.2	84.1	89.1	92.5	99.1	267.9
Embraer	ERJ 190-200	52,290	45,800	GE	CF34-10E5A1	92.4	95.5	84.9	89.5	92.6	99.3	269.9
Embraer	ERJ 190-200	50,790	45,000	GE	CF34-10E5A1	92.5	95.4	84.1	89.3	92.5	99.2	269.1
Embraer	ERJ 190-200	48,790	45,000	GE	CF34-10E5A1	92.6	95.2	83.0	89.1	92.5	99.1	268.1
Embraer	ERJ 190-200	48,790	45,000	GE	CF34-10E5A1	92.6	95.2	83.0	89.1	92.5	99.1	268.1
AVERAGE		**50,482**	**45,246**			**92.2**		**85.1**		**92.7**		**269.9**
	(LBS)	**111,294**	**99,751**			92.2		85.1		92.7		269.9
CRJ700												
Bombardier	CL-600-2C10	34,020	30,391	GE	CF34-8C5B1	89.4	94.0	82.7	89.0	92.6	98.0	264.7
Bombardier	CL-600-2C10	34,019	30,391	GE	CF34-8C5B1	89.4	94.0	82.7	89.0	92.6	98.0	264.7
Bombardier	CL-600-2C10	33,995	30,391	GE	CF34-8C5B1	89.4	94.0	82.7	89.0	92.6	98.0	264.7
Bombardier	CL-600-2C10	32,999	30,391	GE	CF34-8C5B1	89.6	94.0	82.0	89.0	92.6	98.0	264.2
Bombardier	CL-600-2C10	32,995	30,391	GE	CF34-8C5B1	89.6	94.0	82.0	89.0	92.6	98.0	264.2
AVERAGE		**33,606**	**30,391**			**89.5**		**82.4**		**92.6**		**264.5**
	(LBS)	**74,088**	**67,001**									
CRJ200												
Bombardier	CL-600-2B19	22,995	21,319	GE	CF34-3B1	82.5	94.0	77.5	89.0	92.1	98.0	252.1
Bombardier	CL-600-2B19	21,995	21,319	GE	CF34-3B1	82.6	94.0	76.2	89.0	92.1	98.0	250.9
Bombardier	CL-600-2B19	21,995	21,205	GE	CF34-3B1	82.6	94.0	76.2	89.0	92.1	98.0	250.9
Bombardier	CL-600-2B19	24,040	21,319	GE	CF34-3B1	82.4	94.0	78.8	89.0	92.1	98.0	253.3
Bombardier	CL-600-2B19	24,040	21,205	GE	CF34-3B1	82.4	94.0	78.8	89.0	92.1	98.0	253.3
Bombardier	CL-600-2B19	23,995	21,319	GE	CF34-3B1	82.4	94.0	78.7	89.0	92.1	98.0	253.2
Bombardier	CL-600-2B19	23,995	21,205	GE	CF34-3B1	82.4	94.0	78.7	89.0	92.1	98.0	253.2
Bombardier	CL-600-2B19	23,587	21,319	GE	CF34-3B1	82.3	94.0	78.5	89.0	92.1	98.0	252.9
Bombardier	CL-600-2B19	23,133	21,319	GE	CF34-3B1	82.5	94.0	77.7	89.0	92.1	98.0	252.3
Bombardier	CL-600-2B19	23,133	21,205	GE	CF34-3B1	82.5	94.0	77.7	89.0	92.1	98.0	252.3
Bombardier	CL-600-2B19	22,995	21,319	GE	CF34-3B1	82.4	94.0	77.6	89.0	92.1	98.0	252.1
Bombardier	CL-600-2B19	22,995	21,205	GE	CF34-3B1	82.4	94.0	77.6	89.0	92.1	98.0	252.1
Bombardier	CL-600-2B19	21,995	21,319	GE	CF34-3B1	82.5	94.0	76.3	89.0	92.1	98.0	250.9
Bombardier	CL-600-2B19	21,995	21,205	GE	CF34-3B1	82.5	94.0	76.3	89.0	92.1	98.0	250.9
Bombardier	CL-600-2B19	21,520	20,280	GE	CF34-3B1	82.7	94.0	75.7	89.0	92.4	98.0	250.8
Bombardier	CL-600-2B19	24,040	21,319	GE	CF34-3A1, CF34-3B1	82.2	94.0	78.9	89.0	92.2	98.0	253.3
Bombardier	CL-600-2B19	24,040	21,205	GE	CF34-3A1, CF34-3B1	82.2	94.0	78.9	89.0	92.2	98.0	253.3
Bombardier	CL-600-2B19	23,995	21,319	GE	CF34-3A1, CF34-3B1	82.2	94.0	78.8	89.0	92.2	98.0	253.2

Appendix B
EASA Aircraft Noise Certification Data

Manufacture	Model	MTOW (KG)	MLW (KG)		Engine Model	Lateral Level	Lateral Limit	Flyover Level	Flyover Limit	Approach Level	Approach Limit	Total
Bombardier	CL-600-2B19	23,995	21,205	GE	CF34-3A1, CF34-3B1	82.4	94.0	78.0	89.0	92.2	98.0	252.6
Bombardier	CL-600-2B19	23,587	21,319	GE	CF34-3A1, CF34-3B1	82.3	94.0	78.4	89.0	92.2	98.0	252.9
Bombardier	CL-600-2B19	23,587	21,205	GE	CF34-3A1, CF34-3B1	82.3	94.0	78.4	89.0	92.2	98.0	252.9
Bombardier	CL-600-2B19	23,133	21,319	GE	CF34-3A1, CF34-3B1	82.3	94.0	77.8	89.0	92.2	98.0	252.3
Bombardier	CL-600-2B19	22,995	21,319	GE	CF34-3A1, CF34-3B1	82.3	94.0	77.6	89.0	92.2	98.0	252.1
Bombardier	CL-600-2B19	22,995	21,205	GE	CF34-3A1, CF34-3B1	82.3	94.0	77.6	89.0	92.2	98.0	252.1
Bombardier	CL-600-2B19	21,995	21,319	GE	CF34-3A1, CF34-3B1	82.4	94.0	76.3	89.0	92.2	98.0	250.9
Bombardier	CL-600-2B19	21,995	21,205	GE	CF34-3A1, CF34-3B1	82.4	94.0	76.3	89.0	92.2	98.0	250.9
Bombardier	CL-600-2B19	21,523	20,275	GE	CF34-3A1, CF34-3B1	82.4	94.0	75.7	89.0	92.3	98.0	250.4
AVERAGE		**23,048**	**21,195**			**82.4**		**77.6**		**92.2**		**252.2**
	(LBS)	**50,811**	**46,728**									

737700

Boeing	737-700	77,564	60,781	CFM	CFM56-7B24	92.3	97.0	87.9	91.8	96.0	100.7	276.2
Boeing	737-700	73,935	60,781	CFM	CFM56-7B24	92.5	96.8	86.6	91.5	96.0	100.5	275.1
Boeing	737-700	72,121	60,781	CFM	CFM56-7B24	92.6	96.7	86.0	91.3	96.0	100.4	274.6
Boeing	737-700	70,080	60,781	CFM	CFM56-7B24	92.7	96.6	85.2	91.2	96.0	100.3	273.9
Boeing	737-700	62,822	58,604	CFM	CFM56-7B24	93.1	96.2	82.5	90.5	95.8	100.0	271.4
Boeing	737-700	60,327	58,059	CFM	CFM56-7B24	93.3	96.0	81.5	90.3	95.8	99.8	270.6
Boeing	737-700	56,472	55,338	CFM	CFM56-7B24	93.5	95.8	80.0	89.9	95.5	99.6	269.0
Boeing	737-700	56,472	51,709	CFM	CFM56-7B24	93.5	95.8	80.0	89.9	95.2	99.6	268.7
Boeing	737-700	77,564	60,781	CFM	CFM56-7B24/3	92.3	97.0	87.9	91.8	96.0	100.7	276.2
Boeing	737-700	73,935	60,781	CFM	CFM56-7B24/3	92.5	96.8	86.6	91.5	96.0	100.5	275.1
Boeing	737-700	72,121	60,781	CFM	CFM56-7B24/3	92.6	96.7	86.0	91.3	96.0	100.4	274.6
Boeing	737-700	70,080	60,781	CFM	CFM56-7B24/3	92.7	96.6	85.2	91.2	96.0	100.3	273.9
Boeing	737-700	62,822	58,604	CFM	CFM56-7B24/3	93.1	96.2	82.5	90.5	95.8	100.0	271.4
Boeing	737-700	60,327	58,059	CFM	CFM56-7B24/3	93.3	96.0	81.5	90.3	95.8	99.8	270.6
Boeing	737-700	56,472	55,338	CFM	CFM56-7B24/3	93.5	95.8	80.0	89.9	95.5	99.6	269.0
Boeing	737-700	56,472	51,709	CFM	CFM56-7B24/3	93.5	95.8	80.0	89.9	95.2	99.6	268.7
Boeing	737-700	77,564	60,781	CFM	CFM56-7B24/3B1	92.3	97.0	87.9	91.8	96.0	100.7	276.2
Boeing	737-700	73,935	60,781	CFM	CFM56-7B24/3B1	92.5	96.8	86.6	91.5	96.0	100.5	275.1
Boeing	737-700	72,121	60,781	CFM	CFM56-7B24/3B1	92.6	96.7	86.0	91.3	96.0	100.4	274.6
Boeing	737-700	70,080	60,781	CFM	CFM56-7B24/3B1	92.7	96.6	85.2	91.2	96.0	100.3	273.9
Boeing	737-700	62,822	58,604	CFM	CFM56-7B24/3B1	93.1	96.2	82.5	90.5	95.8	100.0	271.4
Boeing	737-700	60,327	58,059	CFM	CFM56-7B24/3B1	93.3	96.0	81.5	90.3	95.8	99.8	270.6
Boeing	737-700	56,472	55,338	CFM	CFM56-7B24/3B1	93.5	95.8	80.0	89.9	95.5	99.6	269.0
Boeing	737-700	56,472	51,709	CFM	CFM56-7B24/3B1	93.5	95.8	80.0	89.9	95.2	99.6	268.7
Boeing	737-700	77,564	60,781	CFM	CFM56-7B24/B1	92.3	97.0	87.9	91.8	96.0	100.7	276.2
Boeing	737-700	73,935	60,781	CFM	CFM56-7B24/B1	92.5	96.8	86.6	91.5	96.0	100.5	275.1
Boeing	737-700	72,121	60,781	CFM	CFM56-7B24/B1	92.6	96.7	86.0	91.3	96.0	100.4	274.6
Boeing	737-700	70,080	60,781	CFM	CFM56-7B24/B1	92.7	96.6	85.2	91.2	96.0	100.3	273.9
Boeing	737-700	62,822	58,604	CFM	CFM56-7B24/B1	93.1	96.2	82.5	90.5	95.8	100.0	271.4
Boeing	737-700	60,327	58,059	CFM	CFM56-7B24/B1	93.3	96.0	81.5	90.3	95.8	99.8	270.6
Boeing	737-700	56,472	55,338	CFM	CFM56-7B24/B1	93.5	95.8	80.0	89.9	95.5	99.6	269.0
Boeing	737-700	56,472	51,709	CFM	CFM56-7B24/B1	93.5	95.8	80.0	89.9	95.2	99.6	268.7
AVERAGE		**66,224**	**58,354**			**92.9**		**83.7**		**95.8**		**272.4**
	(LBS)	**145,999**	**128,649**									

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Environment and Energy

800 Independence Ave., S.W.
Washington, D.C. 20591

10/28/2016

Kandice Krull
Environmental Program Manager
FAA Airports Division
Northwest Mountain Region
1601 Lind Avenue SW, Suite 315
Renton, WA 98057

Dear Kandice,

The Office of Environment and Energy (AEE) has received the memo dated October 5th 2016, from BridgeNet International requesting approval for a user defined INM v7.0d aircraft in support of an Environmental Assessment at Aspen/Pitkin County Airport (ASE) in Aspen, CO.

The memo requests approval for the use the Boeing 737-700 (737700), with a 4dB reduction to the standard arrival and departure Noise Power Distance (NPD) noise data for use in modeling the Bombardier CS100.

AEE **approves** the use of the 737700 with a 4dB reduction to the arrival and departure NPD curves to model the Bombardier CS100.

Please understand that this approval is limited to this particular INM v7.0d aircraft substitution/modification and for the current Environmental Assessment at Aspen/Pitkin County Airport (ASE) only. Any additional projects or non-standard modeling request at ASE or any other site will require separate approval. Please also note that INM is no longer a supported model and any future assessments will require the use of the Aviation Environmental Design Tool (AEDT).

Sincerely,

Rebecca Cointin
Manager
AEE/Noise Division

cc: Jim Byers ARP

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Appendix 6
Wetland Delineation

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Wetland Delineation Report

Aspen/Pitkin County Airport-ASE Terminal Development EA

Aspen, Colorado

November 27, 2015

Prepared For:

Mead&Hunt
1743 Wazee Street
Denver, CO 80202

Prepared By:

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Aspen/Pitkin County Airport-ASE Terminal Development EA
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WETLAND DELINEATION REPORT
Aspen/Pitkin County Airport-ASE Terminal Development EA

1.0 INTRODUCTION

Bio-Environs was contracted to perform a jurisdictional determination and delineation of the boundaries of "waters of the United States," including wetlands, that occur within the approximately 385 acre Aspen/Pitkin County Airport-ASE Terminal Development EA Project Area. The study area is located here:

Aspen/Pitkin County Airport
Section 34 T9S, R85W, 6th P.M.
39˚ 13' 27.0" N, 106˚ 52' 5.0" W NAD 83
Aspen County, Colorado
Elev. 7730'
(Figures 1 and 2)

The project area (Figure 2) is established in association with Phase 2 of an Environmental Assessment that is being conducted in relation to development of additional Terminal Facilities and runway expansion. The delineation was completed for planning purposes and potential wetland permitting associated with development of the Terminal Facilities in the northwest potion of the project area, expansion of runway area as well as a reconfiguration of the bike path that runs along the western project area boundary.

This 2015 study identifies 3.0 acres of regulated wetlands associated with Owl Creek, approximately 1890 Linear Feet (LF) of "waters of the US" that are part of the Owl Creek wetlands that are to the west of the airport Area of Operations (AOA), 470 LF of drainage features (D-1 and D-2) that are tributaries to Owl Creek as well as 1670 LF of Owl Creek within the current Airport Area of Operations (AOA) perimeter. Two irrigation ditches are also located with the project area, and while they contain water that flows to Owl Creek, they are used for irrigation and have control features on them. They were originally developed in upland areas.

The project area also includes approximately 1.3 acres of wetlands that were created for mitigation associated with a previous airport runway expansion in the southern portion of the project area (Figure 3). Owl Creek enters the project area in the northwest portion of the project area and supports the identified wetland area. Owl creek exits the project area at the northeast corner of the project area to flow northeast into the Roaring Fork River, which flows into the Colorado River in Glenwood Springs, CO and is considered a "waters of the US." All of the wetlands that are identified in this report exhibit a surface connection to the Roaring Fork River.

This report identifies the jurisdictional status of the project area based on Bio-Environs professional understanding and interpretation of the *Corps of Engineers Wetland Delineation Manual (1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0), 2010*;

the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States (2008);* and Corps of Engineers guidance documents and regulations. Jurisdictional determinations for other "waters of the United States" were made based on definitions and guidance found in 33 CFR 328.3, Corps Regulatory Guidance Letters, and the wetland delineation manual. The Corps of Engineers administers Section 404 of the Clean Water Act which regulates the discharge of fill or dredged material into all "waters of the United States," and is the regulatory authority that must make the final determination as to the jurisdictional status of the project area.

2.0 REGULATORY DEFINITIONS

2.1 Waters of the United States

"Waters of the United States" are within the jurisdiction of the Corps of Engineers under the Clean Water Act. "Waters of the United States" is a broad term which includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, tributary streams including any definable intermittent waterways, and some ditches below the "Ordinary High Water Mark (OHWM)." Also included are manmade waterbodies such as quarries and ponds which are no longer actively being mined or constructed. Wetlands, mudflats, vegetated shallows, riffle and pool complexes, coral reefs, sanctuaries, and refuges are all considered special aquatic sites which involve more rigorous regulatory permitting requirements. A specific, detailed definition of "waters of the United States" can be found in the Federal Register (33 CFR 328.3).

2.2 Wetlands

Wetlands are a category of "waters of the United States" for which a specific identification methodology has been developed. As described in detail in the *Corps of Engineers Wetland Delineation Manual (1987)* and its supplements, wetland boundaries are delineated using three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

2.2.0 Other Waters of US

Detection of "other waters of US' was based on *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States (2008)*. "Other waters" for this study include rivers, streams, arroyos, drainages or other features that convey water and may support and active floodplain. The OHWM is used to identify the lateral limits of non-wetland waters under Section 404 of the Clean Water Act (33 USC 1344). Federal jurisdiction over "other waters of the US" extends to the ordinary high water mark (OHWM) as defined in 33 CFR Part 328.3.

In the arid west, clear natural scour lines impressed on the bank, recent erosion, destruction of native terrestrial vegetation, and the presence of litter and debris are the most commonly used physical features to indicated the OHWM (US Army Corps of Engineers, South Pacific Division, 2001). Lichvar and Wakeley (2004) continue to refine OHWM indicators and delineation methods, and have developed lists of

geomorphic and vegetative indicators. These have been used to aid in defining the OHWM within the project area.

2.2.1 Wetland Vegetation

In the course of developing the wetland determination methodology the Corps, in cooperation with the U.S. Fish and Wildlife Service, Environmental Protection Agency, and the Soil Conservation Service, compiled a comprehensive list of wetland vegetation. The indicator status of plant species is expressed in terms of the estimated probabilities of that species occurring in wetland conditions within a given region. The indicator categories as defined by the Corps are:

> Obligate Wetland (OBL) occur almost always (estimated probability >99%) under natural conditions in wetlands.
>
> Facultative Wetland (FACW) usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
>
> Facultative (FAC) equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
>
> Facultative Upland (FACU) usually occur in non-wetlands, but occasionally found in wetlands (estimated probability 1%-33%).
>
> Obligate Upland (UPL) occur almost always (estimated probability >99%) in uplands.

The percentage of the dominant wetland species in each of the vegetation strata in the sample area determines the hydrophytic, or wetland status of the plant community. Soil type and hydroperiod are two factors important in controlling species composition.

2.2.2 Hydric Soils

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA Soil Conservation Service, 1994). Nearly all hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. Saturation or inundation, when combined with microbial activity in the soil, causes the depletion of oxygen. This anaerobiosis promotes certain biogeochemical processes, such as the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. These processes result in distinctive characteristics that persist in the soil during both wet and dry periods, making them particularly useful for identifying hydric soils in the field (USDA Natural Resources Conservation Service, 2006). The indicators that we use are a subset of the NTCHS *Field Indicators of Hydric soils in the United States, Version 7.0 (2010)* that are commonly found in the Western Mountains. Indicators are presented in three groups. Indicators for “All Soils” include eight indicators of hydric soil regardless of soil texture.

There are five indicators for “Sandy Soils” for use in soil layers with a texture of loamy fine sand or coarser. There are six indicators for “Loamy and Clayey Soils” in the Western Mountains region for use in soil layers with a loamy very fine sand or finer texture.

In this report, soil colors are described using the Munsell notation system. This method of describing soil color consists of separate notations for hue, value, and chroma, which are combined in that order to form the color designation. The *hue* notation of a color indicates its relation to red, yellow, green, blue, and purple; the *value* notation indicates its lightness; and the *chroma* notation indicates its strength or departure from a neutral of the same lightness.

The symbol for *hue* consists of a number from 1 to 10, followed by the letter abbreviation of the color. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The notation for *value* consists of numbers from 0 for absolute black, to 10 for absolute white. The notation for *chroma* consists of numbers beginning with /0 for neutral grays and increasing at equal intervals. Soil color, texture and depth provide the basis for assigning a hydric soil indicator.

2.2.3 Wetland Hydrology

Wetland hydrology is defined as the presence of water for a significant period of time at or near the surface (within the root zone) during the growing season. Wetland hydrology is present only seasonally in many cases, and is often inferred by indirect evidence. Hydrology is controlled by such factors as seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage. Wetland hydrology indicators for the Western Mountain Region include primary and secondary indicators grouped as: A) Observation of Surface Water or Saturated Soils B) Evidence of Recent Inundation C) Evidence of Current or Recent Soil Saturation and D) Evidence of Other Site Conditions or Data. One primary indicator or two or more secondary indicators are required to establish a positive indication of hydrology.

2.2.4 Wetland Definition Summary

In general, an area must meet all three criteria to be classified as a wetland. In certain problem areas such as seasonal wetlands which are not wet at all times, or in recently disturbed (atypical) situations, an area may be considered a wetland if only two criteria are met. In special situations, an area which meets the wetland definition may not be within the Corps of Engineers jurisdiction due to a specific regulatory exemption.

3.0 BACKGROUND INFORMATION

3.1 Existing Maps

Several sources of information were consulted to identify potential wetlands and wetland soil units on the site. These include the U.S. Fish and Wildlife Service's *National Wetland Inventory* (NWI) and the Natural Resources Conservation Service's (NRCS) *Soil Survey* for this county. These maps identify *potential* wetlands and wetland soil units on the site. The NWI maps were prepared from high altitude

photography and in most cases were not field checked. Because of this, wetlands are sometimes erroneously identified, missed, or misidentified. Additionally, the criteria used in identifying these wetlands were different from those currently used by the Corps of Engineers. The county soil maps, on the other hand, were developed from actual field investigations. However, they address only one of the three required wetland criteria and may reflect historical conditions rather than current site conditions. The resolution of the soil maps limits their accuracy as well. The mapping units are often generalized based on topography, and many mapping units contain inclusions of other soil types for up to 15% of the area of the unit.

3.2 National Wetland Inventory Map

The *National Wetland Inventory* (NWI) map of the area (Figure 5a, 5b) identifies three wetland types within the project area boundaries. The Owl Creek drainage within the project area is perennial and is identified as a riverine system (R3UBH) that includes forested/shrub wetlands (PSSC) associated with the drainage. The southern portion of the project area includes a small section of emergent wetlands (PEMC), which are associated with the created wetlands

3.3 Soil Survey

According to the NRCS Web Soil Survey (Figures 6a, 6b), there are fifteen separate Soils types identified within the project area. The predominant soils associated with the Owl Creek drainage within the study area are the Anvik-Skylick-Sligting association (11), the Jodero loam (68) and the Kobar silty clay loam (70). These soil types are not identified as hydric by the NRCS. The Kilgore silt loam located in the far southern end of the study area is identified as hydric.

3.4 FEMA Mapping

FEMA Mapping does indicate that the Owl Creek drainage is within the 100-yr floodplain (Figure 7). No other areas within the project area are within identified floodplain zones

4.0 SITE INVESTIGATION AND DESCRIPTION

4.1 Investigation Methodology

The delineation of wetlands and other “waters of the United States” on the site was based on the methodology described in the *Corps of Engineers Wetland Delineation Manual* (Technical Report Y-87-1) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0), 2010* and the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States (2008)* as required by current Corps of Engineers policy.

Prior to the field work, the background information was reviewed to establish the probability and approximate location of wetlands on the site. Next a general reconnaissance of the project area was made to determine site conditions. The site was walked and accessed by boat with the specific intent of determining wetland boundaries. Data stations were established at locations within and near the wetland

areas to document soil characteristics, evidence of hydrology, and dominant vegetation. Note that no attempt was made to examine a full soil profile to confirm any soil series designations. However, soils were examined to a depth of 12 inches where rock prevented further investigation or to 16 inches assess soil characteristics and site hydrology. Complete descriptions of typical soil series can be found in the soil survey for East, Hinsdale and Saguache counties, though the survey does not cover this area.

4.1.1 Site Photographs

Photographs of the site are located in Appendix A. These photographs are the visual documentation of site conditions at the time of inspection. The photographs are intended to provide representative visual samples of any wetlands or other special features found on the site inspected.

4.1.2 Delineation Data Forms

Where stations represent a wetland boundary point they are presented as paired data sheets, documenting the upland and wetland sides of the wetland boundary. The data forms used in the jurisdictional delineation process are located in Appendix B. These forms are the written documentation of how representative sample stations meet or do not meet each of the wetland criteria. Other points were also inspected during the delineation process but were not specifically recorded on data sheets.

4.1.3 GPS Survey of Wetland Boundary

The data points and boundaries of wetlands and “waters of the U.S.” were surveyed using a Trimble Geo XT-Explorer GPS unit.

4.2 General Site Conditions

The project area is comprised generally of developed areas that are associated with the Aspen/Pitkin County Airport facilities. The western edge of the northern portion of the project area includes a small area of agricultural lands and relatively undeveloped land that is situated in the Owl Creek drainage. Owl Creek is identified as perennial and enters the project area along the western boundary and traverses the project area to exit at the northeast corner of the area. The drainage is relatively undeveloped as it extends east from the western boundary and supports relatively natural forested and scrub-shrub wetlands up to the airport runway perimeter boundary. After entering the airport Area of Operations (AOA), the Owl Creek drainage has been denuded of taller vegetation and is piped underneath the existing runway. The northeast corner of the project area includes the extension of Owl Creek after the piped section underneath the runway. This reach of Owl Creek supports a well-drained riparian area along its banks and does not include regulated wetlands. The trees within the riparian area have been heavily trimmed to meet the requirements of the AOA.

The Roaring Fork Basin experienced below average snow pack through the 2014-2015 winter. However, in May 2015, the Aspen area received over 2 inches of rain with comparative amounts of snow at higher elevations. Flows in the Roaring Fork River this year have generally been above the median flow based on a 51-year record from the

USGS and are near the 75th percentile of flows recorded during that same 51-year period.

4.3 Results

Results are presented for the project area in Figure 4.

Wetland A (3.0 acre) is a forested/shrub-scrub riparian wetland that is associated with Owl Creek drainage within the project area. The upper reaches of the drainage within the project area are situated in relatively natural mountain terrain (Photographs 1 2 and 3). As the drainage extends to the east towards the airport AOA, it becomes confined within relatively level agricultural fields which demark the wetland boundary and supports wetlands as well as dense riparian areas along its banks (Photographs 4 and 5). As the drainage nears the AOA, it narrows and becomes channelized (Photograph 6) just before entering a culvert at the airport perimeter boundary (Photograph 7).

Sample point A-4 wetland

This sample point is located within the riparian area along Owl Creek in the western portion of the project area (Figure 4). The dominant vegetation in the riparian wetland is comprised of narrowleaf cotton wood (*Populus angustifolia,* FAC), gray willow (*Salix bebbiana,* FACW) and twinberry honeysuckle (*Lonicera involucrata*, FAC) with an understory that includes a dominance of beaked sedge (*Carex utriculata,* OBL), fowl mannagrass (*Glyceria striata*, OBL) and field horsetail (*Equisetum arvense*, FAC). The wetland supports a silty clay loam with some gravels from 0 to 6 inches with a color of 10 YR2/1 and cobble with similar color from 6 to 12 inches. No redoximorphic features are present in the soil test pit sample. Wetland hydrology was present on the day of investigation with saturation present at the ground surface. All three wetland criteria are met at this site (see data form A-4 wet in Appendix B).

Sample point A-2 upland

The adjacent upland to Wetland A at this location is an upland meadow that is elevated to the west of the wetland (Photograph 3). Vegetation in the meadow is dominated by smooth brome (*Bromopsis inermis*, FACU) and orchard grass (*Dactylis glomerata*, FACU). Soils in the upland are a loam showing a color of 10YR2/2 with no concentrations from 0 to 12 inches. A lack of wetland hydrology, hydric soils and a dominance of wetland vegetation distinguishes the uplands from the wetland area (see data form A-4 up in Appendix B).

Waters of the U.S

Owl Creek (3560 LF)

The entire study area includes a total of approximately 3560 LF of “waters of the U.S.” associated with the Owl Creek drainage to the west of the AOA (Figure 2). Of this total, approximately 1890 LF is associated with the Owl Creek wetlands that are identified in this report (Photograph 8). The channel associated with this reach of Owl Creek is approximately 20 feet wide and 0.05 feet deep with multiple channels in some locations

with a flow of 2 inches on the day of investigation. 1670 LF of stream is identified within the AOA as a channelized feature that is conveyed underground from the west side of the runway (Photograph 9) to the east via a piped section under the runway (Photograph 10). The reach that exists on the west side of the runway is largely denuded of vegetation and does not support wetlands along its banks excepting some small portions of fringe wetlands in lower areas. After exiting the underground section of pipe, Owl Creek appears to have been channelized as it extends to the northeast and the project boundary (Photograph 11). This reach of channel supports a dense, well-trimmed narrowleaf cottonwood dominated riparian areas (Photograph 12) but does not include hydric soils or saturated soils. As such, the channel does not support wetland criteria in the eastern portion of the project area.

Drainage Features D-1 and D-2

In addition to the main Owl Creek drainage, there are two small drainage features that enter Owl Creek in the western portion of the project area (Figure 2). D-1 (420 LF) is a small 3 foot wide by 1 foot deep tributary to Owl Creek that enters the channel near Sample Pt. A-4 wetland (Photograph 13). Although the drainage feature was dry on the day of investigation; it includes bed, bank and OHWM and drains surface waters from the foothills located to the south of the drainage into Owl Creek and is identified as regulated in this report.

D-2 (50 LF) is associated with drainage and spring discharge that enters Owl Creek near Data Point A-13. The feature appears to have been developed for the old vacant homestead located just south and includes an excavated area that creates a small area of open water (60 SF) before flowing into Owl Creek (Photograph 14). The area is included within the wetland boundary and supports wetland criteria

Table 1

Wetland Area "Waters of U.S."	Wetland Type	Acres/Linear feet
Wetland A	Forested/shrub, seasonally flooded palustrine.	3.0 acre
Owl Creek	Upper perennial, unconsolidated bottom, permanently/temporarily flooded, riverine.	3560 LF
D-1	Upper perennial, unconsolidated bottom, seasonally flooded, riverine	420 LF
D-2	Upper perennial, unconsolidated bottom, permanently/temporarily flooded, palustrine.	50 LF
Total		3.0 acre wetland 4030 LF "waters of the U.S."

5.0 JURISDICTIONAL ANALYSIS

5.1 Corps of Engineers

The Corps of Engineers has authority over the discharge of fill or dredged material into "waters of the United States." This includes authority over any filling, mechanical land clearing, or construction activities that occur within the boundaries of any "water of the United States". A permit must be obtained from the Corps of Engineers before any of these activities occur. Permits can be divided into three general categories: the Regional General Permit for Colorado, Nationwide Permits, and Individual Permits.

Nationwide Permits have been developed for projects which meet specific criteria and are deemed to have minimal impact on the aquatic environment.

Individual Permits are required for projects that do not fall into one of the specific Nationwide Permits or the Regional General Permit or that are deemed to have significant environmental impacts. These permits are much more difficult to obtain and receive a much higher level of regulatory agency and public scrutiny and may require several months to more than a year for processing.

On June 19, 2006, the U.S. Supreme Court issued decisions in regards to John A. Rapanos v. United States (No. 04-1034) and June Carabell v. United States (04-1384), et al. The plurality decision created two 'tests' for determining CWA jurisdiction: the permanent flow of water test (set out by Justice Scalia) and the "significant nexus" test (set out by Justice Kennedy). On June 5, 2007 the Corps and EPA issued joint guidance on how to interpret and apply the Court's ruling. According to this guidance, the Corps will assert jurisdiction over traditionally navigable waters, adjacent wetlands, and non-navigable tributaries of traditionally navigable waters that have "relatively permanent" flow, and wetlands that border these waters, so long as such waters are not separated by roads, berms, and similar barriers. In addition, the Corps will use a case-by-case "significant nexus" analysis to determine whether waters and their adjacent wetlands are jurisdictional. A "significant nexus" can be found where waters, including adjacent wetlands, alter the physical, biological, or chemical integrity of the traditionally navigable water based on consideration of several factors.

In May 2015, a Clean Water Act rule was issued that clarifies the extent of jurisdiction that the Corps of Engineers and the EPA exert over headwaters. The rule states that headwaters that demonstrate a bed, bank, ordinary high water mark and flow downstream will be regulated. Those that do not demonstrate the above will be evaluated for adjacency. Wetlands adjacent to jurisdictional waters within a minimum of 100 feet and within the 100-year floodplain to a maximum of 1,500 feet of the ordinary high water mark will be regulated. Regulatory jurisdiction is also afforded to waters with a significant nexus within the 100-year floodplain of traditional navigable waters, interstate waters, or the territorial seas, as well as waters with a significant nexus within 4,000 feet of jurisdictional waters.

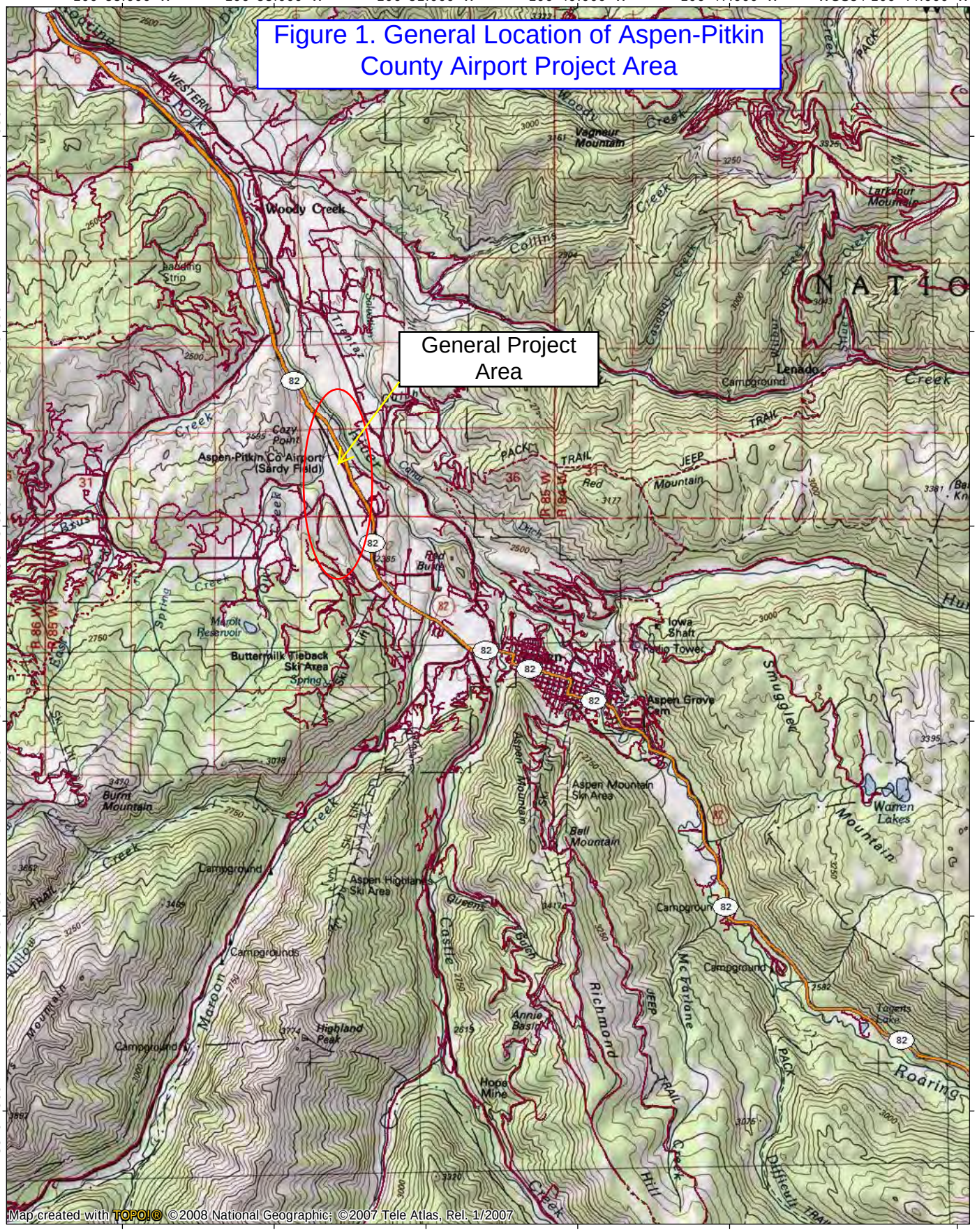
The study area was reviewed per the Rapanos decision, as well as the recent Clean Water Act Rule instituted on August 28, 2015, though not in effect in Colorado due to an injunction regarding its legality.

6.0 SUMMARY AND CONCLUSIONS

On September 9, 2015 Bio-Environs inspected the Aspen/Pitkin County Airport-Terminal Development EA Project Area. One wetland area totaling 3.0 acres along with 3560 linear feet of perennial stream channel and 470 linear feet of a drainage features are identified within the study area. In our opinion, the wetlands are likely jurisdictional under both the Rapanos decision and the recent Clean Water rule as they are adjacent to or connect via surface hydrology to the Roaring Fork River, which is a regulated "waters of the US". The Army Corps of Engineers makes the final determination regarding the jurisdictional status of wetlands identified within the Project Area.

