United States Department of Agriculture
Forest Service
Pacific Northwest Region

North Cascades Smokejumper Base

Preliminary Project Analysis
Base Location Alternatives

June 2017

Prepared by:

NORTHSTAR
TECHNOLOGY CORPORATION

Contents

Signature Page

Recommended By: _____

Forest Engineer – Okanogan-Wenatchee NF Date

Approved By: _____

Forest Supervisor – Okanogan-Wenatchee NF Date

Reviewed By: _____

Regional Facilities Engineer Date

Recommended By: _____

Regional Director of Engineering Date

Recommended By: _____

Regional Director of Fire Date

Recommended By: _____

Regional Director of Budget Date

Recommended By: _____

Regional Director of Acquisition Management Date

Approved By: _____

Regional Forester Date

Executive Summary

The US Forest Service contracted a thorough, independent Preliminary Project Analysis (PPA) to recommend the best location for the existing North Cascades Smokejumper Base (NCSB) currently at the Methow Valley Airport between Twisp and Winthrop, WA. The NCSB has been at this site since 1940 and is considered the birthplace of smoke jumping. The NCSB is one of 7 bases in the US Forest Service smokejumper program and the only base in Washington.

This analysis is precipitated by the need to move three buildings (office, paraloft, and saw shack) currently within the Object Free Area (OFA). The buildings are allowed under a waiver but jeopardize future federal funding for the airport. Ninety percent of the airport funding is federal and 10 percent is from the State. Loss of the federal funding would have a significant negative impact on the State's ability to maintain the airport.

Three sites were evaluated including the current base, Pangborn Memorial Airport at Wenatchee, WA, and the Yakima Air Terminal-McAllister Field at Yakima, WA. The Wenatchee airport offered a build-to-suit facility for lease back to the USFS. The Yakima airport offered a land lease for USFS building construction and a private building owner has an existing, modern 17,000 SF building for lease to the USFS at a very reasonable rate.

The evaluation was based on the following criteria (factors): 1) Fire Occurrences and Response Time, 2) Implementation Time and Cost, 3) Socio-Economic Impacts to Community and Employees, 4) Training and Proficiency Jump Cycle Time, and 5) Proximity for Coordination with the Rappel Base. The consultants used Choosing by Advantages (CBA) to compare alternatives.

Recommended Alternative

The analysis indicates there are two alternatives almost equal in measure, with the Methow Valley location having a slight advantage over the Wenatchee location. The advantage is largely attributed to the significant socio-economic impact of moving jobs from the smaller communities of Winthrop and Twisp. The Yakima location is a distant third and not recommended for further consideration.

Staying at the current location is predicated on obtaining an estimated $5.2 million in construction funds in the next 2 to 3 years (see page 5 for possible lower cost options).

Recommended Alternative if Capital Funding is Not Available

If funding cannot be obtained within a 2 to 3 year period, the team recommends the Wenatchee "build-to-suit" and lease alternative as the next viable alternative. The airport proposed a two-year construction timeline with a lease at competitive rates. This location provides effective coverage of fire starts, shared common space, training facilities and shared positions with the Rappel Base. The site provides for future growth and technology development.

Lower Cost Options and Phased Construction Approach at Methow Valley

The $5.2 million estimate is based on the architects estimate from the previous PPA conducted by Design West Architects in April 2015 for a new 12,000 SF building located near the southern border of the property. This cost is based on conventional construction such as wood framing and concrete block construction. It includes demolition of buildings in the Object Free Area (OFA), aircraft taxiway and ramp improvements and adjustment for inflation.

Option 1 - Steel Building with Mezzanine

Funding of a $5.2 million project is very unlikely given the severe shortage of construction funds nationally. A steel building alternative was developed in response to the Region's request to consider a phased approach with approximately $300,000 to $500,000 increments per year. The current PPA team recommends a scaled down, phased approach to the project which could cut construction costs substantially. This option would utilize a pre-engineered insulated metal building with an 18-foot wall height to allow for a mezzanine in half the building, the building foot print could be reduced from 12,000 SF to 8,000 SF. This alternative is estimated at $2.8 million and could be accomplished in several phases (see page 34 for steel bldg. shell estimate)

Phase 1: Design/R6 Oversite/COR	$253,000
Phase 2: Site Development and Utilities (from 2015 PPA)	$324,000
Phase 3: Slab & Metal Building Shell Construction 8000 SF @ $25/SF (page 34)	$300,000
Phase 4: Elect/Plumb/Mech, Interior Build Out* (from 2015 PPA)	$540,000
Phase 5: Green Globes Certification & Demo of Buildings in OFA	$131,000
Phase 6: Taxiway/ramp Improvements (based on recent Redmond project)	$1,000,000
	$2,548,000
10% contingency	$254,800
*Build out cost could be reduced with Job Corps assistance	**$2,802,800**

Option 2 - Addition to the Existing Warehouse

Construct an 80' x 80' two-story steel building addition to the existing warehouse, replace the siding and roofing on the existing warehouse to match the new addition and install insulation under the new siding and roofing (see the yellow figure on the site plan on sheet 12). The steel clear span framework is still in good condition. This building is 350 feet from the runway centerline which may require a parachute well to be excavated to offset the maximum height requirement for the paraloft from the runway. The Forest Service is in the process of switching to shorter parachutes which take up more room laterally but less room vertically and the area needed is estimated at 30 feet square by 30 feet in height. This alternative is roughly estimated at $1.2 million and could be phased like the new building option above. With the addition of the taxiway and ramp improvements, the total is estimated at **$2.2 million**. This option would minimize site development costs and would be quicker to implement.

Background

The North Cascades Smokejumper Base (NCSB) is currently located in the Methow Valley near Winthrop, Washington within the boundaries of the Okanogan-Wenatchee National Forest. The base utilizes the Methow Valley Airport operated by the state of Washington, Department of Transportation-Aviation Division. The current base is located on approximately 19 acres of US Forest Service (USFS) land adjacent to the airport. The base was established at this site in 1940 after experimental jumps were made there in 1939 and is considered the birth place of smoke jumping. Three of the buildings – the office (1963), the paraloft building (1949), and the saw shop (1951) – fall within the Object Free Area (OFA) of the airport which is nonconforming as defined by the 2010 Airport Layout Plan. This condition does not comply with Federal Aviation Administration (FAA) standards and jeopardizes federal funding for the airport.

The airport is the only federally funded facility under the management of the State of Washington Department of Transportation, Aviation Division. According to Paul Wolf, State Airports Manager, this is considered the highest priority airport out of the 16 airports managed by the State. The priority for the airport is Emergency Management Staging such as wildland fire response or catastrophic emergency response. Mr. Wolf indicated that the Forest Service operation is a significant factor in the airport receiving the highest ranking and support from the Federal Aviation Administration (FAA). The airport is included in the National Plan of Integrated Airport Systems (NPIAS). Participation in the NPIAS is limited to public use airports that meet specific FAA activity criteria.

The location of the buildings and the serviceability of the buildings have been a long-standing issue and various alternatives have been discussed to mitigate the problems. The necessity to remove the buildings from the OFA prompted USFS fire management officials to initiate an analysis to determine if there were other locations more suitable for future operations of the smoke jumper base. The Forest Service Facilities data base indicates the buildings at the NCSB have substantial deferred maintenance. For example, the paraloft built in 1949 is undersized, has a leaking roof, is not insulated and does not have adequate heating and cooling. The smoke jumpers move the sewing machines to the dining hall in winter weather. The office building built in 1963 is not energy efficient, has an inefficient layout, does not meet accessibility standards, and lacks storage space.

Moving the buildings from the OFA and relocating is not practical or cost effective. There is adequate space at the 19-acre site to construct new, modern and energy efficient facilities. Forest Service construction funds are extremely limited at the regional and national level.

Management identified three sites for this evaluation based on logical areas of coverage and historic fire occurrence data. The locations evaluated are the existing site at the Methow Valley Airport; Pangborn Memorial Airport in Wenatchee, WA; and the Yakima Air Terminal – McAllister Field in Yakima, WA.

This contract for a Preliminary Project Analysis (PPA) will provide a recommendation for the most suitable location for the smokejumper base to support the mission of the USFS smokejumper program. Prior to this PPA, the Forest Service sent a Request for Information (RFI) to each airport asking them to provide specific answers to questions related to interest

and availability of land and buildings for a smokejumper base, general airport operations, home ownership and rental costs, and cost of living and unemployment rates for their airport and community. See the individual RFI responses in the section of this report titled, "Documents Reviewed and Reference Materials.

