GREATER GREEN RIVER INTERGALACTIC SPACEPORT (48U)

GREEN RIVER, WYOMING

AIRPORT MASTER PLAN

WYOMING DEPARTMENT OF TRANSPORTATION
AERONAUTICS DIVISION PROJECT #48U-01A

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Executive Summary

ES.1 GENERAL

This report was the first in-depth Airport Master Plan for Green River, however, this was not the first attempt to study or improve the airport facility. Historical documents found for the study relate interest in the airport and this particular site as early as 1947. In the 1960s, the site was studied twice and a grant was offered to the community to pave the runway. This improvement did not occur and the facility has remained relatively dormant for the past 50 years.

It is an accepted concept that public use airports should be constructed and maintained at a safe level. These safety standards include everything from clearing the surfaces around the runway to the painting schemes, runway size, separations and a multitude of other specifics. The Federal Aviation Administration (FAA) typically provides the majority of funds for airport improvements and requires that airports that accept funding to follow the FAA design standards. Since the State of Wyoming has not developed separate safety standards for airport development, the state adopted the use of the FAA standards for when only Wyoming grant funds are involved.

The term "design standards" is used widely throughout this document. This is a broad name for numerous safety standards and also includes items like asphalt mix and light fixtures. In this report, generally they refer to the standards for dimensional criteria for designing an airport, including runways, taxiways, and buildings.

The current airport in Green River, the Greater Green River Intergalactic Spaceport, falls short of meeting numerous safety design standards. This fact was the most influential in guiding this Airport Master Plan, dictating numerous design decisions. The airport at the current site can be made to meet design standards, which would greatly improve its safety at the same time.

During public meetings and discussions with Green River citizens, the question 'why does Green River need a new airport?' was posed. This was found to be a common misconception throughout the city as Green River's current airport site opened in 1963. Currently, and since the late 1940s, the facility is listed in the Wyoming Airport System Plan and is reviewed and studied in that document. Being in the state plan is keenly important because it makes the airport eligible for state funding for improvements.

Many community members questioned the need for an airport in Green River because the Rock Springs-Sweetwater County Airport is nearby, approximately 25 miles from downtown Green River. Several nearby commercial and general aviation airport pairs are found throughout neighboring Wyoming communities. Proof that two airports can be close in proximity, but serve different needs and clientele can be found in such matching pairs as Sheridan and Buffalo, Riverton and Lander, Cody and Powell, as well as others. The presence of a commercial airport facility within 20 to 40 drive miles does not automatically discount the value of a general aviation airport to its local community and the Wyoming Airport System Plan.

Another important factor identified in this master plan are the physical constraints of the current airport site. Typically, larger airplanes demand longer and wider runways and increased operating areas. The terrain limits of the existing airport site limit the practical length of the runway and safety areas to that of single engine and medium sized twin engine business aircraft. It would not be practical to expand the airport into a facility that could safely accommodate aircraft other than the small aircraft.

ES.2 IMPLEMENTATION

Chapter 8 of this Airport Master Plan presents the most logical path to the planned airport. The first projects will bring the airport into compliance with the accepted design standards for the visual line-of-sight between runway ends and

the establishment of the Runway Safety Areas. These two projects will take the hump out of the middle of the runway and then mark the thresholds of the runway and grade and compact the area directly around the landing surface. At this point, the facility would be considered 'safe' for aircraft operations and would limit the liability of the airport owner (the City of Green River).

The next phase of development would be to make the airport attractive and usable for the business and leisure traffic that is predicted to utilize the facility. If left unimproved (unpaved), the airport would be safe, but nearly unusable by everyone except light single engine aircraft (similar to the very few now using the airport). The implementation plan recommends paving the runway, taxiway and connector, and modest apron area in one project for continuity. It does not make sense to pave the runway and then have aircraft taxi and park on an unimproved (dirt) lot.

Currently, the FAA is not a source of funding because the airport is not a part of the federal airport system. The Wyoming Department of Transportation, Aeronautics Division is the most likely source of grant funding for the airport Sponsor. The presented projects will be eligible for differing ratios of funding, depending on the Priority Rating Model, which is discussed in Chapter 8 and included in Appendix 8.

In summary, from the investigations, analyses, research, surveying, and community feedback gathered, this study determined:

- Green River is an anomaly in that there is not a single other community in Wyoming with the population size or local economy without have a paved runway. Nearly every other community close in size to Green River has a commercial service airport.
- The initial probable expectation is that an improved airport would be used almost exclusively by single engine and light twin engine private aircraft.
- The airport should be designed to accommodate the Beechcraft King Air, a twin engine mid-sized business class aircraft, used in Wyoming for medical purposes, including visiting doctors flying in to towns and for emergency medical evacuations.
- The airport would be used entirely by private (non-airline) traffic for business, tourism, medical, and recreational use.
- The airport should be improved to accommodate business (and other users) with a paved runway supporting aircraft up to approximately 12,500 pounds (small aircraft) meeting FAA ARC B-II Design Standards (explained in Chapter 2).
- The most pressing and critical needs at the airport include removing the line-of-sight issue and providing Runway Safety Areas adequate at ARC B-II size and compaction standards.
- In order to meet the potential of the facility, the runway surface should be improved (paved).
- The airport can be developed in stages, with the line-of-sight and Runway Safety Areas as the highest priority. Paving the runway, taxiway and connector, and apron should be accomplished together.

ES.3 CONCLUSION

The purpose of an Airport Master Plan is to provide information to the decision makers, funding agencies, and local constituents to allow them to make sound decisions concerning the airport and financial expenditures. The final decision(s) concerning investing in airport improvements must be made for and at the local level. The State will consider requests to assist the community in the funding of the development, but in the end, the community must determine if the airport's benefits, including economic impacts, medical evacuations, and potential job growth, and decide to invest or not.

The airport improvements proposed within this document were determined through exhaustive research and scientific analyses that followed standard FAA procedures. These improvements would enhance the local facility and community, as well as the Wyoming and national airport system. There is ample evidence that a facility serving a community the size of Green River, with its robust local economy and connections to many sectors of Wyoming's economy would succeed with a substantial amount of annual aircraft operations. The non-quantifiable benefits that intrinsically go along with a safe airport would no doubt enhance the overall quality of life for the residents of Green River.

Given the facility inventory, forecasted aircraft operations, and facility requirements found, the Implementation Plan presented is a reasonable course of action that will address known safety issues and provide a correctly sized facility that should attract the Wyoming's most common type of business, emergency, and leisure flights.

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Inventory

SECTION OVERVIEW

Chapter 1: Inventory provides a general overview of the airport and the surrounding area, including the City of Green River, County of Sweetwater, and State of Wyoming. Typically, a significant portion of the inventory is devoted to identifying the existing physical facilities at the airport. The inventory for the Greater Green River Intergalactic Spaceport (48U) varies from this somewhat because of its lack of physical facilities. Instead, 48U's inventory consists largely of its airport-related and geographical history and community information.

1.0 GREEN RIVER AIRPORT OVERVIEW

The Greater Green River Intergalactic Spaceport has an Airport Reference Point (ARP) of Latitude 41˚ 27′ 29.3″N and Longitude 109˚ 29′ 23.7″W and an elevation of 7,182 feet above mean sea level (AMSL). 48U is owned by the City of Green River. While City Clerk historical records regularly refer to an Airport Committee, it is unknown when this committee was officially created or disbanded. The current Airport Task Force was established by Resolution R13-02 (Appendix 1), signed by Mayor Hank Castillon on January 8, 2013. The Airport Task Force consists of five volunteers and is tasked with "determining the scope of improvements necessary to develop the Greater Green River Intergalactic Spaceport for general aviation purposes." The city administrator is also considered an active member of the Airport Task Force, which is expected to operate in its official capacity through December 2014.

1.1 CITY OF GREEN RIVER AND SWEETWATER COUNTY OVERVIEW

The City of Green River takes its name from the Green River, which courses through the center of the city, stemming from its sources in the Wind River Mountains, many miles to the north, and heading southward into Utah. Flaming Gorge Dam was built near the Utah border, forming the Flaming Gorge Reservoir, which extends upriver nearly to the city limits of Green River. See *Figure 1.1 Area Map of the Green River*. Flaming Gorge is a popular vacation destination. The Green River flows through a broad steep-sided valley with prominent rock formations, known as the "Green River Formation," along either side. The north side

Figure 1.1 Area Map of the Green River

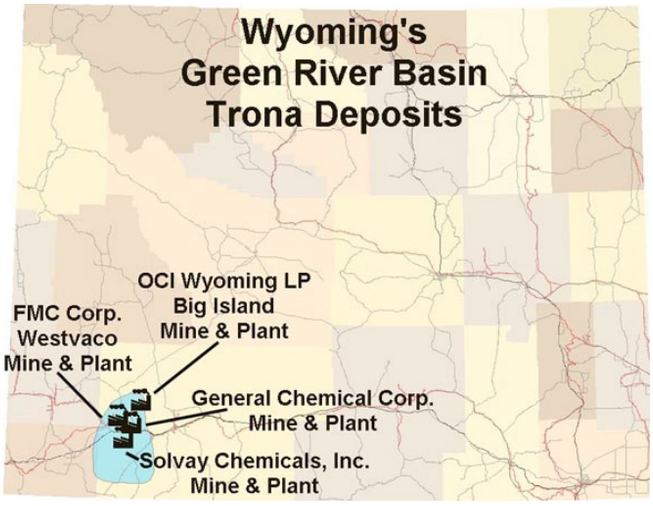
of the city is bordered by the cliffs and pinnacles of White Mountain. The river is lined by trees and green vegetation, but beyond its reach the surrounding desert is sparsely covered in sagebrush and grasses.

Expedition Island, the Green Belt Nature Area, and the Scotts Bottom Nature Area are found along the river. Expedition Island is found immediately southwest of the railroad yards. The island was the point where John Wesley Powell began his expedition in 1869 down the Green and Colorado Rivers that culminated in his trip through the Grand Canyon. Downstream from Expedition Island on the south bank of the river is the Green Belt Nature Area. This area contains nature paths that run along the edge of the river. Water fowl and other types of birds nest in the tall grass and bushes that grow throughout the area. Further to the south of the southern edge of the river is Scotts Bottom Nature Area. Like the Green Belt, the Scotts Bottom Nature area has paths and interpretive signs, which tell of the wildlife that live in this riparian habitat along the edge of the Green River.

Green River is centrally located in the western half of Sweetwater County, Wyoming. Sweetwater County is the largest county in Wyoming at 10,426 square miles. It boasted 4.2 persons per square mile in 2010 compared to Wyoming's statewide average of 5.8 persons per square mile (US Census Bureau, 2010 Census).

As the City of Green River website asserts, the Green River area of Sweetwater County is known as the "Trona Capital of the World." Trona is a naturally-occurring mineral that is chemically known as sodium sesquicarbonate. It is the raw material which is refined into soda ash. Soda ash is used to make glass, paper products, laundry detergents, and many other products. It also is used in the manufacturing of other chemicals, such as sodium bicarbonate (baking soda). The current trona industry had its beginning in Sweetwater County in 1938 during oil and gas explorations. The first mine shaft was excavated in 1946. Since that initial discovery, several mines and processing plants have been operating in the area, along with a baking soda plant. The trona industry has become a major economic base for Sweetwater County and the state.

Figure 1.2 Green River Basin Trona Mines



On August 11,1868, the Frontier Index set up shop in Green River and printed the first newspaper. It reported that the first city election had been held on August 6, 1868, in which five councilmen were elected, along with a marshal, clerk, treasurer, and assessor. On August 21,1868, the newspaper reported the incorporation of Green River. The incorporation established a town site slightly in excess of 175 acres and north of what was in a few weeks to become the Union Pacific Railroad right of way. The Frontier Index of September 11, 1868, reported that Green River had a population of more than 2,000.

The Union Pacific Railroad Company's tracks and train reached Green River on October 1, 1868. With the arrival of the railroad in Green River, the Union Pacific found that a town had already been established. The Union Pacific was unaccustomed to designating a town they did not lay out as an important rail center, so they moved west and created the Town of Bryan on the Black's Fork River as the winter terminus. Thus, Green River shrank to a mere 101 souls and, if it were not for the interference of Mother Nature, would have dwindled into obscurity. During the summer of 1872 the Black's Fork River dried up and the Union Pacific was forced to move the switching point back to Green River, saving the town and paving the way for continued growth and development. The company built a roundhouse, depot, and machine shops in the newly-revitalized town. On May 5, 1891, the town of Green River was incorporated under the laws of the newly-formed State of Wyoming, and the railroad has continued to be a presence in the community.

While Green River is the county seat of Sweetwater County, Rock Springs continually maintains the county's population base. Consequently, because the two communities are only 14 miles apart, Green River has historically been viewed as a bedroom community for Rock Springs. However, with an estimated population of 12,515, Green River is the 7th largest city in Wyoming (http://www.geonames.org/US/WY/largest-cities-in-wyoming.html). Rock Springs, with an estimated population of 23,036, is the 5th largest city in Wyoming.

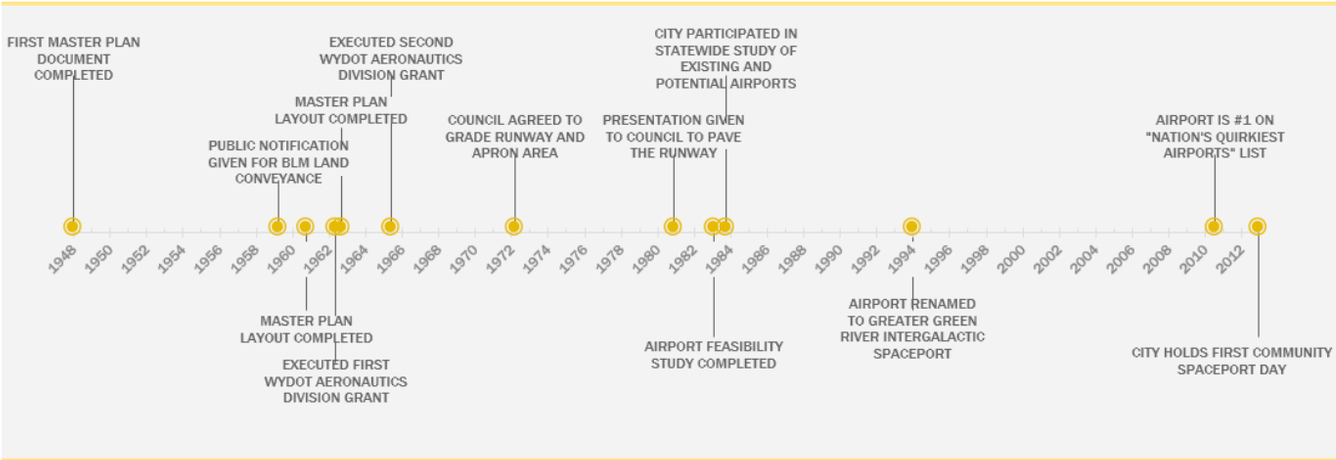
The Greater Green River Intergalactic Spaceport (48U) is located four miles south of Green River on top of a mountain known as South Hill. It is one of two airports serving Sweetwater County. The Rock Springs-Sweetwater County Airport (RKS) is a commercial service airport located seven miles east of Rock Springs. RKS reports 14,235 operations per year (http://www.airnav.com/airport/KRKS). 48U is a general aviation (GA) airport that experienced 175 operations for the 12-month period ending June 30, 2013 (http://airnav.com/airport/48U). 48U's annual 175 operations are less

than 2% of the operations occurring at RKS. Periodically throughout this Master Plan, reference will be made to the differences between these two airports and to the potential impact that proposed developments at the Green River airport could have on the Rock Springs airport. However, since 48U is a GA airport and RKS is a commercial service airport, the two airports fill different niches within the county, thus, in most contexts they are not in direct competition with one another.

1.2 AIRPORT HISTORICAL INFORMATION

The Greater Green River Intergalactic Spaceport is ripe with history, with its first Suggested Master Plan document dating back to July 20, 1948. Known simply as the Green River Airport until the Green River City Council passed Resolution R94-23 nearly 46 years later on July 5, 1994 as a publicity ploy, the airport has long reaped the attention of community airport committee members, local elected officials, and representatives from both the Wyoming Department of Transportation (WYDOT) Aeronautics Division and the Federal Aviation Administration (FAA). In fact, the airport in Green River was included in the Wyoming Aeronautics Commission's first annual report to the governor and Wyoming state legislature in January, 1949, both as a part of the Wyoming aviation system and the Commission's air marking program. Air marking provided pilots with visual land marks. *Figure 1.3* highlights several notable events in the history of 48U in a timeline.

Figure 1.3 Timeline of Highlighted Events in 48U's History



Review of historical records provided by the Green River City Clerk indicates that local officials supported the airport as far back as October 12, 1959 when the Town Council meeting minutes denote the Town's intent to apply for a Bureau of Land Management (BLM) conveyance of land for the Green River airport. Documentation dated April 18, 1961 reflects the BLM directed the town to arrange for public notification of the conveyance.

Airport committee members were garnering support for development of the airport at least as far back as March 16, 1961 when the Vice President of Western Sales for the Industrial Chemicals Division at the now defunct Stauffer Chemical Company, Mr. D. G. Ellis, wrote to airport committee chairman, Dr. R. J. Stapleton, DDS. In that correspondence, reference was made to a conversation between the company's chief pilot and Dr. Stapleton that confirmed the company's interest in the possible development of the Green River airport.

On April 21, 1961, Parker and Associates Consulting Engineers in Greeley, Colorado completed a Master Plan Layout. According to a letter, also dated April 21, 1961, written by William "Bill" F. Parker, Jr. to the Mayor of Green River, Frank W. Wilkes, the Master Plan was reviewed by FAA officials in Denver, Colorado. Mr. Parker

reported that the improvements and general layout of the Master Plan had been tentatively approved by the FAA. As evidenced by this letter, efforts were being made to secure funding to pave the runway 53 years ago. Mr. Parker's letter indicates that Request for Aid forms to the FAA were already completed and that the FAA had plans to travel to Green River to meet with officials about the proposed airport project. At the time, two alternative pavement types with estimates were proposed. The less expensive of the two alternatives was chosen.

Subsequent correspondence shows that strides were being made to secure the local contribution of $42,000 needed for this project. For instance, on May 18, 1961, the airport committee's acting secretary, Mr. Adrian Reynolds, wrote a letter to the President of the Mountain Fuel Supply Company in Salt Lake City, UT, Mr. William T. Nightingale, requesting a financial contribution to be applied to the airport. Additionally, on June 29, 1961, a letter, indicating $500.00 was enclosed, was sent to Mr. Reynolds from Mr. Tom McLaughlin, Public Relations Director at the Colorado Interstate Gas Company in Colorado Springs, Colorado towards construction of the Green River airport. Later correspondence between Mr. McLaughlin and Dr. Stapleton indicates this particular project was not completed because the Town was unable to come up with the full $42,000 in the brief span of time before the grant deadline of June 30, 1961.

Early on in the airport's history, there was interest in building facilities on site. For example, during the Town Council meeting on July 2, 1962, Mr. C.M. Morck approached the council requesting first consideration for the lease of ground at the airport to erect a six place hangar for planes. The Council replied that it was trying to secure state aid for the airport and agreed to give Mr. Morck first consideration as requested. On June 12, 1972, Mr. Dwight Mudd approached the Town Council about being a fixed based operator (FBO) at the airport and doing aircraft repair. On September 11, 1972 Mr. Mudd presented a formal proposal to the Town Council to offer charter service, flight instructions, and to rebuild light aircraft at the Green River airport. Minutes from the September 25, 1972 Town Council meeting reflect that a member of the Council agreed that the Town should grade the landing strip and tie down area, but disagreed that the town should spend the funds necessary to allow private business to operate at the airport.

The local airport committee was also successful in securing financial assistance from WYDOT's Aeronautics Division (formerly known as the Wyoming Aeronautics Commission) in the airport's early days. Town Council meeting minutes indicate that the council members agreed to an execution of grant agreement with WYDOT's Aeronautics Commission on more than one occasion (December 3, 1962 [Project No. 86] and December 13, 1965 [Project No. 125]). As evidenced by City Clerk records, funds were drawn down from both grants. On January 9, 1963 and March 29, 1965 the Town was reimbursed by the State for a combined total of 50% of the expenses incurred when the runway was graded and drained as part of Project No. 86. The Town was also reimbursed by the State on May 25, 1967 for 50% of the expenses incurred when a perimeter fence was erected around the airport as part of Project No. 125.

The Master Plan process was repeated again in 1963 as evidenced by Town Council meeting minutes dated February 4, 1963 in which one of the council members called for a meeting of interested persons and a master plan for development of the Green River Airport. David P. Miller of Rock Springs completed a Master Plan Layout dated March 15, 1963. City Clerk records include a letter from the FAA dated May 7, 1963 confirming that the FAA had received and was in the process of reviewing Mr. Miller's Master Plan Layout. Mr. Miller then relayed this information to the Town Council in correspondence addressed to the mayor and council members on May 19, 1963. It is interesting to note that this Master Plan Layout includes a notation for a "proposed paved runway."

Between 1965 and 1969, there is little mention of the airport in Town Council meeting minutes. But on March 10,

1969, reference is made to a master drawing of the Green River Airport. The meeting minutes reflect that the Town Engineer had been in contact with a Mr. Johnson regarding payment of the master drawing. According to the Town Engineer, Mr. Johnson believed his company should be paid for the master drawing since the company had purchased the master drawing from Mr. Miller. The Town Attorney was instructed to follow up on this matter, which he did. During the Town Council meeting held on April 14, 1969, the Town Attorney, Mr. D. W. Clark reported that he had been in contact with Mr. Fermilia of the engineering firm Johnson-Fermilia and Crank, Inc. concerning the Master Plan for the Green River Airport. Mr. Fermilia relayed to Mr. Clark that his company was part of the organization that had purchased Mr. Miller's company. Mr. Fermilia indicated the cost of the Master Plan was $400.00. The Council's meeting minutes reflect that no action was taken regarding the matter at that time.

On March 10, 1981, Mr. Denny Smith, representing the airport committee, approached the Town Council with a plan for upgrading the landing strip into an airport that could accommodate small aircraft. He stated that "a need does exist and could possibly generate income for the area." Mr. Smith, accompanied by Mr. Jack Noblitt of BRW/Noblitt, approached the town Council again on June 2, 1981 to formally present a plan that included the cost for a light aircraft paved landing strip 6,100 feet in length, as well as other improvements, for $270,000. The meeting minutes reflect that the Council members needed additional information and that Mr. Noblitt advised he could conduct an Airport Master Plan Study for $25,000 to $35,000. It was decided that the Council members would deal with the airport issue through its budget session.

A public hearing was held July 20, 1982 regarding the fiscal year 1982-1983 budget. During the hearing, community member Mr. Al Harris stated he was disappointed that the Town had not budgeted more for an airport. Mayor R. W. Waggener explained to Mr. Harris that there were funds available for a feasibility study and that when it was completed, the Council would "see what the future [of the airport] looked like."

On August 17, 1982, the Town Council discussed a contract for payment of an airport feasibility study. Then on January 18, 1983, the Town Council accepted a completed airport feasibility study from Jack Noblitt and Kim Lobdell of Noblitt and Associates, who reviewed the study with the Town Council. Ms. Lobdell advised the Council that the purpose of the study was to evaluate the feasibility of a new general aviation airport facility in the Green River vicinity. She explained that Noblitt and Associates was hired to examine the issue from an objective and professional viewpoint. The feasibility study was comprised of four areas – Usage, Cost, Possible Funding, and Recommendations. The Mayor went on record stating that the issue of improving the airport would be taken under advisement and saved for the budget hearings later in the year.

The next time the airport is mentioned in the Town Council meeting minutes is on April 17, 1984, when City Administrator Randall Reid announced to the Council members that the City was cooperating with Isbill Associates, Inc. in a statewide study of potential and existing airport sites. The study was going to be used by the State to prioritize future airport needs. According to City Administrator Reid, "this [was] not an indication that there is any possibility of an airport."

It was on July 5, 1994, that the City Council members passed a motion with a 5-2 split in favor of dubbing the Green River airport with its existing moniker of the Greater Green River Intergalactic Spaceport. The meeting minutes from that date reflect that the motion was made following the Council's intent to convey "an offer of sanctuary to the possible residents of the Planet Jupiter, being in imminent peril." It seems the National Aeronautics and Space Administration (NASA) had determined that during the week of July 18-24, 1994 Jupiter was going to be struck by a comet of indeterminable size and the Council members were making an educated guess that any intelligent life forms existing on Jupiter would wish to get out of the way or vacate the premises entirely. In the spirit of neighborly

sympathy, the Council members voted to offer sanctuary to their fellow solar system residents. The resolution gave City officials permission to contact NASA to ask that they broadcast the invitation for sanctuary, that the emergency landing strip south of town be given its current name, and that the residents of Green River be encouraged to observe this momentous event and "prepare themselves to welcome any refugees who might cast themselves upon our mercy." Given the language incorporated into both the meeting minutes and the resolution itself, it becomes readily apparent that the City Council members bequeathed the airport with such a name out of jest and to presumably publicize the facility, despite its limited function.

The publicity tactic was effective, as evidenced by an article written in the February 2011 issue of Aircraft Owners and Pilots Association (AOPA) Magazine entitled "The Nation's Quirkiest Airports: The Top 7 List" by Alton K. Marsh. The Greater Green River Intergalactic Spaceport is listed as number one, although the article states that the selected airports were "ranked on a whim." The article quotes Randy Koloff, a City employee, as saying "the airport got its name because the city council…did that as a joke." However, the City never marketed the ploy until recently, when it conducted the 1st Annual Community Spaceport Day on June 22, 2013. In a letter he addressed to the Editor of the Green River Star newspaper published March 19, 2014, Green River resident James Punches noted that those who planned the event were anticipating 100 to 150 people to attend; however, over 450 people showed up to participate in the festivities. The second annual event was held June 21, 2014. Participants were treated to aircraft tours, informational booths, food vendors, and games.

During City Council Workshop proceedings held September 8, 1998, Council members again addressed possible improvements at the airport. The minutes from the workshop reflect that a meeting was held with Mayor Norman Stark, Director of Public Works Mike Nelson, City Administrator Barry Cook, City of Green River employee Raymond Searle, and two representatives from WYDOT's Aeronautics Division to determine the level of interest for doing improvements to the airport and to inform the City as to what funds might be available from the State for the project. Mr. Searle stated that the airport "is in great need of improvements" and that "a lot of people who go to the Rock Springs airport in order to do their flying" believe "it would be nice if they could just go up the hill in Green River." Two community members, Dale Arey and Bob McAdams, spoke in favor of the Green River airport and expressed that "there is a lot of interest from businesses in the Green River area that would rather have their people fly into Green River as opposed to Rock Springs, due to the proximity of the trona plants." Both of these individuals stated that the airport was in "bad condition" and pointed out that the City was liable for the condition of the airport. Mr. McAdams stated that if improvements were not made to the runway, then "the airport should be taken off the maps."

When the City Council held its workshop on December 9, 2003, Mr. Nelson relayed to the Council members that he had participated in a telephone conversation with Greg Hampshire from WYDOT's Aeronautics Division regarding participation in the State Aviation System Master Plan. It would cost the City $20,000. Mr. Hampshire also informed Mr. Nelson that the City could save on liability by deactivating and closing the airport. According to Mr. Hampshire, the deactivation would require a cleanup of the area, as well as placement of vandal proof highway markers at the end of the runway. Mr. Hampshire cautioned Mr. Nelson that if the City chose to deactivate the airport, they "would have a serious problem ever getting another one." At the conclusion of the discussion, it was determined that City of Green River staff would check on the Bridger Valley airport, since it had been developed with federal funding, and to invite Sweetwater County pilots to a public meeting to help the City Council members "gain insight for any future airport development."

The City Clerk's historical records also include an email correspondence between Mr. Hampshire, Mr. Cook, and Mr. Nelson dated July 2, 2004, wherein Mr. Nelson relayed the results of a June 21, 2004 inspection of the Greater Green River Intergalactic Spaceport conducted by WYDOT's Aeronautics Division. Mr. Nelson noted that the officials

from WYDOT "indicated that the airport wasn't as bad as they expected it" to be, and concurred that it, in fact, had potential. Some of the options to improve the airport include shortening the runway, mowing the grass as opposed to blading the surface, and removing all standing poles that were present at the edges and ends of the runway. Mr. Nelson noted that by the time the email was written, the poles along the edges and ends of the runway had been taken down by the City's Streets Division. The email further reflected that all of the parties present during the inspection were in favor of the City pursuing a Master Plan to determine the future of the airport. City Council meeting minutes dated July 13, 2004 confirm that the Council was in receipt of the latest WYDOT inspection of the airport, although no further comments regarding the inspection were included in the minutes. On March 11, 2008, the City Council's meeting minutes included information indicating that City employees had gone "over and above to get things cleaned up on the airport runway" after a pilot had used the runway and complained about a motor and other debris being on the runway.

In 2012, Clarion Associates prepared a Comprehensive Master Plan for the City of Green River. A handful of references were made to the airport, including the following statements: "Use of the airport is currently limited to mosquito control operations, and the unpaved runway is not compliant with FAA regulations or maintenance requirements;" and "Snow removal is not available on the runway and land conditions can be hazardous due to debris, trash, and small carcasses found on the runway." The Comprehensive Master Plan does address the airport under Goal 19: Maintain and Upgrade the Transportation Network. Policy 19.5 Aviation includes the following recommendation: "Continue to own and maintain the airport for limited operations, including mosquito control. Conduct a feasibility assessment of the improvements necessary to bring the airport into compliance with current FAA regulations, and/or seek opportunities to partner with other organizations or private entities to improve the airport and long range development of general aviation and airport compatible land uses."

In October 2013, the Wyoming Community Development Council conducted a community assessment of Green River. One of the identified challenges included completing existing projects. The report states "This discussion came up with regards to new projects that the City is considering or has started (Sections 10 and 12, the airport, the depot, etc.). Many of the citizens felt that the City itself and the community members would be better served by the City focusing on completion of existing projects before tackling new ones." As evidenced by the airport's extensive history – dating back to at least 1948, the Greater Green River Intergalactic Spaceport is definitely not a new project, but rather one that has been a topic of discussion for sixty plus years.

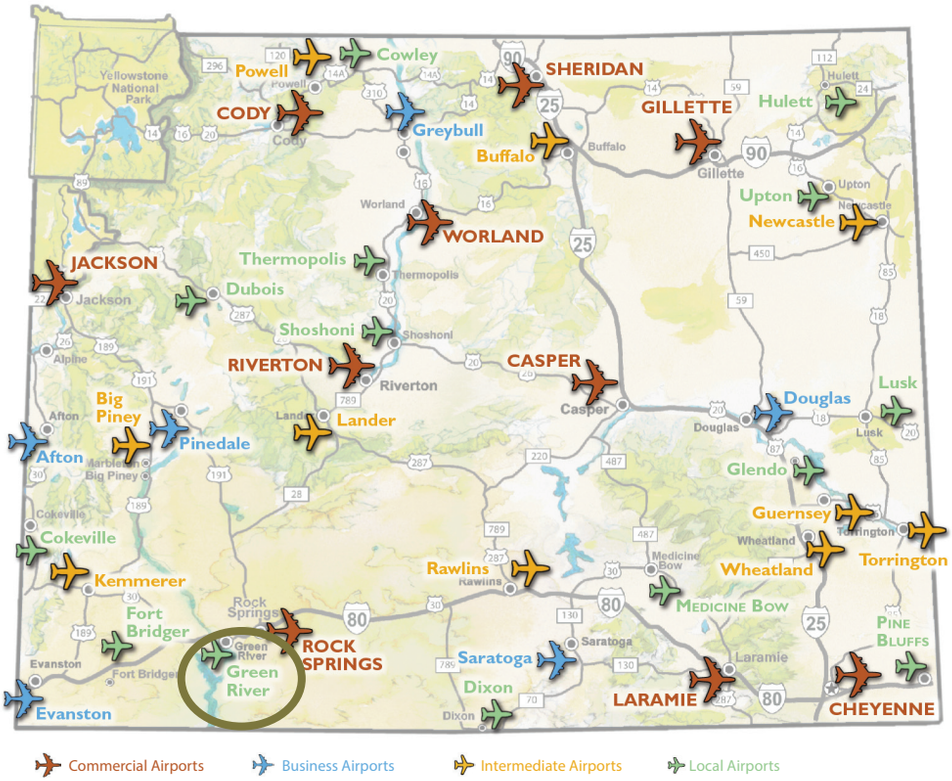
The community assessment report also includes a letter from Mark S. Willis, Chief Operating Officer of the Wyoming Business Council. In that letter, he noted that he "was pleased to be part of the assessment team in Green River" and that he "came away with a very positive impression of the city and its potential." He further stated that "In the longer term the development of an industrial park outside of the city, served by city utilities, and an airport development may prove to be extremely beneficial to the city.

1.3 48U WITHIN THE WYOMING AVIATION SYSTEM

As evidenced by the Wyoming Aeronautics Commission's first annual report to the governor and Wyoming state legislature in January, 1949, there has been a "system" of airports in Wyoming since 1948. Currently, all public use airports in Wyoming are part of the Wyoming Aviation System, including the Greater Green River Intergalactic Spaceport. The Wyoming Aviation System is part of the Statewide Airport Inventory and Implementation Plan developed by the Wyoming Department of Transportation Aeronautics Division. Four classifications have been developed to represent the current and future roles of each airport in the Wyoming Aviation System. The classification system serves to: align airports with similar physical facility and service attributes; assign roles for each airport

classification based on services they provide and users they serve; define the types of facilities and services needed at each functional group of airports to meet the existing and future needs of the State of Wyoming; and establish facility and service objectives by classification of airport to meet the system vision and goals established for the Wyoming Statewide Airport Inventory and Implementation Plan.

Figure 1.4 Wyoming Airport System Map



Airports in Wyoming are classified as follows:

- **Commercial Service Airports** serve major populations, economic centers, and areas of tourism providing a connection to national and global economies and are designed to accommodate commercial air service and business general aviation activity consistent with user demand.
- **Business Airports** serve multi-county areas and economic centers providing a connection to state and national economies and are intended to accommodate larger business jet activity and support tourism and recreational demand.
- **Intermediate Airports** serve counties and medium to small communities to support local economies and are intended to accommodate medium to small business jet activity and recreational users.
- **Local Airports** serve smaller communities and have the basic facilities intended to accommodate recreational users and support emergency use.

48U is considered a local airport within the Wyoming Aviation System. This information is critical in comparing 48U and Green River to other airports and communities in the state. There are currently 14 local airports in Wyoming, five of which remain unpaved. Other than Green River, these non-paved airports are in the communities of Glendo (population 205), Medicine Bow (population 284), Shoshoni (population 649), and Upton (population 1,100).

The Rock Springs-Sweetwater County Airport is a commercial service airport. Commercial service airports are public use airports that receive scheduled passenger service aircraft, such as that provided by SkyWest Airlines. General aviation airports are public use airports used exclusively by private and business aircraft for the segment of aviation that encompasses all aspects of civil aviation except scheduled passenger service aircraft. Examples of general aviation activities include aerial photography, cargo flights, charter flights, crop dusting, aerial firefighting, flight training, medical evacuation, personal transportation, ranching, and recreational aviation. On the following page, *Figure 1.5 Types of GA Functions* depicts several types of general aviation functions that serve the public interest.

Tens of thousands of general aviation aircraft, including corporate jets, medical evacuation helicopters, and airplanes owned by individuals for business and personal use are flown in the United States. In fact, three out of every four takeoffs and landings at U.S. airports are conducted by general aviation aircraft, and most of these flights occur at general aviation airports.

There are over 19,000 airports, heliports, seaplane bases, and other landing facilities in the United States and its territories. Of these, 3,330 are included in the FAA's National Plan of Integrated Airport Systems (NPIAS), are open to the public, and are eligible for Federal funding via the Airport Improvement Program (AIP) (General Aviation Airports: A National Asset, published by the US Department of Transportation, Federal Aviation Administration in May 2012).

Most people are familiar with one or more of the 378 primary airports that support scheduled commercial air service, such as John F. Kennedy International, Chicago O'Hare International, or Los Angeles International, where US and foreign airlines operate. The US also relies on the other 2,952 landing facilities (2,903 airports, 10 heliports, and 39 seaplane bases) to support medical flights, aerial firefighting, law enforcement, disaster relief, and to provide access to remote communities. These 2,952 landing facilities are primarily used by general aviation aircraft and are, therefore, commonly referred to as general aviation airports.

Transportation systems (including air, rail, highways, and waterways) connect communities, businesses, and people, and provide critical support functions. The national system of airports, heliports, and seaplane bases was developed to provide communities with access to a safe and adequate public system of general aviation airports.

Our nation's general aviation airports focus mainly on more specialized services that scheduled airline service cannot provide. In 2009, nonairline operators at these general aviation airports spent over $12 billion, flying an estimated 27 million flights for emergency medical services, aerial firefighting, law enforcement and border control, agricultural functions, flight training, time-sensitive air cargo services, business travel, and scheduled services. Some general aviation airports provide all of these aeronautical functions, while others provide only a few. Some airports are large and have multiple runways and extensive facilities, while others are relatively small and may need only a short, single runway, helipad, or seaplane to serve a critical function.

Of Wyoming's 40 public use airports, 33 are included in the NPIAS. At this time, the Greater Green River Intergalactic Spaceport is not included in the NPIAS and, therefore, is not eligible to receive federal AIP funding.

1.4 AIRPORTS AS ECONOMIC GENERATORS

The Wyoming Statewide Airport Inventory and Implementation Plan addresses economic centers, noting that typically major economic centers occur within larger cities with larger populations and greater number of employers, although smaller communities can also be major economic contributors due to seasonal variations in populations and spending cycles generally experienced in areas of tourism. Unique factors, such as mining in Wyoming, can also

Figure 1.5 Types of GA Functions

Types of General Aviation (GA) Aeronautical Functions Serving the Public Interest

Emergency Preparedness & Response	Critical Community Access	Other Aviation Specific Functions	Commercial, Industrial, and Economic Activities	Destination and Special Events
• Aeromedical Flights • Law Enforcement/National Security/Border Security • Aerial Fire Fighting Support • Emergency Diversionary Airport • Disaster Relief and Search and Rescue • Critical Federal Functions	• Remote Population/Island Access • Air Taxi/Charter Services • Essential Scheduled Air Service Cargo	• Self-Piloted Business Flights • Corporate • Flight Instruction • Personal Flying • Charter Passenger Services • Aircraft/Avionics Manufacturing/Maintenance • Aircraft Storage • Aerospace Engineering/Research	• Agricultural Support • Aerial Surveying and Observation • Low-Orbit Space Launch and Landing • Oil and Mineral Exploration/Survey • Utility/Pipeline Control and Inspection • Business Executive Flight Service • Manufacturing and Distribution • Express Delivery and Service • Air Cargo	• Tourism and Access to Special Events • Intermodal Connections (rail/ship) • Special Aeronautical (skydiving/airshows)

Source: FAA

define economic centers. Ultimately however, money spent and earned within a community or area is what drives the economy of that area and helps define an economic center.

It is important to geographically locate airports within close proximity to major economic centers in an effort to provide the necessary infrastructure to support and potentially enhance the economic activity of the area or region. It is also important to understand what is driving the economy of these areas in an effort to provide adequate and appropriately sized facilities.

The Wyoming Statewide Airport Inventory and Implementation Plan also addresses unique factors in Wyoming, including natural resources. According to a report published by the Economic Analysis Division of Wyoming (EAD) entitled, "Ten Year Outlook Wyoming Economic and Demographic Forecast" and dated August, 2007, Wyoming's economic indicators exceed many of the national averages. A major source of the economic prominence in Wyoming is the national demand for natural resources. According to the EAD report, "the mining industry contributed approximately one third of both the state's total earnings growth and job growth." Additionally, the Wyoming Statewide Airport Inventory and Implementation Plan noted that the State of Wyoming has been mined for natural resources for over 120 years with the major sources of natural resources including oil, gas and coal.

TABLE 1.1 TOTAL OIL & GAS PRODUCTION 2013

	Sweetwater County	Wyoming
Oil Bbs	63,043,559 (*92.3% of statewide total)	68,269,806
Gas Mcf	2,060,711,778 (*93.3% of statewide total)	2,208,563,823

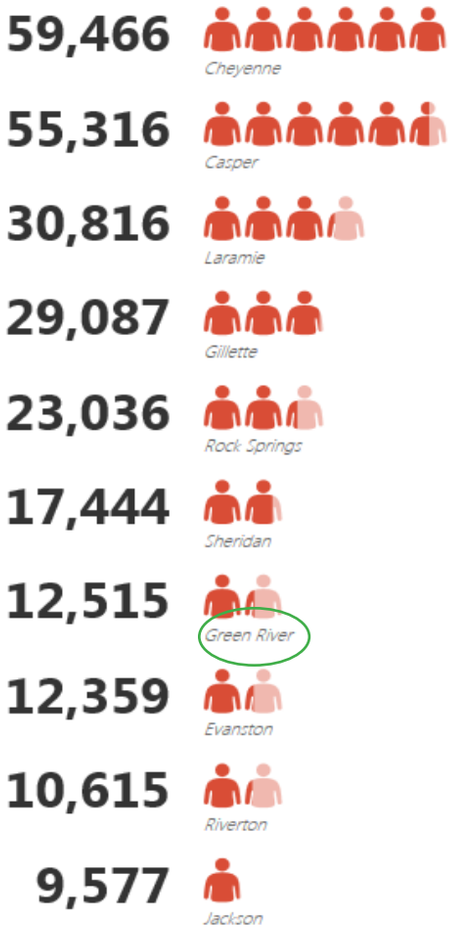
According to data obtained from the Petroleum Association of Wyoming, during 2006, 20 of the 23 counties in Wyoming produced crude oil or natural gas. Wells drilled in 2006 totaled 3,246 with 5.1% locating oil and 92.8% locating gas. These wells were drilled in proven areas in the state. There were an additional 38 wildcat wells (wells drilled in unproven areas) with 58% finding oil or gas. This gives some glimmer of the estimated reserves of the natural resources yet untapped in Wyoming. In 2006, the leading producers of crude oil were Campbell, Park, and Sublette Counties. The leading county producers of natural gas were Sublette, Campbell, and Sweetwater. The petroleum industry in Wyoming directly employs approximately 20,000 people with an annual payroll of over $1.0 billion. *Table 1.1* lists total oil and gas production for Sweetwater County and Wyoming for 2013. In both categories, production in Sweetwater County accounts for over 90% of Wyoming's total production.

TABLE 1.2 ESTIMATED TAXABLE RETAIL SALES (FY 2007)

CITY/TOWN	COUNTY	ESTIMATED TAXABLE RETAIL SALES
Gillette	Campbell	$1,687,601,314
Casper	Natrona	$1,497,513,660
Rock Springs	Sweetwater	$919,131,433
Cheyenne	Laramie	$789,073,317
Green River	**Sweetwater**	**$580,131,717**
Pinedale	Sublette	$456,317,100
Jackson	Teton	$394,106,767
Laramie	Albany	$375,193,050
Rawlins	Carbon	$326,792,050
Sheridan	Sheridan	$287,033,717
Evanston	Uinta	$251,664,200
Marbleton	Sublette	$232,682,925
Cody	Park	$205,739,550
Riverton	Fremont	$202,162,925
Buffalo	Johnson	$184,632,960
Lander	Fremont	$149,114,150
Douglas	Converse	$147,985,360
Big Piney	Sublette	$131,853,650
Powell	Park	$125,120,375
Kemmerer	Lincoln	$121,761,800

Taxable retail sales are an indicator of where money is being spent and help define major economic centers. Using information provided by the Wyoming Department of Administration and

Figure 1.6 Wyoming's 10 Largest Cities



Information (A&I), Economic Analysis Division and the Wyoming Department of Revenue, estimated taxable retail sales by county and incorporated city/town were compiled. The top Economic Centers have fluctuated some but have not significantly changed from fiscal year 2000 through 2007. On the previoous page, *Table 1.2* lists the communities in Wyoming with the top 20 estimated taxable retail sales amounts for 2007.

Figure 1.6 illustrates the Wyoming's ten largest cities based on population size. Green River ranks number five for estimated taxable retail sales and number seven for largest cities in the state based on population.

Additionally, each airport is an economic generator in its community. According to the US Aircraft Owners and Pilots Association, general aviation provides more than one percent of the United States' Gross Domestic Product (GDP), accounting for 1.3 million jobs in professional services and manufacturing. According to the General Aviation Manufacturers Association (GAMA), business aviation contributes $150 billion to U.S. economic output. Airports generate revenue through activities that include fuel sales, hangar and tie-down rental, aircraft maintenance and services available on the airport, such as flight schools, restaurants, and aircraft sales/rental. Other revenue comes to the community as visitors rent cars, check into area hotels, and visit restaurants and other attractions. *Table 1.3* lists the total economic output of several airports throughout Wyoming.

TABLE 1.3 TOTAL STATEWIDE ECONOMIC IMPACTS BY AIRPORT (BASED ON STATE MULTIPLIERS)

Airport	Total Employment	Total Payroll	Total Output
Commercial Service Airports			
Riverton Regional Airport	157	$5,062,950	$18,591,570
Rock Springs - Sweetwater County Airport	267	$9,211,070	$31,244,000
Sheridan County Airport	350	$14,940,270	$58,192,530
Worland Municipal Airport	80	$3,205,880	$15,206,500
Yellowstone Regional Airport (Cody)	467	$12,947,290	$45,324,630
Intermediate Airports			
Johnson County Airport (Buffalo)	12	$399,010	$1,827,580
Hunt Field (Lander)	14	$414,090	$1,672,820
Powell Municipal Airport	7	$269,570	$831,100
Local Airports			
North Big Horn County Airport (Cowley)	3	$117,340	$389,550
Dixon Airport	2	$70,870	$229,810
Fort Bridger Airport	6	$259,450	$952,120
Greater Green River Intergalactic Spaceport	N/A	N/A	N/A
Hot Springs County-Thermopolis Municipal Airport	24	$770,750	$2,194,310

Eight out of the ten most populous cities in Wyoming are equipped with a commercial service airport. Of the two remaining cities, Evanston has a business airport with a 7,300 feet long by 100 feet wide paved runway and Green River has a local airport comprised of a 5,800 feet long by 130 feet wide unpaved landing strip.

1.5 ECONOMIC OUTPUT METHODOLOGY

When looking at the annual output/economic activity of an airport, it is important to keep in mind that such numbers are calculated as follows:

Figure 1.7 Economic Output

Initial impacts start with on-airport activities such as airport administration, airport tenants, and/or capital investment. Initial on-airport economic impacts are referred to as airport-related impacts. The other source of initial economic impact for each airport takes place primarily off-airport and relates to spending by visitors who arrive either on a commercial airline or general aviation plane. On-airport and off-airport economic impacts are measured in three categories: jobs, annual payroll, and annual output (spending).

When initial impacts enter the economy, they re-circulate or multiply. Eventually, initial impacts "leak" outside the geographic area being studied. When an airport employee uses their "initial" pay to purchase goods and services in their community, it is the subsequent spending that leads to the re-circulation of initial impacts that start at the airport. Additional impacts created by the re-circulation of initial impacts are referred to as multiplier impacts.

Initial on-airport and initial off-airport impacts are added to estimate total jobs, payroll, and output by each airport. Initial impacts are then increased using scientific models to estimate each airport's economic impact on its local market area and the state economy, thus creating the multiplier impacts. Each airport's initial impacts and multiplier impacts equal the airport's total annual economic impact for jobs, payroll and output. The actual process to estimate economic impacts for airports in Wyoming is multi-layered and complex, despite the aforementioned attempt to provide a simplified explanation of the process. (Note: The Greater Green River Intergalactic Spaceport was not included in the 2013 Wyoming Airports Economic Impact Study, but every other Wyoming community with an airport and a population greater than 1,100 was included in the study.)

1.6 WYOMING COMMUNITY "PAIRS"

There are similarities between Green River and Rock Springs and several other "pairs" of communities throughout Wyoming. For example, the communities of Lander and Riverton are 25 miles apart. Lander is the county seat, but Riverton maintains the county's population base. Both communities maintain developed airports, 31 miles apart. Riverton has a commercial service airport, just like Rock Springs, and Lander has an intermediate airport, meaning it serves medium to small communities and supports local economies by accommodating medium to small business jet activity and recreational users. Lander's airport reports a greater number of operations and based aircraft than Riverton's airport. In fact, Hunt Field in Lander is the busiest general aviation airport in the state.

Powell and Cody are also in close proximity to one another and each community maintains its own developed airport. The two cities are 24 miles apart, while the airports are 33 miles apart. Cody has a commercial service airport, like Rock Springs and Riverton, and Powell has an intermediate airport, like Lander. While the Cody airport reports a significantly greater number of operations and based aircraft than the Powell airport, both communities maintain their own airports, despite both communities having smaller populations than Green River or Rock Springs.

Buffalo and Sheridan, as well as Thermopolis and Worland, are additional "pairs" of Wyoming communities that have similar traits to Green River and Rock Springs. Buffalo and Sheridan are 36 miles apart (38 miles between airports) and Thermopolis and Worland are 33 miles apart (35 miles between airports). Buffalo and Thermopolis both have general aviation airports and Sheridan and Worland both have commercial service airports. The Buffalo airport is considered an intermediate airport, just like the Lander and Powell airports, but the Thermopolis airport is considered a local airport, like the Green River airport. Local airports serve smaller communities and have basic facilities for supporting emergency use and accomodating recreational users. However, unlike the Green River airport, the Thermopolis airport is paved and hosts nearly 2,500 operations annually. Currently, a new airport is under construction in Thermopolis.

Similarities can also be made between the communities of Pine Bluffs and Cheyenne, which are nearly 42 miles apart. The difference between these two communities is significant - Pine Bluffs has a population of 1,129 and Cheyenne has a population of 59,489. Despite its substantially lower number of residents and proximity to the state capitol, Pine Bluffs still reports approximately 8,400 operations annually and houses eight based aircraft.

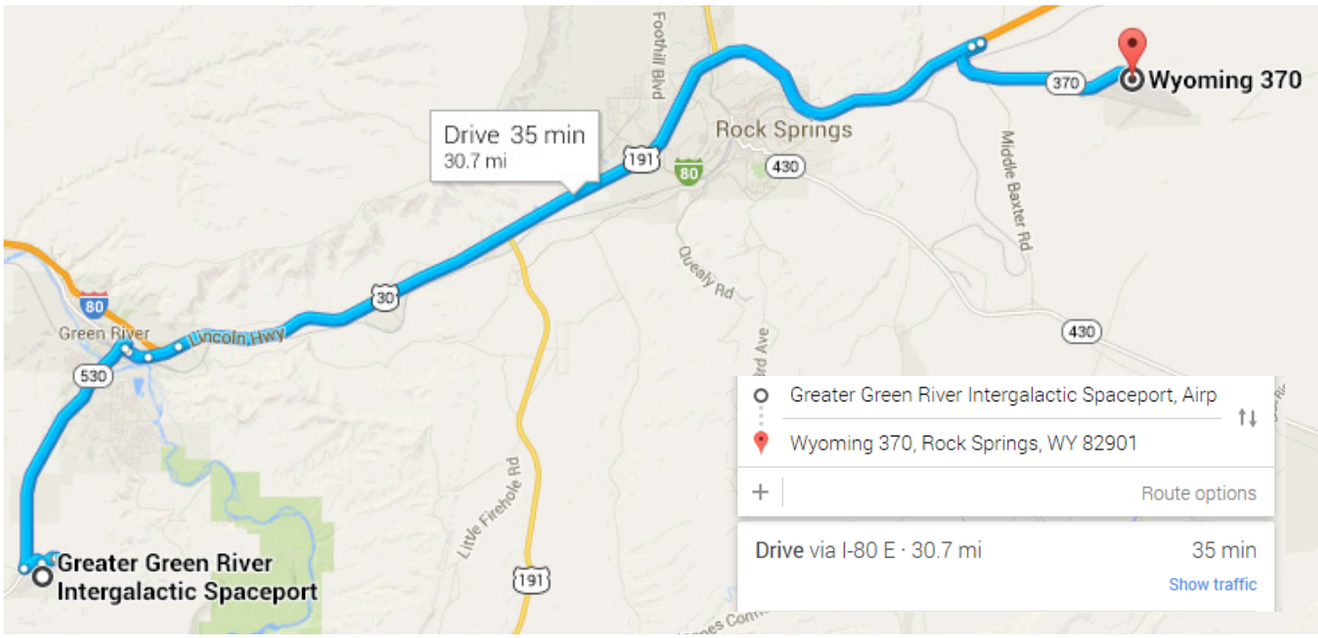
Table 1.4 summarizes the characteristics for several "pairs" of neighboring Wyoming communities. To provide additional perspective, *Table 1.5* includes a sample of both intermediate and local airports and their respective number of based aircraft and annual operations. Based aircraft can be considered an indicator of local airport use and total annual operations can be considered an indicator of local and itinerant usage levels. As indicated by the population column, all of the communities listed in *Table 1.5* have populations that are smaller in size than Green River's population of 12,515.

TABLE 1.4 SUMMARY OF CHARACTERISTICS FOR IDENTIFIED COMMUNITIES

GA Airport / Commercial Service Airport	Distance (Drive Time) Between Airports	Population	Total Based Aircraft	Annual Operations
Green River / Rock Springs	30.7 miles (35 mins.)	12,515 / 23,036	0 / 44	175 / 14,235
Buffalo / Sheridan	37.5 miles (46 mins.)	4,585 / 17,450	14 / 105	11,315 / 36,135
Lander / Riverton	31 miles (40 mins.)	7,487 / 10,696	64 / 45	10,950 / 6,344
Powell / Cody	32.5 miles (50 mins.)	6,314 / 9,520	21 / 78	2,600 / 37,960
Thermopolis / Worland	34.9 miles (45 mins.)	3,009 / 5,487	11 / 17	2,496 / 3,952
Pine Bluffs / Cheyenne	41.85 miles (41 mins.)	1,129 / 59,489	8 / 99	8,395 / 51,830

TABLE 1.5 SAMPLING OF AIRPORTS IN COMMUNITIES SMALLER THAN GREEN RIVER			
Airport	***Based Aircraft***	***Annual Operations***	***Population***
Intermediate Airports			
Big Piney	*7*	*3,120*	*552*
Kemmerer	*3*	*2,964*	*2,656*
Newcastle	*8*	*2,548*	*3,532*
Rawlins	*16*	*4,576*	*9,259*
Torrington	*21*	*3,380*	*6,501*
Local Airports			
Cowley	*17*	*3,536*	*655*
Dixon	*6*	*732*	*97*
Dubois	*15*	*1,768*	*971*
Fort Bridger	*8*	*3,484*	*345*
Pine Bluffs	*8*	*8,395*	*1,129*

Figure 1.8 Distance Between Green River and Rock Springs Airports



1.7 POTENTIAL SYSTEM REDUNDANCY

According to the Wyoming Statewide Airport Inventory and Implementation Plan, a 30-minute service area is related to general aviation activity only and does not consider commercial service or military operations. However, commercial service and/or military operations at an airport can contribute to airport amd airspace congestion, which can be a deterrent to general aviation users. A 30-minute service area is appropriate for airports serving the general aviation community as these types of users generally use an airport within 30 minutes of their residence or business. Also, federal criteria supports that NPIAS airports should be located a distance of at least 30 minutes drive time of another NPIAS airport.

In addition to proximity, airport users select an airport for use by the types of facilities and services available. These may include runway length, instrument approach capabilities, fuel types available as well as price, general airport condition, hangar availability and prices to lease or rent, aircraft maintenance and FBO services. Other factors considered may include ease of airport use (i.e. air traffic congestion or lack thereof), existence of an air traffic control tower, weather systems available, etc. The importance of any one of these items is user specific but these are typically the types of facilities and services users consider when selecting an airport for general aviation use. Generally, when selecting an airport, a user will balance the availability of facilities and services against the geographic location of an airport and the proximity of the airport to their residence or business. If the roles of the airports are the same and facilities and services are similar, users generally select the closest airport to their residence or business or the airport where they have an established relationship with the service provider. Although a 30 minute service area has been analyzed as part of the Wyoming Statewide Airport Inventory and Implementation Plan, it should be noted that users may elect to drive a distance greater than 30 minutes to obtain the types of facilities they require or the services or service provider they prefer.

Approximately 90% of the population within the 30 minute service area of Rock Springs also lives within 30 minutes of Green River and 64% of the population within the 30 minute service area of Green River also lives within 30 minutes of Rock Springs. Although 90% of the population served by Rock Springs is also served by Green River, the facilities and services at Rock Springs are greater than those of Green River and most users would likely elect to use Rock Springs. However, despite the Greater Green River Intergalactic Spaceport appearing that it is not of high use based on its number of based aircraft and annual operations, the airport still functions as an emergency landing site to itinerant users. State funds used to maintain a Local, Non-Paved Airport are minimal compared to the value of the facility as a potential landing site.

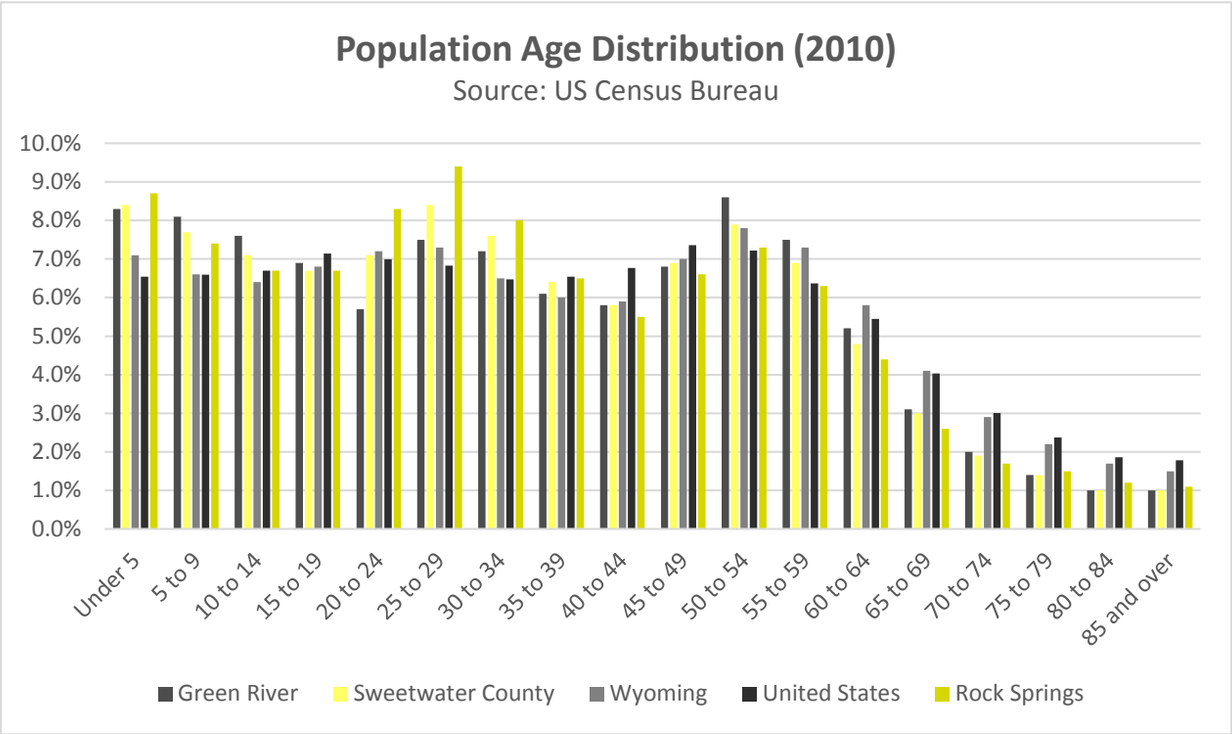
In regard to potential system redundancy among the other "pairs" of Wyoming communities and their respective airports, approximately 53% of the population served by Powell is also served by Cody and 25% of the population served by Cody is also served by Powell. The remaining pairs of communities exhibit varying amounts of overlap in service area that range between 8% and less than 1%.

Although service area overlaps exist, airports within the state serve different roles and in most cases, different types of users. According to the Wyoming Statewide Airport Inventory and Implementation Plan, in general, the higher the percentage of population served by both airports, the more likelihood that one airport could serve the entire area making an airport in the overlap area potentially redundant. The Wyoming Statewide Airport Inventory and Implementation Plan also states that "before any airport is considered redundant, a local study should be initiated to study the exact contributions of each airport in the overlap area to the Wyoming Aviation System." Such a study would take into consideration both the qualitative and intrinsic value of an airport.

1.8 SWEETWATER COUNTY DEMOGRAPHICS

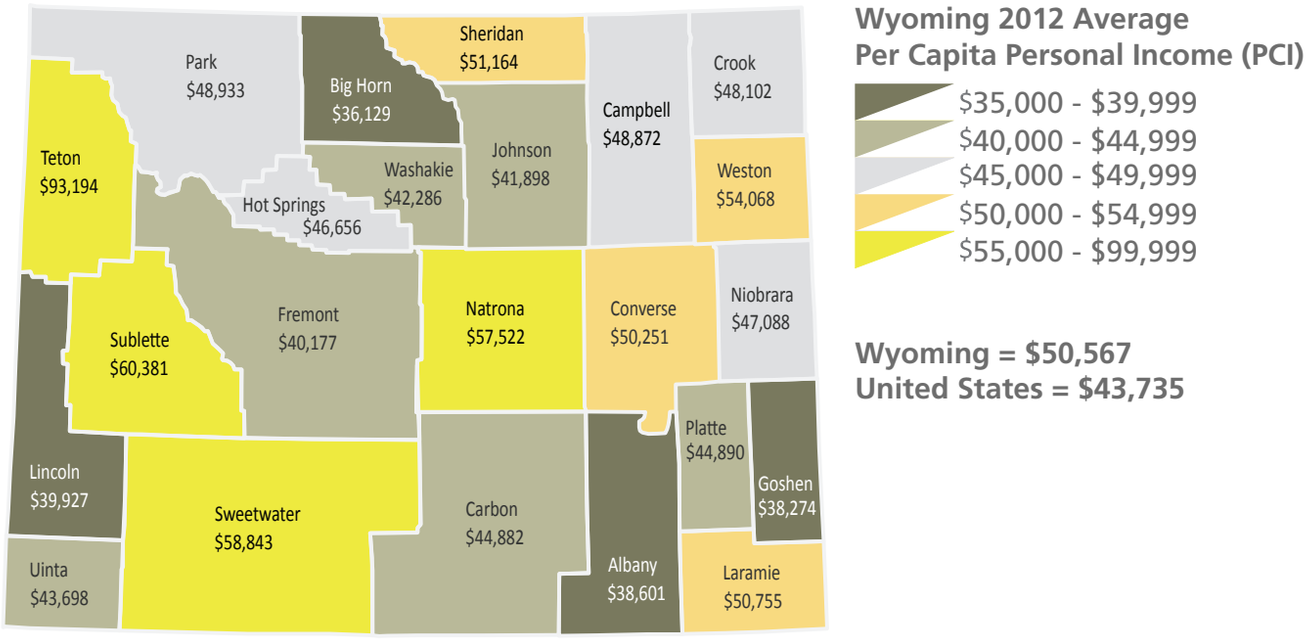
Figure 1.9 Population Age Distribution (2010) depicts the population age distribution for Green River, Sweetwater County, Wyoming, the United States, and Rock Springs. Based on this information, it appears that Green River's population base is comprised of more youth ages 14 and under and more adults in their fifties than Sweetwater County, Wyoming, and the United States. By contrast, the population of Rock Springs peaks for those in their twenties and early thirties.

Figure 1.9 Population Age Distribution



As indicated by *Figure 1.10 Per Capita Personal Income by County* below, Sweetwater County's Per Capita Personal Income (PCI) is $58,843, which is higher than Wyoming's average PCI of $50,567 and significantly higher than the average PCI of $43,735 nationwide. This PCI ranked 3rd in the state and was 116% of the state average and 135% of the national average. The 2012 PCI reflected an increase of 3.1% from 2011. The 2011-2012 state change was 2.8% and the national change was 3.4%. In 2002, the PCI of Sweetwater was $30,785 and ranked 6th in the state. The 2002-2012 compound annual growth rate of PCI was 6.7%. The compound annual growth rate for the state was 4.9% and for the nation was 3.2%. Sweetwater County's economy is largely based on agriculture, forestry, fishing and hunting, and mining. (Source: US Department of Commerce, Bureau of Economic Analysis)

Figure 1.10 Per Capita Personal Income by County

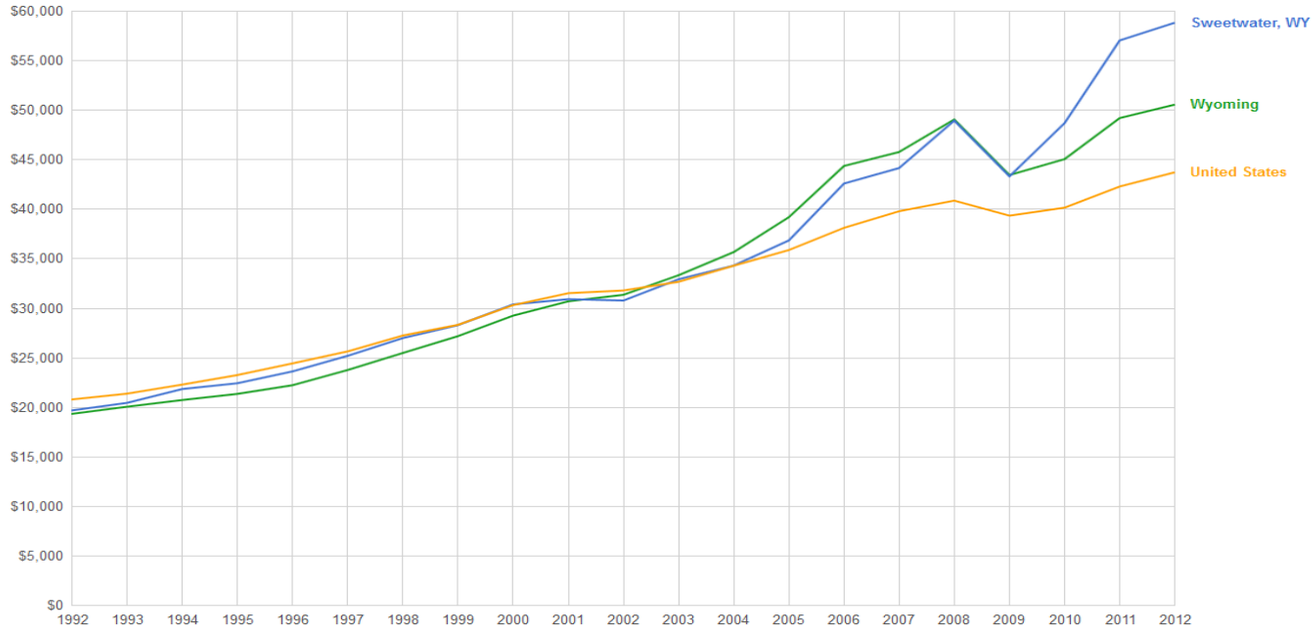


Total Personal Income (TPI) is income received by all persons from all sources, including salary and wages, dividends, interest earned, rent, and personal transfers like Social Security. Quickly growing populations are likelier to experience faster growth in TPI. To control for population discrepancies, Per Capita Personal Income (PCI) is used for comparing income in different locations. PCI is calculated by taking the TPI of the residents of a given area and dividing it by the resident population. PCI is used to gauge the comparative economic well-being of residents in a specified region. Changes over time in per capita growth or decline have economic, social, and political repercussions. Counties with smaller populations are more likely to experience substantial fluctuation for a number of reasons, including bumper crops, natural disaster, and major state or federal projects. Per Capita Personal Income is one of the most widely used indicators for gauging the economic performance and changing fortunes of local economies.