FIGURES

Figure 1. General Location of Aspen-Pitkin County Airport Project Area



NATIONAL GEOGRAPHIC

0.0 0.5 1.0 1.5 2.0 2.5 3.0 miles

0 1 2 3 4 5 km

TN MN

9°

11/13/15

Figure 2. Aspen/Pitkin County Airport-ASE Terminal Development EA Project Area Boundaries

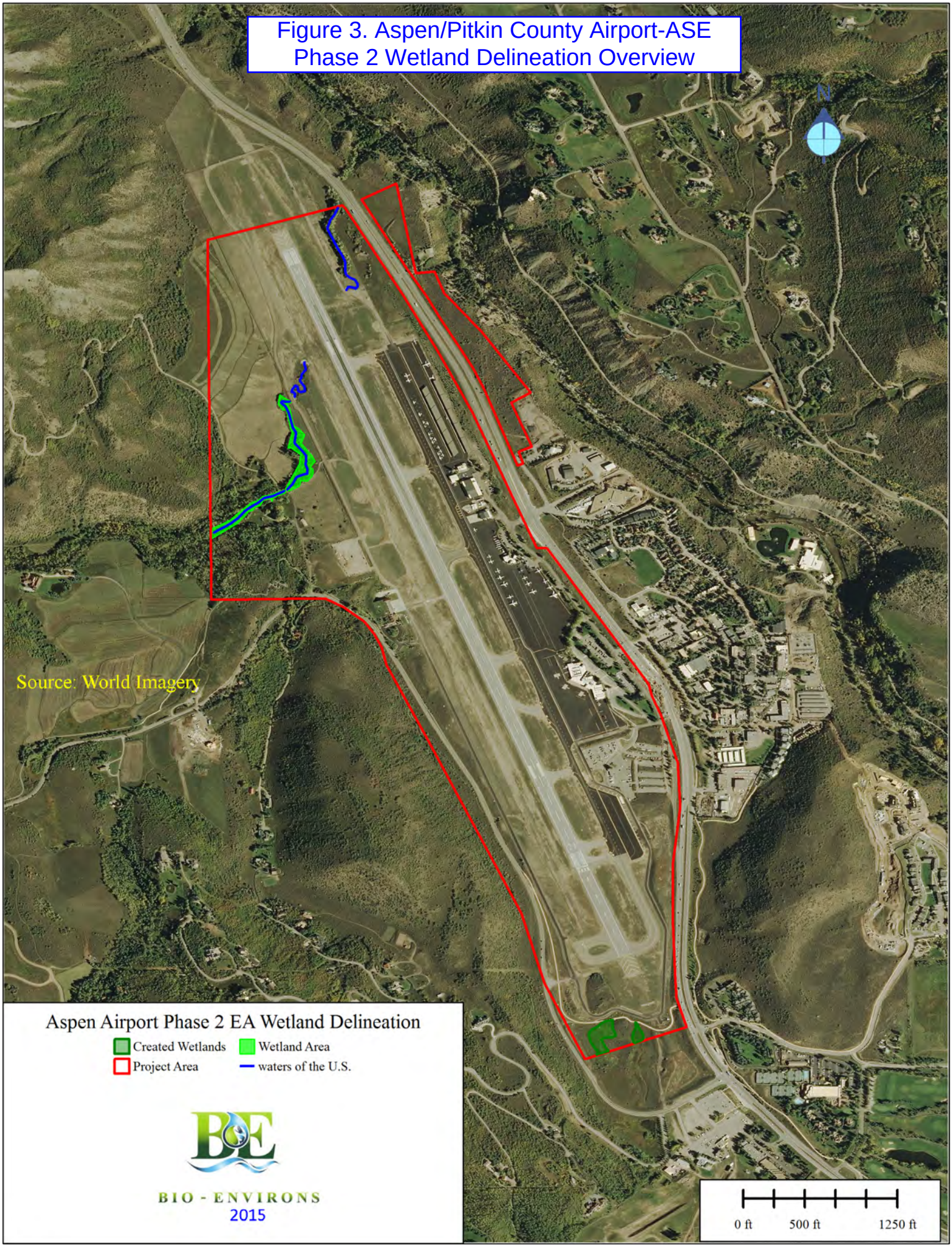


Figure 3. Aspen/Pitkin County Airport-ASE
Phase 2 Wetland Delineation Overview
N
Source: World Imagery
Aspen Airport Phase 2 EA Wetland Delineation
Created Wetlands
Wetland Area
Project Area
waters of the U.S.
BIO - ENVIRONS
2015
0 ft
500 ft
1250 ft

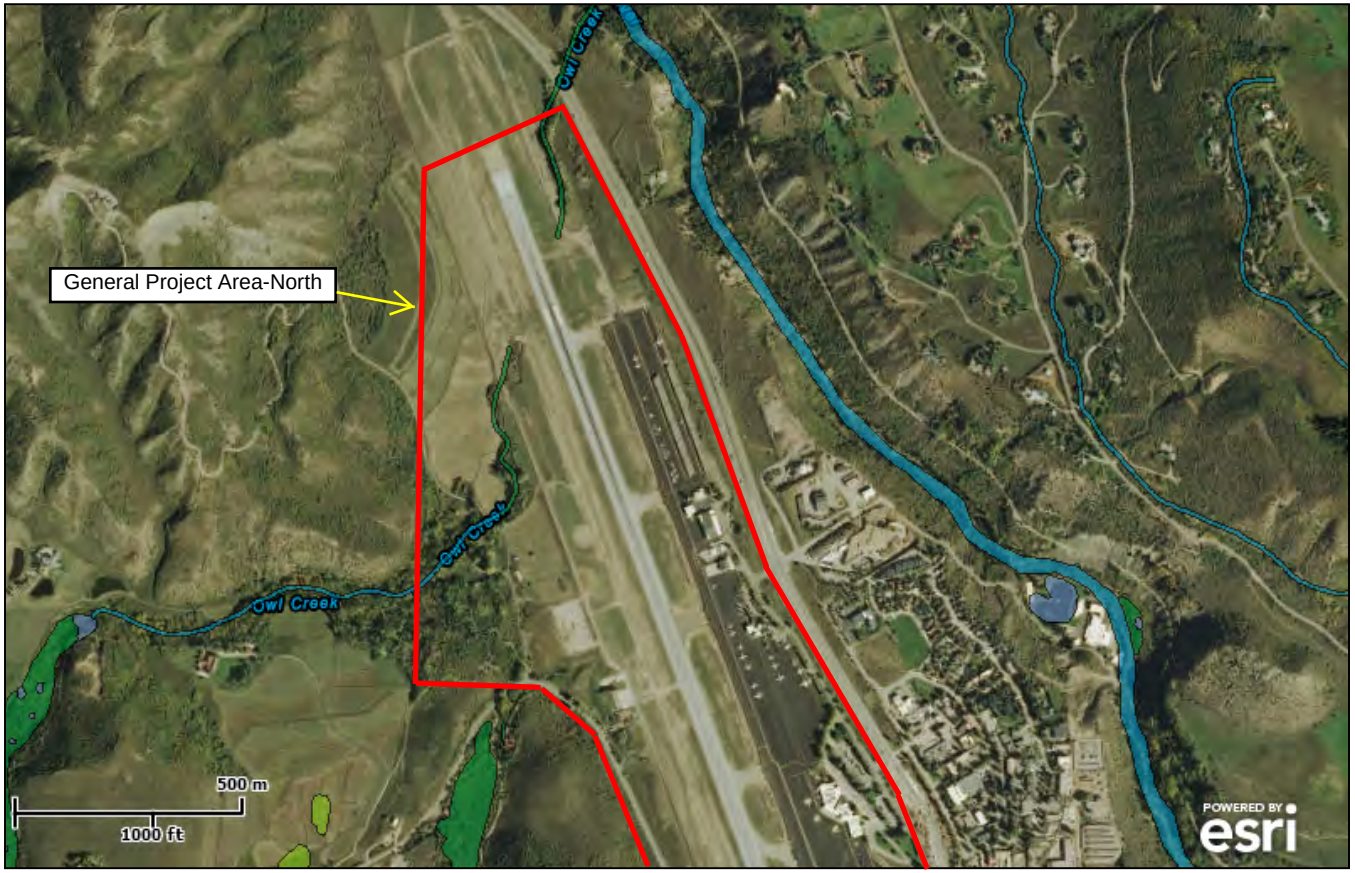
Figure. 4. Aspen/Pitkin County Airport-ASE Phase 2 Wetland Delineation- Owl Creek Detail

Figure 5a. NWI Map-Northern Project Area

U.S. Fish and Wildlife Service

National Wetlands Inventory

Sep 4, 2015



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Figure 5b. NWI Map- Southern Project Area

U.S. Fish and Wildlife Service

National Wetlands Inventory

Sep 4, 2015

Wetlands

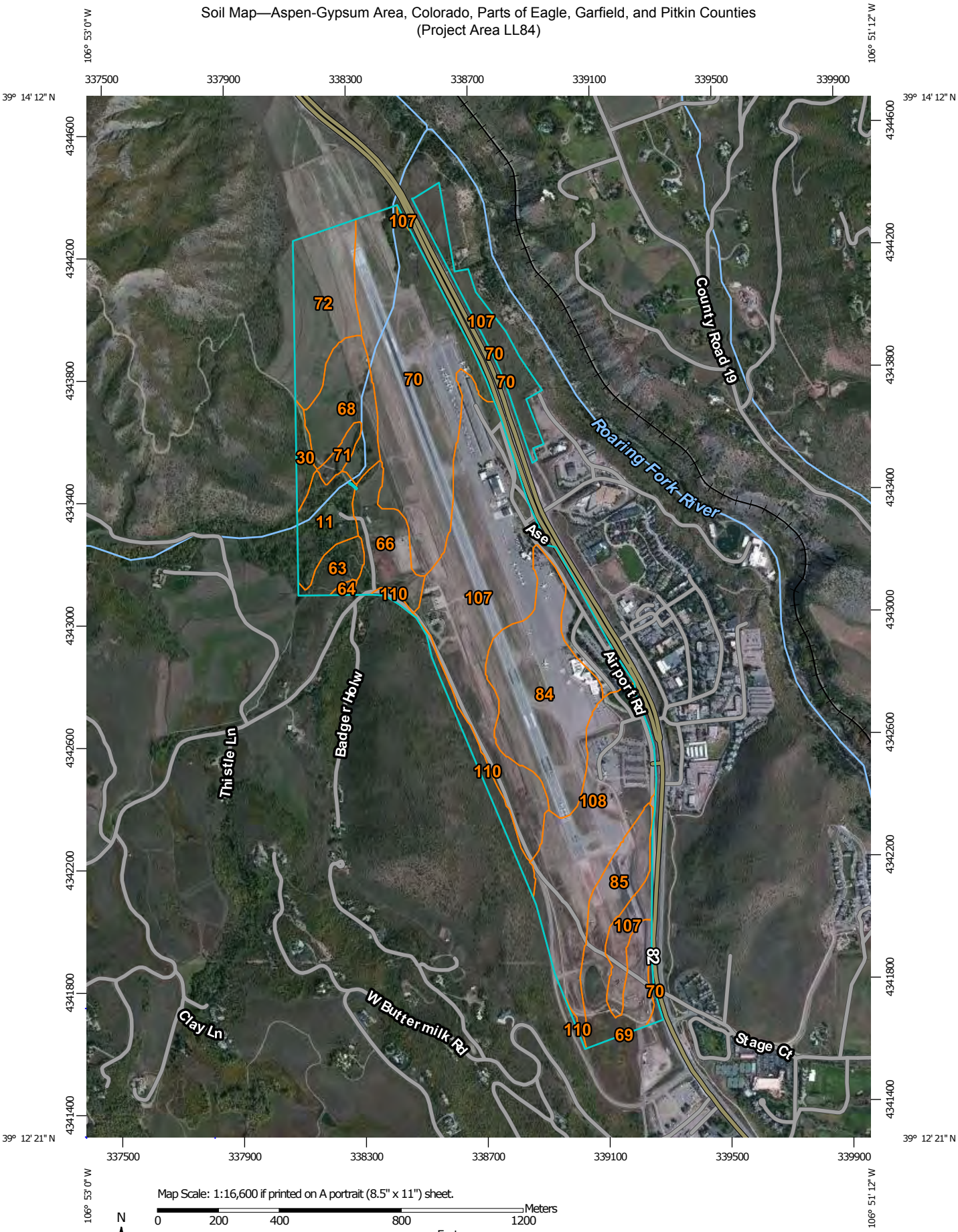
- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Figure 6a. NRCS Soil Map

Soil Map—Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties
(Project Area LL84)



Map Scale: 1:16,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 200 400 800 1200

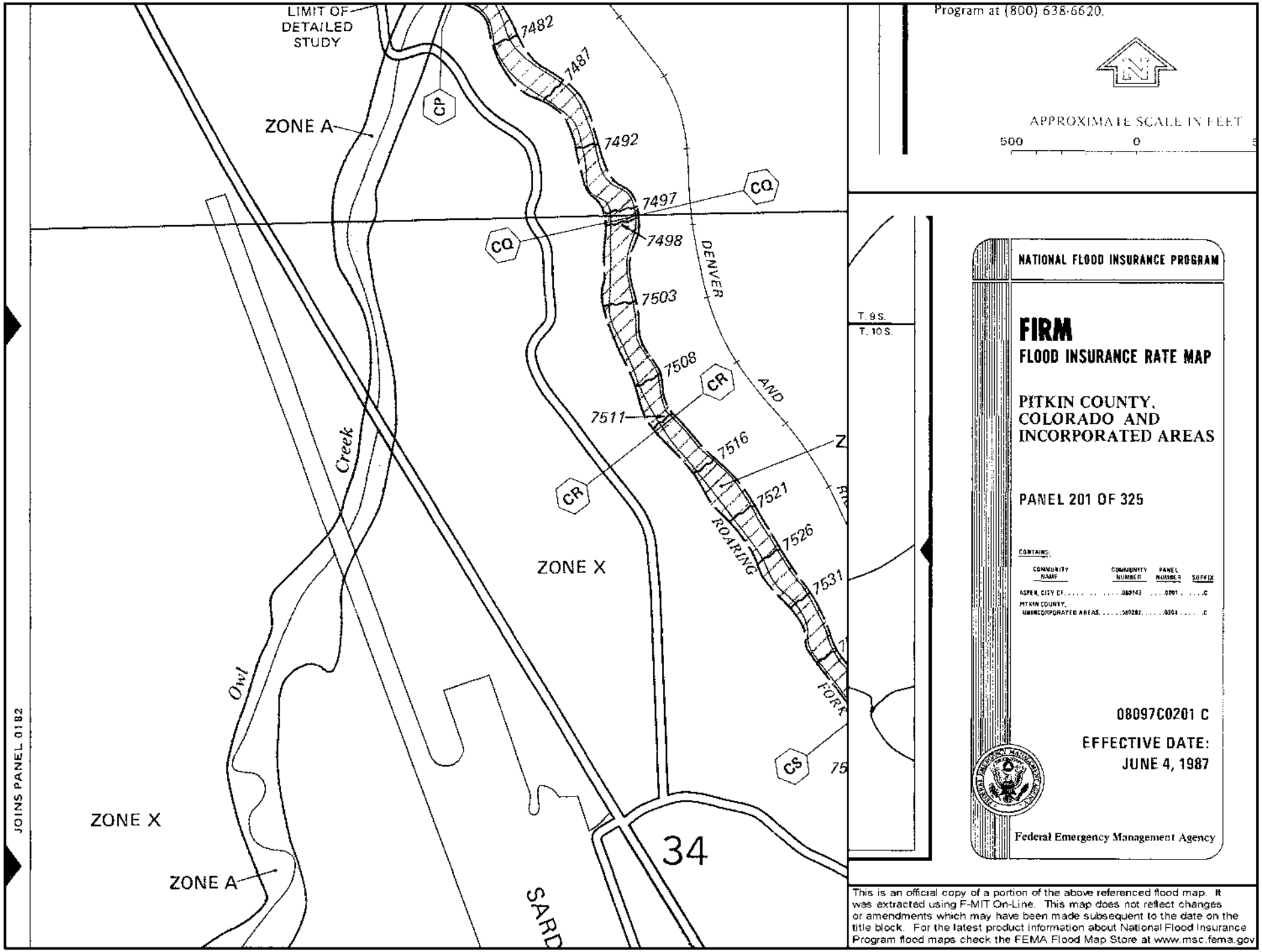
Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

Map Unit Legend

Aspen-Gypsum Area, Colorado, Parts of Eagle, Garfield, and Pitkin Counties (CO655)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
11	Anvik-Skylick-Sligting association, 25 to 50 percent slopes	11.7	3.1%
30	Dollard-Rock outcrop, shale complex, 25 to 65 percent slopes	3.5	0.9%
63	Jerry loam, 12 to 25 percent slopes	5.6	1.5%
64	Jerry loam, 25 to 65 percent slopes	0.6	0.2%
66	Jerry-Millerlake loams, 6 to 25 percent slopes	15.1	3.9%
68	Jodero loam, 1 to 12 percent slopes	18.1	4.7%
69	Kilgore silt loam	0.0	0.0%
70	Kobar silty clay loam, 1 to 6 percent slopes	72.4	18.9%
71	Kobar silty clay loam, 6 to 12 percent slopes	2.7	0.7%
72	Kobar silty clay loam, 12 to 25 percent slopes	23.5	6.1%
84	Morval loam, 1 to 6 percent slopes	44.0	11.5%
85	Morval loam, 6 to 25 percent slopes	25.9	6.8%
107	Uracca, moist-Mergel complex, 1 to 6 percent slopes, extremely s	104.8	27.3%
108	Uracca, moist-Mergel complex, 6 to 12 percent slopes, extremely	48.0	12.5%
110	Uracca, moist-Mergel complex, 25 to 65 percent slopes, extremely	7.7	2.0%
Totals for Area of Interest		**383.7**	**100.0%**

Figure 7. FEMA Mapping-Owl Creek



APPENDIX A

PHOTOGRAPHS

Photograph 1. Photograph taken September 9, 2015 looking west up the Owl Creek drainage near Sample Pt. A-4 wetland (Aspen/ Pitkin County Airport EA Project Area).

Photograph 2. Photograph taken September 9, 2015 looking east down the Owl Creek drainage near Sample Pt. A-4 wetland (Aspen/ Pitkin County Airport EA Project Area).

Photograph 3. Photograph taken September 9, 2015 looking west at Sample Pt. A-4 upland (Aspen/ Pitkin County Airport EA Project Area).

Photograph 4. Photograph taken September 9, 2015 looking north along Wetland A near Data Pt. A-28 (Aspen/ Pitkin County Airport EA Project Area).

Photograph 5. Photograph taken September 9, 2015 looking north along the riparian and Wetland Area A, near Data Pt. A-43 (Aspen/ Pitkin County Airport EA Project Area).

Photograph 6. Photograph taken September 9, 2015 looking north down the Owl Creek drainage as it approaches the AOA perimeter (Aspen/ Pitkin County Airport EA Project Area).

Photograph 7. Photograph taken September 9, 2015 looking east at the culvert that conveys water from Owl Creek into the AOA (Aspen/ Pitkin County Airport EA Project Area).

Photograph 8. Photograph taken September 9, 2015 looking east down Owl Creek within Wetland Area A (Aspen/ Pitkin County Airport EA Project Area).

Photograph 9. Photograph taken September 9, 2015 looking northeast along a portion of Owl Creek that is within the AOA on the western side of the runway (Aspen/ Pitkin County Airport EA Project Area).

Photograph 10. Photograph taken September 9, 2015 looking east at the culvert and pipe within the AOA that conveys water associated with Owl Creek underneath the runway (Aspen/ Pitkin County Airport EA Project Area).

Photograph 11. Photograph taken September 9, 2015 looking north along the reach of Owl Creek after exiting the underground pipe on the east side of the runway within the AOA (Aspen/ Pitkin County Airport EA Project Area).

Photograph 12. Photograph taken September 9, 2015 looking north at the riparian area that exists along the eastern portion of Owl Creek within the AOA (Aspen/ Pitkin County Airport EA project Area).

Photograph 13. Photograph taken September 9, 2015 looking south at D-1 which drains surface waters form the south into Owl Creek (Aspen/ Pitkin County Airport EA project Area).

Photograph 14. Photograph taken September 9, 2015 looking north at the D-2 and the excavated area of open water before flowing into Owl Creek (Aspen/ Pitkin County Airport EA project Area).

APPENDIX B

DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: ASE Development EA City/County: Pitkin Sampling Date: 9/8/15

Applicant/Owner: ASE State: CO Sampling Point: A4 wet

Investigator(s): T Chapello L Cudlip Section, Township, Range: Sec 34 T 9S R 85W 6th PM

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): LRRF Lat: 39°13' 28.3"N Long: 106° 52' 28.11"N Datum: WGS84

Soil Map Unit Name: Anvik-Skylick-Slisfing assoc. NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____
Hydric Soil Present?	Yes X	No _____
Wetland Hydrology Present?	Yes X	No _____

Is the Sampled Area within a Wetland? Yes X No _____

Remarks: along side Owl Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus angustifolia	40		FAC
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix bebbiana	15	Y	FACW
2. Distegia involucrata	10	Y	FAC
3. Alnus tenuifolia	5	N	FACW
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Carex utriculata	30	Y (15.6)	OBL
2. Glyceria striata	20	Y	OBL
3. Equisetum arvense	30	Y	FAC
4. Taraxacum officinale	5	N	FACU
5. Agrostis stolonifera	10	N	
6. Aster sp.	1	N	
7.			
8.			
9.			
10.			
11.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

(48 / 19.2)

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: A-1 wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR2/1	100	—	—	—	—	silty clylm w/ some gravels	
>12								cobble

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): stc

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: at edge of Owl Creek; Owl Creek flowing. Wetland extends ~ 5-10' from edge of Owl Creek

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: ASE Development EA City/County: Pitkin Sampling Date: 9/8/15

Applicant/Owner: ASE State: CO Sampling Point: A-4up

Investigator(s): T Lapello L Cudlip Section, Township, Range: Sec 34 T9S R85W 6th P.M

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): LRR E Lat: 39° 13' 27.6"N Long: 106° 53' 27.1"W Datum: WGS 84

Soil Map Unit Name: Anvik-Skylick-Slightly assoc. NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No _____	Is the Sampled Area within a Wetland? Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus angustifolia	30	Y	FAC
2.			
3.			
4.			
	30 = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: _____)			
1. Dactylis glomerata	50	Y	FACU
2. Bromopsis inermis	50	Y	FACU
3. Cirsium arvense	15	N	–
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: A-1up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR2/2	100	-	-	-	-	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: dark rich loamy soil in between Gwl Creek & D-1

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

BIO - ENVIRONS
114 North Boulevard, Suite 206
Gunnison, CO 812330
970-641-8749

July 10, 2018

Kandice Krull
U.S. Department of Transportation
Federal Aviation Administration
Northwest Mountain Region
Denver Airports District Office
26805 E. 68th Avenue, Suite 224
Denver, CO 80249-6361

Subject: Wetland and Biological Survey Clarification
Aspen/Pitkin County Airport Improvements Environmental Assessment
City of Aspen, Pitkin County, Colorado

Dear Ms. Krull:

Bio-Environs, LLC completed the wetland and biological analysis for a proposed terminal redevelopment and runway shift project. This project is an outgrowth of the Airport Master Plan that was prepared and submitted to the Federal Aviation Administration in 2012 and then updated as part of the 2015 Air Service Study and the 2016 Airport Layout Plan Update.

Wetland Survey Area: The study area included all area located within the boundaries of the Airport fence line. This letter certifies that the airport survey area included the area north of the runway all the way to the fence-line and the analysis includes the area for the MALSF (see attached figure). This area is entirely pre-disturbed, graded and actively mowed. There are no wetlands or waters of the US located in this area and no wildlife species of concern in this area. This area was fully covered in the survey and in the analysis of the EA.

Sincerely,

Lynn Cudlip for

Lynn Cudlip
Bio-Environs, LLC

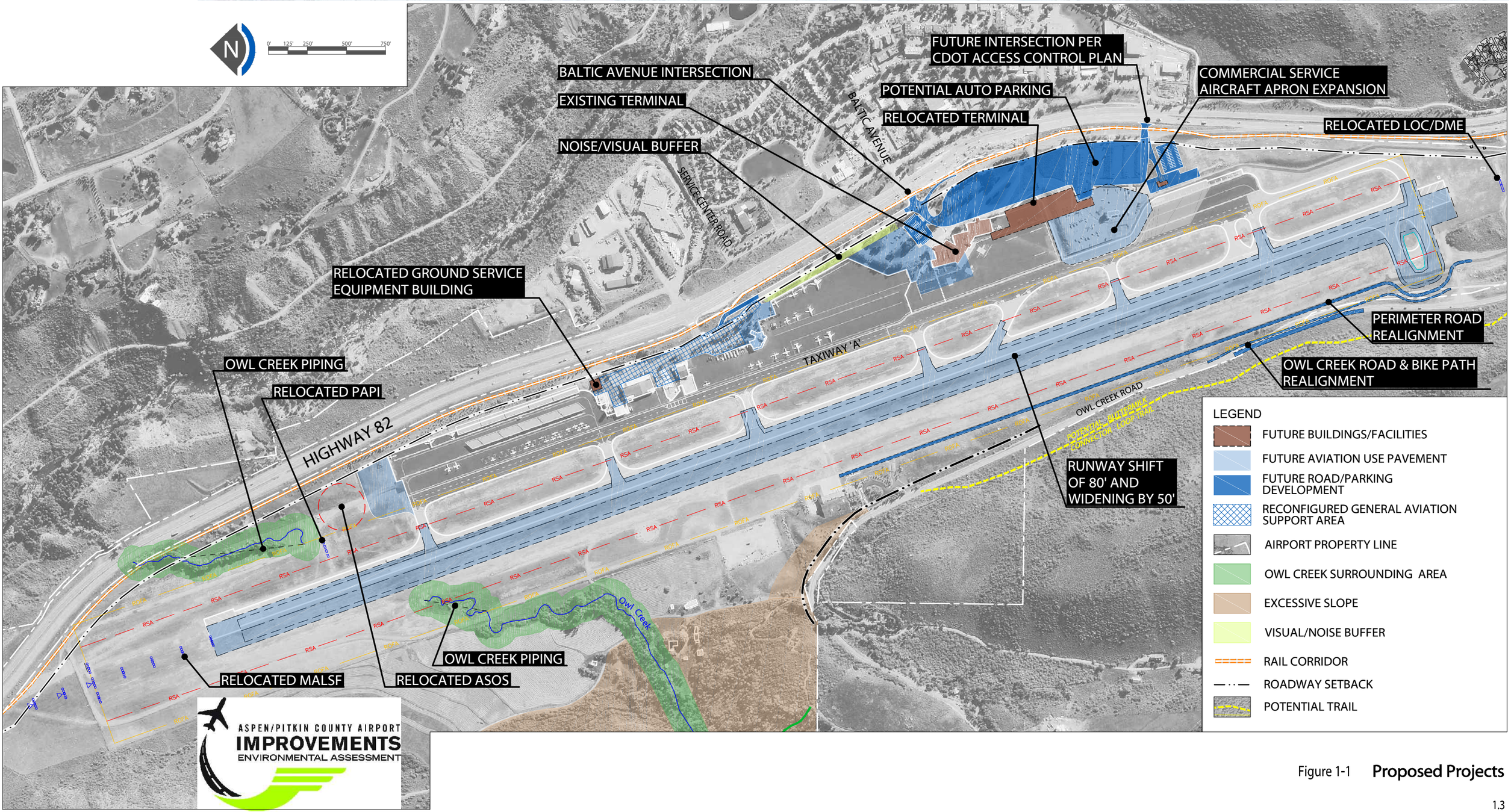


Figure 1-1 **Proposed Projects**

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Appendix 7
Traffic

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Ground Vehicle Movements at Aspen/Pitkin County Airport

Introduction

In support of an environmental assessment for proposed projects at the Aspen/Pitkin County Airport, this document provides information that pertains to ground vehicle movements attributed to an expected increase in passengers at Aspen/Pitkin County Airport under various improvement and passenger enplanement scenarios. Passenger forecasts were developed in a 2015 Airport Layout Plan (ALP) Update and serve as the basis for projections of ground vehicle movements. The ground vehicle movement assumptions used for the traffic analysis in the main body of the environmental assessment (Section 4.15) are included here.

Methodology

A curbfront user survey was conducted by Jviation at the Aspen/Pitkin County Airport on February 13, 2009 in which passengers were asked whether they were arriving or departing, the number of members in their party, the mode of transportation they used to arrive at or depart the Airport, and if they were parking a vehicle. The types of vehicles reported included cars, vans, SUVs/Trucks, Large SUV, RFTA (public bus), and limousines. It was also noted if the mode of transportation used was a commercial vehicle (does not include public transit) or non-commercial vehicle.

Based on the results of the user survey and other data, this document describes the composition of commercial, non-commercial, and total vehicle ground movements by vehicle type, the average number of passengers per vehicle, and the expected number of vehicle trips that will occur from various passenger enplanement scenarios.

The curb front airport user survey showed that there were a total of 293 vehicle ground movements; 119 commercial (40.6 percent), and 174 non-commercial (59.4 percent). There were a total of 580 passengers on the 293 vehicles. Commercial, non-commercial, and total movements by vehicle type, percentage, total passengers, and average passengers per vehicle are shown in **Table 1**.

Table 1. Curb Front Airport User Survey Results					
Vehicle Type	**Vehicle Movements**	**% of Movements**	**Total Passengers**	**% of Passengers**	**Average Passengers Per Vehicle**
Commercial Vehicles - 40.6% (40.7% of Passengers)					
Car	2	1.7%	4	1.7%	2.00
Van	107	89.9%	210	89.0%	1.96
SUV/Truck	9	7.6%	21	8.9%	2.33
Large SUV	0	0.0%		0.0%	
RFTA (Public Bus)	0	0.0%		0.0%	
Limo	1	0.8%	1	0.4%	1.00
All	*119*	*100.0%*	*236*	100.0%	1.98
Non-Commercial Vehicles - 59.4% (59.3% of Passengers)					
Car	28	16.1%	41	11.9%	1.46
Van	25	14.4%	56	16.3%	2.24
SUV/Truck	94	54.0%	190	55.2%	2.02
Large SUV	8	4.6%	16	4.7%	2.00
RFTA (Public Bus)	11	6.3%	18	5.2%	1.64
Limo	8	4.6%	23	6.7%	2.88
All	*174*	*100.0%*	*344*	100.0%	*1.98*
Total Passengers					
Car	30	10.2%	45	7.8%	1.50
Van	132	45.1%	266	45.9%	2.02
SUV/Truck	103	35.2%	211	36.4%	2.05
Large SUV	8	2.7%	16	2.8%	2.00
RFTA (Public Bus)	11	3.8%	18	3.1%	1.64
Limo	9	3.1%	24	4.1%	2.67
All	*293*	*100.0%*	*580*	*100.0%*	*1.98*

Note: Ground movements based on a survey conducted by Jviation on 2/13/2009.
Sources: Jviation Engineering and Planning, Mead & Hunt

The curb front airport user survey did not include any data collection or compilation of rental car vehicles. The number of rental car vehicles has been established through the number of rental car transactions performed in 2007 and through the following methodology:

- 2007 rental car transactions were 24,548.
- Average number of passengers per vehicle and vehicle type split is assumed to equal the results of the curb front airport user survey for non-commercial vehicles.
- This indicates that 48,377 deplaning passengers, of the total 177,630 deplanements in 2007, or 27.2%, utilized a rental car.

The breakdown in passengers by vehicle type is applied to the forecasts of passengers to project the number of ground movements that would occur under various passenger enplanement scenarios. It is assumed that these figures will remain constant throughout the projection period.

Ground Vehicle Movements

Passenger forecasts were developed in a 2015 Airport Layout Plan (ALP) Update and serve as the basis for projections of ground vehicle movements. Passenger enplanements for each forecast year and under each scenario are presented in **Table 2**. Baseline movements by category and vehicle type are also shown in Table 2. These ground vehicle movements each represent a roundtrip vehicle movement, which is a trip to the airport to drop-off the passenger and a trip from the airport back to the vehicles origin.

Table 2. Vehicle Ground Movements

Vehicle Type	% of Passengers	Average Passengers Per Vehicle	Vehicle Movements [1] 2015 Actual	2023 No Action with Project: Terminal	2028 No Action Runway	2028 With Project: Runway First Year of Implementation	2033 No Action	2033 With Project: Runway Out Year	2033** What If Scenario
Projected Passenger Enplanements			*233,541*	*263,153*	*258,860*	*296,140*	*281,036*	*333,259*	*548,356*
Projected Total Passengers			*467,082*	*526,306*	*517,720*	*592,280*	*562,072*	*666,518*	*1,096,712*
Rental Vehicles	***27.2% of Passengers***								
Car	14.3%	1.46	6,205	6,992	6,878	7,869	7,467	8,855	14,570
Van	19.5%	2.24	5,540	6,243	6,141	7,025	6,667	7,906	13,009
SUV/Truck	66.2%	2.02	20,832	23,473	23,090	26,416	25,068	29,727	48,913
All	*100.0%*	*1.97*	*32,578*	*36,708*	*36,109*	*41,310*	*39,203*	*46,488*	*76,492*
Commercial Vehicles	***29.6% of Passengers***								
	50.0% of Vehicles pickup passengers when dropping off other passengers								
Car	1.7%	2.00	879	990	974	1,115	1,058	1,254	2,064
Van	89.0%	1.96	47,026	52,988	52,124	59,631	56,589	67,105	110,417
SUV/Truck	8.9%	2.33	3,955	4,457	4,384	5,016	4,760	5,644	9,287
Limo	0.4%	1.00	439	495	487	557	529	627	1,032
All	*100.0%*	*1.98*	*52,300*	*58,931*	*57,970*	*66,318*	*62,936*	*74,631*	*122,800*
Non-Commercial Vehicles	***43.2% of Passengers***								
	19.5% of private vehicles go to on-site parking (car, van, SUV. Large SUV)								
Car	11.9%	1.46	14,805	16,682	16,410	18,773	17,815	21,126	34,762
Van	16.3%	2.24	13,218	14,895	14,652	16,762	15,907	18,863	31,037
SUV/Truck	55.2%	2.02	49,701	56,003	55,090	63,024	59,809	70,923	116,699
Large SUV	4.7%	2.00	4,230	4,766	4,688	5,364	5,090	6,036	9,932
RFTA (Public Bus)	5.2%	1.64	6,446	7,263	7,145	8,174	7,757	9,198	15,135
Limo	6.7%	2.88	4,688	5,282	5,196	5,944	5,641	6,690	11,007
All	*100.0%*	*1.98*	*93,088*	*104,892*	*103,180*	*118,040*	*112,020*	*132,835*	*218,572*
Total Vehicles									
Car	7.8%	1.50	21,889	24,664	24,262	27,756	26,340	31,235	51,395
Van	45.9%	2.02	65,785	74,126	72,917	83,418	79,163	93,874	154,463
SUV/Truck	36.4%	2.05	74,489	83,934	82,564	94,455	89,637	106,294	174,900
Large SUV	2.8%	2.00	4,230	4,766	4,688	5,364	5,090	6,036	9,932
RFTA (Public Bus)	3.1%	1.64	6,446	7,263	7,145	8,174	7,757	9,198	15,135
Limo	4.1%	2.67	5,127	5,778	5,683	6,502	6,170	7,317	12,039
All	*100.0%*	*1.98*	*177,965*	*200,531*	*197,259*	*225,668*	*214,158*	*253,954*	*417,864*

Note: [1]Vehicle movements each represent a roundtrip vehicle movement, which is a trip to the airport to drop-off the passenger and a trip from the airport back to the vehicles origin.
Sources: 2015 ALP Update - Forecast Chapter, Jviation 2015, Mead & Hunt

Peaking characteristics have been used to determine the number of ground vehicles projected for the peak hour (PH) of the peak month average day (PMAD). **Table 3** summarizes the number of peak hour ground vehicles anticipated under various passenger scenarios.

Table 3. Peak Hour Vehicle Ground Movements

Vehicle Type		Vehicle Movements[1] 2015 Actual	2023 No Action with Project: Terminal	2028 No Action Runway	2028 With Project: Runway First Year of Implementation	2033 No Action	2033 With Project: Runway Out Year	2033** What If Scenario
Projected Passenger Enplanements		233,541	263,153	258,860	296,140	281,036	333,259	548,356
Total Annual Vehicles		177,965	200,531	197,259	225,668	214,158	253,954	417,864
Peak Month	15.7%	27,941	31,483	30,970	35,430	33,623	39,871	65,605
Average Day	1/30	931	1,049	1,032	1,181	1,121	1,329	2,187
Peak Hour	15.9%	148	167	164	188	178	211	348

Sources: Projected Passenger Enplanments - 2015 ALP Update, Forecast Chapter, Jviation 2015, Mead & Hunt; Peak Month and Peak Hour percentages – 2008 Airport Master Plan Update; Vehicle Movements – Mead & Hunt.
[1] Vehicle movements each represent a roundtrip vehicle movement, which is a trip to the airport to drop-off the passenger and a trip from the airport back to the vehicles origin.

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Appendix 8
Scoping

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ASE Scoping Comments

EA Proposed Projects

- This is a must to keep adequate air service in Aspen
- Would like a cross section of the runway
- Will I see new aircraft in my neighborhood? Can I see a cross section?
- Visual impacts – sound barrier
- Traffic impacts of 2nd Hwy 82 intersection? Need for 2nd intersection?
- Do it. It's needed. It's time. Make it a joy to come to daily.
- Think Sydney Opera House. Do something spectacular with the terminal building. Do it.
- Another FBO to cater to general aviation
- Second FBO for smaller aircraft.
- Small.
- Do IT!
- Please look at the impact of the intersection on traffic
- Additional intersection adds a 4th light in this small section of Highway
- Drainage improvements?
- Why wouldn't the bike path extend to airline trailhead?
- Consider support facilities across Hwy 82
- What does a "support area" mean?
- Consider relocation of FBO building to gain ramp space
- Is another intersection necessary? Will this help or compound Hwy Traffic issues?
- Balance need of intersection-one use on the other side
- Let neighbors know the construction time line as soon as possible
- Parking as transit hub?
- Concerned about apron expansion and noise in Meadowood

Community Input: Terminal

- I agree. Just do it!
- Single story- love later turn into split
- Good- no expansion into the South needed. Good.
- No jet bridges

Recommendation #1 Concept ¾ Hybrid and #2 Concept 2

- Is there room for U.S. Customs?
- Gate lounge area should be <u>larger</u>

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- I'm OK with no jet bridges
- We should reconsider jet bridges
- Right size it! Don't want to build it again in 20 years.
- Don't make it so small it is obsolete before it is finished
- Jet bridges are a must
- Make it easier on shuttles, cabs, curbside pickups
- No advertising - more videos of activities
- Setbacks-yes. Low visual impact.

Background to Purpose and Need: Runway Reconfiguration

- Explain MOD

Purpose & Need – Terminal Replacement and East Side Projects

- How does new apron mitigate noise impacts?
- Extra space for users, passengers, and staff
- Noise at Hwy 82 at Harmony has increased since the runway expansion
- The widened runway is essential. Do it.
- When will the new airplanes be in use?
- Make the runway wide enough now for future planes - even longer for the new planes to come.
- Extend curfew 1 hour for pre-scheduled flights delayed from weather

Visual Resources

Preliminary View 1 and 2

- As long as it blends and looks nice
- Less setback and more consumer amenities in the gate area for our guests
- Good to see it's not a big edifice
- Maintain a parklike setting; inviting and fits into the environment
- Lead in lights so bright - hazard on the ground
- Summer/winter open walls on roof terrace
- OK to see planes - good to have lots of vegetation
- Build and plan for future growth appropriate for current and future needs
- Room for U.S. Customs
- Keep view points- can see arriving and departing flights

Preliminary View 3 and 4

- Bleacher viewing of planes like at Stapleton

- Past operations building should open now to terminal
- What will Owl Creek Road moving look like?
- Keep landscape buffer and trees around terminal
- Don't make it too small or compromise needed space
- Provide comfortable furniture and food service for delayed passengers
- Make it comfortable and have amenities for passengers
- West Buttermilk Road view down- one shown not accurate
- "smiley face"
- Hybrid option is an appropriate response to site topography
- What would it look like at night? Dark Skies
- Go Big or Go Home

Preliminary View 5 and 6

- I have no problem with the airport - good landscaping needed
- Wrong location for airport - in residential high-end RE
- Location is so convenient
- Observation deck, variation of roof lines
- Lower McClain Flats Road
- New from Meadowood with new aircraft staging area? Expanded apron?
- Top deck - Starwood
- Size and scale shown is not a problem at all
- Roof is critical to visual impact now white reflection- green roof or natural cedars
- Be aware of light pollution and shielding
- No reflectivity if it has sda
- Starwood would have potential light concerns
- Revolving beacon ongoing shield (grand fathered in) re Starwood
- Not too much glass on the east side please
- Terminal building should be modern, but understated
- Improve deice containment, current pad and runway
- Use west of Maroon Creek Plan (WOMP) direction in analysis

Proposed Bike Path & Owl Creek Road Relocation

- Will Owl Creek Road need to be moved more for the west side development?
- Moving the road and bike path should not be an issue. Move them.
- Looks reasonable.
- Can the bike path be improved to increase connectivity instead of just replaced?

- Greater separation between path and owl creek- consider a vegetated buffer (written underneath- YES!)
- Improve separation between the bike path and road

Socioeconomic Impacts

- Consider incorporating affordable housing impacts
- Fully integrate RFTA services into terminal design. Consider alignment of the project with AACP.
- Accommodate current capacity- not as a growth emphasis. Coordinate of air services and aircraft size.
- Consider affordable housing needs generated
- Examine the relationship with other ground transportation systems, including light rail or other future systems. Beyond pillow count, examine the economic impact of guests arriving via the airport in winter and summer. Consider other transit needs, e.g. park and ride opportunities on airport property including transit and terminal needs.
- Connection to RFTA + underpass
- Integration of RFTA into the design would create a better customer experience
- RFTA remote parking expansion or garage at Brush Creek
- Increase in shuttles to Aspen/Snowmass resorts- reduction in cabs/private vehicles-don't add to traffic
- Valley wide pillow count
- Do not preclude future potential fixed guidelines access to airport
- Create safe and comfortable connection between RFTA BRT stop and the airport
- Will the new terminal generation more FTEs then the current? Where will they live? What will traffic implications be?
- Assess communal lodging growth management implications
- Do not increase capacity at high peak times- Xmas, 4th of July
- Work with county to spread events. Ideas in September or October?
- I want to know if larger aircraft would create more economical travel options or does more people flying in create a higher demand in turn creating higher lodging prices, and higher costs in general?
- Visitor and residential quality experience greatly reduced at peak capacity

Proposed Noise Buffer & Monitors

- Noise walls are a good idea around the terminal. Berms too.
- Meadowood "Noise"?
- Maybe a noise buffer across from Harmony Road. The planes take off there.
- Updates for neighbors with specifics about current and anticipated events

- Analysis for potential new aircraft as well as existing
- Tons of trees
- Consider starting this buffer before construction
- Changes in expected noise from new planes versus current
- Apron buffer location?

Air Quality & Climate

- Is there a way to disburse the aviation fuel fumes while aircraft are in line for takeoff?
- Fumes in AABC aircraft departures
- Plug-In to alleviate idling of aircraft
- Air Quality-very important
- Updates about current particulate and air quality levels- actual and anticipated
- You should consider hazardous air pollutants and their effects on human health
- Consider air quality effects on tourism and quality of life for residents
- People live so close- what about hazardous air pollutants?
- Smell?
- Energy- use of terminal and buildings
- Off-set additional carbon/air pollution with local conservation projects
- Can we shared study results at the local government level for more informed local conversation?
- Check hazardous air pollutants
- Can you capture the hazardous gasses?
- Look into air filters for the entire Airport air
- Manage general aviation and commercial air traffic to reduce ATC delays and burning excess fuel with hold times on the ground and local air space
- Effect on ghg from parking- how can parking be used to support decreased trips into town?
- Consider the unique location of the airport- narrow valley at 8000ft. Poor air quality in dramatically increased apron buffer location.
- Air quality must include pollutants and carcinogens such as jet fuel.
- Plug-In to alleviate idling of aircraft
- All kinds of air pollution under flight path

Existing Water Resources

- Pipe all Owl Creek to better protect the resource from potential spills. Coordinate mitigation banking with city parks and/or county parks.
- Stapleton Ditch infrastructure west edge of Owl Creek- identify piping ditch move
- West Buttermilk Metro district capacity additional water needs?

- Containment of glycol. Electric ground equipment
- Cozy Pt Ranch- City of Aspen. Redo Management Plan. Restoration on Brush Creek? North Star Restoration work?

Historical & Cultural

- Needs Current Photos
- Please consider the social/cultural values of the community when planning the interior of the terminal. I.E., rather than all the commercial advertising, consider informational signage about Aspen culture, arts, environment, impact of climate change, history, etc.
- Keep it real and unique- no mini LAX or NYC
- True to character
- How will the design take into consideration the communication of Aspen history and culture (e.g. the opposite of the ART museum)
- Do we really want to move this runway 80 ft. closer to the rocks?
- How will proximity of the runway effect the adjacent resource? Vibration?
- The trail could take advantage of the Farmstead and Aspen Groves
- Clean up of historic areas, junk removal?
- Allow the possibility to improve Owl Creek Trail, to make it less steep!

Potential for Larger Aircraft

- Larger aircraft (737, A319) will leave a net negative effect on the valley in terms of noise and pollution. Not needed here.
- Larger aircraft during peak seasons will reduce frequency and have less environmental impact
- Less commercial frequency reduces ground ops equipment usage, glycol needs, etc.
- Less frequency reduces ATC delay and aircraft holding in air and on ground- less burning excess fuel

Comments on Other Resources

- Consider fuel containment waste water of ramp
- Is the D-III standard appropriate based on our commercial volume?
- With the airport only 3 miles from Aspen and 3.2 from Snowmass 2 creeks, ground transportation solutions are the most critical environmental and traffic elements.
- Ditto (referring to the above comment)
- Energy use of buildings = GHG pollutants and cost
- Consider spending wetland mitigation fees for local restoration projects
- Educate- Coffee chat in Airline breakroom
- Consider parking capacity as it relates to multi-modal approach

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- Note any potential impact to Aspen water agreement via west Buttermilk
- Construction + demolition waste = big impact to landfill
- Consider full containment wastewater of ramp
- Balance need of intersection with use on the other side
- Consider relocation of FBO building to gain ramp space
- Consider support facilities across Hwy 82
- Parking as transit hub?
- Drainage improvements?