Analysis Process

This Preliminary Project Analysis (PPA) was completed by independent contract consultants employed by NorthStar Technology Corporation (NST). The consultants have extensive experience in Forest Service engineering and facilities management. A subject matter expert with many years of experience in the USFS smokejumper program provided technical expertise.

After contract award, [redacted], Facility Engineering Management Consultants with NST participated in conference calls with Terrie Jarrell, Contracting Officers Representative (COR) and Aaron Schoolcraft, R6 Assistant Fire Director, Aviation. The purpose of the interactions was to review the contract deliverables, determine the project schedule and discuss the Choosing by Advantages analysis method.

The team of three consultants and the USFS subject matter expert began site visits of three potential smokejumper base locations on Monday, May 1, 2017 and continued through Wednesday, May 3, 2017. The group completed the draft analysis phase later that week.

The approach to this analysis involves the following steps:

1. An entrance briefing was conducted on the morning of May 1 with the Contracting Officers Representative, the Forest Service Regional Office Fire and Aviation Staff, the Forest Fire and Aviation Staff, and the Deputy Forest Supervisor for the Okanogan-Wenatchee NF. The briefing discussed the goals and objectives of the PPA. The three evaluation criteria for the project were clarified and a brief history of the current base was discussed. Written materials pertinent to the smoke jumper program and this evaluation including a 20-year history of fire occurrences for each potential site were provided to the contract consultants. The responses to the RFI from each airport were provided to the contract consultants prior to the meeting.

2. The team visited each potential smokejumper base location beginning with Pangborn Memorial Airport in Wenatchee, then the current base in the Methow Valley and finally the Yakima Air Terminal-McAllister Field in Yakima. At each site, the consultants met with airport personnel who discussed the potential area where a smokejumper base could be located and general options for buildings and financing. At the current base in the Methow Valley, the State Airports Manager discussed the operational issues with the current base and what steps could be taken to address the Object Free Area (OFA) issue and the schedule for future airport improvements. Photos were taken at all potential sites and site amenities were noted for all locations.

3. The evaluation was made using the Choosing-by-Advantages (CBA) methodology to determine the best-suited location for the smokejumper base. This method was used

because of its reliability for sound facility decisions and its history as a proven method for analyzing complex situations. The consultants used consensus to define evaluation factors, to measure attributes, to arrive at advantages for each alternative, to identify the importance of the advantages and a final ranking of the alternatives.

4. Each site was evaluated based on the same set of criteria including 1) fire occurrences and response times, 2) socio-economic impacts to the community and employees, 3) implementation time and costs, 4) training and proficiency jump cycle time, and 5) proximity for coordination with the USFS Rappel Base. All alternatives used the same requirements for operational facility needs. An implementation strategy and cost estimate were prepared for each alternative. A final recommendation was prepared once the CBA evaluation was complete.

5. This report contains the documentation of the process and recommendations. A presentation was prepared to display the results of the PPA to the Okanogan-Wenatchee Forest staff and R6 Fire and Aviation Management staff on June 2, 2017. Feedback from the presentation was incorporated into this report.

The PPA Team

NorthStar Technology Corporation

[redacted], Facilities Engineering Management Consultant, Team Leader
[redacted], Facilities Engineering Management Consultant
[redacted], Facilities Engineering Management Consultant

USFS Subject Matter Expert – [redacted], Smokejumper, Missoula, MT

Scope and Limits

Provide a Preliminary Project Analysis (PPA) with recommendations for the best suited location of the North Cascades Smokejumper Base to include a strategy for implementation of the preferred alternative. The analysis includes the three airport locations – the current smokejumper base at the Methow Valley Airport near Winthrop, WA, the Pangborn Memorial Airport in Wenatchee, WA, and the Yakima Air Terminal-McAllister Field in Yakima, WA. The option to sell the USFS property or an unused portion of the USFS property adjacent to the Methow Valley airport and then leasing back from the airport was also considered as a financial strategy by the contract consultants. This option may also eliminate any need for a Through-the-Fence* agreement between the USFS and the Airport.

**The FAA has defined Through-the-Fence (TTF) operations as those activities permitted by an airport sponsor through an agreement that permits access to the public landing area by independent entities or operators offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not part of, the airport property.*

The PPA shall comply with the requirements listed in Forest Service Handbook (FSH) 7309.11 (Building and Related Facilities Handbook), Forest Service Manual (FSM) 1200 (Section 1241 – Facility Location), FSH 1909 (Economic and Social Analysis), FSM 1971, FSM 7312 and any other applicable Agency directives regarding facility location.

The solicitation required the analysis to consider fire occurrences and response times, social and economic impacts of the base locations, and implementation time and costs. The contract consultants may add other evaluation factors as appropriate.

The project is to provide safe, modern and sustainable office and work space for a crew of 30 smokejumpers. The base location shall support the mission of the smokejumper program and capitalize on the efficiencies of the local airport operations.

Vicinity Map of Three Airport Locations

Description of Each Airport Location

Methow Valley Airport: The airport is the only federally funded facility under the management of the State of Washington Department of Transportation, Aviation Division. According to Paul Wolf, State Airports Manager, this is considered the highest priority airport out of the 16 airports managed by the State. The priority for the airport is Emergency Management Staging such as wildland fire response or catastrophic emergency response. Mr. Wolf indicated that the Forest Service operation is a significant factor in the airport receiving the highest ranking and support from the FAA. The State published an Airport Layout Plan in 2010 which is guiding future improvements at the airport. This plan is located at the following website: http://www.wsdot.wa.gov/aviation/AllStateAirports/WSDOTUpdatesMethowALP.htm

Methow Valley State Airport is included in the National Plan of Integrated Airport Systems (NPIAS). Participation in the NPIAS is limited to public use airports that meet specific FAA activity criteria. NPIAS airports are eligible to use federal funding for improvements through FAA programs such as the current Airport Improvement Program (AIP). The airport has scheduled repaving of the existing runway for this year or next and a security fencing project is planned to follow the paving project.

The airport is unmanned and currently does not have any commercial operations on the property. There is no fixed base operator, facility services or airport fueling facilities. The airport does have a "through-the-fence" agreement with a local fuel supplier and two local commercial operators for air services. The airport has recently completed improvements that include pilot controlled runway lighting systems, a pilot controlled rotating beacon, and a precision approach path indicator lighting system. The airport also provides an automated weather observing service that disseminates weather conditions via aviation radio and phone. Future improvements are outlined in the Airport Layout Plan including a terminal area. The airport is operated under FAA standards. The elevation of the airport is 1,706 feet.

The current base is located between two small communities – Twisp, WA with a population of about 1,200 and Winthrop, WA with a population of about 400. The area is very scenic and popular for tourists and visitors. Wildland fire is common in the area and the base serves as an asset for rapid initial attack as well as extended attack incidents. In addition, the smokejumper program provides a workforce for prescribed burns, hazardous fuels reduction, timber stand improvement, and other projects to support local interagency ecosystem management. The base employs 30 smokejumpers which is the 4th or 5th largest employer in the area.

The base occupies a portion of a 19-acre Forest Service administrative site adjacent to the airport and has been at this site since 1940. Three of the buildings – the office, paraloft building, and saw shop – fall within the Object Free Area (OFA) of the airport which is nonconforming as defined by Federal Aviation Administration (FAA) standards and the 2010 Airport Layout Plan. This condition jeopardizes federal funding for the airport. The location of the buildings in the OFA and the serviceability have been a long-standing issue and various alternatives have been discussed to mitigate the problems but no positive solutions have been settled on to date.