Information regarding income levels is important to aviation because it highlights the segment of the population that has the financial means to fly.

Figure 1.11 provides an illustration of the PCI for Sweetwater County, the State of Wyoming, and the United States over the twenty-year period between 1992 and 2012. Since approximately 2003, Wyoming, and Sweetwater County in particular, has reported a PCI that has been substantially higher than the national average.

Figure 1.11 Per Capita Personal Income - 20 Year History



As evidenced by *Figure 1.12*, Wyoming's unemployment rate of 4.6% for the year 2013 was well below the national average of 7.4%. Sweetwater County's unemployment rate of 4.1% for the same timeframe was even lower than Wyoming's average.

Figure 1.12 Unemployment Rates for Wyoming

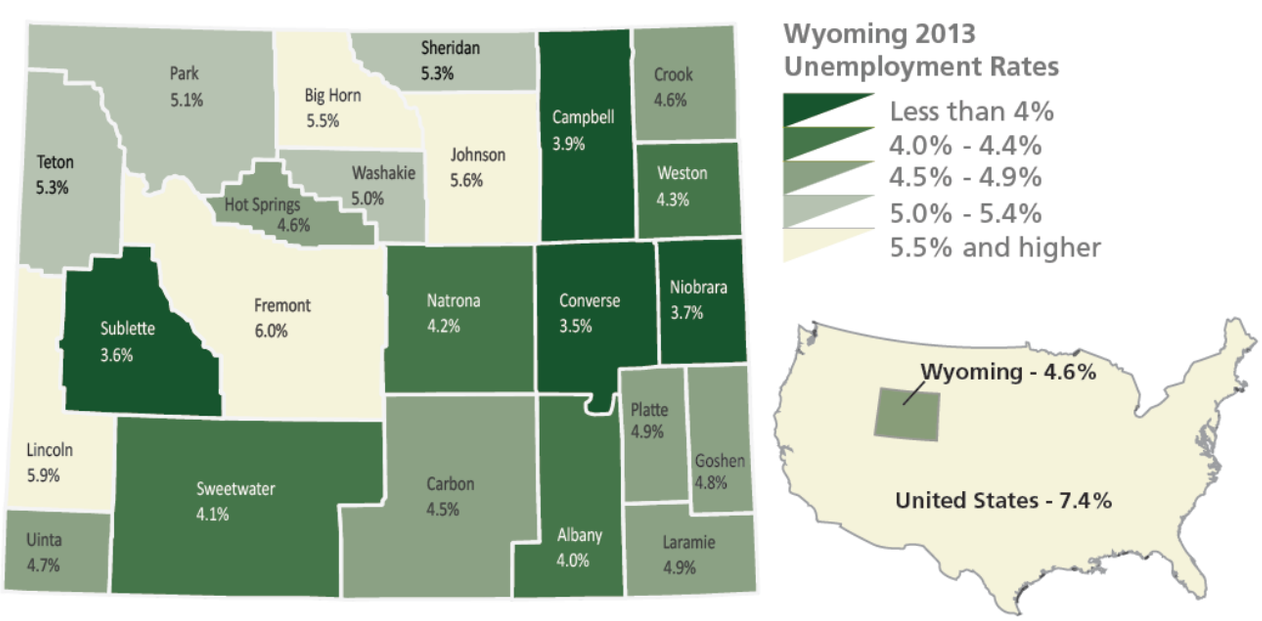


Figure 1.13 highlights the civilian employed population age 16 and over in Green River and five other select communities. These five communities were noted previously as being part of a pair of Wyoming communities that are in close proxity to one another - with one of the communities maintaining a commercial service airport and the other community maintaining a general aviation (GA) airport. Each of these five communities maintains a GA airport despite having a smaller population and fewer estimated taxable retail sales than Green River. Industry trends for all six communities are similar in that they all report the highest number of employees in the fields of educational services, health care, and social assistance. In nearly every category, the Green River economy outperforms that of the other communities.

Figure 1.13 Employed Population in Select Communities with General Aviation (GA) Airports

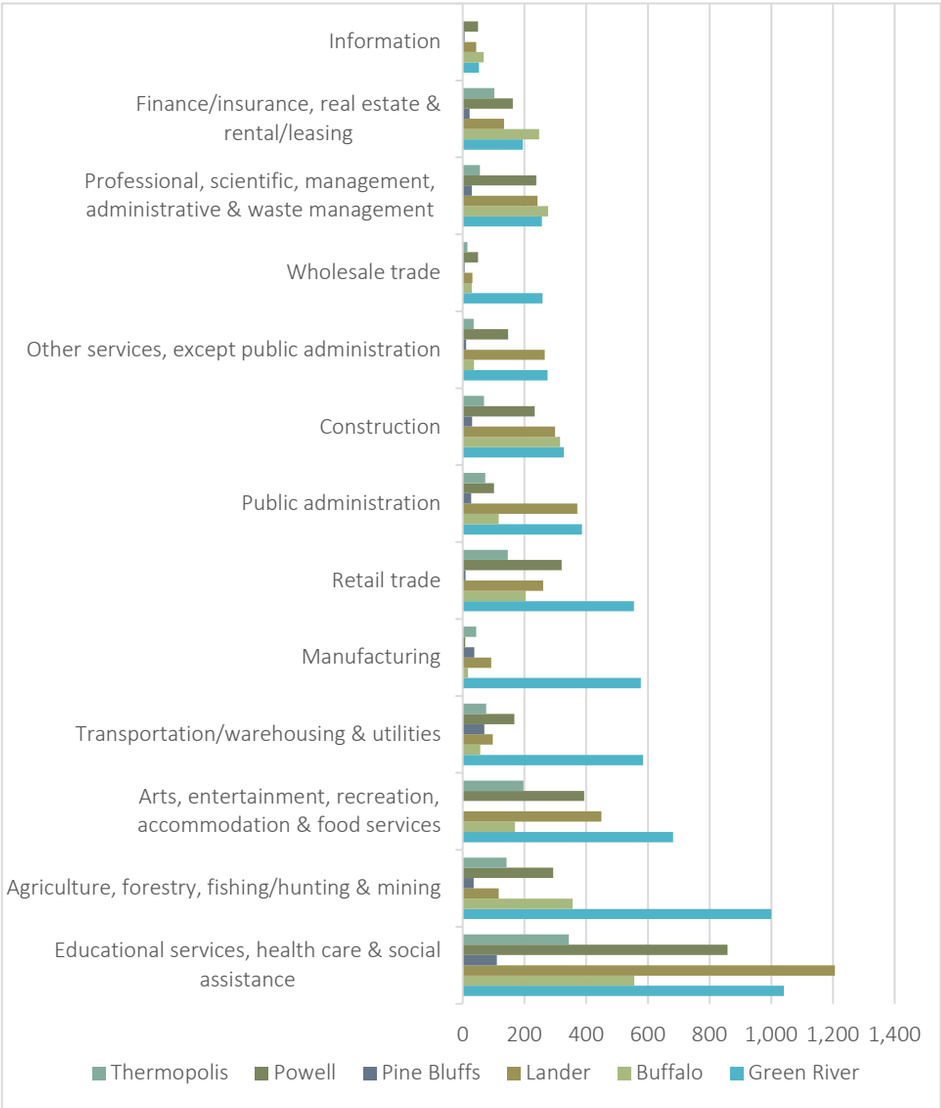
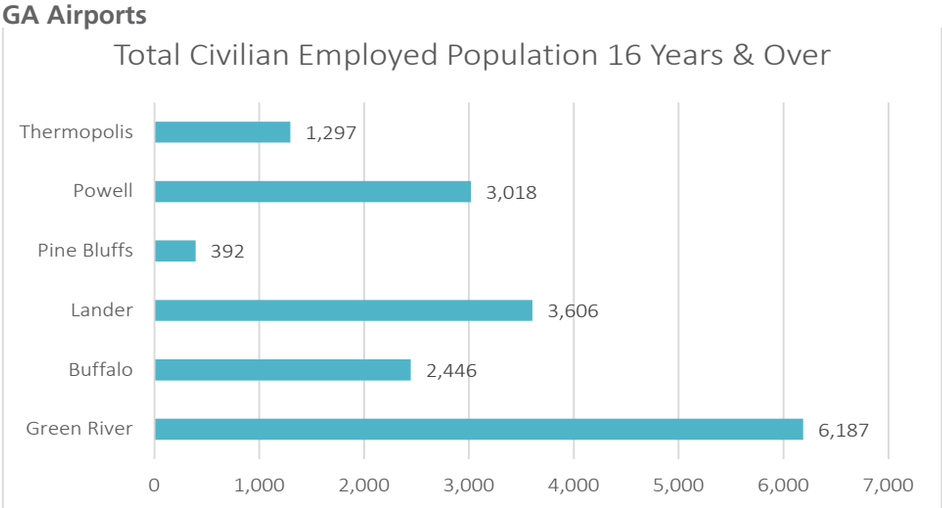


Figure 1.14 depicts the total number of civilian employees age 16 and over in Green River and select communities with GA airports.

Figure 1.14 Total Civilian Employed Population in Select Communities with GA Airports



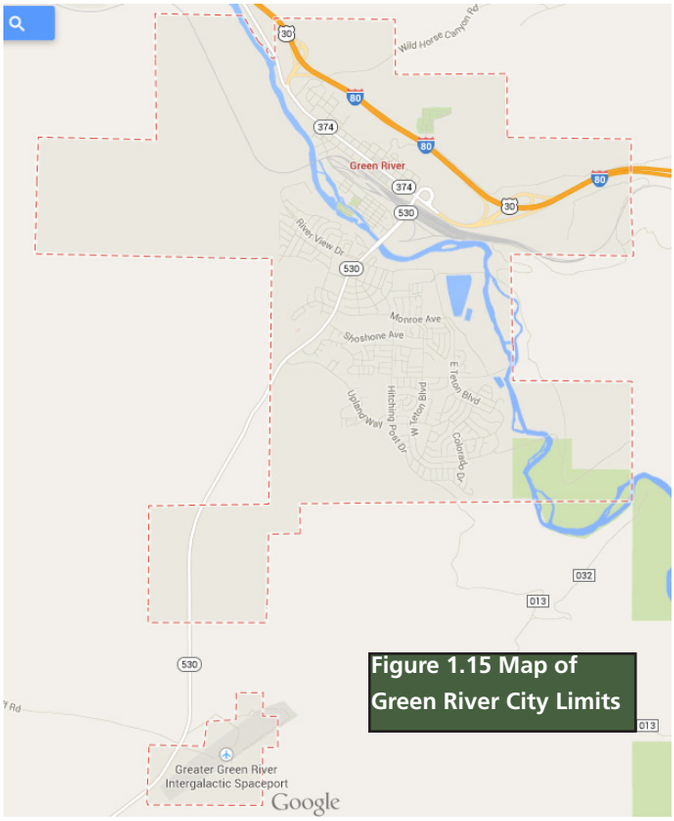
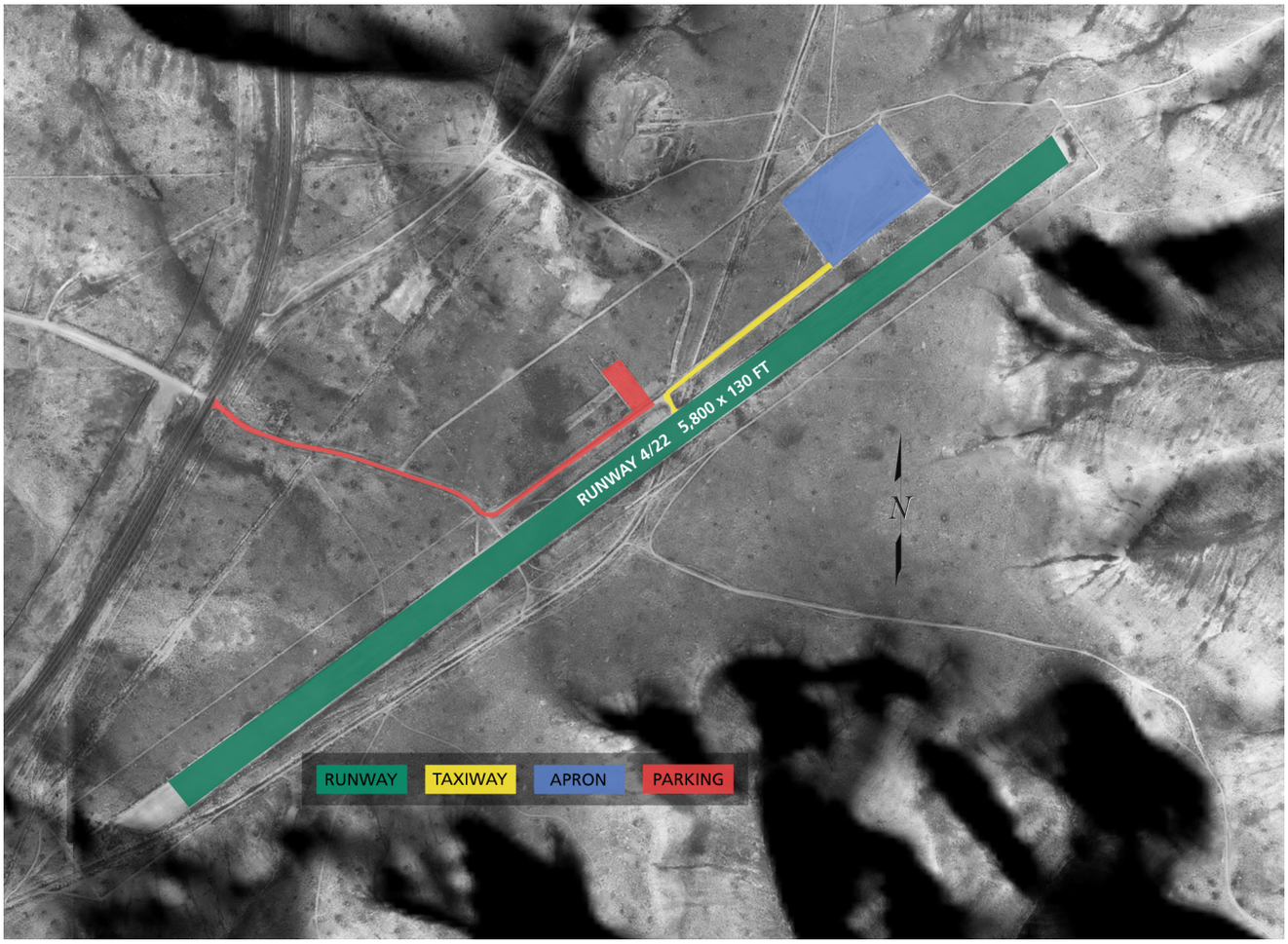


Figure 1.15 Map of Green River City Limits

Figure 1.15 illustrates the boundaries for the City of Green River. The Greater Green River Intergalactic Spaceport is in the southernmost section of the city that was annexed for the purpose of allowing the City governing authority over the airport.

Figure 1.16 below depicts the general layout of the Greater Green River Intergalactic Spaceport (48U) with specific areas highlighted. These colored areas - runway, taxiway, apron, and parking - are key components of the airport and will be referenced throughout this document. Currently, 48U is configured for A-II Airport Reference Code category, which is discussed in detail in Chapter 2.

Figure 1.16 Greater Green River Intergalactic Spaceport Current Layout

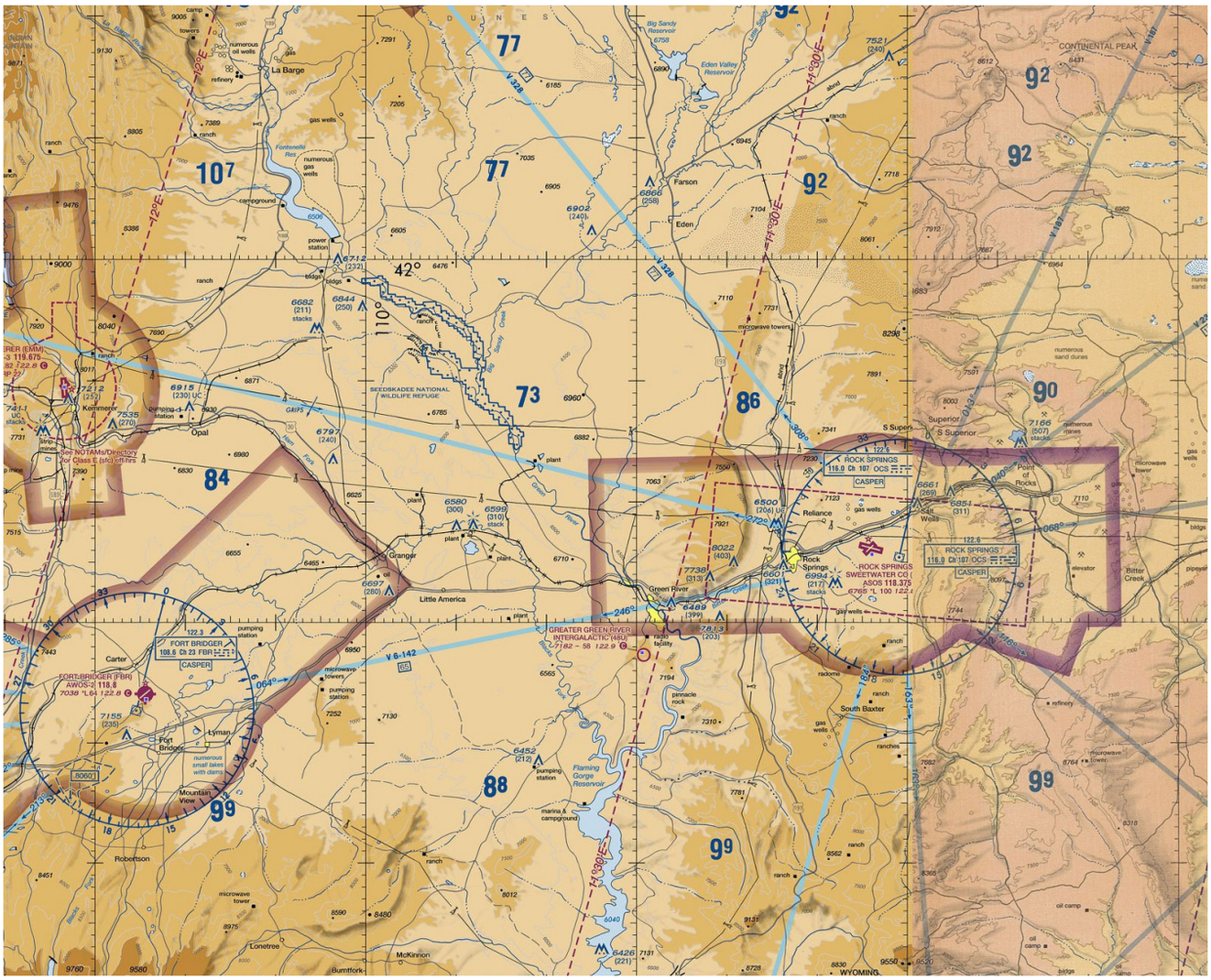


1.9 AIRSPACE, APPROACHES, AND NAVAIDS

The Greater Green River Intergalactic Spaceport is located within Class E Airspace with floor 700 feet above surface. The airspace is depicted in *Figure 1.17*. 48U has one runway. Runway 4/22 is dirt in fair condition and 6,178 feet long and 150 feet wide. According to AirNav, the airport had 175 aircraft general aviation operations for the 12-month period ending June 30, 2013. The airport has no published approaches.

48U does not have runway visual aids, runway or apron lighting, weather reporting, or tiedowns. Its sole wind indicator is a wind sock. Additionally, 48U's security is limited to a partial field fence. There are no hangars, landleases, or other types of facilities at 48U. There are no based aircraft and no services available at 48U. According to the FAA Aircraft & Pilot Registry, there were a total of 67 FAA Registered Pilots and 71 total FAA registered aircraft in Sweetwater County in August 2007. Of these, 64 were piston aircraft and 7 fell into the "other" category, which includes gliders, sailplanes, and balloons. Additional remarks for 48U include: runway soft when wet; airport on top of mountain – land descends very steeply from runway ends; no line of sight between runway ends; no snow removal available; uncontrolled vehicle access; possible debris found on runway; and +3 foot berm near runway edges entire length of runway.

Figure 1.17 Area Airspace



1.10 WIND COVERAGE

Prevailing wind is a major factor influencing the orientation of runways. Wind conditions affect all aircraft to some degree. Generally, the smaller the aircraft, the more it is affected by wind. Therefore, orienting the runway such that it is aligned with the prevailing wind the greatest percentage of time, adds substantially to the safety and usefulness of an airport. Wind coverage is defined as the percentage of time that crosswind components are below an acceptable velocity. The most desirable runway orientation based on wind is one that has the greatest percentage of wind coverage. The minimum recommended wind coverage for an airport is 95%. The 95% coverage is computed on the basis of the crosswind not exceeding 10.5 knots for ARC A-I and B-I, 13 knots for ARC A-II and B-II, 16 knots for ARC A-III, B-III, and C-I through D-III, and 20 knots for ARC A-IV through D-VI.

Figure 1.18 Wind Monitor at 48U

To determine the prevailing wind velocity and direction at the Airport, a wind monitor was placed at the Greater Green River Intergalactic Spaceport from April 30th through October 12th of 2014. *Figure 1.18* shows the wind monitor that was placed at 48U to collect data. Wind observations were conducted every 15 seconds by the wind monitor, and produced 951,289 wind total observations. Wind data was also obtained from the Rock Springs-Sweetwater County Airport's (RKS) Automated Surface Observing System (ASOS), available through the National Oceanic and Atmospheric Administration's National Climatic Data Center, for comparison. The ASOS at Rock Springs records weather observations approximately every hour and resulted in 4,498 total observations for the same time period. The wind data from RKS was applied to the 48U runway alignment. T*able 1.5 Wind Observations* and the wind roses on the following page summarize the wind data.

Based upon the wind data collected, the following conclusions apply to the existing runway configuration at the Greater Green River Intergalactic Spaceport:

- The current runway configuration of 48U does not meet the desired 95 percent wind coverage at the 10.5-knot allowable crosswind component, but does at 13-knot, 16-knot, and 20-knot components.
- 496,456 observations (52%) of the total observation taken at the Greater Green River Intergalactic Spaceport were between the headings of 220 and 320.

TABLE 1.5 WIND OBSERVATIONS

48U	10.5-Knot	13-Knot	16-Knot	20-Knot
Runway 4	60.83%	61.88%	62.91%	63.18%
Runway 22	80.34%	84.30%	87.29%	88.47%
Combined Runway 4/22	91.29%	95.43%	98.52%	99.71%
RKS	**10.5-Knot**	**13-Knot**	**16-Knot**	**20-Knot**
Runway 4	57.55%	59.46%	61.44%	62.04%
Runway 22	71.05%	76.2%	80.47%	82.17%
Combined Runway 4/22	87.46%	93.11%	97.65%	99.44%

Figure 1.19 48U Wind Rose

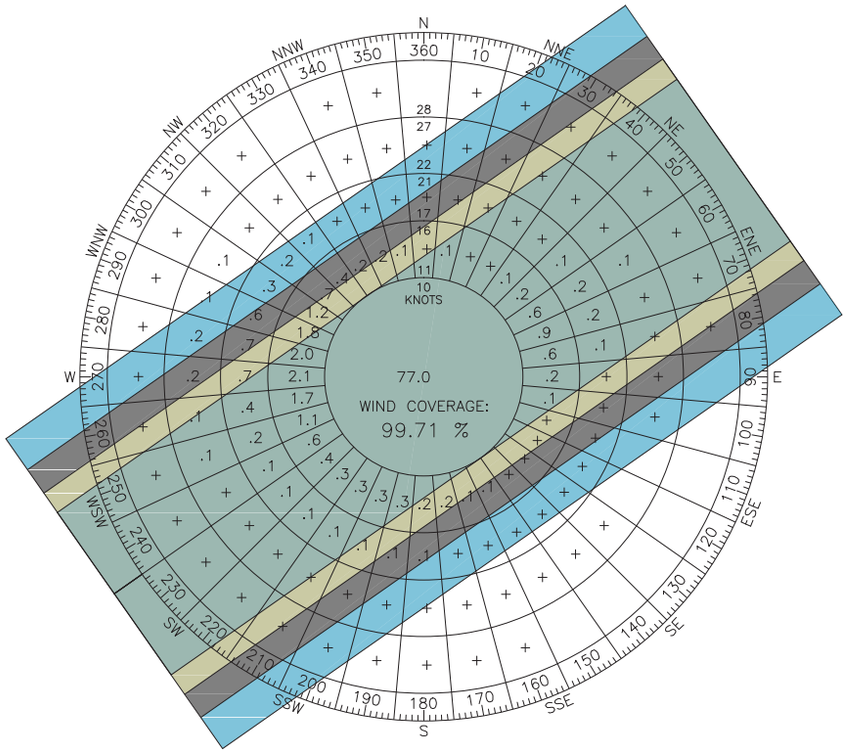
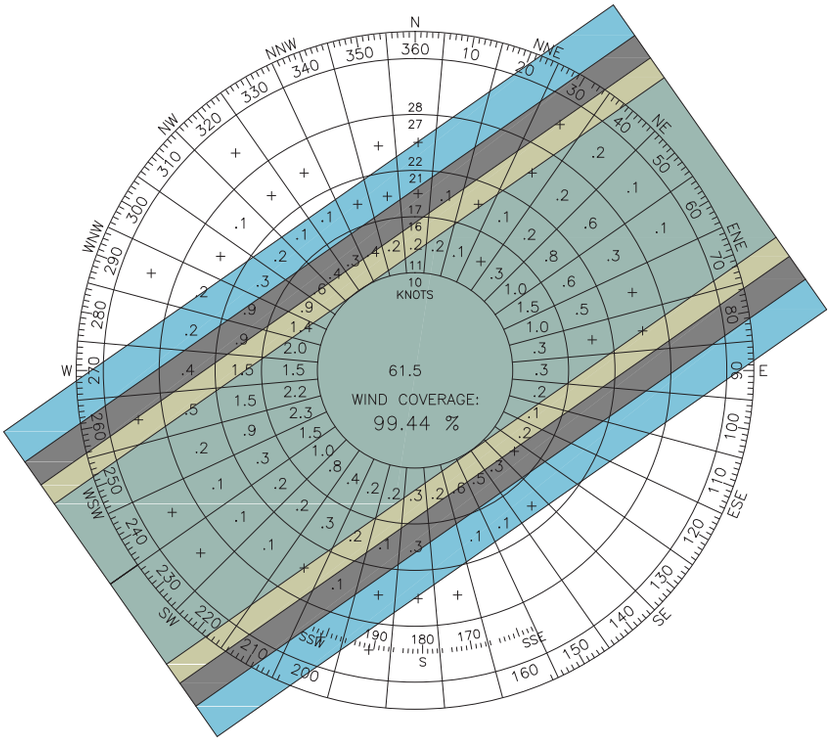


Figure 1.20 RKS Wind Rose



On the following pages, *Figures 1.21* through *1.24* depict the runway at 48U, while *Figure 1.24* captures images of birds on the runway. *Figure 1.25* illustrates damage to the runway created by wildlife. *Figures 1.26* and *1.27* provide evidence of unrestricted access to the runway and debris. *Figure 1.28* shows a photograph of 48U's sole visual aid - a windsock.

Figure 1.21 Runway at 48U Looking West to East

Figure 1.22 Runway Edge at 48U

Figure 1.23 Runway at 48U

Figure 1.24 Birds and Rocks on the Runway at 48U

Figure 1.25 Wildlife Damage on the Runway at 48U

Figure 1.26 Trash on the Runway at 48U

Figure 1.27 Trash on the Runway at 48U

Figure 1.28 Wind Sock at 48U

1.11 AREA AIRPORTS

Nearby airports with instrument procedures include the Rock Springs-Sweetwater County Airport (RKS), Fort Bridger Airport (FBR), Kemmerer Municipal Airport (EMM), Vernal Regional Airport (VEL), and Evanston-Uinta County Airport (EVW).

Rock Springs-Sweetwater County Airport (RKS)
RKS is located 20.8 Nautical Miles (NM), or 23.9 miles, from 48U. The Rock Springs-Sweetwater County Airport has 2 runways, both of which are paved. Runway 9/27 is asphalt, 10,000 feet long and 150 feet wide with a pavement strength of 55,000 pounds single wheel gear and 110,000 pounds dual wheel gear. Runway 3/21 is asphalt, 5,228 feet long and 75 feet wide with a pavement strength of 12,000 pounds single wheel gear and 25,000 pounds dual wheel gear. The airport averages 39 aircraft operations per day of which 70% are transient general aviation, 15% local general aviation, 15% air taxi, and less than 1% military. There are approximately 44 aircraft based at RKS: 37 single engine airplanes, 5 multi-engine airplanes, and 2 ultralights. RKS has 5 Instrument Approach Procedures (IAP): 1 Instrument Landing System (ILS) approach, 2 Global Positioning System (GPS) approaches, and 2 Very High Frequency Omnidirectional Range (VOR) approaches.

Fort Bridger Airport (FBR)
FBR is located 41.4 NM, or 47.6 miles, from 48U. The Fort Bridger Airport has 2 runways, 1 of which is paved. Runway 4/22 is asphalt, 6,404 feet long and 75 feet wide with a pavement strength of 12,500 pounds single wheel gear, 20,000 pounds dual wheel gear, and 20,000 pounds dual tandem gear. Runway 7/25 is turf in fair condition and 3,520 feet long and 50 feet wide. The airport averages 67 operations per week of which 66% are local general aviation and 34% are transient general aviation. There are approximately 8 aircraft based at FBR: 7 single engine airplanes and 1 helicopter. FBR has 2 IAP's: 1 GPS approach and 1 VOR approach.

Kemmerer Municipal Airport (EMM)
EMM is located 52.6 NM, or 60.5 miles, from 48U. The Kemmerer Municipal Airport has 3 runways, of which 2 are paved. Runway 16/34 is asphalt, 8,203 feet long and 75 feet wide with a pavement strength of 18,000 pounds single wheel gear. Runway 4/22 is concrete, 2,671 feet long and 60 feet wide with a pavement strength of 9,000 single wheel gear. Runway 10/28 is turf/dirt in good condition and 3,271 feet long and 60 feet wide. The airport averages 57 operations per week of which 53% are transient general aviation, 43% are local general aviation, and less than 3% are military. There are 3 single engine airplanes based at EMM. The Kemmerer Municipal Airport has 2 GPS IAP's.

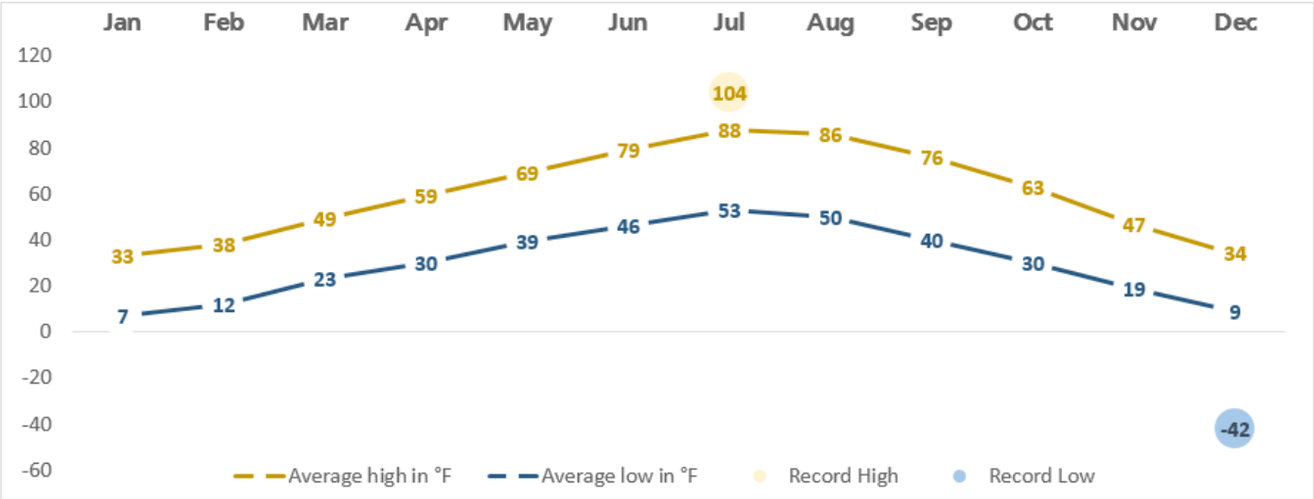
Vernal Regional Airport (VEL)
VEL is located 61 NM, or 70.2 miles, from 48U in Vernal, Utah. The Vernal Regional Airport has 2 runways, both of which are paved. Runway 16/34 is asphalt, 6,201 feet long and 150 feet wide with a pavement strength of 45,000 pounds single wheel gear and 55,000 pounds dual wheel gear. Runway 7/25 is also asphalt and 4,108 feet long and 60 feet wide with a pavement strength of 12,500 pounds single wheel gear. The airport averages 25 operations per day of which 53% are local general aviation, 31% are transient general aviation, and 16% air taxi. There are approximately 36 aircraft based at the airport: 24 single engine airplanes, 4 multi-engine airplanes, and 8 ultralights. VEL has 2 IAP's: 1 GPS approach and 1 VOR approach.

Evanston-Uinta County Airport (EVW)
EVW is located 70.4 NM, or 81 miles, from 48U. The Evanston-Uinta County Airport has 1 runway, which is paved. Runway 5/23 is asphalt, 7,300 feet long and 100 feet wide with a pavement strength of 30,000 pounds single wheel gear and 70,000 pounds dual wheel gear. The airport averages 106 operations per week of which 77% are transient general aviation, 20% local general aviation, 2% air taxi, and less than 1% military. EVW has 21 based aircraft: 19 single engine airplanes and 2 multi-engine airplanes. EVW has 1 ILS approach, 2 GPS approaches, and 2 VOR approaches.

1.12 CLIMATE

Green River experiences a wide range of weather, with an average temperature of 45°F, which is just below the average for the contiguous lower 48 states (53°F). The hottest temperature recorded was 104°F in July 1954 and the coldest was -42°F in December 1978. Monthly averages and extremes are graphed below in *Figure 1.29 Temperature*. Average annual precipitation is 8.34 inches, with May (1.22 inches), June (.98 inches), and September (.91 inches) typically being the wettest months. Average snowfall is 34 inches, and the months that average the most snowfall are December and February (7 inches), followed by January and March (5 inches).

Figure 1.29 Temperature



1.13 VEGETATION

The vegetation surrounding the Greater Green River Intergalactic Spaceport is a mixture of native grasses and low laying shrubbery. *Figures 1.30* and *1.31* below depicts the typical assortment of grasses and plants on the airport property.

Figure 1.30 Vegetation at 48U

Figure 1.31 Vegetation at 48U

Figure 1.32 Active Certificated Airmen in Green River by Location & Type

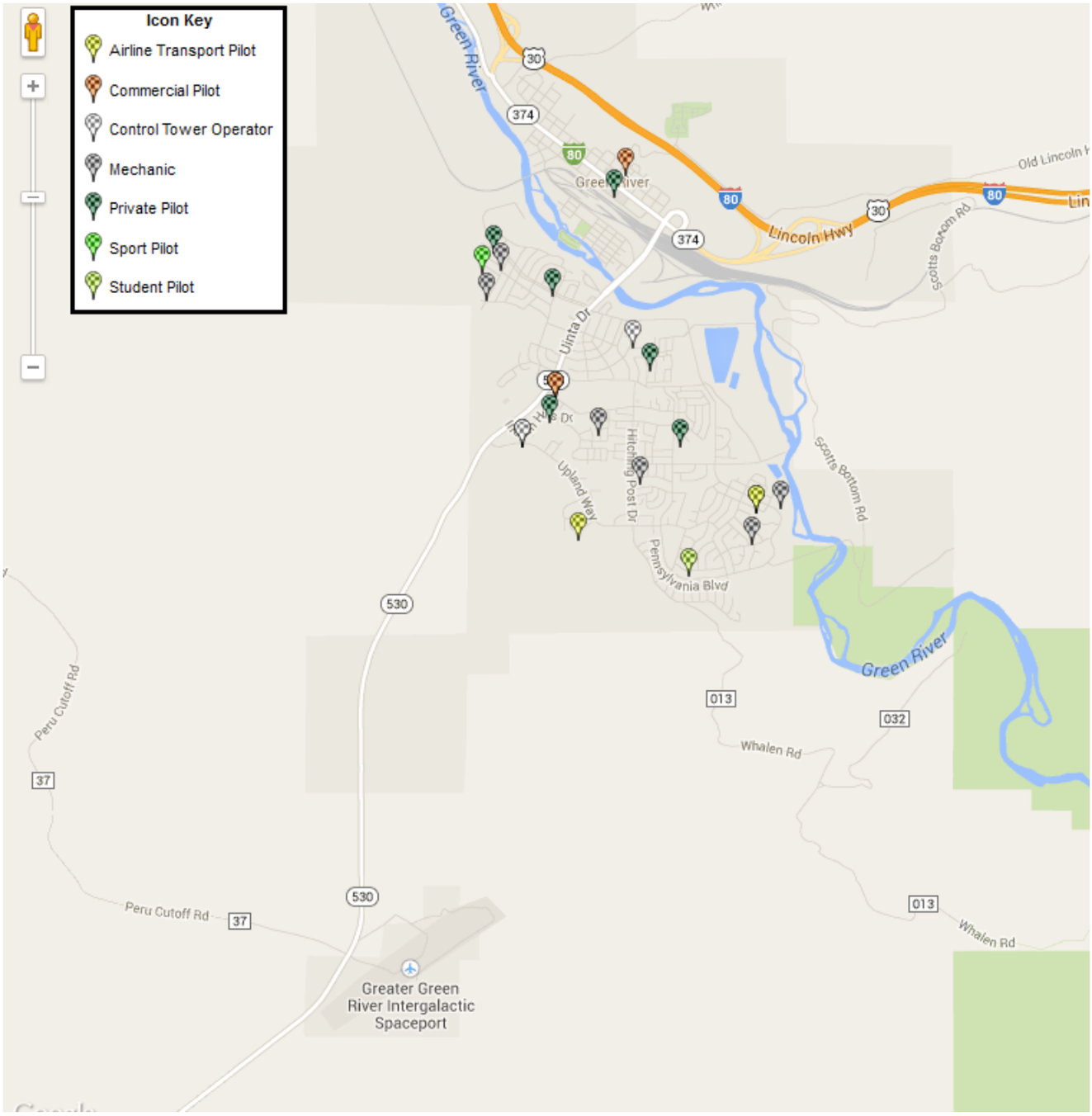
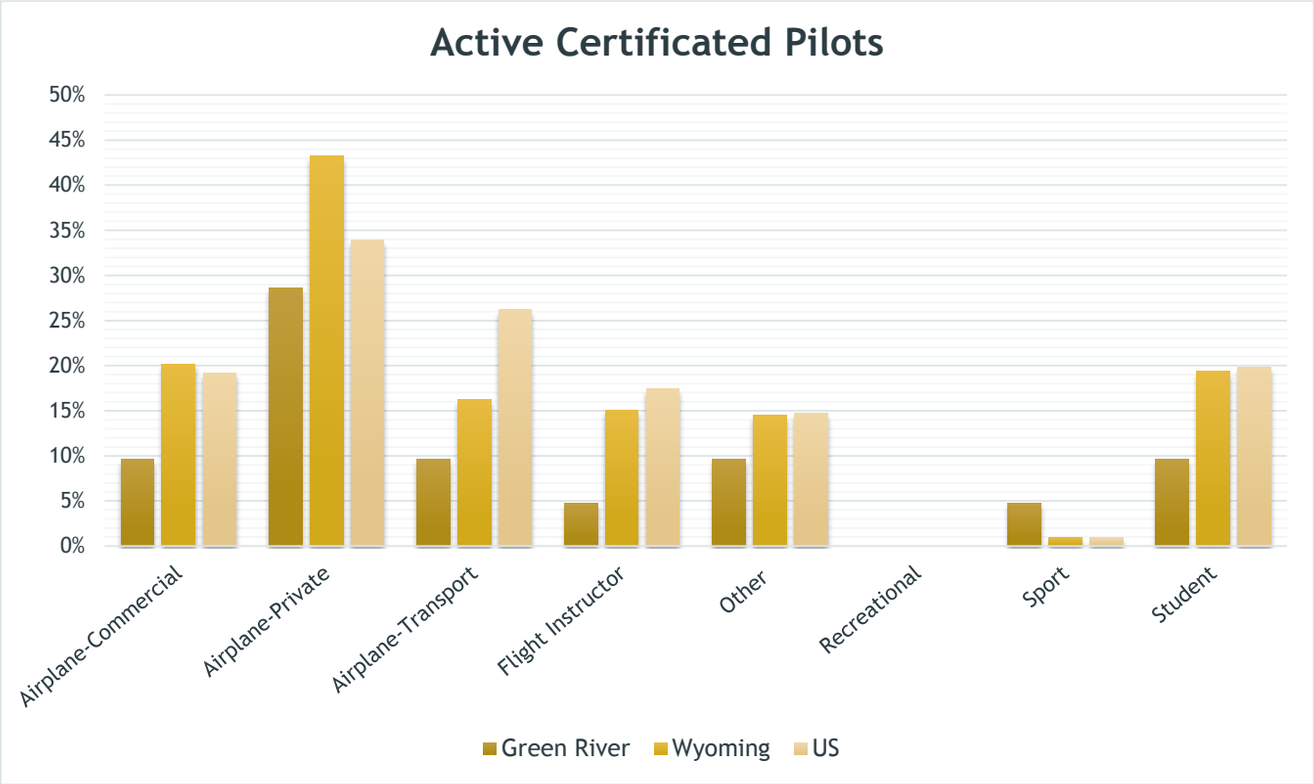


Figure 1.32 illustrates the general location of certificated airmen residing in Green River. The map also distinguishes various certificate types, such as student pilot or commercial pilot. As of June 2014, there were approximately 20 citizens of Green River with one or more airman certification.

Figure 1.33 Comparison of Active Certificated Pilots by Type



The number of active certificated pilots by type in Green River follows a similar pattern as the number of active certificated pilots by type in Wyoming and the US as indicated in *Figure 1.33* above.

Data for Green River is from the Airmen Database Search Result at Landings.com. Data for Wyoming and the US is from the 2013 General Aviation Statistical Databook & 2014 Industry Outlook document produced by the General Aviation Manufacturers Association (GAMA).

Figure 1.34 Location of Privately-Owned Aircraft in Green River

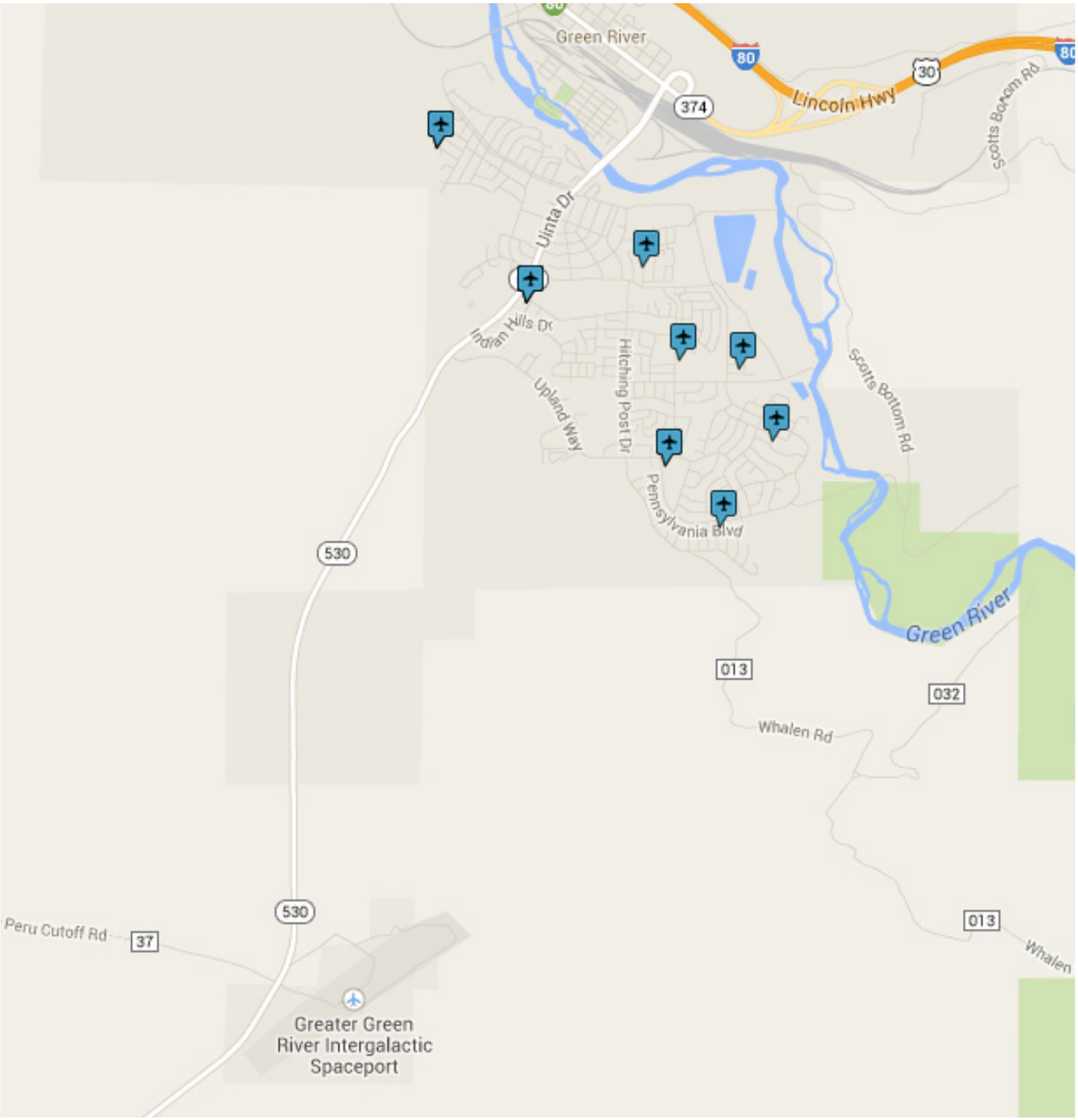


Figure 1.34 illustrates the general location for the owners of privately-owned aircraft in Green River. The number of locations shown is not necessarily equal to the total number of aircraft because some individuals have more than one registered aircraft. Data is from the FAA Registry.

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Forecasts of Aviation Demand

SECTION OVERVIEW

Chapter 2: Forecasts of Aviation Demand provides a forecast of anticipated future aviation demands at the Greater Green River Intergalactic Spaceport (48U) over the next two decades. These projections are critical for proper planning. Forecasts are based on an assortment of data sources.

2.0 GENERAL

Forecasts of future levels of aviation activity at an airport are the foundation for effective decisions in airport planning and development. The projections are used to determine the need and timing for new and/or expanded facilities or to decommission old facilities. Forecasts are intended to be realistic and based upon the most up-to-date available data and information, in order to provide adequate justification for airport planning and development. With an accurate forecast, an appropriate time frame for phasing of capital investments can be created to help avoid early and unnecessary operating expenses or a loss of economic benefits through the airport for the community.

Although as accurate as possible, forecasts cannot be absolute since they only predict aviation trends based upon past and current events. This study focuses on the 5, 10, and 20 year time frames for the Greater Green River Intergalactic Spaceport. The degree of accuracy for the forecast is more precise short-term. Additional demographic and economic analysis for Sweetwater County and the City of Green River was provided in *Chapter 1: Inventory*, as a background foundation upon which to base the forecast. Given the limited operations at 48U, this forecast incorporates a more in-depth than normal examination of local and itinerant unmet demand by business, training, medical and other aircraft operation sources.

2.1 SOCIOECONOMIC AND DEMOGRAPHIC ANALYSIS

According to the November 2009 Wyoming Statewide Airport Inventory and Implementation Plan, 16 counties in Wyoming were estimated to have experienced population growth over the period 2000 to 2008, and 7 were estimated to have declined over the 8 year period, resulting in a net population increase in Wyoming of 7.1%. This represented a net increase in total population of 35,118 residents over the 8 years. Counties within Wyoming with the greatest actual increase in population (over 3,000 residents) included Campbell (11,590), Natrona (8,550), Laramie (6,920), Sublette (4,250), Lincoln (3,860), and Sweetwater (3,730).

Located in Laramie and Natrona counties respectively, Cheyenne and Casper are the only two communities in Wyoming with populations over 50,000 residents. These two cities account for approximately 31% of Wyoming's incorporated population. Laramie and Gillette have populations over 20,000, and Rock Springs, Sheridan, Green River, and Evanston have populations over 10,000. Combined, these communities account for approximately 62% of Wyoming's total population.

Figure 2.1 below illustrates the 2008 and 2020 population forecast for Sweetwater County and the communities of Green River and Rock Springs, as calculated by the Wyoming Department of Administration and Information, WY Economic Analysis Division and WY Department of Revenue. This population forecast was included in the November 2009 Wyoming Statewide Airport Inventory and Implementation Plan.

Figure 2.1 Population Forecast

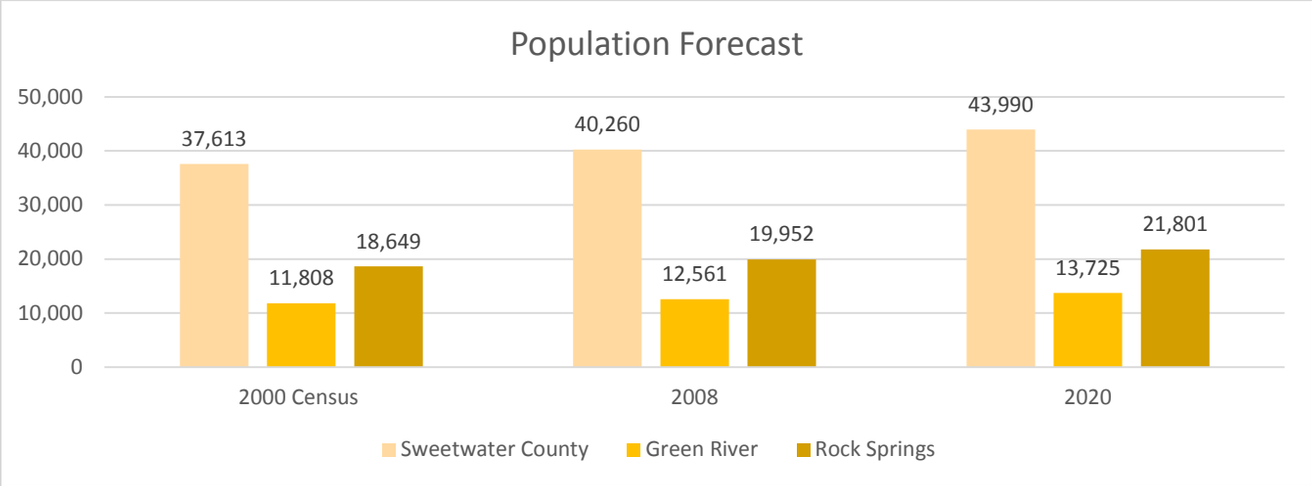
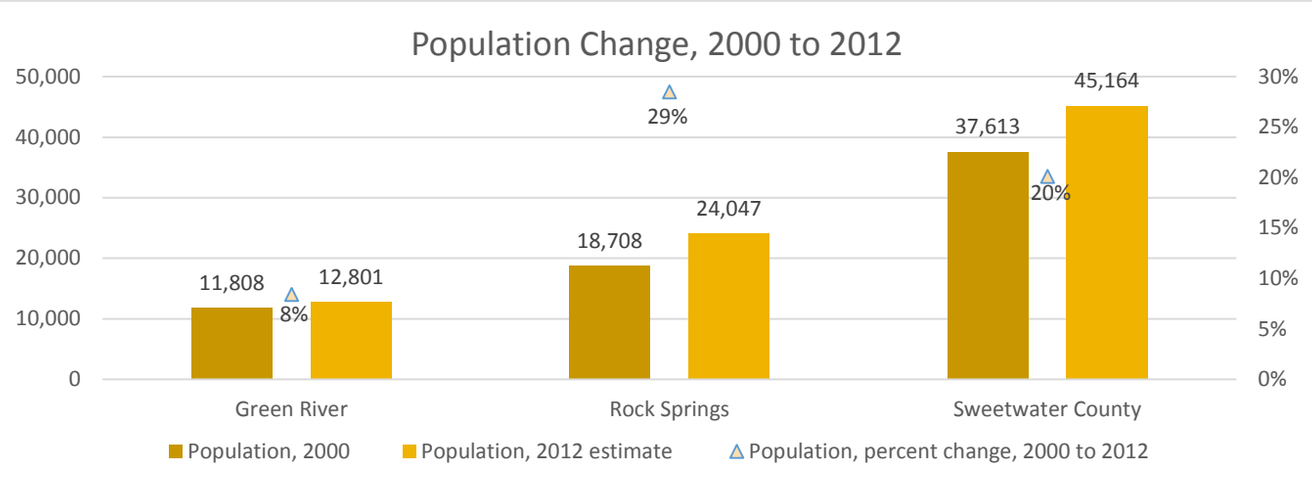


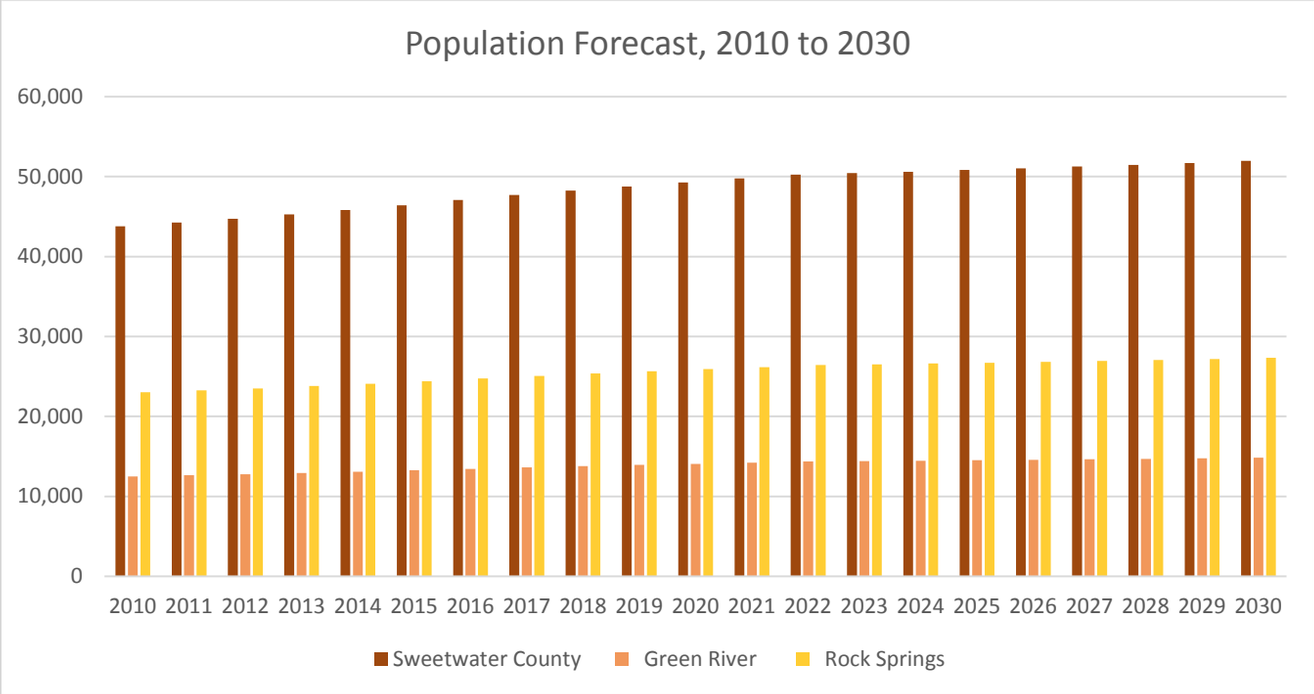
Figure 2.2 below illustrates the population change for Green River, Rock Springs, and Sweetwater County from 2000 to 2012. As indicated in Figure 2.2, actual growth for 2012 has already exceeded the 2020 population forecast for two of the three entities in Figure 2.1 - Sweetwater County and Rock Springs. If Green River's population growth rate of 8.4% continued, Green River's 2013 population would equal 13,876, which would surpass the 2020 population forecast of 13,725.

Figure 2.2 Population Change, 2000 to 2012



In October 2011, the US Department of Commerce, Bureau of Economic Analysis developed the population forecast depicted in *Figure 2.3* for the period 2010 to 2030. Based on this data, current population growth for Green River, Rock Springs, and Sweetwater County is expected to continue through 2030.

Figure 2.3 Population Forecast, 2010 to 2013



A comparison of educational attainment for the United States, Wyoming, Sweetwater County, Rock Springs, and Green River is presented in *Figure 2.4 Educational Attainment*. Generally, more Green River residents (19%) have attained a bachelor's degree or higher than Rock Springs (17%) or Sweetwater County (17%) residents. Although, these percentages are lower than Wyoming (24%) or US (29%) residents who have obtained a bachelor's degree or higher.

Figure 2.4 Education Attainment

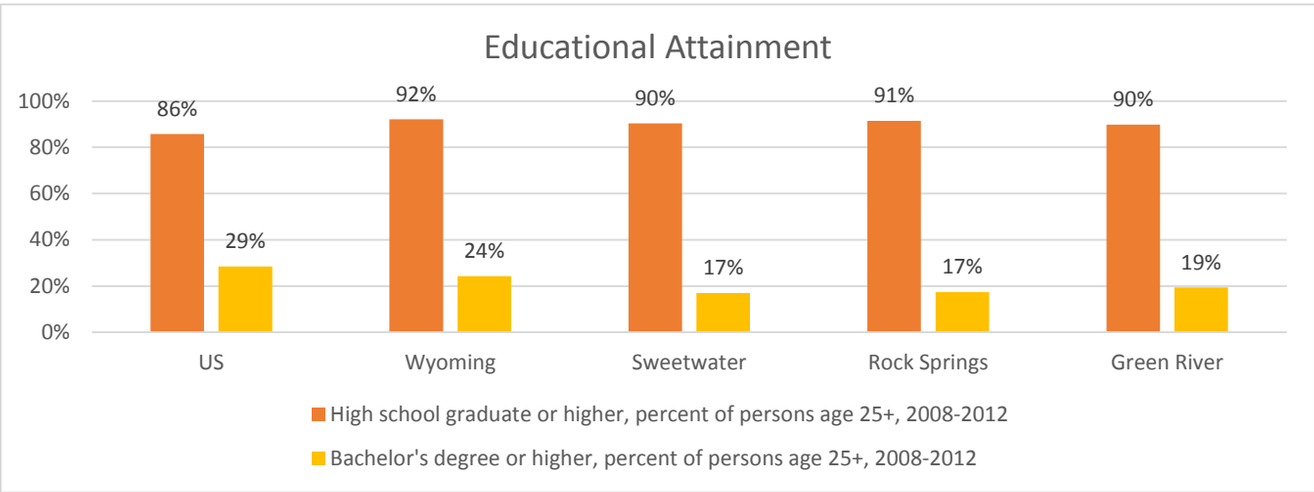


Figure 2.5 provides a comparison of the percentage of residents who have, at least, graduated high school between "pairs" of Wyoming communities, as well as Wyoming and the US. For each pair, the community listed on the left maintains a general aviation (GA) airport, while the community listed on the right maintains a commercial service airport. Each pair shares characteristics similar to Green River and Rock Springs, including being in close proximity to each other. Refer to *Chapter 1: Inventory* for more information regarding the selected pairs of communities. According to *Figure 2.5*, the data for Green River and Rock Springs is within the range of data for the other 10 communities and Wyoming. All of the Wyoming communities listed have a percentage that is greater than the national average.

Figure 2.5 High School Graduate or Higher Percentage

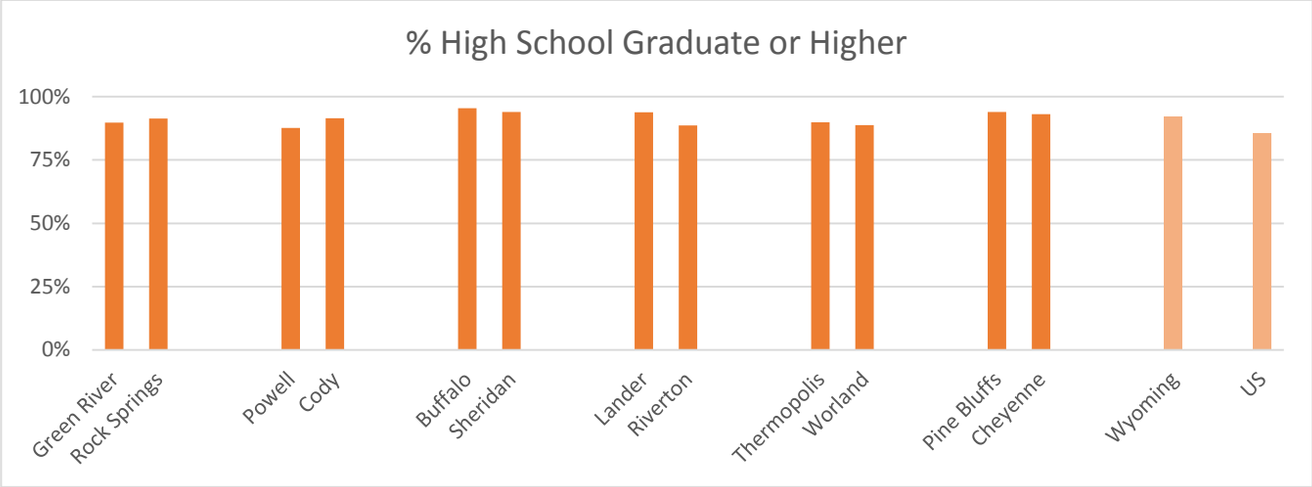
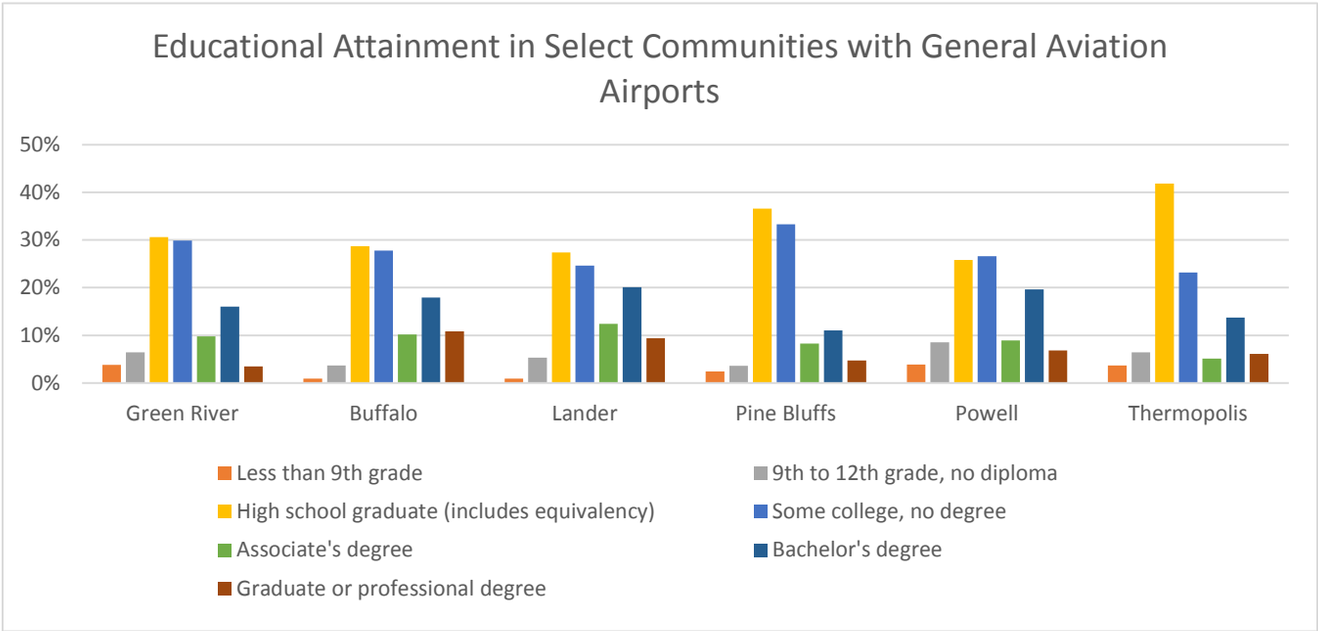


Figure 2.6 provides a breakdown of educational attainment in select Wyoming communities that possess a general aviation airport. All of the communities listed share characteristics similar to Green River. In particular, each community maintains a GA airport, but is located in close (less than 42 miles) proximity to a community that maintains a commercial service airport. See *Chapter 1: Inventory* for more information regarding the select communities. As indicated by *Figure 2.6*, Green River's educational attainment is similar to that of Buffalo, Lander, Pine Bluffs, and Powell. All data regarding educational attainment can be found on the US Census Bureau website, under the 2008-2012 American Community Survey 5-Year Estimates.