Terminal Design Comments

Some comments addressed terminal design of the project. The EA will cover approximately 25% design for the terminal and the site plan; final design will be included subsequent to the EA. All projects will be designed in accordance with Aspen/Pitkin County Design Guidelines which are intended to provide a mechanism to ensure that future development and redevelopment at the Aspen/Pitkin County Airport is implemented in a manner consistent with community values which reflect high standards for architectural quality, environmental sensitivity, neighborhood compatibility, and sustainability. It will also take into account other local plans such as the West of Maroon Creek Plan.

Many comments also dealt with the request to “right size” the terminal and that user experience goes down during peak capacity right now. When the 2013 Master Plan Update was completed, the predicted fleet mix changes of regional jets to longer wingspans was not known. Therefore, additional terminal work outside the EA will examine the sizing question and determine Level of Service needed based on the new potentially-larger aircraft fleet mix. This will include examination of room needed for specific functions such as the gate areas, TSA, etc. as well as final site development and curbside flow for shuttles, cabs, and parking. Comments on keeping viewsheds, options for a roof terrace, a park-like setting, concessions and amenities will be included in final design. This analysis will be included in final design. There will be additional community involvement during the full design process.

Jet Bridges

Some comments addressed the question of the addition of jet bridges for the new terminal. While there were comments both for and against jet bridges, it was determined that for now, jet bridges would not be included in the conceptual design due to a larger contingent focusing on the “Aspen experience” of stepping off the aircraft into the mountains. While having no jet bridges poses some operational considerations, the final design will take these types of operational considerations into account to make it functional, as well as ADA compliant.

Visual

Many comments addressed interest in the visual elements of the terminal and other projects. A qualitative analysis will be conducted to examine the visual impact of the projects on the community surrounding the airport. Visual renderings will be developed to conduct a site massing and viewshed analysis to determine if the proposed airport improvements would have any impacts on the aesthetics and view characteristics of the area. A night time view will also be examined. Additionally, the EA will confirm the projects compatibility with local laws and ordinances pertaining to visual changes along the highway corridor. Several viewpoints will be chosen from different areas of the airport, including from the north, south, east and west, based on areas of known interest. This analysis will include all projects including the terminal and associated roadways and parking, generalized site landscaping, the runway shift and widening, as well as the shift of Owl Creek and the Owl Creek Bike Path.

The EA will examine two conceptual terminal alternatives, which were developed with coordination with stakeholders and the ability of the concepts to fit within the existing site constraints. However, final design considerations (such as light shielding and final roof design) will be coordinated with stakeholders after the EA. All projects will be designed in accordance with Aspen/Pitkin County Design Guidelines which are intended to provide a mechanism to ensure that future development and redevelopment at the Aspen/Pitkin County Airport is implemented in a manner consistent with community values which reflect high standards for architectural quality, environmental sensitivity, neighborhood compatibility, and sustainability. It will also take into account other local plans such as the West of Maroon Creek Plan.

Noise

Some comments addressed a concern for changes in noise levels due to the project from the potential for larger aircraft and the expansion of the apron. The analysis of aircraft noise exposure in the EA will be prepared in compliance with FAA Orders. The order that was in effect when the project was scoped was 1050.1E, which requires the use of noise exposure contours using the FAA's Integrated Noise Model (INM) showing the area affected by 65 Day-Night Noise Level (DNL) and greater noise levels.

The FAA and the County have taken steps over the years to assess existing levels of aircraft noise and develop noise abatement procedures to reduce the impacts on residential and other noise sensitive areas. As a result, under current conditions there are currently no noise sensitive uses exposed to 65 Day-Night Noise Level (DNL) noise levels at Aspen/Pitkin County Airport. However, the EA will examine the With Project and No Action noise based on the addition of potentially larger aircraft and determine whether there will be significant impacts associated with the project. This analysis will also include the potential benefits of the proposed noise wall along the GA apron to reduce noise from aircraft on this apron. Some comments indicated that the buffer should be started prior to construction of the project. All projects need to be federally cleared in this EA, and final phasing of construction is dependent on funding availability.

Some additional comments indicated that the curfew should be increased in the evening. It is important to note that the curfew at ASE is grandfathered in and any changes to a curfew would negate the entire curfew. Therefore, no changes to the curfew are recommended. Curfew changes are also outside of the scope of this EA.

It is important to note that most of the new regional jets coming into the fleet in the future are considered Stage 4 aircraft, which have engines that are generally quieter than their existing regional jet counterparts.

Relocation of Existing FBO

Some comments related to the relocation of the existing FBO. The relocation of the Existing FBO was a project included in the 2013 Master Plan. One of the main purposes of this relocation was to tie into the parking garage that was proposed at the time to provide further efficiencies. Since the parking garage is no longer reasonably foreseeable due to funding issues, the relocation of the FBO is not being considered at this time.

Second FBO Separate EA

Some comments dealt with the question of a second Fixed Base Operator. Right now, the development of a parallel taxiway that could serve a second Fixed Base Operator is not reasonably foreseeable due to funding constraints. If this becomes reasonably foreseeable, a separate EA that includes a taxiway and Fixed Based Operator facility on the Airport's west side would need to be considered, if and when funding is available at some point in the future.

Public Involvement

Some comments reflected the need for the community to be informed of project progress and timelines. A Public and Agency Involvement Program will be implemented during the preparation of the EA to facilitate coordination between the Airport, the County, FAA, agencies, community groups, and local governments. During the course of the Study, all viewpoints will be carefully weighed and solutions developed which will strive to serve the common interest of all parties to the extent possible. Throughout the planning process, all information will be posted to the project website: http://www.aspenairport.com/airport-improvements-ea/summary. Additionally, project information will be shared via social media and the Peak Democracy Tool.

The project team will hold public meetings and workshops for the general public throughout the Study. These meetings will be held in the evening to encourage public participation and will be held at key points during the Study, specifically related to design elements/visualizations and other known community concerns. The purpose of these meetings will be to further refine the areas of concern the public has for various environmental issues and work through issues prior to the release of the Draft EA.

Traffic

Some comments addressed the need to examine traffic impacts relative to the proposed project. Surface transportation changes, both temporary and permanent, will be analyzed and disclosed for the Proposed Projects and feasible and prudent alternatives. Level of Service (LOS) and access to existing homes and businesses, and convenience will be examined as a result of the proposed project and be compared to the No Action Alternative. The Team will work with CDOT and the Airport on this task to examine the intersection with Highway 82 and Baltic Avenue. The site plan will incorporate the existing connection points to Highway 82.

Air Quality and Climate

Some comments addressed the question of how air quality and climate would be considered in the EA. The consultant team will prepare an existing conditions emissions inventory for criteria pollutants and Hazardous Air Pollutants (HAPS) for the sources of emissions that would be affected by the proposed project alternative(s). Sources that are expected to be included in the emissions inventory are: aircraft/APU, ground service equipment (GSE) fleet, ground access vehicles/roadways, stationary sources, and parking lots. This will examine the impact of the proposed project compared to the existing No Action Alternative in the EA.

In accordance with FAA Order 1050.1F, the EA will address climate separate from air quality. As an emissions inventory will be prepared for criteria pollutants, an inventory of greenhouse gases will also be prepared.

Some comments referred to the ability of aircraft to plug in to reduce idling. Plug in power to replace the use of Auxiliary Power Units is an option that can be examined with the final design of the terminal and apron. The terminal will also examine ways to reduce energy consumption.

Other comments relating to the ways to distribute fuel fumes, managing the general aviation/commercial traffic, or use of technology to reduce air emissions are outside the scope of this EA, but can be considered outside of the EA if the technology arises.

Plan for existing and future needs

Several comments mentioned that the environmental analysis should look at existing and future conditions. An Environmental Assessment does just that. FAA forecasts for aviation activity, size of aircraft and frequency, along with local and regional land use plans will be reviewed to ensure that the projects align with local needs.

Bike Path and Owl Creek Road

Some comments dealt with questions on the bike path and Owl Creek road relocation. The general plan is outlined in the Proposed Project figure, and will relocate the bike path and the Owl Creek Road alignments to the west within the CDOT Right of Way. The bike path must be outside of the Object Free Zone and Owl Creek Road must stay within right-of-way, therefore, increasing the separation between the two is likely not feasible. Bike path and Owl Creek Road alignments will be determined during the final design process. The figure shows only the relocated portion of the bike path; the existing connection to airline trailhead will still exist. Coordination with local agencies and the public will be conducted and the comment that there should be potential improvements to the grade in the switchback area.

Socio-economics

Several comments dealt with questions on how socioeconomic issues would be examined in the EA. Economic and demographic trends in the area will be analyzed to the extent that they may be affected by the proposed airport improvements. The analysis will focus upon the historic characteristics of the economy and projections of economic and demographic growth based on available statistical information. Housing trends, development changes, and demographic characteristics will be analyzed and described to provide a description of the social environment.

For each of the alternatives an analysis will be conducted to assess the potential impacts to transportation patterns, social cohesiveness, and other pertinent issues identified (i.e., effect on affordable housing (increase in FTEs, etc.) and a valley wide analysis on pillow (number of available places to stay)). An objective analysis will be performed consistent with current FAA Orders, Executive Orders, and other guidance to define actual versus perceived impacts.

Parking and Transit Comments:

Several comments dealt with the importance of connectivity between the public transit system. The site plan included in the proposed project will work within the existing CDOT connections to Highway 82, the existing BRT RFTA station and underpass, as well as keeping the agreed upon space reservation for potential future additional transit improvements. Links to these resources will be examined to help identify ways to improve the connectivity/experience, and this can be tweaked in final design after the EA with stakeholder coordination.

In the 2013 Master Plan Update, a parking garage was recommended to meet existing and future parking demand at the Airport. Since that time, with the addition of the runway shift project, the parking garage is not financially feasible within the planning period. The proposed project now includes replacing the existing number of parking spaces to maximize the parking within the site, but while meeting the Design Guidelines. However, the County has indicated that the new site plan should be flexible to incorporate a parking garage in the future, should it become financially feasible. This assumes that in the near term,

the parking at the airport will be under the need, and people will have to use other modes of transportation to ASE (shuttles, public transit, etc.). Due to the fact that parking will not meet the airport needs, providing a park and ride system at the airport for people heading into town will not be possible at this time and is not included in this EA.

Note that improvements for existing ground transportation systems (including light rail, bus or shuttles routes and times, or other future systems) and parking outside the ASE site plan are not in the scope for this particular project.

Safety versus Capacity Questions - Runway

Several comments dealt with the idea of not increasing capacity at the airport. It is important to note that this project is not a capacity project. This project is related to bringing the airfield up to FAA required safety standards to allow for future commercial service aircraft to continue to operate at ASE. Based on the Master Plan Update of 2013, the D-III standard was identified as the correct design group for ASE and therefore, ASE must meet those D-III standards. The demand for flying into ASE exists without the project and should not change with the addition of larger aircraft.

Water

Several comments dealt with the piping of Owl Creek and general water quality. Analysis will be conducted to identify any potential water impacts that could result from the proposed projects. The effects of the proposed airport improvements on water quality will be examined and documented. Methods to control peak flow and mitigate water quality impacts will be presented in the EA. This task will examine effects relative to the apron placement and GA and commercial activity locations.

Surface and ground water resources in the vicinity of the proposed airport improvements construction site will be identified and described. The consultant team will coordinate with federal, state, and local agencies to determine permit requirements and mitigation plans as needed. An assessment of remediation requirements and potential impacts will also be documented in the EA to demonstrate compliance with federal, state, and local water quality standards.

Design of the project will consider of water needs and water quality protection, and drainage and infrastructure will be assessed to mitigate for any water impacts. It is not anticipated that there will be any increases in capacity on the West Buttermilk District.

Because there is an area of Owl Creek that is proposed to be piped within the airport fence line, it is anticipated that some kind of mitigation will be required. This will be coordinated with Army Corps of Engineers as well as local agencies. Ideas for mitigation projects within the area are welcomed and

further discussion will be included in the mitigation chapter of the EA. When considering mitigation projects local projects are always preferred.

Historic

Several comments related to the Airport Ranch, a potentially eligible property for inclusion in the National Register of Historic Properties. Impacts on this resource will be examined in the Environmental Assessment based on 1050.1F, including the impacts of the runway relocation 80 feet to the west (closer to the property).

Construction Waste

Some comments addressed the question of construction impacts. Construction impacts will be included in the EA, including potential impacts on the local landfill.

Timing

Several comments addressed the timing question. Proposed timing is construction of the terminal being completed in 2022, with the runway shift being completed by 2027.

Support Area

One question asked for a clarification on what GA Support Area meant. Support area includes elements such as parking, roadways and other necessary elements that help support General Aviation activities

Explain MOD

MOD refers to the modification of standards that ASE currently operates under. It is a modification to the FAA design standards limiting aircraft to a 95 foot wingspan to account for the non-standard runway/taxiway separation.

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

All Statements sorted chronologically

As of March 31, 2016, 4:43 PM

As with any public comment process, participation in Pitkin County Connect is voluntary. The statements in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

As of March 31, 2016, 4:43 PM, this forum had:

Attendees:	80
All Statements:	9
Minutes of Public Comment:	27

This topic started on February 10, 2016, 3:24 PM.
This topic ended on March 31, 2016, 4:09 PM.

All Statements sorted chronologically

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

Name not available (unclaimed) March 25, 2016, 1:12 PM

That it fit in, in relation to the size of the valley and not overwhelm everything around it. There are housing both for locals and 2nd home owners, a ski area, and businesses located nearby. We all must drive by it constantly. It needs to be an airport that serves a small valley and Historic town not the other way around. If it changes the character of the area negatively it will diminish the very reason it is being proposed. It will degrade the tourist and local experience, and the future attractiveness of the area. Lowered attractiveness translates to less business in the future not more. That it not take open space. Open Space should be inviolate. It is inviolate from an individual citizen and should be under the same rules for the Government. The same with large buildings. They are despised if proposed by an individual and should be despised for the same reasons for a government building. Maybe even more as an example to everyone. The old structure used solar originally which was a statement about what is part of the Aspen character, we care for the environment and want to lead in this arena. Noise is an issue and hasn't been dealt with well enough yet. It should absolutely be addressed and the most helpful mitigating items should be installed be it sound barriers or whatever. Beauty and landscaping should be first class. The trees there now are specimen quality and should be replaced with specimen quality. My main environmental concern is that the airport is going to alter the environment too much and it won't resemble what we have today. One more feather off the goose!

John Bennett inside District 5 (on forum) March 23, 2016, 3:06 PM

My Top Four Concerns:
1. The new terminal should be as small as possible (given our average passenger volume) and designed to (A) conserve energy and (B) reflect the traditional small town character, beauty, charm and uniqueness of Aspen and Pitkin County. It's absolutely okay for the terminal to feel a little crowded on the busiest day of the year.

2. Runway expansion should be avoided if it opens the door to commercial 737 flights. That idea was voted down by a 2-to-1 margin last time and would likely be defeated by a similar vote today. Nothing would degrade our community character more quickly than the noise and industrial tourism symbolized by "heavy metal" commercial aircraft.

3. The airport's parking and rental car policy should be designed to lure people out of their cars and into mass transit, preferably some form of fun and comfortable fixed guideway system into Aspen.

4. Let's get rid of the marketing billboards that clutter today's terminal and replace them with flowers, art and educational materials designed to inform and excite our visitors about the upper valley's arts & culture, commitment to reducing climate change, recreational opportunities, colorful history and refreshing uniqueness.

In short, let's give our residents and visitors a terminal that reflects the beauty of our valley and the highest values of our community – something to make us all truly proud!

Name not shown inside District 3 (on forum) March 22, 2016, 7:25 PM

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

My concern is that this project exceeds what is strictly necessary, creates an unneeded parking structure, and utterly fails to incorporate public transit. There is no need for more parking and rental cars should be eliminated from the airport. Additionally, there should be some sort of statement regarding whether this plan assumes some sort of expansion of existing operations (as the parking would suggest). None of the County Commissioners are frequent flyers, so some perspective from some who do would be helpful. I fly at least twice a month, sometimes more, and have lived here for about twenty-five years. I see no need for huge expansion, especially around parking. The current ads in the airport are an eyesore. If that's where the BOCC is going with all of this, then we should stop all of this now.

Name not shown inside District 4 (on forum) March 17, 2016, 3:37 PM

I hear people talk about needing expansion so that we can continue to grow.....aren't we pretty much at capacity in many respects? We no longer are the unique, charming little ski town with interesting shops. The greedy landlords have priced out the local shops and replaced them with shops you can go to in any city. Don't get me wrong....we still have one of the most beautiful, safe and fun places in the world to call home but I no longer go into town to find a unique gift or relaxing cup of coffee. For the majority of our guests, the first and last impression of Aspen/Snowmass is at our airport. Let's keep that a charming and friendly place.
I do see the need for a newer and more efficient commercial terminal. A two story building , with adequate underground parking, would be good. The restaurant, bar and shops could be on the upper level and would create a better calmness during the weather and crazy days.
As for the widening of the runway, I am very much against any plan that causes us to relocate Owl Creek Road and the bike path. The Teacup might be a good idea if an aircraft needs to move off the end of the runway, rare, and the taxiway is full but if it causes Owl Creek Road to be moved then I think we should maybe look at alternative options. The noise during the high seasons, with 34 commercial flights a day along with the private aircraft, is to be expected. We seem to want all of the aircraft to come in but we don't want to hear them? It's the visual implications of more, more and more that are my deepest concerns.

Name not available (unclaimed) March 8, 2016, 9:50 AM

What are my top 4 environmental concerns? How about just one? Widening the runway will INCREASE the number of aircraft coming into the airport by allowing bigger planes to land here. That will INCREASE the County's carbon footprint and INCREASE the noise in the Valley. This is all very bad and NOT what most of the citizens want. How can the Aspen Skiing Company support this? Isn't carbon killing our snow?
Growing the airport will also make it much more likely that commercial flights will be delayed with all the increased private aircraft use. It is simple math, if it is bad now it will be worse with more private planes. We have heard that we will lose commercial service before and miraculously aircraft were "qualified" to come in. The new pro-growth agenda that Pitkin County and the new LAX airport manager have taken up is not going to make the community better. Enough development!

Name not shown inside District 5 (on forum) March 8, 2016, 7:39 AM

to reduce environmental impact best to do this job right the first time to avoid need for new future projects. population and air traffic not likely to grow. better airport may reduce flight cancellations which unnecessarily waste aviation fuel and auto fuel of failed travelers. all else is nonsense.

Name not shown inside District 3 (on forum) March 1, 2016, 2:25 PM

Please give due heavy consideration even beyond the areas listed; for instance beyond just woody crk, star mesa, white star ranch all suffer planes repeatedly lining up above our homes as well as disobeying existing air space airport rules and coming in at different angles as well (helicopters, fixed wings, gliders etc). The visual blight is as bad as the noise which is becoming more and more formidable already without addition and expansion. Jet fuel odor can now be detected, too. Is this what a rural area deserves here in paradise? May result in an inordinate property value devaluation eventually, also. Has anyone looked up from a McLain Flats meadow and seen literally hundreds of contrails mid day? Not such a very pretty site in our blue skies. We fervently hope for single story building, keep footprint as small as possible as bigger is not always better. Is public transport area appropriately sized or do we want more cars, more taxies, more congestion, more exhaust? We used to see early AM owls and various wide life right off the planes in the 70's. Where are they now? Are you building any ways into the plane to be sure they are not harmed or run off further? Will Owl Creek Road ultimately be decimated by your plans down the road a few years? How sad this valley is becoming, maybe the UTES were right to settle a curse on the area, we deserve what we sow. Wake up planners-not too late? Remember the airport being a solar building back then? What happened to any forward approaches beyond the standard apo norm?

Name not shown inside District 1 (on forum) February 27, 2016, 7:26 AM

Any increase in air traffic or size of planes is asking for disaster and tragedy. Already the world's best musicians are insulted by having their performances punctuated by the noise of aircraft. One cannot take a hike anywhere in Colorado without having the peace of nature interrupted by aircraft. My morning coffee is being accompanied by the noise of jets as I write this.
The major thing that preserved Aspen above other resorts was that it was difficult to get to. Let's leave this expansion on the table for later - much later.

1 Supporter

---

bill hunt inside District 2 (on forum) February 19, 2016, 8:07 PM

now is the time to stop further air quality loss. bring the environmental benefits of light rail to workers driving to aspen and to tourists, who are trying to escape traffic jams. build adequate underground parking so all can use our good (and improve it to world class) system. otherwise we become just another urban mistake and the shape of the airport building is irrelevant.

2 Supporters

2

SignIn

Agency Scoping Meeting · February 17, 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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Mead & Hunt

THANKYOU!

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Community Input Committee Meeting · February 17, 2016

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THANKYOU!

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Community Input Committee Meeting · February 17, 2016

NAME	EMAIL ADDRESS

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ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Community Input Committee Meeting · February 17, 2016

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SignIn

Public Meeting · February 16, 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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THANKYOU!

SignIn

Public Meeting · February 16, 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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JAYNE MOSHER	

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Public Meeting · February 16, 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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Peggy Ollson	meadowood
Chuck Tomasch	None

Mead & Hunt

THANKYOU!

SignIn

Snowmass Public Meeting · February 18, 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

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THANKYOU!

Environmental Assessment

City of Aspen Scoping Workshop

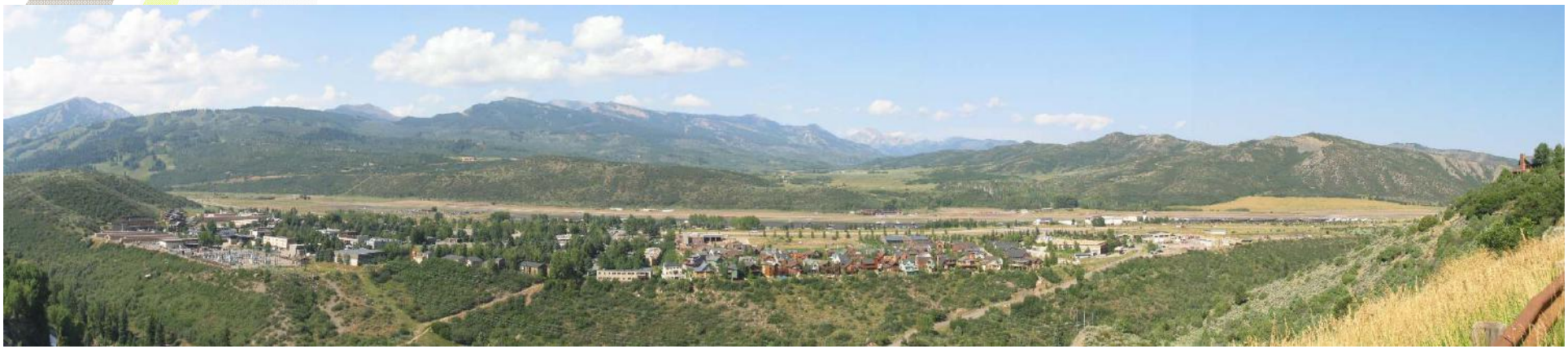
March 2015

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

ASPEN/PITKIN COUNTY AIRPORT
OWNED AND OPERATED BY PITKIN COUNTY

What we will discuss

- **EA Background**
- **Proposed Actions**
- **Community Input to Date**
- **Explain the purpose and need of the projects**
- **Define next steps**
- **Facilitate Scoping Comments**



Purpose of This Environmental Assessment (EA)

- **The National Environmental Policy Act (NEPA) requires consideration of the environmental consequences of a federal action before the action is taken**
- **An Environmental Assessment is prepared to determine if a significant environmental impact may occur**
- **Provides an in-depth review of the environmental impacts for the proposed action and alternatives to those actions**
- **Discloses alternatives, impacts and mitigation to the public and decision makers**

Environmental Assessment Content

- The Environmental Assessment will consist of the following key chapters:
  - Purpose and Need: Why is the project needed?
  - Alternatives: Proposed Projects and the No Action
  - Affected Environment: The environment as it exists today
  - Environmental Consequences: What is impacted by the Proposed Action and the Feasible and Prudent Alternatives
  - Mitigation Measures: How to off-set any impacts

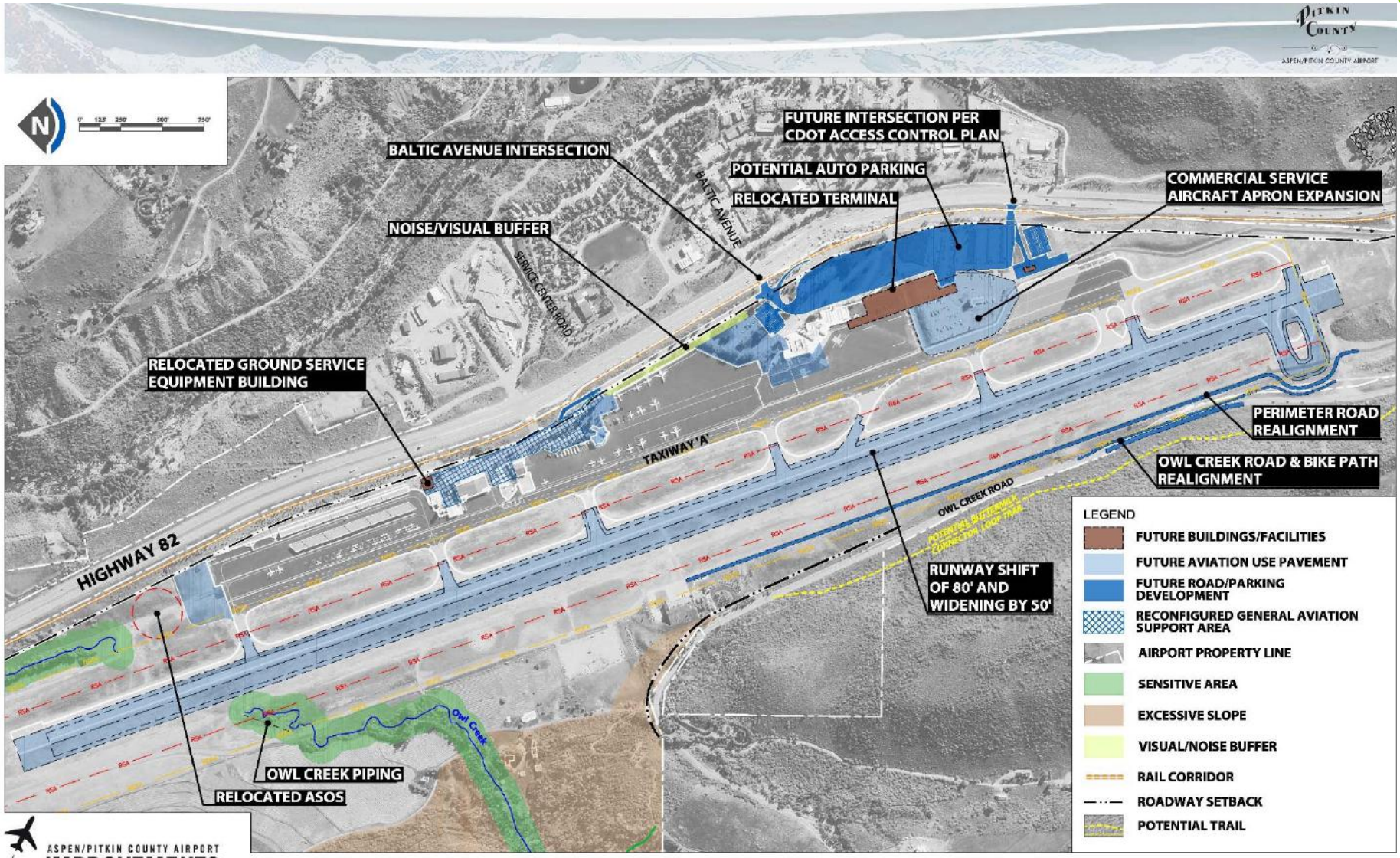
Proposed Actions

- **The Environmental Assessment will analyze the following proposed actions:**
  - Shifting the runway 80 feet to the west and widening the runway to 150 feet to meet FAA design standards for design group D-III
    - Realignment of the perimeter road and Owl Creek Road and Bike Path to account for the shift in the runway; will not impact conservation easement
    - Associated relocation of NAVAIDs, runway and taxiway lighting, perimeter roadway, etc.
- **Note: West Side Development (including a secondary FBO) is no longer being considered. Airfield Reconfiguration and Terminal projects were combined into one EA for efficiencies and to analyze all impacts.**

Proposed Actions (continued)

- **The Environmental Assessment will analyze the following proposed actions:**
  - Construction of a replacement terminal (2 concepts)
    - Associated parking and roadway reconfiguration and integration with public transit
    - Relocation of the ground service equipment building
    - Demolition of existing facilities
  - Commercial service apron expansion
  - Piping of Owl Creek
  - Construction of a noise barrier along the GA apron area

EA Proposed Projects



ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Community Input

- **All community input received thus far will be included, plus all future input**
- **Extensive coffee chats, public meetings, local presentations were conducted during the Air Service Study regarding the Airfield Reconfiguration**
- **So far, 4 public workshops on Visioning and Terminal Preliminary Design Concept were conducted**
  - February, April, September, October 2015
- **9 Coffee Chats on both the Airfield Reconfiguration and the Terminal EA (Combined)**

Community Input: Terminal

The comments from the CIC Workshop and Public Open House had overlapping themes, which are summarized / paraphrased below.

"Build to meet our needs"

- *Small-town feel of back-in parking works great already, keep it*
- *Make terminal big enough to serve our needs but not an architectural monument*

"Terminal should be integrated into landscape"

- *Roof gardens and outdoor spaces are exciting ideas for passengers!*
- *Keep beauty of surroundings, keep building as low as possible*
- *Views of roof are important for nearby residents, roof gardens!*

"Parking"

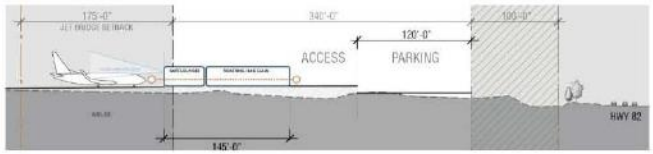
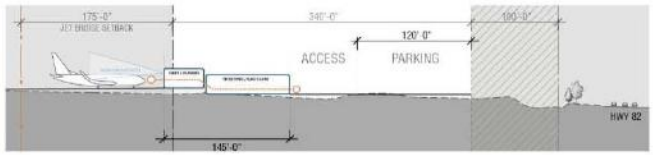
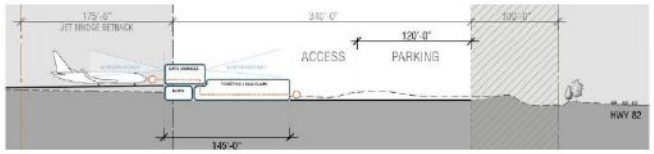
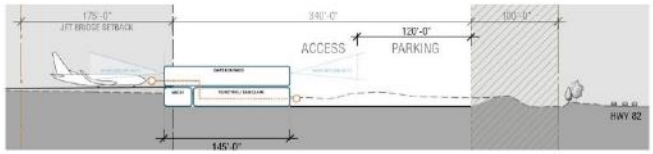
- *Structured parking is needed for capacity, convenience and accessible (ADA) use (general sentiment, with some opposite opinions)*

"Connection to RFTA"

- *The Airport needs to promote use of public transportation as much as they can*

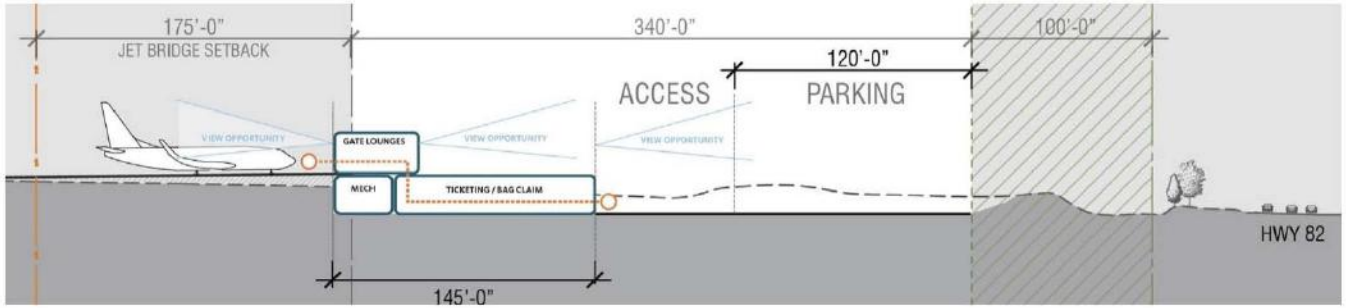
Community Input: Terminal

Upon tallying and averaging the "scores" of the concepts, Concept 3 was the clear top choice with Concepts 2 and 4 sharing positions as alternate choice.

Building Concept Tally	CIC	PUBLIC	PITKIN CONNECT
Building Concept 1 **"Single Story"** 	13.7	10.7	17.8
Building Concept 2 **"Split Level"** 	15.9	12.7	18.5
Building Concept 3 **"Nested"** 	26★	21.6★	22.8★
Building Concept 4 **"2-Story"** 	20.7	14.5	18.3

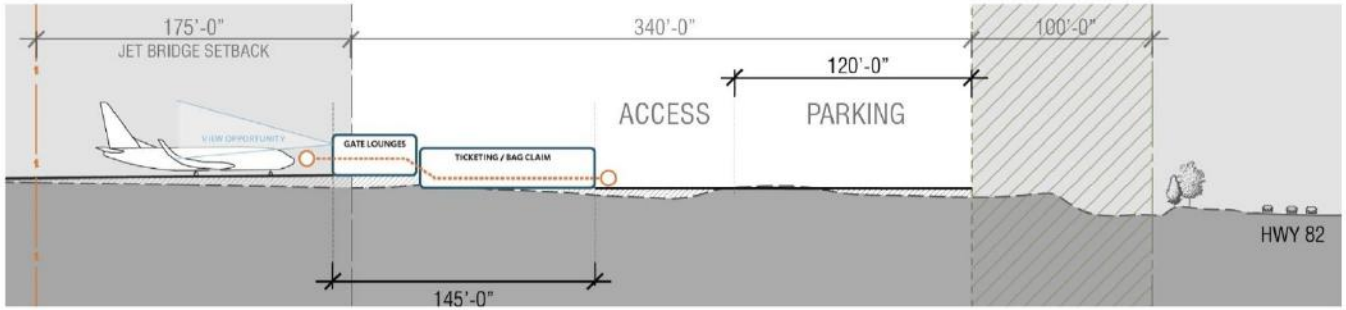
Recommendation #1 Concept 3/4 Hybrid

- *"Setback" appearance to minimize visual impact (Concept 3)*
- *Stack levels flat to allow for future expansion (Concept 4)*



Recommendation #2 Concept 2

- *All functions on a single level*
- *Split-level provides some grade mitigation opportunity*



Background to Purpose and Need: Runway Reconfiguration

- ASE currently has a 95 ft. wingspan restriction in place based on runway to taxiway separation distance
- Aircraft trends indicated that the aircraft with wingspans less than 95 ft. will be phased out, with half of the U.S. fleet retired by 2021
  - With wingspan restriction still in place, current air carriers would not be able to operate at ASE with future fleet
  - FAA will not allow another MOD to allow larger wingspan without ASE meeting FAA standards of 400 feet separation
- ***In order to have future Design Group-III air service at ASE, the FAA is requiring the airfield to be brought into FAA compliance for that Design Group***

Purpose & Need – Runway Reconfiguration

- **Purpose:** The purpose of this project is to meet FAA design standards, allowing ASE to keep commercial service in the long-term.

- **Need:** The implementation of the runway reconfiguration will address the following needs:
  - The current airfield does not meet the FAA design standards for D-III aircraft due to the deficient separation distance between the runway and taxiway.

Purpose & Need – Terminal Replacement & East Side Projects

- **East side improvements were recommended in the Master Plan due to:**
  - Existing Terminal Area deficiencies
  - Apron issues
  - Operational issues
  - Roadway/connectivity issues
- **Purpose:** The purpose of the terminal replacement and associated east side projects is to optimize the safety and efficiency of the airport.
- **Need**: The implementation of the terminal replacement and associated projects will address the following needs:
  - The existing terminal and terminal area is deficient in space with operational, safety and functional issues that does not currently meet the needs of passengers, staff and users.
  - Apron is deficient in size and currently slopes into the terminal, creating safety hazards.
  - GA Apron noise has been identified as an issue for surrounding communities and a need to mitigate this noise was identified in the master plan.

What is Scoping?