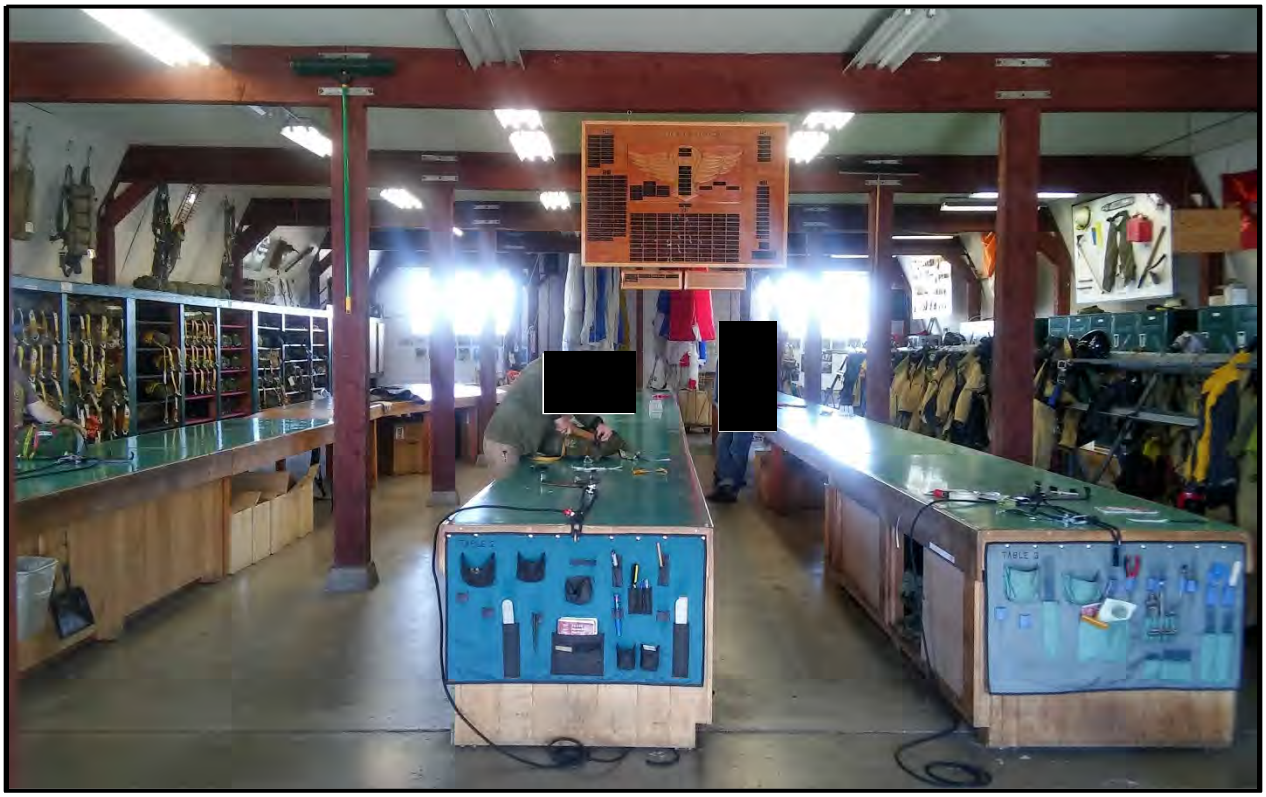
The current base infrastructure also includes a warehouse (1964), crew quarters (1950), mess hall (1963), shower and laundry building (1995), training building (1957), jump tower (1977), and two crew trailers (2005) with roof covers (1977). The USFS facilities database shows substantial deferred and annual maintenance for the site. The site utilities include a well source for potable water, septic systems, commercial power, internet and phone. The base is the duty station for 30 smokejumpers. It is one of 7 smokejumper bases in the U.S. and the only base in the state of Washington.

If another location is selected for the base, the buildings in the OFA will still need to be removed which will require funds for demolition (approximate $100,000).

Methow Valley Airport and North Cascades Smoke Jumper Base Site Plan

Office Building (to be removed from OFA)

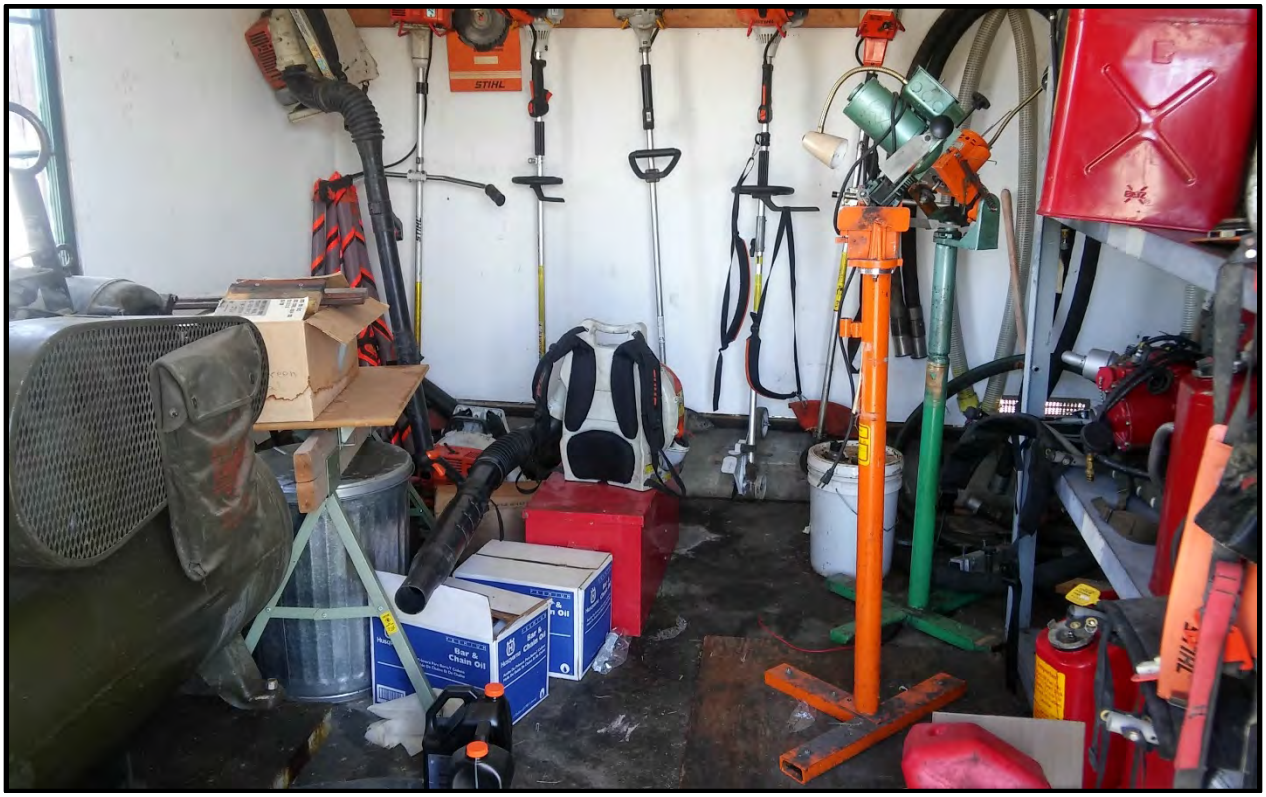
Paraloft Building (to be removed from OFA, white line on pavement is OFA boundary)



Paraloft Building – Lower Floor

Paraloft Building and Chute Well – Upper Floor

Saw Shack (to be removed from OFA)



Saw Shack - Interior

6000 SF Warehouse

Warehouse - Interior

Dining Hall and Meeting Room

Restroom and Shower Building

Bunkhouse

Bunkhouse Interior – 4-person room

Exercise Building

Exercise Building - Interior

Jump and Rappel Practice Tower

Methow Valley Proposed New Building Site

Pangborn Memorial Airport, Wenatchee, WA: The airport is owned and managed by the Port of Chelan County and the Port of Douglas County. The airport is located in East Wenatchee, WA approximately 15 aerial miles from the geographic center of Washington State. The airport has three sites ranging from 7.90 acres to 10.78 acres available for the smokejumper base. The airport is interested in providing existing building space (improved and enlarged) or a build-to-suit facility for the smokejumper base and leasing it to the USFS. The available sites can accommodate a 15,000-18,000 SF building, 50 parking spaces, 10,000 SF of lawn, a jump training tower, apron parking and private access to the airport complex. The lease cost for the facility is unknown but was estimated for the evaluation. The airport charges $0.27 per square foot for airport property and would also entertain a bare ground lease that the USFS could develop. The airport is willing to plan, design and construct a facility to meet USFS requirements in 12-18 months.

The airport has over 100,000 square feet of available ramp area and has the capacity to accommodate 14 air attack fixed wing aircraft and 6 or more rotor-winged aircraft simultaneously during peak periods. The airport owns and operates the Fixed Based Operator (FBO) for fueling selling both self-service and full service with volume discounts. The airport is always open with Alaska Airlines providing commercial service to Seattle 3 times a day. The airport is in the process of developing direct flights to San Francisco in early 2018. The paved runway is 7,000 feet long and is equipped with an Instrument Landing System and pilot controlled High Intensity Runway Lights. The elevation of the airport is 1,249 feet.