Figure 2.6 Education Attainment in Select Communities with GA Airports



Flaming Gorge Reservoir extends upriver, nearly to the city limits of Green River. Flaming Gorge National Recreation Area is a popular vacation destination. *Figure 2.7* below depicts the total direct travel spending ($ million) in Sweetwater County during the period 2000-2013. Total Direct Travel Spending includes the total visitor spending at a destination by any category of visitor, plus spending on air transportation. Total direct travel spending does not include secondary (indirect and induced) effects. Data provided by the Wyoming Office of Tourism April 2014 Wyoming Travel Impacts 2000-2013 report. As evidenced by *Figure 2.7*, travel spending in Sweetwater County has generally been on the rise, with the exception of the period 2008 to 2010 when the recession hit the US economy.

Figure 2.7 Total Direct Travel Spending in Sweetwater County

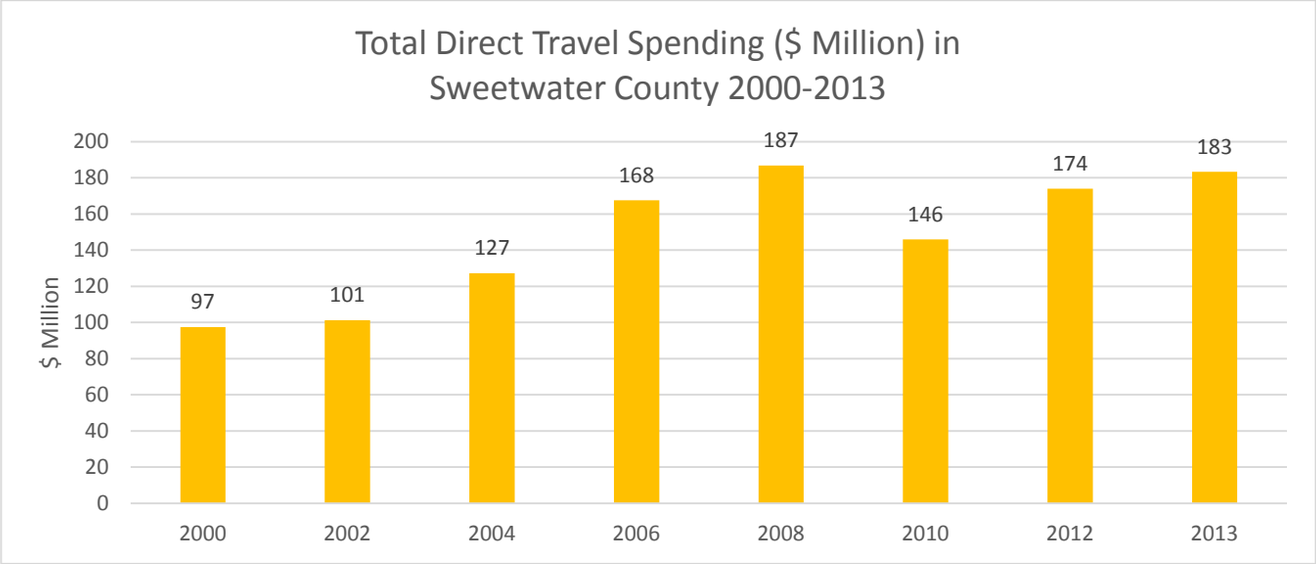
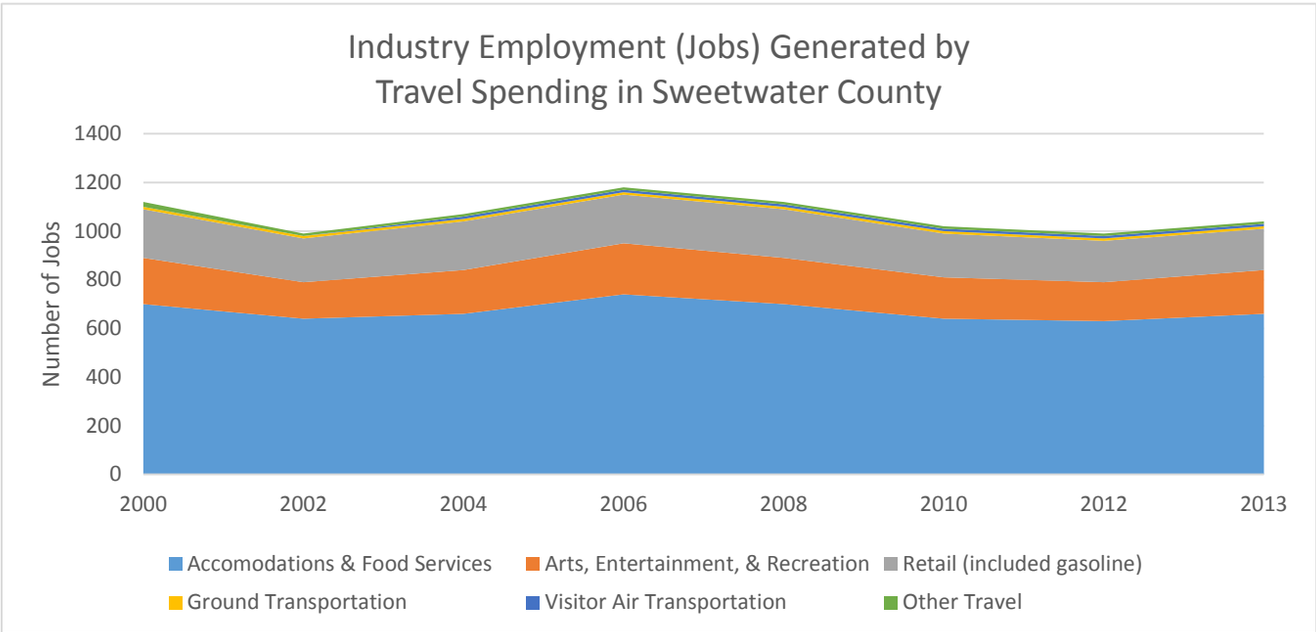


Figure 2.8 illustrates how many industry-related jobs were generated by travel spending in Sweetwater County during the period 2000-2013. Industry-related jobs in all categories peaked in 2006, gradually declining until 2012, when they increased. The accommodations and food service sector accounted for the largest portion of jobs.

Figure 2.8 Industry Employment Generated by Travel Spending in Sweetwater County



2.2 SOCIOECONOMIC AND DEMOGRAPHIC ANALYSIS CONCLUSION

As illustrated in *Figure 1.9 Population Age Distribution* in *Chapter 1: Inventory*, Green River's population consists of more youth ages 14 and under and more adults in their fifties than Sweetwater County, Wyoming, and the United States. *Figure 1.10 Per Capita Personal Income by County* reflects Sweetwater County's per capita personal income (PCI), which is the third highest in the state and well above both the state and national average. *Figure 1.11 Per Capita Personal Income - 20-Year History* shows that Sweetwater County's PCI has consistently been higher than the state and national average since 2009. Unemployment rates for Wyoming counties are depicted in *Figure 1.12 Unemployment Rates for Wyoming*; Sweetwater County is among the counties with the lowest unemployment rates in the state.

Based on several sources, Green River's population has steadily increased and continued growth is expected. In regard to education, Green River's numbers are very similar to those of other Wyoming communities with general aviation airports located in close proximity to a community with a commercial service airport. Additionally, tourism related spending and employment in Sweetwater County have also shown growth in recent years.

2.3 STAKEHOLDER AND PILOT SURVEYS

Several surveys were distributed to solicit input from existing and potential stakeholders. First, a survey was distributed to potential stakeholders who were invited to attend an initial workshop/pre-scope of work meeting held in November, 2013. This survey inquired about the significant benefits and drawbacks associated with improving the airport in Green River, as well as factors or issues that would result in opposition or support of improving the airport in Green River.

Surveys were also mailed to all airman certificate holders with an address in Green River. This survey, which was mailed May, 2014, along with a self-addressed, stamped envelope to facilitate return of the completed survey, inquired about current use of the airport in Green River, aircraft ownership, and the importance of various facility changes to possible use of the airport in Green River.

A similar survey was mailed to select airman certificate holders with an address in Rock Springs. Those with a private pilot, student pilot, or flight instructor permit were selected to receive the survey, which was mailed May, 2014, along with a self-addressed, stamped envelope to facilitate return of the completed survey. This survey inquired about current use of the airport in Green River, aircraft ownership, and the importance of various facility changes to possible use of the airport in Green River. Survey recipients in Rock Springs were also asked to rate a variety of factors that might affect their decision to select the airport in Green River as a base or destination airport. Surveys were mailed to 19 identified pilots in Green River and to 29 in Rock Springs. One survey from each city was returned as undeliverable. In total, 11 pilots from Green River and 9 from Rock Springs returned surveys. The combined response rate from both cities was 43%. A blank copy of each survey is included in Appendix 2.

As noted in the November 2009 Wyoming Statewide Airport Inventory and Implementation Plan, when selecting an airport, generally, a user will balance the availability of facilities and services against the geographic location of an airport and the proximity of the airport to their residence or business. If the roles of the airports are the same and the facilities and services are similar, users generally select the closest airport to their residence or business or the airport where they have an established relationship with the service provider. However, commercial services and/or military operations at an airport can contribute to airport and airspace congestion, which can be a deterrent to general aviation users.

Respondents were asked to rate the importance of, or lack of, potential major facility changes at the Greater Green River Intergalactic Spaceport in relation to their use of the airport. *Figure 2.9* lists the percentage of pilots from Green River and Rock Springs who indicated each major potential facility change was *very important* or *somewhat important*. The two facility improvements rated as the most important for future use were fuel capabilities (85%) and paved runway, taxiway, and apron with markings and signs (80%). Three items were tied with 70% of respondents rating them as very or somewhat important: security fencing, tiedowns, and hangars.

Figure 2.9 Major Facility Changes Most Frequently Rated as Very or Somewhat Important

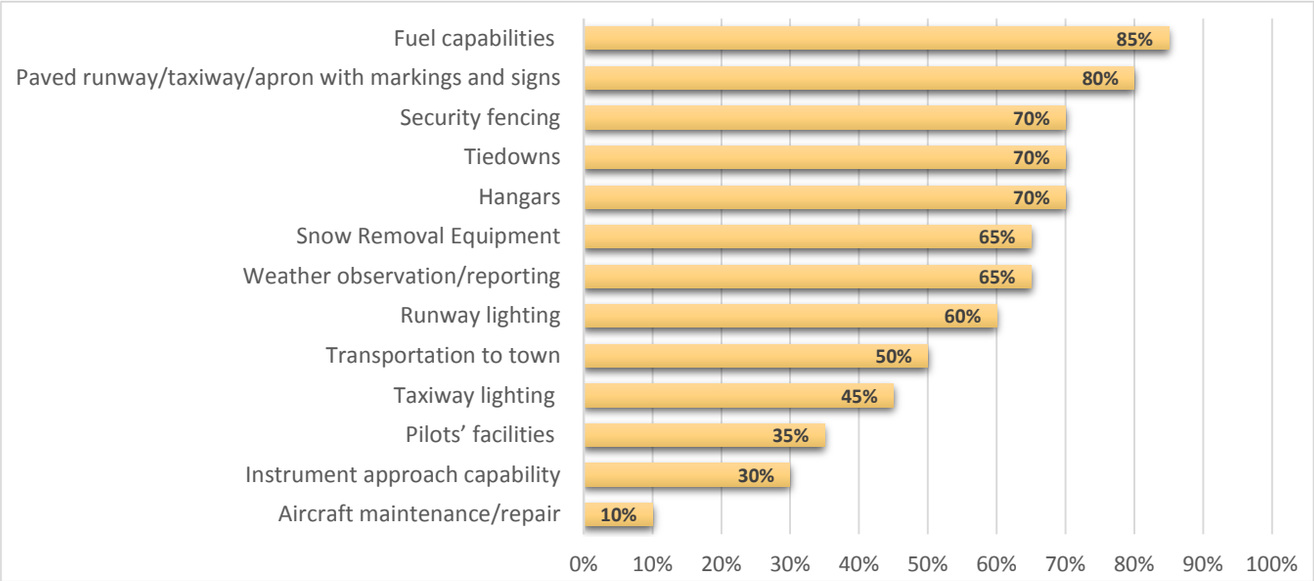
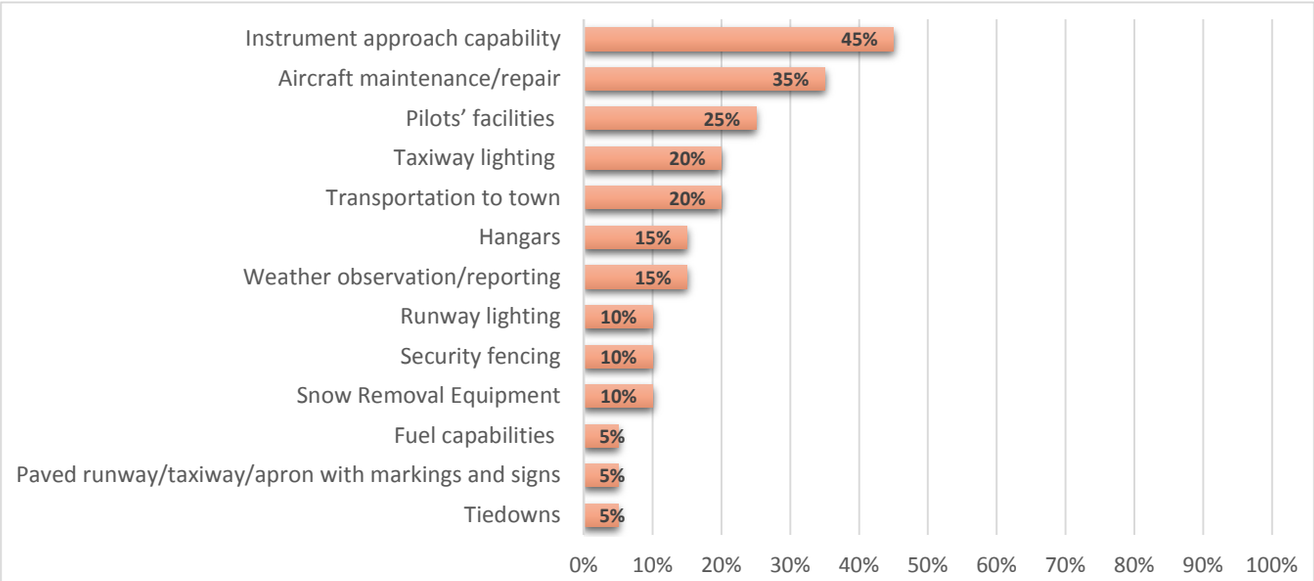


Figure 2.10 displays the percentage of respondents who marked *very* or *somewhat important* for all of the major facility changes. Instrument approach capability (45%), aircraft maintenance and repair (35%) and pilots' facilities (25%) were rated as the most unimportant facility changes at 48U in regards to respondents' future use of 48U. Very few respondents (5%) indicated fuel capabilities, paved runway, taxiway, and apron with markings and signs, and tiedowns as *very* or *somewhat unimportant*.

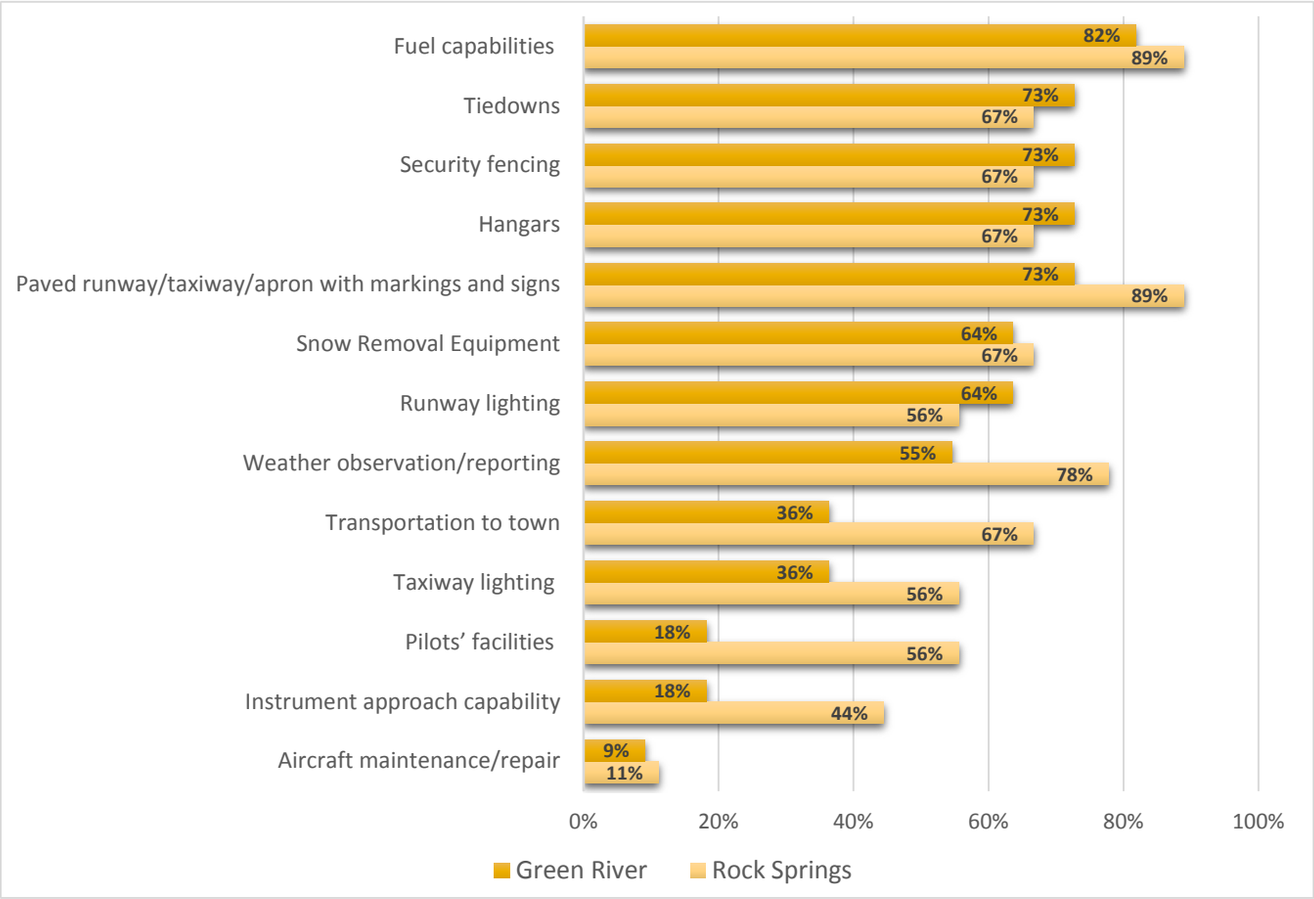
Figure 2.10 Major Facility Changes Most Frequently Rated as Very or Somewhat Unimportant



Below, *Figure 2.11* compares the *very* and *somewhat important* ratings for the facility changes between Green River and Rock Springs respondents. Interestingly, a higher percentage of Rock Springs respondents (89%) than Green River respondents (73%) rated a paved runway, taxiway, and apron with markings and signs as *very* or *somewhat important*. The other highest rated items for Green River pilots were fuel capabilities (82%), tiedowns (73%), security fencing (73%), and hangars (73%).

The largest percentage differences between group ratings were for pilots' facilities (18% Green River and 56% Rock Springs, difference of 38%), transportation to town (36% Green River and 67% Rock Springs, difference of 31%), and instrument approach capability (18% Green River and 44% Rock Springs, difference of 26%).

Figure 2.11 Comparison of Major Facility Changes Very and Somewhat Important Ratings



A comparison between Green River and Rock Springs respondents for the facility changes rated *very* and *somewhat unimportant* is displayed below in *Figure 2.12*. A substantially higher percentage of respondents in Green River (55%) than Rock Springs (11%) rated aircraft maintenance and repair as unimportant. No Rock Springs respondents rated five of the items as *very* or *somewhat unimportant*: snow removal equipment, security fencing, tiedowns, fuel capabilities, and paved runway, taxiway, and apron with markings and signs. Overall, results suggest that the use of 48U by Green River pilots is less influenced by having aircraft maintenance and repair, instrument approach capability, pilots' facilities, transportation to town, and taxiway lighting.

Figure 2.12 Comparison of Major Facility Changes Very and Somewhat Unimportant Ratings

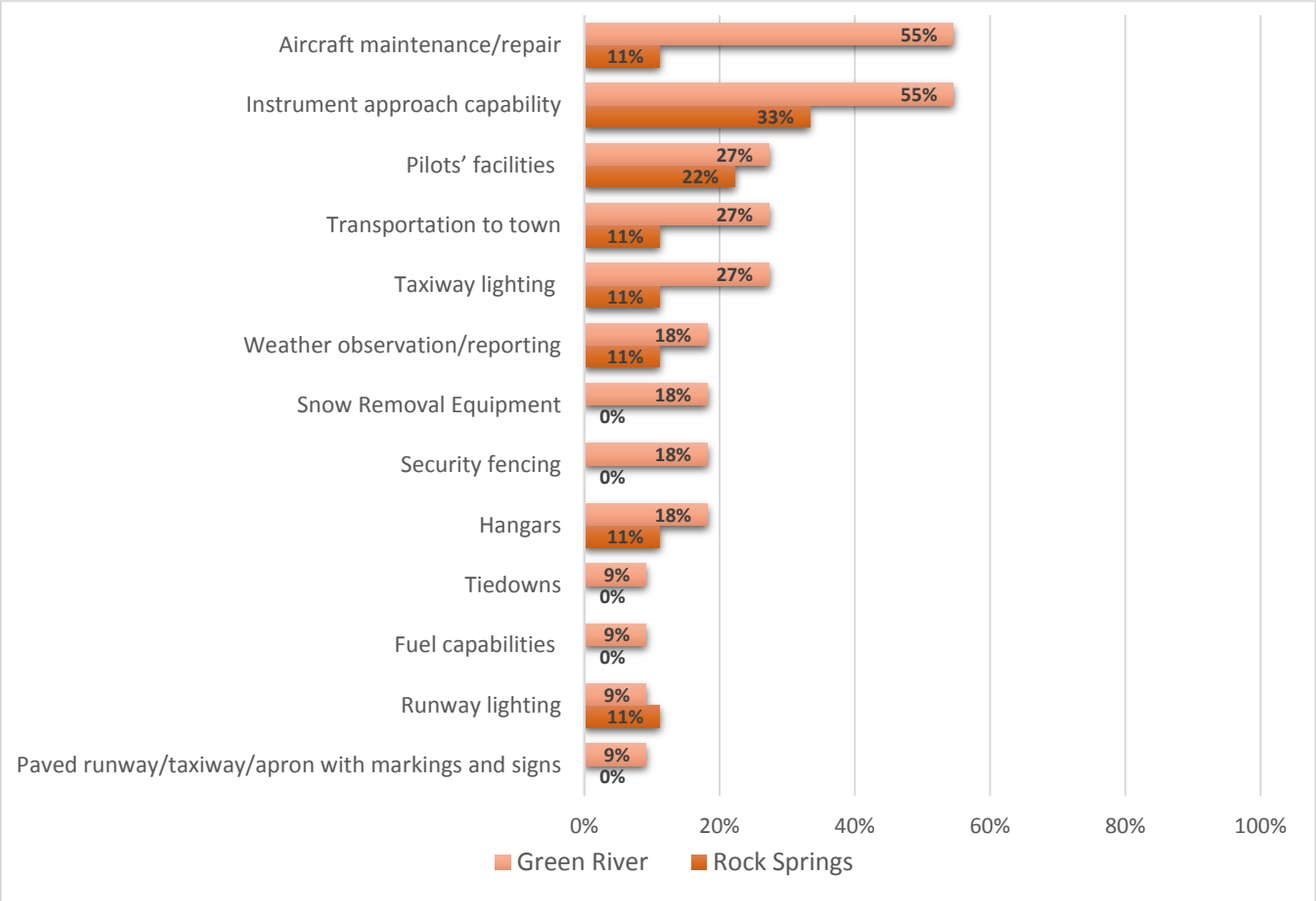
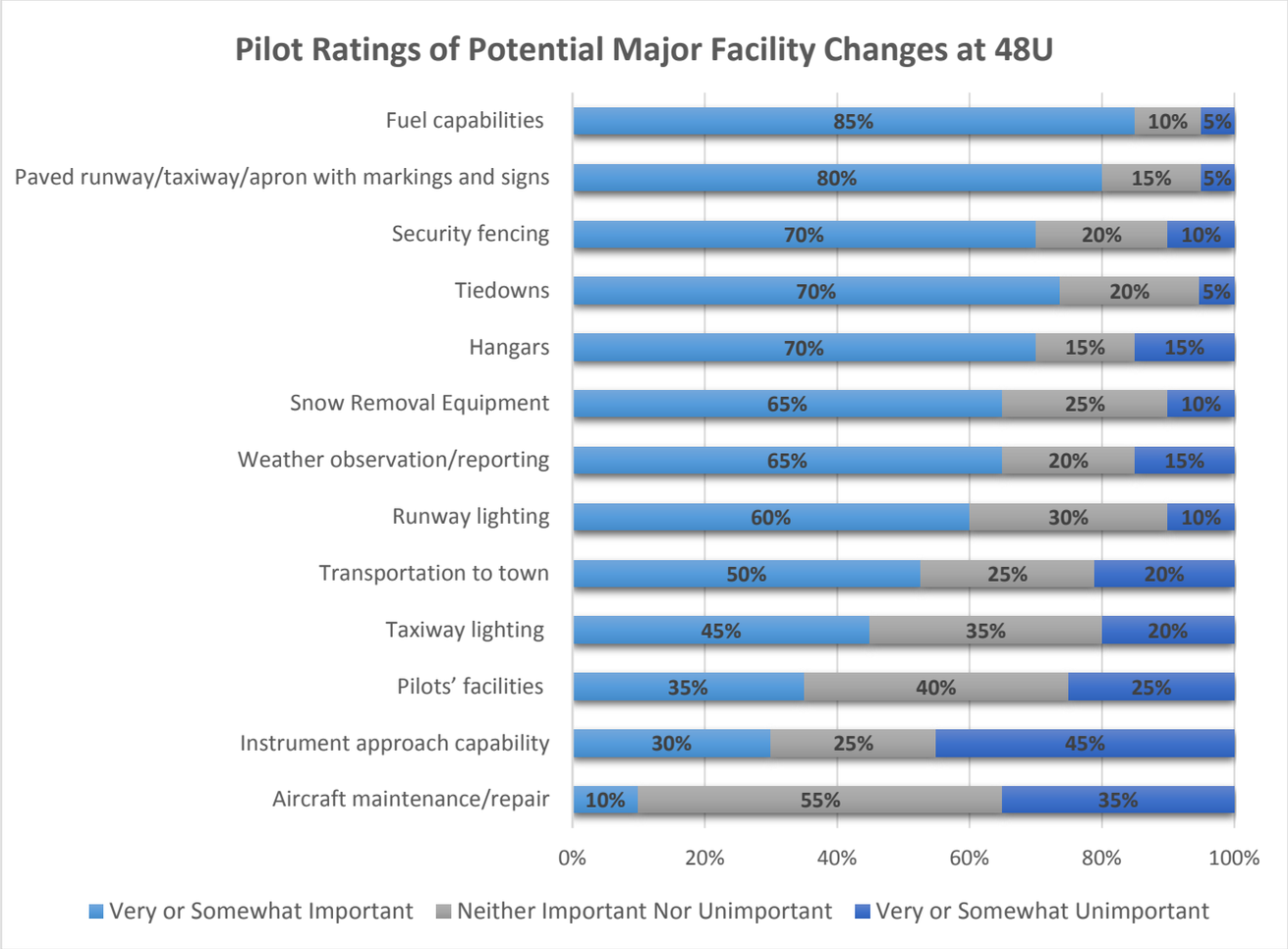


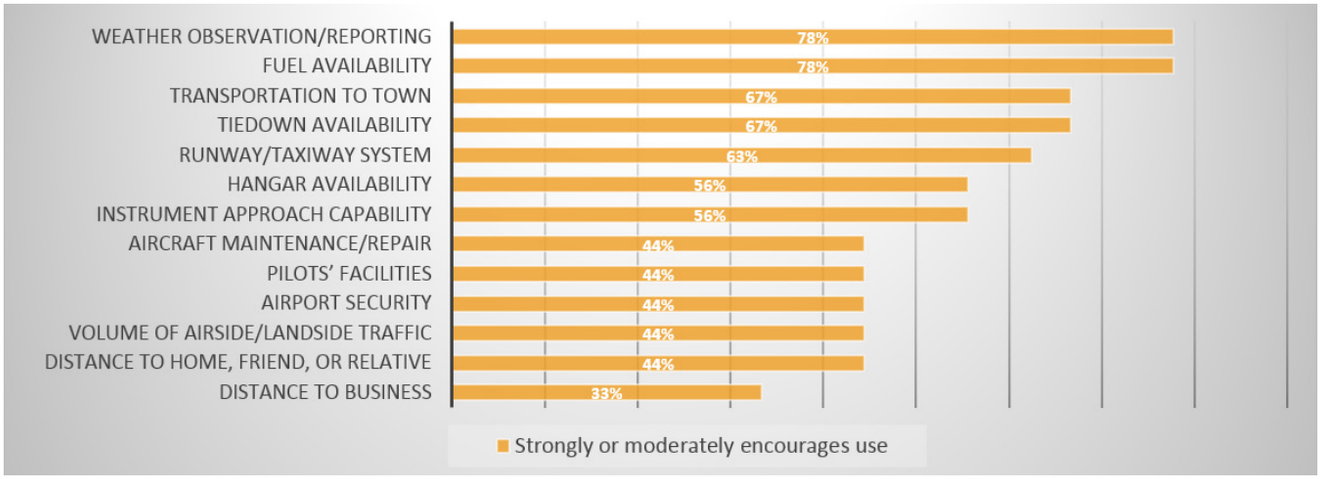
Figure 2.13 shows all ratings for potential major facility changes at 48U. The four items with the highest percentage of *neither important nor unimportant* ratings were: aircraft maintenance and repair (55%), pilots' facilities (40%), taxiway lighting (35%), and runway lighting (30%). Fuel capabilities (10%), paved runway, taxiway, and apron with markings and signs (15%), and hangars (15%) received the fewest ratings of *neither important nor unimportant*. Similarly to those items receiving unimportant ratings from a high percentage of respondents, stakeholders and decision makers may conclude to not invest in the neutrally rated items.

Figure 2.13 All Major Facility Changes Ratings



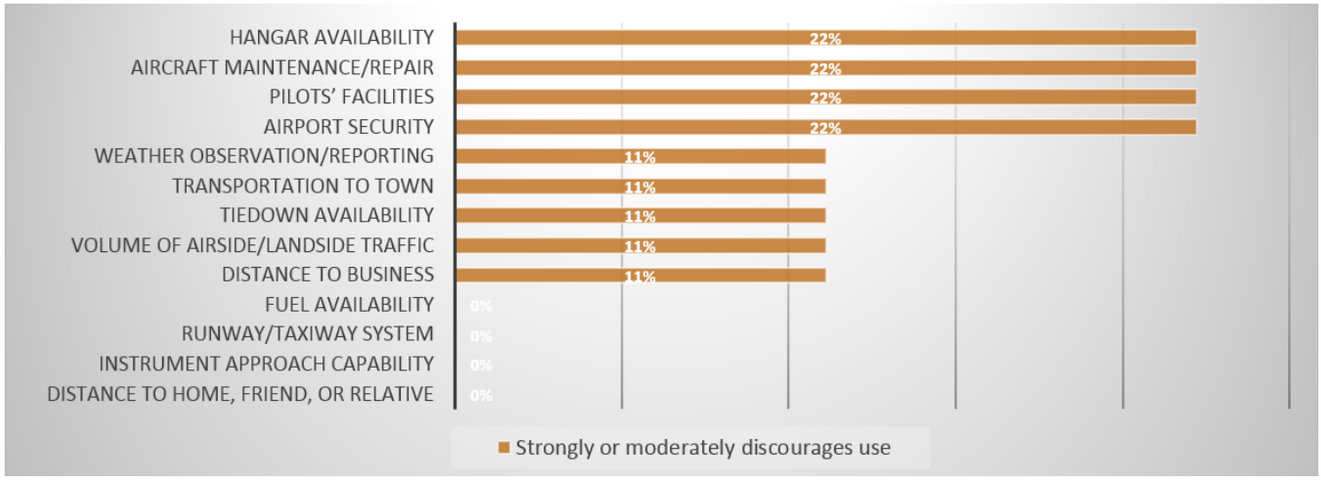
The survey sent to Rock Springs pilots included an additional question: "How would the following factors affect your possible selection of the Greater Green River Intergalactic Spaceport as a base or destination airport?" Results from this question are presented below. First, *Figure 2.14* lists the percentage of Rock Springs respondents who indicated each factor *strongly* or *moderately encourages use*. Weather observation/reporting (78%) and fuel availability (78%) were the two factors that most encourage basing at or flying to 48U. Only one-third of Rock Springs pilots indicated distance to business as an encouraging factor.

Figure 2.14 Factors Encouraging Use of 48U by Rock Springs Pilots



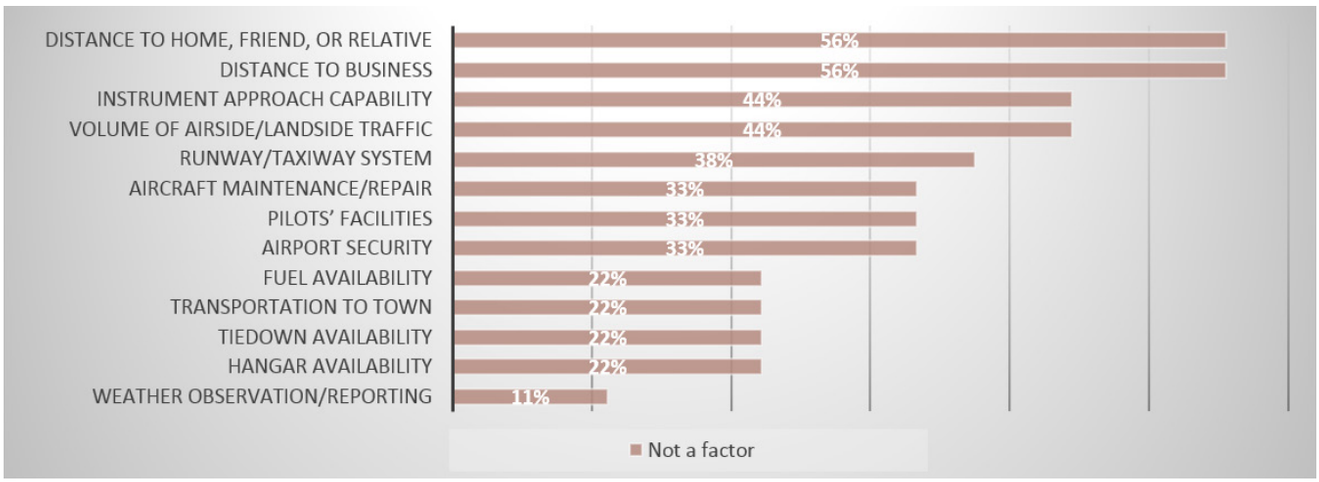
In *Figure 2.15*, hangar availability, aircraft maintenance/repair, pilots' facilities, and airport security were rated by 22% of Rock Springs respondents as strongly or moderately discouraging their selection of 48U as a base or destination airport. No Rock Springs respondents indicated fuel availability, runway/taxiway system, instrument approach capability, or distance to home, friend, or relative as a discouraging factor.

Figure 2.15 Factors Discouraging Use of 48U by Rock Springs Pilots



In *Figure 2.16*, more than half of respondents from Rock Springs indicated that the distance from 48U to their home, friend, or a relative or to their business is not a factor in deciding to base at or fly to 48U. Only 11% of these respondents indicated that weather observation and reporting for 48U was not a factor.

Figure 2.16 Non-Factors for Use of 48U by Rock Springs Pilots



Both Green River and Rock Springs pilots were asked if they owned any aircraft or planned to do so in the foreseeable future, as well as where they typically parked their aircraft. Six Green River pilots and seven Rock Springs pilots reported owning at least one aircraft. All of the Green River pilots and six of the Rock Springs pilots reported parking their aircraft at the Rock Springs-Sweetwater County Airport (RKS). One Green River pilot reported parking her aircraft at either RKS or Kemmerer Municipal Airport (EMM) before she sold it and one Rock Springs pilot reported parking his aircraft at Hunt Field in Lander (LND).

The surveys concluded with an open ended section, asking respondents to provide any additional comments and suggestions. All submitted responses are included below. Responses were minimally edited, only for grammar and spelling.

- "It would be nice to have something in Green River if it did not add burden to the county tax roll. Close and convenient to Flaming Gorge. I'm all for giving Rock Springs some fuel and storage competition."
- "If I lived in Green River, I would strongly solicit fuel, hangars, improvements and security. I live in Rock Springs, so it's not really a factor. But competition as far as fuel and so on would be helpful."
- "I don't feel that General Aviation would utilize the airport, even if improvements were made. Would be a big waste of money."
- "Before the airport would have legitimacy, the town of Green River needs to improve its ability and willingness to cater to visitors. At the moment this does not seem like a good use of funds."
- "If the airport was secure and the runway maintained I would like to have a hangar there. I would even consider building a hangar there to store my planes if I wasn't concerned about security."
- "It would be better for Green River airmen to have an airport closer to town."

2.4 AIRCRAFT APPROACH CATEGORY AND AIRPLANE DESIGN GROUP

The FAA has developed an aircraft coding system comprised of two prongs: ***Aircraft Approach Category (AAC)*** and ***Airplane Design Group (ADG).*** The AAC is designated by a letter (A through E) and the ADG by a Roman numeral (I through VI). The combination of an aircraft's AAC and ADG (for example, A-I or B-II) signifies the ***Airport Reference Code (ARC)*** of that aircraft. The ARC provides insights into the performance, design characteristics, and physical facility requirements of aircraft using an airport.

TABLE 2.1 AIRCRAFT APPROACH CATEGORY

Category	Speed
A	less than 91 knots
B	91 knots or more, less than 121 knots
C	121 knots or more, less than 141 knots
D	141 knots or more, less than 166 knots
E	166 knots or more

TABLE 2.2 AIRPLANE DESIGN GROUP (ADG)

Group	Tail Height (FT)	Wingspan (FT)
I	<20	<49
II	20 - <30	49 - <79
III	30 - <45	79 - <118
IV	45 - <60	118 - <171
V	60 - <66	171 - <214
VI	66 - <80	214 - <262

The AAC is determined by an aircraft's speed as it approaches an airport for landing (*Table 2.1*). The higher the aircraft's speed, the longer the runway must be to accommodate that aircraft. Safety area dimensions are also expanded as the approach speed increases. The ADG is determined by an aircraft's wingspan and tail height (*Table 2.2*). Typically, as an aircraft's wingspan increases, the separation requirements increase between runways, taxiways, aprons, and aircraft parking areas.

The ARC is determined based on the most demanding aircraft (or combination of aircraft) that uses the airport, referred to as the critical or design aircraft. The FAA typically requires an aircraft to perform at least 500 annual operations (takeoffs and/or landings) to be established as the critical aircraft.

2.5 POTENTIAL USERS AND UNMET DEMAND

A substantial effort, larger than is typical, was made to identify unmet demand at 48U - those users who would like to use the airport but currently do not for a variety of reasons, such as an unimproved runway or lack of facilities. Most large companies in the Green River area were contacted to determine the level of interest in business flights into 48U. The Consultant contacted nearly all of the mineral extraction employers located west of Green River, in order to speak with managers or flight departments about potential unmet demand. Companies east of Green River were expected to utilize the Rock Springs - Sweetwater County Airport and were not approached.

More than a dozen such companies were contacted, none of which had multi-aircraft flight departments. Only two companies, FMC Corporation and ExxonMobil, had a corporate aircraft. Both managers of these firms noted that only the company president typically utilized the company plane. These two companies, and the majority of the others, stated incoming corporate staff or visitors flew either to Rock Springs or Salt Lake City, UT commercially and then went to the plants via ground transportation. The discussion normally mentioned that travel to Rock Springs was 'risky' with some chance that the flights would be delayed or cancelled. Among those contacted, commercial travel through Salt Lake City and then by road to Green River was the preferred method.

Numerous smaller local companies were also contacted and asked if they would use the airport for business purposes if the airport was improved or unconstrained. Several showed interest, but only one proposed using the airport. Premier Bone and Joint, a specialized medical firm based in Laramie, has an office in Green River and flies their doctors into Rock Springs. An in depth conversation was had with their chief pilot, who indicated the company

operates multiple Beechcraft King Air airplanes across Wyoming. It was noted that two or three of the doctors travel by automobile to Green River after landing in Rock Springs. It was also mentioned that on regular occasions the company flies two separate aircraft into Rock Springs, with several physicians traveling on to Green River. In both cases, the aircraft could either fly direct to Green River with those doctors or the aircraft could drop off the Rock Springs staff and continue to Green River with the staff destined there, if 48U was improved.

The pilots will typically go to a local restaurant and standby waiting for the reversal of the flight. Often they spend more than four to six hours doing paperwork or other tasks, eating one or more meals while waiting on the doctors. It is unknown, but possible, that additional company doctors might be interested in practicing in Green River if access could be made directly to the community, instead of the additional automobile commute from Rock Springs.

Companies operating in the Flaming Gorge area were also contacted. None of these companies said they would use an improved 48U for scenic flights or to bring in tourists, although they also indicated they had never considered using 48U for these purposes before as it was unrealistic given the current site.

As a result of the minimal number of potential users and unmet demand found, the focus for the aviation activity forecast was expanded to use additional methods, mainly identifying the sort of traffic and operational demands considered 'normal' for a community and economic base such as Green River. It is the only community in the state with a population greater than 1,100 without a paved runway. There are no close comparisons in the Wyoming system to reference for potential or anticipated aircraft types and operational counts. Looking to neighboring states, there are no prevalent examples of a community the size of Green River (outside of smaller communities within a larger metro area) without an airport of any size. As such, averages and statistical models based on groups of airports were used to complete the forecast.

2.6 48U SITE CONSTRAINTS EFFECT ON FORECASTS

Preliminary investigation of the current 48U site, including physical inspections and survey along with numerous historical documents, shows that the airport site, and notably the existing alignment, has a constrained runway. Constrained means the site limits, typically because of terrain, the potential runway length without significant capital costs. The terrain drops very rapidly at a greater than 10% slope off of the east end of the runway. To the west the slope is shallower, but still significant, with a greater than 8% drop for the first 500 feet before leveling out for approximately 1,000 feet. A 1,000 foot runway extension to the west would result in an approximate 50 foot fill or more before considering the fill needed to correct the line-of-sight issue (discussed in Chapter 3).

During the discussions with the businesses contacted, the Consultant referenced a possible improved runway surface in the range of 6,000 feet in length. This length, at Green River's elevation and temperature in the summer, caused concern for pilots of aircraft larger than a Beechcraft King Air 200 (ARC B-II). *Chapter 3: Facility Requirements* provides a full discussion, but it is clear the limitations of the current site impacts the forecast.

2.7 FORECAST BASED AIRCRAFT

If an operational aircraft is parked at an airport for a majority of the year it is said to be based there. Prior to this study, the only available data source from which to forecast based aircraft at 48U was FAA 5010 forms. Operations and based aircraft at non-towered FAA airports are taken from FAA Form 5010 reports on aviation activity at the airport. These reports are based on estimates by FAA inspectors or information provided by airport managers, state aviation activity surveys, and other sources. Expectably, given the lack of aircraft parking and hangars, the 48U records

show zero based aircraft. Application of typical forecasting methodologies (trend analysis, regression, etc.) to an initial zero based aircraft results in zero predicted based aircraft over the next 20 years.

As part of the survey of pilots in Green River and Rock Springs, it was discovered that one individual, who owns two aircraft, explicitly stated he would relocate his aircraft, both small single engine, to 48U if secure hangar facilities were available. Furthermore, one additional aircraft owner indicated he would strongly consider relocating his private aircraft, again a single engine, to 48U. When this information is coupled with the large population and economic status of Green River, it is determined that a forecast of three based aircraft at an improved 48U facility both is reasonable and conservative.

2.8 FORECAST ANNUAL OPERATIONS - REGRESSION ANALYSIS

Because activity at non-towered airports is not typically reported accurately or systematically, other methods for arriving at such data have been approved by the FAA. The use of regression analysis is one of these approved methods. Regression analysis is a statistical technique that ties aviation demand (dependent variables), such as airport operations, to economic measures (independent variables), such as population and income. Regression analysis is most dependable when limited to relatively simple models with independent variables for which reliable forecasts are available.

For 48U, regression analysis was used to estimate operations activity as a function of several airport and socioeconomic characteristics. A broad review of the use of regression analyses at American airports for aviation activity was completed to ensure that a regression analysis was not only a compatible methodology for 48U, but also the best fitting one. Other approved FAA methodologies, including trend analysis, market share analysis and smoothing, were deemed incompatible with 48U due to the lack and accuracy of historical aviation data. Furthermore, any improvements to the facilities, especially the runway, at 48U would result in such a different airport that comparisons to past data would nearly be irrelevant.

Before any regression analyses could be performed, a data set was created. Data for Wyoming airports was collected from a variety of sources. Population estimates are from the U.S. Census. All analyses were performed using the IBM SPSS Statistics version 21 software package. In this section the term "significant" is only used when denoting statistical significance. If an observation is denoted as statistical significance it is not due to random chance (within an acceptable margin or error).

HOEKSTRA MODEL

A model developed by Mark Hoekstra in April 2000 was initially used to estimate airport operations based on known variables, including based aircraft, per capita income, and non-agricultural employment. Hoekstra's original analysis was accomplished in two stages. In the first stage, equations were developed for a set of small towered airports. In the second stage, these equations were used to estimate operations for a data set of non-towered airports. Based on his analysis, Hoekstra selected a model which used operations per based aircraft as the dependent variable and independent variables representing airport size and airport location.

Two regression equations, labelled #7 and #11, from Hoekstra's study were evaluated for forecasting operations at 48U. These two equations were identified by Hoekstra for use. Specifically, in the sample of airports used, Equation #7 was found to have the best statistical fit for towered airports, while Equation #11 had the best statistical fit for non-towered airports.

The two complete equations are shown below, followed by brief descriptions of each variable used.

Hoekstra Equation #7:
[**OPS** = (813.5) + (417 * BA) + (0.80 * PCI) - (0.63 * **BA**^{2}) - (11,683 * **WST**) - (21,752 * **AAL**) - (7,072 * **FAR139**) + (4 * **EMP**)]

Hoekstra Equation #11:
[**OPS** = (581.3) - (138.5 * **BAE100**) - (125.9 * **WST**) - (326.1 * **AAL**) + (113.1 * **R12**)]

- **OPS** = Predicted annual number of operations
- **BA** = Number of based aircraft
- **BAE100** = Dichotomous variable indicating if the number of based aircraft is greater than or equal to 100
- **PCI** = Per capita income of county
- **WST** = Dichotomous variable indicating if the airport is located in the Western Region (excluding Alaska)
- **AAL** = Dichotomous variable indicating if the airport is located in Alaska
- **FAR139** = Certification for carrier service
- **EMP** = Non-agricultural employment of county
- **R12** = Dichotomous variable indicating if the airport is located in FAA Region ANE or AEA

In the original study, all variables, except **EMP**, in Equation #7 were statistically significant to the 95% confidence level. EMP was statistically significant to the 90% confidence level. The R^2 value, representing explanatory power, for Equation #7 for GA operations was .7296. All coefficients in Equation #11 were statistically significant to the 95% confidence level. The R^2 value for Equation #11 for GA operations per based aircraft was .2556. Despite the weak R^2 of Equation #11, it was still evaluated for use as a comparison. Regressions are typically accompanied with an R^2 value, which indicates how well the regression predicts the actual data. R^2 values are commonly interpreted as the proportion of variance explained by the regression. For example, an R^2 of .80 may be interpreted as 80% of the variation in the dependent variable (in this case, annual operations) is explained by the independent variables (population, per capita income, based aircraft, etc.). Thus, the maximum value for R^2 is 1 and the minimum is 0.

These two equations were completed with the most relevant 48U data available. The Equation #7 model was run with based aircraft values of zero, three, five, and twenty to display the relatively small effect this coefficient would have at these smaller values. Based on feedback from surveys and interviews with pilots and aircraft owners in Sweetwater County, an initial value of three based aircraft is assumed to be conservative.

- Hoekstra Equation #7 forecasted operations assuming zero based aircraft: 13,730
- Hoekstra Equation #7 forecasted operations assuming three based aircraft: 14,976
- Hoekstra Equation #7 forecasted operations assuming five based aircraft: 15,800
- Hoekstra Equation #7 forecasted operations assuming twenty based aircraft: 21,818

- Hoekstra Equation #11 forecasted operations assuming less than 100 based aircraft: 455

Further analysis was determined to be needed for two reasons. First, there was a substantial difference between the predicted operations for each model. Second, neither model's forecasted operations were in line with the *a priori* expectations. Before the regression analysis, a cursory review of airports in cities with a similar population to Green River in Wyoming and neighboring states was conducted. Results of this review suggested the annual operational count of an established 48U, with a paved runway, to be between 2,000 and 6,000.

GRA MODEL

In July 2001, a follow-up to Hoekstra's study was released by the Statistics and Forecast Branch of the FAA. This study, entitled *Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data* and completed by GRA Inc., aimed to improve the original regression model created by Hoesktra through inclusion of new variables: additional population variables, airport regional prominence, and certificated flight schools. After a thorough review of the study and cross-referencing the new variables with available and applicable data to Wyoming airports, Equation #13 from this model was applied to 48U. The study used a sample of towered and non-towered general aviation airports, stating that Equation #13 "provides a model with improved estimating consistency for the 105 non-towered airports." Again, the equation and variables are quickly summarized below for reference. As can be seen, this model uses a number of different variables from the Hoekstra study.

GRA Equation #13:

$$[\ (OPS = -571 + 355 * BA) - (0.46 * BA^{2)} - (40{,}510 * \%in100mi) + (3{,}795 * VITFSnum) + (0.001 * Pop100) - (8{,}587 * WACAORAK) + (24{,}102 * POP25/100) + (13{,}674 * TOWDUM)\ ]$$

- **OPS** = Predicted annual number of operations
- **BA** = Number of based aircraft
- **%in100mi =** Percentage of based aircraft among all based aircraft at GA airports within 100 miles
- **VITFSnum =** Number of FAR141 certificated pilot schools on airport
- **Pop25 =** Population within 25 miles of airport
- **Pop100 =** Population within 100 miles of airport
- **WACAORAK =** Indicates if airport is located in CA, OR, WA, or AK
- **TOWDUM** = Indicates if the airport is towered

- GRA Equation #13 forecasted operations assuming zero based aircraft: 7,105
- GRA Equation #13 forecasted operations assuming three based aircraft: 8,166
- GRA Equation #13 forecasted operations assuming five based aircraft: 8,869
- GRA Equation #13 forecasted operations assuming twenty based aircraft: 14,021

Given an estimate of three based aircraft at 48U, the GRA model predicts annual operations of 8,166. While this operation count is higher than originally anticipated, it is much more reasonable than the counts from the Hoekstra model.

WYOMING MODEL

Following evaluation of these two models, it was determined appropriate to create a customized regression for the purposes of this master plan. Since the previous models used national samples, it was decided to create a model using only data from Wyoming airports.

The previously discussed, FAA funded regression model from Hoekstra distinguished the type of based aircraft in the initial stepwise regression, but the variables failed to contribute significantly. Yet, for the Wyoming only airport model, these variables were still deemed important and were included in the initial stepwise procedures. Each initial variable included in the data set is listed below, with a short description and variable type:

- **Municipality** (nominal categorical) - the municipality in which the airport is located
- **County** (nominal categorical) - the county in which the airport is located

- **Designation** (ordinal categorical) - classification given to the airport in the Wyoming Airport System: commercial, business, intermediate, or local
- **MuniPop** (ratio continuous) - population of the **Municipality**
- **CountyPop** (ratio continuous) - population of the **County**
- **Paved** (dichotomous categorical) - indicates if the main runway is paved
- **Pop25** (ratio continuous) - population within 25 miles of airport
- **Pop100** (ratio continuous) - population within 100 miles of airport
- **FAR139** (dichotomous categorical) - indicates if the airport is classified as Part 139, providing carrier/ commercial service
- **AnnualOps** (ratio continuous) - total number of annual operations
- **TotalBased** (ratio continuous) - total number of based aircraft
- **BasedSingle** (ratio continuous) - total number of based single engine aircraft
- **BasedMulti** (ratio continuous) - total number of based multi-engine aircraft
- **BasedJet** (ratio continuous) - total number of based jet aircraft
- **BasedHeli** (ratio continuous) - total number of based helicopters
- **BasedOth** (ratio continuous) - total number of other based aircraft
- **PerCapitaMoney** (ratio continuous) - per capita money income for the past 12 months, in thousands of dollars, **County** level
- **NonfarmEmp** (ratio continuous) - private non-farm employment, **County** level
- **PersonalInc** (ratio continuous) - personal income, in thousands of dollars, **County** level

After the data was compiled, correlations, shown in *Table 2.3*, were performed to determine if any of the independent variables were statistically associated with the dependent variable (number of operations). Results indicated that number. Correlation is a statistical measurement that indicates the extent to which two or more variables are related. Any variables that were found not to have a significant correlation (or relationship) with the number of operations variable were discarded from the regression analysis. The range for a correlation is from -1 to 1, with 0 indicating no relationship between the variables is present.

Some major variables from the previous models were decisively omitted, such as those indicating if an airport is within a certain state. One obvious concern with the Wyoming model is that the data comes from multiple sources spanning three years, specifically from 2010 (Census estimates) through 2013 (Per Capita estimates). However, it was decided that this issue would not be a significant factor given the fairly flat nature of the economic and socio-demographic information in the Green River area during that time span. If there had been, for example, a major economic depression and large increase in unemployment, then this concern would have been considered more substantiated.

TABLE 2.3 INDEPENDENT VARIABLE CORRELATIONS WITH DEPENDENT VARIABLE

Variable	Pearson Correlation	Significance
Designation	-.679*	.000
MuniPop	.820*	.000
CountyPop	.619*	.000
Paved	.263	.101
Pop25	.801*	.000
Pop100	.207	.200
FAR139	.742*	.000
TotalBased	.909*	.000
BasedSingle	.792*	.000
BasedMulti	.792*	.000
BasedJet	.628*	.000
BasedHeli	.564*	.000
BasedOth	.196	.225
PerCapitaMoney	.291	.068
NonfarmEmp	.673*	.000
PersonalInc	.329*	.038

* denotes the correlation is significant at the .01 level.

Furthermore, any increases or decreases in these variables would likely have been relatively systematic across Wyoming. The *a priori* expectation that the number of registered pilots in each airport's municipality and county would contribute significantly to predicted number of operations could not be tested, as the most recent available data was from 2007 and was deemed too outdated for use. As is standard procedure, a level of significance was established ($p < .01$) before performing any statistical analyses. Specifically, for the regression analyses, any observation deemed significant indicates the odds of that observation occurring by random chance was calculated as less than 1%. Following a thorough review of the FAA[1,2] and TRB[3] regression literature, a complete regression methodology was devised for the current study. This proposed methodology was provided to staff at the Wyoming Survey & Analysis Center at the University of Wyoming who reviewed and approved it.

In the final model, no variables related to population contributed significantly. This may not be surprising given the selection of smaller Wyoming communities with extremely busy airports (such as Jackson and Cody). The original model included all Wyoming airports, both paved and unpaved, but the paved variable did not contribute significantly. The handful of unimproved runways in Wyoming (Glendo, Medicine Bow, Shoshoni, and Upton) were removed, along with the dichotomous variable, from the data set and the regression analysis was completed again. Independent and dependent variables correlations were not reexamined. The removal of these airports had a minimal effect on the outcome.

The final stepwise regression, based only on data for paved Wyoming airports, included four variables: **TotalBased**, **BasedSingle**, **BasedJet**, and **NonfarmEmp**. Using these variables as a predictor, the model had an R^2 value of .921 and significance of $p < .01$.

- Wyoming based model forecasted operations assuming zero based aircraft: 2,724
- Wyoming based model forecasted operations assuming three based aircraft: 3,274
- Wyoming based model forecasted operations assuming five based aircraft: 3,641
- Wyoming based model forecasted operations assuming twenty based aircraft: 6,391

Generally speaking, the forecasted operations from the Wyoming based model are in line with the general expectations of the Sponsor and Consultant. Increasing the based aircraft from three to twenty had a huge effect proportionally, nearly doubling the predicted operation count, yet that total was still only 6,391 annual operations.

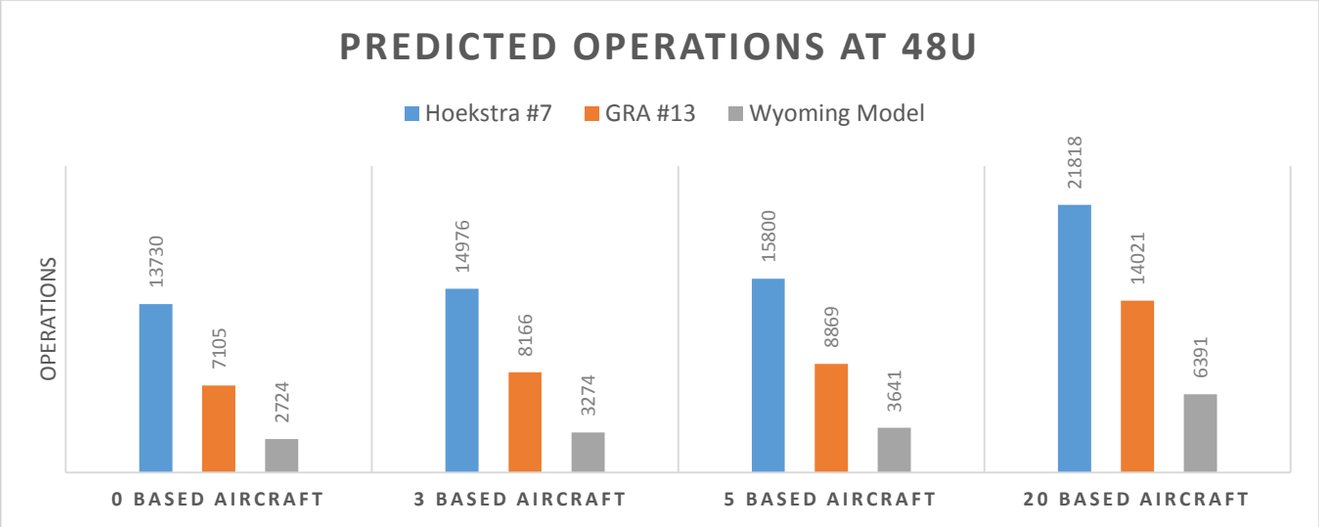
As a check, each model was applied to all Wyoming airports. The average absolute percentage deviations between the model estimates and reported annual operations were calculated. The Hoekstra and GRA models produced substantially larger deviations for nearly every airport in the state as compared to the Wyoming only model. Thus, inferring that the Wyoming only model predicts operations at Wyoming airports substantially better, as expected.

The results from all three models (Hoekstra, GRA, and Wyoming) are shown in *Figure 2.17*. In summary, assuming three total based aircraft, all single engine, the selected model for the forecast regression analysis predicts 3,274 annual operations at 48U. Otherwise, if all models were to be considered, a range between 3,274 and 14,976 annual operations is expected. It should be noted that although the final Wyoming based model was highly significant and better predicted actual operations at Wyoming airports than the other tested models, the sample size used was

1 Federal Aviation Administration. (July, 2007). Advisory Circular 150/5070-6B "Airport Master Plans" Chapter 7: Aviation Forecasts.
2 Federal Aviation Administration. (2011). *Re-estimating and Remodeling General Aviation Operations.* International Journal of Applied Aviation Studies, *1 (11).*
3 Transportation Research Board of the National Academies: Airport Cooperative Research Program. (2007). *Airport Aviation Activity Forecasting.* Synthesis 2: A Synthesis of Airport Practice.

35. This size of sample is not so small as to invalidate responses, however larger samples are typically desired when conducting regressions. Furthermore, these analyses presuppose that the facilities at 48U are comparable to the other airports in the sample, such as having an improved runway and adequate aircraft parking.

Figure 2.17 Predicted Operations at 48U



2.9 FORECAST OPERATIONS BY AIRPLANE DESIGN GROUP

In addition to forecasting annual aircraft operation counts, it is critical to determine the type of aircraft performing the operations. As there is no historical data on which to base the potential ARC mix at 48U, it was determined to create an average mix from Wyoming airports. To create a picture of the typical ARC mix for Wyoming airports, data was pulled from master plans for 10 Wyoming airports, completed by an assortment of consultants.

Data was also extracted for 6 airports, of substantially varying size and activity, in states neighboring Wyoming (Colorado, Montana, Utah, and Idaho). This convenience sample was simply used as a check against the Wyoming ARC distributions. On average for the neighboring state airports, 88% of operations are by A-I or B-I aircraft, and 3% by A-II or B-II aircraft. The proportions of smaller and slower aircraft (A-I and B-I) is higher, yet within a reasonable amount, compared to the Wyoming sample.

Given that the Wyoming sample contained the Rock Springs and Worland airports which provide commercial service, estimations of 80% for ARC A-I and B-I at 20% were used for 48U. The elevation of the airfield at 48U combined with the terrain limitations and runway length, make operations of aircraft above an ARC B-II designation extremely unlikely. As such, it was determined the ARC mix of 48U would be comprised with only A-I, B-I, A-II, and B-II designated aircraft. Refer to *Tables 2.4* and *2.5* on the following page.

TABLE 2.4 FLEET ARC CLASSIFICATIONS AT WYOMING AIRPORTS					
Location	Airport	Consultant	Year	Airplane Design Group - % of Fleet	
				ADG I	ADG II
Big Piney, WY	Miley Memorial Field	MSA (ADG)	1991	90.8%	8.5%
Dubois, WY	Dubois Municipal Airport	Gores / RSH	2008	92.5%	5.7%
Ft. Bridger, WY	Fort Bridger Airport	GDA /Aviation Concepts	1996	96.1%	3.5%
Kemmerer, WY	Kemmerer Municipal Airport	ADG	2005	99.6%	0.0%
Newcastle, WY	Mondell Field	GDA / Aviation Concepts	1992	88.3%	9.5%
Pinedale, WY	Ralph Wenz Field	GDA	2010	61.1%	29.5%
Powell, WY	Powell Municipal Airport	TSP / Aviation Concepts	2000	86.2%	12.7%
Rock Springs, WY	Rock Springs-Sweet Water County Airport	Jviation	2013	49.5%	32.6%
Wheatland, WY	Phifer Airfield	GDA	2007	91.3%	6.5%
Worland, WY	Worland Municipal Airport	GDA / Morrison-Maierle	1996	72.5%	27.5%
			Averaged Total:	**77.3%**	**17.0%**

TABLE 2.5 FLEET ARC CLASSIFICATIONS AT SELECTED NEIGHBORING AIRPORTS					
Location	Airport	Consultant	Year	Airplane Design Group - % of Fleet	
				ADG I	ADG II
Big Timber, MT	Big Timber Airport	GDA	2013	80.8%	15.6%
Caldwell, ID	Caldwell Industrial Airport	Kimley-Horn	2010	87.8%	2.2%
Meeker, CO	Meeker Airport	JPS/GDA	2002	83.6%	4.3%
Nephi, UT	Nephi Municipal Airport	Barnard Dunkelberg	1995	96.0%	1.0%
Rangely, CO	Rangely Airport	JPS	2008	97.7%	0.8%
Vernal, UT	Vernal Regional Airport	GDA	2012	45.0%	36.5%
			Averaged Total:	**88.4%**	**3.3%**

2.10 LOCAL AIRCRAFT

Listed to the right in *Table 2.6* are the aircraft, with corresponding ARC designations, that pilots in Rock Springs and Green River reported owning. A small selection of these aircraft are the most likely candidates to hangar and base at 48U, if facilities became available.

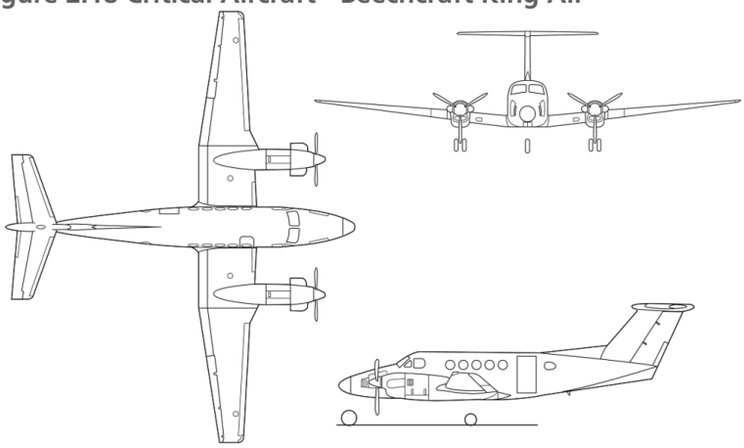
As can be seen, all of the reported aircraft are ARC A-I. This reinforces the previous estimates of fleet type mix at 48U to be, at least, 80% Airplane Design Group I.

TABLE 2.6 LOCAL AIRCRAFT CATEGORIES

Current Location	Aircraft	ARC
Green River, WY	Piper PA-32R-301T	A-I
Green River, WY	Piper PA 18 super cub	A-I
Green River, WY	Quad City Challenger	A-I
Green River, WY	Titan Tornado Super Stretch	A-I
Green River, WY	Ercoupe 415 D	A-I
Green River, WY	Piper Cherokee 180	A-I
Green River, WY	Piper PA 24-260	A-I
Rock Springs, WY	Cessna 182 R6	A-I
Rock Springs, WY	Piper PA 24-250	A-I
Rock Springs, WY	Piper Arrow	A-I
Rock Springs, WY	Cessna 175	A-I
Rock Springs, WY	Comanche 250	A-I
Rock Springs, WY	Piper PA 18 super cub	A-I
Rock Springs, WY	Piper Warrior	A-I

2.11 CRITICAL AIRCRAFT

Figure 2.18 Critical Aircraft - Beechcraft King Air



A critical, or design, aircraft must be determined for 48U from the potential users. The previous assumption that all, or nearly all, future traffic at 48U will be by aircraft designated between A-I and B-II, was based partially upon conversations with potential users. Specifically, Premier Bone and Joint and Guardian Flight both use Beechcraft King Air aircraft, which is designated as Aircraft Approach Category B and Airplane Design Group II, resulting in a B-II ARC. No other potential users identified operate aircraft that are larger or faster, indicating that the Beechcraft is the Critical Aircraft for 48U. This is reinforced via the forecast by type analysis, the results of which indicated 20% of operations at 48U would be from B-II aircraft and the remainder from A-I, A-II, or B-I aircraft.