- **An Open Process for determining the issues to be addressed in the EA and identifying issues of critical concern related to the proposed actions.**
- **Scoping provides the opportunity to solicit input from those interested and affected parties to:**
  - Identify significant environmental issues to be analyzed
  - Identify alternatives
  - Identify other environmental processes occurring

EA Process

EA Elements	Public Involvement
Hold Public and Agency Scoping Meetings	Solicit Public & Agency Concerns: 30-day Scoping
Conduct Environmental Studies	
Prepare and Publish Draft EA	Extensive Public Involvement
Hold Public Hearing(s)	
Prepare Final EA Addressing Public & Agency Comments	Official Public/Agency Review and 30-day Comment Period
Submit to BOCC for Local Review and Approval	Public comment during BOCC Public Hearing
Submit to FAA for Finding	

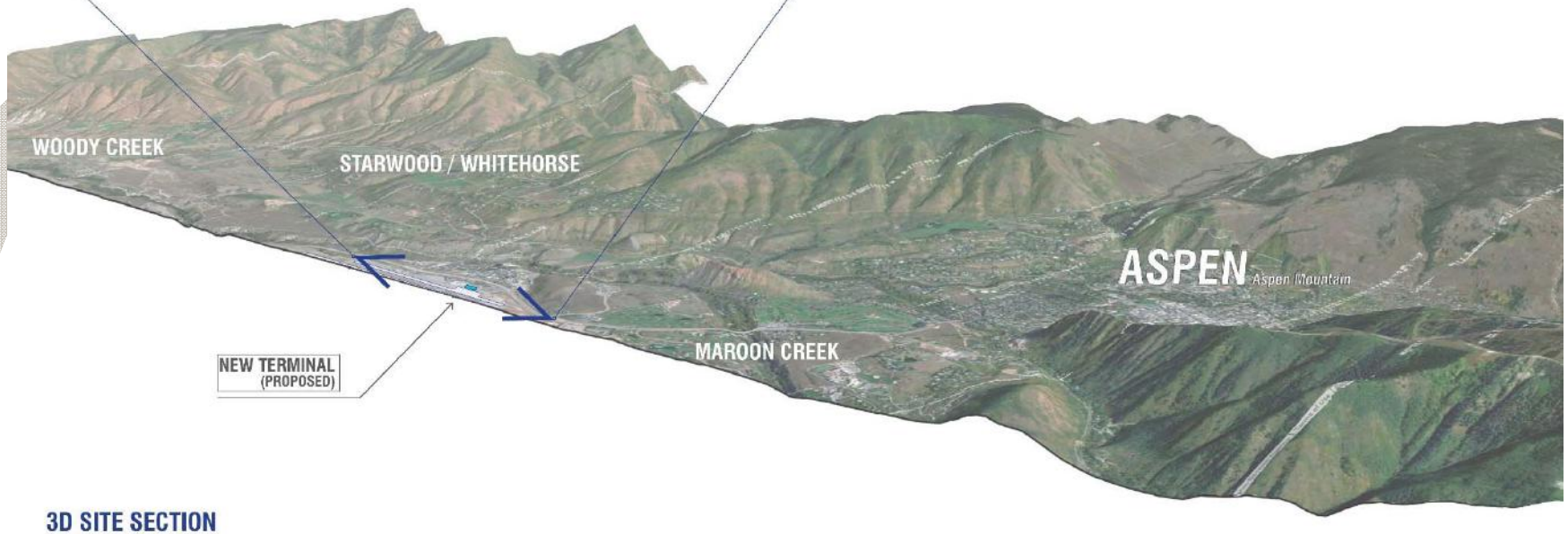
Environmental Consequences

- **Categories to evaluate per FAA Order 1050.1F include:**
  - Air Quality
  - Biological Resources (fish, wildlife and plants)
  - Climate
  - Department of Transportation: Section 4(f)
  - Farmlands
  - Hazardous Materials, Pollution Prevention, and Solid Waste
  - Historical, Architectural, Archeological, and Cultural Resources
  - Land use
  - Natural Resources and Energy Supply
  - Noise and compatible land use
  - Socioeconomics, environmental justice and children's environmental health and safety risks
  - Visual Effects (including light emissions)
  - Water Resources (wetlands, floodplains, surface waters, ground waters, wild and scenic rivers)

Visual Resources

(PRELIMINARY) VIEW 1 north approach on Highway 82

(PRELIMINARY) VIEW 2 south approach on Highway 82



3D SITE SECTION

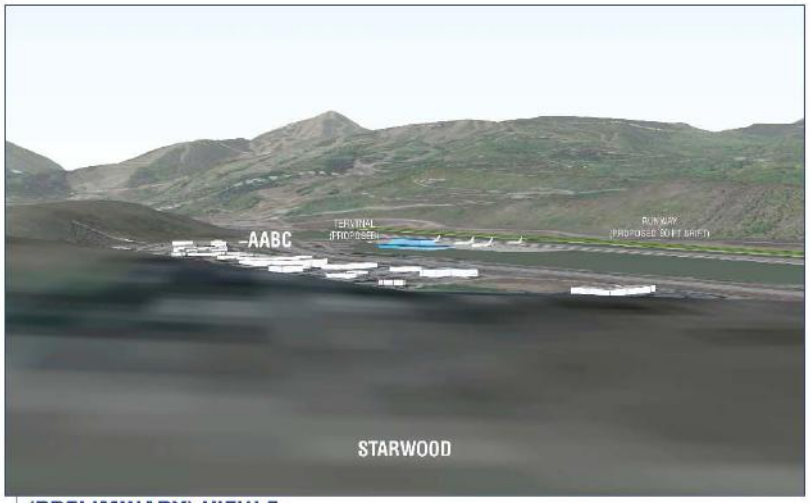
Visual Resources

(PRELIMINARY) VIEW 3 from Buttermilk

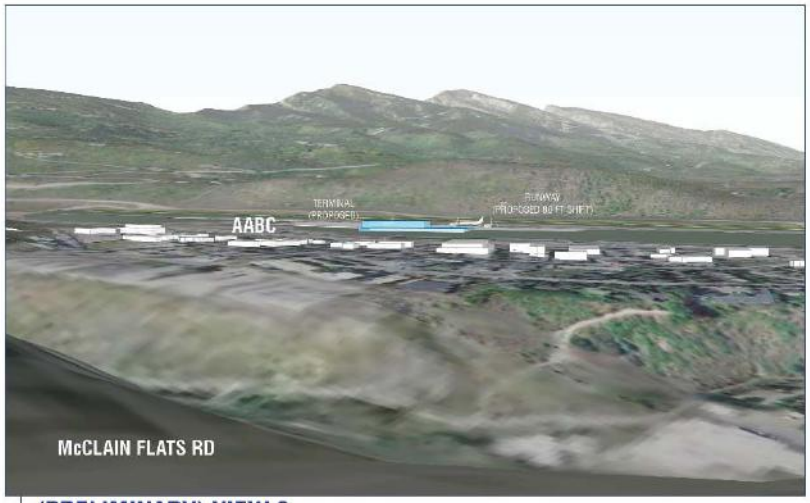
(PRELIMINARY) VIEW 4 from Owl Creek Rd

3D SITE SECTION

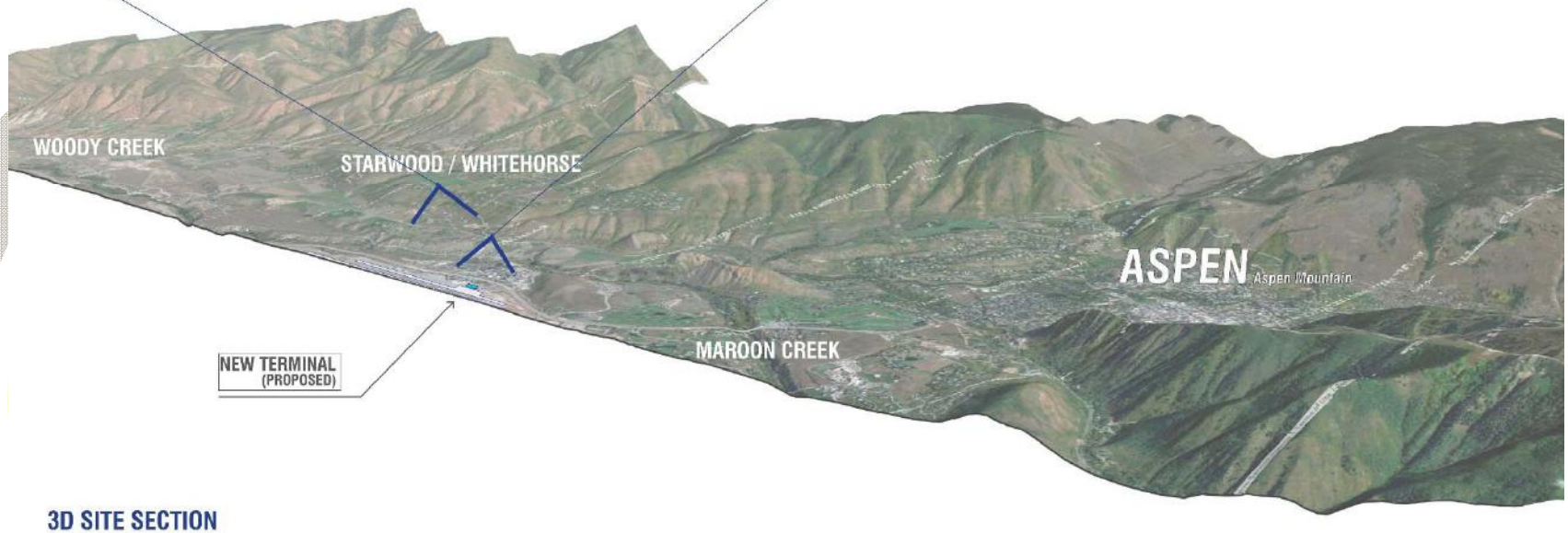
Visual Resources



(PRELIMINARY) VIEW 5 from Starwood

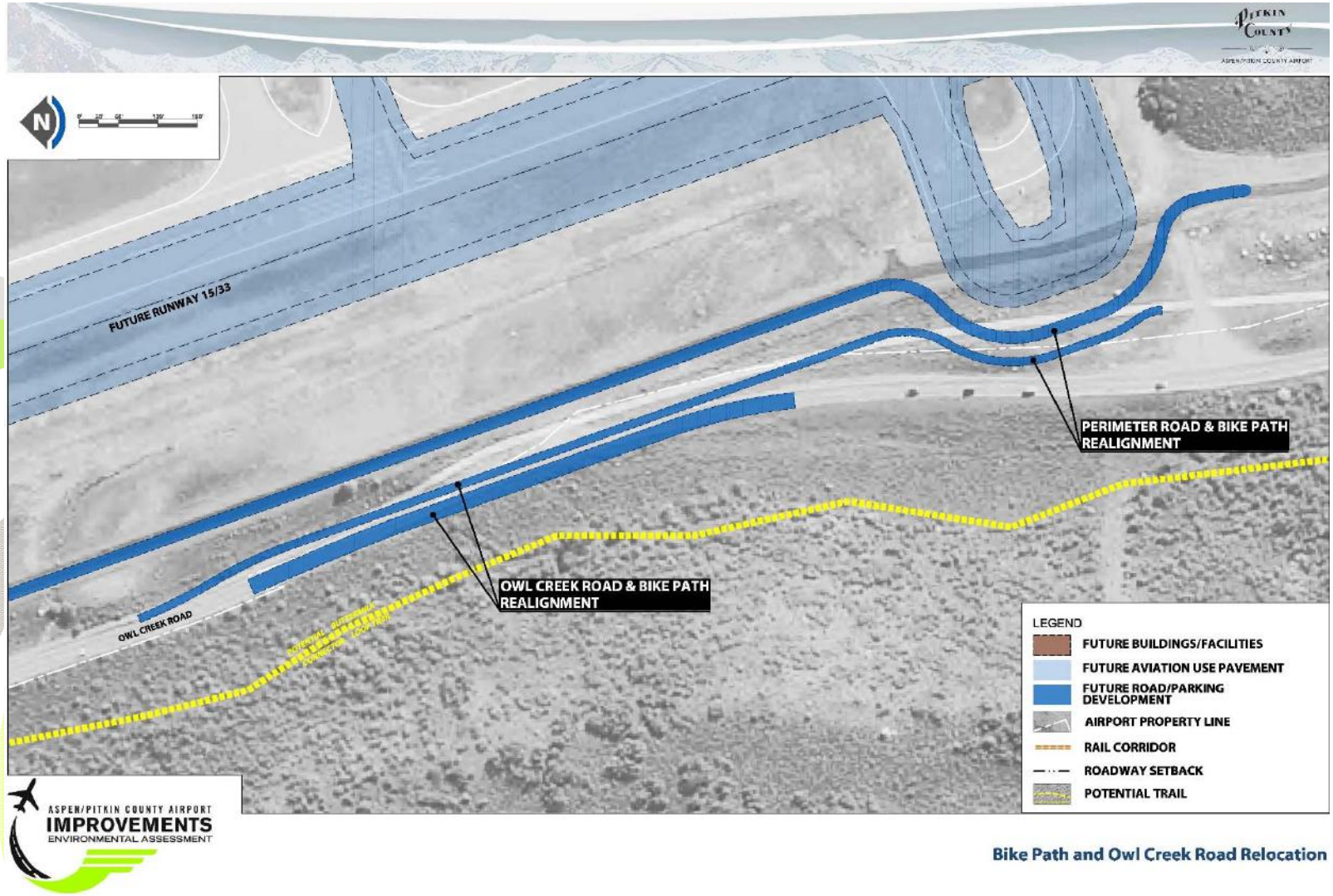


(PRELIMINARY) VIEW 6 from McClain Flats



3D SITE SECTION

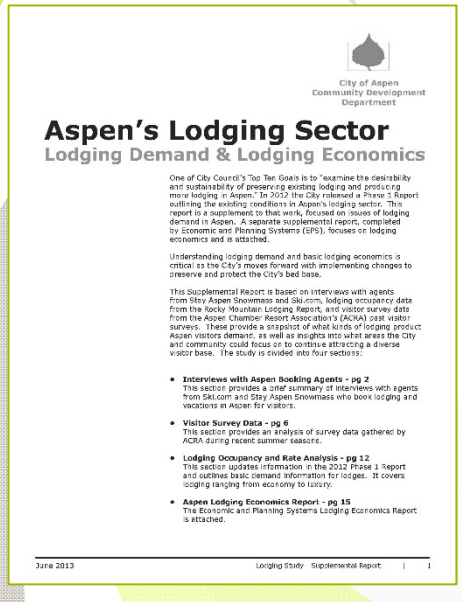
Proposed Bike Path & Owl Creek Road Relocation



Bike Path and Owl Creek Road Relocation

Socioeconomic Impacts

- Examine pillow count analysis relative to proposed projects
- Examine positive and negative impacts
- Examine impacts of No Action (potential loss of commercial service)


City of Aspen
Community Development
Department

Aspen's Lodging Sector

Lodging Demand & Lodging Economics

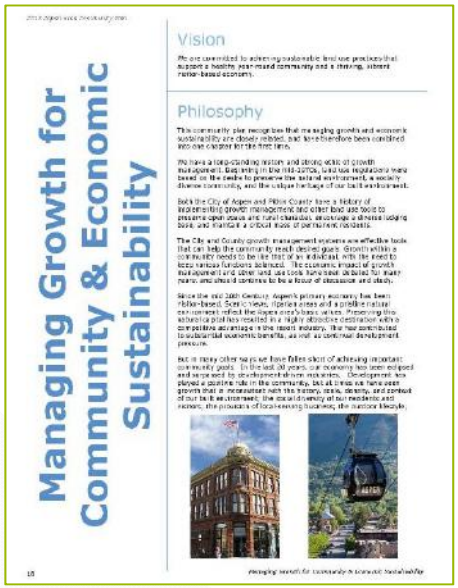
One of City Council's Top Ten Goals is to "examine the desirability and sustainability of preserving existing lodging and producing more lodging in Aspen." In 2012 the City released a Phase 1 Report outlining the existing conditions in Aspen's lodging sector. This report is a supplement to that work, focused on issues of lodging demand in Aspen. A separate supplemental report, completed by Economic and Planning Systems (EPS), focuses on lodging economics and is attached.

Understanding lodging demand and basic lodging economics is critical as the City's moves forward with implementing changes to preserve and protect the City's bed base.

This Supplemental Report is based on interviews with agents from Stay Aspen Snowmass and Ski.com, lodging occupancy data from the Rocky Mountain Lodging Report, and visitor survey data from the Aspen Chamber Resort Association's (ACRA) past visitor surveys. These provide a snapshot of what kinds of lodging product Aspen visitors demand, as well as insights into what areas the City and community could focus on to continue attracting a diverse visitor base. The study is divided into four sections:

- **Interviews with Aspen Booking Agents - pg 2**
  This section provides a brief summary of interviews with agents from Ski.com and Stay Aspen Snowmass who book lodging and vacations in Aspen for visitors.
- **Visitor Survey Data - pg 6**
  This section provides an analysis of survey data gathered by ACRA during recent summer seasons.
- **Lodging Occupancy and Rate Analysis - pg 12**
  This section updates information in the 2012 Phase 1 Report and outlines basic demand information for lodges. It covers lodging ranging from economy to luxury.
- **Aspen Lodging Economics Report - pg 15**
  The Economic and Planning Systems Lodging Economics Report is attached.

June 2013 Lodging Study Supplemental Report | 1


Managing Growth for Community & Economic Sustainability

Vision

We are committed to achieving sustainable land use practices that support a healthy year-round community and a thriving, vibrant visitor-based economy.

Philosophy

This community plan recognizes that managing growth and economic sustainability are closely related, and have therefore been combined into one chapter in the first time.

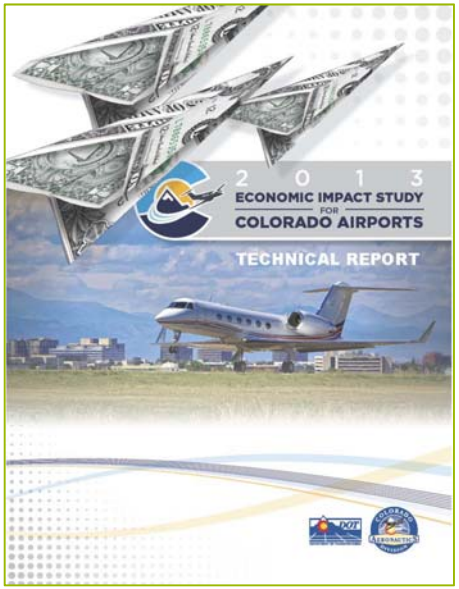
We have a long-standing vision and strong ethic of growth management. Beginning in the mid-1970s, land use regulations were based on the desire to preserve the natural environment, a socially diverse community, and the unique heritage of our built environment.

Both the City of Aspen and Pitkin County have a history of implementing growth management and other land use tools to preserve open space and rural character, encourage a diverse lodging base, and maintain a critical mass of permanent residents.

The City and County growth management systems are effective tools that can help the community reach desired goals. Growth within a community needs to be like that of an individual, with the need to keep various functions balanced. The economic impact of growth management and other land use tools should be balanced for many years, and should continue to be a focus of discussion and study.

Since the mid 20th Century, Aspen's primary economy has been visitor-based. Scenic views, riparian areas and a pristine natural environment reflect the Aspen community's values. Preserving this authentic profile has resulted in a highly attractive destination with a competitive advantage in the resort industry. This has contributed to substantial economic benefits, as well as continual development pressure.

But in many other ways we have fallen short of achieving important community goals. In the last 30 years, our economy has been eclipsed and surpassed by development/real estate industries. Development has played a positive role in the community, but at times we have seen growth that is inconsistent with the history, scale, density, and context of our built environment; the social diversity of our residents and owners; the provision of local-serving business; the outdoor lifestyle.

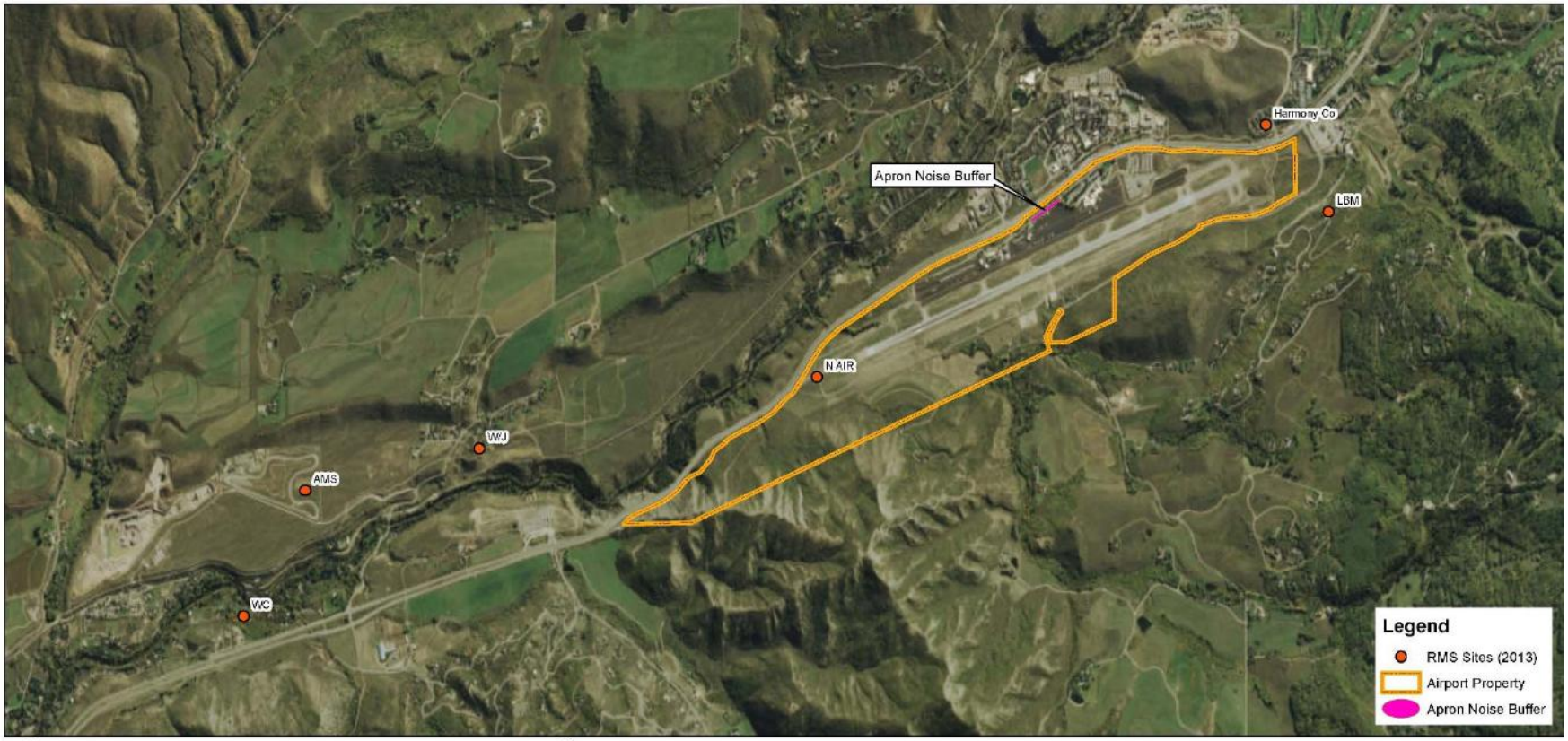

2013
ECONOMIC IMPACT STUDY
FOR
COLORADO AIRPORTS
TECHNICAL REPORT

DestiMetrics
Stay Aspen Snowmass Transient Inventory Study
May 2015
STAY ASPEN SNOWMASS.

INTRODUCTION

1. METHODOLOGY

Proposed Noise Buffer & Monitors

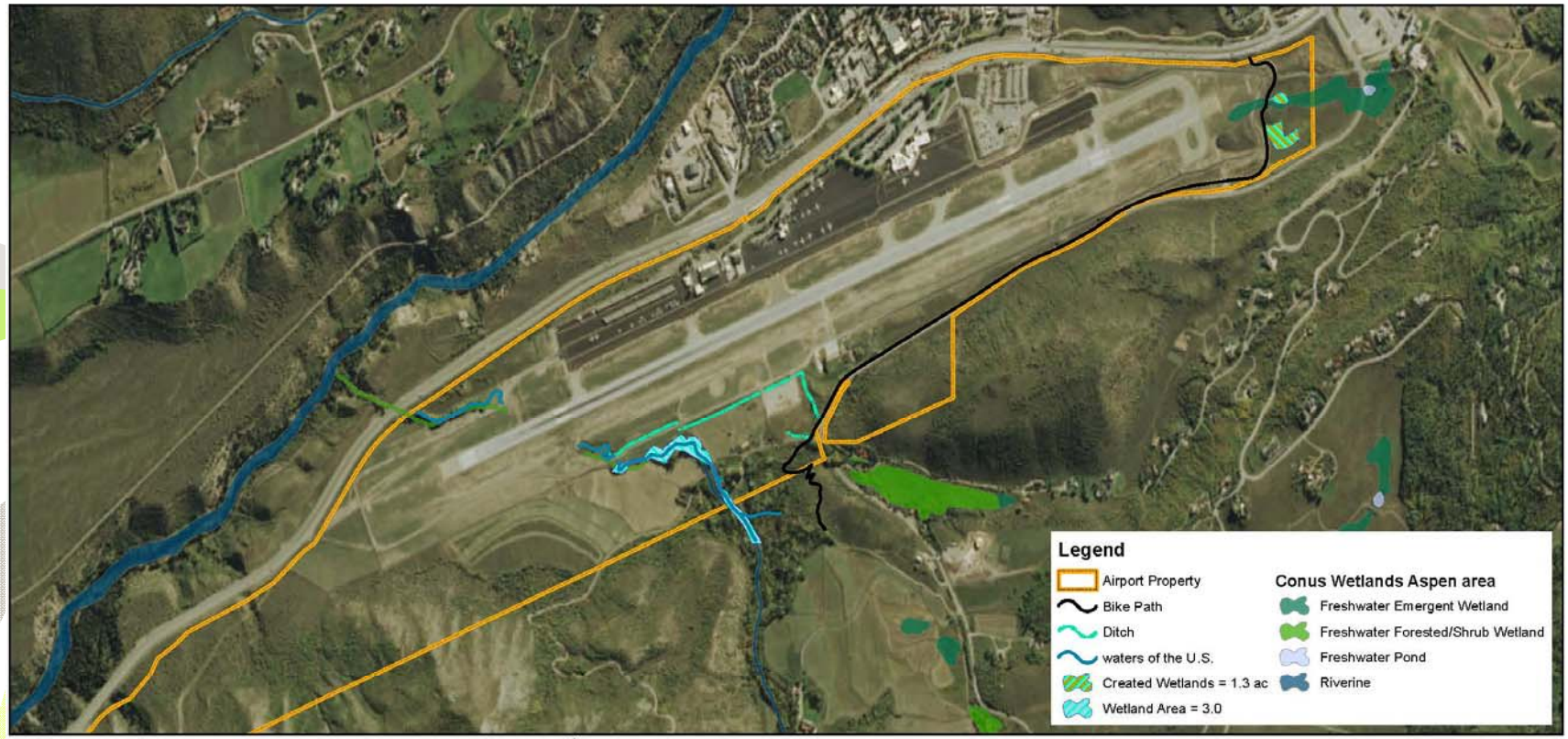


Noise Monitors

Air Quality & Climate

- **Aspen/Pitkin County is in attainment for all National Ambient Air Quality Standard (NAAQS)**
- **Currently in maintenance for Particulate Matter-10**
- **Examine Greenhouse Gases**
- **Planned analysis includes:**
  - Modeled NAAQS emissions related to the project
  - Modeled Greenhouse Gas emissions related to the project

Existing Water Resources

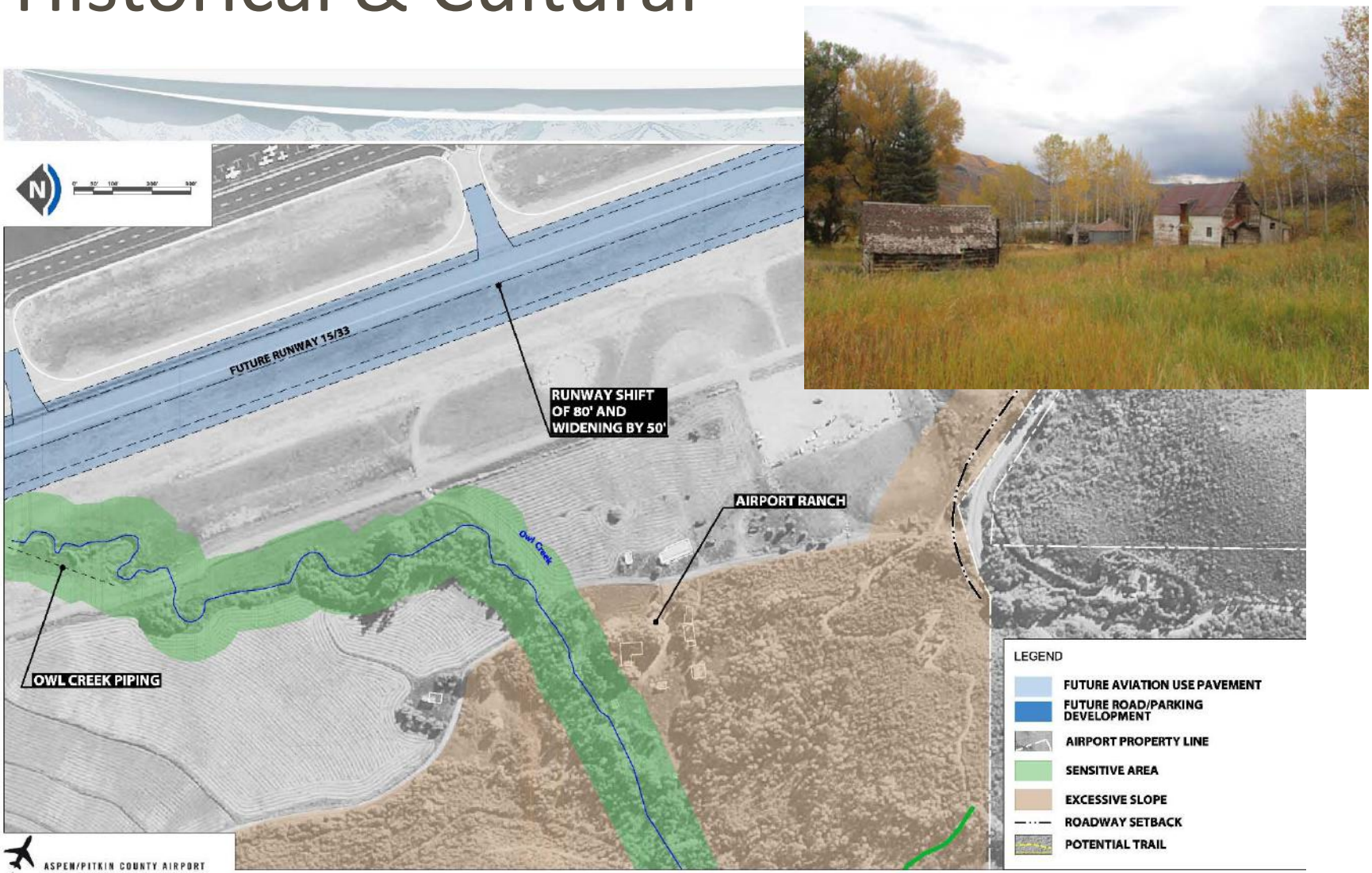


0 1,000 2,000 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Water Resources & Wetlands

Historical & Cultural



Airport Ranch

Potential for Larger Aircraft

Aircraft Technical Specifications - ASE				
Aircraft Type	Wingspan		ASE Performance Capable	Meets/Does Not Meet ASE Operational Restrictions
	Feet/Inches	Meter		
Current Regional Aircraft				
CRJ-700	76' 3"	23.2	Yes	Meets
Q-400	93' 3"	28.4	Yes	Meets
CRJ-900	81' 7"	24.9	No	Meets
CRJ-1000	85' 11"	26.2	No	Meets
E-170	85' 4"	26	No	Meets
E-175	85' 4"	26	No	Meets
E-190	94' 3"	28.7	No	Meets
E-195	94' 3"	28.7	No	Meets
Future Regional Aircraft				
E-175 E2	101’ 7”	31.0	Yes*	Does not meet
E-190 E2	110’ 6”	33.7	Yes*	Does not meet
E-195 E2	115’	33.7	TBD*	Does not meet
MRJ-70 Standard	95' 9"	29.2	TBD	Does not meet
MRJ-90 Standard	95' 9"	29.2	TBD	Does not meet
CS100 Base	115’ 1”	35.1	Yes	Does not meet
CS300 Base	115’ 1”	35.1	Yes	Does not meet
Comparison Non-Regional Aircraft				
Airbus A319	111' 11"	34.1	Yes**	Does not meet
Boeing 737-700	117 '5"	35.7	Yes**	Does not meet
Boeing 717	93' 5"	28.5	Yes**	Does not meet

Source: Air Service Study, Manufacturers Coordination, Jviation, 2014
*Data on E-Jets E-2 are preliminary
** Potentially performance capable, but likely limited during hotter summer months. Pending airline coordination will help determine if these aircraft could meet airline safety requirements for performance.

Comments on Other Resources

- Biological Resources (fish, wildlife and plants)
- Farmlands
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Land use
- Natural Resources and Energy Supply

Additional Comments

- We are collecting additional scoping comments after the meeting, at Kate.Andrus@meadhunt.com by end of March or on Pitkin Connect (www.pitkincountyconnect.com)

Environmental Assessment

Welcome to the Scoping Workshop

February 2015

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

ASPEN/PITKIN COUNTY AIRPORT
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ASPEN/PITKIN COUNTY AIRPORT
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Appendix 9
Public Involvement

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Public Involvement – Summary of Comments

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ASPEN/PITKIN COUNTY AIRPORT
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ASE Scoping Meeting Comments (CIC and Public)

March 2015

EA Proposed Projects

- This is a must to keep adequate air service in Aspen
- Would like a cross section of the runway
- Will I see new aircraft in my neighborhood? Can I see a cross section?
- Visual impacts – sound barrier
- Traffic impacts of 2nd Hwy 82 intersection? Need for 2nd intersection?
- Do it. It's needed. It's time. Make it a joy to come to daily.
- Think Sydney Opera House. Do something spectacular with the terminal building. Do it.
- Another FBO to cater to general aviation
- Second FBO for smaller aircraft.
- Small.
- Do IT!
- Please look at the impact of the intersection on traffic
- Additional intersection adds a 4th light in this small section of Highway
- Drainage improvements?
- Why wouldn't the bike path extend to airline trailhead?
- Consider support facilities across Hwy 82
- What does a "support area" mean?
- Consider relocation of FBO building to gain ramp space
- Is another intersection necessary? Will this help or compound Hwy Traffic issues?
- Balance need of intersection-one use on the other side
- Let neighbors know the construction time line as soon as possible
- Parking as transit hub?
- Concerned about apron expansion and noise in Meadowood

Community Input: Terminal

- I agree. Just do it!
- Single story- love later turn into split
- Good- no expansion into the South needed. Good.
- No jet bridges

Recommendation #1 Concept ¾ Hybrid and #2 Concept 2

- Is there room for U.S. Customs?

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- Gate lounge area should be larger
- I'm OK with no jet bridges
- We should reconsider jet bridges
- Right size it! Don't want to build it again in 20 years.
- Don't make it so small it is obsolete before it is finished
- Jet bridges are a must
- Make it easier on shuttles, cabs, curbside pickups
- No advertising - more videos of activities
- Setbacks-yes. Low visual impact.

Background to Purpose and Need: Runway Reconfiguration

- Explain MOD

Purpose & Need – Terminal Replacement and East Side Projects

- How does new apron mitigate noise impacts?
- Extra space for users, passengers, and staff
- Noise at Hwy 82 at Harmony has increased since the runway expansion
- The widened runway is essential. Do it.
- When will the new airplanes be in use?
- Make the runway wide enough now for future planes - even longer for the new planes to come.
- Extend curfew 1 hour for pre-scheduled flights delayed from weather

Visual Resources

Preliminary View 1 and 2

- As long as it blends and looks nice
- Less setback and more consumer amenities in the gate area for our guests
- Good to see it's not a big edifice
- Maintain a parklike setting; inviting and fits into the environment
- Lead in lights so bright - hazard on the ground
- Summer/winter open walls on roof terrace
- OK to see planes - good to have lots of vegetation
- Build and plan for future growth appropriate for current and future needs
- Room for U.S. Customs
- Keep view points- can see arriving and departing flights

Preliminary View 3 and 4

- Bleacher viewing of planes like at Stapleton
- Past operations building should open now to terminal
- What will Owl Creek Road moving look like?
- Keep landscape buffer and trees around terminal
- Don't make it too small or compromise needed space
- Provide comfortable furniture and food service for delayed passengers
- Make it comfortable and have amenities for passengers
- West Buttermilk Road view down- one shown not accurate
- "smiley face"
- Hybrid option is an appropriate response to site topography
- What would it look like at night? Dark Skies
- Go Big or Go Home

Preliminary View 5 and 6

- I have no problem with the airport - good landscaping needed
- Wrong location for airport - in residential high-end RE
- Location is so convenient
- Observation deck, variation of roof lines
- Lower McClain Flats Road
- New from Meadowood with new aircraft staging area? Expanded apron?
- Top deck - Starwood
- Size and scale shown is not a problem at all
- Roof is critical to visual impact now white reflection- green roof or natural cedars
- Be aware of light pollution and shielding
- No reflectivity if it has sda
- Starwood would have potential light concerns
- Revolving beacon ongoing shield (grand fathered in) re Starwood
- Not too much glass on the east side please
- Terminal building should be modern, but understated
- Improve deice containment, current pad and runway
- Use west of Maroon Creek Plan (WOMP) direction in analysis

Proposed Bike Path & Owl Creek Road Relocation

- Will Owl Creek Road need to be moved more for the west side development?
- Moving the road and bike path should not be an issue. Move them.
- Looks reasonable.

- Can the bike path be improved to increase connectivity instead of just replaced?
- Greater separation between path and owl creek- consider a vegetated buffer (written underneath- YES!)
- Improve separation between the bike path and road

Socioeconomic Impacts

- Consider incorporating affordable housing impacts
- Fully integrate RFTA services into terminal design. Consider alignment of the project with AACP.
- Accommodate current capacity- not as a growth emphasis. Coordinate of air services and aircraft size.
- Consider affordable housing needs generated
- Examine the relationship with other ground transportation systems, including light rail or other future systems. Beyond pillow count, examine the economic impact of guests arriving via the airport in winter and summer. Consider other transit needs, e.g. park and ride opportunities on airport property including transit and terminal needs.
- Connection to RFTA + underpass
- Integration of RFTA into the design would create a better customer experience
- RFTA remote parking expansion or garage at Brush Creek
- Increase in shuttles to Aspen/Snowmass resorts- reduction in cabs/private vehicles-don't add to traffic
- Valley wide pillow count
- Do not preclude future potential fixed guidelines access to airport
- Create safe and comfortable connection between RFTA BRT stop and the airport
- Will the new terminal generation more FTEs then the current? Where will they live? What will traffic implications be?
- Assess communal lodging growth management implications
- Do not increase capacity at high peak times- Xmas, 4th of July
- Work with county to spread events. Ideas in September or October?
- I want to know if larger aircraft would create more economical travel options or does more people flying in create a higher demand in turn creating higher lodging prices, and higher costs in general?
- Visitor and residential quality experience greatly reduced at peak capacity

Proposed Noise Buffer & Monitors

- Noise walls are a good idea around the terminal. Berms too.
- Meadowood "Noise"?
- Maybe a noise buffer across from Harmony Road. The planes take off there.

- Updates for neighbors with specifics about current and anticipated events
- Analysis for potential new aircraft as well as existing
- Tons of trees
- Consider starting this buffer before construction
- Changes in expected noise from new planes versus current
- Apron buffer location?

Air Quality & Climate

- Is there a way to disburse the aviation fuel fumes while aircraft are in line for takeoff?
- Fumes in AABC aircraft departures
- Plug-In to alleviate idling of aircraft
- Air Quality-very important
- Updates about current particulate and air quality levels- actual and anticipated
- You should consider hazardous air pollutants and their effects on human health
- Consider air quality effects on tourism and quality of life for residents
- People live so close- what about hazardous air pollutants?
- Smell?
- Energy- use of terminal and buildings
- Off-set additional carbon/air pollution with local conservation projects
- Can we shared study results at the local government level for more informed local conversation?
- Check hazardous air pollutants
- Can you capture the hazardous gasses?
- Look into air filters for the entire Airport air
- Manage general aviation and commercial air traffic to reduce ATC delays and burning excess fuel with hold times on the ground and local air space
- Effect on ghg from parking- how can parking be used to support decreased trips into town?
- Consider the unique location of the airport- narrow valley at 8000ft. Poor air quality in dramatically increased apron buffer location.
- Air quality must include pollutants and carcinogens such as jet fuel.
- Plug-In to alleviate idling of aircraft
- All kinds of air pollution under flight path

Existing Water Resources

- Pipe all Owl Creek to better protect the resource from potential spills. Coordinate mitigation banking with city parks and/or county parks.
- Stapleton Ditch infrastructure west edge of Owl Creek- identify piping ditch move

- West Buttermilk Metro district capacity additional water needs?
- Containment of glycol. Electric ground equipment
- Cozy Pt Ranch- City of Aspen. Redo Management Plan. Restoration on Brush Creek? North Star Restoration work?

Historical & Cultural

- Needs Current Photos
- Please consider the social/cultural values of the community when planning the interior of the terminal. I.E., rather than all the commercial advertising, consider informational signage about Aspen culture, arts, environment, impact of climate change, history, etc.
- Keep it real and unique- no mini LAX or NYC
- True to character
- How will the design take into consideration the communication of Aspen history and culture (e.g. the opposite of the ART museum)
- Do we really want to move this runway 80 ft. closer to the rocks?
- How will proximity of the runway effect the adjacent resource? Vibration?
- The trail could take advantage of the Farmstead and Aspen Groves
- Clean up of historic areas, junk removal?
- Allow the possibility to improve Owl Creek Trail, to make it less steep!

Potential for Larger Aircraft

- Larger aircraft (737, A319) will leave a net negative effect on the valley in terms of noise and pollution. Not needed here.
- Larger aircraft during peak seasons will reduce frequency and have less environmental impact
- Less commercial frequency reduces ground ops equipment usage, glycol needs, etc.
- Less frequency reduces ATC delay and aircraft holding in air and on ground- less burning excess fuel

Comments on Other Resources

- Consider fuel containment waste water of ramp
- Is the D-III standard appropriate based on our commercial volume?
- With the airport only 3 miles from Aspen and 3.2 from Snowmass 2 creeks, ground transportation solutions are the most critical environmental and traffic elements.
- Ditto (referring to the above comment)
- Energy use of buildings = GHG pollutants and cost
- Consider spending wetland mitigation fees for local restoration projects
- Educate- Coffee chat in Airline breakroom

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- Consider parking capacity as it relates to multi-modal approach
- Note any potential impact to Aspen water agreement via west Buttermilk
- Construction + demolition waste = big impact to landfill
- Consider full containment wastewater of ramp
- Balance need of intersection with use on the other side
- Consider relocation of FBO building to gain ramp space
- Consider support facilities across Hwy 82
- Parking as transit hub?
- Drainage improvements?

Terminal Design Comments

Some comments addressed terminal design of the project. The EA will cover approximately 25% design for the terminal and the site plan; final design will be included subsequent to the EA. All projects will be designed in accordance with Aspen/Pitkin County Design Guidelines which are intended to provide a mechanism to ensure that future development and redevelopment at the Aspen/Pitkin County Airport is implemented in a manner consistent with community values which reflect high standards for architectural quality, environmental sensitivity, neighborhood compatibility, and sustainability. It will also take into account other local plans such as the West of Maroon Creek Plan.

Many comments also dealt with the request to “right size” the terminal and that user experience goes down during peak capacity right now. When the 2013 Master Plan Update was completed, the predicted fleet mix changes of regional jets to longer wingspans was not known. Therefore, additional terminal work outside the EA will examine the sizing question and determine Level of Service needed based on the new potentially-larger aircraft fleet mix. This will include examination of room needed for specific functions such as the gate areas, TSA, etc. as well as final site development and curbside flow for shuttles, cabs, and parking. Comments on keeping viewsheds, options for a roof terrace, a park-like setting, concessions and amenities will be included in final design. This analysis will be included in final design. There will be additional community involvement during the full design process.

Jet Bridges

Some comments addressed the question of the addition of jet bridges for the new terminal. While there were comments both for and against jet bridges, it was determined that for now, jet bridges would not be included in the conceptual design due to a larger contingent focusing on the “Aspen experience” of stepping off the aircraft into the mountains. While having no jet bridges poses some operational considerations, the final design will take these types of operational considerations into account to make it functional, as well as ADA compliant.

Visual

Many comments addressed interest in the visual elements of the terminal and other projects. A qualitative analysis will be conducted to examine the visual impact of the projects on the community surrounding the airport. Visual renderings will be developed to conduct a site massing and viewshed analysis to determine if the proposed airport improvements would have any impacts on the aesthetics and view characteristics of the area. A night time view will also be examined. Additionally, the EA will confirm the projects compatibility with local laws and ordinances pertaining to visual changes along the highway corridor. Several viewpoints will be chosen from different areas of the airport, including from the north, south, east and west, based on areas of known interest. This analysis will include all projects including the terminal and associated roadways and parking, generalized site landscaping, the runway shift and widening, as well as the shift of Owl Creek and the Owl Creek Bike Path.

The EA will examine two conceptual terminal alternatives, which were developed with coordination with stakeholders and the ability of the concepts to fit within the existing site constraints. However, final design considerations (such as light shielding and final roof design) will be coordinated with stakeholders after the EA. All projects will be designed in accordance with Aspen/Pitkin County Design Guidelines which are intended to provide a mechanism to ensure that future development and redevelopment at the Aspen/Pitkin County Airport is implemented in a manner consistent with community values which reflect high standards for architectural quality, environmental sensitivity, neighborhood compatibility, and sustainability. It will also take into account other local plans such as the West of Maroon Creek Plan.