The airport has a general aviation terminal and Alpine Aviation provides aircraft maintenance and Rantz Air provides flight training and rentals. There are also several aviation specialty shops, the USFS Rappel Base and the Central WA Interagency Communications Center (Dispatch). The terminal also has a café and car rental agencies.

The population of Wenatchee and East Wenatchee is approximately 46,000. A few short-term housing rentals are available for under $500 per month. Several hotels/motels offer weekly rates starting at $300 per week. Longer term housing rentals average about $800 per month. The 2016 unemployment rate was about 6.4%. The cost of living index for 2016 was 93.8 with 100 being average. There are more than 15 hotels/motels in the area with two new motels slated for construction in 2017.

Wenatchee Pangborn Airport Site Plan with Proposed Development Sites

Site #1 Existing Airport Owned Building – Potential Lease – Near Dispatch and Rappel

Site #1 Interior of Building in Previous Photo

Airport Owned Hanger Adjacent/North of Site #1 - Leased to Fed Ex - May Be Available Soon

Wenatchee Building Site #2

Wenatchee Building Site #3

Wenatchee Building Site #3

Looking West from Site #3 to Separate Road Access Outside of Airport

Vacant Private Building Adjacent/North of Site #3 – May Be Available for Lease

Yakima Air Terminal-McAllister Field, Yakima, WA: The airport is a public airport 3 miles south of Yakima, WA. The airport is owned and managed by the City of Yakima. The airport has 3 sites available for a USFS smokejumper base. Two sites are undeveloped land. The airport authority does not wish to participate in a "build- to-suit" lease option. A third site owned by a private party has an existing 17,000 SF office and hangar building in nearly new condition. The owner of the building was amenable to leasing the facility to the USFS for $16,000 per month which includes a land fee of $0.18 per square foot. Tenant improvements, if needed, would be added to the lease. Both undeveloped sites appeared to have adequate land for a 15,000-18,000 SF smokejumper building, 50 parking spaces, a jump training tower, apron parking and private access to the airport complex.

The airport is used for general aviation and commercial air service. The airport has one Fixed Base Operator (FBO) apron that consists of 100,000 SF and two general aviation aprons that combined consist of 190,000 SF. The Yakima airport covers 825 acres at an elevation of 1,100 feet. There are two asphalt-paved runways: 7,604 feet in length and 3,835 feet in length. The long runway is equipped with a Precision Approach Instrument Landing System, which accommodates aircraft operations in adverse weather conditions. The Air Traffic Control Tower is operated under contract with the FAA and operates from 6:00 am until 10:00 pm daily. The airport has a variety of pilot services including an Automated Weather Observation System which provides critical weather information at the airport.

The airport is served by Alaska Airlines with 4 commercial flights daily to Seattle, WA and two non-scheduled carriers that provide charter service to Nevada. The airport has one full service FBO which provides hangar leasing, aircraft rental, flight instruction, car rental agencies and fuel at three locations around the field. The airport is also home to Cub Crafters, a manufacturer of light sport and light utility aircraft. Airport operations include air carrier, air taxi and commuter, general aviation, military and civil operations.

The population of Yakima is approximately 94,000. Short-term housing rentals average $650 per month. Several hotels/motels offer weekly rates starting at $350 per week. Longer-term housing rentals average about $1,050 per month. The 2016 unemployment rate was about 6.7%. The cost of living index for 2016 was 95.10. There are more than 2,500 hotels/motels rooms in the area.

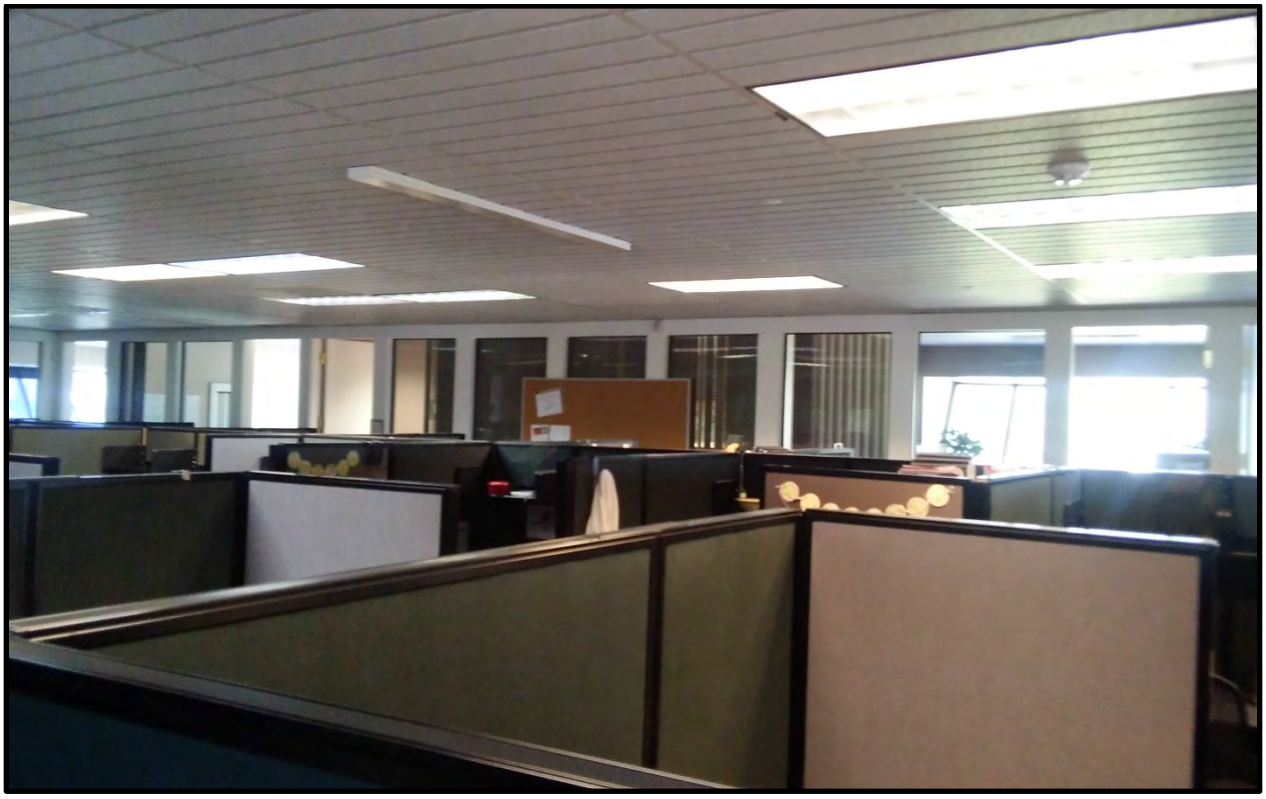
Yakima Air Terminal Site Plan with Proposed Development Sites and Private Building

Yakima Building Site #1

Yakima Building Site #2

Yakima Private Hanger and Office Space on Airport – Available for Lease

Yakima Private Hanger – Interior



Yakima Private Office Space

Yakima Private Office/Hanger – Kitchen and Break Area

PPA Team Observations and Assumptions

- The existing crew quarters at NCSB are deficient, unsafe and do not meet life/safety codes for sleeping quarters including adequate egress and a fire sprinkler system – it should be closed or replaced as soon as possible.

- The Methow Valley base serves several other agencies and entities such as the DNR, FEMA, FAA, NPS and other state and local emergency rescue groups. By developing a multi-agency partnership, funding may be easier to obtain if some of the other parties can contribute a portion of the funding. This will help the project be more competitive nationally - the State Airports Manager indicated the State considers the smokejumper base an important contributor to the long-term viability of the airport and will help facilitate meetings with other agencies if requested.

- The 19-acre site at Methow Valley is larger than needed for the base operation. If the base layout was redesigned and consolidated, a portion of the property could be sold to produce revenue for construction. This would take special legislation as the Forest Service conveyance authority has expired. Private investors would likely have interest in owning property adjacent to the airport, but this could add significantly to the project time-line.

- It may be possible to develop a partnership with the State at Methow Valley by transferring ownership of some of the land to the State in return for the State funding a new building and lease back to the Forest Service on a long term, renewable lease. The FAA and FEMA may be additional willing partners or at least supporters of this project. Initial discussions with State officials indicated they were only interested in leasing land but the idea of donating or furnishing land to the State in return for facilitating a lease was not discussed.