Planning should take into consideration the long-term future of the airport, beyond the horizon of the forecast. Room for expansion and growth should be left in case the airport should start seeing larger aircraft or more operations from existing airport users. The three biggest impacts to an airport when planning for a specific ARC are in Runway Safety Areas (RSA), taxiway separation distances, and runway longitudinal grade requirements. These surfaces and dimensions in relation to the B-II ARC are discussed later.

Facility Requirements

SECTION OVERVIEW

The *Facility Requirements* chapter describes the facilities required to safely accommodate the aircraft traffic forecasted in the previous chapter.

3.0 GENERAL

The *Facility Requirements* chapter describes the facilities necessary to accommodate the demand represented by the aviation forecasts. Application of the forecast demand to the existing facilities identifies deficiencies to address through the Capital Improvement Program. Most dimensional standards and recommendations listed are described in FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*. Additional FAA ACs and regulations are referenced where appropriate.

3.1 AIRPORT REFERENCE CODE AND RUNWAY DESIGN CODE

The FAA has developed an aircraft coding system comprised of two prongs: ***Aircraft Approach Category (AAC)*** and ***Airplane Design Group (ADG)*** (see *Tables 2.1* and *2.2*). The AAC is designated by a letter (A through E) and the ADG by a Roman numeral (I through VI). Each airport has a critical aircraft, typically defined as the most demanding aircraft (or combination of aircraft) that performs approximately 500 annual itinerant operations. The combination of that aircraft's AAC and ADG (for example, A-I or B-II) signifies the ***Airport Reference Code (ARC)***.

Each runway also receives a combined AAC and ADG designation for approach and departure operations, called the ***Runway Design Code (RDC)***. Each RDC also contains a third component based on visibility minimums (for example, B-II-4000). These categorizations are applied to individual runways, such that multiple runways at a single airport may have different RDCs. The ARC and RDC provide insights into the performance, design characteristics, and physical facility requirements of aircraft using components of an airport and in particular, an individual runway. The design standard designation used for taxiway design is the ***Taxiway Design Group (TDG)***, a classification of airplanes based on outer to outer Main Gear Width and Cockpit to Main Gear distance.

LOCAL AIRPORT REFERENCE CODE, RUNWAY DESIGN CODE, AND TAXIWAY DESIGN GROUP

The *Forecast of Aviation Demand* chapter established the critical aircraft as the Beechcraft King Air B200, leading to an ARC B-II for the Greater Green River Intergalactic Spaceport. As such, an overview of FAA B-II design standards is presented next, followed by a comparison to current conditions at 48U.

There is one runway at 48U. Primary Runway 4/22 is unpaved. The total graded area is 6,178 feet long by 150 feet wide, although the published length is 5,800 feet and the published width is 130 feet. The RDC for Primary Runway 4/22 is B-II-VIS; meaning approach category B (91 - < 121 knots), design group II (wingspan 49 - < 79 feet), with visual approach minimums. The TDG for all taxiways at 48U is 1A, designated by the design aircraft. The design

standards for TDG 1A are: taxiway width of 25 feet, taxiway edge safety margin of 5 feet, and taxiway shoulder width of 10 feet. *Table 3.1* lists common aircraft and their respective ARC.

TABLE 3.1 EXAMPLE AIRCRAFT AND AIRPORT REFERENCE CODES (ARC)

ARC	Description	Example Aircraft
A-I	Single-Engine Aircraft	Cessna 172 and 182, Vans RV-6A
A-II	Single-Engine Aircraft, Gliders (some)	Beechcraft E18S
B-II	Multi-Engine and Small Jet Aircraft	Beechcraft King Air B200 and B300, Cessna 560 and 560XL
B-III	Long Winged Business Jets	Global 5000
C-I	Short Winged Business Jets	Learjet 45
C-II	Larger Multi-Engine and Corporate Jet Aircraft	Cessna Sovereign (680), Hawker 800XP, Challenger 800
C-III	Medium-Sized Air Carrier Aircraft	Boeing 737
D-II	Corporate Jets, Small Commuter Jets	Citation X (750), Gulfstream GIV, Canadair Regional Jet 200
D-IV	Larger Air Carrier Aircraft	Boeing 707-320, Lockheed C-130
D-V	All Large Air Carrier Aircraft	Boeing 747

3.2 FAA DESIGN STANDARDS

The FAA has established design standards for airports, including relevant navigable airspace, airside facilities, and landside facilities. The standards that apply to an airport and/or runway are determined by the relevant reference code. Subsequently, a comparison of B-II standards to the current conditions of the airport is critically important and is discussed in detail later in this chapter. As there are no significant previous planning documents for the Greater Green River Intergalactic Spaceport, the airport has never had an official ARC classification. Discussion throughout this chapter summarizes applicable FAA Design Standards for different airport components (runway, taxiway, etc.) and notes for each if the airport is in compliance or not.

3.3 SITE CONSTRAINTS

The *Forecast of Aviation Activity* (Chapter 2) and *Facility Requirements* are highly interconnected at the Greater Green River Intergalactic Spaceport. Airport geometry, safety standards, and recommendations typically fall short of the requirements of the design aircraft. A pertinent variable for the facility requirements at 48U is the constrained site. Relocation of the airport to another site is not financially feasible, thus the current discussion focuses on how the existing airport location meets, or does not meet, design standards.

As previously discussed and shown below in *Figure 3.1*, the existing airport graded area for the runway meets steeply declining terrain at both ends, limiting the available usable surface to 6,178 feet. To provide the required Runway

Figure 3.1 Site Constraints Off Runway Ends

Safety Areas off of the ends of the runway (a non-negotiable design standard) the designated ends of the landing and takeoff surfaces (the runway thresholds) must be relocated from the ends of the graded areas inward. This leaves the greatest length of designated runway at 5,750 feet, resulting in a reduction of approximately 428 feet.

Alternative runway alignments, changing the orientation and runway ends of the current site, were examined but none were found that would greatly increase the runway length or usable surface area at the site. The fact remains then, that the existing site when compared against the recommended runway length analysis (shown later in Section 3.5) is considered "constrained"; a term used to denote that physical limitations are present that limit the site from expanding to safely accommodate existing or probable aircraft types. In some cases, this factor may change the investment decision process by forcing a review of additional off-site alternatives. For instance, if the research done for this Master Plan study had found a preponderance of larger aircraft wanting to use the facility, these operations could be counted as 'un-met' demand and used to determine that the Sponsor should look at another site for the airport; however, this potential was not discovered. Although the site is not ideal, it does reasonably accommodate the forecasted traffic and, more importantly, the selected design aircraft type. Thus, the study will continue with the plan to utilize the existing facility.

3.4 AIRFIELD CAPACITY

Demand/capacity represents the relationship between anticipated aviation demand, especially during peak operational periods, and an airport's physical ability to safely accommodate that demand. The purpose of a demand/capacity analysis is to assess the ability of the airport's existing facilities to efficiently accommodate its day-to-day and long-term demand without undue delays or compromises to safety. The analysis also assists in determining when improvements are needed to meet specific operational demands.

At low activity airports, airfield capacity often exceeds the anticipated level of demand many times over. Several techniques for determining airfield capacity are available to find capacity. The most widely recognized and accepted methodology can be found in the FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, and yields hourly capacities and annual service volumes. This method, also referred to as the "handbook method," permits the estimation of aircraft delay levels as demand approaches and exceeds the capacity of each airfield configuration. This study utilized this accepted methodology. Although not explicitly listed in the Advisory Circular, it is assumed this methodology was designed only for paved or, at a minimum, greatly improved runway surfaces. The current surface of Runway 4/22 is such that the calculated capacity and volume is likely substantially reduced due to the longer time it takes to taxi on unimproved surfaces. The following analysis is thus for consideration only if the primary runway is paved or improved.

Based on the forecasted operations by type, discussed in Chapter 2, the assumption is made that all operations are made by aircraft under 12,500 pounds. Additional capacity assumptions include:

- Any runway layout can be approximated by one of the 19 depicted runway-use configurations provided in Chapter 2 of AC 50/5060-5, *Airport Capacity and Delay*.
- A full-length parallel taxiway, ample runway entrance/exit taxiways, and no taxiway crossing problems.
- There are no airspace limitations which would adversely impact flight operations or otherwise restrict aircraft that could operate at the airport.
- Helicopter operations are excluded from the calculations.

With these assumptions and a one paved runway configuration, 48U has a calculated annual service volume of 230,000 operations, as shown in *Table 3.2*.

TABLE 3.2 RUNWAY AND CROSSWIND RUNWAY USE CONFIGURATION SOURCE: FAA AC 150/5060-5, AIRPORT CAPACITY AND DELAY, TABLE 2-1 CONFIGURATION NO. 1			
Mix Index % (C[1]+3D[2])	**Hourly Capacity Ops/Hr**		**Annual Service Volume Ops/yr**
	VFR	**IFR**	
0 to 20	**98**	**59**	**230,000**
21 to 50	74	57	195,000
51 to 80	63	56	205,000
81 to 120	55	53	210,000
121 to 180	51	50	240,000

[1] C= Percent of airplanes over 12,500 pounds but not over 300,000 pounds
[2] D= Percent of airplanes over 300,000 pounds

The highest forecast of total annual operations at the airport is less than 22,000, which will not exceed the calculated annual service volume of 230,000 operations. It is also not anticipated that the annual service volume will be exceeded beyond the 20 year planning period as the highest forecasted operation count is less than 1 percent of the calculated allowable value.

3.5 AIRFIELD DEVELOPMENT

Airfield development includes the runway and taxiway facilities on an airport. These facilities must meet the needs of the design aircraft for safe operations on the airport.

TABLE 3.3 RUNWAY DESIGN STANDARDS			
Design Criteria	Existing Runway 4/22	ARC B-II Standard	Status
Runway			
Runway length	6,178 feet (dirt)	75% of small airplanes with less than 10 passenger seats: 6,200 feet 95% of small airplanes with less than 10 passenger seats: 8,800 feet	Out of Compliance
Runway width	150 feet (dirt)	75 feet (paved)	Out of Compliance
Runway Safety Area (RSA) length beyond runway end	~50 feet RWY 4 ~40 feet RWY 22	300 feet	Out of Compliance
Runway Safety Area (RSA) width	150 feet	150 feet	Compliant
Runway Object Free Area (ROFA) length beyond runway end	300 feet	300 feet	Compliant
Runway Object Free Area (ROFA) width	500 feet	500 feet	Compliant
Runway Obstacle Free Zone (ROFZ) length	400 feet	400 feet	Compliant
Runway Obstacle Free Zone (ROFZ) width	200 feet	200 feet	Compliant
Runway Protection Zone (RPZ) length	1000 feet	1000 feet	Compliant
Runway Protection Zone (RPZ) inner width	500 feet	500 feet	Compliant
Runway Protection Zone (RPZ) outer width	700 feet	700 feet	Compliant

RUNWAY DESIGN STANDARDS

Table 3.3 lists the FAA design standards for runways. Runway 4/22's published length is 5,800 feet and its published width is 130 feet. The Greater Green River Intergalactic Spaceport Runway 4/22 Safety Areas are out of compliance because they do not extend far enough beyond the runway ends.

RUNWAY LENGTH ANALYSIS SUMMARY

Many factors determine the suitability of runway length for an airplane operation. These factors include airport elevation above mean sea level, temperature, wind velocity, airplane operating weights, takeoff and landing flap settings, runway surface condition (dry or wet), effective runway gradient, presence of obstructions in the vicinity of the airport, and any locally imposed noise abatement restrictions or other prohibitions. A given runway length may not be suitable for all aircraft operations. FAA AC 150/5325-4B, *Runway Length Requirements*, provides standards and guidelines for use in the design of civil airports.

Runway 4/22 is unimproved, with a dirt surface, and is minimally used. The occasional aircraft that do utilize the runway are smaller single-engine aircraft, weighing less than 12,500 pounds. The surface type limits the use of heavier more demanding aircraft. In order to be within design standards for safety areas, the usable length of Runway 4/22 would be reduced to approximately 5,750 feet long. At that length, the runway would support somewhat less than 75 percent of the small aircraft fleet with 10 or fewer passengers. A higher percentage of supported fleet is desirable. However, because the runway is terrain constrained, increasing the runway length is not feasible. *Table 3.4* shows the runway length recommendations based off of the five step process outlined in FAA AC 150/5325-4B. Given the very high elevation and relatively hot summer months, the recommended runway length is substantial: increasing to 8,800 feet in order to meet 100 percent of the small aircraft fleet.

TABLE 3.4 RUNWAY LENGTH RECOMMENDATIONS	
Airport Elevation: 7,185 feet **Mean Daily Maximum Temperature of the Hottest Month: 87.4° F** **Maximum Difference in Runway Centerline Elevation: 32 feet**	
12,500 pounds or less with approach speeds less than 30 knots	520 feet
12,500 pounds or less with approach speeds of at least 30 knots but less than 50 knots	1,370 feet
12,500 pounds or less with approach speeds of 50 knots or more with less than 10 passenger seats	
75 percent of fleet	6,200 feet
95 percent of fleet	8,800 feet
100 percent of fleet	8,800 feet
12,500 pounds or less with approach speeds of 50 knots or more with 10 or more passengers	8,800 feet
Over 12,500 pounds but less than 60,000 pounds	
75 percent of fleet at 60 percent useful load	8,020 feet
75 percent of fleet at 90 percent useful load	8,920 feet
100 percent of fleet at 60 percent useful load	11,320 feet
100 percent of fleet at 90 percent useful load	11,320 feet
60,000 pounds or more or Regional Jets (approximately)	7,530 feet

RUNWAY WIDTH

Runway width design standards (FAA AC 150/5300-13A, Table 3-8) for aircraft Approach B, Design Group II with visual visibility minimums is 75 feet. The primary Runway 4/22 is 75 feet wide, meeting the standard and needs of most anticipated traffic. The width standard for Approach A, Design Group I Small Aircraft is 75 feet.

PAVEMENT STRENGTH

To meet the design life goals of the funding agencies, Sponsor, and airport, runway pavements must be designed to physically withstand the weight of arriving, taxiing, and departing aircraft. This is represented by the design aircraft or mix of aircraft. The maximum takeoff weight of the existing design aircraft and those aircraft forecasted to use the airport must be considered to determine pavement strength. Airport pavements rarely catastrophically fail (all at once) but tend to more quickly fail when over-stressed with loads beyond their design capability. Pavement loading is also a function of the number of pressure points, such that the more tires an aircraft has to distribute its load the less stress it puts on the pavements.

If Runway 4/22 were to be paved the pavement strength should meet the standards for the B-II design aircraft determined by the aviation activity forecast. As Runway 4/22 is currently dirt, there is no pavement strength rating.

RUNWAY SEPARATION STANDARDS

There are several standards for runway separation distances between other facilities on the airport, dictated by the design aircraft. The runway separation standards for a B-II facility are shown in *Table 3.5*. The FAA and State generally support and recommend that separation distances between runways and parallel taxiways be increased to standards for larger and heavier aircraft than the current design aircraft, to protect for future use. The runway separations standards are not applicable, at this time, for 48U because there are no paved taxiways or apron areas.

TABLE 3.5 RUNWAY SEPARATION STANDARDS

Design Criteria	Existing Runway 4/22	ARC B-II Standard	Status
Runway Separations			
Runway centerline to parallel taxiway/taxilane centerline	Not applicable	240 feet	Not applicable
Runway centerline to aircraft parking area	Not applicable	250 feet	Not applicable
Runway centerline to holding position	Not applicable	200 feet	Not applicable

TAXIWAY ANALYSIS

As stated in FAA AC 150/5300-13A, Section 405, a basic airport consists of a runway with a full-parallel taxiway, connecting transverse taxiways between the runway, the parallel taxiway, and the apron. The current standards for taxiways and taxilanes are shown in comparison to dimensions at 48U in *Table 3.6*. Most notably, the airport has poorly defined and short taxiways with unimproved surfaces, deeming all comparisons not applicable. These standards should be incorporated in future design work.

TABLE 3.6 TAXIWAY STANDARDS			
Design Criteria	Existing Runway 4/22	FAA Standard	Compliance
Taxiway Safety Area	Not applicable	79 feet	Not applicable
Taxiway Width	Not applicable	35 feet	Not applicable
Taxiway Object Free Area Width	Not applicable	131 feet	Not applicable
Taxilane Object Free Area Width	Not applicable	115 feet	Not applicable
Separation of Taxiway Centerline to Fixed or Movable Object	Not applicable	65.5 feet	Not applicable
Separation of Taxilane Centerline to Fixed or Movable Object	Not applicable	57.5 feet	Not applicable

NAVIGATIONAL AIDS

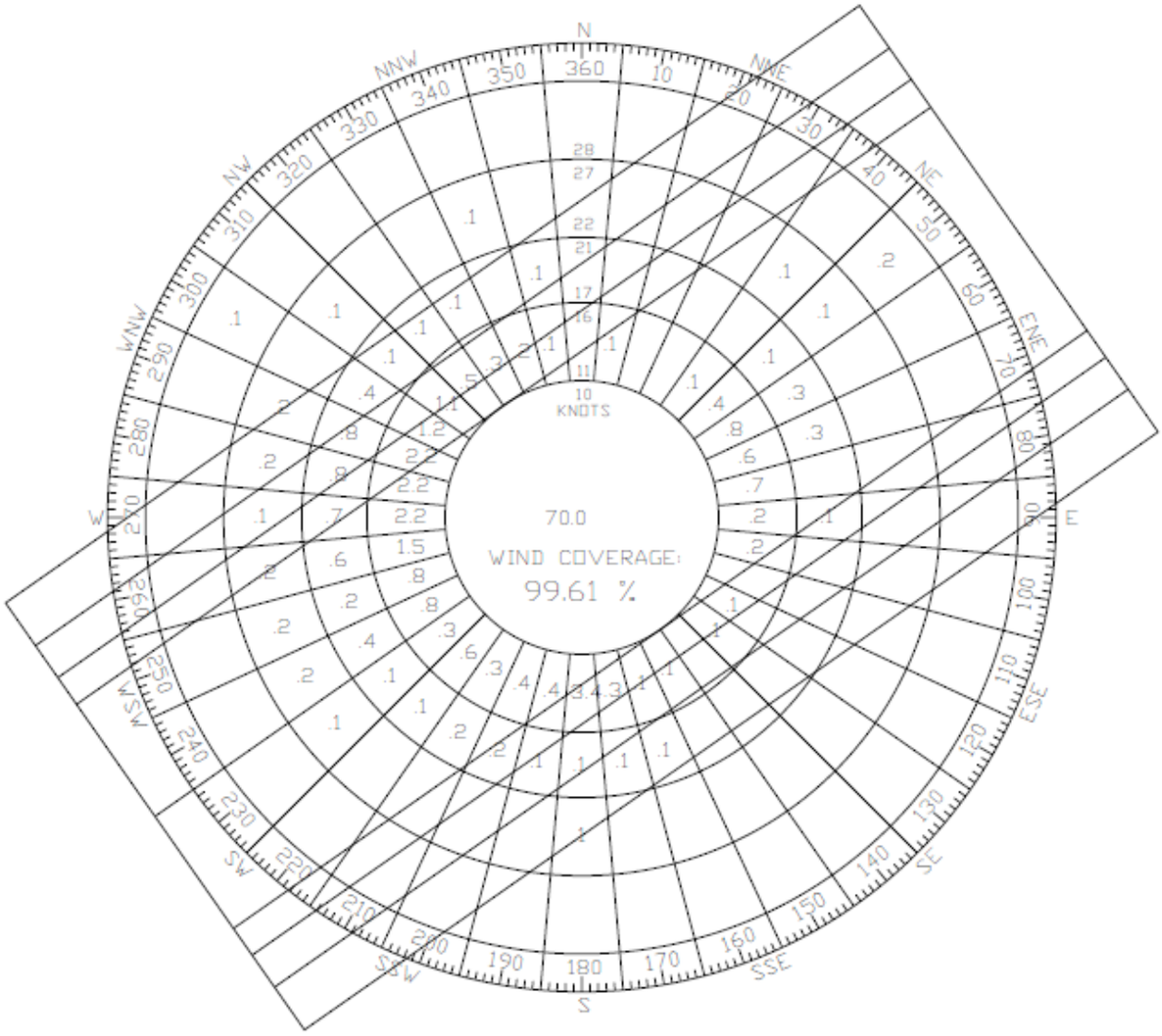
Aids to navigation provide pilots with information to assist them in locating the airport and to provide horizontal and/or vertical guidance during landing. Navigational Aids (NAVAIDS) also permit access to the airport during poor weather conditions. There are no NAVAIDS installed at 48U. Future consideration should be given to installing NAVAIDS at the airport to increase pilot safety and record weather.

WIND ANALYSIS

Wind data was collected from one wind sensor placed at the Greater Green River Intergalactic Spaceport for the purposes of this study. The wind sensor's location is shown below in Figure 3.2. Data was collected from 04/30/14 through 07/12/14. This data was incorporated into the FAA's wind analysis tool on the Airports-GIS website to create wind roses for the airport. Runway 4/22 provides 99.61% coverage at 10.5 knots. The FAA recommends at least 95% wind coverage.

Figure 3.2 Wind Sensor Location

Figure 3.3 All Weather Wind Rose



3.6 AIRSPACE AND APPROACHES

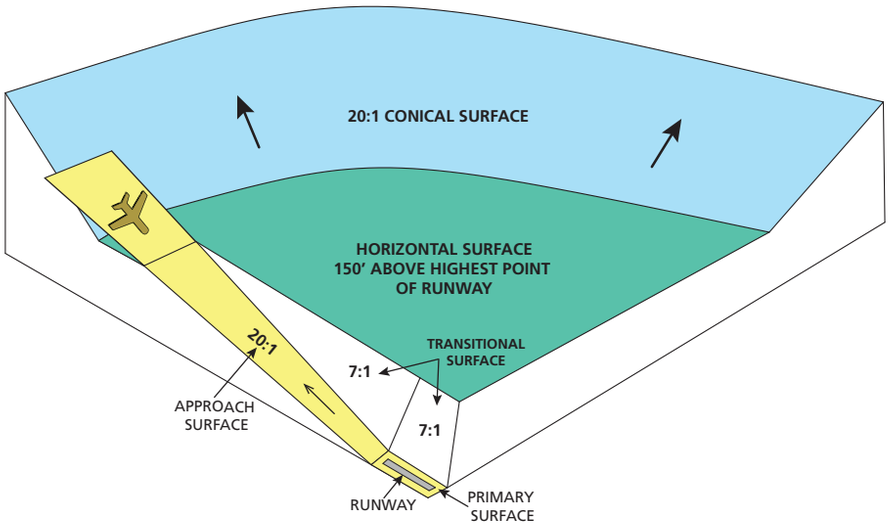
This section will provide guidance on issues pertaining to airspace clearing and obstacle standards.

FAR PART 77 SURFACES

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions in navigable airspace. Part 77 describes imaginary surfaces that surround each airport and are defined relative to the specific airport and each runway. The imaginary surfaces vary in size and configuration based on the category of each runway. The runway category is determined by the types of approaches that exist or are proposed for that runway.

The most precise existing or proposed approach for the specific runway end determines the slope and dimensions of each approach surface. Any object, natural or man-made, that penetrates these imaginary surfaces is considered to be an obstruction. *Figure 3.4* is a graphical illustration of these surfaces.

Figure 3.4 FAR Part 77 for Runway 4/22



Primary Surface

The Primary Surface is a rectangular area, symmetrically located along the runway centerline and extending a distance of 200 feet beyond each runway threshold. The elevation of the Primary Surface is the same as the corresponding runway elevation. The most demanding type of existing or planned approach for either runway end sets the width of the Primary Surface. In all cases, the width equals the inner width of the approach surface. In the case of unpaved runways, the Primary Surface does not extend beyond the runway thresholds, rather terminating at the thresholds.

Horizontal Surface

The Horizontal Surface is an oval-shaped, level area situated 150 feet above the airport elevation. The perimeter is established by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is 5,000 feet for all runways designated as utility or visual and 10,000 feet for all other runways. The arcs at either end will have the same value.

Conical Surface

The Conical Surface is a sloping area whose inner perimeter conforms to the shape of the Horizontal Surface. The

Conical Surface extends outward from the horizontal surface a distance of 4,000 feet measured horizontally, while sloping upward at a ratio of 20:1 (horizontal:vertical).

Transitional Surface

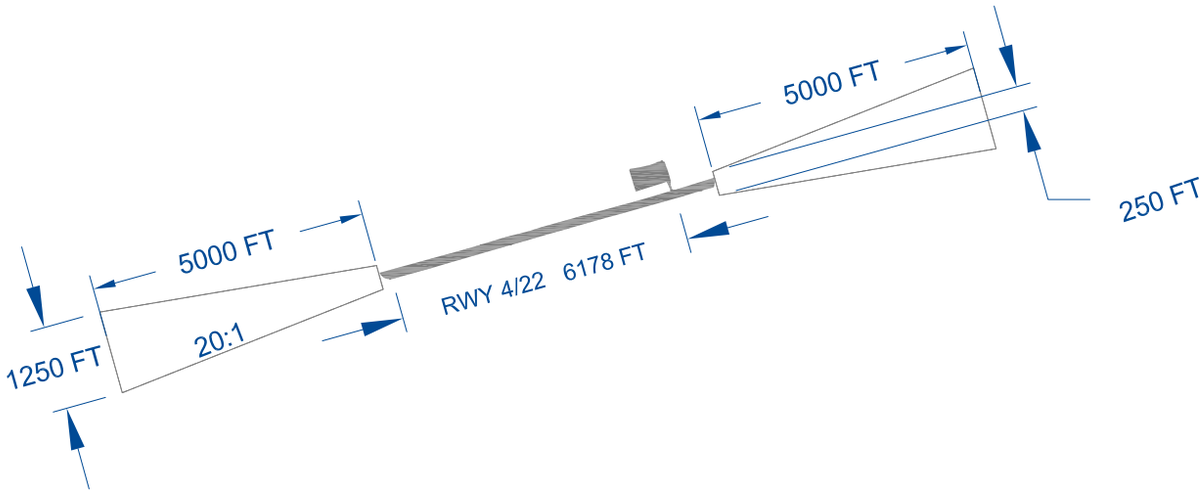
The Transitional Surface is an area that begins at the edge of the Primary Surface and slopes upward at a ratio of 7:1 (horizontal:vertical) until it intersects the Horizontal Surface. The Transitional Surface is the surface that is used to calculate the airport's Building Restriction Line (BRL) for hangar and structure set backs from the runway.

Approach Surface

The Approach Surface begins at the ends of the Primary Surface and slopes upward and flares outward horizontally at a predetermined ratio. The width and elevation at the inner ends of the Approach Surface conform to that of the Primary Surface. Slope, length, and width of the outer ends are governed by the runway service category, existing or proposed instrument approach procedure, and approach visibility minimums.

A utility runway is a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less. The Approach Surface for visual utility Runway 4/22 extends a horizontal distance of 5,000 feet at a slope of 20:1 (*Figure 3.5*). The future planned Approach Surface for utility Runway 4/22, based on a Non-Precision Approach of 1 mile, extends for a horizontal distance of 5,000 feet at a slope of 20:1. The Primary, Approach, and Transitional Surfaces should be completely clear of any terrain, trees, or man-made penetrations. Penetrations to these surfaces may impact safety and/or the instrument approach procedures for the airport.

Figure 3.5 Current Approach Surface for Runway 4/22



RUNWAY PROTECTION ZONE (RPZ)

The Runway Protection Zone (RPZ) is a portion of the inner approach zone projected onto the ground surface. Its function is to enhance the protection of people on the ground. It is a ground-surface-level zone and begins 200 feet beyond the end of the area useable for takeoff or landing. The RPZ is trapezoidal in shape and centered around the extended runway centerline.

The RPZ dimensions are determined by the design aircraft, type of operation, and visibility minimums. Land uses

prohibited within the RPZ include residences and places of public assembly including schools, hospitals, office buildings, churches, shopping centers, and other uses with similar concentrations of people. Fuel storage facilities as well as the storage or use of significant amounts of materials which are explosive, flammable, toxic, corrosive, or otherwise exhibit hazardous characteristics shall not be located within the RPZ.

Allowable uses include those that do not attract wildlife, do not interfere with navigational aids, and are located outside of the Runway Object Free Area. Automobile parking lots are allowable only if they are located outside of the central portion of the RPZ (which is equal to the width of the Object Free Area).

Whenever possible, the FAA strongly encourages fee simple Sponsor ownership of the RPZ for complete control of the land uses in these areas. An avigation easement is strongly recommended where fee simple Sponsor ownership is not possible. The RPZ dimensions are shown in *Table 3.7*. Both the dimensions for the current approach and a potential future approach are shown.

TABLE 3.7 RUNWAY PROTECTION ZONE DIMENSIONS
SOURCE: AC 150/5300-13, AIRPORT DESIGN, TABLE 2-4

	Approach Visibility Minimums	Length	Inner Width	Outer Width	Acres
Current	Visual	1,000 feet	250 feet	450 feet	8.035
Potential Future	Not Lower than 1 mile	1,000 feet	250 feet	450 feet	8.035

Obstructions

The FAA recommends that all obstructions to the imaginary surfaces be removed if possible. The approach zones and RPZs define the most heavily used airspace around an airport and every effort should be made to minimize obstruction within these areas. However, sometimes it is impossible to achieve a completely obstruction-free airspace because of excessive costs or other considerations. The obstructions that cannot be removed or those obstructions that cause the FAA to reduce the approach minimums should be lighted with hazard beacons.

There is not a clearly defined point where the presence of obstructions renders the airport unusable. Influencing factors include type, height, and location of the obstruction. The City of Green River should do everything possible to prohibit growth or construction of potential obstructions.

3.7 LAND USE ZONING

Compatible land use is discussed in detail in *Chapter 8*. The City of Green River should consider adopting a resolution defining compatible land uses for airport and surrounding property. A sample resolution has been included in Appendix 8.

3.8 GENERAL AVIATION REQUIREMENTS

There are no aircraft storage facilities, terminal facilities, or paved aircraft parking aprons at 48U. These types of facilities are of high importance for a functioning general aviation airport. 48U should strongly consider the addition of some, or all, of these facilities.

3.9 SUPPORT FACILITIES

There are no Aircraft Rescue and Firefighting (ARFF) facilities at 48U. Likewise, no aircraft maintenance, fuel storage or sale, or de-icing is available. The airport should consider adding these support facilities in the future, after primary facilities are in place.

3.10 UTILITIES

48U does not have any utilities (such as water, electricity, or a septic system). If general aviation and/or support facilities are built the addition of utilities may become necessary.

3.11 SECURITY CONSIDERATIONS

As an unimproved general aviation airport, 48U does not have any security measures in place.

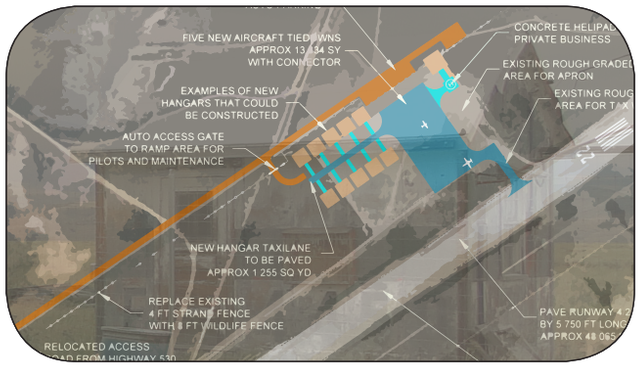
3.12 FACILITY REQUIREMENTS CONCLUSION

The terrain surrounding the runway at 48U dictates the potential usable runway length. The longest potential runway, meeting all ARC B-II design and safety standards, is 5,750 feet. This length, while lower than the recommended, would still provide a serviceable airport for the majority of small aircraft fleet. Beyond improving the runway, the addition of NAVAIDS, aircraft parking, and security measures are the highest priorities for the airport.

Development Alternatives

SECTION OVERVIEW

This chapter identifies and evaluates different alternatives to meet the needs of the airport Sponsor and users. A key element of this is addressing the previously identified facility requirements.



4.0 GENERAL

The purpose of this chapter is to discuss alternatives to effectuate the facility requirements as established in *Chapter 3*. As determined in *Chapter 2 Forecast of Aviation Demand*, all proposed development will meet or exceed the design standards for ARC B-II aircraft.

As an unimproved airport lacking facilities, the Greater Green River Intergalactic Spaceport has very minimally served the aviation needs of the local community. During the lifespan of the current airport, the only development improvements have been minor grading and dirt work by local city employees, as well as the installation of a four strand perimeter fence.

4.1 SPONSOR AND USER INPUT

From multiple public meetings, pilot survey results, and in-person and telephone conversations with potential airport users, an obvious consensus emerged regarding the focus for the airport needs. The most imperative improvement is to pave, or otherwise improve, the surface of the runway. Proper planning will ensure that the improved runway is reduced in length from the current dirt runway in order to accommodate safety areas and design standards. Additional less pressing improvements are the construction of an apron with aircraft parking and a connect taxiway. Long-term improvements agreed upon are hangar construction, security fencing, and a pilots' lounge.

4.2 THE PLANNED AIRPORT

The argument can be made that a thriving, economically diverse community "needs" an airport. Airports provide the opportunity for individuals and aircraft to get into and out of communities. This capability can have a significant positive impact on the local economy.

As is the case for most general aviation airports in less populous states like Wyoming, the Greater Green River Intergalactic Airport, if further developed, would not approach its capacity limit. The planned airport configuration would accommodate 230,000 operations per year. The annual operations count, assuming three based aircraft at 48U, is not forecasted to exceed 3,300. Assuming 20 based aircraft, that operations forecast increases to slightly less than 6,400.

The forecasted aircraft to use 48U are mainly in ARC A-I and A-II categories, including local Piper Super Cub, Piper 24-250, and Cessna 175. A smaller percentage of forecasted operations are for aircraft in the B-I and B-II categories, such as the design aircraft (Beechcraft King Air).

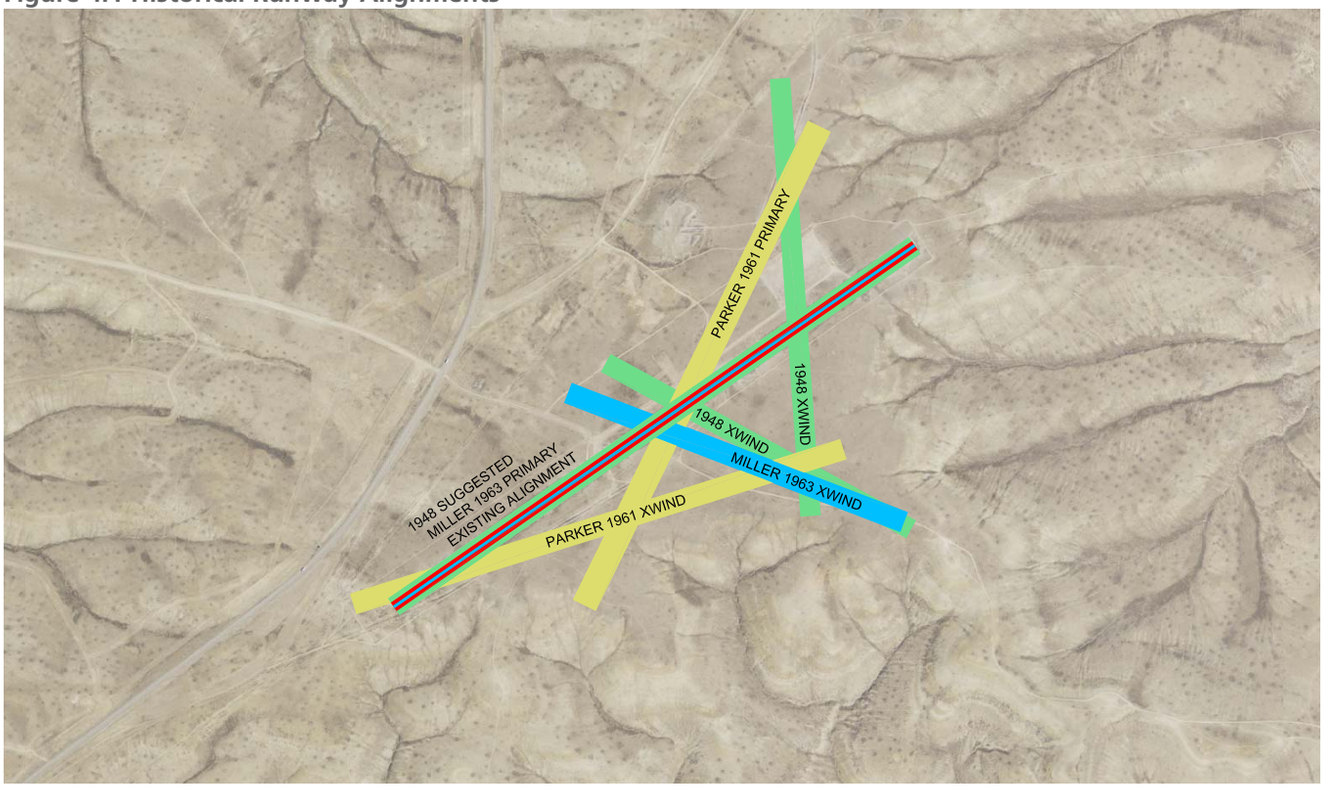
Based on the forecasted operation counts and types of aircraft, discussion with potential airport users, and a thorough examination of FAA design standards, the following items were identified as generally needed at the Greater Green River Intergalactic Spaceport:

- Improve surface of Runway 4/22, preferably asphalt
- Improve surface of existing taxiway connector from the runway to apron
- Improve surface of existing apron area
- Install new aircraft tiedowns
- Designate and improve a taxilane for hangar development
- Install perimeter fence
- Meet all safety design standards

4.3 RUNWAY ALTERNATIVES

As discussed, terrain restricts the length of Primary Runway 4/22 at both ends, limiting the runway to 5,750 feet. Given the elevation, summer temperatures, and forecasted aircraft at 48U, maximizing the length of Runway 4/22 was a critical factor in runway alternative designs. Before substantial wind data was collected, an analysis of different runway alignments was conducted to find the longest potential runway. Fifteen total alignments were measured for overall length. A number of these alignments were pulled from historical documentation (Appendix 6), as shown in *Figure 4.1*. The current alignment provides the longest runway length on the current site given the steep surrounding terrain. The current and preferred alignment provides a runway length of 5,750 feet while meeting all B-II safety areas. The next longest alignment, which varied the current orientation by 13 degrees, provided roughly only 4,800 feet.

Figure 4.1 Historical Runway Alignments



4.4 BUILDING AREA ALTERNATIVES

All building alternatives were restricted to the current apron area. This area, currently, is a dirt rectangle approximately 280,000 square feet, that has been minimally graded and removed of brush. Constructing basic airport facilities, including a paved runway, taxiway, apron, and hangar taxilane was deemed as the highest priority needs at 48U. The lack of infrastructure played a role in alternative concepts, understanding no power or water is available at the site.

A total of three complete building alternatives were designed and presented to the Sponsor. The first alternative is shown below in *Figure 4.2*. This layout compactly addresses all critical development issues, requiring a minimal amount of asphalt. It provides one taxiway connecting the runway and apron area. The apron area is large enough to accomodate B-II aircraft taxiing and five tiedowns. Extending southwest from the apron is the single taxilane and hangar access. The proposed taxilane length would accomodate ten standard small hangars (60' x 60').

The access road is relocated along an existing trail to run just north and parallel to the proposed wildlife perimeter fence. Automobile parking can be accommodated in the dirt area north of the hangars, providing ample distance from aircraft operations. On the north east side of the apron is a helipad and large hangar for a private business. This business would have public access through the north side of the building, outside of the wildlife perimeter fence, for customers.

The proposed components and alignment could potentially be moved perpendicularly to the south along the runway, if so desired. The presented location was selected because it utilized the current apron area and flatter ground.

Figure 4.2 Building Alternative 1

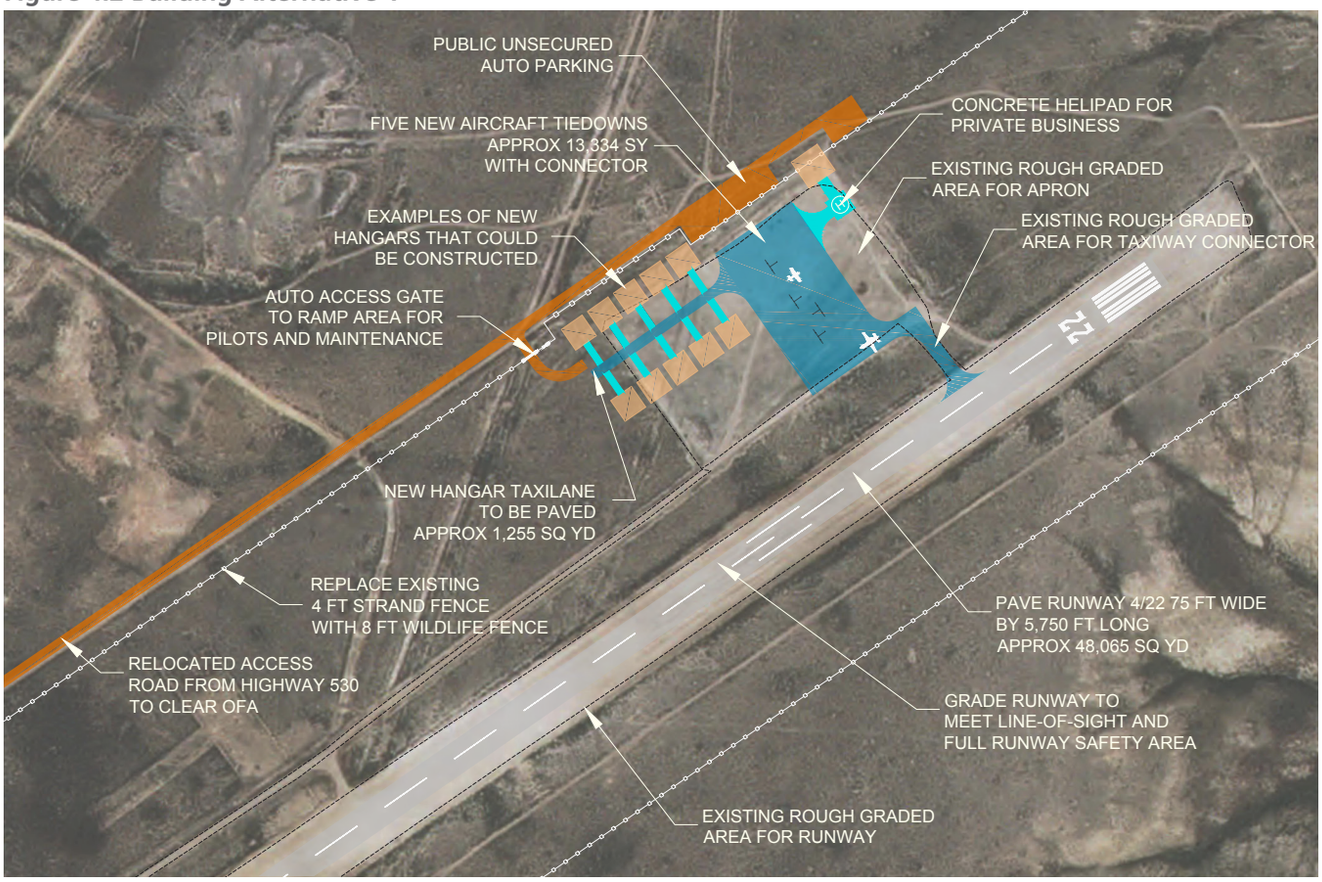
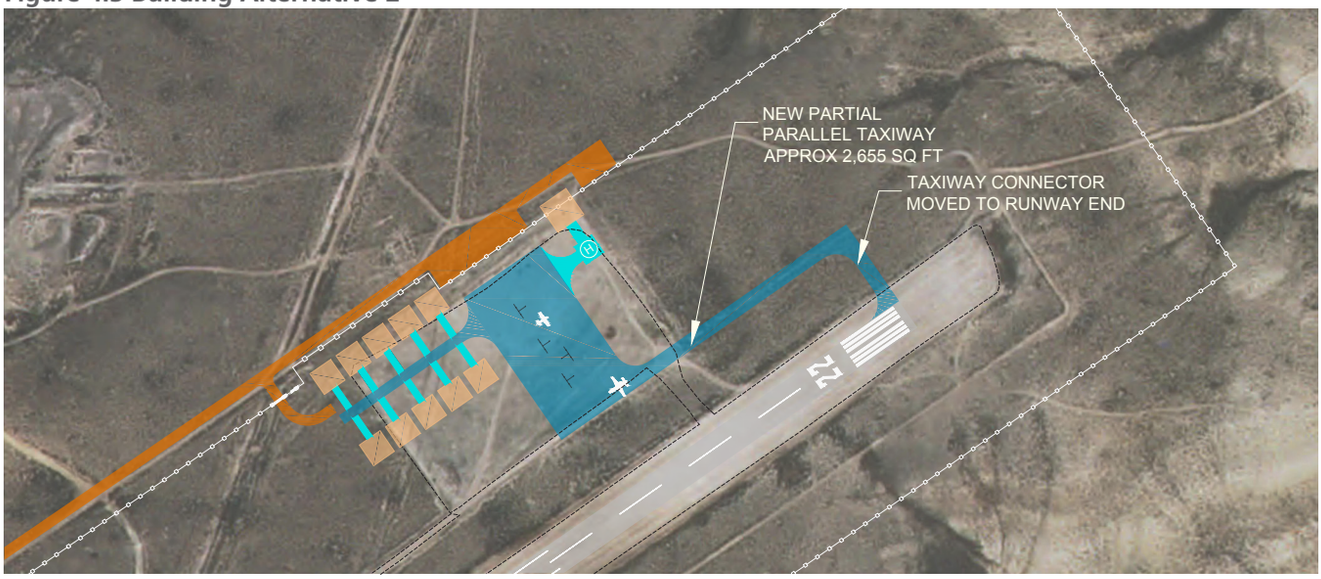


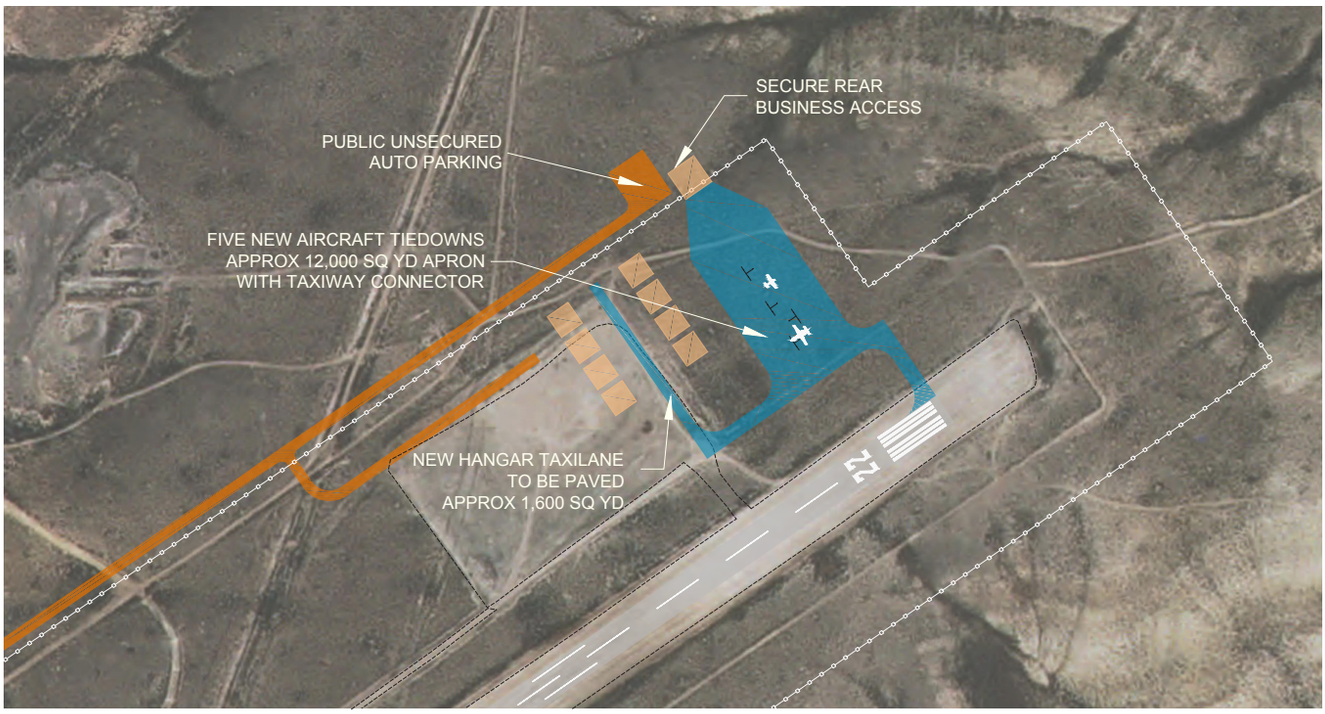
Figure 4.3, the second building alternative, is an extension of building alternative 1. This design extends the taxiway connector to the end of the runway, thus preventing back taxi and aircraft turning around on the end of the runway. Overall, this design requires slightly more square yardage to be paved, but the trade off for safety and usability warrants it.

Figure 4.3 Building Alternative 2



The third building alternative, *Figure 4.4*, realigns the apron parking and hangar taxilane to a north/south orientation. The apron has sufficient room for five aircraft tiedowns. The taxiway connects at the runway end without direct apron access. This configuration provides a private business with public foot access while maintaining a secure airfield.

Figure 4.4 Building Alternative 3



4.5 PREFERRED BUILDING AREA ALTERNATIVE

Through conversation with the Sponsor and with public input, it was ultimately decided to select building alternative 2 as the preferred alternative for the building area at 48U. This alternative was used for the remainder of the master plan process, including for cost estimates in *Chapter 8: Facilities Implementation and Financial Feasibility*.

4.6 ALTERNATIVES SUMMARY

Multiple alternatives were designed and presented to the Sponsor for the building area at 48U. Given the limiting terrain around the airport, only one runway design was presented. All development presented in the current plan meets current FAA B-II design standards. In summary, the selected alternatives for future development at 48U are:

- Cut and fill Runway 4/22 to remove line of sight issue
- Pave Runway 4/22
- Install segmented circle and lighted windsock
- Pave the existing taxiway connector from the runway to apron
- Pave a portion of the existing apron area
- Install five aircraft tiedowns on improved apron area
- Pave the proposed taxilane
- Reduce length of Primary Runway 4/22 to meet B-II Runway Safety Areas on both ends
- Relocate and improve access road from Highway 530
- Install 8’ perimeter wildlife fence, with automatic automobile gate and pedestrian walkthrough gate
- Bring power to airport site
- Install runway lights, PAPIs, and REILs for both runway ends
- Install beacon
- Construct multi-purpose building (serve as pilots’ lounge, terminal building, etc.)
- Install water cistern

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Environmental Overview

SECTION OVERVIEW

This chapter presents environmental considerations and factors pertinent to the Greater Green River Intergalactic Spaceport, with an emphasis on proposed development. Information is compiled from a number of sources, notably multiple governmental agencies.

5.0 GENERAL

Since the airport is not expected to receive federal funding from the FAA, significant parts of the normal environmental process might be avoided. However, WYDOT Aeronautics will likely require the Sponsor to follow most, if not all, of the federal requirements. If the Sponsor only utilizes local funding, then the environmental effort could be reduced, although this is not recommended.

The purpose of considering environmental factors in airport master planning is to help the Sponsor evaluate potential development alternatives and to provide information that will help expedite future environmental processes. Airport planning provides the basis for a project's purpose and need in environmental evaluation and the alternatives that will carry into future National Environmental Policy Act (NEPA) analysis. The NEPA [42 U.S.C. 4321 et seq.] was signed into law on January 1, 1970.

The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. Title I of NEPA contains a Declaration of National Environmental Policy which requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102 requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. NEPA requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

This overview contains readily available information such as items known from prior environmental and planning documents, items that can be easily seen during a walking survey, and information from various types of available environmental resource maps of the airport area. Substantial investigations such as cultural resource studies or wetland delineations are not considered necessary within the scope of an airport master plan.

All known applicable state and federal agencies were contacted for comments pertaining to the proposed improvements and agency responses are included in Appendix 4. Multiple public meetings were held to gather local public input during the planning process, as detailed in Appendix 2. The agency responses provide preliminary information that may be useful in determining future environmental review requirements.

NEPA PROCESS

The NEPA process consists of an evaluation of the environmental effects of an undertaking including its alternatives.

There are three levels of analysis: categorical exclusion (CATEX) determination; preparation of an environmental assessment/finding of no significant impact (EA/FONSI); and preparation of an environmental impact statement (EIS).

- Categorical Exclusion: At the first level, an undertaking may be categorically excluded from a detailed environmental analysis if it meets certain criteria which a federal agency has previously determined as having no significant environmental impact. A number of agencies have developed lists of actions which are normally categorically excluded from environmental evaluation under their NEPA regulations.
- EA/FONSI: At the second level of analysis, a federal agency prepares a written environmental assessment (EA) to determine whether or not a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a finding of no significant impact (FONSI). The FONSI may address measures which an agency will take to mitigate potentially significant impacts.
- EIS: If the EA determines that the environmental consequences of a proposed federal undertaking may be significant, an environmental impact statement (EIS) is prepared. An EIS is a more detailed evaluation of the proposed action and alternatives. The public, other federal agencies and outside parties may provide input into the preparation of an EIS and then comment on the draft EIS when it is completed.

If a federal agency anticipates that an undertaking may significantly impact the environment, or if a project is environmentally controversial, a federal agency may choose to prepare an EIS without having to first prepare an EA. After a final EIS is prepared and at the time of its decision, a federal agency will prepare a public record of its decision addressing how the findings of the EIS, including consideration of alternatives, were incorporated into the agency's decision-making process.

CATEXs represent federal actions meeting the criteria contained in 40 CFR 1508.2 that the FAA has found do not normally require an EA or EIS because they do not individually or cumulatively have a significant effect on the human environment. According to FAA Order 1050.1E, the following actions are generally Categorically Excluded:

- Access road construction and reconstruction, relocation or repair of entrance and service roadways that do not reduce the Level of Service on local traffic systems below acceptable levels (310a).
- Acquisition of land and relocation associated with a categorically excluded action (310b).
- Build or extend aircraft operating area fencing or jet blast facilities (310e).
- Build, repair, or extend an existing airport's aprons, loading ramps, taxiway, or taxilane provided there are no off-airport impacts (310e).
- Extend, fillet, groove, mark, rebuild, resurface, or strengthen existing runways or runway surface areas if noise and air quality impacts are not above stated levels (310e).
- Construction or limited expansion of accessory on-site structures, including storage buildings, garages, small parking areas, signs, fences, and other essentially similar minor development items (310f).
- Filling of earth into previously excavated land with material compatible with the natural features of the site, provided the land is not delineated as a wetland (310k).
- Minor expansion of facilities, including the addition of equipment, on an existing facility where no additional land is required, or when expansion is due to remodeling of space in current quarters or existing buildings (310n).
- New gardening or landscaping, and maintenance of existing landscaping that do not cause or promote the introduction or spread of invasive species that would harm the native ecosystem (310p).
- Purchase, lease, or acquisition of three acres or less of land with associated easements and rights-of-way for new facilities (310r).
- Repair or replacement of underground storage tanks and aboveground storage tanks, or replacement of underground storage tanks with aboveground storage tanks at the same location (310u).

- Replacement or reconstruction of a terminal, structure, or facility with a new one of similar size and purpose, where the location will be on the same site as the existing building or facility (310v).
- Repair and maintenance of existing roads, rights-of-way, trails, grounds, parking areas, and utilities (310w).
- Action related to topping or trimming trees to meet 14 CFR Part 77 standards (310z).
- Upgrading of building electrical systems or maintenance of existing facilities, such as painting, replacement of siding, roof rehabilitation, resurfacing, or reconstruction of paved areas, and replacement of underground facilities (310aa).

The following actions normally require the preparation of an EA as listed in FAA Order 1050.1E:

- Establishment or relocation of approach light systems that are not on airport property (401j).
- Acquisition of land needed for airport location, new runway, major runway extension, runway strengthening having the potential to increase noise impacts, construction or relocation of entrance or service road connections to public roads that substantially reduce the Level of Service rating below the acceptable level determined by the appropriate transportation agency (401k.(6)).

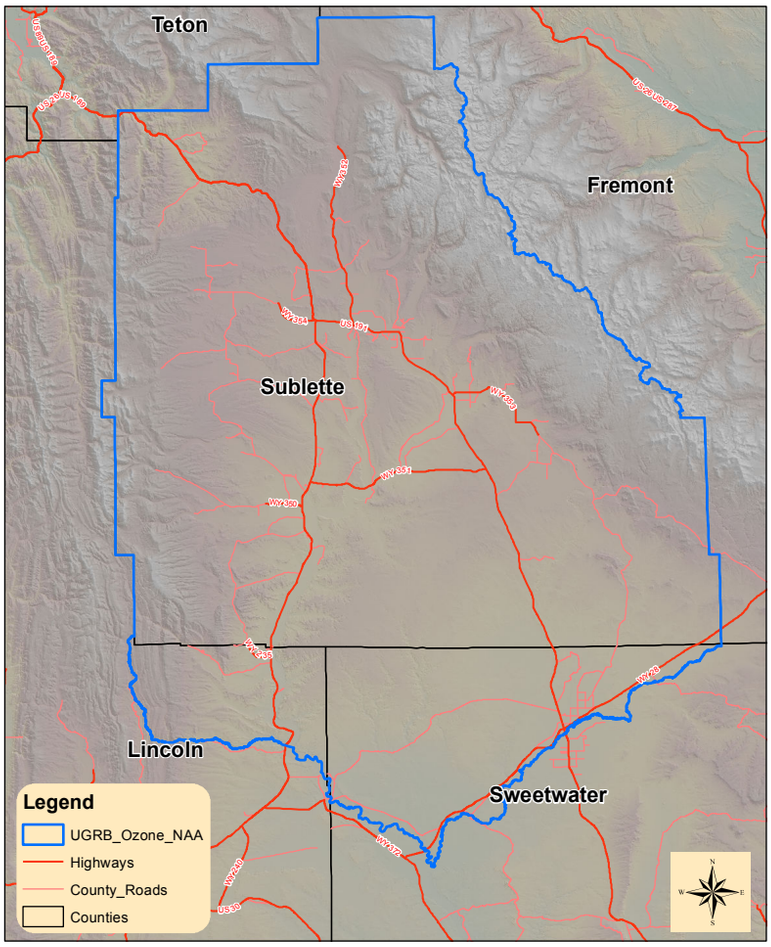
Environmental reviews look at several impact categories as defined by NEPA. These impact categories are briefly described in the following sections as they relate to the Greater Green River Intergalactic Spaceport.

5.1 AIR QUALITY

There are primarily two laws that apply to air quality: NEPA and the Clean Air Act (CAA). The CAA established National Ambient Air Quality Standards (NAAQS) for six pollutants, called criteria pollutants. The criteria pollutants include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM-10 and PM-2.5), and sulfur dioxide (SO_s). The CAA requires each State to adopt a State Implementation Plan (SIP) for air quality to achieve the NAAQS for each pollutant. In instances where an approved SIP does not exist, the Environmental Protection Agency is required to create a Federal air quality plan (FIP) in order to attain air quality goals. A non-attainment area is any geographic area that experiences a violation of one or more NAAQS. A maintenance area is any geographic area previously designated non-attainment for a criteria pollutant and later redesignated to attainment.

There is one ozone non-attainment area in Wyoming, located in the Upper Green River Basin (UGRB), show in the map to the right. The UGRB lays mainly in Sublette County

Figure 5.1 Wyoming Non-Attainment Area



but also includes portions of Lincoln and Sweetwater Counties. As of July 20, 2012, the UGBR was classified as a "marginal" non-attainment area by the Environmental Protection Agency (EPA). The Greater Green River Intergalactic Spaceport, as well as all of the City of Green River and Sweetwater County, are not in non-attainment areas.

The General Conformity Rule establishes the procedures and criteria for determining whether certain Federal actions conform to State or EPA air quality implementation plans. The General Conformity Rule only applies in areas that the EPA has designated non-attainment or maintenance (FAA Environmental Desk Reference for Airport Actions). Certain Federal actions are exempt from the General Conformity Rule because they result in no emissions or emissions are clearly below the rule's applicability emission threshold levels. These include, but are not limited to routine maintenance and repair (40 CFR Section 93.153(c)(2)(iv)), routine installation and operation of navigational aids, transfers of land, facilities, and real properties (40 CFR Section 93,.153(c)(2)(xiv)), and actions affecting an existing structure where future activities will be similar in scope to activities currently being conducted. According to 72 Federal Register 41565 (2007), Section II(2), airport maintenance, repair, removal, replacement, and installation work that matches the characteristics, size, and function of a facility as it existed before the replacement or repair activity typically qualifies as routine maintenance and repair for purposes of general conformity if the activity does not increase the capacity or change the operational environment of the airport.

The *Air Quality Procedures for Civilian Airports and Air Force Bases* handbook is a "comprehensive guide intended to assist the air quality analyst/environmental specialist in assessing the air quality impact of Federal Aviation Administration and the United States Air Force actions at airports and air bases. It provides guidance, procedures and methodologies for use in carrying out such assessments." According to Section 2.3.4, the total number of airport passengers and general aviation/air taxi operations should be evaluated to decide whether or not a NAAQS assessment should be considered. If the level of annual enplanements exceeds 1,300,000, the level of general aviation and air taxi activity exceeds 180,000 operations per year, or a combination thereof, a NAAQS assessment should be considered. Most general aviation airports, including 48U, are far below this level of activity.

Generally, air quality concerns at smaller airports are centered around dust control measures during construction activities. When an air quality analysis is necessary for airport development during the environmental review process, the Emissions and Dispersion Modeling System (EDMS) is the FAA required model to perform the analysis. EDMS is specifically engineered for the aviation community and is designed to assess the air quality impacts of airport emission sources such as aircraft, ground support equipment, and ground access vehicles.

5.2 COASTAL RESOURCES

The Greater Green River Intergalactic Spaceport is located approximately 750 miles from the nearest coastal area. Therefore, there are no coastal resources that will be directly impacted by actions at the airport. The Coastal Zone Management Act (CZMA), the Coastal Barrier Resources Act (CBRA), and Executive Order 13089, Coral Reef Protection do not apply to actions at the airport.

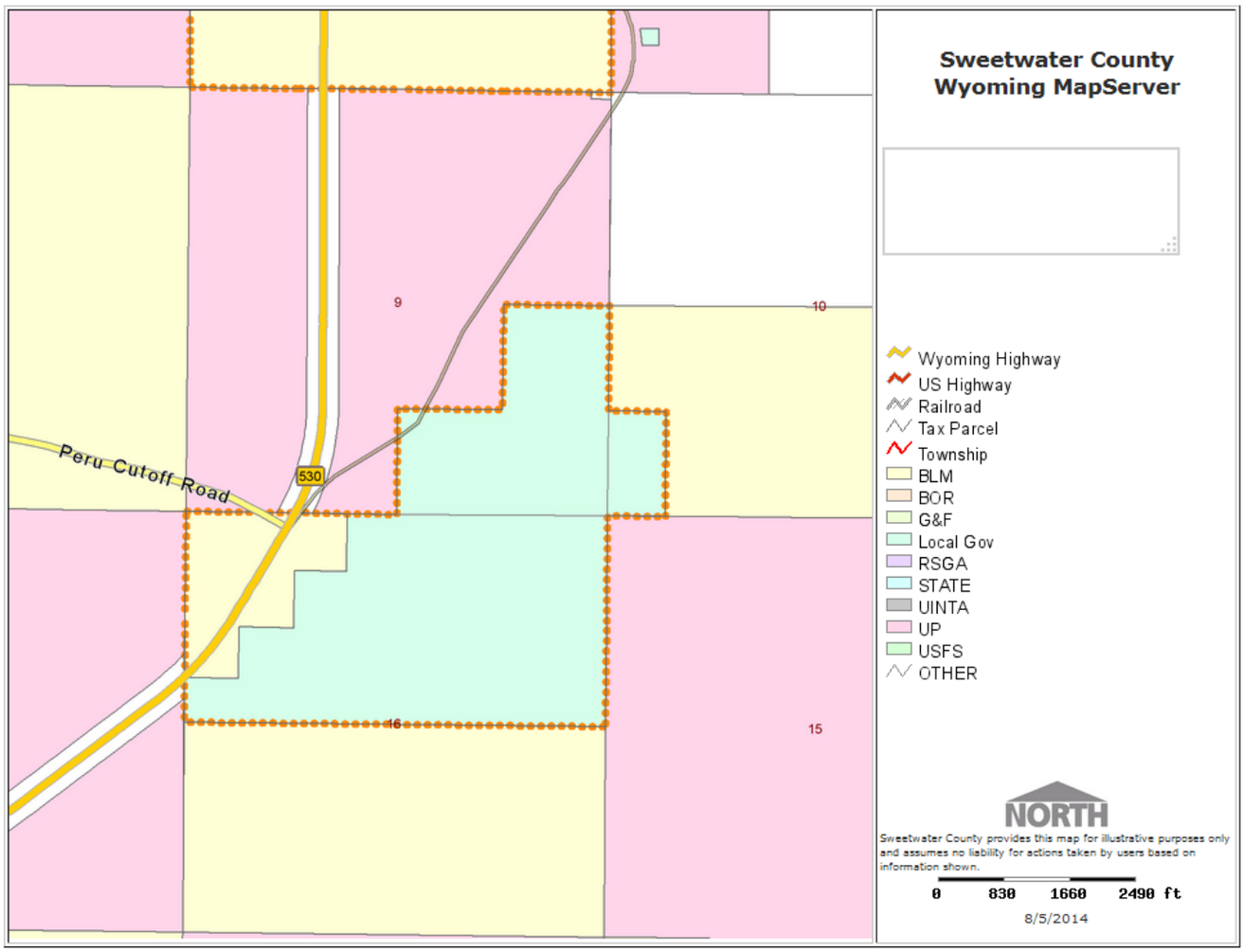
5.3 COMPATIBLE LAND USE

FAA Order 1050.1E states that the compatibility of existing and planned land uses in the vicinity of an airport are usually associated with the extent of the airport's noise impacts. Order 1050.1E requires documentation to support the required Sponsor's assurance under 49 USC 47107(a)(10) that appropriate action, including the adoption of zoning laws, has been or will be taken, to the extent reasonable, 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 for existing and

planned land uses. As there are no airport land use regulations in effect in Green River, Wyoming, the city should strongly consider adopting regulation immediately.