Noise

Some comments addressed a concern for changes in noise levels due to the project from the potential for larger aircraft and the expansion of the apron. The analysis of aircraft noise exposure in the EA will be prepared in compliance with FAA Orders. The order that was in effect when the project was scoped was 1050.1E, which requires the use of noise exposure contours using the FAA's Integrated Noise Model (INM) showing the area affected by 65 Day-Night Noise Level (DNL) and greater noise levels.

The FAA and the County have taken steps over the years to assess existing levels of aircraft noise and develop noise abatement procedures to reduce the impacts on residential and other noise sensitive areas. As a result, under current conditions there are currently no noise sensitive uses exposed to 65 Day-Night Noise Level (DNL) noise levels at Aspen/Pitkin County Airport. However, the EA will examine the With Project and No Action noise based on the addition of potentially larger aircraft and determine whether there will be significant impacts associated with the project. This analysis will also include the potential benefits of the proposed noise wall along the GA apron to reduce noise from aircraft on this apron. Some comments indicated that the buffer should be started prior to construction of the project. All

projects need to be federally cleared in this EA, and final phasing of construction is dependent on funding availability.

Some additional comments indicated that the curfew should be increased in the evening. It is important to note that the curfew at ASE is grandfathered in and any changes to a curfew would negate the entire curfew. Therefore, no changes to the curfew are recommended. Curfew changes are also outside of the scope of this EA.

It is important to note that most of the new regional jets coming into the fleet in the future are considered Stage 4 aircraft, which have engines that are generally quieter than their existing regional jet counterparts.

Relocation of Existing FBO

Some comments related to the relocation of the existing FBO. The relocation of the Existing FBO was a project included in the 2013 Master Plan. One of the main purposes of this relocation was to tie into the parking garage that was proposed at the time to provide further efficiencies. Since the parking garage is no longer reasonably foreseeable due to funding issues, the relocation of the FBO is not being considered at this time.

Second FBO Separate EA

Some comments dealt with the question of a second Fixed Base Operator. Right now, the development of a parallel taxiway that could serve a second Fixed Base Operator is not reasonably foreseeable due to funding constraints. If this becomes reasonably foreseeable, a separate EA that includes a taxiway and Fixed Based Operator facility on the Airport's west side would need to be considered, if and when funding is available at some point in the future.

Public Involvement

Some comments reflected the need for the community to be informed of project progress and timelines. A Public and Agency Involvement Program will be implemented during the preparation of the EA to facilitate coordination between the Airport, the County, FAA, agencies, community groups, and local governments. During the course of the Study, all viewpoints will be carefully weighed and solutions developed which will strive to serve the common interest of all parties to the extent possible. Throughout the planning process, all information will be posted to the project website: http://www.aspenairport.com/airport-improvements-ea/summary. Additionally, project information will be shared via social media and the Peak Democracy Tool.

The project team will hold public meetings and workshops for the general public throughout the Study. These meetings will be held in the evening to encourage public participation and will be held at key points

during the Study, specifically related to design elements/visualizations and other known community concerns. The purpose of these meetings will be to further refine the areas of concern the public has for various environmental issues and work through issues prior to the release of the Draft EA.

Traffic

Some comments addressed the need to examine traffic impacts relative to the proposed project. Surface transportation changes, both temporary and permanent, will be analyzed and disclosed for the Proposed Projects and feasible and prudent alternatives. Level of Service (LOS) and access to existing homes and businesses, and convenience will be examined as a result of the proposed project and be compared to the No Action Alternative. The Team will work with CDOT and the Airport on this task to examine the intersection with Highway 82 and Baltic Avenue. The site plan will incorporate the existing connection points to Highway 82.

Air Quality and Climate

Some comments addressed the question of how air quality and climate would be considered in the EA. The consultant team will prepare an existing conditions emissions inventory for criteria pollutants and Hazardous Air Pollutants (HAPS) for the sources of emissions that would be affected by the proposed project alternative(s). Sources that are expected to be included in the emissions inventory are: aircraft/APU, ground service equipment (GSE) fleet, ground access vehicles/roadways, stationary sources, and parking lots. This will examine the impact of the proposed project compared to the existing No Action Alternative in the EA.

In accordance with FAA Order 1050.1F, the EA will address climate separate from air quality. As an emissions inventory will be prepared for criteria pollutants, an inventory of greenhouse gases will also be prepared.

Some comments referred to the ability of aircraft to plug in to reduce idling. Plug in power to replace the use of Auxiliary Power Units is an option that can be examined with the final design of the terminal and apron. The terminal will also examine ways to reduce energy consumption.

Other comments relating to the ways to distribute fuel fumes, managing the general aviation/commercial traffic, or use of technology to reduce air emissions are outside the scope of this EA, but can be considered outside of the EA if the technology arises.

Plan for existing and future needs

Several comments mentioned that the environmental analysis should look at existing and future conditions. An Environmental Assessment does just that. FAA forecasts for aviation activity, size of

aircraft and frequency, along with local and regional land use plans will be reviewed to ensure that the projects align with local needs.

Bike Path and Owl Creek Road

Some comments dealt with questions on the bike path and Owl Creek road relocation. The general plan is outlined in the Proposed Project figure, and will relocate the bike path and the Owl Creek Road alignments to the west within the CDOT Right of Way. The bike path must be outside of the Object Free Zone and Owl Creek Road must stay within right-of-way, therefore, increasing the separation between the two is likely not feasible. Bike path and Owl Creek Road alignments will be determined during the final design process. The figure shows only the relocated portion of the bike path; the existing connection to airline trailhead will still exist. Coordination with local agencies and the public will be conducted and the comment that there should be potential improvements to the grade in the switchback area.

Socio-economics

Several comments dealt with questions on how socioeconomic issues would be examined in the EA. Economic and demographic trends in the area will be analyzed to the extent that they may be affected by the proposed airport improvements. The analysis will focus upon the historic characteristics of the economy and projections of economic and demographic growth based on available statistical information. Housing trends, development changes, and demographic characteristics will be analyzed and described to provide a description of the social environment.

For each of the alternatives an analysis will be conducted to assess the potential impacts to transportation patterns, social cohesiveness, and other pertinent issues identified (i.e., effect on affordable housing (increase in FTEs, etc.) and a valley wide analysis on pillow (number of available places to stay)). An objective analysis will be performed consistent with current FAA Orders, Executive Orders, and other guidance to define actual versus perceived impacts.

Parking and Transit Comments:

Several comments dealt with the importance of connectivity between the public transit system. The site plan included in the proposed project will work within the existing CDOT connections to Highway 82, the existing BRT RFTA station and underpass, as well as keeping the agreed upon space reservation for potential future additional transit improvements. Links to these resources will be examined to help identify ways to improve the connectivity/experience, and this can be tweaked in final design after the EA with stakeholder coordination.

In the 2013 Master Plan Update, a parking garage was recommended to meet existing and future parking demand at the Airport. Since that time, with the addition of the runway shift project, the parking garage is

not financially feasible within the planning period. The proposed project now includes replacing the existing number of parking spaces to maximize the parking within the site, but while meeting the Design Guidelines. However, the County has indicated that the new site plan should be flexible to incorporate a parking garage in the future, should it become financially feasible. This assumes that in the near term, the parking at the airport will be under the need, and people will have to use other modes of transportation to ASE (shuttles, public transit, etc.). Due to the fact that parking will not meet the airport needs, providing a park and ride system at the airport for people heading into town will not be possible at this time and is not included in this EA.

Note that improvements for existing ground transportation systems (including light rail, bus or shuttles routes and times, or other future systems) and parking outside the ASE site plan are not in the scope for this particular project.

Safety versus Capacity Questions - Runway

Several comments dealt with the idea of not increasing capacity at the airport. It is important to note that this project is not a capacity project. This project is related to bringing the airfield up to FAA required safety standards to allow for future commercial service aircraft to continue to operate at ASE. Based on the Master Plan Update of 2013, the D-III standard was identified as the correct design group for ASE and therefore, ASE must meet those D-III standards. The demand for flying into ASE exists without the project and should not change with the addition of larger aircraft.

Water

Several comments dealt with the piping of Owl Creek and general water quality. Analysis will be conducted to identify any potential water impacts that could result from the proposed projects. The effects of the proposed airport improvements on water quality will be examined and documented. Methods to control peak flow and mitigate water quality impacts will be presented in the EA. This task will examine effects relative to the apron placement and GA and commercial activity locations.

Surface and ground water resources in the vicinity of the proposed airport improvements construction site will be identified and described. The consultant team will coordinate with federal, state, and local agencies to determine permit requirements and mitigation plans as needed. An assessment of remediation requirements and potential impacts will also be documented in the EA to demonstrate compliance with federal, state, and local water quality standards.

Design of the project will consider of water needs and water quality protection, and drainage and infrastructure will be assessed to mitigate for any water impacts. It is not anticipated that there will be any increases in capacity on the West Buttermilk District.

Because there is an area of Owl Creek that is proposed to be piped within the airport fence line, it is anticipated that some kind of mitigation will be required. This will be coordinated with Army Corps of Engineers as well as local agencies. Ideas for mitigation projects within the area are welcomed and further discussion will be included in the mitigation chapter of the EA. When considering mitigation projects local projects are always preferred.

Historic

Several comments related to the Airport Ranch, a potentially eligible property for inclusion in the National Register of Historic Properties. Impacts on this resource will be examined in the Environmental Assessment based on 1050.1F, including the impacts of the runway relocation 80 feet to the west (closer to the property).

Construction Waste

Some comments addressed the question of construction impacts. Construction impacts will be included in the EA, including potential impacts on the local landfill.

Timing

Several comments addressed the timing question. Proposed timing is construction of the terminal being completed in 2022, with the runway shift being completed by 2027.

Support Area

One question asked for a clarification on what GA Support Area meant. Support area includes elements such as parking, roadways and other necessary elements that help support General Aviation activities

Explain MOD

MOD refers to the modification of standards that ASE currently operates under. It is a modification to the FAA design standards limiting aircraft to a 95 foot wingspan to account for the non-standard runway/taxiway separation.

January 19TH Aspen Comments

Surface Transportation
Analyze impacts to capacity, capital and operating costs for RFTA given increase in service needed

Analyze levels of service impacts on intersections and on HWY 82 with increase in vehicle trips anticipated.

How many additional bus trips are required to address need?

Identify opportunities to maximize public transit options

A key goal is to maintain ADT into Aspen at 1993 levels. This will require shifting more trips to transit, HOV, etc. How will this impact RFTA?

Can we really accommodate all these vehicle trips? What does this do to peak hour/peak period congestion? How does this impact character/quality of life or community?

What are the ADTs on 82 from AABC past the S curves in each scenario?

Terminal Area Improvements
Focus on function and efficiency to minimize impact.

Please involve Airport planning experts from commercial operators.

Noise
Walls should be designed to absorb rather than just reflect sound

For aesthetics + sound absorption use more landscape than hardscape in wall design

Design wall length to assure that sound doesn't travel around edges.

Noise Impacts greatest @Burlingame Seasonal and adjacent apts. Consider impacts and mitigation.

Analysis should consider impacts of single event and overall noise levels (beyond DNL levels) on surrounding neighborhoods.

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Air Quality
Has the air quality at the airport been measured on a regular basis?

Review lighting levels (IE: The 2 new light poles at de-icing?) per previous discussion w/John Kinney (Meg from Starwood – let her know)

I am concerned about increased air pollution. Meeting national standards is not adequate for this unique valley.

Water Resources
Drainage: Storm-water landscape filtration options (and fuel spill containment)

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Comments from September 29th Public and CIC Meetings

EA Building Concepts Evaluation Criteria

CIC Meeting

Card #1

“Do not preclude extending SH82 pedestrian tunnel from extending into terminal”

Card #2

"Need to plane view and roof" - regarding Optimizing Views
"Energy with windows?" - regarding Sustainable Design
"Great"- regarding Prioritizing the Passenger Experience
"Green roof?"- regarding Being A Good Neighbor
"Can this be built onto?" - regarding Build It Once, Build It Right

Card #4

"Dk - Don't know from Schematic” regarding Sustainable Design and Being A Good Neighbor
"Impacts to community, traffic, food, hotels, energy should be modeled as soon as feasible. Train to train, Evs for rent Leave models on display at Library, encourage public input."

Card #5

"Design the terminal to, at least, be capable of incorporating public transportation into it for a system to Aspen (3.0 mi) and underneath the new runway/or a system to Two Creeks (3.2 mi)"

Card #6

"Build it out 140k!"- regarding Build It Once, Build It Right

Card #7

"Concept 2 with parking at lower grade is favorable from Hwy 82"

Card #8

"Not enough information" regarding Sustainable Design

Card #11

"Love the Patio" regarding Strong Indoor-Outdoor Relationship for the Pavilion.
"The volume of the ridge concept allows for expansive views, enhancing indoor-outdoor relationship. I feel this would be beneficial during periods of "holding".
“While I love the terrace of the Pavilion option, given that hold periods are primarily during bad weather, would use of these spaces be optimized during passenger delays?”

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“Sustainable design - pavilion is likely more sustainable because of the stacked floors. Less volume to condition"

Card #12
"Not important to me” regarding Optimizing Views
“Too much glass on both buildings. ASE visitors got the view during their stay in ASE. Not important @the Airport. Would happily trade views for more energy efficient designs".

Public Meeting
Card #1
"Ridge plan sits into site better; less grading. Ridge plan is also much cooler. Inspiring sculptural architecture is awesome without being over the top".

Card #4
"Pavilion roof should be green color"

Card #6
"Love the plaza on the pavilion. Love the openness of the ridge - great design. I like the idea of optimizing the space by lowering the grade of the pavilion design"

Comments from Aspen CIC Meeting and Public Meetings

September 29th – October 25th, 2016

1.2 Purpose and Need: Runway Improvements

"Purpose: To have a great airport that provides excellent service and work environment"
"Cannot remain as is + be world class resort"
"Let's make an appropriate first impression!"
"This would be terrible" regarding the Airport diverting to business jets.
"No Action represents economic harm long term – not really an option"
"Our Airport is our entrance & introduction to Aspen/Snowmass"
"Purpose- A great welcome and send-off to locals and visitors. A positive airport experience is part of the goal"

1.3 Background: Terminal Area Improvements

"Put as much parking underground as feasible. Work with G.A. in partnership. Explore venue ops for UGround parking."
"No!"

1.5 Terminal Sizing

"Design for best service for customer"
"Please build (arrow up) the infrastructure to support this number. We don't want to have to do this again".
"Please build it sized for long-term use. Not just for today"

2.3 Analysis: Visual Background

"YES!!" arrow points to Build it Once, Build it Right
"Helps with sense of place. Keep outdoor walkways. No Jetways"

3.1 Building Concepts, Layout 1, The Ridge

"I like this one better- not worried about views to Red Mtn"
"No more lights on 82"

3.2 Building Concepts, Layout 1, The Ridge

"Size for future and greatness. Worry less about size and more about greatness"
"9.29.16. Is the large amount of glass energy efficient + sustainable?"
"360 degree views from inside not that important"
"I love this concept- let's build it w/two fixes!"
"I like the native plants"
"Very airy & open – I like it"
"Prefers the expanse of interior space"

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“Remove curbside roof cold/icy”
“This design is contemporary. Take in future design aesthetics”
“Great architecture a must. World renowned”
“Max practical glass and views”
“Now ticketed people have direct view space – even if small to tarmac”
“Love that you can see through bldg. to planes & views”

3.3
“Add green roof to this one to lessen visual impact from afar”
“Not concerned about size of building”

4.1 Building Concepts, Concept 2, “The Pavilion”
“What is going to happen when aircraft expand again – will new runway accommodate? When might this occur?”
“One separated grade intersection on 82”
“No traffic lights”
“Direct access to ABC”

4.2 Building Concepts, Concept 2, “The Pavilion”
“Ok with a larger terminal. Let’s take care of our guests and locals!”
“NET ZERO ENERGY!”
“South facing glass will effect heating/cooling”
“Little darker feel with this concept”
“Size doesn’t matter – as big as needs to be for superb service in the future”
“Goal: Beyond Leeds platinum”
“Set international standard”
“Angles on glass is a good idea to reduce reflectivity”
“Overhang on north side makes interior a little darker”

4.3 Building Concepts, Concept 2, “The Pavilion”
“Prefer the pavilion – green roof, green space. Would like to solar on site, roof & off site”

Model
“This is a lot smaller than I thought it would be”

Online Meeting
1)Did we miss any community priorities in the concepts above?

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“Neither concept represents the character, values, culture and history of the communities it will serve. Both are way too contemporary for me. They look like the "flavor of the month" and I am concerned these designs will look dated by the time the project is completed (pg 8).

You are wasting millions on over building an airport that will never have much traffic. It is ridiculous” (pg 16).

2) Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?
There appears to be a section of the bike path that could still be used to connect two sections of the relocation (pg 8).

Why can’t we use a partially covered road with the bike path above in the open space. If it’s done that way the large retaining wall would not be visible. Make it similar to the mountain roads in Europe that are covered because of rock fall and or avalanches (pg 11).

3) No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resource and energy?
I would support using energy efficient and or renewable options in the terminal (pg 9).

4)The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?
Recycle as much of the construction waste as possible (pg 9).

Comments from Aspen CIC Meeting Summary Comments

Date: February 23rd, 2015

Below is a summary of those comments, as well as photos from the committee meeting.

Sense of Place Themes

- **Qualities**
  - Maximizing view of natural environment
  - "Everyone has a window seat"
  - Organic and warm – not boxy
  - Panoramic, yet intimate
  - Celebrate the arrival and departure experience
  - Indoor/outdoor connectivity
  - Small town feel
- **Features**
  - Observation areas
  - Exterior gathering places
- **Examples of "Likes"**
  - Airport Operations Center, Music School, Basalt Library, Woody Creek Community Center, Jackson Hole Airport Terminal, Palm Springs Terminal, Bozeman Airport Terminal

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Sustainability Themes

- **Leadership in sustainability**
    - Education
    - Operations
    - Technology
- **Outdoor connectivity**
- **Connectivity to the community**
- **Built for the long-term**

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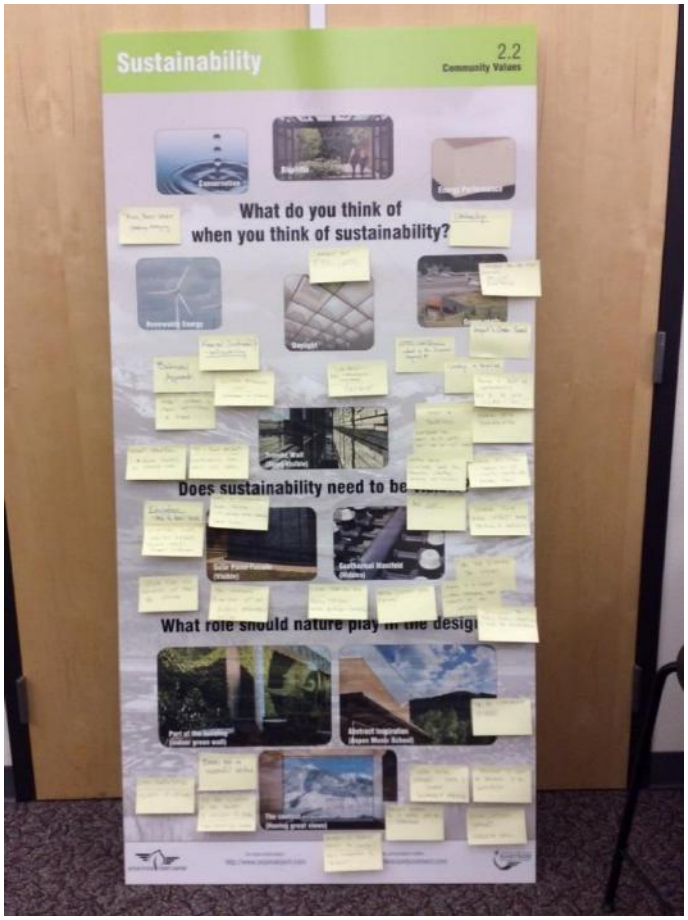

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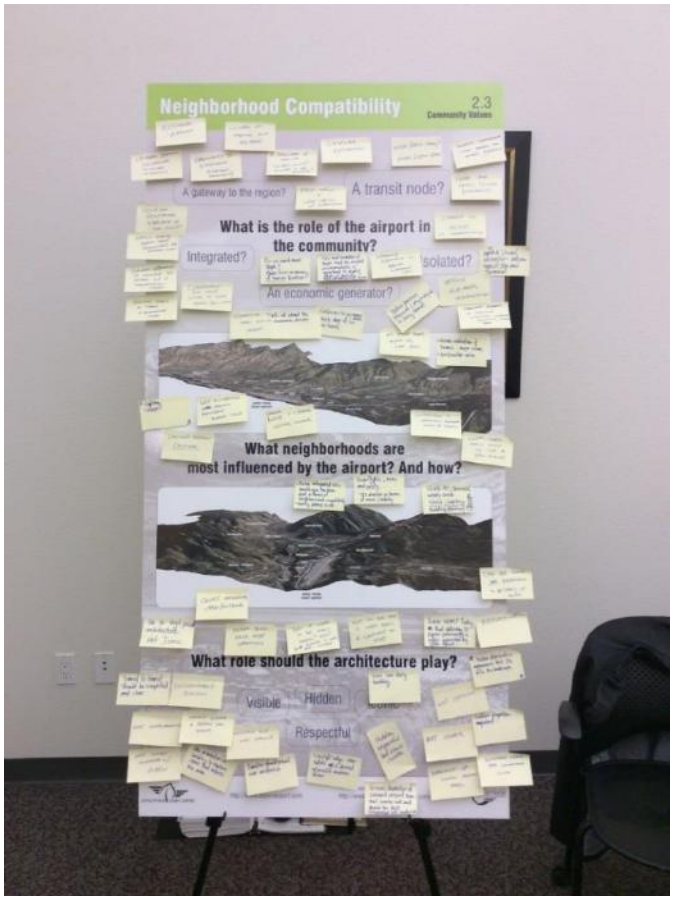
Neighborhood Compatibility Themes

- **Gateway experience**
  - First and last experience in Aspen
  - Views to capture the essence of the area
  - Experience aviation
- **Noise and light sensitivities**
  - Continue special programs, and look for ways to integrate
- **Transportation options and connectivity**
  - Visual clarity between connections and ease of use
- **Balanced**
  - Economic lifeline of community
  - Balance growth with being a good neighbor
- **Reflective of Aspen character**



ASPEN/PITKIN COUNTY AIRPORT
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Passenger Experience Themes

- **Simplicity and efficiency**
  - Love the existing ease of access/short distances
  - Keep the old Aspen flavor – small community feel
- **Convenience and comfort**
  - Lack of space
  - Lack of amenities
  - Technology
  - Providing passenger comforts during peak times and excessive delays
- **Community connectivity**
  - Aspen related experience
  - Outdoor feel

Aspen/Pitkin County Airport Terminal-Environmental Assessment

How should the Aspen/Pitkin County Airport terminal reflect our community values?

All Responses sorted chronologically

As of May 19, 2015, 11:12 AM

As with any public comment process, participation in Pitkin County Connect is voluntary. The responses in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

Aspen/Pitkin County Airport Terminal-Environmental Assessment

How should the Aspen/Pitkin County Airport terminal reflect our community values?

As of May 19, 2015, 11:12 AM, this forum had:

Attendees:	86
All Responses:	13
Minutes of Public Comment:	39

This topic started on April 17, 2015, 10:20 AM.
This topic ended on May 15, 2015, 3:41 PM.

All Responses sorted chronologically

Responses

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.

Answered	11
Skipped	2

ads **advertising** airport all **aspen** **billboard** **billboards** **community** could county **displays** **down** **feel** **from** guests **history** how instead **like** local **make** mcbride more mountain **one** **place** public **s** **sense** some **space** step **t** terminal than **they** town visitor visitors **windows**

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.

Answered	8
Skipped	5

all **art** **aspen** basalt building except **how** **leading** let **library** museum **music** out **perhaps** question **reflect** s use

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3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?

Answered	8
Skipped	5

all **approach** **aspen** balance **experience** **good** other **over** **reflect** **see** things understated which wise

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Name not available (unclaimed) May 15, 2015, 2:49 PM

Aspen/Pitkin County Airport Terminal-Environmental Assessment

How should the Aspen/Pitkin County Airport terminal reflect our community values?

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.

No Response

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.

No Response

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?

No Response

Name not available (unclaimed) May 11, 2015, 12:15 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.

One of the first things you see at the Aspen-Pitkin County Airport when you step off a plane is the mountains. Walking to the terminal, sniffing the mountain air, the typical visitor knows they have arrived in Aspen. They feel a unique sense of place from the surroundings.
Step inside the terminal, however, and our “guests” fall prey to a sterile, commercial blitz. Walls of advertising greet visitors with come-ons for Rolex, real estate, Audi and more.
Is Aspen a mountain community with a rich history surrounded by the wonders of nature? Or are we Armani of Aspen, Prada of Pitkin and Rolex of the Roaring Fork?

In a recent letter to the county commissioners, John McBride lamented the commercialized “Howdy!” experienced at the airport. McBride equates the backlit, flashy signs with highway billboards.
Aspen and Pitkin County were enlightened enough to ban billboards decades ago in order to protect cherished views of the mountains from commercial blinders.

“How ironic,” McBride wrote, “how contradictory that the same county that implemented this measure allows billboard advertising throughout one public space — their own county airport. They are everywhere in the airport — some 10 feet by 20 feet, some flashing, changing messages — selling cars, jewelry, houses, condos, etc., etc.
“It is, I believe, a double standard for the county to stop billboard advertising visible from all public roads only to have it throughout their own public airport.”

McBride makes an excellent point. Not only do airport ads create a visual context of commercialism; they also form a blatant first impression to our guests. Billboards in our airport are meant to target tourists. As soon as they step off the plane, our resort guests are hit with a commercialized message that Aspen is for sale.
Under this arrangement, Aspen is less a community than it is a commodity. The message is money — about spending oodles of it on conspicuous consumption. Tourists become marks. Aspen is cheapened.

Were these ads promoting local, cottage-industry businesses, then some promotion would be valid to share products that contain local flavor. But the current ads are high-end, generic and ubiquitous. They are seen everywhere, worldwide. There is nothing local about them.
McBride suggested something different. Instead of greeting arrivals with commercialized sales pitches, how about providing displays that describe the character of our community, the nature of our environment, the history of our region and the sense of place we hope visitors latch onto?

“Instead of commercialism,” McBride wrote, “wouldn’t it be great if our airport walls were covered with photos from the past — a museum of our own unique history?

“There could be an area of mining and ranching from the turn of the last century. There could be an exhibit on skiing and the music tent and the Aspen Institute. Perhaps the Discovery Center could have an area. And our

music background, instead of playing hip-hop or rock, could feature actual recordings from the music tent or from Jazz Aspen."

How do generic ads for high-end products enrich the visitor experience? Not at all. They water down local color by pandering to consumerism. They neglect the values of the community, which could be highlighted through artful displays from the Aspen Historical Society, displays that also can strike a sense of pride for locals.
Aspen is a beautiful place because of the mountains and the community. Every time I step off a plane, I want to kiss the ground in gratitude for this place, only to shade my eyes from the displays of consumption once I'm inside the terminal.
Billboards block views with dubious commercial banners. Let's not block the views of the heart and soul of Aspen for visitors and locals by confronting them with indoor billboards. More thoughtful, artful displays may actually inspire with depictions of the nature and culture of our beautiful setting and our richly endowed valley.
"The airport could become a place to be proud of," McBride summed up, "not just another marketing maze. God knows we have enough of that everywhere else."

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
No Response

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
No Response

Name not available (unclaimed) May 11, 2015, 12:13 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
One of My visions is an airport that doesn't look and feel like an electronic in your face real estate brochure. First impression about aspen is that everything is for sale and the aspen way is buy buy expensive stuff. Worse than arriving in Geneva. Frankly depressing. The public airport should not be a billboard for excess. Don't let the new terminal replicate the message that exists today.

The County and the City have very conservative advertising guidelines and fortunately so. Otherwise the Hiway 82 corridor and town itself would be a billboard nightmare. Question then- why does the Pitkin County Airport allow such brazen advertising in its terminal? Is there a County approved different advertising standard for this public space because it's indoors? Does an Enterprise fund have a lower set of standards for its management of public spaces?Seems a bit duplicitous at a minimum. Is it the billboard revenue that trumps the aesthetic that we have all supported for so long?

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
No Response

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
No Response

Name not shown inside District 1 (on forum) May 6, 2015, 1:02 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
I like the idea of stepping off the plane to the open air vs. jetway for the small town feel and almost more importantly, for the open design that will continue to allow for the waiting areas…big windows looking out to the mountains and the sky. In general, I'm not a fan of the flat roof modern style building although I imagine it may be easier/less expensive to build. I'd like to see more of that Mountain feel in the building like structures at the base of Highlands. At the very least, more wood inside and out! Less advertising and monitors everywhere!! Folks are trying to leave that behind when they come here. More pretty pictures and guides to what they can find here…maybe even one of those 3 dimensional relief type maps that you sometimes stand around at visitor centers…those give such a good sense of where everything is to even the most mapped challenged visitor! Like this one…http://www.nps.gov/common/uploads/photogallery/pwr/park/mora/ECFAAFEA-155D-4519-3EEEF4E8D9F6A8FB/ECFAAFEA-155D-4519-3EEEF4E8D9F6A8FB.jpg

In fact, a lot of the elements of that Sunrise Visitor Center at Mount Rainer could be borrowed…displays of that style illustrating the mining history here, etc. Certainly one space that is rough and rugged like that visitor center vs. the polished LA feel that a lot of Aspen interiors are adopting…I don't think that look is as enduring as some think.

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
The one building out of that list that strikes a cord with me is the Basalt Public Library. The tall windows are amazing! That balanced with some sloped roof surfaces vs. flat and lots of wood and stone!

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
I would say Colorado Rocky Mountains hands down as not all travelers are coming specifically for the "Aspen" experience which I think, architecturally is getting a bit too modern for my taste. I imagine some clever planners/architects can strike a good balance between rough n' rugged and slightly sleek! Maybe one extreme to the other on the inside with a good continuous balance on the outside.

Ziska Childs inside District 1 (on forum) April 27, 2015, 12:33 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
After the presentation in March at the Limelight Lodge:
1. The most valuable asset for our guests is the view. Our visitors should be connected to that view from the second the wheels touch down. This means no jetways, large windows, no entry through underground parking.
2. The Aspen brand is green. We need to counter our reputation for excess with conservation and green practices. This is not optional- for *any* of our buildings.
3. Make this a year round facility. There should be uses during the off-season- like meeting space- which would be equally valuable during season as meeting rooms for our Guests who have been delayed due to weather.
4. Make this a destination in itself. Showcase local artists and rotate the shows like the San Francisco airport does. Have food choices equal or better than to those in town (maybe invite some down valley talent in like "Town") Help alleviate wait room boredom with learning opportunities about Aspen ("Fire on the Mountain" on the monitors instead of endless CNN, a display with Betty Phister's WWII uniform, Warren Miller Films, high end ski and outdoor industry retail - with boot fittings - maybe an indoor ski hill)
5. To repeat: No jetways. Walking out of an airplane down stairs immediately lets our Guests know that Aspen has a slower pace than where they normally live. We should not try and be the same as LAX we should be greener, more personal and friendlier. It's a "boutique" airport.

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
See answer #1- It's all about the view.

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
See answer #1 "We should not try and be the same as LAX we should be greener, more personal and friendlier. It's a "boutique" airport." This is our "first impression" of Aspen.

Name not shown inside District 5 (on forum) April 25, 2015, 7:10 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
It is extremely important the new building be in context, there is generally a desire to build something as big as will be permitted, the current airport is an operational chore but is loved just as it is for size and context.

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
The Basalt library is a phenomenal building. The art museum is completely out of context hence the generally poor feelings towards it.

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
If at all possible the building should attempt to return to an understated approach to things, things in Aspen are generally over sized, and over stated, personality wise and square footage wise, it would be nice to see a modest understated approach which reflects a lot of the silent majority.

Name not available (unclaimed) April 18, 2015, 10:48 AM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
Keep it simple and cheap. No global green nonsense

–

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
No Response

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
No Response

DAVE NIXA inside District 4 (on forum) April 18, 2015, 6:23 AM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
Aspen is a unique destination for our visitors and as a place to live. The design and construction should respect and reflect the historical legacy and natural beauty of our community, be a modern experience but not be more than what it is, a center for tranportation in our out of a small town. We aren't Denver. Make it memorable not a monument, make it functional not ostentatious, have it reflect and encourage our environmental values and natural surroundings.

–

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
Sort of a leading question with these examples. The art museum is art, this is not. Most of these building reflect an element of their use and have a somewhat modern flare except perhaps the Aspen Institute, but none really reflect what the Airport is, a center for transportation. Can't we think a bit more about how it fits into the environment and still provides for it primary function and use. How have others approached this issue? Let's make it environmentally friendly, easy to use and maintain, but welcoming. The current terminal has a small town feel and is very accessible. Let's stay with these themes.

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
Certainly Aspen to Carbondale, and reflect our mining, agricultural, recreational and environmental heritage as well. Denver has the Rockies covered. Look to Cincinnati and other examples that reflect their history and also provide for a contemporary experience.

Name not shown inside District 2 (on forum) April 17, 2015, 11:43 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
Exciting architecture, relating to the natural environment, something in the modernist tradition of the Aspen Institute would be great. Should be a signature building.

–

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
This is perhaps an unfortunately leading question, with the Aspen Art Museum as the likely response. Actually, they are all authentically part of Aspen as it has changed and evolved over the years.

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
Aspen.

Name not shown inside District 2 (on forum) April 17, 2015, 9:40 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
Well designed, low, fit into landscape, small feeling, not grand or "historic" looking, integrate outdoors(I.e. See through the windows to the outdoors), use of solar, lots of public art, very few real estate ads!

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2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
All except the art myse reflect an aspect of aspen and the valley

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
Aspen to Basalt...rooted in historic references, but a forward looking vision/attitude

Name not available (unclaimed) April 17, 2015, 4:06 PM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
The revolving ad space that exists today shows restaurants, art galleries, etc. More shots of kids playing at the Wagner Park Playground as well as old and current skiing photos would be good as well.

–

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
Wheeler Opera House, Yes
Hotel Jerome, Yes
Maroon Bells, Yes
Music Tent, Yes
Aspen Music School Campus, Yes
Aspen Art Museum, No
Mountain Rescue, No

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
All of the above.

Name not shown inside District 5 (on forum) April 17, 2015, 10:31 AM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.
Make it useful, efficient in moving passengers, and more comfortable than at present. The windows show all the "sense of place" needed.

–

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.
Art museum. Art museum. Art museum.

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?
No. Just make it open and easy to use.

Name not available (unclaimed) April 10, 2015, 10:04 AM

1. What makes an authentic experience? Examples could include: small town feel, importance of the outdoors, art integrated, non-commercialized, etc.

No Response

2. What buildings or landmarks do or do not exemplify this experience? Examples could include both positive and negative examples such as: the Mountain Rescue Station, the Aspen Chapel, the Aspen Music School, the Aspen Art Museum, Basalt Public Library, Aspen Institute.

No Response

3. Should the airport reflect Aspen, the Roaring Fork Valley, or the Rocky Mountains?

No Response

Aspen Airport EA

We're completing an Environmental Assessment for potential redevelopment of the Aspen Airport. Have we missed anything?

All Registered Responses sorted chronologically

As of October 25, 2016, 12:44 PM

Pitkin County Connect is not a certified voting system or ballot box. As with any public comment process, participation in Pitkin County Connect is voluntary. The responses in this record are not necessarily representative of the whole population, nor do they reflect the opinions of any government agency or elected officials.

Aspen Airport EA

We're completing an Environmental Assessment for potential redevelopment of the Aspen Airport. Have we missed anything?

As of October 25, 2016, 12:44 PM, this forum had:

Attendees:	53
Registered Responses:	4
All Responses:	9
Minutes of Public Comment:	27

This topic started on September 30, 2016, 12:45 PM.

Responses

How did we do on incorporating community priorities into Concept 1?

Strong Indoor - Outdoor Relationship

	%	Count
1 - Unacceptable	33.3%	1
3 - Acceptable	33.3%	1
5 - Great!	33.3%	1

Reflecting Community Vision

	%	Count
1 - Unacceptable	33.3%	1
3 - Acceptable	33.3%	1
5 - Great!	33.3%	1

Optimizing Views

	%	Count
3 - Acceptable	66.7%	2
5 - Great!	33.3%	1

Sustainable Design

	%	Count
1 - Unacceptable	33.3%	1
3 - Acceptable	33.3%	1
5 - Great!	33.3%	1

Prioritizing the Passenger Experience

	%	Count
3 - Acceptable	66.7%	2
5 - Great!	33.3%	1

Being A Good Neighbor

	%	Count
3 - Acceptable	66.7%	2
5 - Great!	33.3%	1

Build It Once, Build It Right

	%	Count
1 - Unacceptable	33.3%	1
3 - Acceptable	33.3%	1
5 - Great!	33.3%	1

How did we do on incorporating community priorities into Concept 2?

Strong Indoor - Outdoor Relationship

	%	Count
1 - Unacceptable	66.7%	2
4 - Good	33.3%	1

Reflecting Community Vision

	%	Count
1 - Unacceptable	33.3%	1
2 - Marginal	33.3%	1
4 - Good	33.3%	1

Aspen Airport EA

We're completing an Environmental Assessment for potential redevelopment of the Aspen Airport. Have we missed anything?

Optimizing Views

	%	Count
2 - Marginal	33.3%	1
3 - Acceptable	33.3%	1
4 - Good	33.3%	1

Sustainable Design

	%	Count
2 - Marginal	66.7%	2
3 - Acceptable	33.3%	1

Prioritizing the Passenger Experience

	%	Count
2 - Marginal	33.3%	1
3 - Acceptable	66.7%	2

Being A Good Neighbor

	%	Count
2 - Marginal	33.3%	1
3 - Acceptable	66.7%	2

Build It Once, Build It Right

	%	Count
1 - Unacceptable	33.3%	1
2 - Marginal	33.3%	1
3 - Acceptable	33.3%	1

Did we miss any community priorities in the concepts above?

Answered	2
Skipped	2

look

Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?

Answered	2
Skipped	2

bike path

Outside of a ranch, no other historic or culturally significant properties have been identified. Do you have other comments about historical resources in the area?

No response

No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resources and energy?

Answered	1
Skipped	3

energy

The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?

Answered	1
Skipped	3

Bob Sirkus inside District 4 October 20, 2016, 12:21 PM

Please take a look at the two airport terminal concept ‘visualizations’ below. These concepts have been further designed from the ‘lego block’ concepts we showed you previously to actual architectural renderings. These renderings were created from feedback we received from you earlier in this process. We’d like you to score these concepts based on what you’ve told us is most important to you in a new terminal facility. Have we missed anything?

Concept 1 "The Ridge" Perspectives

Click to download PDF

Concept 1 "The Ridge" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 1?
Strong Indoor - Outdoor Relationship: 1 - Unacceptable
Reflecting Community Vision: 1 - Unacceptable
Optimizing Views: 3 - Acceptable
Sustainable Design: 1 - Unacceptable
Prioritizing the Passenger Experience: 3 - Acceptable
Being A Good Neighbor: 3 - Acceptable
Build It Once, Build It Right: 1 - Unacceptable

Concept 2 "The Pavilion" Perspectives

Click to download PDF

Concept 2 "The Pavilion" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 2?
Strong Indoor - Outdoor Relationship: 1 - Unacceptable
Reflecting Community Vision: 2 - Marginal
Optimizing Views: 3 - Acceptable
Sustainable Design: 2 - Marginal
Prioritizing the Passenger Experience: 3 - Acceptable
Being A Good Neighbor: 3 - Acceptable
Build It Once, Build It Right: 1 - Unacceptable

Did we miss any community priorities in the concepts above?
Neither concept represents the character, values, culture and history of the communities it will serve. Both are way too contemporary for me. They look like the "flavor of the month" and I am concerned these designs will look dated by the time the project is completed.

Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?
there appears to be a section of the bike path that could still be used to connect two sections of the relocation.

Outside of a ranch, no other historic or culturally significant properties have been identified. Do you have other comments about historical resources in the area?
No response

No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resources and energy?
i would support using energy efficient and or renewable energy options in the terminal.

The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?
recycle as much of the construction waste as possible

Note that additional resources such as noise, air quality, etc. will be addressed in a future outreach effort once analysis is completed

Andrew Doremus inside District 1 October 4, 2016, 11:59 AM

Please take a look at the two airport terminal concept ‘visualizations’ below. These concepts have been further designed from the ‘lego block’ concepts we showed you previously to actual architectural renderings. These renderings were created from feedback we received from you earlier in this process. We’d like you to score these concepts based on what you’ve told us is most important to you in a new terminal facility. Have we missed anything?