- The build out of interior space of the steel building option at Methow Valley could be completed by a combination of small contracts and the Job Corps construction program with engineering oversight for code compliance – electrical, plumbing and mechanical work would require licensed trades – during construction and demolition of the buildings in the Object Free Area. The existing metal warehouse could be used for all functions on a temporary basis and a modular office building could be leased for temporary office space. Purchase of a portable hazmat building is a better solution for the chain saw fuel storage function.

- The training tower at the existing base can be used for both smoke jumping and rappel training, the tower also has a run out area for static line training.

- Parking at the existing base needs a better layout for more efficient use of the site and to ensure safe entrance and exits.

- There are significant transverse cracks in the asphalt paving of the USFS portion of the taxi way at the existing base and this should be addressed as soon as possible – the State is resurfacing the runway in 2017 or 2018, cooperating with the State on this upcoming contract should result in considerable savings – cleaning and sealing transverse cracks could extend the life of the asphalt another 5 to 10 years – this is a relative inexpensive remedy and could be done under a separate small contract.
- The other buildings at the existing base have significant deferred maintenance needs and the paraloft and office lack adequate insulation, heating and cooling and energy efficient windows and doors.
- Public visitation to the existing base at Methow Valley Airport is about 5,000 visitors per year, the office is not accessible and the staff have had to assist persons with disabilities.
- The base at Methow Valley Airport does not have an adequate pilot lounge for rest and recuperation but does have area to construct such a facility.
- The Pangborn Memorial Airport Director offered the most enthusiastic and practical proposal for moving the smokejumper base to that location including a personal visit to the USFS Redmond smokejumper base to solicit input and ideas for developing an efficient, state of the art and cost-effective base at Wenatchee.
- The Yakima Air Terminal-McAllister Field in Yakima, WA is removed from the nearest National Forest land and would present more travel to find appropriate terrain for jump training.
- Building leasing and land leasing costs are less expensive at the Yakima Air Terminal than at the Wenatchee airport (land lease at Wenatchee 27 cents/SF, Yakima 18 cents/SF).
- All alternative airport sites evaluated contain IT connectivity and municipal utilities, except the Methow Valley airport, which has potable water from a USFS well source and septic systems for wastewater disposal.
- The smokejumper program is a national resource and the agency invests significantly in the training and retention of smokejumper personnel – inadequate facilities such as the bunkhouse at NCSB can negatively impact recruitment and retention.
- The availability of construction funds for new facilities in the Forest Service is extremely difficult to obtain given the current budget climate.
- Zoning and land use regulations would consider a smokejumper base as typical of airport operations and would be compatible at any of the three locations evaluated in this analysis.

Steel Building Budget Estimate
Iron Built Steel Buildings, Dallas, Texas
[redacted]
Salesperson - [redacted]
Date of Budget Estimate 6-1-17 to [redacted] by phone

8,000 SF pre-engineered metal building with 18 foot wall height
4,000 SF metal framed mezzanine
12,000 Total SF of floor space

Budget estimate based on a Government contract with Davis-Bacon wages, remoteness factor and current market conditions

Includes R-21 insulation in walls and ceiling, color siding

Site Prep, includes aggregate base	$10	SF	8000	=	$80,000
Reinforced Concrete Slab	$9	SF	8000	=	$72,000
Base metal building, choice of color	$10	SF	8000	=	$80,000
Add $2 SF for color roofing	$2	SF	8000	=	$16,000
Add $10,000 for 2 ea 14' doors	$5,000	EA	2	=	$10,000
Add $1.50 SF for R-38 in ceiling	$1.50	SF	9000	=	$13,500
Total				**=**	**$271,500**
Add 10% Contingency					$27,150
Total for insulated shell					**$298,650**
Round to $300,000					**$300,000**
Cost per SF for 12,000 SF Floor Space					**$25.00** **SF**

Evaluation Factors From USFS

Forest Service management provided three evaluation factors to the contract consultants. Two additional evaluation factors were developed by the consultants based on discussions with Forest Service fire personnel, visits to the airport sites and discussions with the subject matter expert assigned to this project. All evaluation factors are listed and defined below and were used to evaluate all alternatives.

- **Fire Occurrences and Response Time (Mission Critical)**

  Attribute Measurement is number of fire starts

  This empirical data was furnished by the fire organization at the start of the analysis.

  This factor was the total number of fire starts over the past twenty years recorded in a response circle of 127 nautical miles from each airport location. This data was provided by the USFS at the entrance briefing.

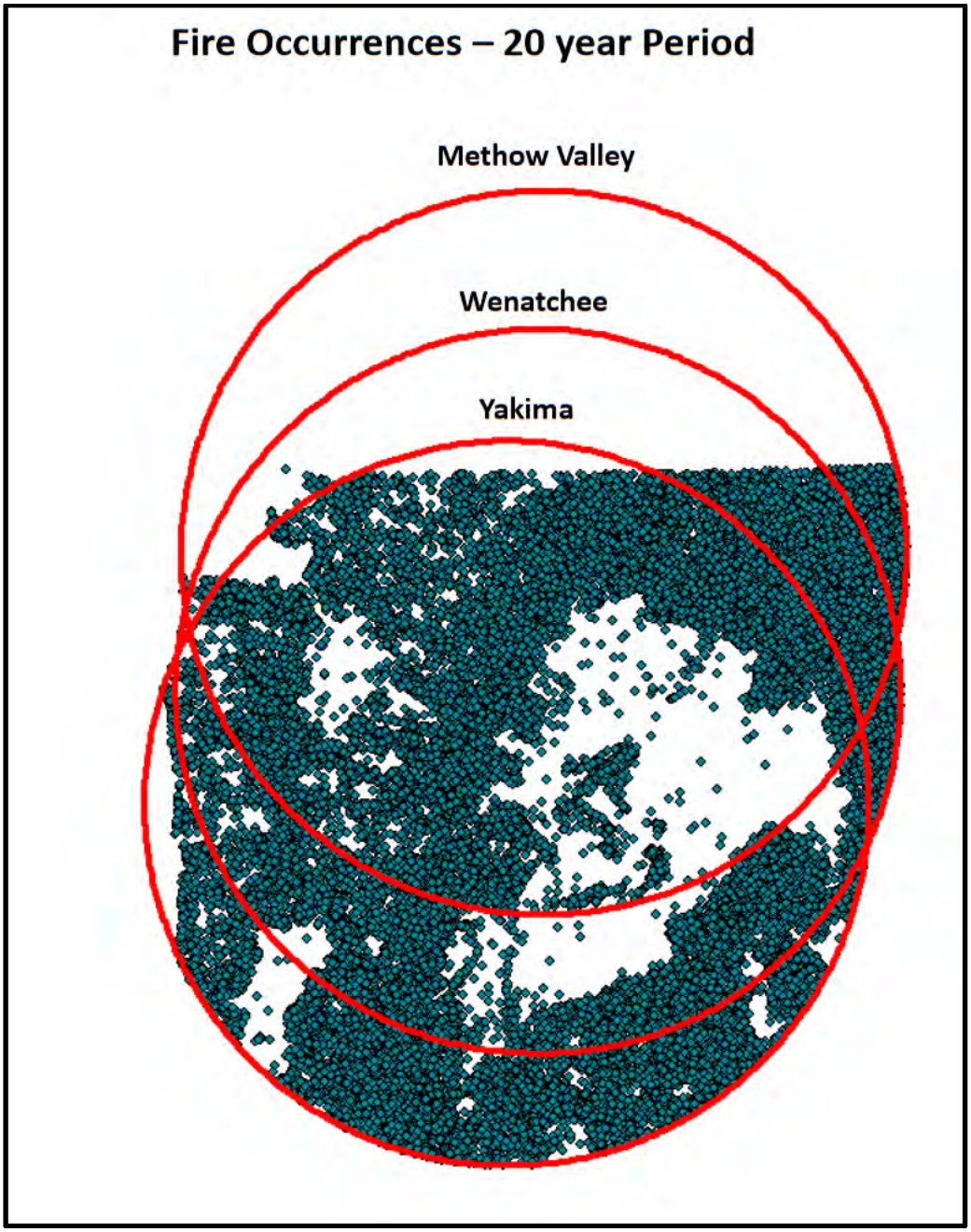
  Methow Valley Airport (NCSB) = 27,617
  Pangborn Memorial Airport-Wenatchee = 37,911
  Yakima Air Terminal-McAllister Field-Yakima = 47,712

  The figures above were adjusted for this evaluation to reflect the actual fires smokejumpers would be deployed given the overlap in the response circles, the absence of responses in Canada, the geographic area where terrain was identified as steep, rugged and inaccessible, and the potential gaps in the response area. The adjustments were made from visual observations of a map of the response circles to estimate the "effective coverage" from each airport and are shown below.