Figure 5.2 shows property ownership around the airport (depicted in green). Three owners hold all the land adjacent to the airport: Bureau of Land Management (BLM), Union Pacific Railroad (UP), and Green River Livestock Company (State). Aside from Highway 530, in general, the land surrounding the airport is not in use or is used minimally.

Figure 5.2 Land Ownership



5.4 CONSTRUCTION IMPACTS

There are many local, state, and federal regulations that address the impacts of construction activities, including noise, dust, disposal of construction debris, air pollution, and water pollution. Construction activities on airports should comply with FAA AC 150/5370-10F, *Standards for Specifying Construction of Airports* and FAA AC 150/5370-2F, *Operational Safety of Airports During Construction*. Wyoming Department of Environmental Quality (DEQ) permits may be required for mining, air quality, and water quality. Generalized construction impacts may include:

- A temporary increase in particulate and gaseous air pollution levels as a result of dust generated from construction activity and by vehicle emissions from construction equipment and construction worker transportation;

- A temporary increase in noise from construction equipment and traffic;
- Temporary erosion, scarring of land surfaces, and loss of vegetation in excavated or otherwise disturbed areas;
- Generation of solid and sanitary waste from on-site construction workers and construction waste; and
- A temporary increase in traffic volumes in the airport vicinity.

5.5 DEPARTMENT OF TRANSPORTATION ACT SECTION 4(F)

Section 4(f) of the Department of Transportation Act (now located at 23 CFR 774), states that the Secretary of Transportation will 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 or historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative and the project includes all possible planning to minimize harm resulting from the use.

None of the proposed alternatives will require the use of or acquisition of any public property as defined by Section 4(F) standards. The public properties surrounding the airport are shown in *Figure 5.2*.

5.6 FARMLANDS

The Farmland Protection Policy Act (FPPA) regulates Federal actions with the potential to convert farmland to non-agricultural uses. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Prime farmland is defined by the CEQ (Memorandum for Heads of Agencies, Prime and Unique Agricultural Lands and the National Environmental Policy Act, August 1980) as land that has best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained, high yields of crops when treated and managed. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables.

No land adjacent to the airport is used for farmland, nor has future potential to be used as such. On July 18, 2014, the Natural Resources Conservation Service sent a letter (Appendix 4), stating "it appears that there are no soils which are Important Farmland located within the Project Area. Additionally, there are delineations within the project area which have no farmland rating. These areas do not appear to be Important Farmland."

5.7 FISH, WILDLIFE, AND PLANTS

Section 7 of the Endangered Species Act (ESA), as amended, applies to Federal agency actions and sets forth requirements for consultation to determine if the proposed action may impact an endangered or threatened species. There are many other regulations that apply to potential impacts of actions on fish, wildlife, and plants including the Sikes Act, the Fish and Wildlife Coordination Act, the Fish and Wildlife Conservation Act, the Migratory Bird Treaty Act, Executive Order 13112, *Invasive Species*, the Presidential Memorandum on Economically and Environmentally Beneficial Landscaping, and FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*.

IPaC (Information, Planning, and Conservation) is an online system that provides information regarding federally designated and proposed candidate, threatened, and endangered species, final critical habitats, and service refuges

that may occur in an identified area, or may be affected by proposed activities. IPaC is a collaborative effort by the U.S. Fish and Wildlife Service, U.S. Department of Homeland Security, U.S. Geological Survey, and U.S. Pipeline and Hazardous Materials Safety Administration. The preliminary species list for the Greater Green River Intergalactic Spaceport are shown in *Table 5.1*. These species are known to occur in the general area and may not be present on the airport property.

U. S. Fish and Wildlife Service provided a letter, dated August 20, 2014 (Appendix 4), stating to review species lists at the airport site on IPaC.

TABLE 5.1 PRELIMINARY SPECIES LIST

Type	Species	Latin Name	Listing Status
Birds	Greater Sage-Grouse	*Centrocercus urophasianus*	Candidate
Birds	Yellow-Billed Cuckoo	*Coccyzus americanus*	Proposed Threatened
Fishes	Bonytail chub	Gila elegans	Endangered
Fishes	Colorado pikeminnow	Ptychocheilus lucius	Endangered
Fishes	Humpback chub	Gila cypha	Endangered
Fishes	Razorback sucker	*Xyrauchen texanus*	Endangered
Flowering Plants	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened

FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*, recommends separation distances of wildlife attractants to prevent wildlife hazards on airports. Wildlife attractants include waste disposal operations, water management facilities, wetlands, dredge spoil containment areas, agricultural activities, golf courses, and landscaping that attracts wildlife. Hazardous wildlife are defined as species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard. Deer are the species group that provide the greatest potential hazard to aircraft based on the FAA National Wildlife Strike Database (January 1990-April 2003). The FAA recommends a separation distance of 5,000 feet at airports serving piston-powered aircraft and 10,000 feet at airports serving turbine-powered aircraft from hazardous wildlife attractants. For all airports, the FAA recommends a distance of five statute miles between the farthest edge of the airport's operating area and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

5.8 WATER SHEDS

A watershed is an area of land where all of the water that is under it or drains off of it moves to the same place. The edges of three large water sheds meet at the airport because of its unique terrain and high elevation. As shown in *Figure 5.3*, the Upper Green-Slate, Upper Green-Flaming Gorge Reservoir, and Blacks Fork water sheds all meet at 48U.

Figure 5.3 Water Sheds

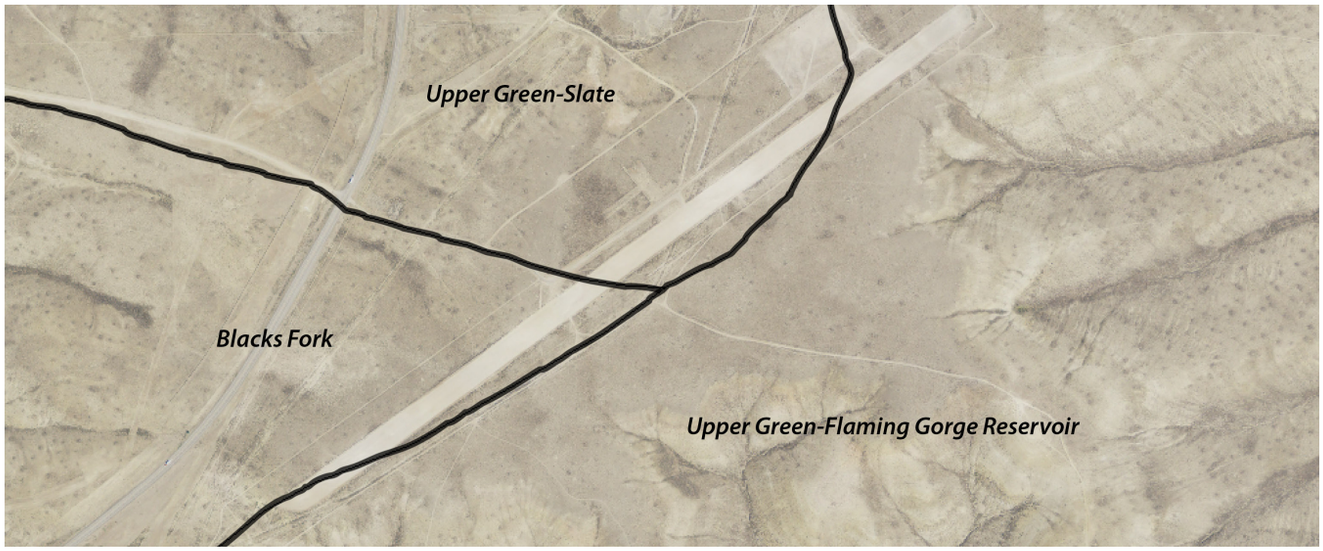
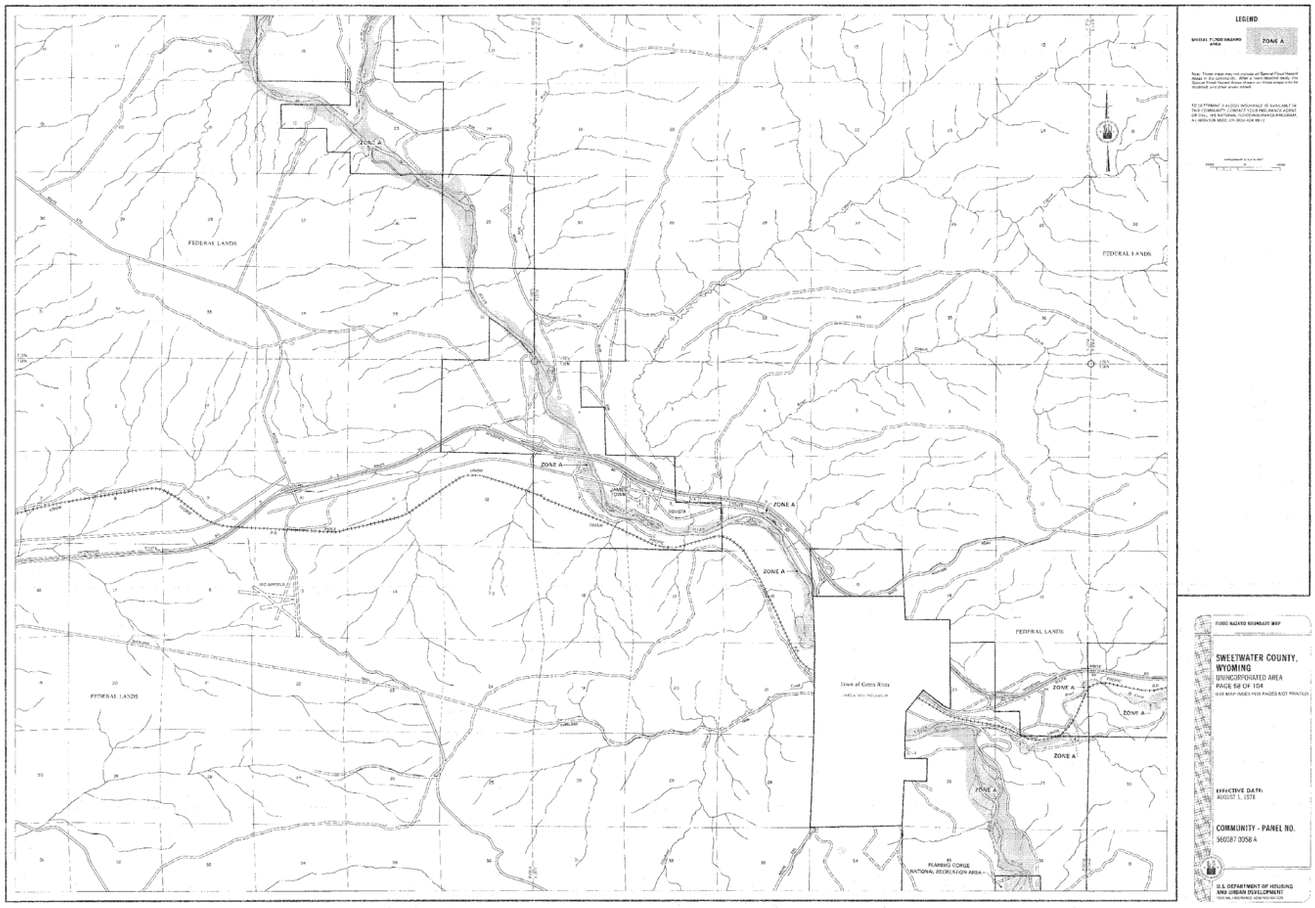


Figure 5.4 Floodplain Map



5.9 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 to restore and preserve the natural and beneficial values served by floodplains. After reviewing the flood maps for the airport property, it was discovered that no panel has been printed for the immediate area. Given the terrain and watershed locations around the airport, it is assumed that 48U is not located within a Federal Emergency Management Agency (FEMA) designated floodplain. Typically, panels that are not printed lay outside the 500 year flood plain. The floodplain map, in *Figure 5.4*, is the closest printed panel to the airport, depicting the area directly north of 48U and including the City of Green River.

5.10 HAZARDOUS MATERIALS

Four primary laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances, and wastes. Two of these are the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of any release of a hazardous substance (excluding petroleum) into the environment. Hazardous materials are any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. A waste is considered hazardous if it is listed in, or meets the characteristics described in 40 CFR part 261, including ignitability, corrosivity, reactivity, or toxicity. A hazardous substance is any element, compound, mixture, solution, or substance defined as a hazardous substance under the Comprehensive Environmental Response, Compensation, an Liability Act (CERCLA) and listed in 40 CFR part 302. Hazardous substances may pose substantial harm to human health or the environment if released into the environment.

Airport projects must be reviewed to determine whether hazardous wastes will be generated, disturbed, transported or treated, stored or disposed, by any action under consideration. Management of these wastes is regulated by 40 CFR parts 260-280 and transportation is governed by 49 CFR parts 171-199.

The EPA maintains a list of Superfund sites called the National Priorities List (NPL) in accordance with CERCLA. These sites have known releases or threatened releases of hazardous substances, pollutants, or contaminants. There are two sites in Wyoming: F.E. Warren Air Force Base in Cheyenne and Mystery Bridge Road/U.S. Highway 20 near Evansville. There are no environmental sites on the EPA's EnviroMapper website near the Greater Green River Intergalactic Spaceport.

According to AC 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program (AIP) Assisted Projects, as part of the project planning and environmental assessment phases, the Sponsor should have an adequate due diligence environmental audit made for the presence of hazardous materials and contamination on property needed for a project. Contaminated property must be avoided as is feasible, or the use minimized to avoid excessive project costs for the clean up and remediation of hazardous materials. These audits include Phase I and Phase II Environmental Site Assessments. No additional land is anticipated to be needed for development projects at the Greater Green River Intergalactic Spaceport.

5.11 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

There are multiple laws that govern historic, architectural, archaeological, and cultural resources. The National Historic Preservation Act (NHPA) establishes the Advisory Council on Historic Preservation (ACHP) and the National

Register of Historic Places (NRHP) within the National Park Service (NPS). Section 106 of the NHPA requires federal agencies to consider the effects of their undertaking on properties on or eligible for inclusion in the NRHP. The Archeological and Historic Preservation Act of 1974 provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance by providing for the survey, recovery, and preservation of historical and archeological data that might otherwise be destroyed or lost due to a federally funded action. The Archaeological Resources Protection Act (ARPA) prohibits unauthorized excavation of archaeological resources on federal or Indian lands and requires federal agencies to identify archeological sites on federal lands.

On July 23, 2014, the Wyoming State Parks and Cultural Resources sent a letter (Appendix 4) recommending a Class III cultural resource survey be conducted at the airport site.

5.12 LIGHT EMISSIONS AND VISUAL IMPACTS

A description of potential impacts due to light emissions or visual impacts associated with a proposed project may be necessary during the environmental review process. Order 1050.1E, Section 12.2a states that because of the relatively low levels of light intensity compared to background levels associated with most air navigation facilities (NAVAIDs) and other airport development actions, light emissions impacts are unlikely to have an adverse impact on human activity or the use or characteristics of the protected properties. Section 12.2b states that visual, or aesthetic, impacts are inherently more difficult to define because of the subjectivity involved. The visual sight of aircraft, aircraft contrails, or aircraft lights at night should not be assumed to constitute an adverse impact. Most light emission concerns can be addressed by lessening annoyance levels using methods such as shielding or angular adjustments to offending lights.

5.13 NATURAL RESOURCES AND ENERGY SUPPLY

Executive Order 13123, Greening the Government Through Efficient Energy Management, encourages each federal agency to expand the use of renewable energy within its facilities and activities. Other policies encourage the development of facilities in sustainable methods with design elements that incorporate aesthetic impact, conservation of resources such as energy, pollution prevention, harmonization with the community environment, and sensitivity to the concerns of the traveling public. The environmental review examines proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources. For instance, if there are increased demands for electricity, the power company would be contacted to determine if the projected demands can be met by existing or planned source facilities. If a large volume of water will be required, the availability of a supply of water from existing or planned water facilities or from surface or groundwater sources should be considered. For most actions, changes in energy demands or other natural resource consumption will not result in significant impacts.

5.14 NOISE

According to Order 1050.1E, Appendix A, 14.6a., no noise analysis is needed for proposals involving Design Group I and II airplanes in approach Categories A through D operating at airports whose forecast operations do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 jet operations (2 average daily operations). The Cessna Citation 500 and any other jet aircraft producing less than the propeller aircraft under study may be counted as propeller aircraft rather than jet aircraft. As the total forecasted operations does not exceed 6,200 in the 20 year forecasted period, no noise analysis is needed for the Greater Green River Intergalactic Spaceport.

The FAA has developed a computer model that evaluates noise generated by aircraft operations referred to as the

Integrated Noise Model (INM) program. The INM program can calculate cumulative aircraft noise by using forecasted air traffic by aircraft type, runway alignment, direction of aircraft movement, and time of day.

Noise levels are measured in Day/Night Levels (DNL). DNL is an average of day and nighttime levels of sound and are computed so that nighttime sound levels are given more weight. The FAA and EPA have set the guideline at 65 DNL to determine compatible land use around airports. Noise complaints can and will occur in areas impacted by lesser noise levels because individual human perception of noise is subjective. A noise analysis is recommended during the next Environmental Assessment at the airport.

5.15 SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and Order DOT 5610.2, *Environmental Justice*, require the FAA to provide for meaningful public involvement by minority and low-income populations. It requires a demographic analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. This includes a disclosure of the effects on subsistence patterns of consumption of fish, vegetation, or wildlife.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. This may include a review of air, food, drinking water, recreational waters, soil, or other products that may be impacted by airport actions. Because of the Greater Green River Intergalactic Spaceport's location outside of populated areas, direct impacts to children are extremely limited.

If acquisition of real property and/or displacement of persons is involved in a project, all applicable rules, regulations, and laws including 49 CFR part 24 (implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970), as amended must be followed. No additional land is anticipated to be needed for the Greater Green River Intergalactic Spaceport. Additionally, all local and State laws, regulations, and ordinances concerning zoning, transportation, economic development, and housing should be taken into consideration when planning, assessing, or implementing a proposed action. FAA Order 1050.1E, Section 16.1c. states that this "does not cover local zoning laws, set-back ordinances, and building codes because the Federal government is exempt from them."

5.16 SOLID WASTE

A review of the impacts the airport and construction projects will have on solid waste facilities is required. Further analysis is needed if airport-generated solid waste will exceed available landfill or incineration capacities or require extraordinary effort to meet applicable solid waste permit conditions or regulations. None of the proposed projects at the 48U are anticipated to exceed the capacity of existing and proposed solid waste facilities in the City or County. A more in-depth discussion about solid waste and recycling at the airport is provided in Chapter 6.

5.17 WATER QUALITY

The Federal Water Pollution Control Act (Clean Water Act) provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, and regulate other issues concerning water quality. The Fish and Wildlife Coordination Act applies if the proposed action would impound, divert, drain, control, or otherwise modify the waters of any stream or other body

of water where wildlife would be affected. If there is the potential for contamination of an aquifer designated by the EPA as a sole source or principal drinking water resource for the area, the EPA will need to be contacted for coordination under the Safe Drinking Water Act. Various permits are required to comply with federal, state, and local laws and regulations.

None of the proposed projects show the potential for exceeding water quality standards. Best management practices during construction will help ensure that erosion control measures do not allow runoff to infiltrate streams and rivers.

5.18 WETLANDS

Executive Order 11990, Order DOT 5660.1A, the Rivers and Harbors Act of 1899, and the Clean Water Act address activities in wetlands. Executive Order 11990 requires that Federal agencies ensure their actions minimize the destruction, loss, or degradation of wetlands. It also works toward the protection, preservation, and enhancement of the Nation's wetlands to the fullest extent practicable during the planning, construction, funding, and operation of transportation facilities and projects.

The current regulatory definition of a wetland is "areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and [which] under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." A wetland must possess the following three diagnostic environmental characteristics:

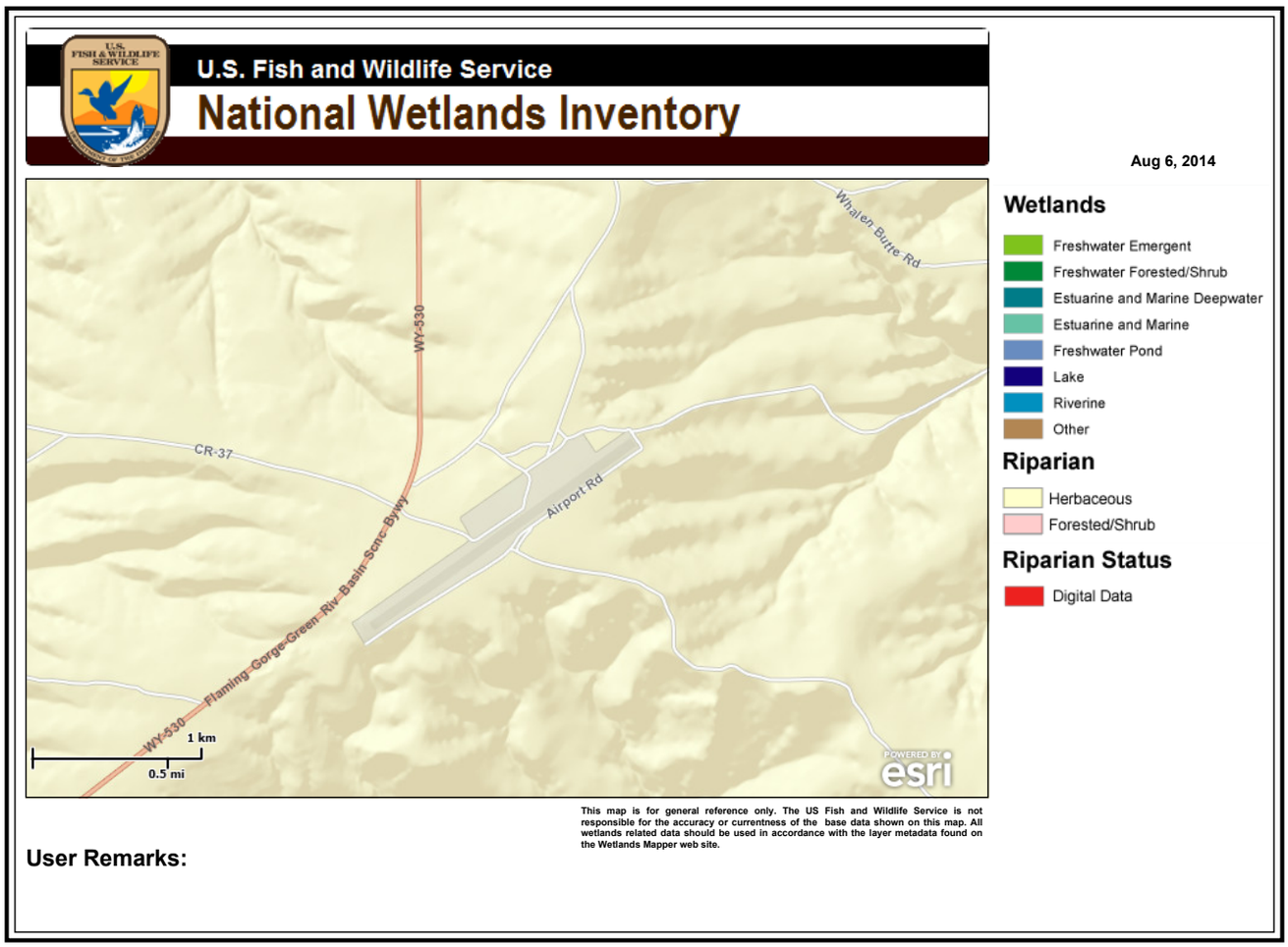
- Hydrophytic vegetation. The prevalent vegetation must consist of macrophytes that are typically adapted to areas having hydrologic and soil conditions described in the wetland definition. They must be adapted to actively grow in saturated soils.
- Hydric soil. Soils must be present or they must possess characteristics that are associated with reducing soil conditions.
- Hydrology. The area must be inundated either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil must be saturated to the surface at some time during the growing season of the prevalent vegetation.

US Army Corps of Engineers (Corps) jurisdictional Waters of the United States (WUS) are:

- all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters that are subject to the ebb and flow of the tide;
- all interstate water including interstate wetlands;
- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds;
- the use, degradation, or destruction of which could affect interstate or foreign commerce; and
- wetlands adjacent to jurisdictional WUS.

No wetland impacts are anticipated at the airport. The National Wetlands Inventory map for wetland areas at and around the Greater Green River Intergalactic Spaceport is shown in *Figure 5.5 Wetlands*. The local site sits upon an elevated mesa that disperses water down hill, thus does not support vegetative growth required to be considered a wetland. An email, dated July 28, 2014 and shown in Appendix 4, from the US Army Corps of Engineers stated that "it is likely the proposed improvements will not require a Department of the Army permit."

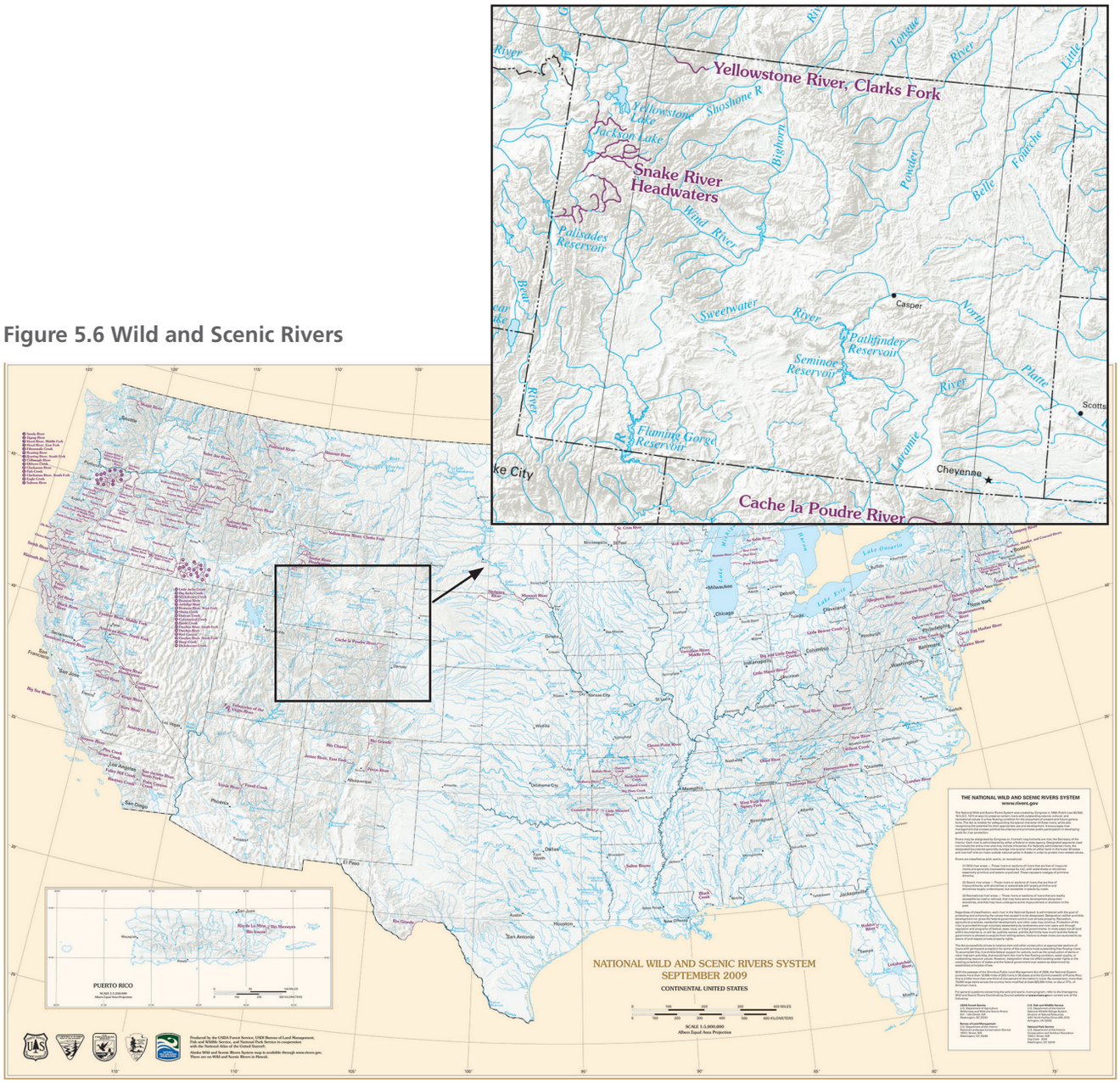
Figure 5.5 Wetlands



5.19 WILD AND SCENIC RIVERS

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve and protect rivers with outstanding recreational, cultural, and natural values in a free-flowing condition. There are two designated rivers in Wyoming, Yellowstone River-Clarks Fork and Snake River Headwaters, neither of which are near the Greater Green River Intergalactic Spaceport. The National Park Service River and Trail Conservation Assistance Program maintains a Nationwide Rivers Inventory of river segments that appear to qualify for inclusion in the National Wild and Scenic River System, but that have not been designated as a Wild and Scenic River. No waters to potentially be designated are in the vicinity of the airport. The National Wild and Scenic Rivers System, as of September 2009, is shown in *Figure 5.6 Wild and Scenic Rivers*.

Figure 5.6 Wild and Scenic Rivers



5.20 CONCLUSION

Table 5.2 contains the preliminary information from the agency coordination for environmental consideration at the Greater Green River Intergalactic Spaceport. Specific environmental reviews may be required for individual projects. The potential environmental impacts may require a more in-depth analysis during the review process.

TABLE 5.2 POTENTIAL ENVIRONMENTAL IMPACTS

Review Category	Potential Environmental Impact
5.1 Air Quality	Use Best Management Practices (BMPs) during construction
5.2 Coastal Resources	Not applicable at 48U
5.3 Compatible Land Use	City should adopt compatible land use regulations
5.4 Construction Impacts	Use Best Management Practices (BMPs) during construction
5.5 Department of Transportation Act Section 4(F)	Not applicable at 48U
5.6 Farmlands	Not applicable at 48U
5.7 Fish, Wildlife and Plants	Conduct surface disturbances outside of general nesting season, use Best Management Practices (BMPs) during construction
5.8 Water Sheds	Not applicable at 48U
5.9 Floodplains	Not applicable at 48U
5.10 Hazardous Materials	Conduct Phase I ESA on proposed land acquisition parcels
5.11 Historical, Architectural, Archaeological, and Cultural Resources	Cultural Resource Inventory, Class III Survey recommended prior to ground disturbances
5.12 Light Emissions and Visual Impacts	Not applicable at 48U
5.13 Natural Resources and Energy Supply	Not applicable at 48U
5.14 Noise	Noise analysis recommended during next Environmental Assessment
5.15 Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks	Follow all land acquisition rules and regulations
5.16 Solid Waste	Use Best Management Practices (BMPs) during construction
5.17 Water Quality	Use Best Management Practices (BMPs) during construction
5.18 Wetlands	Not applicable at 48U
5.19 Wild and Scenic Rivers	Not applicable at 48U

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Recycling and Solid Waste Management

SECTION OVERVIEW

An overview of sustainability requirements, efforts, and recommendations for the Greater Green River Intergalactic Spaceport to encourage recycling and solid waste management.

6.0 SUSTAINABILITY REQUIREMENTS

As required by FAA Program Guidance Letter (PGL) 12-08, airport master plans must include a recycling and solid waste management plan. Such plans, developed in accordance with state and local laws and in coordination with airport personnel, rely on sustainability efforts designed to preserve and enhance the community and natural environment.

Based on FAA guidance, recycling and solid waste management plans need to incorporate the following components:

- a waste audit;
- the feasibility of solid waste recycling at the airport;
- minimizing the generation of solid waste at the airport;
- operation and maintenance requirements;
- review of waste management contracts; and
- potential for cost savings and/or the generation of revenue.

6.1 WHAT IS SUSTAINABILITY?

The United Nations convened the Brundtland Commission to address the growing concern about the deterioration of natural resources. In its 1987 report, the commission defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Based on this definition, airport master plans need to carefully evaluate how programs and initiatives impact existing and future users and also consider the wider impact on the surrounding community and natural environment.

Figure 6.1 Triple Bottom Line

In considering the effects of the Green River Airport on the quality of the human environment, present and future problems should be addressed from the perspective of the "triple bottom line" - environment, economy, and social equity; in other words, to reduce the environmental impacts, maintain economic growth, and advance social progress that recognizes the needs of all airport stakeholders.

6.2 WHY BE SUSTAINABLE?

Along with improving the community and the natural environment, sustainability can make good business sense.

Airports that have adopted sustainable practices have reported experiencing tangible benefits including, but not limited to, the following:

- greater utilization of assets;
- reduced operating and maintenance costs;
- improved work environment for employees;
- reduced energy consumption;
- reduced waste;
- reduced emissions;
- improved water quality; and
- positive community relationships.

6.3 HOW DOES SUSTAINABILITY RELATE TO THE GREEN RIVER AIRPORT?

Airports large and small have the ability to incorporate sustainability into their airport master plans based on the needs and resources of each individual facility. Sustainability is a strategic investment that can leverage a facility's potential. Existing practices that fall within the sustainability realm include, but are certainly not limited to, the use of recycled materials for construction, use of available local materials, and use of recycled stormwater.

Like any initiative, sustainability measures need to be formally documented and tracked to measure progress. As a core part of the airport master plan, identified sustainability initiatives and activities will be formally documented. Areas of recycling and solid waste management can be split into multiple categories - those over which the airport has direct control, those over which the airport has influence, and those over which the airport has little or no control or influence.

The term solid waste is defined in accordance with the Resource Conservation and Recovery Act, of 1976 (RCRA) but is generally, non-soluble, discarded solid materials, including sewage sludge, municipal garbage, industrial wastes, agricultural refuse, demolition wastes, and mining residues. Sanitary sewer wastes are not considered solid wastes.

Decision-makers contemplating future planning efforts at the Green River Airport need to have a clear understanding of how recycling and solid waste management is performed for the entire facility, as well as knowledge of existing plans and potential stakeholder groups involved in enhancing sustainability at the airport.

6.4 WASTE AUDIT

As part of the airport master plan process, consultants are required to conduct a waste audit that takes into account any applicable federal, state, and local recycling and/or solid waste management laws. The FAA requires analysis for three types of waste to be conducted: solid waste, food and yard waste (compostable waste), and construction and demolition waste (C&D waste).

In addition to the RCRA, Wyoming State Statute 35-11-103 defines solid waste as garbage, and other discarded solid materials, materials including solid waste materials resulting from industrial, commercial, and agricultural operations, and from community activities, but, unless disposed of at a solid waste management facility, does not include:

(A) Solids or dissolved material in domestic sewerage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial waste water effluents, dissolved materials in irrigation return flows or other common water pollutants;

(B) Liquids, solids, sludges or dissolved constituents which are collected or separated in process units for recycling, recovery or reuse including the recovery of energy, within a continuous or batch manufacturing or refining process; or

(C) Agricultural materials which are recycled in the production of agricultural commodities.

Before recycling and waste minimization plans are developed, an inventory of current waste produced at the airport must be completed. A waste audit is a structured process that identifies what type of waste is generated, where it is created, and how much is collected. The first step in the waste audit is identification of applicable waste streams, followed by categorization of when each stream peaks in waste production, and who is responsible for each stream.

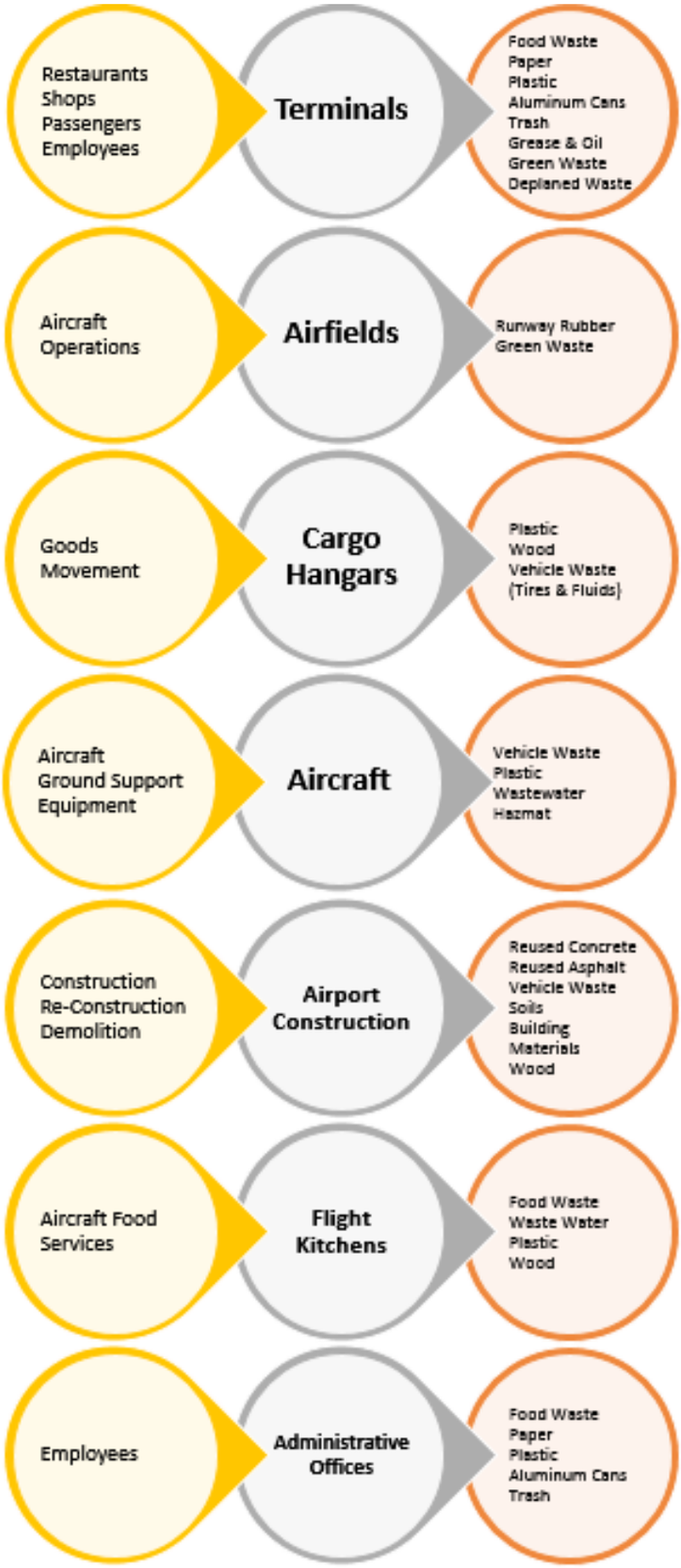
In 2013, the FAA issued *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document* that summarizes sources and streams of potential airport waste. The seven identified streams are shown to the right in *Figure 6.2 Waste Streams*. None of the waste streams currently apply to 48U due to the airport's lack of facilities.

6.5 RECYCLING FEASIBILITY

Decision-makers will need to identify applicable waste streams and evaluate recycling options if improvements are made to 48U.

For example, construction activities have the potential to create a large amount of waste, including concrete, asphalt, wood, soil, and metal. These wastes tend to increase during warmer months as that is when construction usually occurs. Airport construction wastes are typically solid or C&D. Ownership of these wastes typically belongs to the construction company performing the work. All contractors

Figure 6.2 Waste Streams



should be encouraged by the Sponsor to reuse materials whenever possible. For example, millings from pavements may be retained by the Sponsor or contractor for later reuse or sale, typically for finishing gravel or dirt roads.

6.6 PLAN TO MINIMIZE SOLID WASTE GENERATION

Given its lack of improvements, the Greater Green River Intergalactic Spaceport currently has no initiatives to minimize solid waste generation. Moving forward, the airport should consider promoting waste minimization if enhancements are made to the facility. Examples of initiatives that promote waste minimization include requirements for containers and space for recyclng and lease requirements for tenants.

Furthermore, future personnel at the airport would need to adopt an approach for tracking and reporting data needed to review and evaluate the airport's on-going sustainability efforts. Simple data collection of weight, type, and frequency of waste recycled would be sufficient.

6.7 OPERATIONAL AND MAINTENANCE REQUIREMENTS

There are no operational and maintenance activities that result in waste generation at the Greater Green River Intergalactic Spaceport.

6.8 REVIEW OF WASTE MANAGEMENT CONTRACTS

There are no waste management contracts at the Greater Green River Intergalactic Spaceport.

6.9 POTENTIAL FOR COST SAVINGS OR REVENUE GENERATION

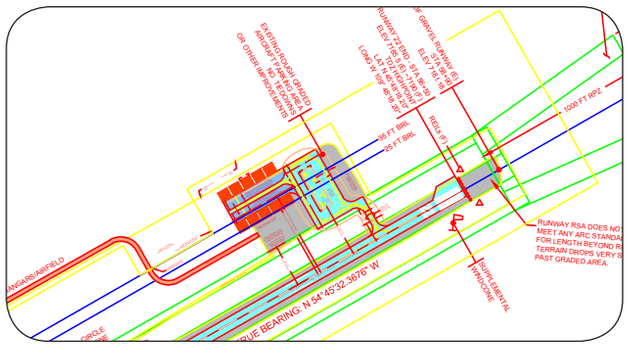
At the Greater Green River Intergalactic Spaceport there are no waste disposal or recycling options that can produce cost savings or generate revenue.

Sustainable development requires a stewardship approach to assuring quality of life for individuals and society and to preserving natural and human-made capital. Recommendations for changes to existing initiatives and activities to reduce the amount of waste going to the landfill must also consider the cost to the airport and local users.

Airport Layout Plan

SECTION OVERVIEW

The Airport Layout Plan is a drawing set that depicts the current airport facilities and proposed developments based upon the previously determined aviation demand forecast, facility requirements, and selected alternatives.



7.0 GENERAL

An approved Airport Layout Plan (ALP) is necessary for an airport to receive financial assistance under the terms of the WYDOT Aeronautics grant assurances. Assurance #10 requires the airport Sponsor to maintain a current Aeronautics Division accepted ALP and Exhibit "A" Property Map. The ALP creates a blueprint for airport development by depicting proposed facility improvements and a guideline to ensure that development meets airport design standards and safety requirements.

The ALP is a set of planning drawings and is intended to provide generalized locations of the major components of an airport; taxiways, aprons, runways and hangar areas. The various parts of the airport are all interconnected and need to be looked at as a whole. After the ALP is approved by the Sponsor and accepted by the State, minor changes by the Sponsor are allowed, such as slight relocation of a hangar or taxiway, but design standards and overall use of the land and space as planned must be followed, otherwise the airport drawings must be submitted to the State for acceptance again.

This chapter describes, in detail, the drawings of the Greater Green River Intergalactic Spaceport ALP and gives a description of the proposed improvements for the airport. The airport and the areas the airport impacts are graphically represented within the drawing set. All layout drawings appropriate to the project were produced with FAA standards as defined in AC 150/5070-6B, Airport Master Plans and AC 150/5300-13, Changes 1-18, Airport Design. The following drawings were produced on 22" x 34" sheets and on 11" x 17" sheets and included as Appendix 7:

- Cover
- Airport Layout Plan
- Airport Data Sheet
- Building Area Plan
- FAR PART 77 Airspace
- Runway 4/22 Plan and Profile
- Runway 4/22 Runway Protection Zone Details
- Airport Land Use and Contours
- Airport Property Map (Exhibit "A")

7.1 COVER

The Cover Sheet lists the drawings within the set, with approval signature blocks. This sheet also includes the location and vicinity map, showing the Greater Green River Intergalactic Spaceport and the City of Green River in relationship to the State of Wyoming. Additional information included is the project name and State project number.

7.2 AIRPORT LAYOUT PLAN (ALP)

The Airport Layout Plan previously has been described as a set of drawings, but the main sheet of the set (sheet 2) is also called the Airport Layout Plan. This sheet is the core of the set and is the overall representation of the existing and planned airport. The existing facility is depicted to show the reader the actual improvements (on this representation shown in gray tone). The imaginary surfaces presented, like the Runway Safety Areas and Object Free Areas, include dimensions to indicate they meet design standards. If a surface falls short of standards, a note in the appropriate table and/or on the drawing will point out the deficiency.

A very important function of the ALP sheet is to show the planned development areas. These may be runways, extensions, taxiways, apron areas, or other aviation use of the airside of the facility. The development shown is presented meeting appropriate design and safety standards. This is particularly important for aircraft movement areas and separation dimensions. The Greater Green River Intergalactic Spaceport ALP sheet shows the planned improvements at the airport meeting ARC B-II design standards, as detailed in previous chapters. The need to meet these design standards drove all of the development items shown in the ALP.

For 48U, the ALP sheet depicts the existing and future airport facilities and include facility identifications, description labels, imaginary surfaces, safety areas, and data tables. The ALP includes the following items:

- North Arrow showing True and Magnetic North and the year of the magnetic declination.
- Airport Reference Point (ARP), existing and ultimate.
- Elevations, existing and ultimate, for runway, touchdown zones, intersections, runway high and low points, structures on the airport, and roadways where they intersect the RPZ.
- Building limit lines.
- Runway details, existing and ultimate, including dimensions, orientation, markings, threshold lighting, runway safety areas, and end coordinates.
- Taxiway details, existing and ultimate, including widths and separations from the runway centerlines, parallel taxiway, aircraft parking, and objects.
- RPZ details, existing and ultimate, including dimensions and type of property acquisition.
- Approach slope ratio.
- Title and revision blocks.
- Standard legend.
- Future position of segmented circle, windcones, and automated weather observation system (AWOS).
- Building area and tie-downs.

7.3 DATA SHEET

The data sheet includes the following information:

- Wind rose(s) including data source, time period covered, and coverage for runways with 10.5, 13, and 16 knot crosswinds.
- Airport Data Table, existing and ultimate, including airport elevation, Airport Reference Point data, mean maximum temperature, Airport Reference Code for each runway, and design aircraft for each runway or airfield component.
- Runway Data Table, existing and ultimate, including percent effective gradient, percent wind coverage, maximum elevation above MSL, runway length and width, runway surface type, runway strength, FAR Part 77 approach category, approach type, approach slope, runway lighting, runway marking, navigational and visual aids, and RSA dimensions.
- Title and revision blocks.

7.4 BUILDING AREA PLANS

The Building Area Plan is a detailed view of the apron that allows sufficient scale to present dimensions and show imaginary surfaces. This drawing is useful for the Sponsor to use as a reference. For example, if the Sponsor is approached for new hangar development, this drawing should be referenced for available space, location, and appropriate restrictions to meet the design standards, thus ensuring a safe environment.

The Building Area Plan presents large-scale depictions of highlighted areas with existing and future building development opportunities and facilities. Depicted on the drawing are the 25 foot and 35 foot Building Restriction Lines (BRL) which represent where 25 foot and 35 foot buildings can be located without penetrating FAR Part 77 surfaces. The Building Area drawing presents the following information:

- Large scale plan views of the area or areas where aprons, buildings, hangars, and parking lots are located.
- A building and data table that lists structures and shows pertinent information including a numbering system to identify structures, top elevations of structures, and existing and planned obstruction markings.
- Existing and ultimate airport facility and building list.
- Title and revision blocks.
- Standard legend.

7.5 FAR PART 77 AIRSPACE

The airport airspace drawing depicts the obstacle identification surfaces for the full extent of all airport development as defined by FAR Part 77, Objects Affecting Navigable Airspace. It also depicts airspace obstructions for the portions of the surfaces excluded from the Inner Portion of the Approach Surface Drawing. The primary function of the Part 77 drawing is for the City of Green River and the Airport Task Force to check for potential obstructions from other planned development. A good example of this would be an application to build a cellular tower near the airport. By using the Part 77 drawing, planners can check obstruction impacts to airport safety surfaces prior to any construction degrading the airspace or approach procedures. This drawing is one of two that addresses land use protections near the airport, the other, discussed later, is the Land Use Plan. The FAR Part 77 includes:

- Plan view of all Part 77 surfaces, based on the ultimate runway lengths.
- Small scale profile views of existing and ultimate approaches.
- Obstruction data tables.
- Title and revision blocks.
- Approach Plan View Details including USGS for base map, runway end numbers, 50’ elevation contours on all slopes, most demanding surfaces shown with solid lines and others shown with dashed lines, and top elevations of objects that penetrate any of the surfaces.
- Approach Profile Details including a depiction of the ground profile along the extended runway centerline representing the composite profile, based on the highest terrain across the width and along the length of the approach surface.
- The Approach Profile Details also includes the identification of all significant objects and top elevations within the approach surfaces, regardless of whether or not they are obstructions and the existing and ultimate runway ends and Part 77 approach slopes.

7.6 RUNWAY PLAN AND PROFILE, RUNWAY PROTECTION ZONE (RPZ) DETAILS

Two sheets are included for Runway 4/22. The first sheet contains: 1) a top-down view of the entire approach and departure surface for both runway ends with a topographical background with contours, 2) the same view and details with an aerial image background, and 3) profile drawing that displays the center line ground profile and critical ground profile beyond the runway ends for approximately 5,000 feet, as well as all surfaces, to determine obstructions. The second sheet contains: 1) a top-down view of the inner approach and departure surface (approximately 1,200 feet) for both runway ends with an aerial image background, and a 2) profile drawing that displays the center line ground profile and critical ground profile for the inner approach of both runway ends.

The drawing depicts the obstacle identification approach surfaces contained in FAR Part 77, *Objects Affecting Navigable Airspace*. In summary, these drawings include:

- Large scale plan views of inner portions of approaches for each runway, usually limited to the RPZ areas.
- Large scale projected profile views of inner portions of approaches for each runway, usually limited to the RPZ areas.
- Title and revision blocks.
- Plan View Details including aerial photos for base maps, numbering system to identify obstructions, property line, existing and ultimate physical end of the runways with runway end numbers and elevation, and ground contours.
- Profile View Details including terrain and significant items, obstructions with numbers on the plan view, and roads and railroads with dashed lines at the edge of approach.
- Obstruction Table Details including terrain and significant items, obstructions identified with numbers on the plan view, roads and railroads shown with dashed lines at the edge of the approach, a separate table for each RPZ, and obstruction identification number and description, the amount of the approach surface penetration, and the proposed disposition of the obstructions.

7.7 AIRPORT LAND USE AND CONTOURS

The Airport Land Use and Contours drawing depicts the terrain contours, using five foot contours, of land around the airport. General contours such as these are used for multiple purposes, including to highlight possible terrain obstructions and penetrations for approach and departures surfaces. Contours are also used in planning construction and earthwork. The existing airport and proposed facilities, as well as the airport property boundary and safety areas are included for reference against terrain contours.

7.8 AIRPORT PROPERTY MAP

The airport property map, also called the Exhibit "A" if prepared in accordance with AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*, depicts the various tracks of land that were acquired to develop the airport and the method of acquisition. It displays easements beyond the airport boundary. The airport property map includes the following information:

- Title and revision blocks.
- Legend.
- Data Table with a numbering or lettering system to identify tracts of land, the date the property was acquired, the Federal Aid project number under which it was acquired (if applicable), the type of ownership, and existing and future airport features that would indicate a future aeronautical need for airport property.

To qualify as an Exhibit "A", the drawing must contain (AC 150/5100-17, Figure 1.2):

- Identification of the outside airport property boundary.
- All property parcels of the entire airport must be shown and numbered. In addition, parcels that were once airport property must also be shown.
- Show and/or directly reference parcel information including: Grantee (selling owner), type of interest acquired, acreage, public land record references such as book and page, and date of recording.
- For each property parcel show FAA project number if acquired under a grant; Surplus Property Transfer or AP-4 Agreement if applicable; and type of easement (clearing, avigation, utility, ROW, etc.); and if released, date of FAA approval.
- Show the purpose of acquisition (current aeronautical, noise compatibility, or future development) and current use if different or in interim use pending development.
- Show runway protection zones, runway configurations, and building restriction lines.
- Show magnetic and true north arrows per standard drafting practices.
- The Exhibit "A" must be dated and amended whenever there is a change to any airport property.

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Facilities Implementation & Financial Feasibility

SECTION OVERVIEW

This chapter reviews planned capital projects for the Greater Green River Intergalactic Spaceport (48U), in conjunction with the Federal Aviation Administration (FAA) Capital Improvement Plan (CIP) and Wyoming Aviation Capital Improvement Program (WACIP). The airport's potential revenues and expenses are compared to describe the financial feasibility and commitment of the upcoming projects for the Sponsor.

8.0 GENERAL

The facilities implementation plan provides guidance on how to implement the findings and recommendations of the planning effort. The plan must balance funding constraints, project sequencing limitations, environmental requirements, agency and tenant approvals and coordination processes, business issues (leases and property acquisition), and Sponsor preferences. Additionally, the plan must coordinate with the Airport Layout Plan and the airport's financial plan. The plan should be implemented on an as needed basis that is consistent with the financial capability and needs of the airport and community.

The Wyoming Department of Transportation (WYDOT) Aeronautics Division coordinates the WACIP. The WACIP was established by the Wyoming Aeronautics Commission to provide funding to airports on a priority basis. More information on the WACIP can be found within Section 8.2.

8.1 PLANNED CAPITAL PROJECTS

The facilities implementation plan addresses all of the airport's planned capital projects, including those not associated with recommendations of the Master Plan, to ensure that adequate fiscal, staff, scheduling, and other resources are available.

8.2 CAPITAL IMPROVEMENT PLAN AND PRIORITY RATING MODEL

Capital projects differ from maintenance and general upkeep of the airport. Capital projects are normally large infrastructure improvements, either new or reconstructed. These can include runways, runway extensions, taxiways, and aprons. Certain types of equipment such as snow removal plows and blowers, fire fighting/rescue trucks, and their associated storage buildings may also be eligible for State funding assistance. Because capital projects often require substantial funding, they must typically be planned for several years in advance.

Airport Master Plans and Airport Layout Plan (ALP) Updates are usually completed every seven to ten years at a general aviation airport. Larger development items are determined to be needed and are justified through these planning efforts. Once planning identifies a needed project, it is added to the CIP by the Sponsor during the annual CIP review by the State. Typically at the review, completed projects are removed, pending projects are refined, and new needs are added for future years. Once the project is on the CIP, it may take years to schedule (program) the funding depending upon the priority of the project. Runways and safety areas have top priority. Other projects related to safety, such as wildlife fencing, also have high priority.

For airports eligible for federal funds, the Airport Improvement Program (AIP) was established by the Airport and Airway Improvement Act of 1982 to provide funding to airports on a priority needed basis. The FAA coordinates this program. Revenues that fund the AIP program are generated from taxes on aviation activity such as the sale of aviation fuel and oil, aircraft, aircraft parts, and airline tickets. The AIP is a user funded program and not funded by federal income tax dollars. The AIP funds are collected in the Airport and Airway Trust fund which is divided into several entitlements. While some of the funding is used for FAA overhead costs, the majority of the money is distributed to eligible community airports through grants. To be eligible for AIP funding, an airport needs to be part of the National Plan of Integrated Airport Systems (NPIAS). As previously noted, 48U is not part of the NPIAS at this time and is, therefore, not eligible for AIP funding. However, there is a chance 48U could eventually become a NPIAS airport after substantial improvements are made, such as paving the runway, taxiway, and apron, and by adding utilities and facilities, such as hangars, which would result in increased use of the airport. By demonstrating a history of significance to the national airport system, meaning the airport is important to public transportation and contributes to the needs of civil aviation, national defense, and the Postal Service, 48U could request that the FAA include the airport in the NPIAS, thus, making it eligible for AIP funding.

The Wyoming Aeronautics Commission is responsible by statute and Commission policy for the disbursement of state funds for airport improvements. This will be the most significant source of capital improvement funding for 48U. To evaluate and rank airport projects for inclusion in the WACIP, the WYDOT Aeronautics Division uses the 2014 Wyoming Priority Rating Model for Project Evaluation (PRM). The purpose of the PRM, which is included in Appendix 9, is to evaluate and rank airport projects for planning, budgeting, and granting utilizing relevant information to make objective decisions considering the collective need of the state's aviation system. WYDOT Aeronautics is responsible for ensuring eligibility by conducting an initial review that assures each project meets state statute, Commission policies, grant assurances, regulations, and precedence. The PRM is then applied to eligible projects, at which time projects are evaluted and ranked. Such information is then presented to the Commission for consideration and acceptance into the WACIP. The WACIP is developed annually, with monthly updates by WYDOT Aeronautics for Commission approval. The Commission appiles the PRM to ensure that the disbursement of funds is accomplished through a consistent manner, but reserves its authority to make decisions considering the collective needs of the state's aviation system.

The PRM, which was approved by the Commission in 2014, evaluates projects submitted by airport sponsors using six weighted categories. These six categories represent important project evaluation criteria with each category weighted to recognize differing levels of importance in an overall evaluation and ranking of eligible projects. The six categories, with weights and brief descriptions are:

- Purpose of Project – 5 point weight – this category is recognized as one of the most important individual categories as it defines the primary purpose of each project: Safety, Security, Maintenance, Airport Enhancement, or Planning.
- Project Component – 3 point weight – this category prioritizes those projects that are directed to preservation and enhancement of airside facilities.
- Type of Federal Funding – 5 point weight – this category is one of the most important individual categories as, in general, federal funds provide the majority of financial assistance to airport sponsors for airport improvement projects.
- Systems Impact – 3 point weight – this category has been developed to incorporate the historical State Evaluation and allows the Aeronautics Division to consider an individual project's overall impact to the State Aviation System Plan (SASP), the timing and funding requirements of state or federal programs, and the importance/priority of any project as determined by the Airport Sponsor.
- Airport Usage – 3 point weight – this category prioritizes projects based on the airport's benefit to the most

airport users/citizens. This category includes the use of the airport's state system plan classification, which is assigned based on the airport's type and level of usage, the role of the airport in the overall system, and the facilities and services offered at the airport.

- Status of Airport Protection – 1 point weight – this category recognizes the importance of safeguarding airport operations and minimizing impact to properties in proximity to the airport by implementing land use protections.

Using each of these six categories, the PRM results in a numerical rating for each project. Once the numerical rating is assigned, it is multiplied by the category weight to determine a final category value. The six category values are then summed, resulting in the final priority model ranking for those projects proposed for state or federal funding.

WYDOT Aeronautics uses percentages as a guideline for programming projects. Funding percentages are based on Purpose of Project categories, as defined in the PRM. The five general purposes are Safety, Security, Maintenance, Airport Enhancement, and Planning. For all federal projects, the FAA provides 90% funding. The remaining sponsor portion of 10% is matched at 6% state funding and 4% local funding.

WYDOT Aeronautics provides 100% funding on maintenance service contracts for navigational aids and on aviation encouragement grants that have a $5,000 limit per project. In both 2013 and 2014, the City of Green River took advantage of aviation encouragement grants to assist with 48U's Spaceport Day activities. These funds are designated for events which promote interest in community airports, encourage private flying, or aid in the expansion of commercial air service in the community. The Commission encourages airports to seek local sponsorships and donations, but does not require local matching funds for eligible events which promote the airport or aviation.

When Safety is the purpose of the project, WYDOT Aeronautics provides 90% funding, leaving a 10% match for local funding. When Security or Maintenance is the purpose of the project, WYDOT Aeronautics provides 80% funding, leaving a 20% match for local funding. When Airport Enhancement or Planning is the purpose of the project, WYDOT Aeronautics provides 60% funding, leaving a 40% match for local funding.

The local community's investment in the airport helps ensure that a safe route of transportation is available into and out of the community. This includes the ability to safely land emergency aircraft such as the Guardian Life Flight aircraft.

8.3 MASTER SCHEDULE

The master schedule is intended to help establish interrelationships between projects, determine a sequence to minimize conflicts, and to help ensure that the sequence is maintained throughout the implementation plan. Detailed information is provided for the 20-year horizon. Projects with significant costs may take years to receive funding. There are always more needs than funding available, so it is important for the Sponsor to plan ahead and program needs well in advance of pavements failing or projects becoming urgent. The planning helps to ensure funding is available from the State and the local Sponsor. For Sponsors that struggle with obtaining matching funds this level of planning is increasingly important.

The cost estimates below, in *Table 8.1*, are based off of 2014 dollars. The total costs are presented in the estimates. The State's match of eligible items varies by project and year, leaving the local community with the remainder.

Other projects may be funded entirely by the Sponsor or by private funds from monetary donations or work

performed on private structures. The State does have a loan program available to Sponsors for projects that are typically ineligible or low priority, if it is a revenue producing project for the Sponsor.

IMPROVEMENT PROJECTS AND COSTS

Table 8.1 below lists proposed capital improvement projects for the Greater Green River Intergalactic Spaceport, along with associated cost estimates, over the next 5-10 years. Cost estimates are extremely rough and designed to provide a general starting point. Many items may effect these estimates, especially inflation over the 5-10 year time period. Details of most projects are discussed in the *Development Alternatives* chapter. *Figure 8.1* illustrates several of the proposed improvements.

TABLE 8.1 IMPROVEMENTS AND ESTIMATED COSTS

Proposed Improvement	State Funds	Local Funds	Total Cost
Conduct Environmental Assessment	$72,000	$8,000	$80,000
Construct Runway 4/22, Segmented Circle, Lighted Windcone, and Secondary Windcones	$2,170,305	$241,145	$2,411,450
Pave Runway 4/22	$937,530	$625,020	$1,562,550
Construct Apron, Taxiway A, and Connector A1	$703,200	$468,800	$1,172,000
Construct Hangar Taxilane, Hangar Access Road, and Helipad	$180,600	$120,400	$301,000
Install 8' Wildlife Fence and Solar Powered Hydraulic Gate	$332,100	$36,900	$369,000
Construct and Pave Access Road	$407,400	$271,600	$679,000

Table 8.2 identifies long-term improvements for 48U. Cost estimates are not provided for these improvements because they are unlikely to be implemented during the next 5-10 years.

TABLE 8.2 LONG-TERM IMPROVEMENTS

Proposed Improvement
Bring power to airport site
Install runway lights, PAPIs, REILS, and beacon
Construct terminal building
Add water cistern

8.4 FUNDING AND BUDGET

Recent past funded projects for the Greater Green River Intergalactic Spaceport are listed in *Table 8.3*. These projects illustrate the local community's committment to aviation and investment in the airport.

TABLE 8.3 RECENT FUNDED PROJECTS AT THE GREATER GREEN RIVER INTERGALACTIC SPACEPORT

Year	Grant	Project Description	State Funds	Local Funds	Total Cost
2014	48U-01A	Master Plan	$90,000	$60,000[1]	$150,000
2014	48U-04X	2014 Aviation Encouragement	$5,000	$0	$5,000
2014	48U-03A	Safety and Security Improvements	$2,800	$700	$3,500

1 Of the local funds used to pay for the Master Plan, $25,000 came from a grant from the Wyoming Business Council (WBC) Business Ready Community (BRC) Grant and Loan Program.

The Wyoming Business Council is the official economic development agency for the state of Wyoming. Founded in 1998, the Business Council was created to more closely resemble a corporation. It has a Chief Executive Officer (CEO) and a 15-member board of directors. The Business Council has six distinct divisions including Agribusiness, Business and Industry, Investment Ready Communities, the State Energy Office, Wyoming Main Street and Rural Development, and Support Services.

The Business Ready Community (BRC) program provides financing for publicly owned infrastructure that serves the needs of businesses and promotes economic development within Wyoming communities. Cities, towns, counties, joint powers boards and both Tribes are eligible to apply for funding. Public infrastructure that is eligible for funding includes water; sewer; streets and roads; airports; rights of way; telecommunications; land; spec buildings; amenities within a business park, industrial park, industrial site or business district; landscaping, recreation and educational facilities; and other physical projects in support of primary economic and educational development.

The BRC funds seven types of projects, including BRC planning projects. There are five types of planning grants available, one of which is feasibility studies, such as this airport master plan. Feasibility studies have a maximum award of $25,000 with a 25% match. These site specific or industry specific plans must determine the feasibility of a project or plan for a project that addresses an economic development objective. In the case of the Greater Green River Intergalactic Spaceport, this means "conducting a feasibility study to determine the viability of expanding the Green River airstrip into a full serve general aviation facility" according to the preliminary regional comments and concerns section of the May, 2013 WBC BRC grant. As written in the grant application, "the completed Master Plan will determine the feasibility of airport development and identify the improvements necessary to transform the existing dirt landing strip site into a general aviation airport." Beyond this master plan study, BRC funds may be an appropriate funding source for other airport development items.

8.5 IN-KIND GRANT MATCH

Airport grants-in-aid associated with the WACIP allow for sponsors to use eligible expenses as in-kind grant match. In-kind contributions are defined under federal guidelines as "contributions other than cash." While they typically add real value to a project, they do not require an actual cash outlay. Some examples of in-kind contributions are indirect costs not charged to the sponsor, third-party contributions, and donated labor, materials, and services. By contrast, cash match is real cash contributed to a project.

Aeronautics Commission policy states that qualifying in-kind match on projects must be approved in advance in writing by the Aeronautics Division project manager. Appropriate documentation providing the value of the in-kind work or product is required.

Qualifying in-kind product or work accomplished by the sponsor shall only be credited toward the sponsor's share of the WACIP match and will not be reimbursed with grant monies. (Examples of qualifying in-kind match are labor, materials, and equipment hours. Airport administrative staff hours do not qualify as in-kind work. In-kind grant match is not applicable to marketing grants.)

In-kind match procedures established by WYDOT 's Aeronautics Division include the following:

- Keep percentage of grant same regardless of in-kind amount provided by airport
- WYDOT Grant Specialist and WYDOT Project Manager will jointly keep a running tab on in-kind dollar amount in grant file
- In-kind maximum amount is equal to the airport match based on the original percentage
- In-kind expenses must be pre-approved by the WYDOT Project Manager
- The state reimbursement to sponsor will not exceed the total cash disbursement (non in-kind) by sponsor.

8.6 REVENUE DIVERSION

The City of Green River, as the airport Sponsor, agreed to several assurances as part of accepting grant funds from WYDOT Aeronautics. One of these assurances states that all revenues generated by the airport will be expended for capital improvement, operating costs, marketing, and other airport related expenditures (grant assurance #5).

Airports that receive State funds agree that revenue generated by an airport must be used in a proper manner to maximize the potential for an airport to be financially self-sustaining (grant assurance #4). All funds generated by an airport and related aviation activities must be used for airport needs. For airports eligible to receive funding from the FAA, redirecting such funds to other sources is referred to as "revenue diversion," and the FAA[1] defines revenue diversion as "the use of airport revenue for purposes other than airport capital or operating costs." Revenue diversion is strictly prohibited and it is the responsibility of all parties involved in an airport's financials to be aware of this requirement and to monitor for any such activity. It is permissible to spend airport revenue on the capital and operating costs of the airport, the local airport system, and other directly related aviation facilities and costs.