Concept 1 "The Ridge" Perspectives

Click to download PDF

Concept 1 "The Ridge" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 1?
Strong Indoor - Outdoor Relationship: 3 - Acceptable
Reflecting Community Vision: 3 - Acceptable
Optimizing Views: 3 - Acceptable
Sustainable Design: 3 - Acceptable
Prioritizing the Passenger Experience: 3 - Acceptable
Being A Good Neighbor: 3 - Acceptable
Build It Once, Build It Right: 3 - Acceptable

Concept 2 "The Pavilion" Perspectives

Click to download PDF

Concept 2 "The Pavilion" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 2?
Strong Indoor - Outdoor Relationship: 4 - Good
Reflecting Community Vision: 4 - Good
Optimizing Views: 4 - Good
Sustainable Design: 3 - Acceptable
Prioritizing the Passenger Experience: 3 - Acceptable
Being A Good Neighbor: 3 - Acceptable
Build It Once, Build It Right: 3 - Acceptable

Did we miss any community priorities in the concepts above?
No response

Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?
Why can't we use a partially cover road with the bike path above in the open space. If it's done that way the large retaining wall would not be visible. Make it similar to the mountain roads in Europe that are covered because of rock fall and or avalanches.

Outside of a ranch, no other historic or culturally significant properties have been identified. Do you have other comments about historical resources in the area?
No response

No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resources and energy?

No response

The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?

No response

Note that additional resources such as noise, air quality, etc. will be addressed in a future outreach effort once analysis is completed

Name not shown inside District 2 October 3, 2016, 1:21 PM

Please take a look at the two airport terminal concept ‘visualizations’ below. These concepts have been further designed from the ‘lego block’ concepts we showed you previously to actual architectural renderings. These renderings were created from feedback we received from you earlier in this process. We’d like you to score these concepts based on what you’ve told us is most important to you in a new terminal facility. Have we missed anything?

Concept 1 "The Ridge" Perspectives

Click to download PDF

Concept 1 "The Ridge" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 1?
Strong Indoor - Outdoor Relationship: 5 - Great!
Reflecting Community Vision: 5 - Great!
Optimizing Views: 5 - Great!
Sustainable Design: 5 - Great!
Prioritizing the Passenger Experience: 5 - Great!
Being A Good Neighbor: 5 - Great!
Build It Once, Build It Right: 5 - Great!

Concept 2 "The Pavilion" Perspectives

Click to download PDF

Concept 2 "The Pavilion" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 2?
Strong Indoor - Outdoor Relationship: 1 - Unacceptable
Reflecting Community Vision: 1 - Unacceptable
Optimizing Views: 2 - Marginal
Sustainable Design: 2 - Marginal
Prioritizing the Passenger Experience: 2 - Marginal
Being A Good Neighbor: 2 - Marginal
Build It Once, Build It Right: 2 - Marginal

Did we miss any community priorities in the concepts above?
No response

Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?
No response

Outside of a ranch, no other historic or culturally significant properties have been identified. Do you have other comments about historical resources in the area?
No response

No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resources and energy?

No response

The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?

No response

Note that additional resources such as noise, air quality, etc. will be addressed in a future outreach effort once analysis is completed

william bernstein inside District 5 October 3, 2016, 1:14 PM

Please take a look at the two airport terminal concept ‘visualizations’ below. These concepts have been further designed from the ‘lego block’ concepts we showed you previously to actual architectural renderings. These renderings were created from feedback we received from you earlier in this process. We’d like you to score these concepts based on what you’ve told us is most important to you in a new terminal facility. Have we missed anything?

Concept 1 "The Ridge" Perspectives

Click to download PDF

Concept 1 "The Ridge" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 1?
No response

Concept 2 "The Pavilion" Perspectives

Click to download PDF

Concept 2 "The Pavilion" Neighborhood Views

Click to download PDF

How did we do on incorporating community priorities into Concept 2?
No response

Did we miss any community priorities in the concepts above?
you are wasting millions on over building an airport that will never have much traffic. it is ridiculous.

Take a look at the map above and let us know if you have any other comments about the relocation of the Owl Creek bike path and road?

No response

Outside of a ranch, no other historic or culturally significant properties have been identified. Do you have other comments about historical resources in the area?

No response

No significant energy or natural resource impacts would likely result from airport improvements. Do you have other comments about the impacts on natural resources and energy?

No response

The Alternatives are not expected to significantly change the handling, use or disposal of hazardous materials and solid waste. Do you have any other comments about the impacts of hazardous materials and pollution prevention?

No response

Note that additional resources such as noise, air quality, etc. will be addressed in a future outreach effort once analysis is completed

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

All Statements sorted chronologically

As of March 31, 2016, 4:43 PM

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Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

As of March 31, 2016, 4:43 PM, this forum had:

Attendees:	80
All Statements:	9
Minutes of Public Comment:	27

This topic started on February 10, 2016, 3:24 PM.
This topic ended on March 31, 2016, 4:09 PM.

All Statements sorted chronologically

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

Name not available (unclaimed) March 25, 2016, 1:12 PM

That it fit in, in relation to the size of the valley and not overwhelm everything around it. There are housing both for locals and 2nd home owners, a ski area, and businesses located nearby. We all must drive by it constantly. It needs to be an airport that serves a small valley and Historic town not the other way around. If it changes the character of the area negatively it will diminish the very reason it is being proposed. It will degrade the tourist and local experience, and the future attractiveness of the area. Lowered attractiveness translates to less business in the future not more. That it not take open space. Open Space should be inviolate. It is inviolate from an individual citizen and should be under the same rules for the Government. The same with large buildings. They are despised if proposed by an individual and should be despised for the same reasons for a government building. Maybe even more as an example to everyone. The old structure used solar originally which was a statement about what is part of the Aspen character, we care for the environment and want to lead in this arena. Noise is an issue and hasn't been dealt with well enough yet. It should absolutely be addressed and the most helpful mitigating items should be installed be it sound barriers or whatever. Beauty and landscaping should be first class. The trees there now are specimen quality and should be replaced with specimen quality. My main environmental concern is that the airport is going to alter the environment too much and it won't resemble what we have today. One more feather off the goose!

John Bennett inside District 5 (on forum) March 23, 2016, 3:06 PM

My Top Four Concerns:
1. The new terminal should be as small as possible (given our average passenger volume) and designed to (A) conserve energy and (B) reflect the traditional small town character, beauty, charm and uniqueness of Aspen and Pitkin County. It's absolutely okay for the terminal to feel a little crowded on the busiest day of the year.

2. Runway expansion should be avoided if it opens the door to commercial 737 flights. That idea was voted down by a 2-to-1 margin last time and would likely be defeated by a similar vote today. Nothing would degrade our community character more quickly than the noise and industrial tourism symbolized by "heavy metal" commercial aircraft.

3. The airport's parking and rental car policy should be designed to lure people out of their cars and into mass transit, preferably some form of fun and comfortable fixed guideway system into Aspen.

4. Let's get rid of the marketing billboards that clutter today's terminal and replace them with flowers, art and educational materials designed to inform and excite our visitors about the upper valley's arts & culture, commitment to reducing climate change, recreational opportunities, colorful history and refreshing uniqueness.

In short, let's give our residents and visitors a terminal that reflects the beauty of our valley and the highest values of our community – something to make us all truly proud!

Name not shown inside District 3 (on forum) March 22, 2016, 7:25 PM

Environmental Considerations of Proposed Airport Improvements

What are your top 4 environmental concerns regarding a proposed new terminal and runway widening/reconfiguration at the Aspen/Pitkin County Airport?

My concern is that this project exceeds what is strictly necessary, creates an unneeded parking structure, and utterly fails to incorporate public transit. There is no need for more parking and rental cars should be eliminated from the airport. Additionally, there should be some sort of statement regarding whether this plan assumes some sort of expansion of existing operations (as the parking would suggest). None of the County Commissioners are frequent flyers, so some perspective from some who do would be helpful. I fly at least twice a month, sometimes more, and have lived here for about twenty-five years. I see no need for huge expansion, especially around parking. The current ads in the airport are an eyesore. If that's where the BOCC is going with all of this, then we should stop all of this now.

Name not shown inside District 4 (on forum) March 17, 2016, 3:37 PM

I hear people talk about needing expansion so that we can continue to grow.....aren't we pretty much at capacity in many respects? We no longer are the unique, charming little ski town with interesting shops. The greedy landlords have priced out the local shops and replaced them with shops you can go to in any city. Don't get me wrong....we still have one of the most beautiful, safe and fun places in the world to call home but I no longer go into town to find a unique gift or relaxing cup of coffee. For the majority of our guests, the first and last impression of Aspen/Snowmass is at our airport. Let's keep that a charming and friendly place.
I do see the need for a newer and more efficient commercial terminal. A two story building , with adequate underground parking, would be good. The restaurant, bar and shops could be on the upper level and would create a better calmness during the weather and crazy days.
As for the widening of the runway, I am very much against any plan that causes us to relocate Owl Creek Road and the bike path. The Teacup might be a good idea if an aircraft needs to move off the end of the runway, rare, and the taxiway is full but if it causes Owl Creek Road to be moved then I think we should maybe look at alternative options. The noise during the high seasons, with 34 commercial flights a day along with the private aircraft, is to be expected. We seem to want all of the aircraft to come in but we don't want to hear them? It's the visual implications of more, more and more that are my deepest concerns.

Name not available (unclaimed) March 8, 2016, 9:50 AM

What are my top 4 environmental concerns? How about just one? Widening the runway will INCREASE the number of aircraft coming into the airport by allowing bigger planes to land here. That will INCREASE the County's carbon footprint and INCREASE the noise in the Valley. This is all very bad and NOT what most of the citizens want. How can the Aspen Skiing Company support this? Isn't carbon killing our snow?
Growing the airport will also make it much more likely that commercial flights will be delayed with all the increased private aircraft use. It is simple math, if it is bad now it will be worse with more private planes. We have heard that we will lose commercial service before and miraculously aircraft were "qualified" to come in. The new pro-growth agenda that Pitkin County and the new LAX airport manager have taken up is not going to make the community better. Enough development!

Name not shown inside District 5 (on forum) March 8, 2016, 7:39 AM

to reduce environmental impact best to do this job right the first time to avoid need for new future projects. population and air traffic not likely to grow. better airport may reduce flight cancellations which unnecessarily waste aviation fuel and auto fuel of failed travelers. all else is nonsense.

Name not shown inside District 3 (on forum) March 1, 2016, 2:25 PM

Please give due heavy consideration even beyond the areas listed; for instance beyond just woody crk, star mesa, white star ranch all suffer planes repeatedly lining up above our homes as well as disobeying existing air space airport rules and coming in at different angles as well (helicopters, fixed wings, gliders etc). The visual blight is as bad as the noise which is becoming more and more formidable already without addition and expansion. Jet fuel odor can now be detected, too. Is this what a rural area deserves here in paradise? May result in an inordinate property value devaluation eventually, also. Has anyone looked up from a McLain Flats meadow and seen literally hundreds of contrails mid day? Not such a very pretty site in our blue skies. We fervently hope for single story building, keep footprint as small as possible as bigger is not always better. Is public transport area appropriately sized or do we want more cars, more taxies, more congestion, more exhaust? We used to see early AM owls and various wide life right off the planes in the 70's. Where are they now? Are you building any ways into the plane to be sure they are not harmed or run off further? Will Owl Creek Road ultimately be decimated by your plans down the road a few years? How sad this valley is becoming, maybe the UTES were right to settle a curse on the area, we deserve what we sow. Wake up planners-not too late? Remember the airport being a solar building back then? What happened to any forward approaches beyond the standard apo norm?

Name not shown inside District 1 (on forum) February 27, 2016, 7:26 AM

Any increase in air traffic or size of planes is asking for disaster and tragedy. Already the world's best musicians are insulted by having their performances punctuated by the noise of aircraft. One cannot take a hike anywhere in Colorado without having the peace of nature interrupted by aircraft. My morning coffee is being accompanied by the noise of jets as I write this.
The major thing that preserved Aspen above other resorts was that it was difficult to get to. Let's leave this expansion on the table for later - much later.

1 Supporter

---

bill hunt inside District 2 (on forum) February 19, 2016, 8:07 PM

now is the time to stop further air quality loss. bring the environmental benefits of light rail to workers driving to aspen and to tourists, who are trying to escape traffic jams. build adequate underground parking so all can use our good (and improve it to world class) system. otherwise we become just another urban mistake and the shape of the airport building is irrelevant.

2 Supporters

Public Involvement - Presentations

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

A Presentation to the

Board of County Commissioners (BOCC)

January 2015

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Work Session Objective

- Kick-off the Eastside Terminal Environmental Assessment
- Discuss schedule, milestones and process
- Outline the proposed community involvement process

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Project Background

- **Master Plan recommended updates to the Eastside due to:**
  - Terminal Area and Eastside deficiencies
  - Apron issues
  - Operational issues
  - Roadway/connectivity issues
- **Master Plan described solutions to these issues**
- **The Environmental Assessment will analyze the potential environmental impacts**

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

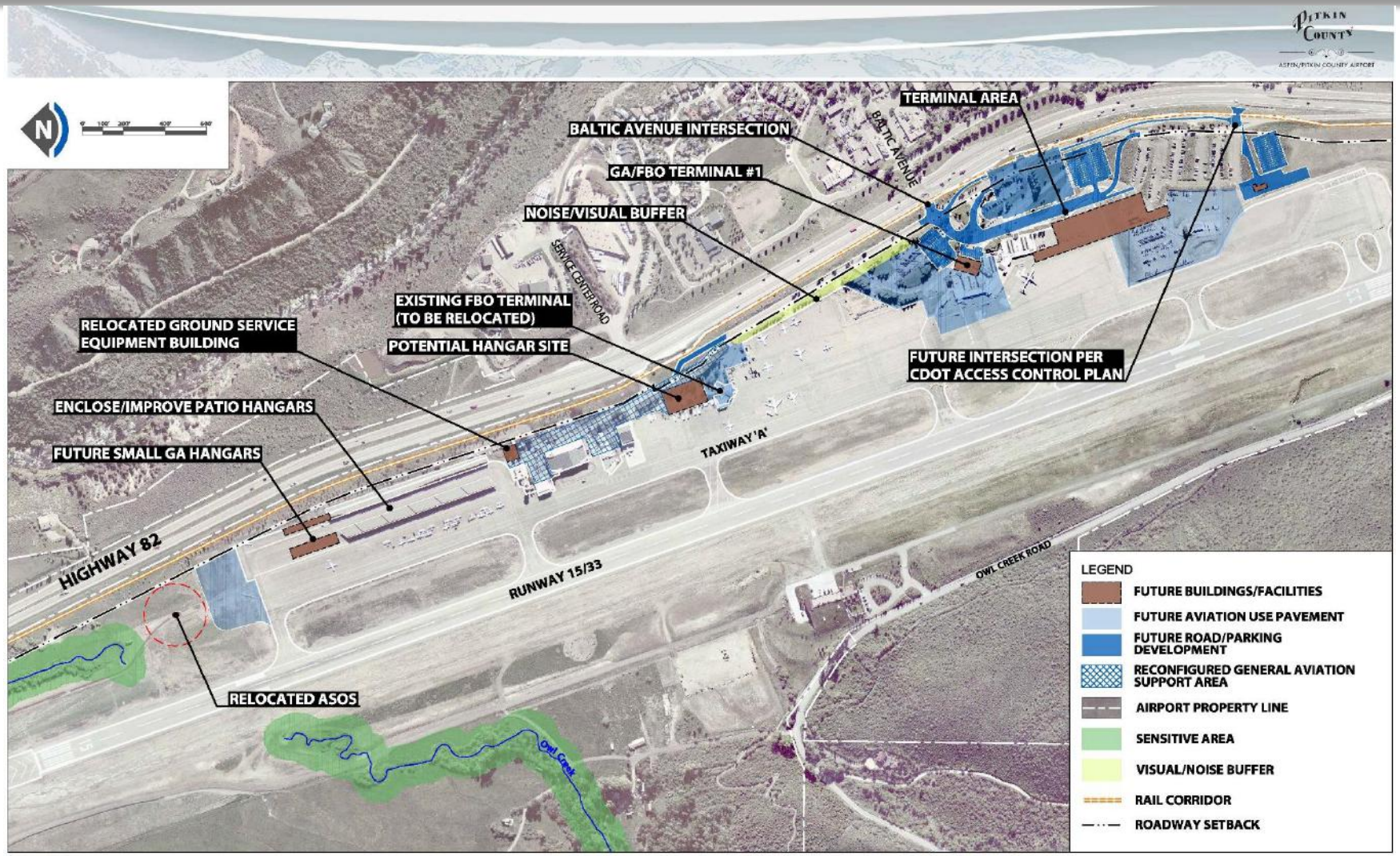
Proposed Action – Eastside Redevelopment

- **Terminal Area Re-development, including new terminal building, transit center and ancillary auto parking, roadway improvements, apron improvements, FBO relocation, noise wall and other ancillary projects**
- **Will not change the classification of the airport**
- **Will not change type of aircraft operating at the airport**
- **Forecast of aircraft operations will be the same with or without project**

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Proposed Action – Eastside Redevelopment



Purpose of this Environmental Assessment (EA)

- **The National Environmental Policy Act (NEPA) requires consideration of the environmental consequences of a federal action before the action is taken**
- **An Environmental Assessment is prepared to determine if an environmental impact may occur in any of the NEPA defined categories**
- **Provides an in-depth review of the potential environmental impacts for the proposed action and alternatives to those actions**
- **Provides disclosure of the alternatives, potential impacts and potential mitigation to the public and decision makers**

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Environmental Assessment Content

- **The Environmental Assessment will consist of the following key chapters:**
  - Purpose and Need
  - Alternatives—Including the Proposed Action
  - Affected Environment
  - Potential Environmental Consequences of the Proposed Action and the Feasible and Prudent Alternatives
  - Potential Mitigation Measures

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Environmental Considerations

- **Categories to Evaluate Per FAA Order 1050.1E Include:**
  - Air Quality/Climate
  - Costal Resources
  - Compatible Land Use
  - Construction Impacts
  - Cumulative Impacts
  - Department of Transportation Act: Section 4(f)
  - Farmlands
  - Fish, Wildlife, and Plants
  - Floodplains
  - Hazardous Materials, Pollution Prevention, and Solid Waste
  - Water Quality
  - Historical, Architectural, Archeological, and Cultural Resources
  - Light Emissions and Visual Impacts
  - Natural Resources and Energy Supply
  - Noise
  - Secondary (Induced) Impacts
  - Socioeconomics Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
  - Wetlands
  - Wild and Scenic Rivers

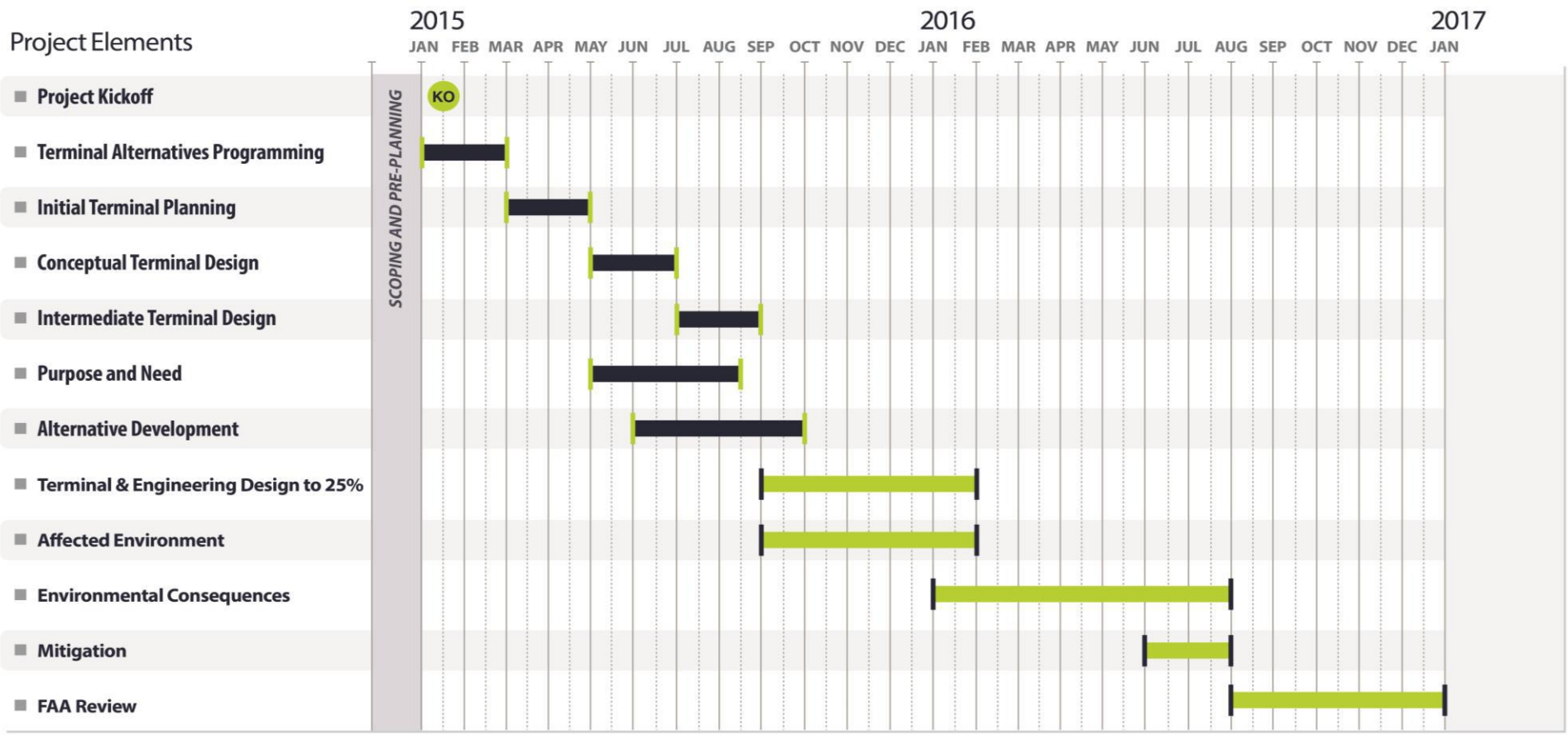
Responsible Parties

- **John Kinney/Airport Director**
  - Aspen/Pitkin County Airport – (970) 429-2851
- **Ryk Dunkelberg/Project Director**
  - Mead & Hunt – (918) 586-7272
- **Kate Andrus/Project Manager**
  - Mead & Hunt – (303) 825-8852

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Project Schedule



Time Frame **PHASE I**

Time Frame **PHASE II**

KO Kickoff Meeting

Mead & Hunt

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Unique Project Elements

- **Extensive Community/Public Workshops**
  - Public Workshops, Coffee Chats/Small Group Meetings, Social Media Outreach
- **Extensive Study Input Committee Involvement**
  - Detailed working sessions with the committee
- **Extensive Visioning/Design Concept Process**
- **Maximum Allowable Architecture and Engineering Design, 25%**

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Next Steps

- Consider list of members for the Study Input Committee
- February 10th work session to finalize committee list
- Team Kick-off to finalize first meetings
- Schedule Visioning Session and first Study Input Committee Meeting (Tentative Date: February 24th)

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Mead & Hunt

Mead & Hunt

Thank You!

January 2015

ASPEN/PITKIN COUNTY AIRPORT
EASTSIDE
ENVIRONMENTAL ASSESSMENT

Update on the Aspen/Pitkin County Airport Improvements and EA Process

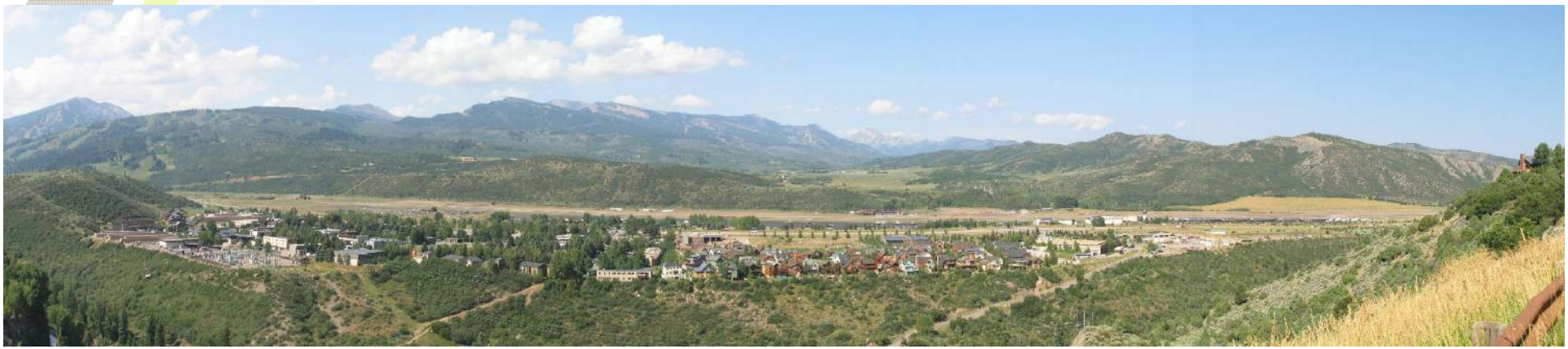
September 2015

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

ASPEN/PITKIN COUNTY AIRPORT
OWNED AND OPERATED BY PITKIN COUNTY

Meeting Objectives

- **Explain what has changed since we last met and how it will affect the overall EA project**
- **Provide a background understanding of proposed improvements**
- **Understand the Environmental Assessment (EA) process and how it relates to the updated projects**
- **Define next steps**



Purpose of This Environmental Assessment (EA)

- **The National Environmental Policy Act (NEPA) requires consideration of the environmental consequences of a federal action before the action is taken**
- **An Environmental Assessment is prepared to determine if a significant environmental impact may occur**
- **Provides an in-depth review of the environmental impacts for the proposed action and alternatives to those actions**
- **Provides disclosure of the alternatives, impacts and mitigation to the public and decision makers**

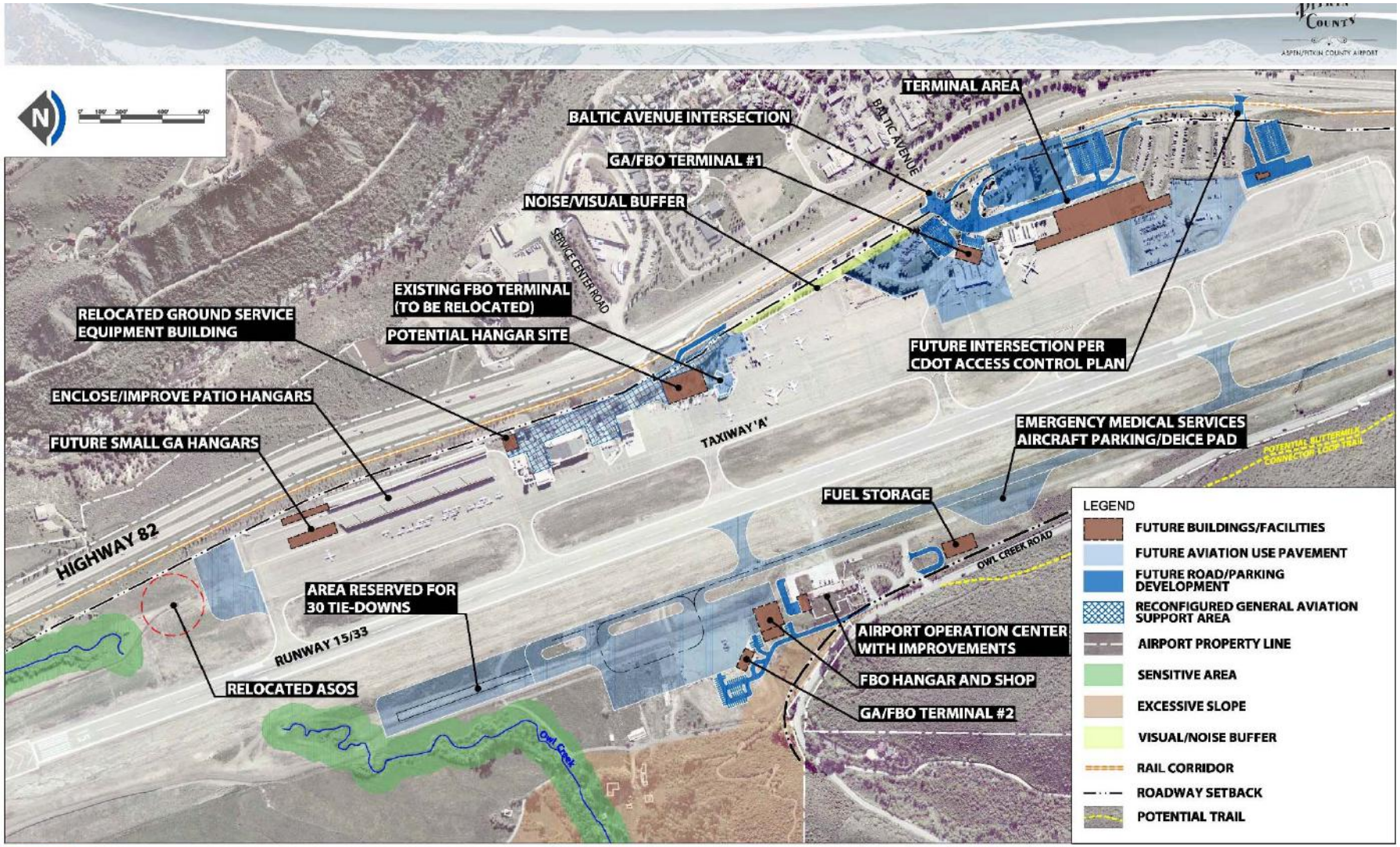
2012 Master Plan Recommendations

- **Premised on the continuation of the 95 foot wingspan restriction *and* the Modification to Standards (MOD) for airfield development granted by the FAA**
  - MOD allowed ASE to operate with a 320 ft. runway taxiway separation
- **2012 Master Plan recommended development projects for both the east side and the west side**
- **Capital Improvement Plan (CIP) developed for the Master Plan recommended projects was feasible and fundable**
- **In August 2013 the FAA approved the Airport Layout Plan (ALP), for east side and west side development with the exception of the proposed future runway/taxiway separation of 320 feet on the west side due to the fact that it did not meet FAA separation standards.**

2012 Master Plan – *Continued*

- ***The ALP approval does not apply to the proposed runway/taxiway separation distance of 320 feet on the west side of Runway 15/33***
- **FAA determined that the MOD allowing the 320 foot separation on the west side was not acceptable and any development had to meet separation standards (400 feet)**
- **BOCC undertook a Future Air Service Study to determine the feasibility, consequences and costs to comply with the 400 foot runway to taxiway separation**

Master Plan Recommendations



Master Plan Update

Figure 6-1
Recommended Improvement Plan

Future Air Service Study (2014)

- **ASE currently has a 95 ft. wingspan restriction in place based on runway to taxiway separation distance**
- **Aircraft trends indicated that the Regional Jets with wingspans less than 95 ft. will be phased out, with half of the U.S. fleet retired by 2021**
  - With wingspan restriction still in place, current air carriers would not be able to operate at ASE with future fleet
  - FAA will not allow another MOD to allow larger wingspan without ASE meeting FAA standards of 400 feet separation
- ***In order to have future air service at ASE, the FAA is requiring the airfield to be brought into FAA compliance***

Future Air Service Study (2014)

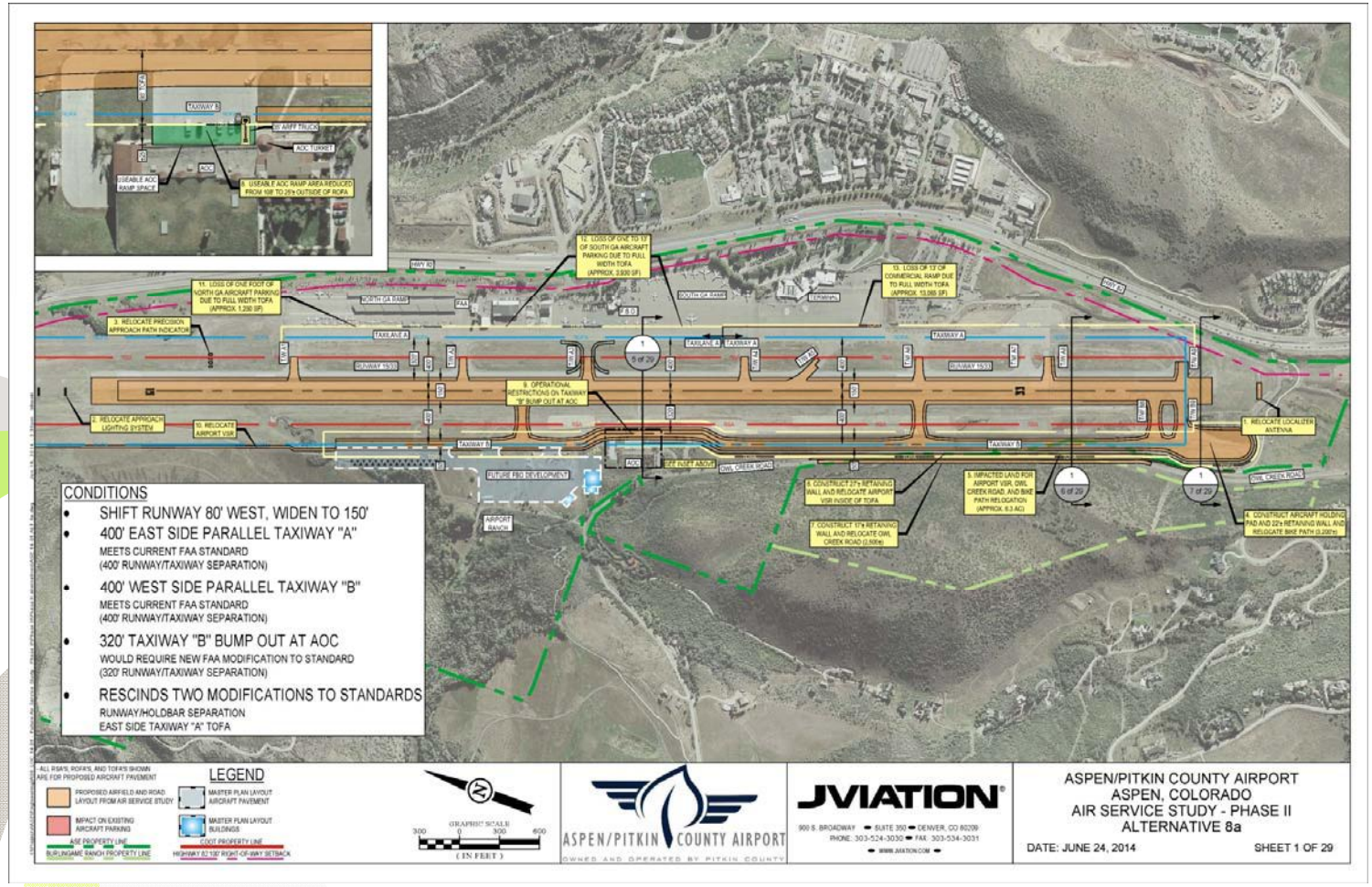
TABLE 3.2 AIRCRAFT TECHNICAL SPECIFICATIONS				
AIRCRAFT TYPE	WINGSPAN FEET/ INCHES	MAX LW (LBS)	ASE PERFORMANCE CAPABLE	MEETS/DOES NOT MEET CURRENT OPERATIONAL RESTRICTIONS
Current Regional Aircraft				
CRJ-700	76' 3"	67,000	Yes	Meets
Q-400	93' 3"	62,000	Yes	Meets
CRJ-900	81' 7"	73,500	No	Meets
CRJ-1000	85' 11"	81,500	No	Meets
E-170	85' 4"	72,312	No	Meets
E-175	85' 4"	74,957	No	Meets
E-190	94' 3"	94,799	No	Meets
E-195	94' 3"	99,208	No	Meets
Future Regional Aircraft				
E175-E2	101’ 8”	86,201	Yes*	Does Not Meet
E190-E2	110’ 7”	107,431	Yes*	Does Not Meet
E195-E2	110’ 7”	116,911	TBD*	Does Not Meet
MRJ-70 Standard	95' 9"	79,807	TBD	Does Not Meet
MRJ-90 Standard	95' 9"	83,776	TBD	Does Not Meet
CS100 Base	115’ 1”	110,000	Yes	Does Not Meet
CS300 Base	115’ 1”	121,500	Yes	Does Not Meet
Source: Manufacturers; *E-Jets E2 data are preliminary				

- **Next generation of regional aircraft have a larger wingspan**

Future Air Service Study (2014)

- **Future Air Service Study examined ways to meet the FAA standards so air carrier service could be kept at ASE as fleet mix changes**
- **Worked within Master Plan goals and recommendations**
- **Included extensive public involvement**
- **Future Air Service Study recommendations included:**
  - 80-ft Runway shift to the west and widening
  - Full-parallel taxiway
  - Second west side FBO
- **Updated Airport Layout Plan (ALP) and a Capital Improvements Plan (CIP) to be submitted to FAA pending BOCC approval on Sept. 9th**

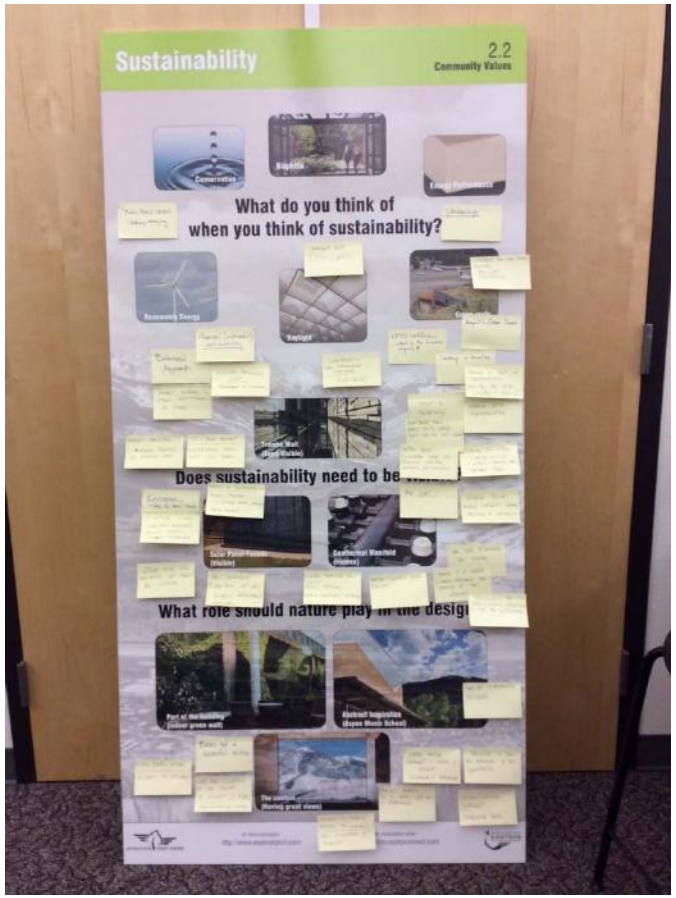
Future Air Service Study (2014)



- **Preferred alternative would require a runway shift and 400 ft runway/taxiway separation to meet FAA standards to keep future air service**

East Side EA Focus

- **Master Plan recommended updates to the east side due to:**
  - Terminal Area and east side deficiencies
  - Apron issues
  - Operational issues
  - Roadway/connectivity issues
  - Transit center
- **Visioning Sessions conducted on terminal redevelopment in early 2014**
- **EA focused on the potential environmental impacts of just the east side projects**



Things have changed…

- **FAA funding availability was analyzed and determined that not all projects are fundable within reasonably foreseeable timeframe**
- **Based on financial constraints, priorities of the FAA and the Airport were based on:**
  - Safety
  - Meeting FAA required standards
  - Operational efficiency
- **Reasonable Foreseeable Project Priorities Have Shifted:**

Previous Priorities	New Priorities
1. West side Development/2nd FBO	1. Terminal Redevelopment
2. Terminal Redevelopment	2. Runway Shift
3. Runway Shift	West side Development/2nd FBO

- ***Based on the estimated funding shortfalls the west side parallel taxiway, the 2nd FBO and the multi-modal transit center are not considered within the current planning horizon***
- ***The proposed ALP has been revised to reflect future and ultimate improvements phases***

What this means for the EA Process

- **Both the runway shift and the terminal replacement will be considered in <u>one</u> EA**
  - Separate purpose and needs, but in one document
  - EA will rely on Future Air Service Study Alternatives analysis
- **Benefits to the project include:**
  - Greater ability to analyze updated existing and future conditions based on new information
  - Analysis of future fleet mix with runway shift that meets FAA standards
  - Take advantage of combined public outreach process
  - Minimizes confusion concerning link of terminal redevelopment to airfield redevelopment

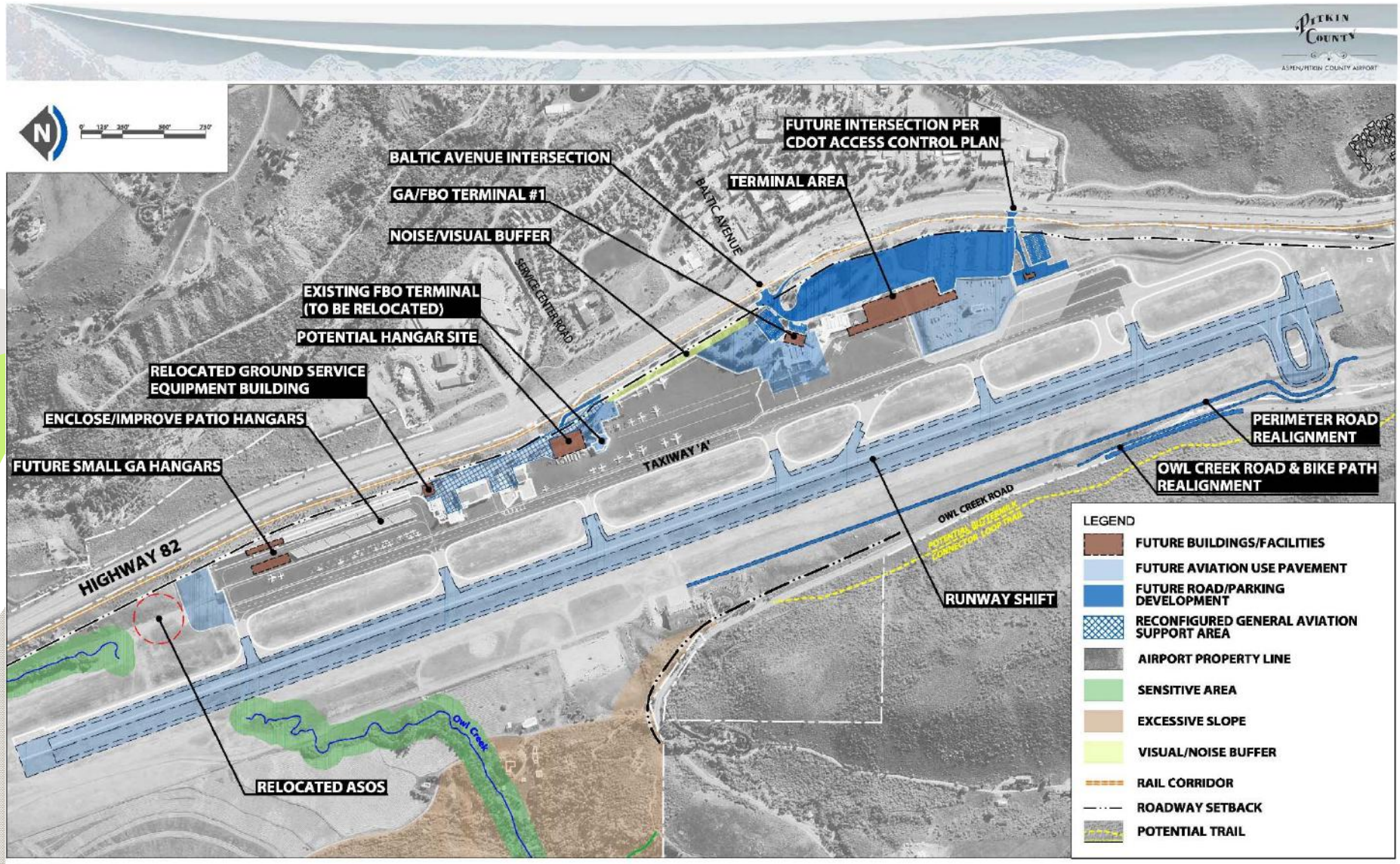
What this means for the EA (cont.)