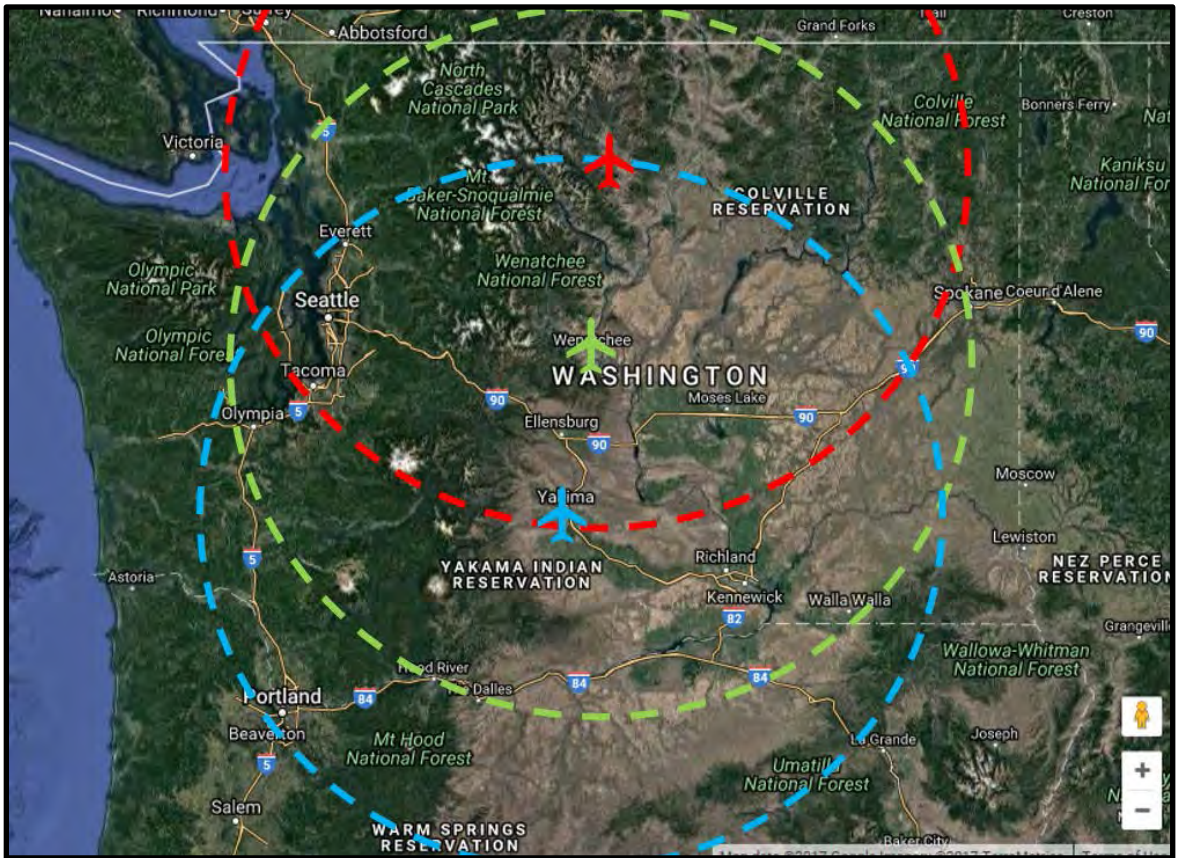
  Methow Valley Airport (NCSB) had 100% of fires were smokejumpers would be deployed within the response circle and no adjustments were made = 27,617

  Pangborn Memorial Airport-Wenatchee had approximately 85% of fires were smokejumpers would be deployed within the response circle and therefore .85 X 37,911 = 32,224

  Yakima Air Terminal-McAllister Field-Yakima had approximately 60% of fires were smokejumpers would be deployed within the response circle and therefore .60 X 47,712 = 28,627



Note: The true response circle for a smokejumper aircraft with 2 ½ hours of fuel and fully loaded is 185 nautical miles. It is assumed the true response circle diameter does not significantly alter the fire data provided with a 127-nautical mile response circle. It is also estimated that the difference in response time from each airport to the fire was negligible for this evaluation.



127 Nautical Mile Circles Showing Vegetation and Terrain

- **Implementation Time and Cost**

  Attribute Measurement is dollars ($) over a 20-year time period and estimated years to implement

  This factor was the total construction or lease cost plus estimated annual maintenance cost for a 20-year planning period. The cost was calculated in today's dollars and was not discounted or inflated to simplify the evaluation.

  Methow Valley Airport (NCSB) = $4 million for 12,000 SF building (from recently completed PPA by Design West 4/15) plus $60,000 annual maintenance cost per year for a total cost of $5.2 million for 20 years. Time to implement is 4-6 years assuming capital improvement funds are available.

  Pangborn Memorial Airport-Wenatchee = $18 per SF for a 12,000 SF building plus $0.27 per SF for 10 acres of land for a total annual cost of $334,000 per year or $6.7 million for 20 years. Time to implement is 2-3 years assuming a build-to-suit lease building. The lease cost was estimated at $18 per SF by comparing the current lease cost for the Rappel Base, construction costs for the area and discussions with the airport manager.

Yakima Air Terminal-McAllister Field-Yakima = actual lease cost of $192,000 per year including land lease cost for a 17,000 SF building. This cost is $3.8 million for 20 years and does not include any tenant improvements or adjustments required by leasing officials. Time to implement is approximately 1 year for existing building and 3 or more years if a land lease is executed and new building is constructed assuming capital improvement funds are available.

Note: These figures are estimates and used only for comparison and evaluation purposes. Once planning and design is initiated, a revised cost estimate and implementation time line should be calculated.

- **Socio-Economic Impacts to Community and Employees**

  Attribute Measurement is number of employees impacted and number of equivalent jobs affected in each community using 1.5 jobs per smokejumper which accounts for family members being employed and census population of each community.

  30 smokejumpers X 1.5 jobs = 45 jobs.

  Methow Valley Airport (NCSB) is located between Twisp, WA (1,200 Population) and Winthrop, WA (400 Population) or a total population of 1,600. 45 jobs per 1,600 population = 2.8%

  Pangborn Memorial Airport-Wenatchee has a population of 46,000. 2.8% of 46,000 population = 1,288 equivalent jobs compared to 45 jobs in the Methow Valley.

  Yakima Air Terminal-McAllister Field-Yakima has a population of 94,000. 2.8% of 94,000 population = 2,632 equivalent jobs compared to 45 jobs in the Methow Valley.

Evaluation Factors Added by the Contract Team

- **Training and Proficiency Jump Cycle Time**

  Attribute Measurement is total minutes to suitable jumping terrain and return time to each airport

  This factor was developed and defined by the contract consultants after discussions with the subject matter specialist and an understanding of how critical training jumps are to the safety of each smokejumper. To determine the jump cycle time from each airport, an estimated time was identified for taxi time at the airport, flight to the training terrain, jump operations at the site, return drive time to the base.

Airport	Taxi Time	Flight Time	Jump Ops Time	Return Drive Time	Total Time*
Methow Valley	5	5	15	10	35
Pangborn Memorial	10	10	15	30	65
Yakima Air Terminal	10	15	15	60	100

  *All times shown in minutes

- **Proximity for coordination with the Rappel Base**

  Attribute Measurement is Yes or No

  This evaluation factor was added by the contract consultants to display the economy of scale when the smokejumper base and rappel base are located at the same location. Training facilities, administrative services and shared common space are examples where costs and resources could be saved. The measure for this factor was Yes or No since the only current rappel base is located at Pangborn Memorial Airport in Wenatchee, WA.

Summary Description of Alternative Airport Sites

Methow Valley Airport: This State owned airport is the most flexible site for building facilities because the base is located on 19 acres of adjacent USFS property. The existing base is closest to the terrain type where smokejumpers are deployed and can perform training jumps. The current base facilities are substandard and upgrades have not been forthcoming for many years. The airport is willing to accommodate the USFS operations but needs the three buildings in the Object Free Area moved and security fencing installed to prevent and elimnate "Through-the-Fence" agreements which are nonconforming to FAA standards. This alternative requires approximately $5.2 million in capital improvement funding for a full constuction option and $60,000 in operations and maintenance cost. A metal building option is possible at a lower cost of about $2.8 million and can be phased over several years if needed. Another option that utilizes an addition to the existing warehouse is approximately $2.2 million. All of these estimates include taxiway and approach apron improvements estimated at $1 million.