8.7 FINANCIAL FEASIBILITY ANALYSIS

The purpose of this section is to demonstrate the airport Sponsor's ability to fund the projects as described in the Airport Master Plan. The projects listed in *Table 8.1* are generally presented in ascending order from the most pressing, and thus emphasized for the near-term, to the least. As a local airport without commercial service, on-airport revenue services at 48U are limited. The large majority of capital improvement project monies will likely come from WACIP funding, followed by City of Green River match.

The Guidebook for Managing Small Airports, published by the Airport Cooperative Research Program and sponsored by the FAA, conducted a survey of airports across the nation. The primary sources of revenue generation for general aviation airports, as identified in the survey, are shown in *Table 8.4*. The top three sources are fuel sales (63% of airports), commercial land leases and rent (60%), and T-hangar leases (59%).

1 FAA Airport Compliance Manual - Order 5190.6B

TABLE 8.4 PRIMARY SOURCES OF REVENUE GENERATION FOR GENERAL AVIATION AIRPORTS SOURCE: GUIDEBOOK FOR MANAGING SMALL AIRPORTS	
Revenue Generation Method	**% of Respondents**
Fuel sales	63%
Commercial land leases and rent	60%
T-hangar leases	59%
Other methods	34%
Private hangar land leases	32%
Agricultural leases	32%
Landing or ramp fees	20%
Tax subsidies	19%
Terminal concession rents	17%

Typical general aviation facilities derive the most revenue from selling fuel or charging a flowage fee (surcharge) for allowing a third-party to sell fuel.

It is essential for airports to charge fees that are both fair for users and tenants, while at the same time helping to cover the costs of operating the airport. The WYDOT Aeronautics Division routinely collects information from a variety of airports to distribute to Wyoming airports to assist in achieving these two goals. In the 2011 Rates and Charges Analysis, 32 Wyoming airports and 36 airports from neighboring states participated. The survey collected rates and charges information for many typical user fees including landing fees, fuel flowage fees, and hangar rents.

Tables 8.5 through *8.11* highlight data outlined in the 2011 Rates and Charges Analysis. Each table provides the average for 2011 in the first column, followed by the 2011 average for commercial service airports and then the 2011 average for general aviation airports. The number of airports that responded to each survey item is included in parantheses.

FUEL FEES

Fuel providers are those that manage the fuel service at the airport. A fuel flowage fee is a fee assessed to fuel tank operators by the airport for each gallon of fuel dispensed.

TABLE 8.5 FUEL PROVIDER (PERCENT OF AIRPORTS)			
	2011 Average (62)	**2011 Commercial Average (24)**	**2011 GA Average (38)**
Airport	39% (24)	33% (8)	42% (16)
FBO	48% (30)	46% (11)	50% (19)
Both Airport and FBO	13% (8)	21% (5)	8% (3)

TABLE 8.6 TYPE OF FUEL AVAILABLE			
	2011 Average (67)	**2011 Commercial Average (25)**	**2011 GA Average (42)**
100LL Only	20% (14)	0%	33% (14)
Both Jet A and 100LL	80% (53)	100% (25)	67% (28)

TABLE 8.7 FUEL FLOWAGE FEE (PER GALLON)			
	2011 Average	**2011 Commercial Average**	**2011 GA Average**
Jet A	$0.07 (34)	$0.08 (20)	$0.06 (14)
100LL	$0.07 (35)	$0.07 (19)	$0.06 (16)

LANDING FEES

Landing fees are charged by the airport to aircraft landing at the airport, typically for larger aircraft. According to the 2011 Rates and Charges Analysis, only 7% of the 42 GA airports who responded to the survey reported charging landing fees. However, none of these airports reported their rates which are generally based on the landing weight of the aircraft (rate per 1,000 pounds). It is not anticipated that 48U would charge any landing fees.

TIE-DOWN RENTAL

Tie-downs are areas on the ramp designated for aircraft parking and are typically equipped with tie-down anchors. Some airports elect to assess transient tie-down fees only to aircraft that do not purchase fuel. Airport owned tie-downs are owned by the Sponsor, whereas FBO owned tie-downs are owned by a private entity.

TABLE 8.8 AIRPORT OWNED TIE-DOWNS			
	2011 Average	**2011 Commercial Average**	**2011 GA Average**
Single Engine	$7/night (6), $26/month (14)	$6.50/night (3), $27.33/month (3)	$7.50/night (3), $25.64 month (11)
Multi Engine	$9.83/night (6), $26.62/month (13)	$11.50/night (3), $31.33/month (3)	$8.17/night (3), $25.20/month (10)
Transient Aircraft	$26.64/night (7), $152/month (6)	$18.25/night (2), $22/month (1)	$30/night (5), $178/month (5)

Figure 8.1 Airport Owned Tie-Down Fees Per Night

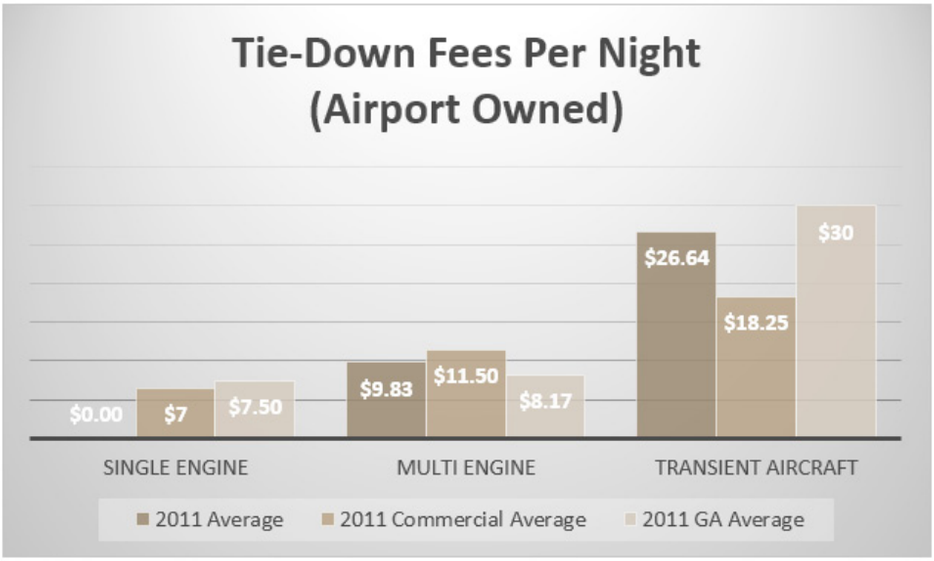
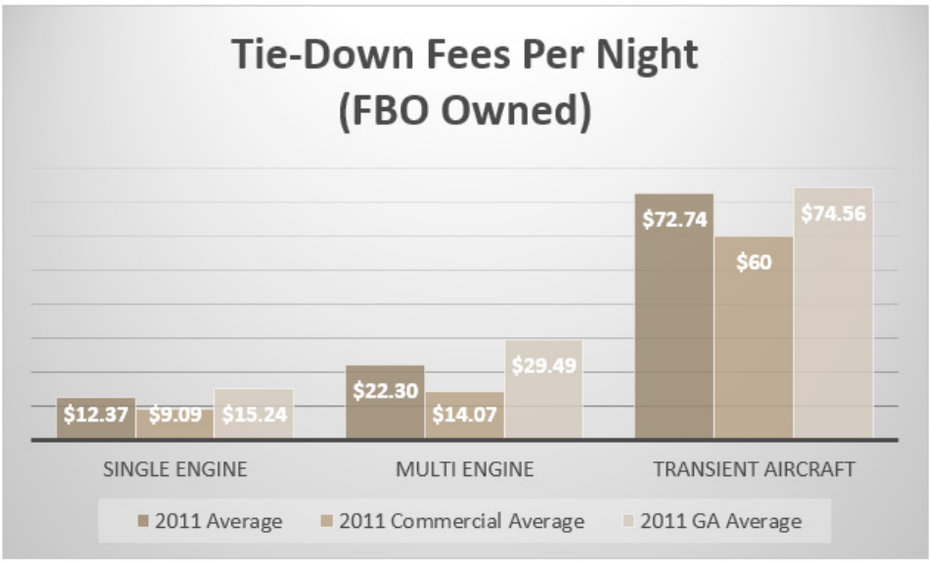


TABLE 8.9 FBO OWNED TIE-DOWNS			
	2011 Average	**2011 Commercial Average**	**2011 GA Average**
Single Engine	$12.37/night (15), $71/month (8)	$9.09/night (7), $75/month (1)	$15.24/night (8), $70.43 month (7)
Multi Engine	$22.30/night (15), $111.63/month (8)	$14.07/night (7), $75/month (1)	$29.49/night (8), $116.86/month (7)
Transient Aircraft	$72.74/night (8), $390/month (5)	$60/night (1), $600/month (1)	$74.56/night (7), $337.50/month (4)

Figure 8.2 FBO Owned Tie-Down Fees Per Night



HANGAR RENTAL

A box hangar is a basic rectangular shaped hangar. Corporate hangars are larger and designated for corporate aircraft use. T-hangars are hangars shaped in a "T" that offer aircraft parking from both sides of the hangar, typically saving space while offering more aircraft hangar slots.

TABLE 8.10 HANGAR RENTAL MONTHLY RATES

	2011 Average	2011 Commercial Average	2011 GA Average
Box Hangars	$218/month	$238/month	$213/month
Corporate Hangers	$1,074/month	$1,438/month	$1,001/month
T-Hangars	$178/month	$218/month	$140/month

GROUND LEASES

A ground lease is a lease of a portion of airport property upon which a privately owned structure, such as a hangar, exists.

TABLE 8.11 GOUND LEASE RATES

	2011 Average	2011 Commercial Average	2011 GA Average
Private Hangar Ground Lease	$0.20/sq ft/yr (50)	$0.22/sq ft/yr (17)	$0.13/sq ft/yr (32)
Commercial - Non-Aeronautical Use	$0.15/sq ft/yr (9)	$0.15/sq ft/yr (6)	$0.17/sq ft/yr (3)
Industrial - Non-Aeronautical Use	$0.60/sq ft/yr (4) or 17% of Gross Revenue (1)	$0.60/sq ft/yr (4)	17% of Gross Revenue (1)
Other Aeronautical Ground Lease	$0.20/sq ft/yr (15)	$0.17/sq ft/yr (8)	$0.25/sq ft/yr (7)

The figure below compares several average ground lease rates from 2006 to rates from 2011. All of the rates showed a substantial increase during the 5-year period.

Figure 8.3 Average Ground Lease (2006 vs. 2011)

8.8 WYOMING'S NON-NPIAS AIRPORTS

According to the FAA's Report to Congress entitlted National Plan of Integrated Airport Systems 2011-2015, there are 5,179 public-use airports in the United States (4,247 are owned by public entities and 932 are owned by private entities). Of these existing public-use airports, 3,332 are included in the NPIAS. There are 1,847 airports open to the public not included in the NPIAS, including 48U. There are 850 privately owned public-use airports that are not included because they are redundant to publicly owned airports or have too little activity to qualify for inclusion. There are 997 publicly owned, public-use airports that are not included in the NPIAS. These publicly owned airports are not included because they do not meet the minimum criteria of having ten based aircraft; are within 20 miles of a NPIAS airport; are located at inadequate sites; cannot be expanded and improved to provide safe and efficient airport facilities; or do not have adequate justification showing a significant national interest. The airports not included in the NPIAS have an average of 1 based aircraft compared to 35 based aircraft at the average NPIAS general aviation airport.

The NPIAS is used by FAA in administering the AIP. It supports the goals identified in the FAA Flight Plan for safety and capacity by identifying airports and airport improvements that will help achieve those goals. Fifty-seven percent of the development is intended to rehabilitate existing infrastructure and keep airports up to standards for the aircraft that use them. Forty-three percent of the development in the report is intended to accommodate growth in travel, including more passengers, cargo and activity, and larger aircraft.

Of the 40 airports that comprise the Wyoming Airport System, 7 are not included in the NPIAS, thus making them ineligible for federal AIP funds. *Table 8.12* lists Wyoming's non-NPIAS airports. These airports must rely solely on state and local fundng sources.

TABLE 8.12 WYOMING'S NON-NPIAS AIRPORTS

Airport	City
Cokeville Municipal Airport	Cokeville
Thomas Memorial Airport (non-paved)	Glendo
Greater Green River Intergalactic Spaceport (non-paved)	Green River
Camp Guernsey Army Airfield	Guernsey
Medicine Bow Airport (non-paved)	Medicine Bow
Shoshoni Municipal Airport (non-paved)	Shoshoni
Upton Municipal Airport (non-paved)	Upton

8.9 GENERAL AVIATION ACTIVITY

As stated in the FAA's NPIAS Report to Congress, the term "general aviation" encompasses a broad spectrum of the aviation industry that includes a diverse range of commercial and recreational uses. While it is often easier to consider what general aviation does not include—scheduled airline and military activity— this does not sufficiently define general aviation activity. To better understand this segment of the industry and the resulting requirements for the airport and air traffic system, each year the FAA surveys the general aviation community through general aviation and Part 135 activity surveys. These surveys ask respondents to indicate the types of uses of their aircraft and the number of hours flown, as well as the type of aircraft flown, flying conditions, fuel consumption, and aircraft age.

Table 8.13 summarizes the results of the calandar year 2012 surveys by types of uses. The percentages are based upon the number of actual hours flown. While personal use of general aviation aircraft (33.5 percent) is the single largest use category, the combined nonpersonal uses of general aviation aircraft represent the majority of all general aviation activity (52 percent). In 2012, the combined non-personal uses and the FAR Part 135 uses represented approximately 66.8 percent of total hours flown. While some of this activity may have occurred at commercial service airports, the majority of activity occurred primarily at general aviation airports.

TABLE 8.13 GENERAL AVIATION AND PART 135 ACTIVITY SURVEY - ACTUAL HOURS FLOWN BY USE FOR CALENDAR YEAR 2012

Category	Percent of Total
Personal Use	33.5%
Instructional	15.3%
Corporate	9.7%
Business	8.7%
Other	7.0%
Aerial Observation	5.4%
Aerial Application	3.9%
External Load (Rotocraft)	0.9%
Sightseeing	0.7%
Air Medical	0.4%
Subtotal	**85.5%**
Part 135 Use Subtotal	**14.8%**
TOTAL ALL USES	**100%**

Note: Totals may not add due to rounding

It is notable that instructional uses comprise the second largest use category. For nearly 20 years, the majority of commercial airline pilots have been trained through civilian training systems rather than through the military. Instructional training for all pilots, whether pursuing flying professionally or as a career, is best conducted away from commercial service airports to preserve commercial service airport capacity and enhance reliability for airline schedules. For these reasons, instructional training is currently focused at general aviation airports.

The results of the survey are also representative of the many roles that general aviation plays in accommodating commerce throughout the United States. It is estimated that thousands of passengers are carried on business and corporate aircraft each year. Business and corporate aircraft also move air freight, such as high-priority business documents from rural communities to ensure overnight delivery for customers or the just-in-time delivery of parts to manufacturing plants.

On-demand air taxi (charter) services provide air access to communities not served by commercial airlines. Air medical services provide rapid access to emergency medical services that cannot be provided on scheduled airline aircraft and in many rural parts of the country, which may not be served by scheduled airline activity. Aerial application includes activities such as fertilizing for agricultural purposes or fighting forest fires. Aerial observations include patrolling pipelines or the electrical grid infrastructure to ensure safety and reliability of these energy systems, flights to discover forest fires, or wildlife and natural habitats.

General aviation also encompasses many activities not fully captured by these use categories. This includes the Civil Air Patrol, which provides nearly all of the inland search and rescue missions or the roles of other governmental agencies for homeland security, law enforcement, and disaster relief. General aviation also includes the humanitarian roles provided by general aviation such as transporting patients to medical centers or delivering relief supplies to areas following natural disasters.

8.10 COMPARABLE AIRPORT DATA

As explained in the Guidebook for Managing Small Airports, airport operations budgets are normally prepared for a one-year fiscal period. This budget shows the basic operating expenses and revenues of the airport and includes financial estimates on personnel costs, operating expenses, supply expenses, and other planned services. Most governmental entities compete with each other for public funds. In most cases, the goal is not necessarily to create a profit but to ensure that financial resources are available to safely and efficiently operate the facility as a component of the public infrastructure. The airport Sponsor must assess the fiscal requirements to both "keep the lights on" and responsibly protect public welfare. In many cases, simply balancing the budget is the goal. The amount of revenue generated at a small general aviation airport is typically small and is often supplemented with governmental aid.

As previously discussed, income sources normally attributed to the operation of the airport include:

- Commercial land leases and rents,
- T-hangar lease agreements,
- Private hangar land lease,
- Agricultural land lease,
- Terminal concession rents,
- Fuel flowage fees, and
- Landing and ramp fees.

Local government subsidy is often required to offset the gap between budgeted revenues and expenses. Innovative airport managers have also developed programs to generate non-standard airport revenues. For example, at Ralph Wenz Field in Pinedale, WY, the airport manager tracks larger transient jets and assesses a landing fee from which local traffic is exempt.

The following tables reflect the operational revenues and expenses for several airports comparable in size to 48U with the proposed developments. As evidenced by this data, it is not unusual for revenues to cover only a portion of the expenses incurred by the airport.

TABLE 8.14 REVENUES AND EXPENSES FOR SOUTH BIG HORN COUNTY AIRPORT		
South Big Horn County Airport; Greybull, WY		
Revenues		
Hangar Leases		$114,600
Land Leases		$38,227
Fuel Sales		$10,928
	Total	**$163,755**
Expenses		
O&M		$67,895
Salary & Benefits		$54,435
Fuel		$54,000
	Total	**$176,330**

Snapshot of South Big Horn County Airport
Located in Greybull, WY (pop. 1,847)

Runway 16/34
7,003 x 150 feet asphalt
Runway 7/25
3,953 x 75 feet asphalt

3,484 operations per year
23 based aircraft
1 FBO

There is one airport manager who splits his time between both Big Horn County airports.

TABLE 8.15 REVENUES AND EXPENSES FOR NORTH BIG HORN COUNTY AIRPORT		
North Big Horn County Airport; Cowley, WY		
Revenues		
Fuel Sales		$12,952
Hangar Leases		$3,300
Land Leases		$519
	Total	**$16,771**
Expenses		
Fuel		$64,000
O&M		$62,116
Salary & Benefits		$53,100
	Total	**$179,216**

Snapshot of North Big Horn County Airport
Located in Cowley, WY (pop. 655)

Runway 9/27
5,200 x 75 feet asphalt
Runway 16/34
1,866 x 65 feet dirt

3,536 operations per year
17 based aircraft
No FBO

TABLE 8.16 REVENUES AND EXPENSES FOR BIG TIMBER AIRPORT		
Big Timber Airport; Big Timber, MT		
Revenues		
Leased Ground		$8,625
Sale of Salvage*		$4,100
Fuel Flow Fee		$489
Courtesy Car Rental		$146
	Total	**$13,360**
Expenses		
Personnel		$14,723
O&M		$13,937
Machinery & Equipment		$11,779
	Total	**$40,439**

Snapshot of Big Timber Airport
Located in Big Timber, MT (pop. 1,641)

Runway 6/24
5,285 x 75 feet asphalt
Runway 18/36
3,475 x 75 feet turf

1,040 operations per year
11 based aircraft
1 FBO

The FBO has limited responsibilities relating to airport management. There is a part-time airport manager hired by the county, who also serves on the Airport Board, to handle daily maintenance activities, such as mowing and snowplowing.

* Typically, the airport does not sell any salvage items; fiscal year 2013 was an exception due to a vehicle being decommissioned.

TABLE 8.17 REVENUES AND EXPENSES FOR FORT BRIDGER AIRPORT		
Fort Bridger Airport; Fort Bridger, WY		
Revenues		
Hangar Leases		$10,328
Fuel Sales		$7,736
	Total	**$18,064**
Expenses		
Salary & Benefits (for both airports)		$25,136
O&M (for Fort Bridger Airport)		$7,621
	Total	**$32,757**

Snapshot of Fort Bridger Airport
Located in Fort Bridger, WY (pop. 345)

Runway 4/22
6,404 x 75 feet asphalt
Runway 7/25
3,520 x 50 feet turf/dirt

3,484 operations per year
8 based aircraft
No FBO

There is one aiport manager who splits his time between two Uinta County airports.

8.11 DETERMINING OPERATING & MAINTENANCE EXPENSES FOR 48U

An essential function of airport management is to successfully develop and implement an airport budget. Proper planning and allocation of financial resources for both short-term and long-term needs is an important part of the financial management of the airport. Budgets essentially plan the dollar amounts required to operate and maintain the facility for defined periods of time (typically called O&M budgets). Every airport, as any business operation, must develop an operating budget for the short term, which is typically one to two fiscal-year periods. As noted earlier in this chapter, coordinated long-term planning is needed to determine capital improvement program (CIP) expenditures such as runway construction, land acquisition, or major equipment purchases.

Determining small airport expenses depends on many factors. The structure of an airport operation within a municipal organization varies, and many actual expenses are difficult to measure. For example, equipment operators or trade personnel labor costs at the airport may be hidden within another department budget. Therefore, the actual labor costs of the organization may not be reflected in the airport operations budget.

Typically, the airport manager will organize and prepare a budget within the accepted budgeting methods for the municipal organization. This budgeting normally involves anticipating expenses for both operating and non-operating expenses. Operating expenses are all of those costs associated with the actual operation of the airport. These costs may include labor, supplies, utility, and maintenance costs that are incurred on a day-to-day basis. These costs will vary considerably according to geographic region and the structure of the airport. For example, maintenance and equipment expenses may be significantly less in warmer areas of the country as opposed to those areas that require snow removal. Another example is the cost of maintaining an asphalt slab, which increases as it ages and varies due to weather and usage. The accounting of non-operational expenses also depends on the position of the airport within an organization.

Tasks that need to be accounted for in 48U's operating budget include grading the surface until paved, mowing and plowing, which are seasonal activities, and conducting airport safety self-inspections. Section 8.13 describes airport safety self-inspections in greater detail. Later, after the runway has been improved, tasks that need to be accounted for in 48U's maintenance budget include crack fill, seal coat, and fence repair.

8.12 FUNCTION AND ROLES OF AIRPORT MANAGER

The Guidebook for Managing Small Airports outlines the function and roles of airport managers. An airport manager

is typically responsible for the daily operations of the airport. The airport manager directs, coordinates, and reviews all aircraft operations, maintenance of the airfield and buildings, community relations, and financial matters of the airport. Some airport managers are also responsible for running the airport's FBOs under a separate agreement with the airport-owning jurisdiction. In Big Horn County, an important duty of the airport manager is to market both of the airports to businesses and other users. No matter what specific duties an airport manager has each day, his or her number one responsibility is to operate a safe and efficient airport. An airport manager reports to, and receives direction from, the airport's owner or operator. The manager is also responsible for interpreting the functions and activities of the airport to the public. Public relations is an important function of airport management. Airport management is a complex process of effectively directing resources toward the accomplishment of the airport's goals. Central to achieving these goals is the ability of the airport owner to administer the basic functions of management including planning, organizing, staffing, leading, and controlling. The position of airport manager has often been described as a "jack-of-all-trades." Serving as a successful airport manager requires a variety of skills to accomplish the managerial functions.

As business markets become national and international in scale, airports are increasingly being viewed as catalysts for local economic development. The ability of airports to generate jobs and attract new business is being used in many locations as a justification for public investments in new airport construction and expansion. Airport employment depends on the volume of aviation activity at an airport, which is determined not only by the population of the region it serves, but also by the airport's air service function. Employment associated with airport operations includes the airlines, aircraft support services, passenger services (including restaurants, shops and desks for car rental and ground transport), air freight services, and government activities.

In the case of the Greater Green River Intergalactic Spaceport, the position of airport manager is one of the potential jobs resulting from the development of the airport. As noted above, some airport managers split their time between multiple airports, as is the situation in both Big Horn County and Uinta County. Airport management can also be fulfilled by a part-time person, such as at the Big Timber Airport. Another option is to assign the role of airport manager to an existing employee or department. For example, airport management duties for 48U are currently being fulfilled by the assistant city engineer, with support from the city's public works department. However, as the airport is developed and flight traffic increases, so will the function and roles of the airport manager. Ultimately, the Sponsor may need to create a part-time or even a full-time position to ensure that airport managment responsibilities are sufficiently executed.

8.13 AIRPORT SAFETY SELF-INSPECTIONS

While some hazardous airport conditions develop virtually instantaneously, others are gradual. It is important that the airport operator have an airport safety self-inspection program that monitors specific airport conditions in order to identify unsatisfactory conditions for prompt corrective actions. A number of airport operators have some form of a safety self-inspection program. The programs vary in scope and effectiveness from verbal instructions and unscheduled and unrecorded inspections to very comprehensive inspection programs with multiple daily schedules and widely distributed responsibilities.

Self-inspection is a primary responsibility of the airport owner, operator, or duly authorized representative. It is customary to assign the job of assuring overall airport ground safety to the airport manager or operations supervisor. However, at smaller airports, such as 48U, that do not employ their own airport managers, self inspections can be performed by other personnel, including law enforcement officers and public works staff. Primary attention should be given to such operational items as pavement areas, safety areas, markings, signs, lighting, aircraft rescue and

fire fighting, fueling operations, navigational aids, ground vehicles, obstructions, public protection, wildlife hazard management, construction, and snow and ice control. Inspection of areas that have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user. The airport should be inspected at least daily during times when aircraft activity is minimal in order to create the least impact on airport operations.

According to FAA Advisory Circular 150/5200-18C *Airport Safety Self-Inspection*, for even the smallest airport it is desirable to use a safety self-inspection checklist that constitutes a written record of conditions noted, and acts as a check on follow-up actions taken. An example of an airport safety self-inspection checklist is included in Appendix 5. The scheduled use of a dated checklist will assure the regularity and thoroughness of safety inspections and follow-up. The checklist can be an important administrative tool for airport management. It can provide a snapshot of the condition of the airport, indicating trends, defining problem areas, indicating systems that are beginning to deteriorate and helping to define budgetary requirements. It is most desirable to use a format in which each inspected area of the airport complex is positively noted.

Self-inspections should concentrate on the following, where appropriate:
- Pavement areas,
- Saftey areas,
- Markings,
- Signs,
- Lighting,
- Navigational aids (NAVAIDS),
- Obstructions,
- Fueling operations,
- Snow and ice,
- Construction,
- Aircraft rescue and firefighting,
- Public protection, and
- Wildlife hazard management.

Additional areas of focus, particularly in the case of 48U, include graded surface conditions and security. Issues that commonly arise during inspections can lead to projects for the CIP that will provide long-term safety solutions.

8.14 AIRPORT DEVELOPMENT

Airport sponsors have the perogative of determining who will play the role of developer at the airport and how that development will occur. The airport sponsor can choose tenants that will develop their own capital improvements, enlist the help of a third party developer, or fulfill the role of developer itself. The rewards associated with successful airport development can come in the form of new revenues, additional aviation activity, jobs, the attraction of based aircraft, or some combination thereof.

In April, 2012, the FAA conducted a presentation entitled "How Airports Make Money" at the Northwest Mountain Region Airports Conference. During the presentation, the FAA recommended that sponsors be more active in identifying near- and long-term uses for currently unused land by developing a service plan for providing access and utility improvements for land that could be utilized; establishing a strategy for funding the infrastructure improvements required for commercial development; using airport marketing, which can be instrumental in

developing land and leasing airport property; and developing a good relationship with community economic development entities and/or the chamber of commerce.

8.15 RECOMMENDATIONS FOR FUTURE ACTION

As the airport Sponsor, there are some activities that the City of Green River should consider tackling in preparation for the development of the Greater Green River Intergalactic Spaceport. These activities include developing a rules and minimum standards document, standardized lease agreement, and lot lease plan. The Sponsor should also continue to participate in the WACIP by continuing to submit annual CIP updates to the WYDOT Aeronautics Division.

The City of Green River may also want to consider strengthening the role of the Airport Task Force into a management role. Members of the Airport Task Force could then appoint officers to fill governance roles for the airport and provide assistance in managing the CIP.

Airport Revenue Diversification: A Synthesis of Airport Practice, published by the Airport Cooperative Research Program and sponsored by the FAA, addresses the growing trend of airports seeking to diversify their revenue streams. Because airports are now complex businesses, the master plan has become part of a larger planning framework where many airports have a strategic plan, as well as a master plan, business plan, and marketing plan. Figure 8.4 below places the the strategic plan in the context of other typical airport planning activities.

Figure 8.4 Airport Planning Process

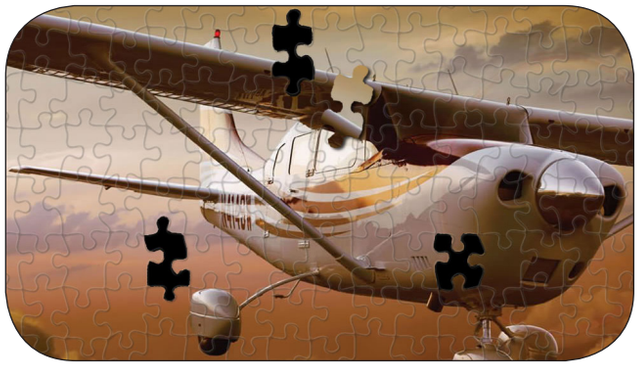
Adapted by KRAMER aerotek inc., from Ricondo & Associates, Inc. (2008).

The City of Green River may want to include the Airport Task Force in such planning activities in the future since these activities will play a crucial role in the successful development of the Greater Green River Intergalactic Spaceport. Airport personnel may also find it beneficial to review the Airport Revenue Diversification report for additional information and ideas regarding how to fully utilize airport land and facilities and identify ways to diversify revenue streams as airport improvements are made.

Planning for Compliance

SECTION OVERVIEW

The FAA has published the FAA Airport Compliance Manual, Order 5190.6B. This chapter provides a brief overview of planning needs for compliance with some of these standards. Although 48U does not receive federal funding and is not obligated to comply with federal assurances, State grant assurances do apply and should be used to help govern and manage the airport.



9.0 GENERAL

The FAA has published the FAA Airport Compliance Manual, Order 5190.6B, that provides guidance on interpreting and administering the various continuing commitments airport Sponsors make to the U.S. Government when they accept grants of federal funds or federal property for airport purposes. The Airport Compliance Program was developed to ensure that airport Sponsors comply with federal obligations in the form of grant assurances, surplus and nonsurplus obligations, or other applicable federal laws.

The Greater Green River Intergalactic Spaceport is not in the National Plan of Integrated Airport Systems (NPIAS). Consequently, 48U does not receive federal funding through the FAA. While not obligated to follow FAA grant assurances, the FAA is the leading national agency for airports and aviation, therefore, it is recommended that 48U do so. Furthermore, should 48U someday become part of the NPIAS, compliance with FAA standards would ease any transition to the new requirements. The obligations and assurances associated with accepting FAA Capital Improvement Program (CIP) monies are included below. The assurances attached with WYDOT Aeronautics grant monies, which 48U has accepted and is obligated to follow, are included later in this chapter.

The concept of "compliance," or being forced by funding agencies to "be in compliance with grant assurances and policies," is often met with resistance from airport stakeholders and users. In this case, compliance simply means fulfilling official requirements. In reality, compliance helps protect airports against the pressures of development and incompatible land use. This chapter is designed to provide an understanding of the goals of those agencies directly responsible for managing a system of airports.

9.1 SOURCES OF FEDERAL OBLIGATIONS

The federal obligations a Sponsor assumes by accepting FAA administered airport development assistance are mandated by federal statute. These obligations are incorporated in the grant agreements and property conveyance instruments entered into by the Sponsor and the U.S. Government. The sources of airport Sponsor federal obligations include:

- Grant agreements issued through airport development grant programs including:
    - Federal Aid to Airports Program (FAAP)
    - Airport Development Aid Program (ADAP)
    - Airport Improvement Program (AIP)
- Grant agreements and instruments of nonsurplus conveyance issued under the:
    - 1946 Airport Act
    - 1970 Airport Act

    - Airport and Airway Improvement Act of 1982 (AAIA)
- Surplus property instruments of transfer issued under the provisions of section 13(g) of the Surplus Property Act of 1944, as amended
- Deeds of conveyance issued under section 16 of the 1946 Airport Act, Section 23 of the 1970 Airport Act, and Section 516 of the AAIA
- AP-4 agreements authorized by various acts between 1939 and 1944
- Exclusive Rights under section 303 of the Civil Aeronautics Act of 1938, as amended and section 308(a) of the FAA Act, as amended
- Title VI of the Civil Rights Act of 1964, as amended
- Commitments in environmental documents prepared in accordance with current Federal Aviation Administration requirements that address the National Environmental Policy Act of 1969 (NEPA) and the AAIA
- Separate written agreements between the Sponsor and the FAA, including settlement agreements resulting from litigation.

9.2 FEDERAL GRANT OBLIGATIONS

The following list of assurances and deed restrictions are those most commonly encountered in compliance cases.

a. Exclusive Rights Prohibition:
    1) Applies to airports subject to: Any federal agreement or property conveyance.
    2) Obligation: To operate the airport without granting or permitting any exclusive right to conduct any aeronautical activity at the airport. (Aeronautical activity is defined as any activity which involves, makes possible, or is required for the operation of an aircraft, or which contributes to or is required for the safety of such operations; i.e., air taxi and charter operations, aircraft storage, sale of aviation fuel, etc.)
    3) Duration of obligation: For as long as the property is used as an airport.

b. Maintenance of the Airport:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements, surplus property, conveyances, and certain section 16/23/516 conveyances.
    2) Obligation: To preserve and maintain the airport facilities in a safe and serviceable condition. This applies to all facilities shown on the approved ALP which are dedicated for aviation use, and includes facilities conveyed under the Surplus Property Act.
    3) Duration of obligation: Standard[1].

c. Operation of the Airport:
    1) Applies to airports subject to: FAA/ADAP/AIP agreements and surplus property conveyances.

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[1] Standard means:
    1) Grant agreements for development other than land purchase. Pavement and other facilities built to FAA standards are designed to last at least 20 years, and the duration of the obligation should generally be assumed to be 20 years. The duration may be shorter for grants made exclusively for certain equipment, such as a vehicle, that clearly has a useful life shorter than 20 years.
    2) Grant agreements for land purchase. AIP grant agreements for purchase of land provide that obligations do not expire, since the useful life of land does not end or depreciate. However, FAAP and ADAP grants did not always contain this language, and the grant documents should be reviewed to determine whether the obligations expire in 20 years or continue indefinitely. Also, grants to a private operator of a public-use general aviation airport provide for a defined duration of the obligations attached to the grant, and the grant documents should be reviewed to determine the actual obligations that apply.
    3) Surplus property deeds and nonsurplus land conveyance documents. Documents conveying federal land and property interests for airport use generally have no expiration date, and obligations continue indefinitely until the Sponsor is formally released from the obligation by the FAA. Obligations run with the land and bind subsequent owners.

- 2) Obligation: To operate the aeronautical and common use areas for the benefit of the public and in a manner that will eliminate hazards to aircraft and persons.
  3) Duration of obligation: Standard[1].

d. Protection of Approaches:
  1) Applies to airports subject to: FAAP/ADAP/AIP agreements and surplus property conveyances.
  2) Obligation: To prevent, insofar as it is reasonably possible, the growth or establishment of obstructions in the aerial approaches to the airport. (The term "obstruction" refers to natural or man-made objects which penetrate the imaginary surfaces as defined in FAR Part 77, or other appropriate citation applicable to the specific agreement or conveyance document.)
  3) Duration of obligation: Standard[1].

e. Compatible Land Use:
  1) Applies to airports subject to: FAAP (after 1964)/ADAP/AIP agreements.
  2) Obligation: To take appropriate action, to the extent reasonable, to restrict the use of lands in the vicinity of the airport to activities and purposes compatible with normal airport operations.
  3) Duration of obligation: Standard[1].

f. Availability of Fair and Reasonable Terms:
  1) Applies to airports subject to: Any federal agreement or property conveyance.
  2) Obligation: To operate the airport for the use and benefit of the public to make it available to all types, kinds, and classes of aeronautical activity on fair and reasonable terms and without unjust discrimination.
  3) Duration of obligation: Twenty years from the date of execution for grant agreement prior to 1964. For grants executed subsequent to the passage of the Civil Rights Act of 1964, the statutory requirement prohibiting discrimination remains in effect for as long as the property is used as an airport. The obligation runs with the land for surplus property and section 16/23/516 conveyances.

g. Adherence to the Airport Layout Plan:
  1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
  2) Obligation: To develop, operate, and maintain the airport in accordance with the latest approved Airport Layout Plan. In addition, airport land depicted on the latest property map (Exhibit "A") cannot be disposed of or otherwise encumbered without prior FAA approval.
  3) Duration of obligation: Standard[1].

h. Utilization of Surplus Property:
  1) Applies to airports subject to: Surplus property conveyances.
  2) Obligation: Property conveyed under the Surplus Property Act must be used to support the development, maintenance and operation of the airport. If not needed to directly support an aviation use, such property must be available for use to produce income for the airport. Such property may not be leased or rented at a discount or for nominal consideration to subsidize nonairport objectives. Airport property cannot be used, leased, sold, salvaged, or disposed of for other than for airport purposes without FAA approval.
  3) Duration of obligation: Standard[1].

i. Utilization of Section 16/23/516 lands:
  1) Applies to airports subject to: Section 16/23/516 conveyances.
  2) Obligation: Property must be used for airport purposes; i.e., uses directly related to the actual operation or the foreseeable aeronautical development of the airport. Incidental use of the property must be approved by the FAA.
  3) Duration of obligation: Standard[1].

j. Sale or Other Disposal of Property Acquired Under FAAP/ADAP/AIP:
  1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
  2) Obligation: To obtain FAA approval for the sale or other disposal of property acquired under FAAP/ADAP/AIP, as well as approval for the use of any net proceeds realized.

3) Duration of obligation: Standard[1].

k. Utilization of Airport Revenue:
   1) Applies to airports subject to: Any federal agreement or property conveyance.
   2) Obligation: To use all airport revenues for the capital or operating costs of the airport, the local airport system, or other local facilities which are owned or operated by the owner or operator of the airport, and directly related to the actual air transportation of passengers or property.
   3) Duration of obligation: Standard for grants and conveyances executed prior to October 1, 1996. For airports receiving assistance on or after that date, the obligation continues as long as the facility is used as a public-use airport.
   4) Special Conditions Affecting Noise Land and Future Aeronautical Use Land: Apply interim revenue derived from noise land or future aeronautical use land to projects eligible for grants under the AIP. This income may not be used for the matching share of any grant.

l. National Emergency Use Provision:
   1) Applies to airports subject to: Surplus property conveyances (where Sponsor not released from this clause.)
   2) Obligation: That during any war or national emergency, the government has the right of exclusive possession and control of the airport.
   3) Duration of Obligation: Runs with the land (unless released from this clause by the FAA, with concurrence of the Department of Defense.)

m. Fee and Rental Structure:
   1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
   2) Obligation: To maintain a fee and rental structure of the facilities and services being provided to the airport users which will make the airport as self-sustaining as possible. (Note: Fair and reasonable for aeronautical activities and fair market value for nonaeronautical activities.)
   3) Duration of obligation: Standard[1].

n. Preserving Rights and Powers:
   1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
   2) Obligation: To not enter into any transaction which would operate to deprive it of any of the rights and powers necessary to perform any or all of the Sponsor assurances without FAA approval, and to act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others that would interfere with such performance by the Sponsor. To not dispose of or encumber its title or other interests in the site and facilities for the duration of the terms, conditions, and assurances in the grant agreement without FAA approval.
   3) Duration of Obligation: Standard[1].

o. Environmental Requirements:
   1) The AAIA requires that for certain types of project, an environment review be conducted. The review can take the form of either an environmental assessment or an environmental impact statement. These environmental documents often contain commitments related to mitigation of environmental impacts. FAA approval of environmental documents containing such commitments has the effect of requiring that these commitments be fulfilled before FAA grant issuance or as part of the grant.

p. Other Obligations:
   1) The above obligations represent the more important obligations assumed by an airport Sponsor. Other obligations that may be found in grant agreements include:
      - Use of Government Aircraft
      - Land for Federal Facilities
      - Standard Accounting Systems
      - Reports and Inspections

- Consultation with Users
- Terminal Development Prerequisites
- Construction Inspection and Approval
- Minimum Wage Rates
- Veterans Preference
- Audits, Audit Reports and Record Keeping Requirement
- Local Approval
- Civil Rights
- Construction Accomplishment
- Planning Projects
- Good Title
- Sponsor Fund Availability

9.3 FEDERAL GRANT ASSURANCES

There are 39 Grant Assurances that are briefly described here. Complete descriptions and requirements are located within Appendix A of FAA Airport Compliance Manual, Order 5190.6B.

1. General Federal Requirements - The Sponsor must comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance, and use of Federal funds for the project.
2. Responsibility and Authority of the Sponsor - The Sponsor must have legal authority to apply for the grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of the grant agreement. As applicable, a resolution, motion, or similar action must be duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application.
3. Sponsor Fund Availability - The Sponsor must have sufficient funds available for the portion of the project costs that will not be paid by the U.S. Government. Sufficient funds must also be available to assure operation and maintenance of items funded under the grant agreement.
4. Good Title - The Sponsor must show that good title is held or will be acquired by the Sponsor, public agency, or Federal government. The Sponsor must hold good title or obtain good title for noise compatibility program projects.
5. Preserving Rights and Powers - The Sponsor will not take or permit any action which would deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in the grant agreement. The Sponsor will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A or properties for which noise compatibility program funds have been expended. The Sponsor must enter into an agreement with the property owner for noise compatibility programs that are not on airport property.
6. Consistency with Local Plans - The project should be reasonably consistent with plans of public agencies that are authorized by the State to plan for area development existing at the time of application submission.
7. Consideration of Local Interest - The Sponsor should give fair consideration to the interest of communities located in or near the project location.
8. Consultation with Users - The Sponsor must undertake reasonable consultations with parties that use the airport.
9. Public Hearings - The Sponsor must give opportunities for public hearings for projects involving the location of an airport, an airport runway, or a major extension of the runway.

10. Air and Water Quality Standards - Projects involving airport location, a major runway extension, or runway location must have a certification by the Governor or the Administrator of the Environmental Protection Agency stating that the project will be located, operated, and maintained in a method that will comply with all applicable air and water quality requirements.
11. Pavement Preventative Maintenance - The Sponsor assures or certifies that an effective pavement-maintenance management program has been implemented.
12. Terminal Development Prerequisites - The Sponsor must show that all required safety equipment, security equipment, and access to the passenger enplaning and deplaning areas have been provided for projects which include terminal area development.
13. Accounting System, Audit, and Record Keeping - All project accounts and records must be kept and be available for inspection.
14. Minimum Wage Rates - Contracts in excess of $2,000 that involve labor must have provisions establishing minimum wage rates to be paid.
15. Veterans Preference - The employment of labor preference shall be given to Veterans of the Vietnam era and disabled veterans. The preference does not apply to executive, administrative, and supervisory positions and only applies where individuals are available and qualified.
16. Conformity to Plans and Specifications - The project must be executed subject to FAA approved plans, specifications, and schedules.
17. Construction Inspection and Approval - The Sponsor must provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the FAA approved plans, specifications, and schedules.
18. Planning Projects - Planning projects must be completed in an approved method. The material must be made available for examination. The plan may not be copyrighted and approval of the plan does not constitute or imply any assurance or commitment to approve any future airport grants.
19. Operations and Maintenance - The airport and all facilities that are necessary to serve the aeronautical users of the airport shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards that may be required. The Sponsor may not cause or permit any activity or action that would interfere with its use for airport purposes.
20. Hazard Removal and Mitigation - The Sponsor must take actions to ensure that terminal airspace as required to protect instrument and visual operations to the airport will be adequately cleared and protected by mitigating existing airport hazards and by preventing the creation of future hazards.
21. Compatible Land Use - The Sponsor must take appropriate action, to the extent reasonable, to restrict the use of land adjacent to and in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations. If the project is for noise compatibility program implementation, the Sponsor will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility with respect to the airport or the noise compatibility program measures.
22. Economic Nondiscrimination - The Sponsor must make the airport available for public use on reasonable terms and without unjust discrimination to all types, kinds, and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.
23. Exclusive Rights - The Sponsor may not permit an exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. There may be a single FBO serving the airport that would not be considered an exclusive right if certain conditions exist.

24. Fee and Rental Structure - The Sponsor must maintain a fee and rental structure for the facilities and services at the airport that will make the airport as self-sustaining as possible under the circumstances existing at the particular airport.
25. Airport Revenues - All revenues generated by the airport and any local taxes on aviation fuel will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities that are owned or operated by the owner or operator of the airport and that are directly and substantially related to the actual air transportation of passengers or property. The revenues can also be used for noise mitigation purposes on or off the airport.
26. Reports and Inspections - Annual operations reports, airport development project records and documents, and noise compatibility program records must be maintained and be available for inspection.
27. Use by Federal Government Aircraft - The Sponsor must make all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft available to the United States for use by Government aircraft in common with other aircraft at all times without charge. If use by Governmental aircraft is substantial, a reasonable and proportional charge for the cost of operating and maintaining the facilities may be charged.
28. Land for Federal Facilities - The Sponsor must furnish without cost land or water areas to the Federal Government for the use in connection with any air traffic control, air navigation activities, weather-reporting, and communication activities related to air traffic control.
29. Airport Layout Plan - The Sponsor must keep the Airport Layout Plan up to date at all times. Changes or alterations made on the airport that are not shown on an approved airport layout plan may be subject to elimination or relocation at the Sponsor's expense.
30. Civil Rights - The Sponsor must comply with existing rules to ensure that no person is excluded on the grounds of race, creed, color, national origin, sex, age, or disability from participating in any activity conducted with or benefiting from funds received.
31. Disposal of Land - Land no longer used for airport noise compatibility purposes or airport development purposes must be properly disposed of following existing guidelines.
32. Engineering and Design Services - All contracts or sub-contracts for services must be awarded in a qualifications-based method.
33. Foreign Market Restrictions - The Sponsor will not allow funds provided under the grant to be used to fund any project that uses any product or service of a foreign country when that country is listed by the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.
34. Policies, Standards, and Specifications - The Sponsor must carry out the project in accordance with the FAA approved policies, standards, and specifications.
35. Relocation and Real Property Acquisition - The Sponsor must follow Subparts B, C, D, and E of 49 CFR Part 24.
36. Access by Intercity Buses - The airport owner will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport. There is no obligation by the airport owner to fund special facilities.
37. Disadvantaged Business Enterprises (DBE) - The grant recipient shall not discriminate on the basis of race, color, national origin, or sex in the award of any DOT-assisted contract, in the administration of its DBE program, or the requirements of 49 CFR Part 26. Implementation of the DBE program is a legal obligation.

38. Hangar Construction - The airport owner must grant a long term lease that may be subject to terms and conditions for hangars constructed on the airport at the aircraft owner's expense.
39. Competitive Access - Applies to medium or large hub airports.

9.4 COMPATIBLE LAND USE

Land use planning is important to ensure that airport investments are not affected by incompatible land uses adjacent to and in the immediate vicinity of the airport. Incompatible land uses at or near airports may result in the creation of hazards to air navigation, reductions in airport utility resulting from obstructions to flight paths, or noise-related incompatible land use resulting from residential areas too close to the airport.

Zoning is an effective method of meeting the federal obligation to ensure compatible land use and to protect airport approaches. According to 5190.6B, restricting residential development near the airport is essential in order to avoid noise-related problems. Residential developments can also be incompatible for safety reasons. The development of public facilities such as schools, churches, public health facilities, and concert halls should also be avoided near the airport due to noise incompatibility.

Compatibility of land use is attained when the use of property adjacent to and near the airport neither adversely affects flight operations from the airport nor is itself adversely affected by the flight operations. Land uses that adversely affect flight operations are ones that create or contribute to a flight hazard. These can include tall structures, features that inhibit pilot visibility such as light or smoke, produce electronic aberrations in navigational guidance systems, or that attract birds.

Order 5190.6B states the FAA's position in regard to several variations on residential properties on or near airports. Airpark developments allow aircraft owners to reside and park their aircraft on the same property with immediate access to an airfield. The FAA considers residential use by aircraft owners to be no different from any residential use and finds it incompatible with the operation of a public use airport (20.4.b).

Permitting development of a residential airpark near a federally obligated airport, through zoning approval or otherwise, would be inconsistent with Grant Assurance 21 (20.4.b). Any residential use existing on the airport or any residential use granting "through-the-fence" access is an incompatible land use (20.4.a).

A "through-the-fence" operation is defined by the Federal Aviation Administration (FAA) as any activity or use of real property of an aeronautical or nonaeronautical nature that is located outside (or off) of airport property but has access to the airport's runway and/or taxiway system. Airport property is property owned by the airport Sponsor and shown on an FAA approved Airport Layout Plan (ALP). "Through-the-fence" operations occur from property that is immediately adjacent to the airport but which is owned by corporations, businesses or private parties. These properties are not under control in any manner by the airport Sponsor.

Off-airport residential airparks are privately owned and maintained residential facilities. The FAA does not consider them to be aeronautical facilities eligible for reasonable access to a federally obligated airport. Therefore, the Sponsor is under no federal obligation to allow "through-the-fence" access for privately owned residential airparks. Allowing access could be an encumbrance on the airport in conflict with Grant Assurance 5. Residential hangars with "through-the-fence" access are considered incompatible land uses at federally obligated public use airports.

Other non-residential "through-the-fence" activities may be allowed, but the Sponsor must make sure that the use agreement does not violate any of the grant assurances.

The most common improper and noncompliant land uses include nonaeronautical leaseholds being located on designated aeronautical use land without FAA approval (not shown on the ALP) or on property not released by the FAA. Another common noncompliant land use is allowing dedicated aeronautical property to be used for nonaeronautical uses. This includes using hangars to store vehicles, using property and buildings for animal control facilities, nonairport vehicle and maintenance equipment storage, aircraft museums, and municipal administrative offices.

Some common incompatible land uses include the introduction of a wildlife attractant or failure to take adequate steps to mitigate hazardous wildlife at the airport. Other incompatible land uses include wastewater ponds, municipal flood control channels and drainage basins, sanitary landfills, solid waste transfer stations, electrical power substations, water storage tanks, golf courses, and other bird attractants. Towers or building that penetrate Part 77 surfaces or are located within a runway protection zone (RPZ), runway object free area (ROFA), object free zone (OFZ), and clearway or stopway are also incompatible uses.

9.5 WYDOT GRANT ASSURANCES

The document each airport sponsor must sign to accept funding from the WYDOT Aeronautics Division has the following text and assurances listed below. As can be seen, many of the WYDOT assurances are similar in concept to the FAA assurances.

In consideration of, and by accepting, funding from the Aeronautics Division, the Sponsor agrees to the following terms and conditions, which shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired, but not to exceed a period of twenty (20) years from the date of acceptance of a grant offer:

1. Operate and maintain the airport to serve the public in a safe and efficient manner.
2. Refuse to permit exclusive rights to any person or organization.
3. Carry out projects in accordance with local, state, and federal laws, policies, standards and guidelines, unless otherwise approved in writing by the Commission.
4. Continually strive to make the airport economically self-sufficient and structure appropriate fees to make the airport as self-sustaining as possible.
5. Expend all revenues generated by the airport for capital improvement, operating costs, marketing, and other airport related expenditures.
6. Provide notification prior to disposing of assets purchased using grant funds. Assets are defined as those with commercial or exchange value of two thousand dollars ($2000) or more.
7. Provide written notification to the Commission prior to disposition of airport land, when the land is shown on the current "Exhibit A". In addition, obtain Commission written approval prior to disposition of airport land purchased with Commission funds. The Commission may require return of state funds used to purchase the property, adjusted to current appraised value
8. Take all steps necessary to recover state funds spent fraudulently or misused in any manner.
9. Maintain consistency with local plans, consider local interests, and conduct public hearings, when needed.
10. Maintain a current Aeronautics Division accepted Airport Layout Plan (ALP) and Exhibit "A" Property Map.
11. Follow the airport's Pavement Management Plan developed in conjunction with Aeronautics Division.
12. Provide documentation for and maintain 5-year Wyoming Aviation Capital Improvement Program (WACIP).

13. Acquire and protect runway protection zones.

14. Develop and encourage compatible land uses in accordance with the airport's approved Airport Layout Plan, to assure that current and future airspace is protected.

15. Complete project in accordance with approved scope, plans, specifications, and schedules. The Commission may require return of state funds for projects not completed in accordance with the approved scope.

16. Maintain accurate records of all labor, equipment, and materials for projects funded by the Commission.

17. Provide project records requested by the Aeronautics Division.

18. Permit authority for the Commission, or its designee, to use the material prepared in connection with this grant for purposes of record keeping, studies, and other informational needs.

19. Have a written contractual agreement with the contractor performing work pertaining to the airport improvement.

20. Provide competent technical supervision at the construction site.

21. Use qualifications-based criteria for professional consultant selection.

22. Release the Aeronautics Division from any obligation to pay for the project unless the Grant-In-Aid Certificate has been signed and accepted.

23. Utilize equipment purchased with Commission funds only for airport business and visibly mark the equipment as airport property.

24. Agree to additional assurances when attached to the Certificate of State Grant-In-Aid.

25. Permit Aeronautics Division, FAA, the Comptroller General of the United States and the Secretary of the United States Department of Transportation, or their authorized representatives, to inspect projects and all relevant project data and records as requested. The Sponsor shall also permit the above-named persons to examine the books, records and accounts of the recipient pertaining to the project. Sponsors that expend $500,000.00 or more during a fiscal year in federal financial assistance are required to obtain an OMB Circular A-133 audit. The type of audit required may depend upon the type of organizational structure appropriate to the Sponsor. Nonetheless, audit requirements shall comply with OMB Circular A-133. The Sponsor shall keep audit reports on file for three years from their issuance. Sponsors are specifically directed to, and are required to follow when federal funding is involved, 49 CFR Parts 18e and 26 for Disadvantaged Business Enterprise Requirements.

9.6 APPLICATION OF COMPLIANCE

The number one goal of compliance is safety for airport users and community members. By adhering to, or complying with, the accepted design safety standards, an airport Sponsor is afforded a level of protection against liability if something goes amiss.

A second goal of compliance is protection. The FAA and State require compliance with numerous assurances from the Sponsor as part of the obligations that accompany grant monies. Even though 48U is not in the NPIAS and not directly obligated to FAA assurances, through the WYDOT Aeronautics grant assurances and policies there is a connection. In the current Wyoming Aeronautics Commission policy it states:

> *Airport improvements at public owned/public use airports in the state of Wyoming shall be performed in accordance with procedures implemented by the Aeronautics Division. Plans, specifications, and related documents shall be compiled in compliance with applicable FAA Advisory Circulars and the current Aeronautics Division procedures manual.*

Design standards are outlined in the FAA Advisory Circulars. Adherence to land use protections is also addressed in the Priority Rating Model where significance is given to controlling the areas around the airport:

> *The Status of Airport Protection Component category receives a weight of 1. This category recognizes the importance of safeguarding airport operations and minimizing impact to properties in proximity to the airport by implementing land use protections and airspace protections for the runway protection zone (RPZ) and/ or the airport influence area (AIA). Development of property in proximity to an airport can result in non-compatible uses that diminish the utility of the airport, reduce safety for both aircraft in the air and persons on the ground, reduce the value of the public's investment in the airport, and potentially risk both State and Federal funding for the airport.*

The State's reference to the public's investment is a key element in planning for compliance from both the federal and state perspective. As discussed in the previous chapter, investment in the national and State airport systems reaches into the billions of dollars each year; not to mention the value of the existing infrastructure. It is only prudent and fiscally responsible to protect such an investment.

Other compliance topics include prohibition against restricting competition on the airport (grant assurance #2). For example, in the instance in which an airport becomes successful in attracting visitors and operations, a Fixed Based Operator (FBO) typically follows the activity by establishing a service business. This is positive for the local users, so the FBO is often encouraged by offerings that include tax breaks, reduced rent, and lease concessions. However, this is the root cause of the competition issue that ensues when a second private company observes the success of the first. The same deals have to be offered to the second FBO or the Sponsor has violated the assurance of not allowing unfair competition. Compliance with this assurance necessitates early planning as an airport grows and becomes successful. Rules and Minimum Standards and a common base for lease agreements is essential in heading off disputes that arise when one company believes it has been discriminated against.

Based on input received throughout the public involvement process of this master plan study, compliance with State grant assurance #1 should be discussed. This assurance states that the Sponsor will:

Operate and maintain the airport to serve the public in a safe and efficient manner.

The phrase "safe and efficient manner" may have many different meanings. In practice, it has come to mean that the Sponsor is obligated to maintain the airport for the expected safe use. Several times the question was raised whether the existing Green River facility was "safe" as a dirt runway. It is safe if the pilots are expecting the unimproved surface. Aircraft have been operating from non-paved runways since the dawn of powered flight. But in today's flight environment, not many pilots are proficient on non-paved runways and not many aircraft insurers are willing to permit aircraft to operate from unimproved runways. For the City of Green River, compliance with grant assurance #1 includes maintaining the grading of the runway, keeping it free of holds, rocks, and other debris (note the pictures in Chapter 1 Inventory). Any additional measures to compact the runway surface will further improve safety.

Developing a plan to correct the airport's known deficiencies in safety standards is another key component to operating the airport in a safe and efficient manner. As previously discussed, the surface of the runway is not deficient simply because it is dirt. Two very important design standards are not currently met; the line-of-sight and the Runway Safety Areas (RSAs). To meet its obligations to the State, the Sponsor should have a plan to correct these safety issues. Inclusive in this master plan study, is the CIP, which prioritizes the earthwork and the relocation of the thresholds to establish the RSAs. This work meets the definition of "safety" in the Priority Rating Model, so funding would be granted at a favorable match level for the community. Correcting these deficiencies would constitute working towards compliance with the grant assurances.

State grant assurance #4 states the Sponsor will:

> *Continually strive to make the airport economically self-sufficient and structure appropriate fees to make the airport as self-sustaining as possible.*

This topic resulted in questions throughout the public involvement process of this master plan study. Simply stated, will the airport be able to financially sustain itself? In the preceding chapter, it was discussed that the Operation and Maintenance costs (O&M budget) of the airport should be separated from the CIP budget. Very few general aviation airports make money or break even with their O&M budgets. As described, the lease rates of land for hangars and business activity, as well as other potential income sources, do not normally cover typical expenses. The State understands the stress that airport maintenance requirements put on Sponsors and assists by offering maintenance grants for crack sealing, seal coating, and painting. These projects are listed in the CIP, but are managed separately by WYDOT Aeronautics.

In regard to compliance, an important item to recognize is the manner in which grant assurance #4 closes; "as self-sustaining as possible." Compliance with this assurance does not mean that the airport should charge rates for revenue that would drive off business and operations. It points out that the Sponsor is obligated to charge reasonable and customary rates, not give undue breaks, and in the perception of the public, be doing what is possible to cover as many expenses as possible.

Glossary

COMMON ACRONYMS

AC: Advisory Circular
ADG: Airplane Design Group
ADO: Airport District Office
AGL: Above Ground Level
AIP: Airport Improvement Plan
ALP: Airport Layout Plan
ALS: Approach Light System
AMSL: Above Mean Sea Level
AOA: Airport Operations Area
AOPA: Airplane Owners and Pilots Association
APS: Airport Planning Standard
ARC: Airport Reference Code
ASL: Above Sea Level
ASV: Annual Service Volume
AT: Air Traffic
ATC: Air Traffic Control
AVGAS: Aviation Gasoline
AWOS: Automated Weather Observation System

BLM: Bureau of Land Management
BMP: Best Management Practices
BRL: Building Restriction Line

CAT: Category
CATEX: Categorical Exclusion
CEQ: Council on Environmental Quality
CFI: Certificated Flight Instructor
CFR: Code of Federal Regulations
CIP: Capital Improvements Program
CTAF: Common Traffic Advisory Frequency

DEIS: Draft Environmental Impact Statement
DEQ: Department of Environmental Quality
DME: Distance Measuring Equipment
DME/P: Precision Distance Measuring Equipment
DNL: Day/Night Equivalent Sound Level (see also Ldn)
DOD: Department of Defense
DOI: Department of Interior
DOT: Department of Transportation
DWG: Dual Wheel Gear

EA: Environmental Assessment
EIS: Environmental Impact Statement
ENAV: En Route Navigational Aids
EPA: Environmental Protection Agency

FAA: Federal Aviation Administration
FAAP: Federal Aid Airport Program
FAR: Federal Aviation Regulation
FBO: Fixed Base Operator
FEIS: Final Environmental Impact Statement
FEMA: Federal Emergency Management Agency
FIRM: Flood Insurance Rate Maps
FONSI: Finding of No Significant Impact
FPPA: Farmland Protection Policy Act

GA: General Aviation
GPS: Global Positioning Satellite or System

HF: High Frequency
HIRL: High Intensity Runway Lights
HITL: High Intensity Taxiway Lights

IAP: Instrument Approach Procedure
IATA: International Air Transport Association
IFR: Instrument Flight Rules
ILS: Instrument Landing System
INM: Integrated Noise Model

Ldn: Day/Night Noise Levels
LOC: Localizer
LPV: Localizer Performance with Vertical Guidance

MALS: Medium Intensity Approach Lighting
MDA: Minimum Descent Altitude
ME: Multi-Engine Aircraft
MGW: Maximum Gross Weight
MGTW: Maximum Gross Takeoff Weight
MIRL: Medium Intensity Runway Lights
MITL: Medium Intensity Taxiway Lights
MPU: Master Plan Update
MSL: Mean Sea Level

NAAQS: National Ambient Air Quality Standards
NAS: National Airspace System
NAVAIDS: Navigational Aids
NBAA: National Business Aviation Association

NDB: Non-Directional Radio Homing Beacon
NEPA: National Environmental Policy Act
NM: Nautical Mile
NOAA: National Oceanic and Atmospheric Administration
NOL: Net Operating Loss
NPI: Non-Precision Instrument
NPIAS: National Plan of Integrated Airport Systems
NRCS: National Resource Conservation Services
NWS: National Weather Service

OFA: Object Free Area
OFZ: Obstacle Free Zone

PA: Precision Approach
PAPI: Precision Approach Path Indicator (Visual Approach Aid)
PIR: Precision Instrument Runway

REIL: Runway End Identifier Lights
RF: Radio Frequency
RNAV: Area Navigation
RPZ: Runway Protection Zone
RSA: Runway Safety Area

SE: Single Engine Aircraft
SM: Statute Miles
SWG: Single Wheel Gear

TAF: FAA Terminal Area Forecast
TAP: Terminal Area Plan
TSA: Taxiway Safety Area
TSA: Transportation Security Administration

UNICOM: Universal Communications
USDA: U.S. Department of Agriculture
USFWS: U.S. Fish and Wildlife Service
USGS: United States Geological Survey

VFR: Visual Flight Rules
VHF: Very High Frequency
VLF: Very Low Frequency
VLJ: Very Light Jet
VOR: VHF Omnidirectional Range

WX: Weather

COMMON TERMS

Abandoned Runway: A runway permanently closed to all aircraft operations, which may be marked in accordance with current FAA standards for marking and lighting of deceptive, closed and hazardous areas on airports.

Above Ground Level (AGL): Altitude expressed as feet above terrain or airport elevation (see MSL).

Access Road: The right-of-way, the roadway and all improvements constructed thereon connecting

Access Taxiway: A taxiway that provides access to a particular location or area.

Active Aircraft: Aircraft registered with the FAA and reported or estimated to have been flown at least one hour during the preceding year.

Active Runway: The runway at an airport that is being used for landing, taxiing or takeoff operations.

Actual Runway Length: The length of a full-width usable runway from end to end of full strength pavement where those runways are paved.

Advisory Circular (AC): External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, and guidance and information relative to a specific aviation subject.

Air Taxi: An aircraft operated under an air taxi operating certificate for the purpose of carrying passengers, mail, or cargo for revenue in accordance with FAR Part 121 and FAR Part 135.

Air Traffic Control: The control of aircraft traffic, in the vicinity of airports from control towers, and in the airways between airports from control centers.

Aircraft Approach Category: A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are Category A through Category E and range from a speed of less than 91 knots to 166 knots or more.

Aircraft Mix: The type of aircraft which are to be accommodated at the airport.

Aircraft Operation: The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

Aircraft Tiedowns: Positions on the ground surface that is available for securing aircraft.

Aircraft: A device that is used or intended to be used for flight in the air (FAR Part 1).

Airplane Design Group: A grouping of aircraft based on wingspan and/or tail height. When an airplane is in two categories, the most demanding category should be used.

Airport Beacon: A visual navigation aid displaying alternating white and green flashes to indicate a lighted airport or white flashes only for an unlighted airport.

Airport Capital Improvement Plan: The planning program used by the Federal Aviation Administration to identify, prioritize and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Airport Elevation: The highest point of an airport's usable runways measured in feet above mean sea level (MSL).

Airport Imaginary Surfaces: Imaginary surfaces established at an airport for obstruction determination purposes and consisting of primary, approach, departure, horizontal, vertical, conical, and transitional surfaces.

Airport Improvement Program (AIP): The Airport Improvement Program of the Airport and Airways Improvement Act of 1982 as amended by the Airport and Airway Safety and Capacity Expansion Act of 1987. Under this program, the FAA provides funding

assistance for the planning, design and development of airports and airport facilities.

Airport Layout Plan: A graphic presentation, to scale, of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to show conformance with applicable standards. To be eligible for AIP funding assistance, an airport must have an FAA approved airport layout plan.

Airport Master Plan: The planner's concept of the long-term development of an airport.

Airport Obstruction Chart: A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads and other detail in the vicinity of an airport.

Airport Reference Code (ARC): The ARC combines two separate factors of aircraft design (aircraft approach category and airplane design group) into one code. The first designator, represented by letters A through E, is the "aircraft approach category" and relates to an aircraft's speed as it approaches an airport for landing. The second designator, represented by Roman numerals I through VI, is the airplane design group, and relates to an aircraft's wingspan and/or tail height.

Airport Reference Point (ARP): The latitude and longitude of the approximate center of the airport.

Airport Sponsor: The entity that is legally responsible for the management and operation of an airport including the fulfillment of the requirements of laws and regulations related thereto.

Airport: An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

Annual Service Volume (ASV): The number of annual operations that can reasonably be expected to occur at the airport based on a given level of delay.

Approach and Runway Protection Zone Layout: A graphic presentation to scale of the imaginary surfaces defined in FAR Part 77.

Approach Area: The defined area the dimensions of which are measured horizontally beyond the threshold over which the landing and takeoff operations are made.