- **The multi-modal transit center, west side parallel taxiway and 2nd FBO (west side) will <u>not</u> be part of the EA**
- **Multi-modal transit center, west side taxiway and second FBO are not reasonably foreseeable, but still considered on the ALP for future development when feasible and demand dictates**
- **Parking options will need to be analyzed to meet parking needs since the multi-modal transit center recommended from the Master Plan is not fundable at this time**
- **Parking options may include both on-site and off-site alternatives**

What additional elements will be analyzed?

- **As stated in the Future Air Service Study, the runway shift to meet FAA standards will allow for aircraft with a greater wingspan**
  - Future fleet mix will be examined and used for the air, noise, terminal sizing and other analyses for the EA
  - While many newer aircraft are larger, they also offer improved efficiencies
  - Winglets or blended wings improve fuel efficiency and climb gradient
  - Lower carbon footprint
  - Quieter
  - Improved range/comfort
- **Because of the potential for increased enplanements, analysis will also examine "pillow count"**
- **Removal of transit center will result development of single level parking options**
- **Will examine cumulative impacts related to both projects, as well as other past, present and reasonably foreseeable actions**

Updated EA Proposed Projects



Environmental Assessment Content

- **The Environmental Assessment will consist of the following key chapters:**
  - Purpose and Need
  - Alternatives—Including the Proposed Action
  - Affected Environment – Environment as it exists today
  - Environmental Consequences of the Proposed Action and the Feasible and Prudent Alternatives
  - Mitigation Measures

Environment Categories

- **Categories to Evaluate Per FAA Order 1050.1E Include:**
  - Air Quality
  - Coastal Resources
  - Compatible Land Use
  - Construction Impacts
  - Cumulative Impacts
  - Department of Transportation Act: Section 4(f)
  - Farmlands
  - Fish, Wildlife, and Plants
  - Floodplains
  - Hazardous Materials, Pollution Prevention, and Solid Waste
  - Water Quality
  - Historical, Architectural, Archeological, and Cultural Resources
  - Light Emissions and Visual Impacts
  - Natural Resources and Energy Supply
  - Noise
  - Secondary (Induced) Impacts
  - Socioeconomics Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
  - Wetlands
  - Wild and Scenic Rivers

Next Steps

- **Community Input Committee Meeting (September 10th)**
- **Public Meeting September 10th**
  - 4:30-6:30 pm at the Limelight Hotel
- **Coffee Chats over the next two weeks**
- **Community meetings over the next two weeks**

BOCC Presentation of CIC Design Workshop and Public Open House

December 2015

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Table of Contents

1 | Community Visioning Summary

2 | What's Happened

3 | Terminal & Site Concepts

4 | Workshop Outcome

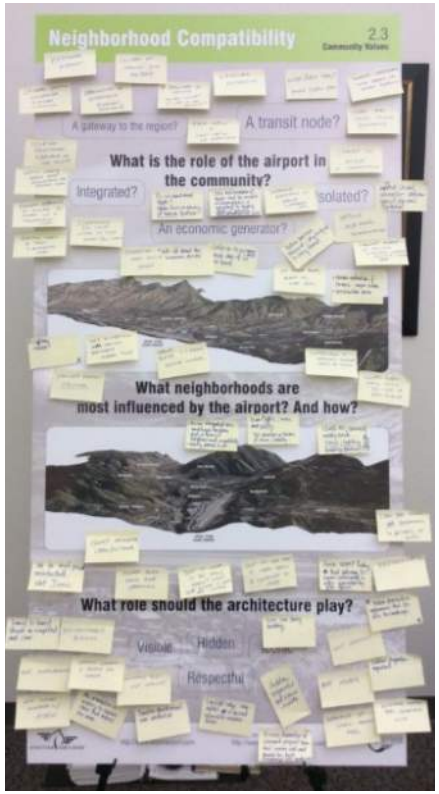
1 | Community Visioning

1 | Community Visioning

Summary

The vision session occurred in February of 2015 and was organized into (4) general themes for discussion.

Community input and insights were documented during the session and have been consolidated into general themes.



Summary

General Themes:

"A Balanced Approach"

- *Economic lifeline*
- *Operational efficiency*
- *Good neighbor*
- *Part of the community*

"Embrace the Outdoors"

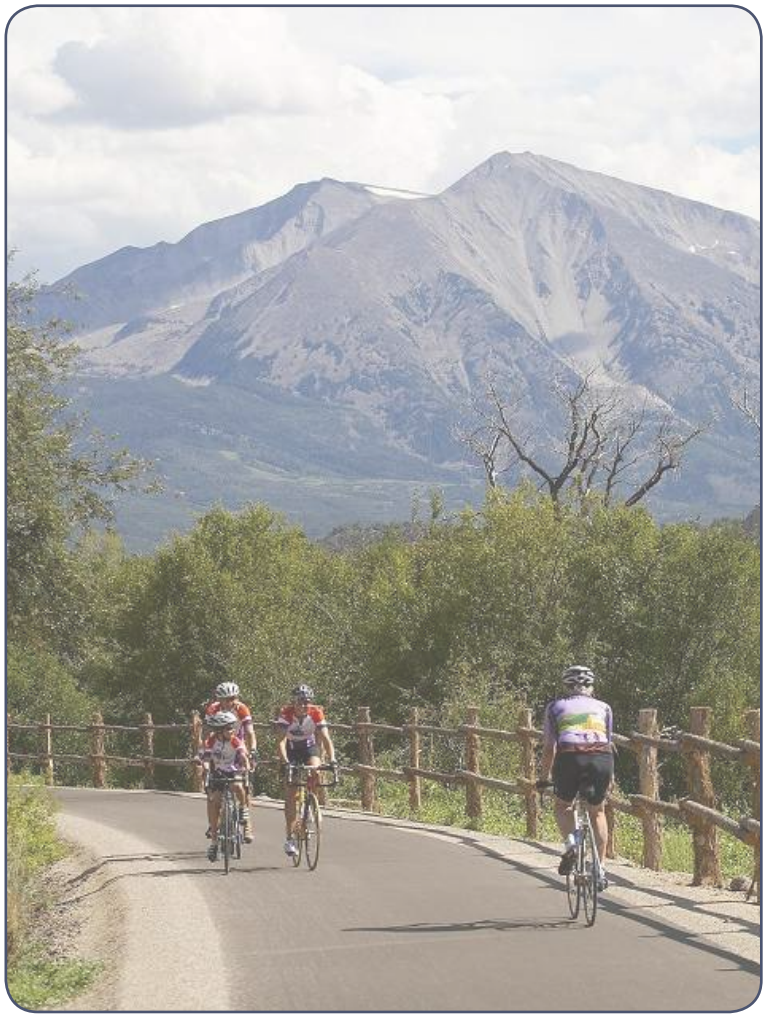
- *Views*
- *Inside / outside spaces*

"The Gateway Experience"

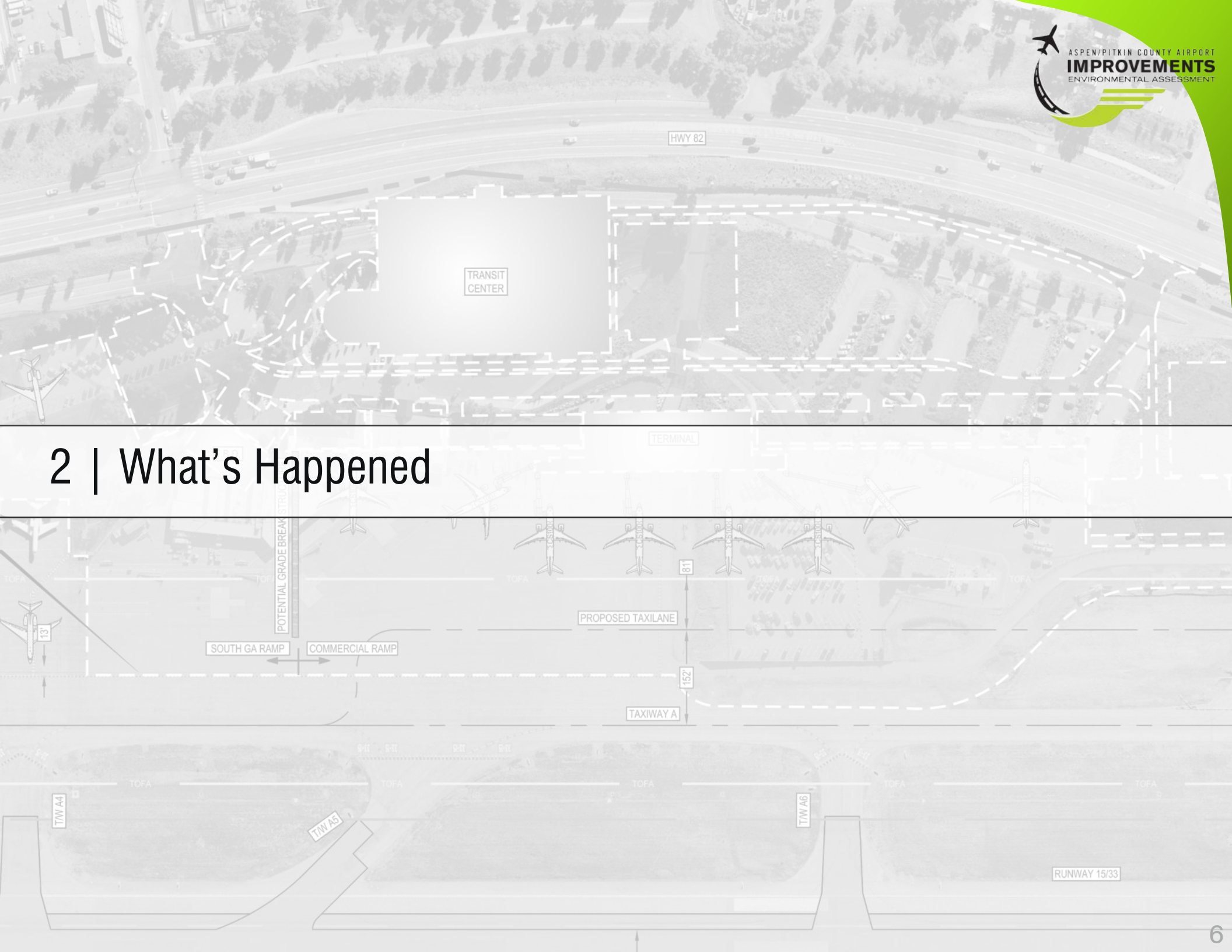
- *Reflect the community vision*

"Connectivity to the Community"

- *Ground transportation / accessibility*

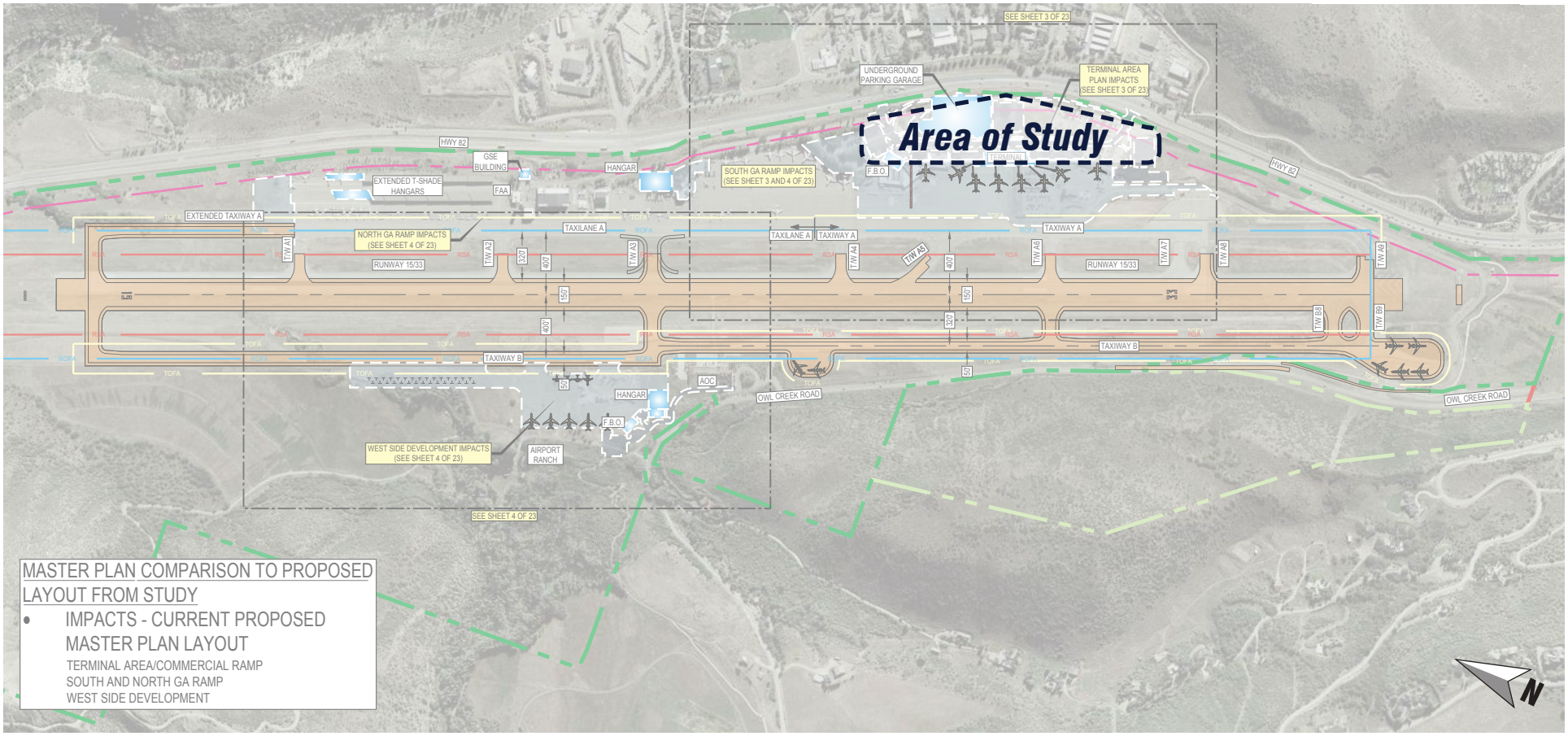


2 | What's Happened



2 | What's Happened

Site Constraints

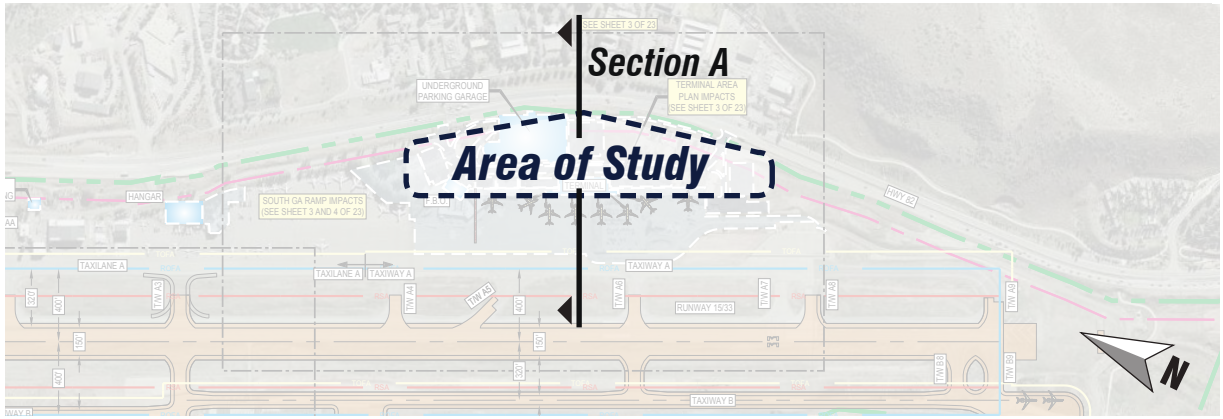


Aerial Map with Area of Study Highlighted

**Based on Masterplan Update Aspen/Pitkin County Airport (12/2012)*

2 | What's Happened

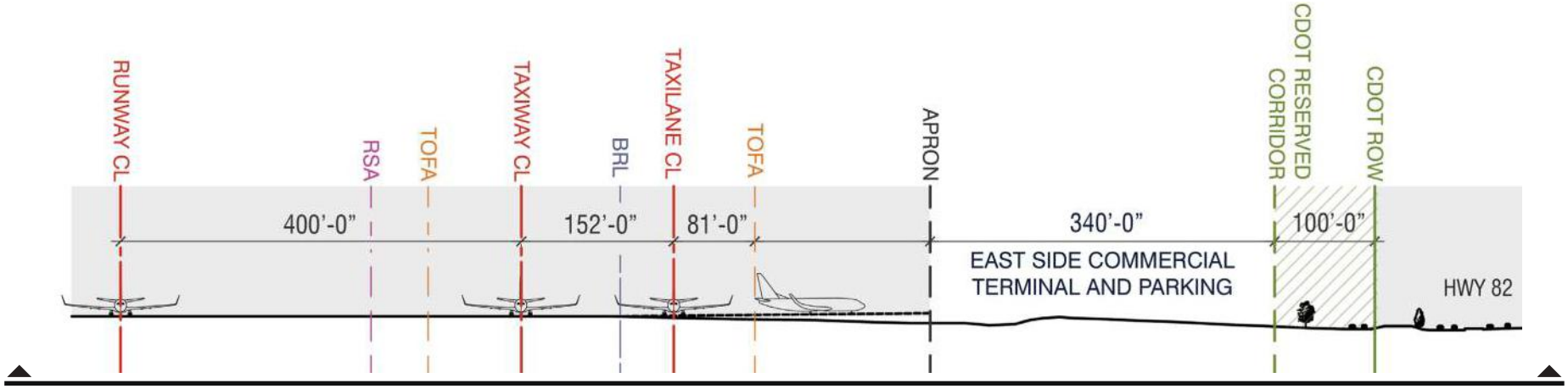
Site Constraints



Keyplan

CL = Centerline
RSA = Runway Safety Area Boundary
TOFA = Taxiway Object Free Area Boundary
BRL = Building Restriction Line
CDOT = Colorado Department of Transportation

Legend



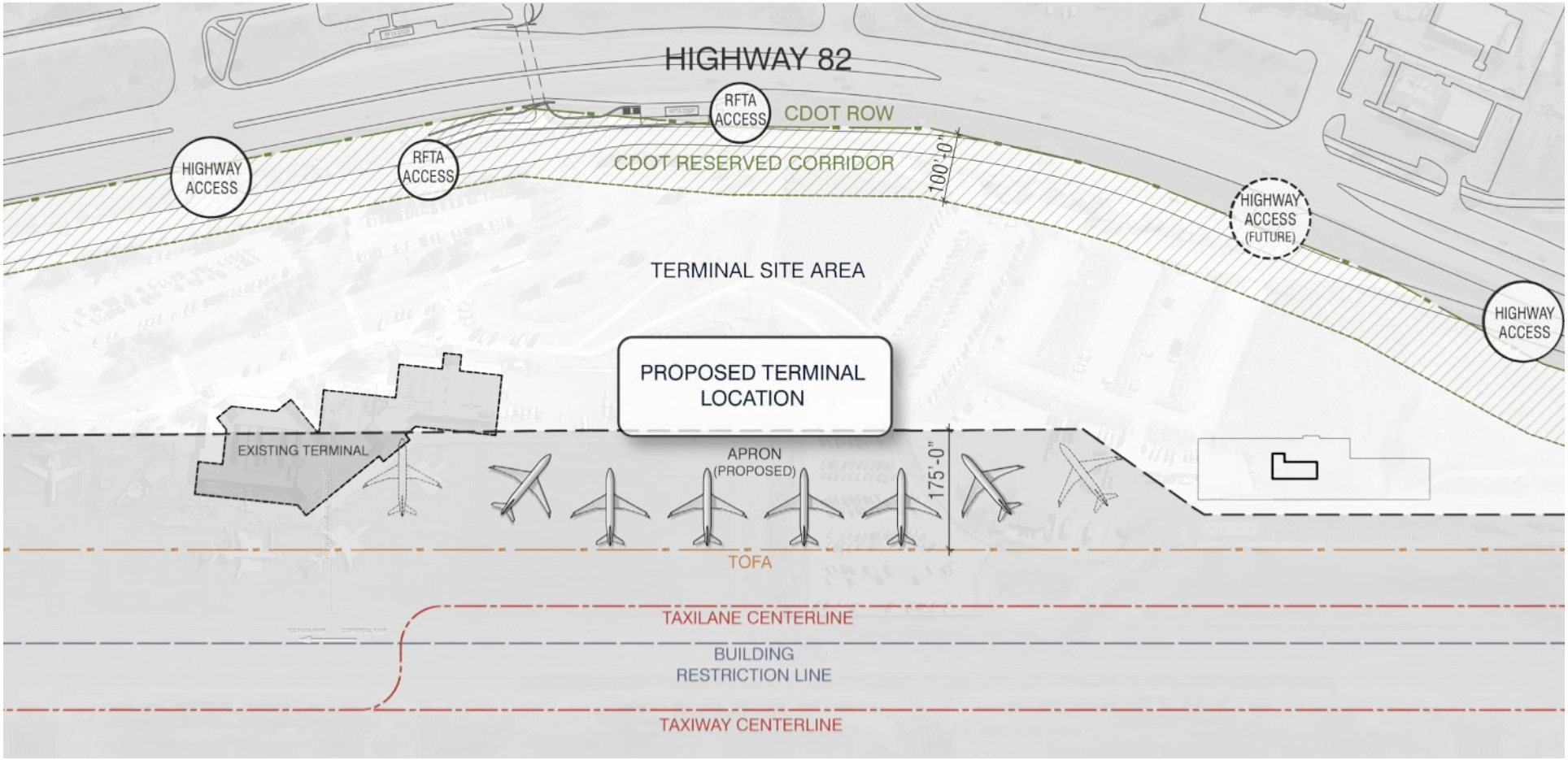
Layout Diagram - Section A (through proposed airfield layout, terminal and parking)

Proposed Runway Layout Demonstration

**Based on Masterplan Update Aspen/Pitkin County Airport (12/2012)*

2 | What's Happened

Site Constraints



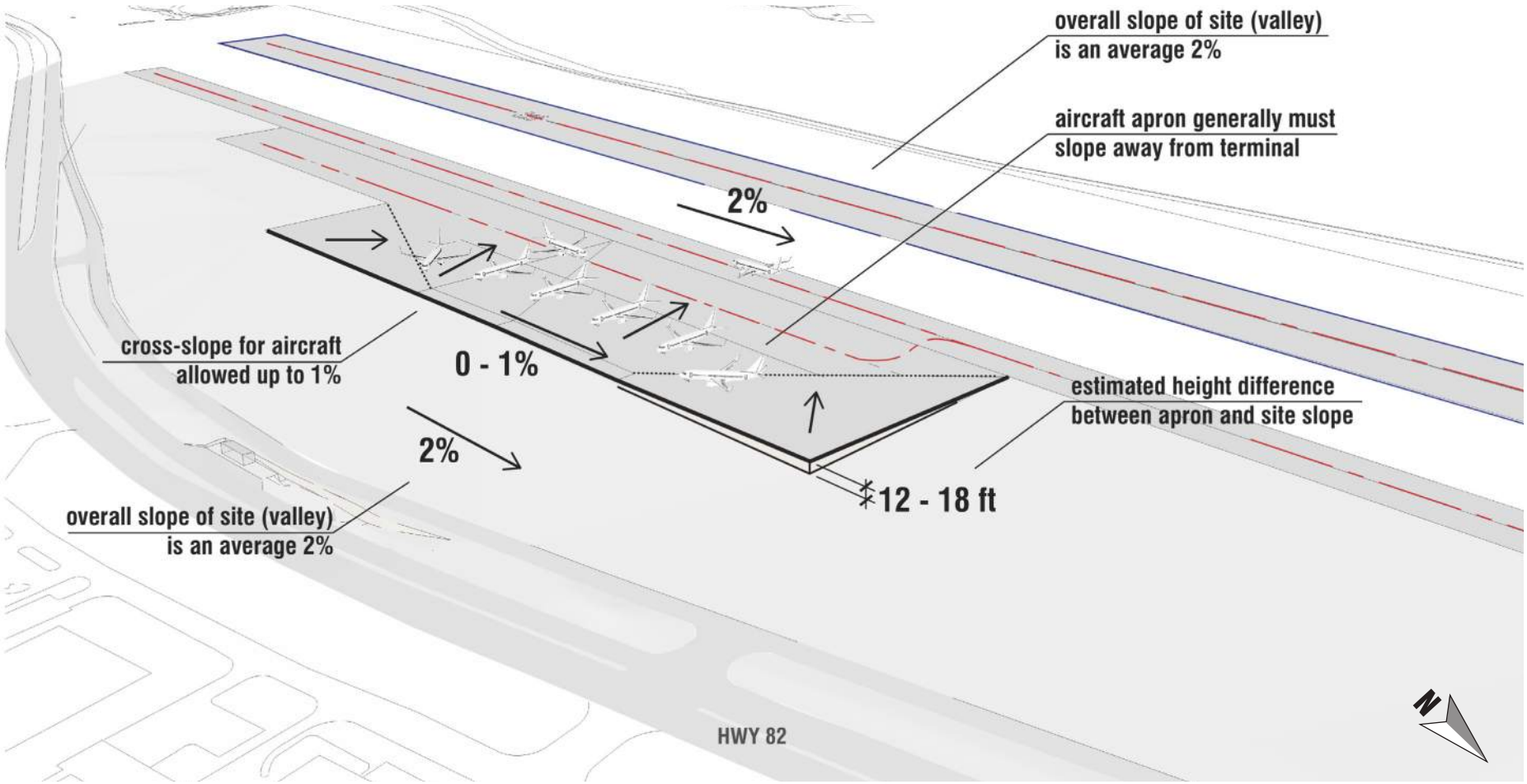
Layout Diagram - Plan of Proposed Commercial Terminal Area

**Based on Masterplan Update Aspen/Pitkin County Airport (12/2012)*

2 | What's Happened

Site Constraints

Impact of airfield and existing site slopes to terminal planning.

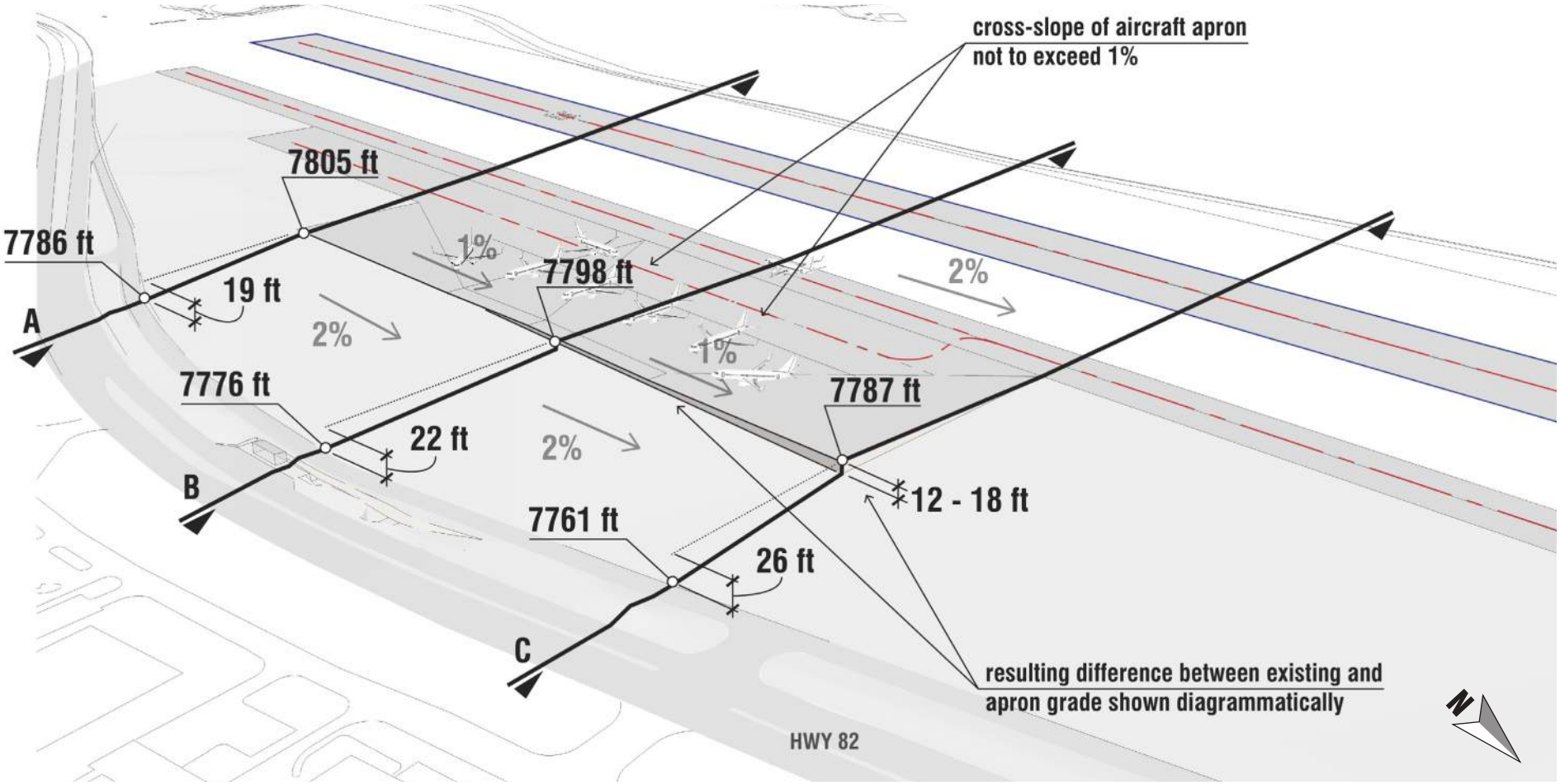


3D Diagram Aerial - Ground Slope Relationships

2 | What's Happened

Site Constraints

Site Sections along site show topographic contours and grade differences.



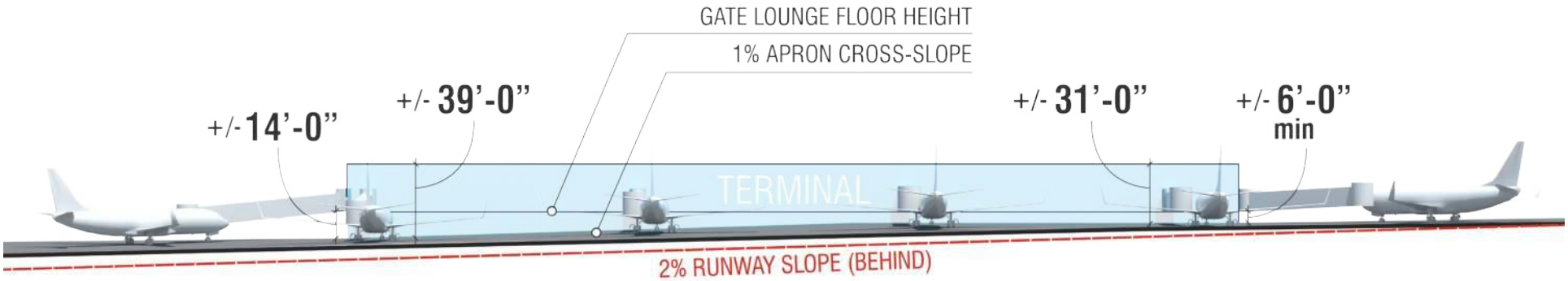
3D Diagram Aerial - Ground Slope Relationships

2 | What's Happened

Jet Bridges

Jet bridge alternatives have been evaluated against both the community goals and priorities established during the visioning session and the airport's operational objectives. It has been determined that the inclusion of jet bridges is counter to the community goals and priorities and not required to maintain safe and efficient operations.

Pros	Cons
• Separated passenger and ground crew operations • Less risk of passenger injury during bad weather events	• More Expensive • Obstructed views from departure lounges • Significant exterior visual presence • No "outdoor arrival experience" • No "small town feel" • Less flexible aircraft loading • Taller building



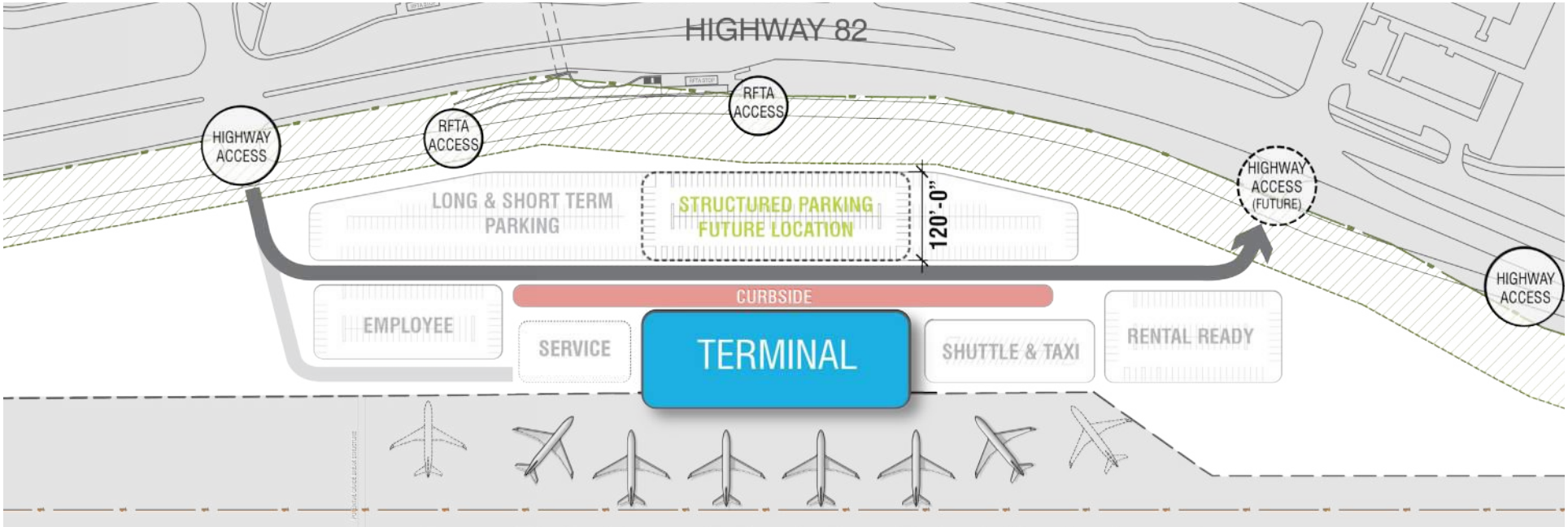
Conceptual Terminal Elevation with Jet Bridges **Based on Masterplan Update Aspen/Pitkin County Airport (12/2012)*

Structured Parking

The financial plan associated with the EA does not currently include structured parking or multi-modal transit as a near-term project. It is important to conceptually study any given terminal concept's compatibility with future structured parking (see below) as a means to "future-proof" the project.