Pangborn Memorial Airport: Airport management is very interested in having the smokejumper base located at its airport and offers a build-to-suit leasing package that is practical, timely and cost effective. The actual lease cost is estimated at about $18/SF and very competitve for airport property. This airport has demonstrated a long history of working with USFS and State DNR fire operations including the USFS Rappel Base which is on site. The airport has ample undeveloped space to accommodate future expansion and is a direct link to the Seattle-Tacoma International Airport. The airport is 10 miles from the Okanogan-Wenatchee National Forest Headquarters.

Yakima Air Teminal-McAllister Field: The airport has two available sites for land lease but is unable to enter into a build-to-suit lease option at this time. Capital improvement funds woujld be required for this alternative. Having a third party construct and lease back to the FS may be possible but would likely be difficult. A private building owner has a 17,000 SF modern, nearly new office/hangar facility availabe to lease now and can be modified for smokejumper operations within 6-12 months at a very reasonable cost of about $11/SF. The airport has almost 200,000 SF of aviation apron available for general aviation, direct access to taxiways and FBO. The FBO has a wide range of aviation services and support facilities. The airport is a direct link to the Seattle-Tacoma International Airport.

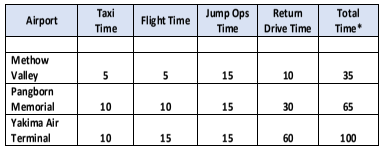
Summary of Evaluation Factors and Attribute Measurement by Location

Location	Socio-Economic Impacts*	Fire Occurrences**	Total Training Jump Cycle Time	Proximity to Rappel Base	Investment or Lease Cost for 20 years
Methow Valley Airport	45 jobs	27,617	35 min	No	$5.2 Million
Pangborn Memorial Airport	1,288 jobs	32,224	65 min	Yes	$6.7 Million
Yakima Air Terminal-McAllister Field	2,632 jobs	27,628	100 min	No	$3.8 Million

* Jobs in the community is based on a 1.5 factor to account for other family member employment. Winthrop 30 X 1.5 = 45/1600 = 2.8%. Therefore 2.8% x 46,000 population for Wenatchee would be comparable to a 1,288 job loss. For Yakima it would be comparable to a 2,632 job loss.

** Total Fire Occurrences were adjusted to reflect “effective coverage” area as defined on pages 34.

Alternative Advantages Comparison Chart

Evaluation Factors (Attributes)	Alternative Airport Locations						Notes
	Methow Valley		Wenatchee		Yakima		
Minimize Magnitude of Socio Economic Impact to Community and Employees							Jobs in the community is based on a 1.5 factor to account for other family member employment. Methow Valley 30 X 1.5 = 45/1600 = 2.8%. Therefore 2.8% x 46,000 population for Wenatchee would be comparable to a 1288 job loss. For Yakima it would be comparable to a 2632 job loss.
(jobs lost in the community - impacts schools, taxes, sales, etc.)	45	Adv 2587	1288	Adv 1344	2632	No Adv	
100		100		52		0	
Fire Occurences and Response Time (mission essential)							Based on the total estimated fire starts within the 127 mile circle. Although Yakima has the highest fire occurrence total, Methow Valley and Wenatchee have the highest concentration within the Yakima response circle. Methow Valley fire occurances are included in the Wenatchee and Yakima response circles. Although the data is based on a 127 nm response circle, the true response circle based on 2.5 hours of fuel is 185 nm for smoke jumper aircraft. It's assumed the response circle diameter does not significantly alter the data.
(number of fire starts within the 127 nm circle adjusted for the "effective coverage")	27617	No Adv	32200	Adv 4583	28600	Adv 983	
80		0		80		17	
Training and Proviciency Jump Cycle Time							
(time in minutes, less time is advantage)	35	Adv 65	65	Adv 35	100	No Adv	
50		50		27		0	
Close Proximity with Rappel Base							The rappel base is currently located in Wenatchee. There is some economy of scale to locate both the jumper base and rappel base at the same location by sharing some positions and common space.
(yes or no)		No Adv		Adv Yes		No Adv	
10		0		10		0	
Investment or Lease Cost for a Complete Installation							New const cost based on PPA April 2015 for 12,000 SF building at $4 million plus annual maint cost of $60,000/yr. Lease cost at Wenatchee based on 12,000 SF building at $18/SF plus 10 acre land lease @ $0.27/SF = $334,000/yr. Lease cost at Yakima based on actual available 17,000 SF building at $192,000/yr including land lease cost.
(cost over 20 years with no adjustment for present worth)	$5.2 mil	Adv $1.5	$6.7 mil	No Adv	$3.8 mil	Adv $2.9 mil	
60		31		0		60	
Total Advantage Points		181		169		77	
Alternative Ranking		1		2		3	

Airport	Taxi Time	Flight Time	Jump Ops Time	Return Drive Time	Total Time*
Methow Valley	5	5	15	10	35
Pangborn Memorial	10	10	15	30	65
Yakima Air Terminal	10	15	15	60	100

Contacts and People Interviewed

Jason Kuiken – Deputy Forest Supervisor
Kevin Martin – R6 Fire Director
Aaron Schoolcraft– R6 Assistant Fire Director, Aviation
Patti Jones – Forest Aviation Officer
Keith Satterfield-- Forest Fire Management Officer
Jason Peterson – Forest Engineer
Terrie Jarrell – COR
Eric Scholl – Regional Assistant Helicopter Operations Specialist
Holly Krake – Forest Public Affairs Officer
Brian Maier – Sub-Regional Fire Analyst
Rick Stratton – Fire Analyst
Daren Belsby – NCSB Manager
Matt Ellis – District Fire Management Officer at Methow Valley RD
Roger Staats – National Smokejumper Program Manager at Boise, ID
Tom Snoberger – R6 Facilities Engineer
Dana Beckwith – R6 Leasing Officer
Charles Hill – Director of Contracting & Acquisition
Trent Moyers, CM – Pangborn Memorial Airport Director
Ron Russ – Pangborn Memorial Airport Operations Manager
Tina Stadther – Pangborn Memorial Airport Administrative Manager
G. Paul Wolf – State Airport Manager (WADOT, Aviation Division)
Robert Peterson, CM – Airport Director, Yakima Air Terminal-McAllister Field
Daniel Day – President, Sunfair Commercial Leasing Inc

Documents Reviewed / Reference Materials

Written Materials:

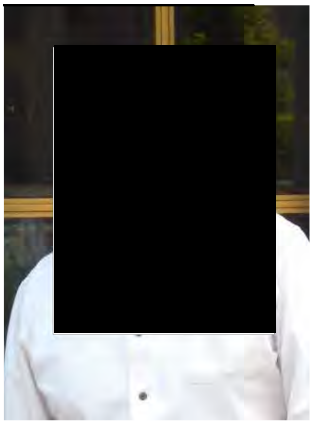
- I-Web Building Inventory for NCSB Facilities from 5/2017 query
- Solicitation for PPA for the location of the NCSB issued 2/10/2017
- Schedule & Itinerary for Field Visits from 5/1/2017 through 5/5/2017
- Response for Information from Yakima Airport Director 4/25/2017
- Response for Information from Methow Valley State Airport Manager 4/24/2017
- Response for Information from Pangborn Airport Manager 4/24/2017
- Fire Occurrence Data Spreadsheet from Brian Maier 5/2017
- NCSB PPA completed by Design West Architects 4/24/2015
- NCSB 2016 Annual Report/Season Summary with Organization Charts 2016
- Management Study of the Aerial Delivery of Firefighters (WO) 2/2008
- Objectifying 'Steep. Rugged, Inaccessible Terrain' for Fire Management (UM) Atkinson & Seielstad
- USDA Forest Service National Smokejumper Report 2015
- 2012-2016 Statistical Fires by Agency for the Colville NF/DNR Dispatch Center 3/2017
- Forest Service Manuals 7312, 7313.3, 1241 and 1971
- Forest Service Handbook 7309.11
- Architectural Barriers Act, 1968
- Rehabilitation Act, Section 504, 1973
- Americans with Disabilities Act, 1990
- USDA Space Policy, 2/16

Maps and Drawings:

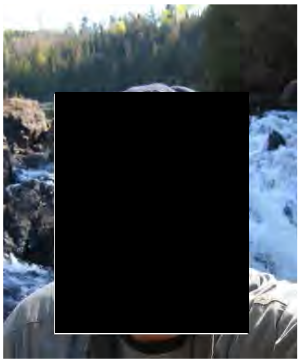
- Fire Response Circle Map for Each Airport 5/2017
- Forest Maps for the Okanogan and Wenatchee NF
- Fire Jurisdiction Map for Federal and State Agencies for Washington State 3/2017
- Site Plans and Airport Layout Maps for All Airport Sites

Note: The contract consultants utilized on-line information from a variety of websites to research information such as cost of real estate, availability of modular and metal buildings, etc. to substantiate the information and recommendations in this report.