Approach Lighting System (ALS): Radiating light beams guiding pilots to the extended centerline of the runway on final approach and landing.

Approach Lights: High intensity lights located along the approach path at the end of an instrument runway. Approach lights aid the pilot as he transitions from instrument flight conditions to visual conditions at the end of an instrument approach.

Approach Slope Ratio: The ratio of horizontal to vertical distance indicating the degree of inclination of the approach surface.

Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

Apron: A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

Automated Weather Observing System (AWOS): Equipment that automatically gathers weather data from various locations on an airport and transmits the information directly to pilots by means of computer generated voice messages over a discrete frequency.

Auxiliary Power Unit (APU): A self-contained generator in aircraft producing power for ground operation and for starting the engines.

Avigation Easement: A land use easement permitting

the unlimited operation of aircraft in the airspace above the land area involved and restricting incompatible development of areas.

Avionics: Airborne navigation, communications, and data display equipment required for operation under specific air traffic control procedures.

Based Aircraft: The total number of active general aviation aircraft which use or may be expected to use an airport as a home base.

Building Area: An area on an airport to be used, considered, or intended to be used, for airport buildings or other airport facilities or rights-of-way, together with all airport buildings and facilities located thereon.

Building Restriction Line (BRL): A line which identifies suitable building area locations on airports.

Capital Improvement Plan: The planning program used by the Federal Aviation Administration to identify, prioritize and distribute Airport Improvement Program funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Commercial Service: Commercial service airports are public use airports which receive scheduled passenger service aircraft, and which annually enplane 2,500 or more passengers.

Common Traffic Advisory Frequency (CTAF): The radio frequency, also called the UNICOM.

Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Controlled Airspace: Airspace in which some or all aircraft may be subject to air traffic control to promote safe and expeditious flow of air traffic.

Critical (Design) Aircraft: The most demanding aircraft with at least 500 annual operations that operates, or is expected to operate, at the airport.

Crosswind Component: A wind component that is at a right angle to the longitudinal axis of the runway or the flight path of the aircraft.

Crosswind Runway: A runway additional to the primary runway to provide for wind coverage not adequately provided by the primary runway.

Crosswind: A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

Decibel (dB): A unit of measurement used for defining a noise level or an exposure level.

Displaced Threshold: A threshold that is located at a point on the runway other than the physical beginning. Aircraft can begin departure roll before the threshold, but cannot land before it.

Distance Measuring Equipment (DME): Equipment used to measure, in nautical miles, the distance of an aircraft from the DME navigational aid located on the airport.

Environmental Assessment: An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.

Environmental Impact Statement: A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive and negative effects of a proposed action and citing alternative actions.

Executive Aircraft Operator: A corporation, company, or individual which operates owned or leased aircraft, flown by pilots) whose primary duties involve

pilotage of aircraft, as a means of transportation or personnel or cargo in the conduct of company business.

Exit Taxiway: A taxiway used as an exit from a runway to the apron or other aircraft operating area.

FAR Part 77: Contains obstruction requirements at or near airports.

Federal Aviation Administration (FAA): Created by the act that established the Department of Transportation. Assumed all of the responsibilities of the former Federal Aviation Agency including aircraft safety, movement, and controls.

Federal Aviation Regulations (FAR): Rules and regulations that govern the operation of aircraft, airways, and airmen.

Finding of No Significant Impact (FONSI): A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

Fixed Base Operator (FBO): An individual or company located at an airport, and providing commercial general aviation services such as fuel, maintenance, and storage.

Flight Plan: Specified information relating to the intended flight of an aircraft, which is filed orally or in writing with air traffic control. (FAR Part 1)

Fuel Flowage Fees: Fees levied by the airport operator per gallon of aviation gasoline and jet fuel sold at the airport.

General Aviation (GA): The segment of aviation that encompasses all aspects of civil aviation except certified air carriers and other commercial operators such as airfreight carriers.

General Aviation Airports: Those airports with fewer than 2,500 annual enplaned passengers and those used exclusively by private and business aircraft not providing common carrier passenger service.

General Aviation Itinerant Operations: Takeoffs and landings of civil aircraft (exclusive of air carrier) operating on other than local fights.

Glide Slope: Generally a 3-degree angle of approach to a runway established by means of airborne instruments during instrument approaches, or visual ground aids for the visual portion of an instrument approach and landing.

Global Positioning System (GPS): A satellite based radio positioning, navigation, and time-transfer system.

Ground Power Unit (GPU): A source of power, generally from the terminals, for aircraft to use while their engines are off.

Hangar: A building used to store one or more aircraft, and/or conduct aircraft maintenance.

Horizontal Surface: An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are a function of the types of approaches existing or planned for the runway.

IFR Airport: An airport with an authorized instrument approach procedure.

IFR Conditions: Weather conditions below the minimum for flight under visual fight rules.
Instrument Approach Runway: A runway served by an electronic aid providing at least directional guidance adequate for a straight-in approach.

Instrument Approach: An approach to an airport, with intent to land, by an aircraft flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial altitude.

Instrument Flight Rules (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often

also used to define weather conditions and the type of flight plan under which an aircraft is operating.

Instrument landing system (ILS): A precision instrument approach system which provides in the aircraft, the lateral, longitudinal, and vertical guidance necessary for a landing.

Integrated Noise Model (INM): The FAA's standard methodology since 1978 for noise assessments.

Itinerant Operations: Operations by aircraft that leaves the local airspace.

Jet Noise: The noise generated externally to a jet engine in the turbulent jet exhaust.

Land Use Plan: Shows on-airport land uses as developed by the airport sponsor under the master plan effort and off-airport land uses as developed by surrounding communities.

Landing Gear: That part of an aircraft which is required for landing. Gear may be configured as Single Wheel Gear (SWG), Dual Wheel Gear (DWG), or Dual Tandem Wheel Gear (DTWG).

Landing Roll: The distance from the point of touchdown to the point where the aircraft can be brought to a stop, or exit the runway.

Landside Operations: Those parts of the airport designed to serve passengers including the terminal buildings, vehicular circular drive, and parking facilities.

Large Aircraft: Aircraft of more than 12,500 pounds maximum certificated takeoff weight.

Ldn: A quantity indicating a day/night noise exposure level calculated using the Ldn noise-forecasting methodology. This quantity can be used to predict community response to projected levels of aircraft activity.

Local Operations: Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.

Localizer: A navigational aid that consists of a directional pattern of radio waves modulated by two signals which, when receding with equal intensity, are displayed by compatible airborne equipment as an "on-course" indication, and when received in unequal intensity are displayed as an "off-course" indication.

Location Map: Shown on the airport layout plan drawing, it depicts the airport, cities, railroads, major highways, and roads within 20 to 50 miles of the airport.

Marking: On airports, a pattern of contrasting colors placed on the pavement, turf, or other usable surface by paint or other means to provide specific information to aircraft pilots and sometimes to operators of ground vehicles, on the movement areas.

Mean Seal Level (MSL): Altitude expressed as feet above sea level, rather than above local terrain.

Minimums: Minimum altitude a pilot can descend to when conducting an instrument approach. Also refers to the minimum visibility a pilot must have to initiate an instrument approach.

Multi-Engine Aircraft: Reciprocating, turbo-prop or jet powered fixed wing aircraft having more than one engine.

Municipally Operated Airport: An airport owned by a city and run as a department of the city, with policy direction by the city council and, in some cases, by a separate airport commission or advisory board.

National Environmental Policy Act (NEPA): Federal legislation that establishes environmental policy for the nation. It requires an interdisciplinary framework for federal agencies to evaluate environmental impacts and contains action-forcing procedures to ensure that

federal agency decision makers take environmental factors into account.

National Plan of Integrated Airport Systems (NPIAS): A plan prepared by the FAA which identifies, for the Congress and the public, the composition of a national system of airports together with the airport development necessary to anticipate and meet the present and future needs of civil aeronautics, to meet requirements in support of the national defense, and to meet the special needs of the postal service. The plan includes both new facilities and qualitative improvements to existing airports to increase their capacity, safety, technological capability, etc.

Nautical Mile Per Hour (KNOT): Most common measure of aircraft speed. One knot is equal to one nautical mile per hour (1.15 knots = 1 mile).

Nautical Mile: Most common distance measurement in aviation, equivalent to the length of one minute of latitude along the earth's equator or 6076.115 feet.

Navigable Airspace: Airspace at and above the minimum flight altitudes prescribed in the FARs, including airspace needed for safe takeoff and landing. (FAR Part 1)

Navigational Aid (NAVAID): Any facility used as, available for use as, or designed for use as an aid to air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio or other electronic communication, and any other structure or mechanism having similar purpose and controlling flight in the air or the landing or takeoff of aircraft.

Noise Contour: A line connecting equal points of noise exposure. Usually color coded by decibels.

Non-Directional Beacon: Signal that can be read by pilots of aircraft with direction finding equipment. Used to determine bearing and can "home" in or track to or from the desired point.

Non-Precision Approach: Provides course guidance without vertical path guidance.

Non-Precision Approach Procedure: A standard instrument approach procedure in which no electronic glide slope is provided.

Non-Precision Instrument Approach Aid: An electronic aid designed to provide an approach path for aligning an aircraft on its final approach to a runway. It lacks the high accuracy of the precision approach equipment and does not provide descent guidance. The VHF Omni range (VOR) and the non-directional beacon (NDB) are two examples of non-precision instrument equipment.

Non-Precision Instrument Runway: A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which straight-in non-precision instrument approach procedure has been approved.

Notice to Airmen (NOTAM): A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure) of, or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

Object Free Area (OFA): An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle Free Zone (OFZ): The OFZ is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches. The OFZ is divided into the Runway OFZ, the Inner-approach OFZ, and the Inner-Transitional OFZ.

Obstruction: An object which penetrates an imaginary surface described in the FAA's Federal Aviation Regulation (FAR) Part 77.

Operation: The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

Overflight: Aircraft whose flights originate or terminate outside the metropolitan area that transit the airspace without landing.

Parallel Taxiways: Two taxiways which are parallel to one another which allow traffic to move simultaneously in different directions at busy airports.

Parking Apron: An apron intended to accommodate parked aircraft.

Federal Aviation Regulations (FAR) Part 77: A federal regulation, titled "Objects Affecting Navigable Airspace," that establishes standards for determining obstructions and their potential effects on aircraft operations. Objects are considered to be obstructions to air navigation according to FAR Part 77 if they exceed certain heights or penetrate certain imaginary surfaces established in relation to airport operations.

Federal Aviation Regulations (FAR) Part 135: A federal regulation, titled "Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft," that defines a set of rules with more stringent standards for commuter and on demand operations.

Federal Aviation Regulations (FAR) Part 139: A federal regulation, titled "Certification of Airports," requires the FAA to issue airport operating certificates to airports that meet a specific set of requirements, including those that serve scheduled and unscheduled air carrier aircraft with more than 30 seats and those that serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats. Commonly associated with commercial service airports.

Pavement Structure: The combination of runway base and subbase courses and surface course which transmits the traffic load to the subgrade.

Pavement Sub-Grade: The upper part of the soil, natural or constructed, which supports the loads transmitted by the runway pavement structure.

Peak Hour: An estimate of the busiest hour in a day. This is also known as the design hour.

Precision Approach Path Indicator (PAPI): A system of lights on an airport that provides visual descent guidance to the pilot of an aircraft approaching a runway.

Precision Approach Procedure: A standard instrument approach procedure in which an electronic glide slope is provided, such as ILS and PAR.

Precision Approach: A standard instrument approach using a precision approach procedure. See precision approach procedure.

Precision Instrument Runway: A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

Primary Surface: An imaginary obstruction limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway.

Public Airport: An airport for public use, publicly owned and under control of a public agency.

Ramp: A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

Rotating Lighted Beacon: An airport aid allowing

pilots the ability to locate an airport while flying under VFR conditions at night.

Runway Bearing: The magnetic or true bearing of the runway centerline as measured from magnetic or true north.

Runway Configuration: Layout or design of a runway or runways, where operations on the particular runway or runways being used at a given time are mutually dependent. A large airport can have two or more runway configurations operating simultaneously.

Runway Direction Number: A whole number to the nearest tenth of the magnetic bearing of the runway and measured in degrees clockwise from magnetic north.

Runway End Identification Lights (REIL): An airport lighting facility in the terminal area navigation system consisting of one flashing white high intensity light installed at each approach end corner of a runway and directed toward the approach zone, which enables the pilot to identify the threshold of a usable runway.

Runway Environment: The runway threshold or approach lighting aids or other markings identifiable with the runway.

Runway Gradient (Effective): The average gradient consisting of the difference in elevation of the two ends of the runway divided by the runway length may be used provided that no intervening point on the runway profile lies more than 5 feet above or below a straight line joining the two ends of the runway. In excess of 5 feet, the runway profile will be segmented and aircraft data will be applied for each segment separately.

Runway Lights: Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway light intensity may be controllable or preset, and are uniformly spaced at intervals of approximately 200 feet.

Runway Markings: (1) Basic marking-markings on runways used for operations under visual flight rules, consisting of centerline marking and runway direction numbers, and if required, letters. (2) Instrument marking-markings on runways served by nonvisual navigation aids and intended for landings under instrument weather conditions, consisting of basic marking plus threshold marking. (3) All weather marking- markings on runways served by nonvisual precision approach aids and on runways having special operational requirements, consisting of instrument markings plus landing zone marking and side strips.

Runway Orientation: The magnetic bearing of the centerline of the runway.

Runway Protection Zone (RPZ): A runway protection zone is a trapezoidal area at ground level, under the control of the airport authorities, for the purpose of protecting the safety of approaches and keeping the area clear of the congregation of people. The runway protection zone begins at the end of each primary surface and is centered upon the extended runway centerline.

Runway Safety Area (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Runway Strength: The assumed ability of a runway to support aircraft of a designated gross weight for each of single-wheel, dual-wheel, and dual-tandem-wheel gear types.

Runway: A defined rectangular area at an airport designated for the landing and taking-off of an aircraft.

Scope: The document that identifies and defines the tasks, emphasis and level of effort associated with a project or study.

Segmented Circle: A system of visual indicators designed to provide traffic pattern information at an airport without an operating control tower.

Shoulder: As pertaining to airports, an area adjacent

to the edge of a paved surface so prepared to provide a transition between the pavement and the adjacent surface for aircraft running off the pavement, for drainage and sometimes for blast protection.

Single Runway: A airport having one runway.

Small Aircraft: Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

Socioeconomic: Information dealing with population or economic characteristics of a region.

Stopway (SWY): A defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane, during an aborted takeoff.

Straight-In Approach (IFR): An instrument approach wherein final approach is commenced without first having executed a procedure turn (not necessarily completed with a straight-in landing).

Straight-In Approach (VFR): Entry into the traffic pattern by interception of the extended runway centerline without executing any other portion of the traffic pattern.

Student Pilot: A pilot who is training for a private pilot certificate, either before or after the first solo.

Taxilane: The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.

Taxiway Safety Area (TSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

Taxiway: A defined path, usually paved, over which aircraft can taxi from one part of an airport to another without interfering with takeoffs or landings.

Terminal Area Forecast: The official forecast of aviation activity, both aircraft and enplanements, at FAA facilities. This includes FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports.

Terminal Area: The area used or intended to be used for such facilities as terminal and cargo buildings, gates, hangars, shops and other service buildings; automobile parking, airport motels and restaurants, and garages and vehicle service facilities used in connection with the airport; and entrance and service roads used by the public within the boundaries of the airport.

T-Hangar: An aircraft hangar in which aircraft are parked alternately tail to tail, each in the T-shaped space left by the other row of aircraft or aircraft compartments.

Threshold Crossing Height (TCH): The height of the straight-line extension of the visual or electronic glide slope above the runway threshold.

Threshold Lights: Lighting arranged symmetrically about the extended centerline of the runway identifying the runway threshold. They emit a fixed green light.

Threshold: The designated beginning of the runway that is available and suitable for the landing of airplanes.

Total Operations: All arrivals and departures performed by military, general aviation and air carrier aircraft.

Touch-and-Go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

Touchdown Zone: The area of a runway near the approach end where airplanes normally alight.

Touchdown: (1) The point at which an aircraft first makes contact with the landing surface. (2) In a precision radar approach, the point on the landing surface toward which the controller issues guidance instructions.

Traffic Pattern: The traffic flow that is prescribed for

aircraft landing at, taxiing on, and taking off from an airport (FAR Part 1). The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

Transient Operations: Operations or other activity performed by aircraft not based at the airport.

Transitional Surface: These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

Turning Radius: The radius of the arc described by an aircraft in making a self-powered turn, usually given as a minimum.

UNICOM: Frequencies authorized for aeronautical advisory services to private aircraft. Only one such station is authorized at any landing area. The frequency 123.0 MHz is used at airports served by airport traffic control towers, and 122.8 MHz is used for other landing areas. Services available are advisory in nature, primarily concerning the airport services and airport utilization.

Utility Runway: A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

Very High Frequency (VHF) Omni directional range (VOR): A ground based electronic navigation aid transmitting navigation signals for 360 degrees orientated from magnetic north. VOR is the historic basis for navigation in the national airspace system.

VFR Airport: An airport without an authorized or planned instrument approach procedure.

Vicinity Map: Shown on the airport layout plan drawing, it depicts the relationship of the airport to the city or cities, nearby airports, roads, railroads, and built-up areas.

Visual Approach Aid: Any device, light, or marker used to provide visual alignment and/or descent guidance on final approach to a runway. Also see REIL, VASI.

Visual Approach Slope Indicator (VASI): An airport lighting facility in the terminal area navigation system used primarily under VFR conditions that provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused light beams, which indicate to the pilot that they are above, on, or below the glide path.

Visual Approach: An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having an air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to the airport of destination, served by an operational control tower, by visual reference to the surface.

Visual Flight Rules (VFR): Procedures for the conduct of flight in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often also used to define weather conditions and the type of flight plan under which an aircraft is operating.

Visual Runway: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by a planning document submitted to the FAA by competent authority (FAR Part 77).

VORTAC: Very High Frequency Omni Range Facility (VOR co-located with a Tactical Air Navigation (TACAN) facility.)

Wind Cone or Wind Sock: A free-rotating fabric truncated cone which when subjected to air movement indicates wind direction and wind force.

Wind Rose: A diagram for a given location showing relative frequency and velocity of wind from all compass directions.

Wind Tee: A visual device in the shape of a "T" used to determine wind direction.

Zulu Time (Z): Time at the prime meridian in Greenwich, England.

Appendices

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City Council Resolution Number R94-23 signed July 5, 1994 dubbing the Green River Airport the Greater Green River Intergalactic Spaceport.

Resolution No. R94-23

Resolution for the City of Green River, Wyoming, conveying an offer of sanctuary to the possible residents of the Planet Jupiter, being in imminent peril.

Councilmember Aten stated that CNN reported the meteors striking Jupiter will cause very little damage to that planet. She stated that Jovians are not on the list of acceptable aliens allowed in the United States. She questioned the advisability of bringing in illegal aliens.

Moved by Councilmember Winter, seconded by Councilmember Jost to approve the resolution.

Councilmember Winter stated that she would only vote for this if the Jovians could be used in the local work force.

Art Kline asked if the airport would be lit so that the Jovians could locate it.

Jim Soderlund, KSIT questioned if the City has thought about contacting Senator Simpson's office in order to expedite matters.

Motion to approve the resolution carried (5-2) with Councilmembers Dixon and Aten voting no.

City Council Resolution Number R13-02 signed January 8, 2013 establishing the Green River Airport Task Force.

RESOLUTION NO. R13-02

A RESOLUTION WHEREIN THE GOVERNING BODY OF THE CITY OF GREEN RIVER ESTABLISHES THE GREEN RIVER AIRPORT TASK FORCE TO EXPLORE COMMUNITY AND ECONOMIC DEVELOPMENT OPPORTUNITIES BY DEVELOPING THE GREATER GREEN RIVER INTERGALACTIC SPACEPORT FOR GENERAL AVIATION PURPOSES.

WHEREAS, the Governing Body of the City of Green River recognizes the importance of the ongoing and future growth and development of Green River; and

WHEREAS, it is probable that development of our airport could provide numerous community and economic growth opportunities; and

WHEREAS, a feasibility study regarding the development of our airport would be indispensable in identifying various economic and community development benefits to Green River; and

WHEREAS, the formation of the Green River Airport Task Force is needed to study the scope of the improvements necessary to develop the Greater Green River Intergalactic Spaceport; and

WHEREAS, the Green River Airport Task Force volunteer membership will liaise with actively involved government and elected officials, community, education and industry leaders, City staff and other citizens.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF GREEN RIVER, WYOMING:

That the Green River Airport Task Force is hereby established for the purpose of determining the scope of improvements necessary to develop the Greater Green River Intergalactic Spaceport for general aviation purposes.

That the Mayor, with the consent of the City Council Members, hereby appoints the following citizen volunteers to serve on the Green River Airport Task Force: Edward DeCastro, Gordon Gunter, Ed McPherson, Kevin Springer and Barry Tippy.

That the Green River Airport Task Force main point of contact in the City of Green River is the City Administrator, who will also be an active member of the task force.

That by the third quarter of 2013 the Green River Airport Task Force will present the preliminary results of a feasibility study to the Governing Body regarding the development of the Greater Green River Intergalactic Spaceport and that the Airport Task Force will seek grant funding for such feasibility study.

That the Green River Airport Task Force will undertake and seek funding for commencement of an Airport Master Plan consistent with Wyoming Department of Transportation and Federal Aviation Administration requirements for general aviation airports.

That the Airport Task Force will be active through December 2014.

PASSED AND APPROVED THIS 8TH DAY OF JANUARY, 2013.

Mayor Hank Castillon

ATTEST:

Jeffrey V. Nieters
City Clerk

GREEN RIVER AIRPORT BOARD TASK FORCE MEMBERS	
Board Member	**Term Expires**
Ed DeCastro	December 31, 2014
Gordon Gunter	December 31, 2014
Ed McPherson	December 31, 2014
Carole Schafer	December 31, 2014
Barry Tippy	December 31, 2014

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Appendix 2 - Public Involvement

Public Involvement Summary

Due to the unique nature of this project, notably that 48U is a non-federal airport, an invitiation only meeting was held with identified airport stakeholders prior to the finalized project scope of work. This is an uncommon industry practice but was agreed upon through the City, Consultant, and WYDOT Aeronautics. The feedback and comments garnered confirmed the need for the meeting.

Public involvement for this project was significant. Five public meetings were held after standard work hours. Additionally, Rick Patton, lead planner on the project, presented during a of the Chamber of Commerece's monthly Lunch & Learn series and also presented during a session of "Coffee with the Mayor" at the Golden Hour Senior Center.

An airport survey was developed for and distributed during the pre-scoping meeting, the results of which helped guide the scope of work development and public involvement. Another survey, focused on users and potential users of 48U, was distributed during the first public meeting. That survey was also available online from the project website and mailed to identified users (either through personal interactions, word-of-mouth recommendations, or any local with a pilot's license). Chapter 2 summarizes the airport user survey results.

Following are the invitations, handouts, agendas, newspaper advertisments, etc. used for and during public involvement throughout the master plan.

CITY of GREEN RIVER
FISH IT. FLOAT IT. LIVE IT.
WYOMING

GREEN RIVER AIRPORT TASK FORCE
50 E 2nd North Street Green River WY 82935
(307) 872-6135 glipka@cityofgreenriver.org
www.cityofgreenriver.org

10.31.2013

Name
Street
City, State, Zip

Potential Stakeholder:

Green River has had a municipal airport for over 50 years, and in 1963 it was activated by the Federal Aviation Administration (FAA) with the identifier 48U. It is part of Wyoming's statewide airport system consisting of 40 public airports, ranging from larger commercial airports with regularly-scheduled flights down to smaller communities with minimal airport infrastructure, like Green River. Each type of airport is important to the system and serves its community in varied ways.

In January 2013, the governing body of the City of Green River established the Green River Airport Task Force (ATF) to explore community and economic development opportunities by developing the municipal airport for general aviation purposes. The ATF was charged with determining the scope of improvements necessary at our airport and to seek funding sources for the development of an Airport Master Plan.

An Airport Master Plan is a comprehensive study of an airport which includes short-, medium-, and long-term development plans. GDA Engineers from Cody, WY is the consulting firm selected by the City to develop the Airport Master Plan, and an integral part of the process for Green River will include numerous public meetings led by GDA planners Rick Patton and Trent Holder.

Please save the date and participate in our first open-house workshop about the Green River airport.

WHERE: Room 211 Green River Center - Western WY Community College
WHEN: 6:30 pm - Monday, November 18th, 2013

All feedback and input is valuable and welcome. If you cannot attend the meeting, feel free to provide your questions or comments to Trent Holder at GDA Engineers via email to tholder@gdaengineers.com or by calling 307-587-3411.

Very truly yours,

Green River Airport Task Force
Ed DeCastro, Gordon Gunter, Ed McPherson, Carole Shafer, and Barry Tippy

11/18/13 Airport Pre-scoping Public Meeting
WWCC-GR Center Room 211 - 6:30 pm

First	Last	Position	Company	Address	City	State	Zip
Les	Tanner	Permit holder/owner	Buckboard Marina	HCR 65 Box 100	Green River	WY	82935
Michael	Van der Linden	LaBarge Operations Superintendent	ExxonMobil Production Co	PO Box 1300	Kemmerer	WY	83101
John	Hastert	State Senate District 13		PO Box 472	Green River	WY	82935
John	Freeman	State House District 60 Representative		2340 North Carolina Way	Green River	WY	82935
Stan	Blake	State House District 39 Representative		PO Box 774	Green River	WY	82935
Mark	Westenskow	City Engineer	City of Green River	50 E 2nd North St	Green River	WY	82935
Wally	Johnson	Chairman	Sweetwater Co Board of Commissioners	80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
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Karla	Leach		Western WY Community College	PO Box 428	Rock Springs	WY	82902
John	Barrasso		U.S. Senator	1575 Dewar Dr - Suite 218	Rock Springs	WY	82901
Sandy	DaRif		Sen. Barrasso Field Office	1575 Dewar Dr - Suite 218	Rock Springs	WY	82901
Paul	Peterson		TATA Chemicals Plant Manager	Po Box 551	Green River	WY	82935
Sara	Thompson Cassidy		Union Pacific Railroad	1400 W 52nd Avenue	Denver	CO	80221
Pat	Aullman		Rep Lummis Field Office	404 N Street - Suite 204	Rock Springs	WY	82901
Reagen	Bebout		Sen Enzi Field Office	PO Box 12470	Jackson	WY	83002
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Carl	Demshar		City of Rock Springs	212 D St	Rock Springs	WY	82901
Tim	Sheehan	Supervisor	Questar Operations	1005 D St	Rock Springs	WY	82901
Al	Harris	Owner	The Radio Network	PO Box 970	Green River	WY	82935

Meeting Agenda – 11.18.13

Welcome

Introductions

- GDA Engineers
- City of Green River
- WYDOT Aeronautics
- Sweetwater County
- Others

The Goals for this Meeting

- To identify what the Decision Makers need to know
- To focus the study on what is important

The Airport Master Process

- The Scope of Work
- Schedule
- The Public Input Process
- Master Plan Components

Funding for this Project

- State only grant and local funds, no federal money

The State System of Airports

- *Wyoming Airport System Plan Handout*

Address Meeting Goals

- Capture what Decision Makers need to know
    - WYDOT Aeronautics
    - City of Green River
    - Sweet Water County
    - Businesses, Pilots, Others

Time for Your Thoughts

- *Survey Handout*
- Project Contact Information

Thank You and Conclusion

Greater Green River Intergalactic Spaceport

Green River, Wyoming

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

WYOMING AVIATION SYSTEM

Currently, there are 40 publicly owned and accessible airports across Wyoming. While there are more than 40 airports in the state, only those owned by and open to the public are considered part of the Wyoming Aviation System and thus eligible for funding. Of these airports, ten provide commercial service and the remainder are considered general aviation airports.

Fish It. Float It. FLY IT!

GREATER GREEN RIVER

48U INTERGALACTIC SPACEPORT

GDA CONTACT INFORMATION

GDA Engineers in Cody, Wyoming provides civil engineering, planning, and surveying solutions for our valued clients in Wyoming and across the Rocky Mountain Region. We can be found on the web at http://www.gdaengineers.com.

GDA Engineers
Rick Patton
P.O. Box 338
1508 Stampede Avenue
Cody, WY 82414
307.587.3411

AIRCRAFT APPROACH CATEGORY
SOURCE: AC 150/5300-13, AIRPORT DESIGN

Category	Speed
A	less than 91 knots
B	91 knots or more, less than 121 knots
C	121 knots or more, less than 141 knots
D	141 knots or more, less than 166 knots
E	166 knots or more

AIRPLANE DESIGN GROUP (ADG)
SOURCE: AC 150/5300-13, AIRPORT DESIGN

Group #	Tail Height (Feet)	Wingspan (Feet)
I	<20	<49
II	20 - <30	49 - <79
III	30 - <45	79 - <118
IV	45 - <60	118 - <171
V	60 - <66	171 - <214
VI	66 - <80	214 - <262

Greater Green River Intergalactic Spaceport

Green River, Wyoming

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

LOCAL AIRPORT CLASSIFICATION

The Greater Green River Intergalactic Spaceport is classified as a Local Airport in the Wyoming Aviation System. Local Airports serve smaller communities, with basic facilities needed to accommodate recreational users and support emergency use (such as life flights). While serving the local community, Local Airports should support various aircraft, notably small twin and single engine. Such airports provide positive impacts to the local economy. Currently, there are thirteen Local Airports in Wyoming, five of which are not paved, including Green River.

AIRPORT AND RUNWAY DATA

Details for the Greater Green River Intergalactic Spaceport, located approximately 4 miles south of Green River, Wyoming. Activated on November, 1963.

FAA Identifier	48U
Airport elevation	7,182 feet
Surface	Dirt, in fair condition
Gradient	0.3%, variable
Runway 4 elevation	7,168 feet
Runway 22 elevation	7,182 feet
Maximum difference in runway centerline elevation	4 feet
Mean daily maximum temperature in hottest month	88.0 F

Runway Lengths Recommendations

Small airplanes with approach speeds of less than 30 knots	520 feet
Small airplanes with approach speeds of less than 50 knots	1,370 feet
Small airplanes with less than 10 passengers	
75 percent of these small airplanes	6,210 feet
95 percent of these small airplanes	8,820 feet
100 percent of these small airplanes	8,820 feet
Small airplanes with 10 or more passenger seats	8,820 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	7,800 feet
75 percent of these large airplanes at 90 percent useful load	8,700 feet
100 percent of these large airplanes at 60 percent useful load	11,100 feet
100 percent of these large airplanes at 90 percent useful load	11,100 feet
Airplanes of more than 60,000 pounds	Approximately 7,530 feet

No published instrument procedures.

GDA Engineers • www.gdaengineers.com *Greater Green River Intergalactic Spaceport*

PRE-SCOPING MEETING - INVITATION / HANDOUT

Green River Airport Survey

Thank you for your interest and feedback concerning the Green River Airport. Please write legibly as you answer the following questions, as each answer is important and will be carefully considered. All responses will be cataloged by GDA Engineers and kept anonymous, meaning no names will be linked to specific answers, unless you opt to include your name and title at the end of the survey.

If you are unable to finish the survey by the end of the meeting, please return the completed form to GDA Engineers.
Mail: PO Box 338, Cody, WY 82414 Fax: 307.527.5182 Email: tholder@gdaengineers.com

1. What do you think would be the most significant benefits from improving the Green River Airport?

2. What do you think would be the most significant drawbacks from improving the Green River Airport?

3. What factors or issues would cause you to oppose improving the Green River Airport?

Continued on back.

Green River Airport Survey

4. What factors or issues would cause you to support improving the Green River Airport?

_____

_____

_____

_____

5. Which of the followings sources have you used to obtain information regarding the Green River Airport and related Airport Master Plan project? *(Mark all answers that apply.)*

- ☐ The Rocket-Miner Newspaper
- ☐ The Rocket-Miner Website
- ☐ The Green River Star Newspaper
- ☐ The Green River Star Website
- ☐ Other Wyoming Newspaper
- ☐ Other Wyoming Newspaper Website
- ☐ Other Out-of-State Newspaper
- ☐ Other Out-of-State Newspaper Website
- ☐ Green River City Website
- ☐ Rock Springs City Website
- ☐ Other Internet Website, which: _____
- ☐ Wyoming News Television Broadcasts
- ☐ Radio
- ☐ Word of Mouth
- ☐ Public Meeting, if so when and where: _____ _____ _____
- ☐ Other, specify: _____ _____

Please provide any additional comments below:

_____

_____

_____

Thank you for your participation. If you would like to have you name connected with your answers and volunteer to be contacted for potential follow-up questions, provide your name and title below. Otherwise, your answers will be kept anonymous.

Name _____ Title _____

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

P.O. Box 338
1508 Stampede Avenue
Cody, WY 82414
PH: 307.587.3411
FAX: 307.527.5182
www.gdaengineers.com

March 11, 2014

Name
Company
Address
City, State, Zip

RE: Airport Master Plan – First Public Meeting

To Whom It May Concern:

The Greater Green River Intergalactic Spaceport is beginning the process to create an Airport Master Plan. The first public meeting will be held on Monday, March 17, 2014 at 6:00 p.m. in Room 211 at Western Wyoming Community College, located at 1 College Way in Green River, Wyoming. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers by telephone at 307.587.3411 or by email at tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

Thank you for your assistance,
GDA Engineers

Rick Patton
Project Manager

03/17/14 Airport 1st Public Meeting
WWCC-GR Center Room 211 - 6:00 pm

First	Last	Position	Company	Address	City	State	Zip
Les	Tanner	Permit holder/owner	Buckboard Marina	HCR 65 Box 100	Green River	WY	82935
Michael	Van der Linden	LaBarge Operations Superintendent	ExxonMobil Production Co	PO Box 1300	Kemmerer	WY	83101
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Al	Harris	Owner	The Radio Network	PO Box 970	Green River	WY	82935
			Green River Star	PO Box 580	Green River	WY	82935
			Rocket-Miner	215 D Street	Rock Springs	WY	82901

Green River Star | Green River, Wyoming

AFFIDAVIT OF PUBLICATION

GREEN RIVER STAR
Green River, Wyoming

PUBLIC NOTICE

AIRPORT MASTER PLAN MEETING PUBLIC NOTICE

The Greater Green River Intergalactic Spaceport is beginning the process to create an Airport Master Plan. The first public meeting will be held on Monday March 17, 2014 at 6:00 pm in Room 211 in the Western WY Community College, at 1 College Way in Green River, Wyoming. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

Mar. 5, 12, 2014 9413

STATE OF WYOMING
)ss.
County of Sweetwater

I, DAVID MARTIN, do solemnly swear that I am EDITOR of the GREEN RIVER STAR, a weekly paper of general circulation, published once each week at Green River, Sweetwater County, Wyoming, that the notice attached hereto, and which is a part of the affidavit, was published in said newspaper for 2 publication(s), the first publication having been made on the 5th day of March A.D., 2014, and the last publication on the 12th day of March A.D., 2014, that said notice was published in a regular and entire issue of the paper(s) in which it was published, and that said notice was published in the newspaper proper, and not in a supplement.

David Martin

Subscribed in my presence and sworn to before me this 12th day of March, A.D., 2014.

Lois M. Lewis

LOIS M. LEWIS
Notary Public
State of Wyoming
County of Sweetwater
My Commission Expires
June 05, 2017

Affidavit of Publication

STATE OF WYOMING
County Of Sweetwater } ss.

Rick Lee, being first duly sworn, deposes and says that as an Official Representative of the Rocket-Miner, a newspaper of general circulation, published daily in the City of Rock Springs, County and State aforesaid, and that the notice, a copy of which is hereunto attached was published in said newspaper for 2 days, the first thereof being in the issue of 03/05/2014 , and the last publication thereof being in the issue of 03/12/2014.

Subscribed and sworn to before me this day, 3/12/2014.

Notary Public

BONNIE J. BEAVER • NOTARY PUBLIC
COUNTY OF SWEETWATER
STATE OF WYOMING
My Commission Expires July 21, 2014

Publication Charges	$57.05
Notary And Affidav	$0.00
Additional Copies	$0.00
	$57.05

Airport Master Plan Meeting Public Notice

The Greater Green River Intergalactic Spaceport is beginning the process to create an Airport Master Plan. The first public meeting will be held on Monday March 17, 2014 at 6:00 pm in Room 211 in the Western WY Community College, at 1 College Way in Green River, Wyoming. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or **tholder@gdaengineers.com.** Information is also available on the GDA Engineers website at **www.gdaengineers.com** by creating an account under "Project Portal."
March 5, 12

Greater Green River Intergalactic Spaceport
Airport Master Plan Public Meeting 1 - Agenda

GDA ENGINEERS

Date: March 17, 2014
Time: 6:00 p.m. to 7:30 pm
Place: Western Wyoming Community College - Green River Center, Room 211

Agenda Overview:

1. Introductions and Sign-In

2. Airport Overview
   a. Common definitions
      i. *General Aviation (GA) vs. Commercial Service*
      ii. *Runway – Taxiway – Apron*
      iii. *Safety Areas*
      iv. *Approach Zones*
      v. *Instrument Approach*
      vi. *Improved vs. Unimproved*
      vii. *Small vs. Large Aircraft*
      viii. *Airport Reference Code (ARC)*
         1. *Approach Speed*
         2. *Wing Span*
   b. Why communities have airports
   c. Why communities plan airports
   d. State vs. National Systems
   e. Where does airport funding come from?

3. Airport Master Plans
   a. The Report
      i. *Inventory – What we have*
      ii. *Forecast - Existing and unmet demand*
      iii. *Facility Requirements – The base-airport*
         1. *Safety Design Standards*
         2. *Recommendations*
   b. The Drawing Set

4. Airport Revenue Sources
   a. Land leases
   b. Fuel sales and/or flowage fees

5. Project Schedule

6. Questions and Comments

Greater Green River Intergalactic Spaceport - Master Plan

Meeting 1 • March 17th, 2014 • 6:00 PM • WWCC Room 211

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING INVITATION

The City of Green River and the Greater Green River Intergalactic Spaceport are beginning work on an Airport Master Plan. You are invited to attend the first of five public meetings.

When: March 17th, 2014 at 6:00 PM
Where: Western Wyoming Community College, Room 211, 1 College Way, in Green River.
Duration: Approximately one hour.

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start
Meeting 2 • Completion of Inventory, Forecast, and Facility Requirements
Meeting 3 • Presentation of Development of Alternatives
Meeting 4 • Presentation of Draft Master Plan and Drawings
Meeting 5 • Presentation of Final Documents

Fish It. Float It. FLY IT!
GREATER GREEN RIVER
48U INTERGALACTIC SPACEPORT

WEBSITE ACCESS

Throughout the Airport Master Plan process, information will be available on the GDA Engineers website. By registering you will have access to the latest draft documents and be included on future correspondences, such as this letter. To create an account:

1. Go to www.gdaengineers.com.
2. Click on the "Project Portal" tab at the top of the page.
3. Register a new account and select "Green River Airport Master Plan" under the Request Project Access.
4. GDA Staff will approve the account and you will receive an e-mail. Then repeat the first two steps and sign in with your email address and password.

GDA Engineers • www.gdaengineers.com *Greater Green River Intergalactic Spaceport (48U)*

Greater Green River Intergalactic Spaceport - Master Plan

GDA ENGINEERS

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AIRPORT MASTER PLANS

An Airport Master Plan is a comprehensive study of an airport that describes short-, medium-, and long-term development plans to meet future and unmet aviation demand. The Green River Airport is undertaking its first full Master Plan on record.

The elements of the master planning process vary in level of detail and complexity depending upon the size, function, and problems of the individual airport. Airport Master Plans are prepared to support the creation of a new airport or the modernization and expansion of an existing airport. Each plan presents a strategy for the development of the airport by providing a framework to cost-effectively satisfy aviation demand while considering the potential environmental and socioeconomic impacts.

Master plans generally meet the following objectives:

- Document the issues that the proposed development will correct or mitigate;
- Justify the proposed development with technical, economic, and environmental investigation of designs and alternatives;
- Provide an effective graphic representation of the development of the airport and the anticipated land uses in the vicinity of the airport;
- Establish a realistic schedule, especially for the short-term, for the implementation of the development proposed;
- Propose an achievable financial plan to support the implementation schedule;
- Provide sufficient project scope and detail for future environmental evaluations that may be required before the project is approved;
- Provide a plan that adequately addresses the issues and satisfies local, state, and Federal regulations;
- Document policies and future aeronautical demand to support municipal or local deliberations on land use controls, spending, debt, and other policies necessary to preserve the integrity of the airport and its surroundings; and
- Establish a framework for continued planning.

The master planning process usually includes a pre-planning phase, public involvement, a review of environmental considerations, an inventory of existing conditions, forecasts of aeronautical demand, facility requirements, alternative development and evaluation, airport layout plans, a facilities implementation plan, and a financial feasibility analysis. Feedback from the local community and airport users is critical for developing a successful Airport Master Plan.

GDA Engineers • www.gdaengineers.com

Greater Green River Intergalactic Spaceport (48U)

Greater Green River Intergalactic Spaceport - Master Plan Meeting

Airport Master Plan Meeting 1

March 17th, 2014 6:00 PM Western WY Community College - Green River Center, Room 211

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Dottie Krause	Task Force	Green River Wy	875-9473	dottiekrause@msn.com
2. Barry Tippy	Task Force	Green River wy	875-1785	btippy74@hotmail.com
3. Ed McPherson	Task Force	Green River wy	389-8436	edward.mcpherson@wyo.gov
4. Mark Westenskow	City of Green River	Green River, wy	872-0525	mwestenskow@cityofgreenriver.org
5. Ed DeCastro	Ensemble Min	Rock Springs	742-4443	decastro@yahoo.com
6. Jim Punches	Self	GREEN RIVER	875-2904	avuyep@sweetwater.net
7. Ian J Punches	self	Green River	875-2904	moglytrucker@gmail.com
8. PAT ROBBINS	WBC	ROCK SPRINGS	382-3163	pat.robbins@wyo.gov
9. Gordon Gunter	Task Force	GR	875-6230	gtmachine@sweetwater.net.com
10. John Kolb	Sweetwater County Commission	Rock Springs	389 5000	
11. Craig Rood	OCI	GR	872-7117	crood@ocichemicals.com
12. Michael Murph	Recreat-Murph	Rock Springs	307-362-3736	Reference@iriantmail.com

PUBLIC MEETING 1 - SIGN-IN SHEET

Greater Green River Intergalactic Spaceport - Master Plan Meeting

Airport Master Plan Meeting 1

March 17th, 2014 6:00 PM Western WY Community College - Green River Center, Room 211

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. MARTIN BUSSE	City of Green River	City Administrator		
2. Hank Castillon	City of Green River	Mayor		
3. [illegible]	City of Green River			
4. [illegible]	City			
5. Nicole Malicoat	Rocket Miner	(photographer)		
6. John Freeman	State Rep	(D-Green River)		
7.				
8.				
9.				
10				
11				
12				

Greater Green River Intergalactic Spaceport Master Plan Meeting #1 Minutes

Location: Western WY Community College, Room 211, Green River, WY
Date: 03.17.2014
Time: 6:00 p.m.
Duration: 1.5 hours
Attendance:

- Rick Patton, Project Manager, GDA Engineers
- Traci Hodgins, Planner, GDA Engineers
- Dottie Krauss, Airport Task Force
- Barry Tippy, Airport Task Force
- Ed McPherson, Airport Task Force
- Mark Westenskow, City of Green River
- Ed DeCastro, Ensemble Air
- Jim Punches, Resident
- Ian Punches, Resident
- Pat Robbins, Wyoming Business Council
- Gordon Gunter, Airport Task Force
- John Kolb, Sweetwater County Commissioner
- Craig Rood, OCI
- Michael Maresh, Reporter, Rocket-Miner
- Martin Black, City Administrator, City of Green River
- Hank Castillon, Mayor, City of Green River
- Tom McCullough, City of Green River
- Patty Castillon, Resident
- Nicole Malicoat, Photographer, Rocker-Miner
- John Freeman, State Representative (D-Green River)

Rick Patton began the meeting with introductions and an overview of several common airport definitions. He went on to discuss why communities have airports and why communities plan airports. Rick emphasized the importance of planning the right facility for the community.

Rick explained how the Greater Green River Intergalactic Spaceport (48U) fits into the National Plan of Integrated Systems (NPIAS) and how airports qualify for federal funding from the Federal Aviation Administration (FAA). He further explained that airports that are not part of NPIAS are not eligible for federal funds, but they are eligible for funding from WYDOT's Aeronautics Division, provided they have an Airport Layout Plan (ALP). Rick stated that an ALP is a graphic representation, or drawing set, of an airport and all of its planned facilities. When asked, he reported that the Green River Master Plan would include an ALP and that ALP would be comprised of all of the alternatives identified through the master plan process.

Rick stated that a wind study would commence immediately and reported that two units would be set up to measure both wind speed and direction. The data collected from the wind study would result in a wind rose depicting how often (percentage of time) the wind blows from a certain direction at a certain speed. He noted that wind creates dangerous flying conditions and that it requires additional runway length to take off into the wind.

A discussion was had regarding crosswind specifications for various-sized aircraft. Rick explained that wind is often an issue in Wyoming, so many airports have crosswind runways. He cited the airports in Kemmerer and Rock Springs as two examples. Rick noted that a "wind condition" has the potential to change the alignment of the runway. He went on to explain that the wind study for 48U was going to cost approximately $17,000. Rick reported that because the wind is different in different locations, GDA cannot use wind data from WYDOT's highway equipment. He noted that because the wind does change with the seasons, the wind study would take place over the course of a year. Rick added that data would be collected for a year "before spending any money."

Regarding where airport funding comes from, Rick explained that NPIAS is a user fee system, meaning that fees are collected on fuel, tickets, and parts and then the funds are redistributed back to airports through the Airport Improvement Program (AIP). He pointed out that this distinction is important when trying to defend airport projects "in the coffee shops." He noted that 98% of NPIAS airport funding is federal and the remaining 2% comes from local match. Similarly, local user fees are collected and redistributed back to airports for use as local match. There is often a shortfall between the required match amount and the amount of user fees collected, which local governments will make up with a mixture of funding that might include taxpayer dollars. In the case of 48U, 60% of the funding for the airport master plan is coming from WYDOT and 40% of the funding for the airport master plan is coming from a Wyoming Business Council grant. Rick explained that projects are funded based on priority; the higher the priority rating, the greater the amount of money that is available from the FAA. The closer a project is to the centerline of the runway, the higher its priority rating.

Rick went on to explain the Capital Improvement Program (CIP), which is comprised of each community's list of proposed projects. Then consultants like GDA help communities look at how these projects can be funded. He noted that it has been his experience that proof of local match has not been required by the FAA. Rick explained that CIP projects must demonstrate both eligibility and priority and that priority projects are key to airport development. He noted that CIP projects need to have a plan. For example, building a runway before building an apron. Rick pointed out that because none of Wyoming's unimproved airports have an ALP, none of them are eligible for federal funding.

Rick pointed out that there is tremendous value in having land designated as an airport site. He went on to explain that the master plan study would identify the unmet demand of the airport. In other words, what kind of traffic would the airport experience if the facility was unconstrained? Rick noted that GDA would talk to the schools and other businesses to determine how much these entities would use the airport if it was developed and what kind of aircraft they would use. He explained that the existing airport plus forecast (or unmet demand) equals the facility requirements needed. Rick added for illustrative purposes that the Rock Springs airport is a C-II airport, meaning it is designed for large business jets. He noted that WYDOT likes to see a minimum of B-II aircraft as a design standard since this is the type of aircraft used by medical evacuation (medevac) units.

Rick explained that runway length is not an FAA standard because it is contingent upon pilot discretion. He noted that the FAA has established runway recommendations, in lieu of standards, for this very reason. Rick explained that proposed improvements must be shown on the ALP to be considered eligible for funding.

Rick recommended that the community plan conservatively, but allow for some growth in regard to separation areas just to protect their investment and "not get in their own way." Additionally, he explained that when pilots need to make adjustments, they can only change three things – passengers, baggage, and fuel.

Rick reported that although the FAA is not providing funding for the master plan project, they have generously offered to do a courtesy review regarding how 48U impacts other airports around it.

A question was posed in regard to zoning issues for the airport since this has reportedly been an issue for the Rock Springs airport. Rick responded that there are similar considerations when it comes to zoning whether an airport is deemed a general aviation (GA) airport or commercial service airport. He added that there are two specific zoning issues – height issues and use issues; for example, there should be no obstructions in the approach path and there should not be congregations of people near the runways. Rick also explained that the community would not want to create wildlife attractants, such as ponds, near the airport for safety reasons.

Rick explained that the Runway Protection Zones essentially create two "cones" off of the ends of the runways. He noted that the land near these cones is largely Bureau of Land Management (BLM) land; therefore, a Wildlife Hazard Assessment, such as the one Rock Springs is doing, might be in order. Rick added that these cones create some liability protection for the community.

Rick stated that planners need to see and protect the vast area and the environment around the airport; whereas, pilots only see the runway. Pat Robbins from the Wyoming Business Council asked if the master plan study for 48U could include a forecast of the potential impact of redevelopment efforts on the Rock Springs airport, whether the impact is positive or negative. Rick explained that such information would be included in the master plan study and noted that the Rock Springs airport would want to ensure that their enplanements remain above 10,000 so they continue to be eligible for the $1 million in federal AIP funding that they currently receive.

Rick concluded the meeting by sharing some of the most recent (2007) numbers of operations available for Wyoming airports. He shared the following numbers:

- Big Piney 3,500
- Kemmerer 3,400
- Rawlins 12,000
- Cokeville 1,250
- Fort Bridger 3,500
- Green River 34
- Thermopolis 2,500
- Rock Springs 17,000

- Cheyenne 58,000
- Laramie 10,000
- Cody 38,000
- Powell 3,100

Rick compared the airports in Rock Springs and Green River to several other airports in Wyoming that are in close proximity to one another, such as Cody and Powell. He noted that no one is proposing that the Green River airport become a commercial service airport like the Rock Springs airport. Rick pointed out that Green River is the 7th largest economic engine in Wyoming and it does not have an improved airport. He further pointed out that the communities that comprise the first six economic engines in Wyoming, all possess commercial service airports. As one meeting participant summed up – the 7th most populous community in the state, with the smallest airport.

Rick's closing remarks outlined the timeframe for the completion of the master plan study (nine months) and the next public meeting (approximately six weeks, when the forecast has been completed).

GDA ENGINEERS

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1508 Stampede Avenue
Cody, WY 82414
PH: 307.587.3411
FAX: 307.527.5182
www.gdaengineers.com

July 2, 2014

«AddressBlock»

RE: Airport Master Plan – Second Public Meeting

To Whom It May Concern:

The aviation forecast for the Greater Green River Intergalactic Spaceport has been prepared and is ready for review. The second of five public meetings will be held on Wednesday, July 16, 2014 at 6:00 p.m. at the Golden Hour Senior Center, 550 Uinta Drive, Green River, Wyoming. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

Thank you for your assistance,
GDA Engineers

Rick Patton
Project Manager

Les	Tanner	Permit holder/owner	Buckboard Marina	HCR 65 Box 100	Green River	WY	82935
Michael	Van der Linden	LaBarge Operations Superintendent	ExxonMobil Production Co	PO Box 1300	Kemmerer	WY	83101
John	Hastert	State Senate District 13		PO Box 472	Green River	WY	82935
John	Freeman	State House District 60 Representative		2340 North Carolina Way	Green River	WY	82935
Stan	Blake	State House District 39 Representative		PO Box 774	Green River	WY	82935
Holden	Wright	Assistant City Engineer	City of Green River	50 E 2nd North St.	Green River	WY	82935
Mark	Westenskow	City Engineer	City of Green River	50 E 2nd North St.	Green River	WY	82935
Wally	Johnson	Chairman	Sweetwater Co Board of Commissioners	80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
Gary	Bailiff	County Commissioner		80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
John	Kolb	Co Commissioner, liaison to RS-SWC Airport Bd		80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
Don	VanMatre	Co Commissioner		80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
Reid	West	Co Commissioner		80 W Flaming Gorge Way - Suite 109	Green River	WY	82935
Ed	DeCastro		GR Airport Task Force	2056 Fir Drive	Rock Springs	WY	82901
Gordon	Gunter		GR Airport Task Force	130 E Flaming Gorge Way	Green River	WY	82935
Ed	McPherson		GR Airport Task Force	1530 N Riverbend	Green River	WY	82935
Barry	Tippy		GR Airport Task Force	1645 Indian Hills Dr.	Green River	WY	82935
Carole	Shafer		GR Airport Task Force	#1 College Way	Green River	WY	82935
James	Punches			265 So. 5th East St. Spc. 14	Green River	WY	82935
Dottie	Krauss			1220 Churchview St.	Green River	WY	82935
Hank	Castillon		City of Green River	50 E 2nd North St	Green River	WY	82935
Mark	Peterson	City Council Ward 1; liaison to ATF and to RS-SWC Airport Bd	City of Green River	50 E 2nd North St	Green River	WY	82935
Tom	McCullough	City Council Ward 1	City of Green River	50 E 2nd North St	Green River	WY	82935
Lisa	Maes	City Council Ward 2	City of Green River	50 E 2nd North St	Green River	WY	82935
Adam	Coppolo	City Council Ward 2	City of Green River	50 E 2nd North St	Green River	WY	82935
Brett	Stokes	City Council Ward 3	City of Green River	50 E 2nd North St	Green River	WY	82935
Gary	Killpack	City Council Ward 3	City of Green River	50 E 2nd North St	Green River	WY	82935
Cody	Diekroeger	Chief Pilot	Premier Bone & Joint Center	1909 Vista Drive	Laramie	WY	82070
John	Taylor		Castle Rock Ambulance Service	1480 Uinta Drive	Green River	WY	82935
Chris	Schutz	Search and Rescue Commander		607 Central St	Rock Springs	WY	82901
Pat	Robbins	South Central Region	Wyoming Business Council	1400 Dewar Dr., Ste. 208A	Rock Springs	WY	82901
Leah	Bruscino	Northwest Region	Wyoming Business Council	143 S. Bent, Suite B	Powell	WY	82435
Brandon	Marshall	Manager, Business Recruitment and Development	Wyoming Business Council	214 West 15h St.	Cheyenee	WY	82002
Ben	Avery	Business and Industry Division Director	Wyoming Business Council	214 West 15h St.	Cheyenee	WY	82002
Lyle	Armstrong	Chairman	Ambulance Service Board	1200 College Drive	Rock Springs	WY	82901
Jenissa	Bartlett	Executive Director	Sweetwater Travel and Tourism	404 N Street, Suite 304	Rock Springs	WY	82901
Mark	Lyon	President	Sweetwater County Recreation Board	731 C Street #110	Rock Springs	WY	82901
Allan	Wilson		Joint Travel & Tourism Board	66 So 4th West	Green River	WY	82901
Janet	Hartford		Joint Travel & Tourism Board	780 W 4th North St	Green River	WY	82935
Frank	Keeler	HDD Fire Management Officer	Rock Springs BLM Field Office	280 Highway 191 North	Rock Springs	WY	82901
Karla	Leach		Western WY Community College	PO Box 428	Rock Springs	WY	82902
Paul	Peterson		TATA Chemicals Plant Manager	Po Box 551	Green River	WY	82935
Sara	Thompson Cassidy		Union Pacific Railroad	1400 W 52nd Avenue	Denver	CO	80221
Craig	Rood		OCI Plant Manager	PO Box 513	Green River	WY	82935
Fred	von Ahrens		FMC Plant Manager	PO Box 872	Green River	WY	82935
Laura	Leigh		Comm Dev Director	50 E 2nd North St	Green River	WY	82935
Mike	Nelson		Public Works	50 E 2nd North St	Green River	WY	82935
Christy	Yaffa	Planning and Budgeting Manager	WYDOT Aeronautics	200 East 8th Avenue	Cheyenee	WY	82001
John	Mahoney	Senior Planner	WYDOT Aeronautics	200 East 8th Avenue	Cheyenee	WY	82001
Dennis	Bryne	Administrator	WYDOT Aeronautics	200 East 8th Avenue	Cheyenee	WY	82001
Charles	Ksir	Chairman	Aeronautics Commission	2068 North 17th Street	Laramie	WY	82072
Vince	Tomassi	District 2	Aeronautics Commission	821 Cedar Ave	Kemmerer	WY	83101
Bailey	Docktor	CEO	Castle Rock Hospital District	1400 Uinta Drive	Green River	WY	82935
Brian	Taylor	President - Board of Directors	Green River Chamber of Commerce	1155 W. Flaming Gorge Way	Green River	WY	82935
Rebecca	Briesmaster	Executive Director	Green River Chamber of Commerce	1155 W. Flaming Gorge Way	Green River	WY	82935
Larry	Levitt	Chairperson	Rock Springs Airport Board	PO Box 1987	Rock Springs	WY	82902
Terry	Doak	Airport Manager	Rock Springs Airport	PO Box 1987	Rock Springs	WY	82902
Carl	Demshar		City of Rock Springs	212 D St	Rock Springs	WY	82901
Tim	Sheehan	Supervisor	Questar Operations	1005 D St	Rock Springs	WY	82901
Al	Harris	Owner	The Radio Network	PO Box 970	Green River	WY	82935
			Green River Star	PO Box 580	Green River	WY	82935
			Rocket-Miner	215 D Street	Rock Springs	WY	82901
Mark	Allphin	Project Manager	Bairco Construction	213 East 3rd Street	Lovell	WY	82431
Will	Hoffman	Owner	Pro Striping and Asphalt Maintenance	P.O. Box 460	Ranchester	WY	82839
Jake	J	Project Engineer	Depatco	PO Box 246	St. Anthony	ID	83445
Andrew	Kifer	Wyoming Branch Manager	Bodec Electric	34 Wilkens Peak Drive	Rock Springs	WY	82901
Thomas	Nesbitt	President	Waterford Corporation	P.O. Box 1513	Fort Collins	CO	80522
Michelle	Orr	Owner	Corr Enterprises, LLC	1188 N. Jon Lane	Pueblo West	CO	81007
Jack	Skinner		KLAR	555 General Brees Road	Laramie	WY	82070
David	Anderson III			220 Crossbow Drive	Green River	WY	82935
Kenneth	Avery			200 Fix Hills Drive	Green River	WY	82935
Robert	Cary, Sr.			1655 E. Teton Blvd.	Green River	WY	82935
David	Jensen			PO Box 667	Green River	WY	82935
Brooks	Johnson			1035 Washakie Way	Green River	WY	82935
Kerry	Johnson			585 McKinley Street	Green River	WY	82935
Robert	MacAdams			435 Waggener Street	Green River	WY	82935
Randy	Nielson			1140 Alasksa Drive	Green River	WY	82935
Gerald	Shoup, Jr.			415 Locust Street	Green River	WY	82935
Brian	Taylor			1755 New Mexico Street	Green River	WY	82935
Mary	Thoman			PO Box 146	Green River	WY	82935

Green River Star | Green River, Wyoming

AFFIDAVIT OF PUBLICATION

GREEN RIVER STAR
Green River, Wyoming

PUBLIC NOTICE

AIRPORT MASTER PLAN MEETING PUBLIC NOTICE

The aviation forecast for the Greater Green River Intergalactic Spaceport has been prepared and is ready for review. The second of five public meetings will be held on July 16, 2014 at 6:00 p.m. at the Golden Hour Senior Center, 550 Uinta Drive, Green River, Wyoming. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

July 2, 9, 2014 9524

STATE OF WYOMING
)ss.
County of Sweetwater

I, DAVID MARTIN, do solemnly swear that I am EDITOR of the GREEN RIVER STAR, a weekly paper of general circulation, published once each week at Green River, Sweetwater County, Wyoming, that the notice attached hereto, and which is a part of the affidavit, was published in said newspaper for 2 publication(s), the first publication having been made on the 2nd day of July A.D., 2014, and the last publication on the 9th day of July A.D., 2014, that said notice was published in a regular and entire issue of the paper(s) in which it was published, and that said notice was published in the newspaper proper, and not in a supplement.

David Martin

Subscribed in my presence and sworn to before me this 9th day of July, A.D., 2014.

Lois M. Lewis

LOIS M. LEWIS
Notary Public
State of Wyoming
County of Sweetwater
My Commission Expires
June 05, 2017

Greater Green River Intergalactic Spaceport
Airport Master Plan – Meeting Agenda

- Green River Chamber of Commerce Lunch and Learn
  - July 16, 2014 at 12:00 p.m.; Hampton Inn, Green River, WY
- Airport Master Plan Public Meeting 2
  - July 16, 2014 at 6:00 p.m.; Golden Hour Senior Center, Green River, WY
- Coffee Break with the Mayor
  - July 17, 2014 at 10:30 a.m.; Golden Hour Senior Center, Green River, WY

Agenda Overview:

1. Introductions and Sign-In

2. Chapter Overviews

   a. Inventory
   b. Forecasts

3. Facility Layout and Airport Layout Plan

   a. Wind Roses (in progress)
   b. Facility Layout – Goals, Needs, Wants (in progress)

4. Next Steps for Completion

   a. Meeting 3 (Presentation of Facility Requirements and Development Alternatives)
   b. Environmental Coordination of Selected Alternative
   c. Meeting 4 (Presentation of Draft Master Plan and ALP drawings)
   d. Agency Coordination of ALP Drawings and Report
   e. Meeting 5 (Presentation of Final documents)

5. Questions and Comments

FORECAST OF AVIATION DEMAND

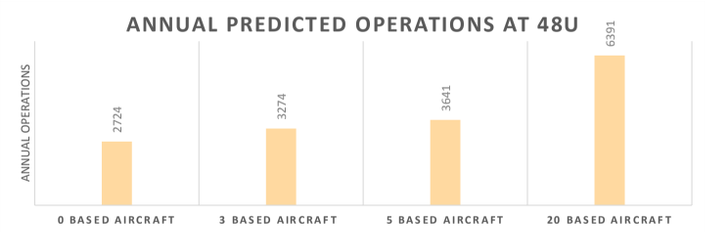
A critical portion of Greater Green River Intergalactic Spaceport's (48U) Airport Master Plan is the *Forecast of Aviation Demand,* which provides a forecast of anticipated future aviation demands over the next two decades. These projections are critical for proper planning. Forecasts are based on an assortment of data sources.

Forecasts of future levels of aviation activity at an airport are the foundation for effective decisions in airport planning and development. The projections are used to determine the need and timing for new and/or expanded facilities or to decommission old facilities. Forecasts are intended to be realistic and based upon the most up-to-date available data and information, in order to provide adequate justification for airport planning and development. With an accurate forecast, an appropriate time frame for phasing of capital investments can be created to help avoid early and unnecessary operating expenses or a loss of economic benefits through the airport for the community.

The completed forecast was based on a number of sources and methodologies:

- Socioeconomic and Demographic Analysis
- Stakeholder and Pilot Surveys
- Potential Users and Unmet Demand Research
- Comparison of Similar Airports and Communities
- Regression Analysis

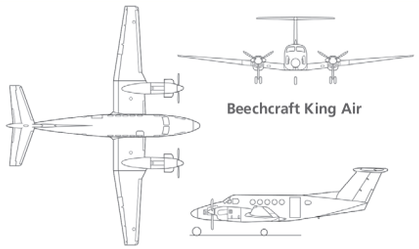
Shown below are the number of predicted annual operations (a take off, landing, or touch and go by an aircraft) for 48U based on the final regression analysis. In summary, the number of aircraft that base at the airport has an impact on the potential number of operations, ranging from roughly 2,700 annual operations if zero aircraft base at 48U up to about 6,400 operations with twenty based aircraft.



CRITICAL AIRCRAFT

The forecast also determined the most demanding aircraft (or combination of aircraft) operating on the airport, referred to as the critical or design aircraft.

For 48U, the Beechcraft King Air, a common twin-engine turboprop aircraft, was identified as the critical aircraft. This plane is commonly used for traveling doctors and medical evacuations in Wyoming.



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GREATER GREEN RIVER 48U INTERGALACTIC SPACEPORT

Pilot Survey Results ~ Highlights

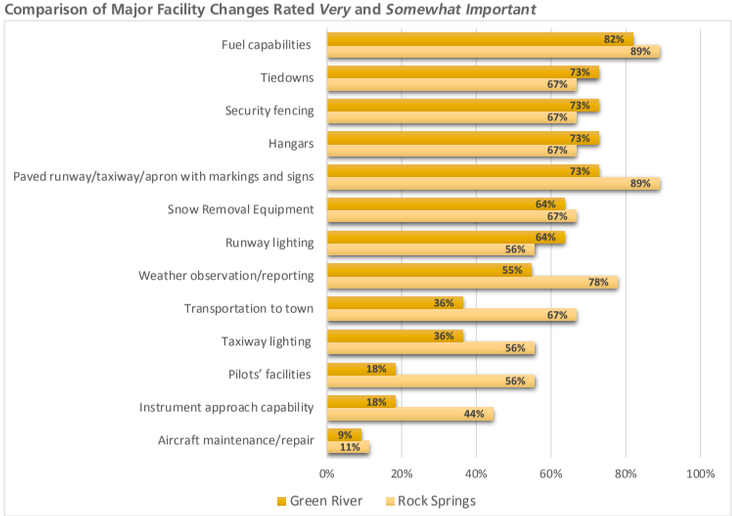
19 surveys mailed to pilots in Green River; 11 responses received

- 2 pilots use 48U; 9 pilots do not
- 6 pilots own aircraft; all hangar at Rock Springs-Sweetwater County Airport (RKS)

29 surveys mailed to pilots in Rock Springs; 9 responses received

- 1 pilot uses 48U; 8 pilots do not
- 7 pilots own aircraft; 6 hangar at RKS and 1 hangars at Hunt Field in Lander (LND)

Comparison of Major Facility Changes Rated *Very* and *Somewhat Important*



***Below are all of the open-ended comments submitted* by the pilots:**

"It would be nice to have something in Green River if it did not add burden to the county tax roll. Close and convenient to Flaming Gorge. I'm all for giving Rock Springs some fuel and storage competition."

"If I lived in Green River, I would strongly solicit fuel, hangars, improvements and security. I live in Rock Springs, so it's not really a factor. But competition as far as fuel and so on would be helpful."

"I don't feel that General Aviation would utilize the airport, even if improvements were made. Would be a big waste of money."

"Before the airport would have legitimacy, the town of Green River needs to improve its ability and willingness to cater to visitors. At the moment this does not seem like a good use of funds."

"If the airport was secure and the runway maintained I would like to have a hangar there. I would even consider building a hangar there to store my planes if I wasn't concerned about security."

"It would be better for Green River airmen to have an airport closer to town."