The parking count total is shown as two targets (see right). This is because there is an opportunity to move rental storage off-site and allow more screening and vegetation at the terminal.

parking count target	(existing)
short term	115
long term	155
employee	69
rental car ready	58
rental car storage	265
commercial	0
total	662
total *(off-site rental car storage alternative)*	397

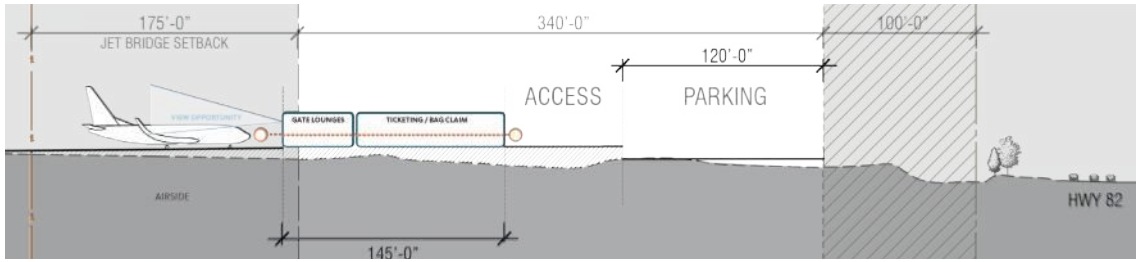


Structured Parking Future Location Diagram

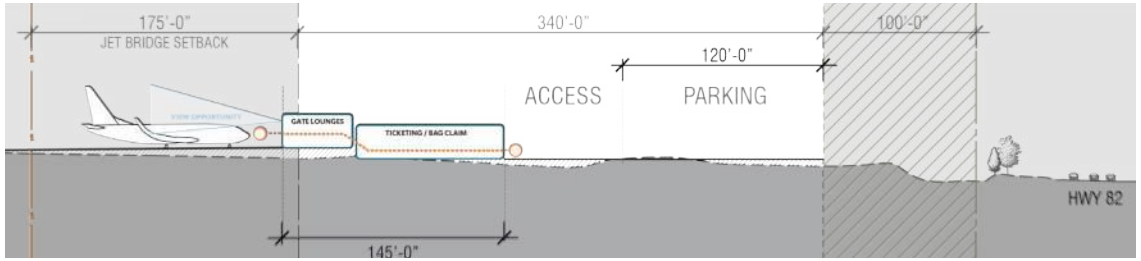
3 | Terminal & Site Concepts

Building Concepts Matrix

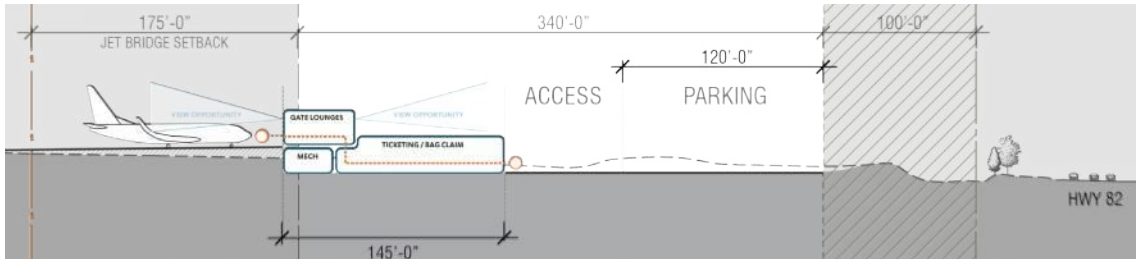
Building Concept 1
"Single Story"



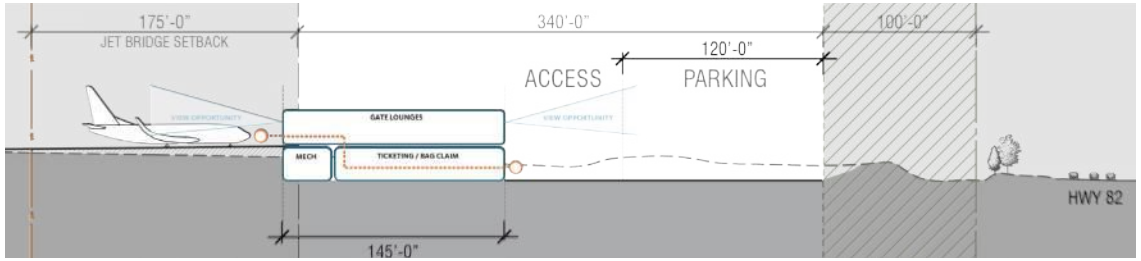
Building Concept 2
"Split Level"



Building Concept 3
"Nested"



Building Concept 4
"2-Story"

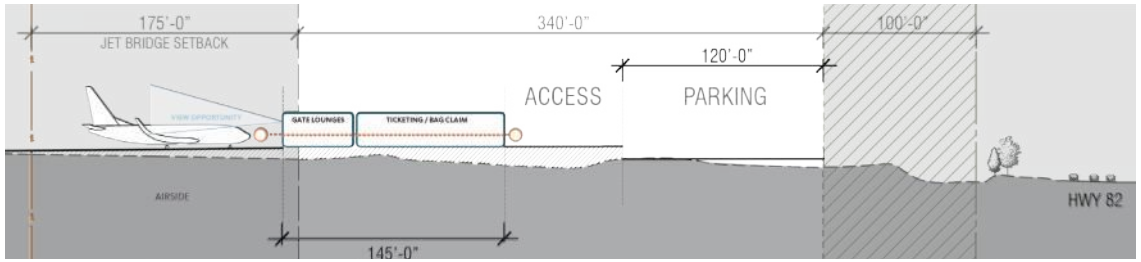


3 | Terminal & Site Concepts

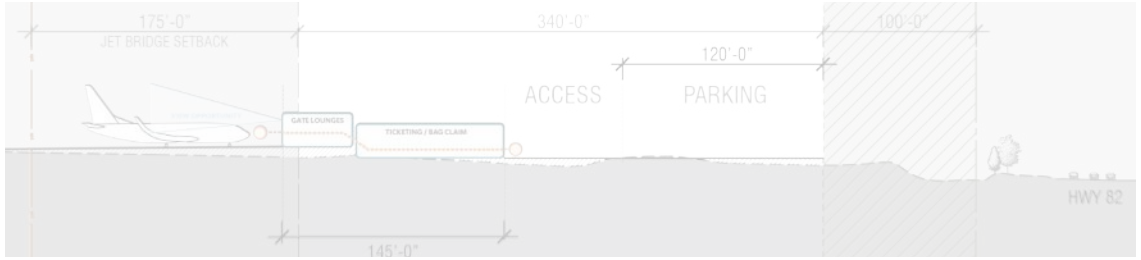
Building Concepts Matrix

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

Building Concept 1
"Single Story"



Building Concept 2
"Split Level"



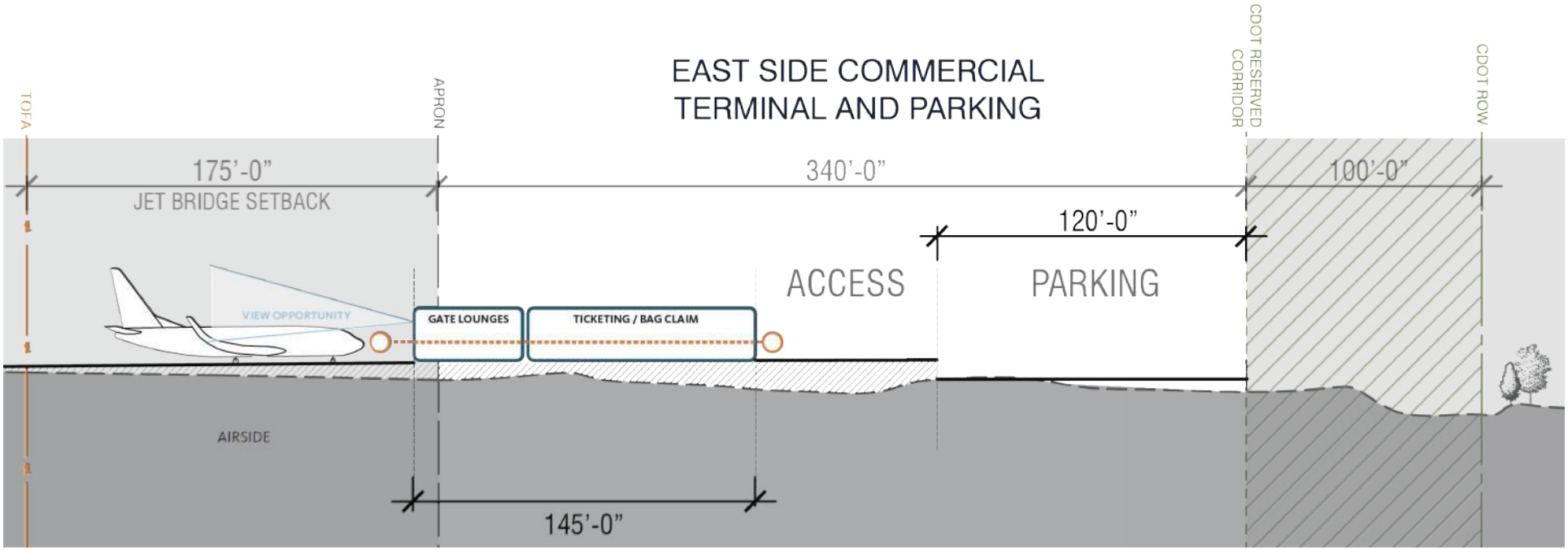
Building Concept 3
"Nested"

Building Concept 4
"2-Story"

3 | Terminal & Site Concepts

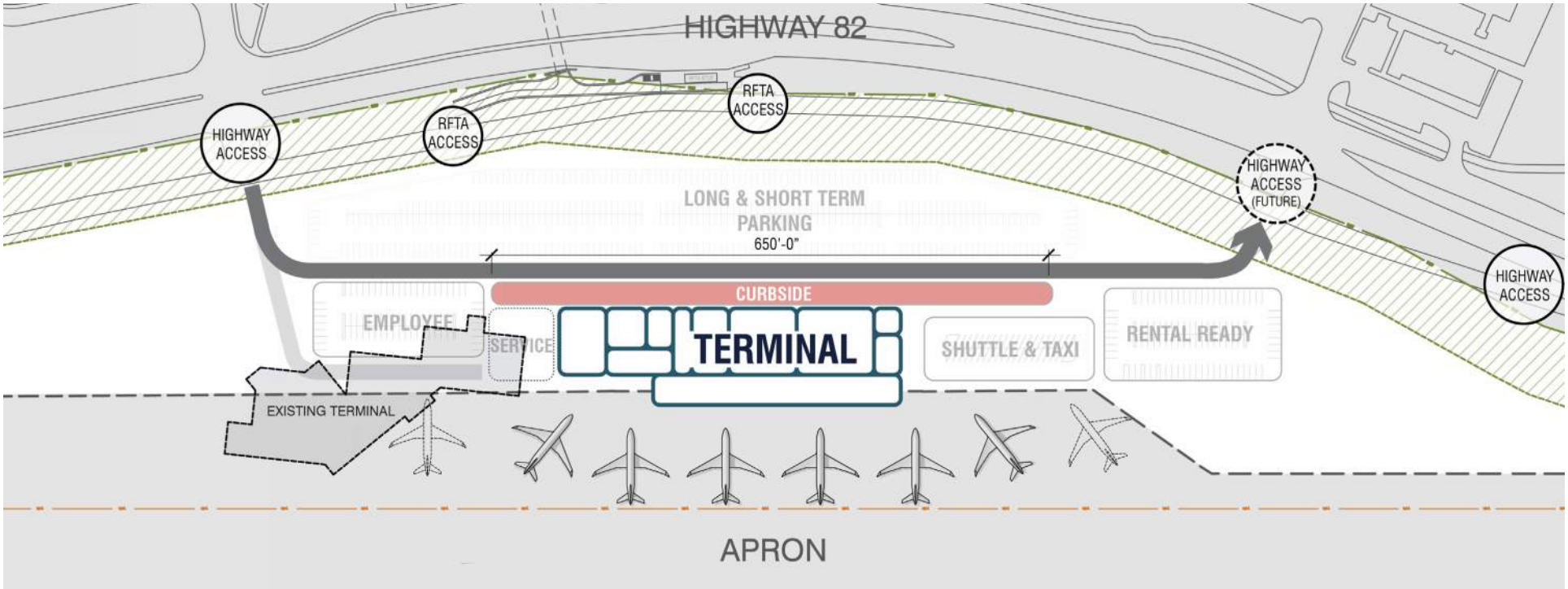
Building Concept 1 "Single Story"

Pros:	*Cons:*
• *Gate Lounge finish floor same elevation as aircraft apron grade* • *All program on single level*	• *Large building footprint in north / south direction* • *Large grade transition required between Terminal curbside and HWY 82*



3 | Terminal & Site Concepts

Building Concept 1 “Single Level”

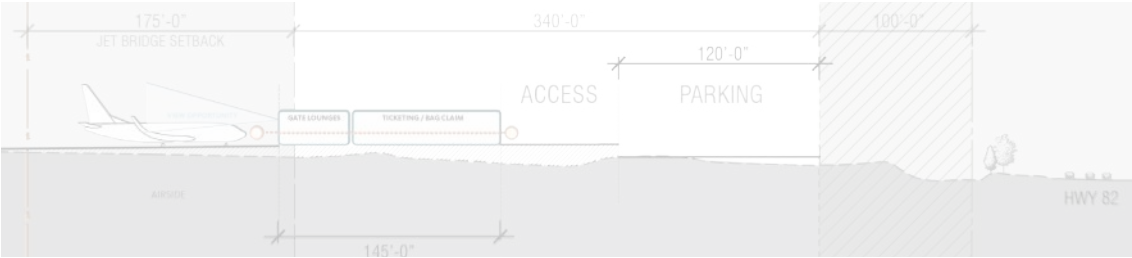


Site Plan

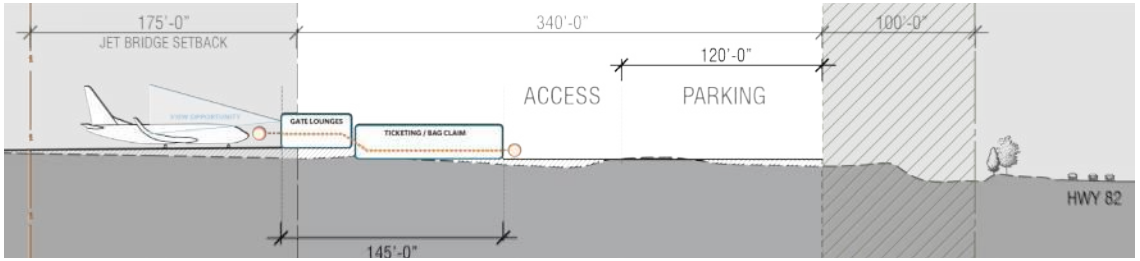
3 | Terminal & Site Concepts

Building Concepts Matrix

Building Concept 1
"Single Story"



Building Concept 2
"Split Level"



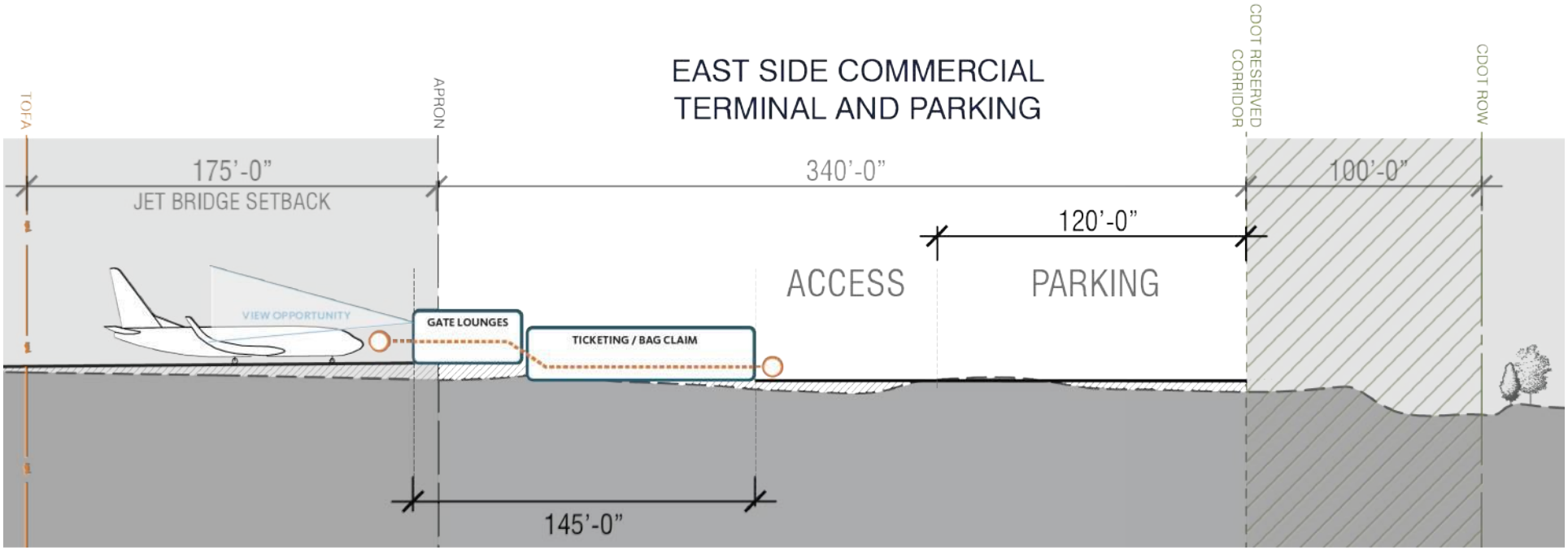
Building Concept 3
"Nested"

Building Concept 4
"2-Story"

3 | Terminal & Site Concepts

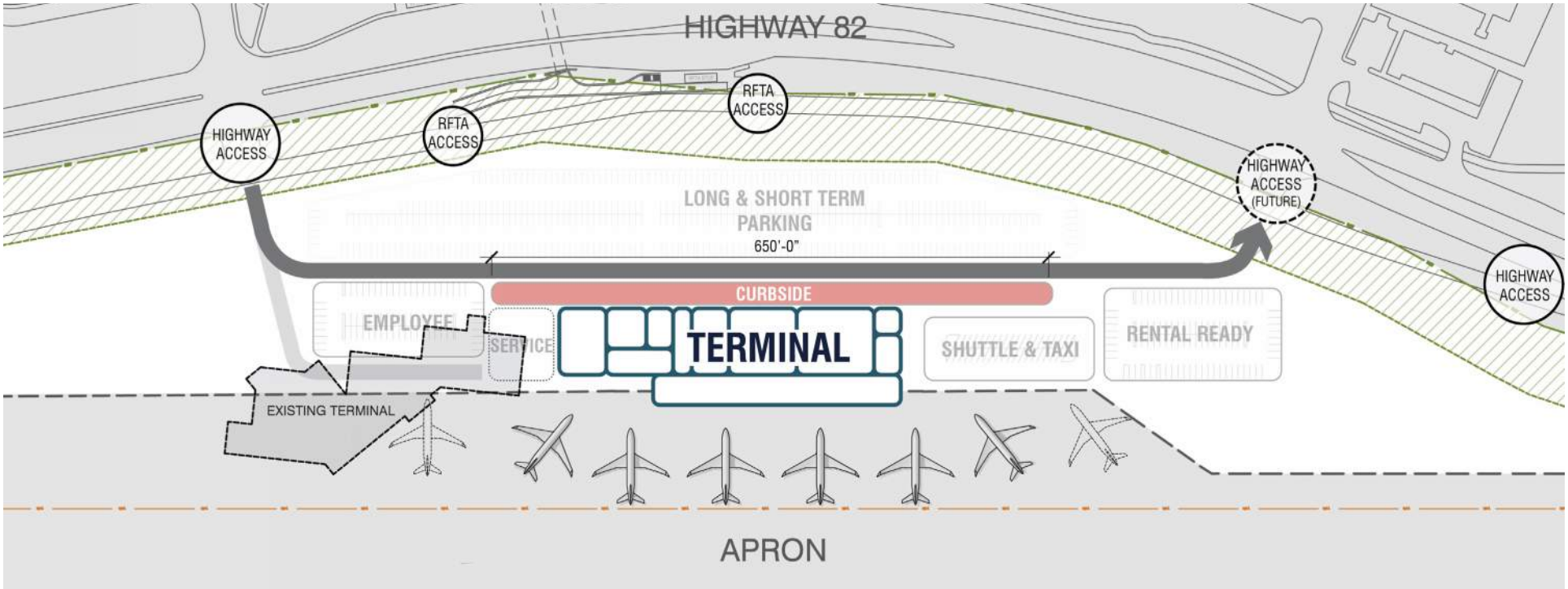
Building Concept 2 “Split Level”

Pros:	*Cons:*
• *Gate Lounge finish floor same elevation as aircraft apron grade* • *Finish floor split helps mitigate grade difference between air- and landside*	• *Large building footprint in north / south direction* • *Medium grade transition required between Terminal curbside and HWY 82* • *Stair / Escalator / Elevator required on building interior*



3 | Terminal & Site Concepts

Building Concept 2 “Split Level”

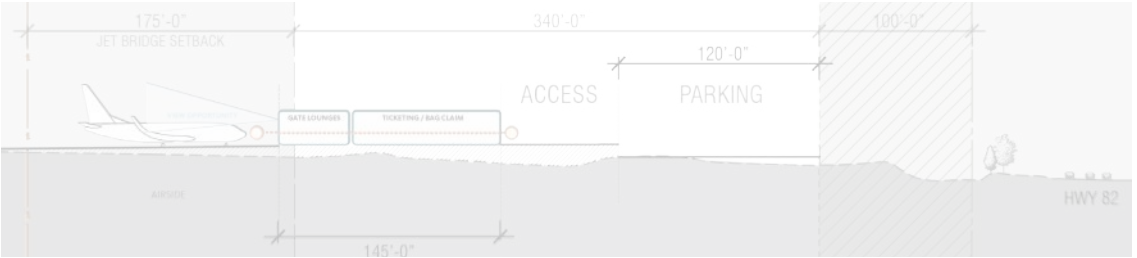


Site Plan

3 | Terminal & Site Concepts

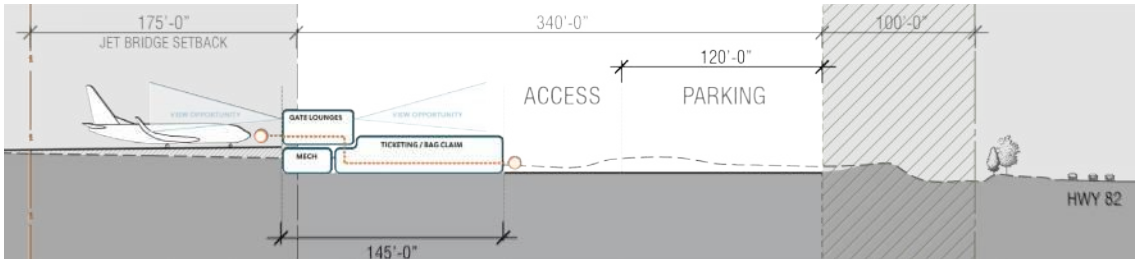
Building Concepts Matrix

Building Concept 1
"Single Story"



Building Concept 2
"Split Level"

Building Concept 3
"Nested"

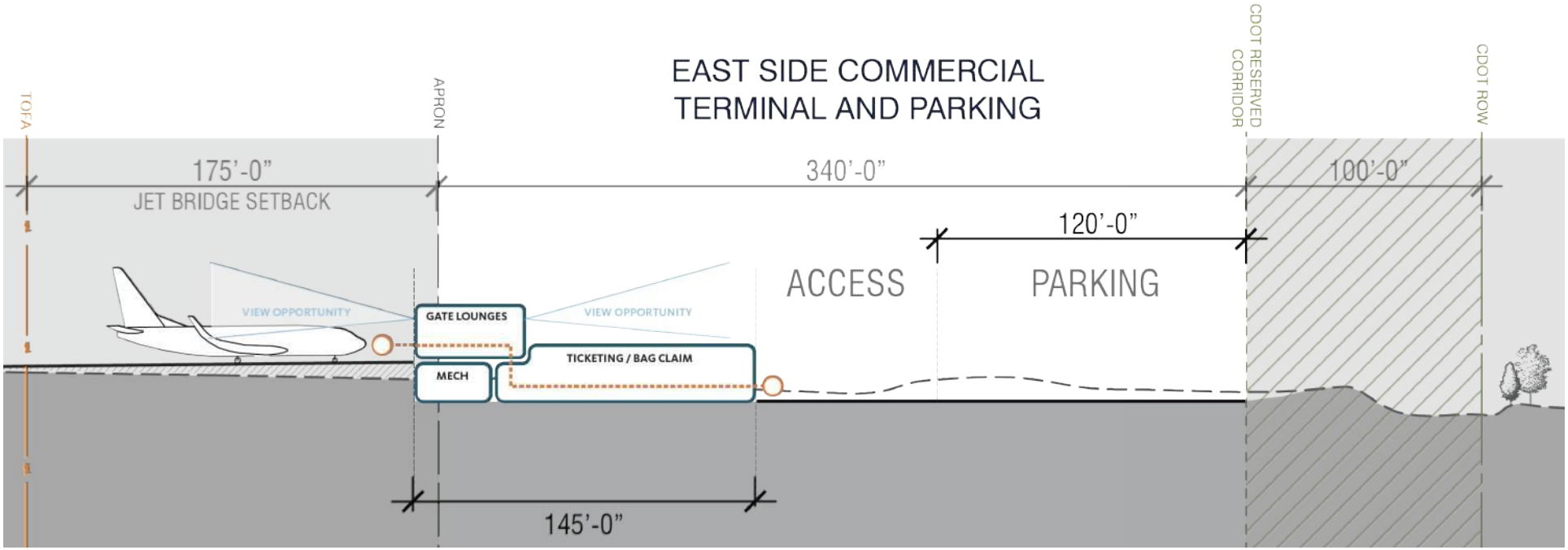


Building Concept 4
"2-Story"

3 | Terminal & Site Concepts

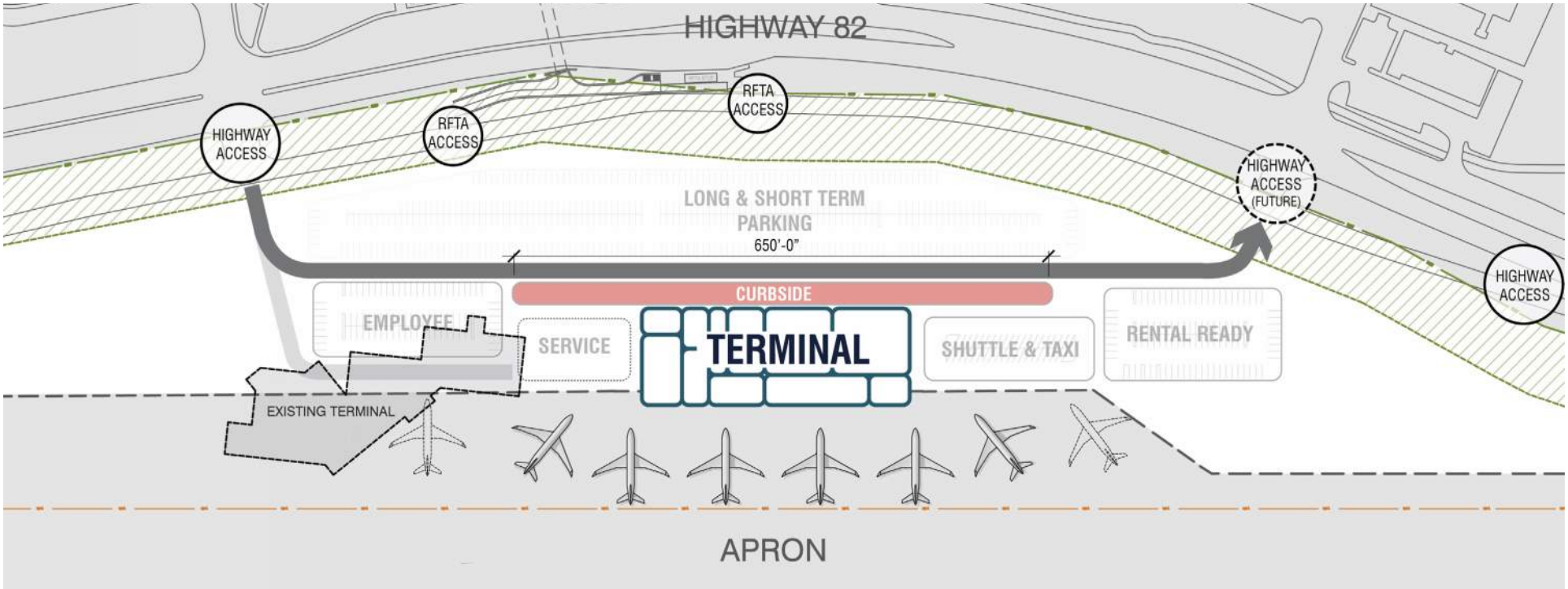
Building Concept 3 “Nested”

Pros:	*Cons:*
• *Gate Lounge finish floor same elevation as aircraft apron grade* • *Curbside at (or close to) HWY 82 grade* • *Reduced overall building footprint* • *Overall building mass is visually reduced* • *Better integration with future structured parking*	• *Stair / Escalator / Elevator required on building interior*



3 | Terminal & Site Concepts

Building Concept 3 “Nested”

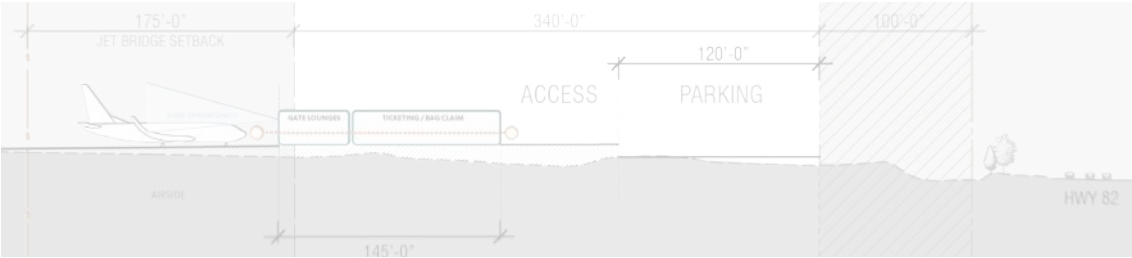


Site Plan

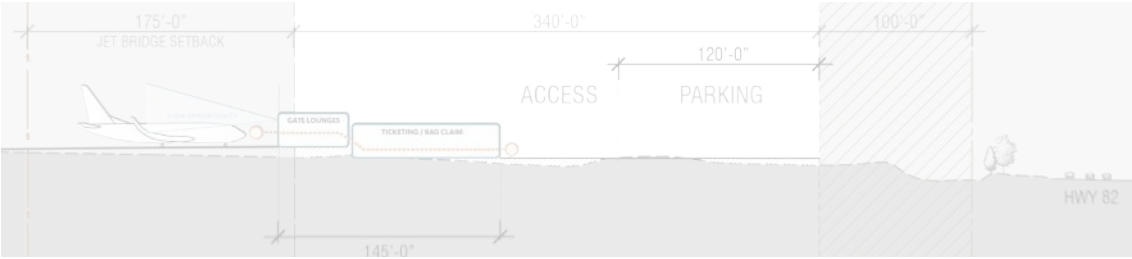
3 | Terminal & Site Concepts

Building Concepts Matrix

Building Concept 1
"Single Story"

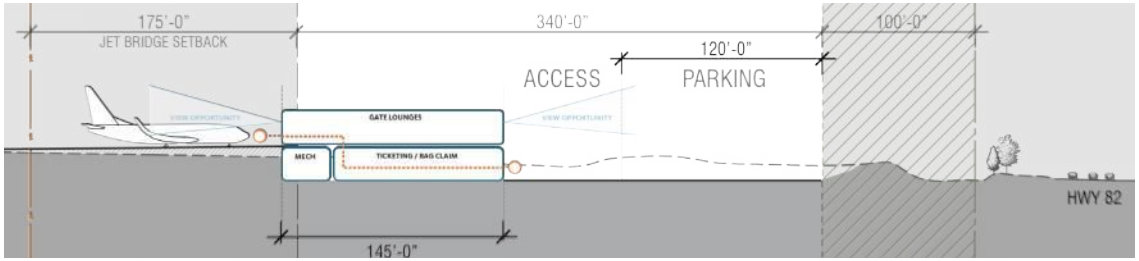


Building Concept 2
"Split Level"



Building Concept 3
"Nested"

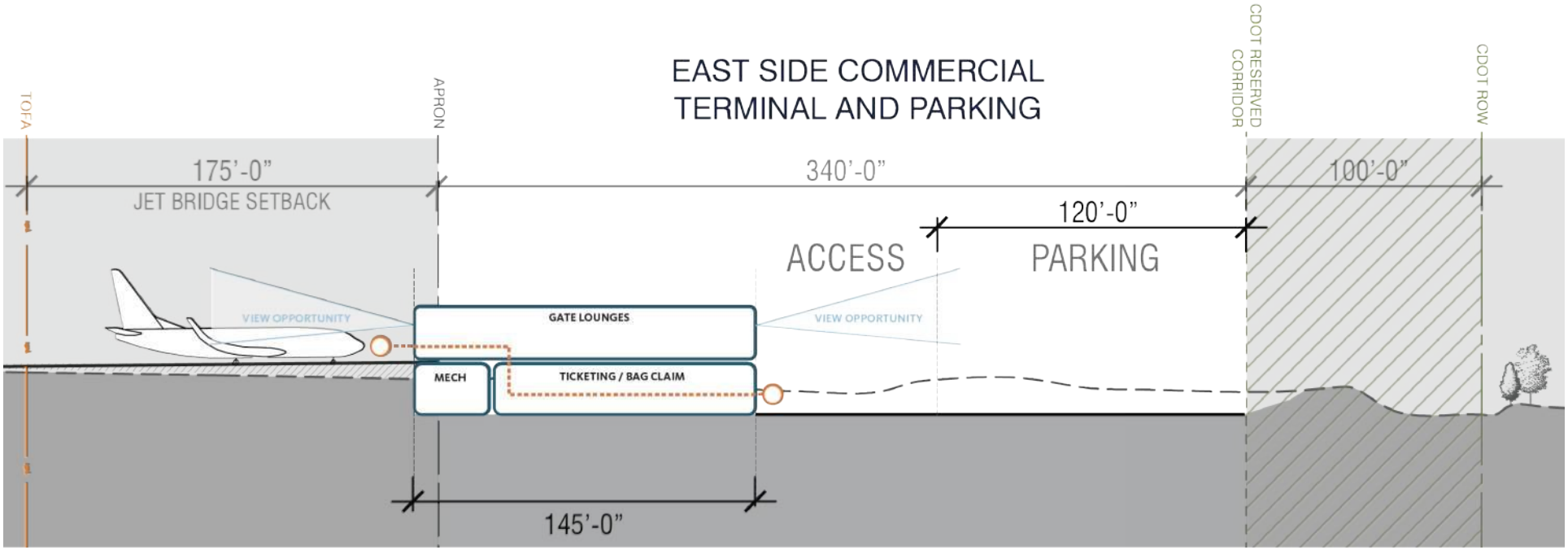
Building Concept 4
"2-Story"



3 | Terminal & Site Concepts

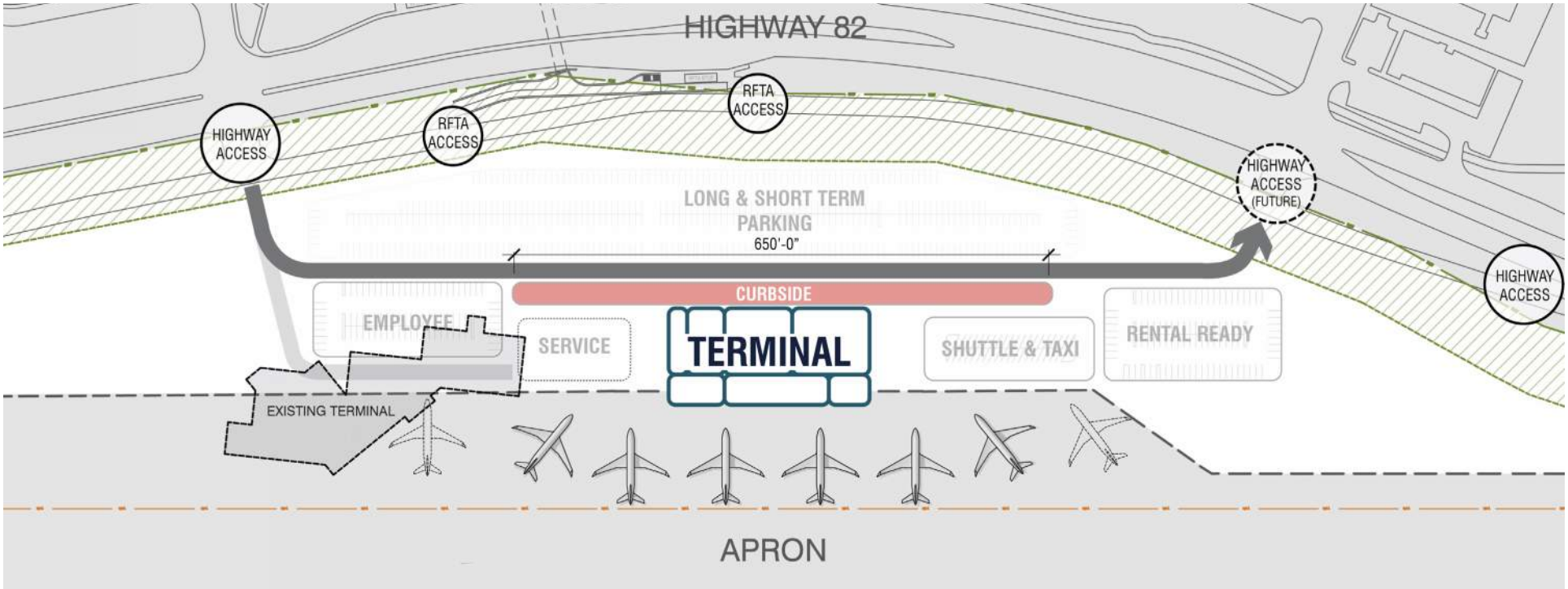
Building Concept 4 “2-Story”

Pros:	*Cons:*
• *Gate lounge finish floor same elevation as aircraft apron grade* • *Curbside at (or close to) HWY 82 grade* • *Smallest overall building footprint*	• *Stair / Escalator / Elevator required on building interior* • *Largest perceived building mass*



3 | Terminal & Site Concepts

Building Concept 4 “2-Story”



Site Plan

4 | Workshop Outcome

4 | Workshop Outcome

Community Input Process

The scorecard (see below) assessed community (CIC & Public) opinion on how well each concept met community goals and priorities established during the visioning session and the airport's operational objective.

Workshop Building Concepts

Scorecard

Input Guide:

The following input matrix covers the (4) concepts as they relate to the general themes discussed in the visioning session. During the workshop, please use this scorecard as a tool to discuss and evaluate potential benefits by giving each concept a number score in the below categories. Tally up the total in each column at the bottom when finished.

Rating System:

Great! = 5
Good = 4
Acceptable = 3
Marginal = 2
Unacceptable = 1

	Concept 1 "Single Story"	Concept 2 "Split Level"	Concept 3 "Nested"	Concept 4 "2-Story"
A Good Neighbor				
Operational Efficiency				
Passenger Experience				
View of the Outdoors				
Inside/Outside Spaces				
Ground Transportation and Accessibility				
Total				

October 2015

Workshop Building Concepts

Comments?

Please write any additional comments / thoughts / concerns below.
Thank you!

October 2015

4 | Workshop Outcome

Community Input Outcome

The comments from the CIC Workshop and Public Open House had overlapping themes, which are summarized / paraphrased below.

"Build to meet our needs"

- *Small-town feel of back-in parking works great already, keep it*
- *Make terminal big enough to serve our needs but not an architectural monument*

"Terminal should be integrated into landscape"

- *Roof gardens and outdoor spaces are exciting ideas for passengers!*
- *Keep beauty of surroundings, keep building as low as possible*
- *Views of roof are important for nearby residents, roof gardens!*

"Parking"

- *Structured parking is needed for capacity, convenience and accessible (ADA) use (general sentiment, with some opposite opinions)*

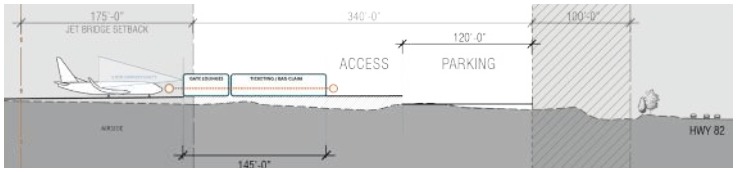
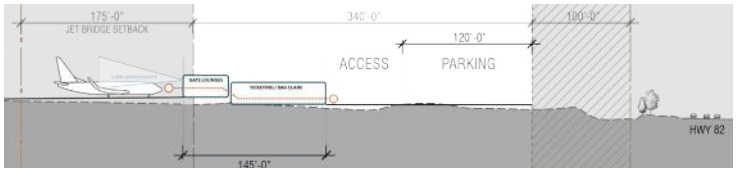
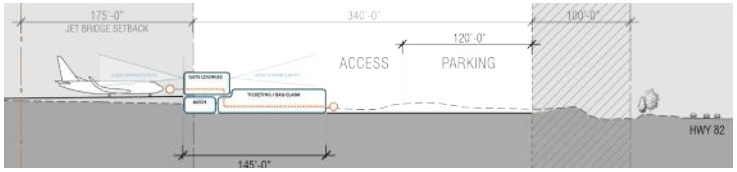
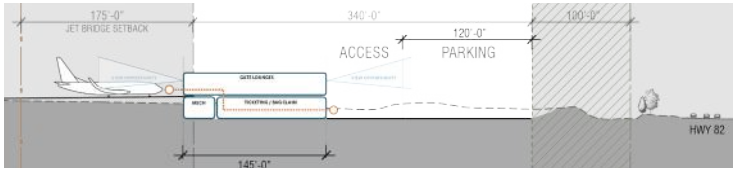
"Connection to RFTA"

- *The Airport needs to promote use of public transportation as much as they can*

4 | Workshop Outcome

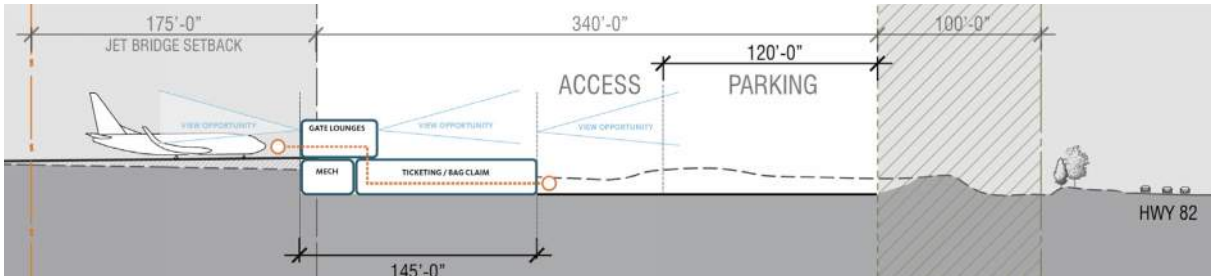
Community Input Outcome

Upon tallying and averaging the "scores" of the concepts, Concept 3 was the clear top choice with Concepts 2 and 4 sharing positions as alternate choice.

Building Concept Tally	CIC	PUBLIC	PITKIN CONNECT
Building Concept 1 **"Single Story"** 	**13.7**	**10.7**	**17.8**
Building Concept 2 **"Split Level"** 	**15.9**	**12.7**	**18.5**
Building Concept 3 **"Nested"** 	**26★**	**21.6★**	**22.8★**
Building Concept 4 **"2-Story"** 	**20.7**	**14.5**	**18.3**

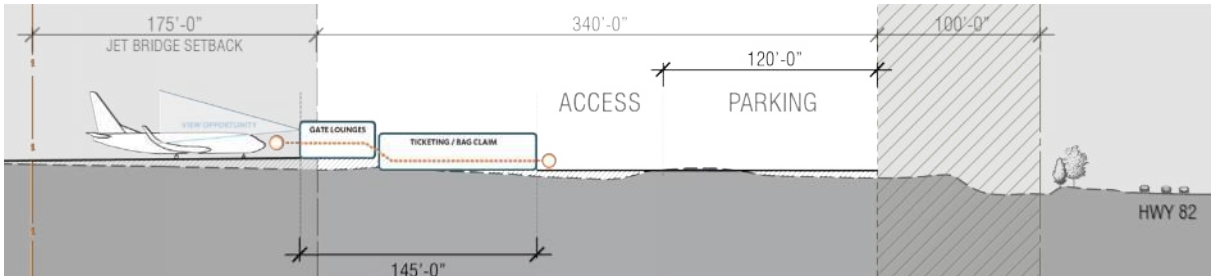
Recommendation #1 Concept 3/4 Hybrid

- *"Setback" appearance to minimize visual impact (Concept 3)*
- *Stack levels flat to allow for future expansion (Concept 4)*



Recommendation #2 Concept 2

- *All functions on a single level*
- *Split-level provides some grade mitigation opportunity*



Thank You

Environmental Assessment

Scoping Comments Summary

BOCC Presentation

April 2016

ASPEN/PITKIN COUNTY AIRPORT
IMPROVEMENTS
ENVIRONMENTAL ASSESSMENT

ASPEN/PITKIN COUNTY AIRPORT
OWNED AND OPERATED BY PITKIN COUNTY