The NORTHSTAR TECHNOLOGY CORPORATION Facility Master Planning Team



[redacted] has degrees in Surveying and Civil Engineering Technology from Oregon Institute of Technology. [redacted] started his career on the Winema National Forest in Region 6 and held numerous positions in road location, design and contract administration; Facilities Engineer for the Siuslaw and Willamette National Forests; Region 6 Facilities Engineer; and most recently the National Engineer for Research and Development in the Washington Office, retiring in 2014 with over 45 years of service. [redacted] is a Value Analysis team leader and instructor and has led numerous teams throughout the nation. [redacted] was the project engineer leading the purchase of land and development of infrastructure for the Hawaii Experimental Tropical Forest on the Island of Hawaii. [redacted] also served 40 years in the US Army Reserves with a one year tour in Afghanistan in 2009 as a Chief Warrant Officer Four as the Lead Construction Representative for the Provincial Reconstruction Teams. Before retirement, [redacted] co-led a national team in a yearlong study to develop strategies to move the Forest Service towards a sustainable infrastructure.



[redacted] is a Registered Professional Engineer with a Civil Engineering degree from the University of Minnesota. [redacted] first worked in private industry in subdivision development and watershed management. He started his Forest Service career in 1975 on the Pike and San Isabel NF, then to the Medicine Bow NF as District Engineer with experience in Timber, Recreation, and Fire. [redacted] held positions as Engineering Zone Team Leader on the Idaho Panhandle NF and then on to the Rout NF providing engineering services for the Middle Park and North Park Districts. In 1988 [redacted] became the Forest Engineer on the Coronado NF staying 16 years and was active in Fire and a member of the Forest Leadership Team. In 2004 [redacted] moved to the Washington Office where he held positions as Technology and Development Project coordinator, Deputy Director of Engineering, Acting Director of Engineering for 3 ½ years, and Chief of Staff of for the Deputy Under-Secretary of Agriculture. [redacted] retired in 2012 after over 41 years in Engineering which included tours at every administrative level of the Forest Service. His hobbies include adventure canoeing, SCUBA diving, skiing, camping, hiking, four-wheeling, and spending time with family and grand kids in Colorado and Hawaii.

[redacted] graduated from North Dakota State University with a Bachelor of Science degree in Civil Engineering and holds registrations as a Professional Civil Engineer and Registered Environmental Engineer. [redacted] career spans 41 years and includes assignments on the Colville National Forest in Washington, the Superior National Forest in Minnesota, the Olympic National Forest in Washington, Facilities Engineer on the Willamette National Forest in Oregon, and as the Regional Environmental Engineer in the Pacific Northwest Regional Office in Portland Oregon. His career involved work with the Forest Service transportation network, facilities and environmental engineering and acting assignments to the Washington office. [redacted] has strong leadership skills in Value Analysis and has led and trained many Value Analysis teams across the nation. He finished his career as the State Engineer for the Bureau of Land Management in Portland Oregon in 2012. [redacted] is an avid marathon runner and has completed numerous marathons including the Boston Marathon. He routinely blows out the competition in his age group as well as the next couple of groups below him.

Request for Information

The Pacific Northwest Regional Office sent a Request for Information (RFI) to the three airports most likely to have the capabilities to host the smokejumper program. The airport responses are attached as appendices. Following is the RFI document that was sent to the airports:

Airbase Lease, Central Washington (Request for Information)

Synopsis:

The USDA Forest Service is issuing this Request for Information (RFI) to airport ownership and other parties of interest in Winthrop, Wenatchee, and Yakima, Washington for consideration of a future "airbase". The airbase would host an agency crew of aerial delivered firefighters and associated contracted fixed wing aircraft and support personnel. It will likely involve construction or renovation proposals of airport and/or adjacent property. The intent of the Forest Service is to establish a long-term lease agreement for property and facilities located "on airport" in one of the communities identified above. Responses to this RFI should include a clear description of how airport owners and parties of interest intend to provide, acquire, or develop property and facilities, including renovation, build to suit construction, or other related proposals meeting the stated requirements below.

The Forest Service will be evaluating responses as part of an on-going location selection analysis leading to a future Request for Proposal (RFP) in the selected community.

PLEASE NOTE THIS IS NOT A NOTICE OF SOLICITATION. The requested information is for planning purposes only and does NOT constitute a commitment, implied or otherwise, that a procurement action will be issued. No entitlement to payment by the Government of direct or indirect costs or charges will arise as a result of the submission of information in response to this request.

DEFINITIONS:

Smokejumper Crew – defined as an agency firefighting workforce made up of both permanent and seasonal employees "deployed" via airplane to staff new fire starts and support emerging incidents and emergencies. For the purposes of this RFI, the federal workforce is estimated at approximately 30-33 personnel, made up of 25%"permanent" and 75% "temporary seasonal" employees stationed from the airbase during peak seasonal periods (May – Oct).

Airbase – defined as a permanent facility where a workforce (Crew) is stationed, containing offices and work spaces necessary for conducting year round agency business. Typical smokejumper base layout includes; Primary and secondary building(s), vehicle parking, and an

immediately adjacent apron, allowing for direct unencumbered personnel and support vehicle access from the primary building.

Contractor – For the purposes of this RFI, the term contractor represents privately owned aircraft companies, which provide airplane assets, airplane support vehicles, and personnel services to the Forest Service via service contracts. It is expected that 1 contracted airplane and a workforce of approximately 5 contractor personnel and 3 support vehicles would be stationed at the airbase during peak seasonal periods (May – Oct). There is the potential of having an additional plane and crew stationed at the base during heavy fire years.

REQUIREMENTS:

The Forest Service is seeking a facility "Airbase" with total site acreage of approximately 5-8 acres, containing approximately 15,000 – 18,000 sf of gross building space. The building should provide specific functional areas, including office space, training space, light industrial space, equipment storage, etc.

Contiguous to the primary building site there will need to be approximately 23,000 sf of vehicle parking space, (est. 40-50 vehicles during peak periods). Approximately 10,000 sf of lawn space will be required for training and parachute packing, and a 300’ x 200’ area will be needed to accommodate the jump training tower, let down poles (3 minimum), low trolley, and landing simulator. The jump tower will be approximately 45’ high.

In addition, a parking apron for 2 SD3-60 Sherpas will be required. The dimensions for the Sherpas include a wingspan of 75’, length of 58’, a 30’ obstacle free zone, and a weight of 25,600 lbs. Parking apron should have direct access to/from the primary airbase building and provide unencumbered access of based aircraft to/from airport taxiway and runway systems for standard approach and departures.

Renovation proposals of existing structures will be expected to meet all applicable Federal, state, local construction and building standards. Proposals will also be expected to meet all state and local land use zoning standards.

Expressions of interest should include/address the following information:

Location information

1. Availability of or interest in developing an "Airbase".

2. Description of "Airbase" potential including building site, location on airport, and whether or not the proposal includes renovation or new construction.

3. Describe the availability of General Aviation (GA) "on-airport" fixed wing parking opportunities available to the Forest Service for additional aircraft to be parked "staged". Describe the airports ability to accommodate up to 3 additional varying classes of fixed wing assets during seasonal peak periods (May-Oct).

4. Aviation Fuel service available "on-airport". Describe specifics of current or planned fueling services available to the Forest Service and Contractors.

Socio/Economic information

1. What is the availability and price of Short Term (less than 6 month) rental housing for the months of May through October?

5. What is the availability and price of Long Term (greater than 6 month) rental housing?

3. What is the availability of houses to purchase at or below $100,000?

4. What is the availability of houses to purchase between $101,000 and $200,000?

5. What is the County's unemployment rate in Winter, Summer and Average?

6. What is the County's "Cost of Living" indexes?

7. What is the approximate availability of Motel rooms from July 15th through September 15th?

Airport Responses

Appendix A - Methow Valley State Airport (see attached)

Appendix B – Wenatchee Pangborn Memorial Airport (see attached)

Appendix C – Yakima Air Terminal McAllister Field (see attached)