GDA ENGINEERS

Greater Green River Intergalactic Spaceport History

Below are all of the proposed historical runway alignments at 48U, shown along the current runway. The oldest drawing for 48U dates back to July 20th, 1948. This document is labelled as a "Suggested Master Plan" and came from the Civil Aeronautics Authority (CAA), which predates the Federal Aviation Administration (FAA).

Following the 1948 document are two additional airport layout drawing plans: the first completed by Parker and Associates in 1961 and the second finished by David F. Miller in 1963. The current alignment of Runway 4/22 closely matches those proposed by the 1948 and 1963 drawings.

GDA CONTACT INFORMATION

GDA Engineers is currently completing an Airport Master Plan for the Greater Green River Intergalactic Spaceport. During this process, please direct all comments, feedback, and ideas to:

GDA Engineers
Rick Patton
P.O. Box 338
Cody, WY 82414
307.587.3411
www.gdaengineers.com

GDA ENGINEERS

Green River Airport Survey

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

Because you are an Airmen Certificate holder with an address in Green River, we invite you to complete this survey. This survey will help us determine **if, how, and when** the Greater Green River Intergalactic Spaceport (48U) would be used **if** it were to be further developed. This survey only asks about potential general aviation use of the Green River airport; there are no plans to provide commercial service from 48U.

Date: _____

Name: _____

Mailing Address: _____

Telephone: _____

E-mail: _____

1. Do you currently use the Greater Green River Intergalactic Spaceport?

○ Yes ○ No

If yes, please explain how:

If yes, what type of aircraft do you normally use at the Greater Green River Intergalactic Spaceport?

If yes, approximately, how often do you fly in to or out of the Greater Green River Intergalactic Spaceport?

2. Do you own any aircraft (or do you plan to in the foreseeable future)?

○ Yes ○ No

If yes, what kind?

If yes, where do you typically park your aircraft?

3. Potential major facility changes at the Greater Green River Intergalactic Spaceport *may* include the following. How important or unimportant are each of the following items to your possible use of the Greater Green River Intergalactic Spaceport?

	Very important	Somewhat important	Neither important nor unimportant	Somewhat unimportant	Very unimportant
Paved runway/taxiway/apron with markings and signs	○	○	○	○	○
Instrument approach capability	○	○	○	○	○
Runway lighting	○	○	○	○	○
Taxiway lighting	○	○	○	○	○
Hangars	○	○	○	○	○
Fuel capabilities	○	○	○	○	○
Security fencing	○	○	○	○	○
Snow Removal Equipment	○	○	○	○	○
Tiedowns	○	○	○	○	○
Transportation to town	○	○	○	○	○
Weather observation/reporting	○	○	○	○	○
Aircraft maintenance/repair	○	○	○	○	○
Pilots' facilities	○	○	○	○	○
Other: _____	○	○	○	○	○

4. Please provide any additional comments/suggestions, including other interested parties we should contact regarding potential use of the Greater Green River Intergalactic Spaceport:

Thank you for your participation!

A copy of your completed survey will be included in the Appendices of the Airport Master Plan.

Please return this survey to:

Traci Hodgins
GDA Engineers
PO Box 338
Cody, WY 82414
thodgins@gdaengineers.com
Fax: 307.527.5182
Questions: 307.587.3411

Green River Airport Survey

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

Because you are an Airmen Certificate holder with an address in Rock Springs, we invite you to complete this survey. This survey will help us determine **if, how, and when** the Greater Green River Intergalactic Spaceport (48U) would be used **if** it were to be further developed. This survey only asks about potential general aviation use of the Green River airport; there are no plans to provide commercial service from 48U.

Date: _____

Name: _____

Mailing Address: _____

Telephone: _____

E-mail: _____

1. Do you currently use the Greater Green River Intergalactic Spaceport?

○ Yes ○ No

If yes, please explain how:

If yes, what type of aircraft do you normally use at the Greater Green River Intergalactic Spaceport?

If yes, approximately, how often do you fly in to or out of the Greater Green River Intergalactic Spaceport?

2. Do you own any aircraft (or do you plan to in the foreseeable future)?

○ Yes ○ No

If yes, what kind?

If yes, where do you typically park your aircraft?

3. Potential major facility changes at the Greater Green River Intergalactic Spaceport *may* include the following. How important or unimportant are each of the following items to your possible use of the Green River airport?

	Very important	Somewhat important	Neither important nor unimportant	Somewhat unimportant	Very unimportant
Paved runway/taxiway/apron with markings and signs	○	○	○	○	○
Instrument approach capability	○	○	○	○	○
Runway lighting	○	○	○	○	○
Taxiway lighting	○	○	○	○	○
Apron lighting	○	○	○	○	○
Hangars	○	○	○	○	○
Fuel capabilities	○	○	○	○	○
Crosswind runway	○	○	○	○	○
Security fencing	○	○	○	○	○
Snow Removal Equipment	○	○	○	○	○
Tiedowns	○	○	○	○	○
Transportation to town	○	○	○	○	○
Weather observation/reporting	○	○	○	○	○
Aircraft maintenance/repair	○	○	○	○	○
Pilots' facilities	○	○	○	○	○
Airport security	○	○	○	○	○
Other: _____	○	○	○	○	○

4. How would the following factors affect your possible selection of the Greater Green River Intergalactic Spaceport as a base or destination airport?

	Strongly encourages use	Moderately encourages use	Moderately discourages use	Strongly discourages use	Not a factor
Distance to home, friend, or relative	○	○	○	○	○
Distance to business	○	○	○	○	○
Runway/taxiway system	○	○	○	○	○
Instrument approach capability	○	○	○	○	○
Hangar availability	○	○	○	○	○
Tiedown availability	○	○	○	○	○
Fuel availability	○	○	○	○	○
Transportation to town	○	○	○	○	○
Volume of airside/landside traffic	○	○	○	○	○

4. continued...

	Strongly encourages use	Moderately encourages use	Moderately discourages use	Strongly discourages use	Not a factor
Airport security	○	○	○	○	○
Pilots' facilities	○	○	○	○	○
Weather observation/reporting	○	○	○	○	○
Aircraft maintenance/repair	○	○	○	○	○

5. Please provide any additional comments/suggestions, including other interested parties we should contact regarding potential use of the Greater Green River Intergalactic Spaceport:

Thank you for your participation!

A copy of your completed survey will be included in the Appendices of the Airport Master Plan.

Please return this survey to:
Traci Hodgins
GDA Engineers
PO Box 338
Cody, WY 82414

thodgins@gdaengineers.com
Fax: 307.527.5182
Questions: 307.587.3411

Pilot Survey Mailing List

David	Anderson III			220 Crossbow Drive	Green River	WY	82935
Kenneth	Avery			200 Fix Hills Drive	Green River	WY	82935
Gerald	Befus			2230 Cumorah Way Apt. A	Green River	WY	82935
Robert	Cannon			750 Riverview Drive	Green River	WY	82935
Robert	Cary, Sr.			1655 E. Teton Blvd.	Green River	WY	82935
Jacoy	Erickson			350 Driftwood Street	Green River	WY	82935
Robert	Foley			1885 Montana Way	Green River	WY	82935
Brian	Gooch			260 Logan Street	Green River	WY	82935
Robert	Hardman			1425 Hoback Street	Green River	WY	82935
James	Hasley			UNABLE TO FORWARD	Green River	WY	82935
David	Jensen			PO Box 667	Green River	WY	82935
Brooks	Johnson			1035 Washakie Way	Green River	WY	82935
Kerry	Johnson			585 McKinley Street	Green River	WY	82935
Robert	MacAdams			435 Waggener Street	Green River	WY	82935
Randy	Nielson			1140 Alasksa Drive	Green River	WY	82935
Gerald	Shoup, Jr.			415 Locust Street	Green River	WY	82935
Kevin	Springer			319 N. 1st East Street	Green River	WY	82935
Brian	Taylor			1755 New Mexico Street	Green River	WY	82935
Mary	Thoman			PO Box 146	Green River	WY	82935
Louis	Arambel			UNABLE TO FORWARD	Rock Springs	WY	82901
Darren	Barnum			3202 Dewar Dr. Apt. 208	Rock Springs	WY	82901
James	Chant			812 Bushnell Ave.	Rock Springs	WY	82901
Richard	DeBernardi			316 Liberty St.	Rock Springs	WY	82901
Mark	DeLong			PO Box 2952	Rock Springs	WY	82901
Zachary	Duck			1229 Crown Point Way	Rock Springs	WY	82901
Aurelius	Fermelia			1328 Cottonwood Dr.	Rock Springs	WY	82901
Anthony	Gale			1286 James Dr.	Rock Springs	WY	82901
Ryan	Greene			4000 Clydesdale Dr.	Rock Springs	WY	82901
Albert	Gressette			1108 Windriver Dr.	Rock Springs	WY	82901
Mary	Hanson			209 Van Buren St. #1494	Rock Springs	WY	82901
Ted	Higgins			3701 Madison Dr.	Rock Springs	WY	82901
Theodore	Jenkins			421 Independence Circle	Rock Springs	WY	82901
Peter	Jensen			1208 Hilltop Dr.	Rock Springs	WY	82901
Steven	Kourbelas			928 Bonners Way	Rock Springs	WY	82901
Lee	Lawson			UNABLE TO FORWARD	Rock Springs	WY	82901
Stacey	Nutt			1620 W. 2nd St. Lot 90	Rock Springs	WY	82901
John	Partain			1325 10th St.	Rock Springs	WY	82901
Brittnay	Peterson			688 Antelope Dr. Lot 78	Rock Springs	WY	82901
Bruce	Pivic			321 Jade Street	Rock Springs	WY	82901
Jeffrey	Pivic			321 Jade Street	Rock Springs	WY	82901
Don	Rathe			530 I Street	Rock Springs	WY	82901
Konrad	Schumacher			2218 Reagan Ave. Apt. 204	Rock Springs	WY	82901
Christopher	Schutz			607 Central Street	Rock Springs	WY	82901
Bryan	Searle			1410 Thorpe St.	Rock Springs	WY	82901
August	Seneshale			2221 Westview Ave.	Rock Springs	WY	82901
William	Stapleton			824 Madison Dr.	Rock Springs	WY	82901
William	Thompson III			3832 Blue Heron St.	Rock Springs	WY	82901
Martha	Valentine			1342 Juniper Dr.	Rock Springs	WY	82901

Greater Green River Intergalactic Spaceport
Airport Master Plan Meeting 2
July 16th, 2014 6:00 PM Golden Hour Senior Center, 550 Uinta Drive, Green River, WY

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Robert MacAdams		Green River, Wy	307-875-7945	rmacadam@wyoming.com
2. James M Johnson		"	875-8517	johnsons@wyoming.com
3. Deborah C Johnson		"	"	"
4. James Pinches		"	875-2904	awujap@sweetwater.net
5. Ed McPherson		Green River	307-389-8436	edward.mcpherson@wyo.gov
6. Pat Gaddis		G.R.		
7. Patsy Sorensen		GR	307-871-9657	
8. Christine Smith		GR	307-875-6763	csmith1711@msn.com
9. Perry Smith		GR	"	psmith553@msn.com
10. Artis Kalivas		GR	875-4128	
11. Mike Nelson		GR	672-0532	[illegible]
12. Dottie Krause	Airport Committee	GR	875-9473 871-3118	dottiekrause@msn.com

PUBLIC MEETING 2 - SIGN-IN SHEET

Greater Green River Intergalactic Spaceport
Airport Master Plan Meeting 2
July 16th, 2014 6:00 PM Golden Hour Senior Center, 550 Uinta Drive, Green River, WY

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Gordon Gunter	GR Airport Task Force.		307-875-6230	
2. Bailie Dockter	Castle Rock Hosp.	Green River	872-4300	
3. Ed DeCastro	Airport Taskforce		3072424443	
4. Mark Westenskow	City of Green River	Green River, WY	307-872-0525	mwestenskow@cityofgreenriver.org
5.				
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7.				
8.				
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12.				

Green River Star — Green River, Wyoming

AFFIDAVIT OF PUBLICATION

GREEN RIVER STAR
Green River, Wyoming

PUBLIC NOTICE

Airport Master Plan Meeting Public Notice

The Greater Green River Intergalactic Spaceport is in the process of completing an Airport Master Plan. The third of five public meetings will be held on Monday, August 18, 2014 at 6:00 p.m. at the Golden Hour Senior Center, 550 Uinta Drive, Green River, Wyoming. The third meeting will review development alternatives for the airport. More information about the project is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal." If you are unable to attend the meeting and wish to provide input on development at the airport, please do so by contacting Trent Holder before August 15, 2014.

August 6 & 13, 2014 — 9556

STATE OF WYOMING
)ss.
County of Sweetwater

I, DAVID MARTIN, do solemnly swear that I am EDITOR of the GREEN RIVER STAR, a weekly paper of general circulation, published once each week at Green River, Sweetwater County, Wyoming, that the notice attached hereto, and which is a part of the affidavit, was published in said newspaper for 2 publication(s), the first publication having been made on the 6th day of August A.D., 2014, and the last publication on the 13th day of August A.D., 2014, that said notice was published in a regular and entire issue of the paper(s) in which it was published, and that said notice was published in the newspaper proper, and not in a supplement.

David Martin

Subscribed in my presence and sworn to before me this 13th day of August, A.D., 2014.

Lois M. Lewis

LOIS M. LEWIS
Notary Public
State of Wyoming
County of Sweetwater
My Commission Expires
June 05, 2017

Greater Green River Intergalactic Spaceport Master Plan Meeting 3

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING INVITATION

The Greater Green River Intergalactic Spaceport is completing an Airport Master Plan. You are invited to attend the third of five public meetings, to be held Monday, August 18, 2014 at 6:00 p.m. at the Golden Hour Senior Center, 550 Uinta Drive, Green River, WY.

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start (Held March 17, 2014)
Meeting 2 • Completion of Inventory and Forecast Chapters (Held July 16, 2014)
Meeting 3 • Presentation of Development of Alternatives (August 18, 2014)
Meeting 4 • Presentation of Draft Master Plan and ALP Drawings
Meeting 5 • Presentation of Final Documents

MEETING THREE AGENDA

The third meeting will review alternatives for development on items such as apron expansion and runway safety areas. All input is welcome and if you cannot attend the meeting, please submit ideas to Trent Holder by email at tholder@gdaengineers.com, by mail at 502 33rd Street, Cody, WY 82414, or by fax at 307.527.5182. The image on the back of this handout is of the existing airport and is provided for your sketching convenience. A development alternative will be selected at this meeting to finish out the Airport Master Plan.

WEBSITE ACCESS

Throughout the Airport Master Plan process, information will be available on the GDA Engineers website.

1. Go to: www.gdaengineers.com
2. Click on Project Portal tab at top of page
3. Create Account: Select "Green River Airport Master Plan" under the Request Project Access
4. GDA staff will approve the account
5. Once the account has been approved you will receive an e-mail, repeat steps 1 and 2, and log in with your e-mail address and password

Greater Green River Intergalactic Spaceport Master Plan Meeting 3

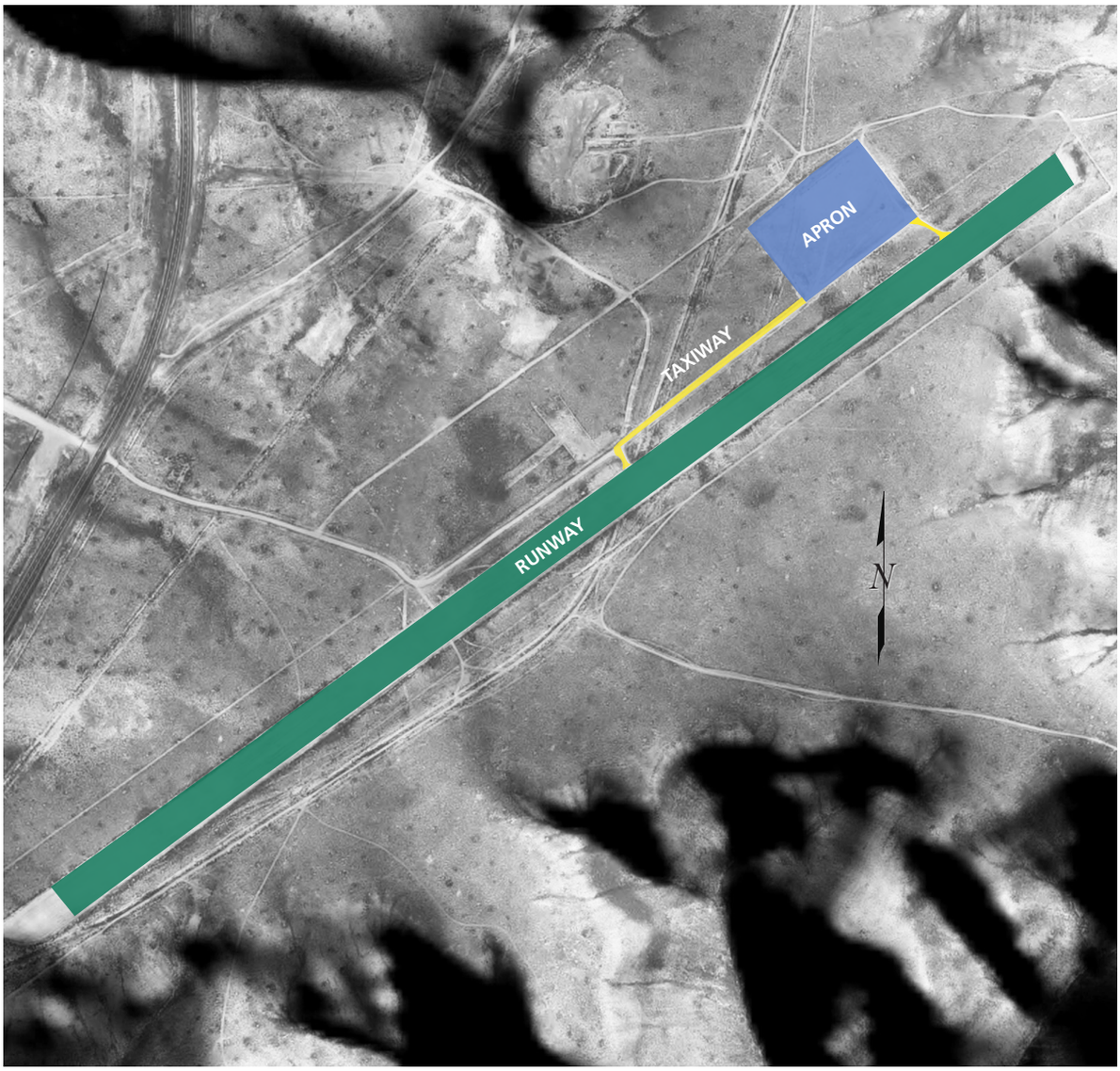
GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

Greater Green River Intergalactic Spaceport

DESIGN ALTERNATIVES

Below is an aerial image of the Greater Green River Intergalactic Spaceport with shaded relief to depict surrounding terrain. The current runway, taxiway, and apron are highlighted and labeled. If you have any ideas for future improvements or layout configurations, please sketch them on the image below and return the drawing to GDA Engineers. All ideas submitted will be considered.



GDA Engineers • www.gdaengineers.com

Greater Green River Intergalactic Spaceport (48U)

Greater Green River Intergalactic Spaceport Airport Master Plan – Meeting Agenda

GDA ENGINEERS

Date: August 18, 2014
Time: 6:00 p.m.
Place: Golden Hour Senior Center, 550 Uinta Drive, Green River, WY

Agenda Overview:

1. Introductions and Sign-In

2. Chapter Overviews

    a. Facility Requirements
    b. Development Alternatives

3. Next Steps for Completion

    a. Meeting 4 (Presentation of Draft Master Plan and ALP drawings)
    b. Agency Coordination of ALP Drawings and Report
    c. Meeting 5 (Presentation of final documents)

4. Questions and Comments

Greater Green River Intergalactic Spaceport - Master Plan Meeting
Airport Master Plan Meeting 1
March 17th, 2014 6:00 PM Western WY Community College - Green River Center, Room 211

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Dottie Krause	TaskForce	Green River Wy	875-9473	dottiekrause@msn.com
2. Barry Tippy	Task Force	Green River wy	875-1785	btippy74@hotmail.com
3. Ed McPherson	Task Force	Green River wy	387-8436	edward.mcpherson@wyo.gov
4. Mark Westenskow	City of Green River	Green River, wy	872-0525	mwestenskow@cityofgreenriver.org
5. Ed DeCastro	Ensemble Hin	Rock Springs	742-4443	decastro@yahoo.com
6. Jim Punches	Self	GREEN RIVER	875-2904	avnjep@sweetwater.net
7. Ian J Punches	self	Green River	875-2904	moplytrucker@gmail.com
8. PAT ROBBINS	WBC	ROCK SPRINGS	382-3163	pat.robbins@wyo.gov
9. Gordon Carter	Task Force	GR	875-6230	9T machine@sweetwater.net.com
10. John Kolb	Sweetwater County Commission	Rock Springs	389 5000	
11. Craig Rood	OCI	GR	872-7117	crood@ocichemicals.com
12. Michael Murphy	Recreat-Mngmt	Rock Springs	307-362-3726	Rcreation@rivertmen

Greater Green River Intergalactic Spaceport
Airport Master Plan Meeting 3
August 18, 2014 6:00 p.m. Golden Hour Senior Center, 550 Uinta Drive, Green River, WY

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Liz Krentz		Green River	307-875-2892	
2. John L. Freeman		G R	307-875-7378	
3. Jim Wamsley		Rock Springs	307-389-2309	
4. Mark Westenskow	City of Green River		307-872-0525	
5. Bill Cummings	"	"	307-875-2773	
6.				
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12.				

Greater Green River Intergalactic Spaceport Master Plan Meeting 4

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING INVITATION

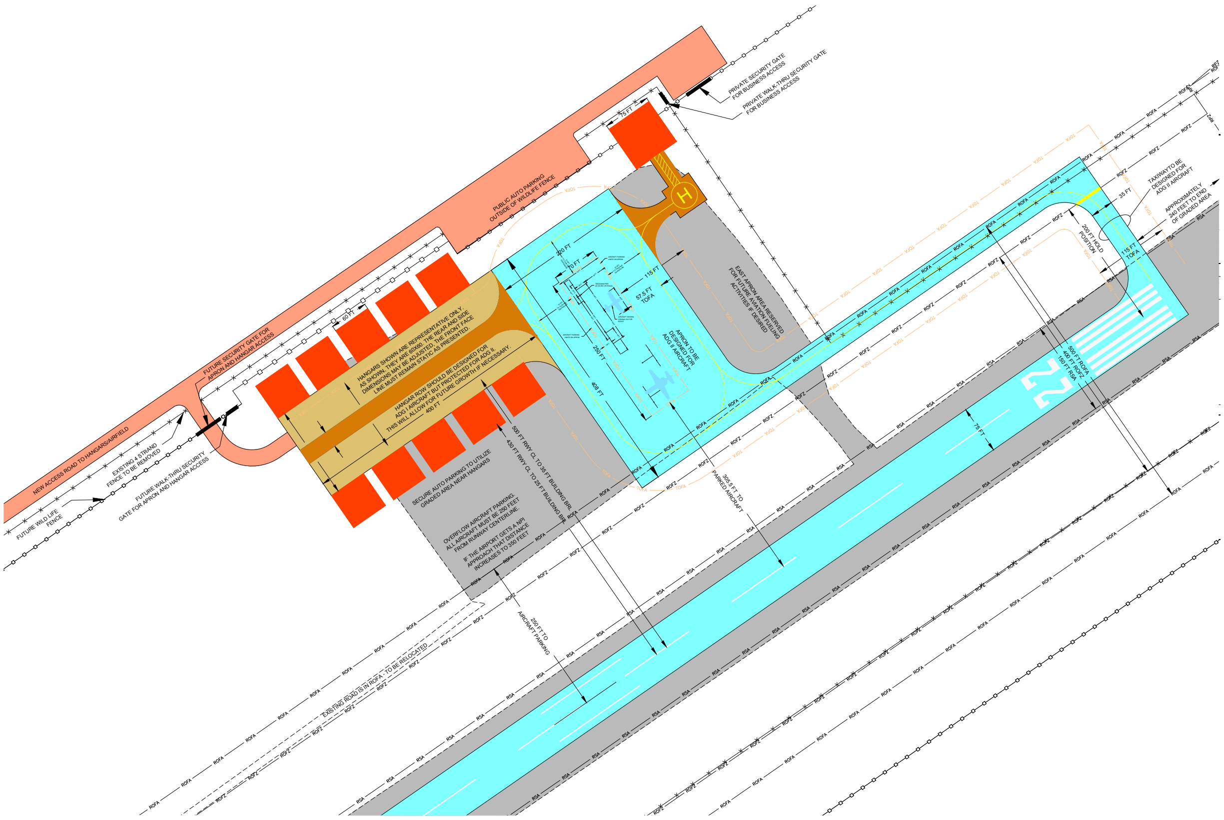
The Greater Green River Intergalactic Spaceport is completing an Airport Master Plan. You are invited to attend the fourth of five public meetings, to be held Wednesday, October 8th, 2014 at 6:00 p.m. at the Golden Hour Senior Center, 550 Uinta Drive, Green River, WY.

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start (Held March 17, 2014)
Meeting 2 • Completion of Inventory and Forecast Chapters (Held July 16, 2014)
Meeting 3 • Presentation of Development of Alternatives (Held August 18, 2014)
Meeting 4 • Presentation of Draft Master Plan and ALP Drawings
Meeting 5 • Presentation of Final Documents

MEETING FOUR AGENDA

The fourth meeting will review the draft Master Plan and Airport Layout Plan (ALP) drawings. All input is welcome and if you cannot attend the meeting, please submit any input to Trent Holder by email at tholder@gdaengineers.com or by fax at 307.527.5182. The drawings on this handout are of the existing airport and proposed development.

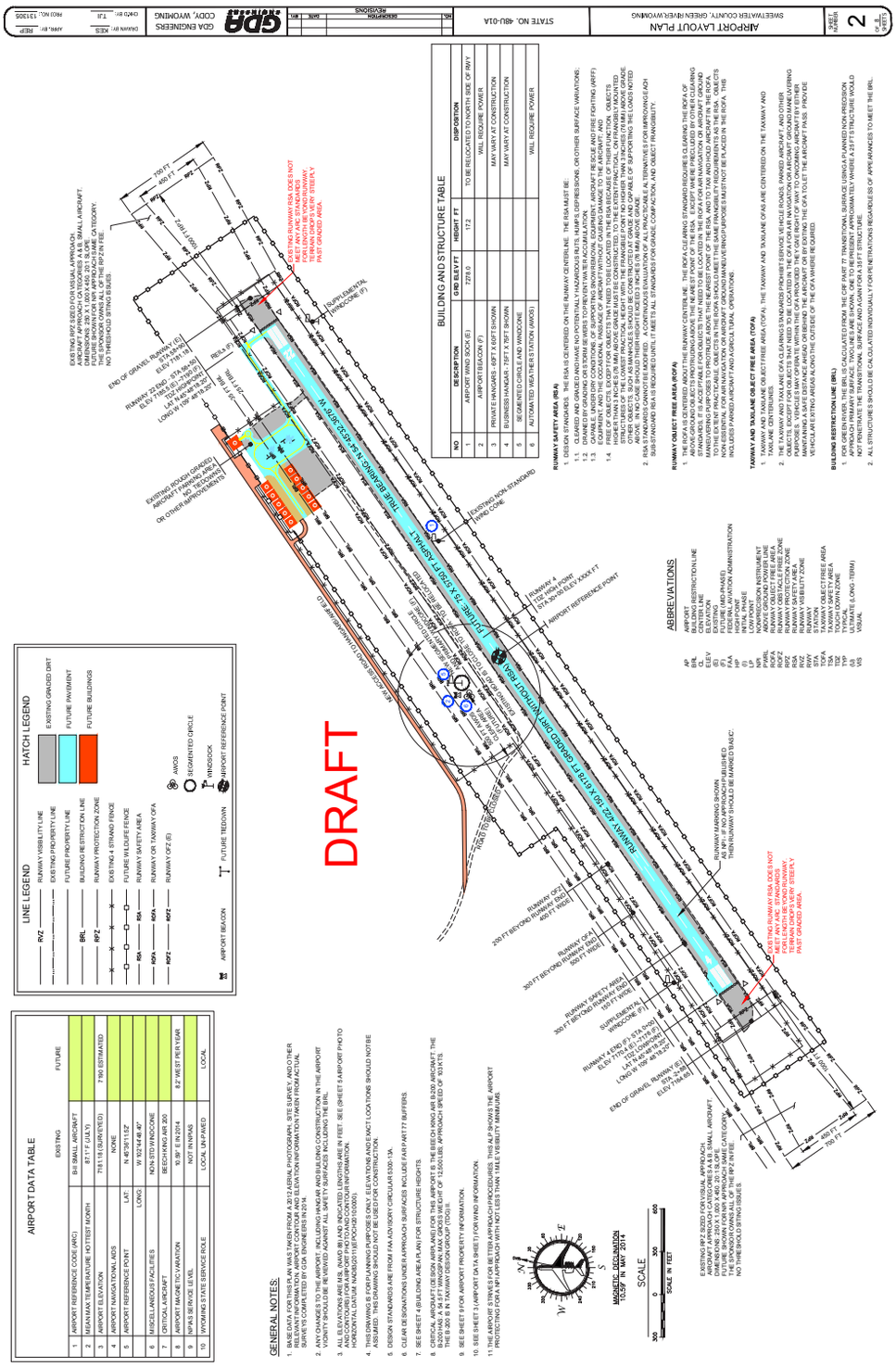


GDA Engineers • www.gdaengineers.com *Greater Green River Intergalactic Spaceport (48U)*

Greater Green River Intergalactic Spaceport
Master Plan Meeting 4

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING



Greater Green River Intergalactic Spaceport – Airport Master Plan
Green River Chamber of Commerce Lunch & Learn
July 16th, 2014 12:00 PM Hampton Inn, 1055 Wild Horse Canyon Road, Green River, WY

GDA ENGINEERS

Name	Company/Representing	City, State	Phone	Email Address
1. Helen Finney	Senior Citizen	GR		
2. Holden Wright	City of Green River	GR, WY	307 872 0524	hwright@ ~~hold~~ cityofgreenriver.org
3. Barry Tippy	Task Force	Green River	307 871 4645	barrytippy@hotmail.com
4. Buck Lewis	ME	Green River	307-875-5539	1116 Florida Dr Green River, WY
5. Bonnie Shoup		Green River	307-871-3190	
6. Michelle Folz	Citizen against spending money we dont have	GR	307 875-7619	1885 Mountain
7. Jim Punches	Self	GR	307-875-2904	avujep@sweetwater.net
8. Mary Murphy		G.R.		
9. DEBBIE JOHNSON		GR	875-8517	JOHNSONS@WYOMINGACCESS
10. JAMES M JOHNSON	—	GR	"	"
11. Dillon Gaudet				
12. Carm Bingham		GR	875-3720	None
13. Bob Bingham		GR	875 3720	NONE

LUNCH & LEARN SIGN-IN SHEET

GOLDEN HOUR SENIOR CENTER

Class: Coffee w/ Mayor

Date: July 17, 2014

Names	Phone #	Phone #
Goldie Buckendorf		875-6815
Bubbie Pittrell		
Rose Sadea		875-3331
Claire Boyer		875-3652
Don Boyer		"
Norma Boyer		875-3583
Lila Seyersdahl		875-1967
Marlene Terry		875-3835
Dale Johnson		
Dottie Krause		
Holden Wright	872-0524	
Mark Westenskow	872-0525	
Gary Bussart	389-6060	
Cathie Bussart	871-3338	
Etsuko Simon	875-3920	
Bernice Jaramillo	871-4205	

Please return this sign-up sheet to the Reception Desk on your way out. Thank You!

Final Public Meeting

The final master plan report and Airport Layout Plan was presented to the Green River City Council during a City Council Workshop on February 10th, 2015. During this workship, the Airport Task Force also gave a presentation about the outcomes of the master plan and additional general airport information.

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Appendix 3 - Forecast Approval

The Forecast of Aviation demand contained in this report was deemed approriate and reasonable by the Wyoming Department of Transportation Aeronautics Division via email correspondence on July, 2014. The Denver Airports District Office of the FAA reviewed the forecast as a courtesy, and found the methodology and conclusions reasonable.

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GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

P.O. Box 338
1508 Stampede Avenue
Cody, WY 82414
PH: 307.587.3411
FAX: 307.527.5182
www.gdaengineers.com

July 16, 2014

Name
Address
City, State Zip

RE: Greater Green River Intergalactic Spaceport Airport Master Plan

To Whom It May Concern:

GDA Engineers is currently completing an Airport Master Plan for the Greater Green River Intergalactic Spaceport located in Green River, WY. This Master Plan will be reviewed by the Federal Aviation Administration and Wyoming Department of Transportation, Aeronautics Division.

During the Master Plan process, information will be available on GDA Engineers' website, including the Master Plan draft when it becomes available. You may access this information by completing the following steps:

1. Go to http://gdaengineers.com/
2. Click on "Project Portal" on the top menu
3. Click on the "Create Account" icon
4. Make sure that the Green River Airport Master Plan is checked under "Request Project Access"
5. Your account will activated after we receive and review you information

The Airport Master Plan will include an overview of environmentally sensitive features at the airport. The overview is intended to help an airport owner judge whether the airport's environmental features affect day-to-day decisions, as well as long-term development goals.

The enclosed exhibit shows existing facilities as well as planned future facilities, including redevelopment of vacant land for usage compatible with current needs and safety standards.

The following categories will be reviewed:

- Air Quality;
- Coastal Resources;
- Compatible Land Use;
- Construction Impacts;
- Department of Transportation Act: Section 4(f); Farmlands;
- Fish, Wildlife, and Plants;
- Floodplains;
- Light Emissions and Visual Impacts;
- Natural Resources and Energy Supply;
- Noise;
- Secondary (Induced) Impacts;
- Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety;
- Water Quality;

1 of 2

- Hazardous Materials, Pollution Prevention, and Solid Waste;
- Historical, Architectural, Archaeological and Cultural Resources;
- Wetlands; and
- Wild and Scenic Rivers.

Please accept this letter as our request for an agency review of known environmental concerns and potential impacts of the planned development. Please provide any comments, concerns, or requirements your agency may have regarding the listed impact categories no later than **August 20, 2014.**

The Airport Master Plan is being prepared according to guidance provided in the Federal Aviation Administration Advisory Circular 150/5070-6B, Airport Master Plans. Please contact me at 307.587.3411 or tholder@gdaengineers.com if you need any further information or if you have any questions.

Sincerely,
GDA Engineers

Trent Holder

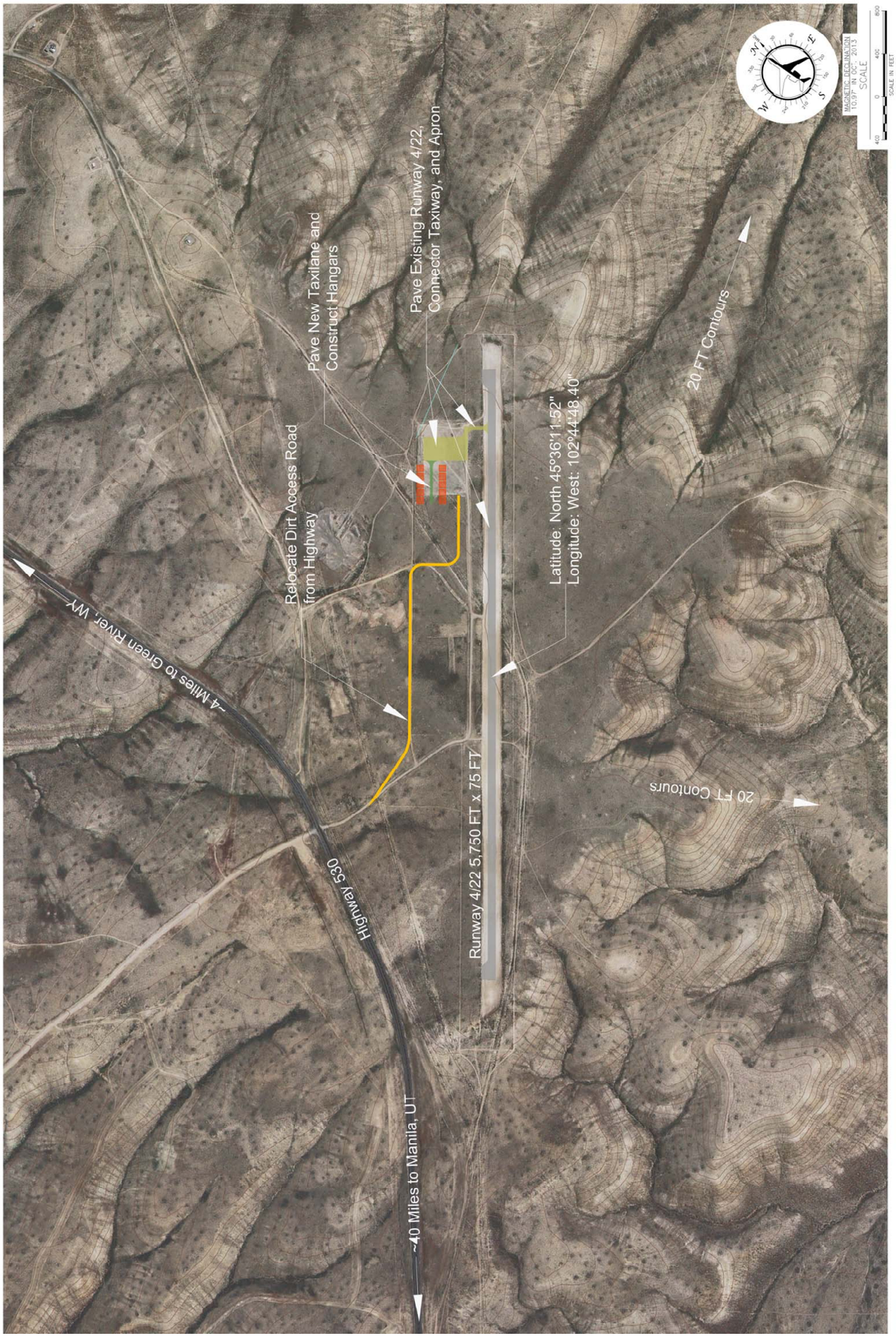
CC: Please see enclosed agency mailing list. If you note any omitted agencies or incorrect contacts, please let us know.

Enclosures: Agency mailing list
Drawing

2 of 2

AGENCY MAILING LIST

Title	Department	Address	City, State	Zip Code	Phone Number
Sweetwater County Assessor	Sweetwater County Assessor's Office	80 W. Flaming Gorge Way, Ste. 122	Green River, WY	82935	307-872-3700
Chairman, County Commissioners	Sweetwater County Commissioners	80 W. Flaming Gorge Way, Ste. 115	Green River, WY	82935	307-872-3899
County Commissioner	Sweetwater County Commissioners	80 W. Flaming Gorge Way, Ste. 115	Green River, WY	82935	307-872-3893
County Commissioner	Sweetwater County Commissioners	80 W. Flaming Gorge Way, Ste. 115	Green River, WY	82935	307-872-3894
County Commissioner	Sweetwater County Commissioners	80 W. Flaming Gorge Way, Ste. 115	Green River, WY	82935	307-872-3895
County Commissioner	Sweetwater County Commissioners	80 W. Flaming Gorge Way, Ste. 115	Green River, WY	82935	307-872-3889
Public Works Director	Sweetwater County Engineering	80 W. Flaming Gorge Way, Ste. 23	Green River, WY	82935	307-872-3920
Land Use Director	Sweetwater County Planning & Zoning Office	80 W. Flaming Gorge Way, Ste. 23	Green River, WY	82935	307-872-3914
	Sweetwater County Road and Bridge	95 Unita Drive	Green River, WY	82935	307-922-5415
Superintendent	Sweetwater County School District #2	320 Monroe Avenue	Green River, WY	82935	307-872-5500
Supervisor	Sweetwater County Weed and Pest	PO Box 173	Farson, WY	82932	307-273-9683
Field Office Manager	Bureau of Land Management	280 Highway 191 North	Rock Springs, WY	82901	307-352-0256
State Director	Bureau of Land Management	PO Box 1828	Cheyenne, WY	82003	307-775-6256
Area Manager	Bureau of Reclamation	302 East 1860 South	Provo, UT	84606	801-379-1101
CEQ Acting Chair	Council on Environmental Quality (CEQ)	1600 Pennsylvania Ave NW	Washington, DC	20500	202-456-1111
Coordinator	Sweetwater County Emergency Management	731 C St., Bldg. A, Suite #131	Rock Springs, WY	82901	307-548-2516
Task Force on Health Risks & Safety to Children	Environmental Protection Agency	1200 Pennsylvania Avenue, N.W., Mail Code 1101A	Washington, DC	20460	202-564-4700
Regional Administrator	Environmental Protection Agency - Region 8	8OC-EISC, 1595 Wynkoop Street	Denver, CO	80202	303-312-6312
Airport Engineer/Environmental Protection Specialist	FAA, Denver Airports District Office	26805 E. 68th Avenue, Suite 224	Denver, CO	80249	303-342-1261
Community Planner	FAA, Denver Airports District Office	26805 East 68th Avenue, Suite 224	Denver, CO	80249	303-342-1263
State Executive Director	Farm Service Agency	951 Werner Court, Ste. 130	Casper, WY	82601	307-261-5231
County Executive Director	Farm Service Agency - Sweetwater County	79 Winston Dr., Ste. 110	Rock Springs, WY	82901	307-362-3062
Regional Environmental Officer	Federal Emergency Management Agency	Denver Federal Center Building 710, Box 25267	Denver, CO	80225	303-235-4714
Energy Policy Analyst	Governor's Office State of Wyoming	State Capitol, 200 West 24th Street	Cheyenne, WY	82002	307-777-7930
Natural Resources Policy Director	Governor's Office State of Wyoming	State Capitol, 200 West 24th Street	Cheyenne, WY	82002	307-777-5629
Natural Resources Policy Analyst	Governor's Office State of Wyoming	State Capitol, 200 West 24th Street	Cheyenne, WY	82002	307-777-8204
Wildlife and Endangered Species Policy Advisor	Governor's Office State of Wyoming	State Capitol, 200 West 24th Street	Cheyenne, WY	82002	307-777-8248
	Green River Irrigation District	PO Box 368	Daniel, WY	83115	307-276-4004
	Sweetwater Conservation District	79 Winston Dr., Ste. 110	Rock Springs, WY	82901	307-870-8999
District Conservationist	Natural Resources Conservation Service	79 Winston Dr., Ste. 110	Rock Springs, WY	82901	307-362-3062
Area Conservationist	Natural Resources Conservation Service	508 N. Broadway Ave.	Riverton, WY	82501	307-856-7524
Soil Conservationist	Natural Resources Conservation Service	285 N. Penland St.	Baggs, WY	82321	307-383-2550
State Conservationist	Natural Resources Conservation Service	PO Box 33124	Casper, WY	82602	307-233-6750
State Archaeologist	Office of the Wyoming State Archaeologist	Department 3431, 1000 East University Avenue	Laramie, WY	82071	307-721-0882
	Rocky Mountain Power	201 South Main Street, Suite 2300	Salt Lake City, UT	84111	
	City of Green River - Solid Waste Division	50 East 2nd North	Green River, WY	82935	307-872-0531
Councilmembers	City of Rock Springs	City Hall, 212 D St.	Rock Springs, WY	82901	307-352-1510
Mayor	City of Rock Springs	City Hall, 212 D St.	Rock Springs, WY	82901	307-352-1510
Councilmembers	City of Green River	50 East 2nd North	Green River, WY	82935	307-872-0500
Mayor	City of Green River	50 East 2nd North	Green River, WY	82935	307-872-0599
	Transportation Security Administration	8500 Airport Parkway-Room 217	Casper, WY	82604	
Wyoming Regulatory Office	U.S. Army Corps of Engineers	2232 Dell Range Blvd., Suite 210	Cheyenne, WY	82009	307-772-2300
Section 7 Consultations	U.S. Fish & Widlife Service - Wyoming Field Office	5353 Yellowstone Road, Suite 308A	Cheyenne, WY	82009	307-772-2374
Regional Wetlands Coordinator	U.S. Fish & Wildlife Service	PO Box 25486	Denver, CO	80225	303-236-4263
Regional Forester	US Forest Service Rocky Mountain Region	740 Simms Street	Golden, CO	80401	303-275-5350
U.S. Fish and Wildlife Service	Wild and Scenic Rivers	64 Maple Street	Burbank, WA	99323	509-546-8333
Senior Planner	WYDOT Aeronautics	200 East 8th Avenue	Cheyenne, WY	82001	307-777-3972
Director	Wyoming Department of Agriculture	2219 Carey Avenue	Cheyenne, WY	82002	307-777-7321
National Oceanic and Atmospheric Administration	Wyoming Department of Commerce	12744 West U.S. Hwy. 26	Riverton, WY	82501	307-857-3898
Air Quality Division	Wyoming Department of Environmental Quality	122 W. 25th Street Herschler Building, 2-East	Cheyenne, WY	82002	307-777-7391
Solid & Hazardous Waste Division	Wyoming Department of Environmental Quality	122 W. 25th St., Herschler 4W	Cheyenne, WY	82002	307-777-3580
Water Quality Division	Wyoming Department of Environmental Quality	122 West 25th Street Herschler Building, 4th Floor-West	Cheyenne, WY	82001	307-777-7781
Water Quality Division	Environmental Quality Field Office	2451 Foothills Blvd., Suite 100	Rock Springs, WY	82901	307-352-2559
District 3 Office	Wyoming Department of Transportation	3200 Elk St.	Rock Springs, WY	82901	307-352-3000
Lands Management Administrator	Wyoming Department of Transportation	5300 Bishop Blvd.	Cheyenne, WY	82009	
Director	Wyoming Department of Workforce Services	122 W. 25th St., Herschler Bldg. 2E	Cheyenne, WY	82002	307-777-8650
Employment Services	Wyoming Department of Workforce Services	165 East Railroad Street	Green River, WY	82901	307-875-3847
Director	Wyoming Game and Fish Department	5400 Bishop Blvd.	Cheyenne, WY	82006	307-777-4699
Green River Regional Office	Wyoming Game and Fish Department	351 Astle	Green River, WY	82935	307-875-3223
Director of Homeland Security	Wyoming Office of Homeland Security	5500 Bishop, East Door	Cheyenne, WY	82002	307-777-4663
Director	Wyoming Office of State Lands & Investments	122 W. 25th Street Herschler Building 3rd Floor West	Cheyenne, WY	82001	307-777-6629
Agency Supervisor	Wyoming Oil and Gas Conservation Commission	PO Box 2640	Casper, WY	82602	307-234-7147
State Engineer	Wyoming State Engineers Office	122 West 25th St., 4th Floor East	Cheyenne, WY	82002	307-777-6150
Superintendent, Division 4	Wyoming State Engineers Office	PO Box 277	Cokeville, WY	83114	307-279-3441
District 3 Forester	Wyoming State Forestry Division	P.O. Box 1678	Pinedale, WY	82941	307-367-2119
Director and State Geologist	Wyoming State Geological Survey	PO Box 1347	Laramie, WY	82073	307-766-2286
Historic Preservation Officer	Wyoming State Historic Preservation Office	2301 Central Avenue, Barrett Building, Third Floor	Cheyenne, WY	82002	307-777-7697
Executive Director	Wyoming Wildlife and Natural Resource Trust	500 E. Fremont	Riverton, WY	82501	307-856-4665


~4 Miles to Green River, WY
Relocate Dirt Access Road from Highway
Pave New Taxilane and Consirtuct Hangars
Pave Existing Runway 4/22, Connector Taxiway, and Apron
Latitude: North 45°36'11.52"
Longitude: West: 102°44'48.40"
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20 FT Contours
Highway 530
Runway 4/22 5,750 FT x 75 FT
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

AUG 2 0 2014

In Reply Refer To:
06E13000/WY14CPA0154

Mr. Trent Holder
GDA Engineers
P.O. Box 338
Cody, Wyoming 82414

Dear Mr. Holder:

Thank you for your letter of July 16, 2014, received in our office on July 21, regarding the proposed Greater Green River Intergalactic Spaceport Airport Master Plan (Project). The Project includes the paving of the existing runway and connector taxiway, paving of a new taxi lane, construction of new hangars, and the relocation of the dirt access road from Highway 530. The Project is located in Sweetwater County, Wyoming at 41° 27.491'N 109° 29.385'W (NAD83).

We are writing in response to your inquiry related to species listed under Endangered Species Act (ESA; 16 U.S.C. 1531 *et seq.*), species of special concern, or migratory birds. We have indicated our response below, which we believe best meets your request.

☒ You requested a list of endangered, threatened, proposed, and/or candidate species, and designated or proposed critical habitat that may occur in the area of your Project. In an effort to expedite information sharing, we created an Information, Planning, and Conservation System (IPAC), available on-line at http://ecos.fws.gov/ipac/. IPAC can be used to identify any potential federally listed species or critical habitat in your project area by using the "Initial Project Scoping" tool. For species identified by IPAC, you should review the recommendations and measures at http://www.fws.gov/wyominges/Pages/Species/Species_Endangered.html.

☐ Based on information from your request, our understanding of the nature of the project, local conditions, and current information of federally listed species:

- ☐ We have not identified any issues that give us concern relative to species or critical habitat listed under the ESA.
- ☐ Contact the WGFD to identify measures to minimize impacts to greater sage-grouse (see http://www.fws.gov/wyominges/Pages/Species/Species_Listed/GSG.html).

☐ The ESA does not require the U.S. Fish and Wildlife Service to concur with "no effect" determinations; however, we appreciate receiving the information used to support your conclusion.

☐ We concur with your "may affect, not likely to adversely affect" determination for federally listed species and designated critical habitat.

☐ Your Project should be re-analyzed if Project plans change, or if new information on the distribution of listed or proposed species or critical habitat becomes available, or if new information reveals effects to listed or proposed species or critical habitat not previously considered.

☒ Based on information from your request, we also recommend you:

- ☒ Review your Project relative to responsibilities under the Migratory Bird Treaty Act (see http://www.fws.gov/wyominges/Pages/Species/Species_MigBirds.html).
- ☐ Review Avian Power Line Interaction Committee (APLIC) guidelines to avoid and minimize electrocutions and collisions (see http://www.aplic.org).
- ☐ Review your Project relative to guidelines regarding placement of cell towers (see http://www.fws.gov/habitatconservation/communicationtowers.html).
- ☐ Review your Project relative to responsibilities for wetland protection (see http://www.fws.gov/wyominges/Pages/WYES_LandCons.html).
- ☐ Take steps to conserve and protect Species of Greatest Conservation Need (see http://www.fws.gov/wyominges/Pages/Species/Species_Concern.html).

We appreciate your efforts to conserve endangered, threatened, and candidate species and migratory birds. If you have any questions regarding this letter or your responsibilities under the ESA or other authorities, please contact Nathan Darnall of my office at the letterhead address or by phone at 307) 772-2374, extension 246.

Sincerely,

For R. Mark Sattelberg
Field Supervisor
Wyoming Field Office

cc: WGFD, Interim Non-game Coordinator, Lander, WY (M. Grenier)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

2

USDA

United States Department of Agriculture

NRCS
Natural Resources Conservation Service

Casper State Office

100 East B Street
Suite 3001
Box 33124
Casper, WY 82602

Voice 307.233.6750
Fax 855.415.3404

July 18, 2014

Trent Holder
GDA Engineers
P.O. Box 338
Cody, WY 82414

Dear Mr. Holder:

The Natural Resources Conservation Service (NRCS) has reviewed the **Greater Green River Intergalactic Spaceport Airport Master Plan Project** proposal dated 07/16/2014.

The Agriculture and Food Act of 1981, (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549, is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

Please find enclosed an NRCS Soil Survey Map, soils reports and maps indicating areas of Important Farmlands and hydric soils. The important Farmlands map has been enclosed for your aid in determining if an AD-1006 form, Farmland Impact Conversion Rating Form is needed for this project. Typically, this form is required on projects that convert farmlands into non-farmland uses, which have federal dollars attached to the project. Areas committed to or already in urban development are not subject to FPPA. It appears that there are no soils which are Important Farmland located within the Project Area. Additionally, there are delineations within the project area which have no farmland rating. These areas do not appear to be Important Farmland. See the website link below for more information on the Farmland Protection Act, and a copy of the AD-1006 form, with instructions. The hydric soils map enclosed identifies potential areas of wetlands. In this project area there appear to be no hydric soils. If wetlands do exist, any proposed impacts to these wetlands would need compliance with the "Clean Water Act", and may need an Army Corp of Engineers 404 permit.

The NRCS Soil Survey Map identifies all soil map units in the project area. The soil reports provide selected soil properties, and interpretations, i.e. flooding hazard, limitations for roads, and dwellings, soil layers with USDA textures, and engineering classifications. The limitation ratings for the selected uses, i.e. roads and streets, range from not limited to very limited. Somewhat limited to very limited rating does not preclude the intended land use, however it does identify limitations for the use, which may require corrective measures, and increase costs, and require continued maintenance.

An Equal Opportunity Provider and Employer

The NRCS Soil Survey is a general planning tool and does not eliminate the need for an onsite investigation. If you have any questions concerning the soils or interpretations for this project please call me at (307) 233-6784 or email, james.bauchert@wy.usda.gov.

NRCS - Farmland Protection Policy Act Website:
http://www.nrcs.usda.gov/programs/fppa/

Sincerely,

JAMES BAUCHERT
State Soil Scientist

Enclosures:

Custom Soil Resource Report for Sweetwater County Area, Wyoming – Greater Green River Intergalactic Spaceport Airport Master Plan

Cc: Astrid Martinez, State Conservationist

An Equal Opportunity Provider and Employer

MATTHEW H. MEAD
Governor

THE STATE OF WYOMING

Office of Homeland Security

Telephone (307) 777-Home (4663)
Fax (307) 635-6017
5500 Bishop Boulevard, Cheyenne, Wyoming 82002

August 12, 2014

Trent Holder
GDA Engineers
P.O. Box 338
1508 Stampede Avenue
Cody, WY 82414

Dear Mr. Holder,

This is to confirm the receipt of your Airport Master Plan for the Greater Green River Intergalactic Spaceport located in Green River, WY from a letter dated July 16, 2014. The Wyoming Office of Homeland Security has completed its review of the material and information obtained and conducted an initial analysis of the natural hazards this plant may intersect with.

While there is no mapped 100 year floodplain in this area, it is our recommendation that the site plans take into account the possibility of flooding. ~~There are many streams and creeks near the Simplot proposed development site, and any spill of materials from the plant could propose a water contamination risk~~. We encourage development be conducted with natural hazards, local building codes and information from local authorities taken into consideration.

The review process of these plans and specifications has been completed and if you need any further assistance please contact our agency at 307-777-4900.

Sincerely,

Guy Cameron, Director

08/20/14 2:21pm
TC to Ginny -
please strikethrough
sentence; rest of
letter is accurate

GC:gnm

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

Jul 23, 2014

Trent Holder
GDA Engineering
P.O. Box 338
1508 Stampede Avenue
Cody, WY 82414

Re: Greater Green River Intergalactic Spaceport Airport Master Plan (SHPO File # 0714JRD015)

Dear Mr. Holder:
Thank you for initial consultation with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced undertaking. We look forward to future correspondence regarding this project including the Class III survey.

Please refer to SHPO project #0714JRD015 on any future correspondence regarding this undertaking. If you have any questions, please contact Joseph Daniele, Archaeologist/Review and Federal Consultation at 307-777-8793.
Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office

Matthew H. Mead, Governor
Milward Simpson, Director

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

GOVERNOR
MATTHEW H. MEAD

DIRECTOR
SCOTT TALBOTT

COMMISSIONERS
RICHARD KLOUDA – President
CHARLES PRICE – Vice President
MARK ANSELMI
AARON CLARK
KEITH CULVER
MIKE HEALY
T. CARRIE LITTLE

August 20, 2014

WER 13472
GDA Engineers
Environmental Review
Greater Green River
Intergalactic Spaceport Airport Master Plan
Sweetwater County

Trent Holder
GDA Engineers
PO Box 338
1508 Stampede Avenue
Cody, WY 82414

Dear Mr. Holder:

The staff of the Wyoming Game and Fish Department (WGFD) has completed the environmental review
for the proposed Greater Green River Intergalactic Spaceport Airport Master Plan for GDA Engineers in Sweetwater County. We offer the following comments for your consideration.

Terrestrial Considerations:

The WGFD has no concerns with the proposed project plans for the Greater Green River Intergalactic Spaceport Airport Master Plan. In the event new utilities will be needed in the area further evaluation of impacts to State Trust species will need to be reviewed. There are specific concerns the midget-faded rattlesnake as well as other species of greatest conservation need may be impacted with future infrastructure and development plans in this area. We look forward to reviewing any additional plans for this project.

Aquatic Considerations:

We have no aquatic concerns pertaining to the Greater Green River Intergalactic Spaceport Airport Master Plan. However, we recommend the developer survey for midget faded rattle snakes in any areas of new development.

"Conserving Wildlife - Serving People"

Trent Holder
August 20, 2014
Page 2 of 2 - WER 13472

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Linda Cope, Staff Terrestrial Biologist, at 307-777-2533 or Robb Keith, Green River Fisheries Supervisor, at 307-875-3225 Ext. 251.

Sincerely,

for John Kennedy
Deputy Director

JK/mf/gb

cc: USFWS
Chris Wichmann, Wyoming Department of Agriculture, Cheyenne
Patrick Burke, WGFD, Green River Region
Mark Zornes, WGFD, Green River Region
Robb Keith, WGFD, Green River Region

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matt Mead, Governor

Todd Parfitt, Director

August 5, 2014

Trent Holder
GDA Engineers
P.O. Box 338
Cody, WY 82414

RE: Green River, Wyoming
Greater Green River Intergalactic Spaceport, Airport Master Plan

Dear Mr. Holder,

The State of Wyoming, Air Quality Division's Compliance Group received a copy of your letter dated July 16, 2014 requesting an agency review of known environmental concerns and potential impacts of the planned development of the existing Greater Green River Intergalactic Spaceport, which is located approximately four (4) miles south of Green River, Wyoming.

GDA Engineers is preparing an Airport Master Plan that will be reviewed by the FAA and the Wyoming Department of Transportation, Aeronautics Division. The proposed improvements include paving the existing runway (5,750 ft x 75 ft), taxiway and apron; construct hangars and relocate the Airport's dirt access road. Upon review of the proposed project, the Air Quality Division's Compliance Group recommends the following to address the potential air quality concerns during construction:

1. Air Quality Permits:
Review potential permitting requirements with the Air Quality Division's New Source Performance (NSR) group. For example, if on-site batch, or hot-mix plants will be used, permits/waivers will be required for this equipment.

2. Fugitive Dust during and after Construction:
Chapter 3, Section 2 of the Wyoming Air Quality Standards and Regulations defines emission standards for particulate matter including the control of fugitive dust from construction activity [Chapter 3, Section 2, (f)]. Therefore, it is recommended that the construction plan include the control of fugitive dust during and after construction.

Please call me at 307-335-6977 if you have questions concerning this matter.

Lander Field Office • 510 Meadowview Drive • Lander, WY 82520 • http://deq.state.wy.us

ABANDONED MINES	AIR QUALITY	LAND QUALITY	SOLID & HAZARDOUS WASTE	WATER QUALITY
(307) 332-5085	(307) 332-6755	(307) 332-3047	(307) 332-6924	(307) 332-3144
FAX 332-7726	FAX 332-7726	FAX 332-7726	FAX 332-7726	FAX 332-7726

August 5, 2014

Trent Holder
GDA Engineers
Page 2

Sincerely,

Marty Hamilton
Air Quality Engineer
Wyoming DEQ/Air Quality Division

From: Little, Kevin C NWO
To: Trent Holder
Subject: Greater Green River Intergalactic Spaceport Master Plan (UNCLASSIFIED)
Date: Monday, July 28, 2014 12:45:32 PM

Classification: UNCLASSIFIED
Caveats: NONE

Hi Trent,

I have reviewed the information you provided our office in regards to the Airport Master Plan for the Greater Green River Intergalactic Spaceport. It is likely the proposed improvements will not require a Department of the Army permit. Please send us more information on the projects when the plans are developed. We can write a formal letter stating no permit is required at that time.

Please let me know if you have any questions.

Thanks,

Kevin Little
U.S. Army Corps of Engineers
Wyoming Regulatory Office
2232 Dell Range Boulevard, Suite 210
Cheyenne, Wyoming 82009
(307) 772-2300

Classification: UNCLASSIFIED
Caveats: NONE

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04/23/04

AC 150/5200-18C
Appendix 1

APPENDIX 1

AIRPORT SAFETY SELF-INSPECTION CHECKLIST

DATE: _____ DAY: _____

√ Satisfactory
X Unsatisfactory

Day Inspector/Time: _____ Night Inspector/Time: _____

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Pavement Areas	Pavement lips over 3"				
	Hole – 5" diam. 3" deep				
	Cracks/spalling/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	Glass beads				
Signs	Standard/meet Sign Plan				
	Obscured/operable				
	Damaged/retroreflective				

AC 150/5200-18C **04/23/04**
Appendix 1

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Lighting	Obscured/dirty/operable				
	Damaged/missing				
	Faulty aim/adjustment				
	Runway lighting				
	Taxiway lighting				
	Pilot control lighting				
Navigational Aids	Rotating beacon operable				
	Wind indicators				
	RENLs/VGSI systems				
Obstructions	Obstruction lights operable				
	Cranes/trees				
Fueling Operations	Fencing/gates/signs				
	Fuel marking/labeling				
	Fire extinguishers				
	Frayed wires				
	Fuel leaks/vegetation				
Snow & Ice	Surface conditions				
	Snowbank clearances				
	Lights & signs obscured				
	NAVAIDs				
	Fire access				

04/23/04

AC 150/5200-18C
Appendix 1

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Construction	Barricades/lights				
	Equipment parking				
	Material stockpiles				
	Confusing signs/markings				
Aircraft Rescue and Fire Fighting	Equipment/crew availability				
	Communications/alarms				
	Response routes affected				
Public Protection	Fencing/gates/signs				
	Jet blast problems				
Wildlife Hazards	Wildlife present/location				
	Complying with WHMP				
	Dead birds				

Comments/Remarks: _____

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Airfield Map on Reverse Side

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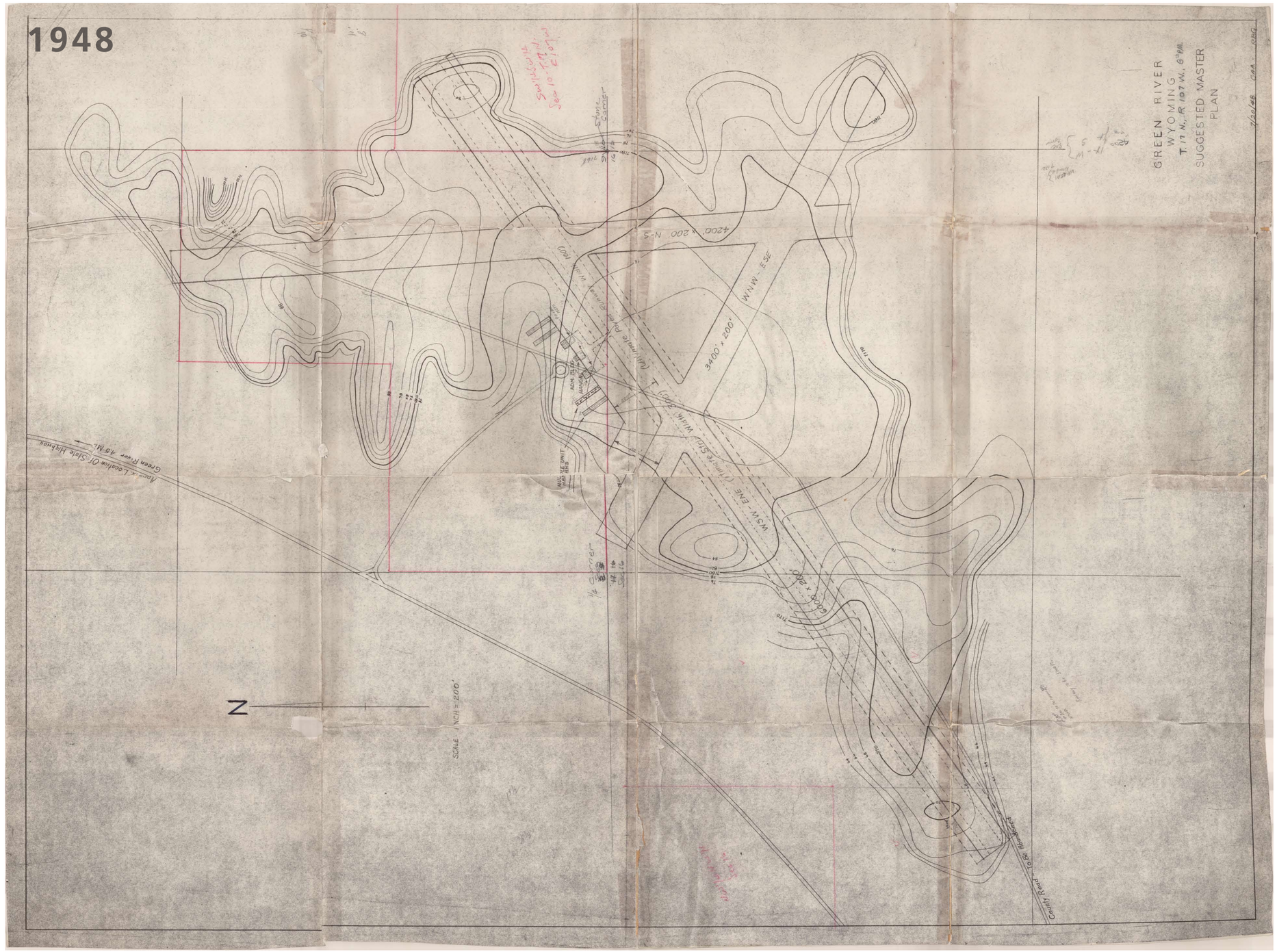
1948
GREEN RIVER
WYOMING
T. 17 N., R 107 W., 6th P.M.
SUGGESTED MASTER
PLAN
SCALE 1 INCH = 200'
N
Green River 48 Mi.
County Road - To Old Bonneville
4200' x 200' N-S
3400' x 200' W.N.W.-E.S.E.
6600' x 200' W.S.W.-E.N.E.
Ultimate Paved Runway (100)
Ultimate Study Width 300'
1/2 Corner
Sec 10-T.17N.
Sec 15

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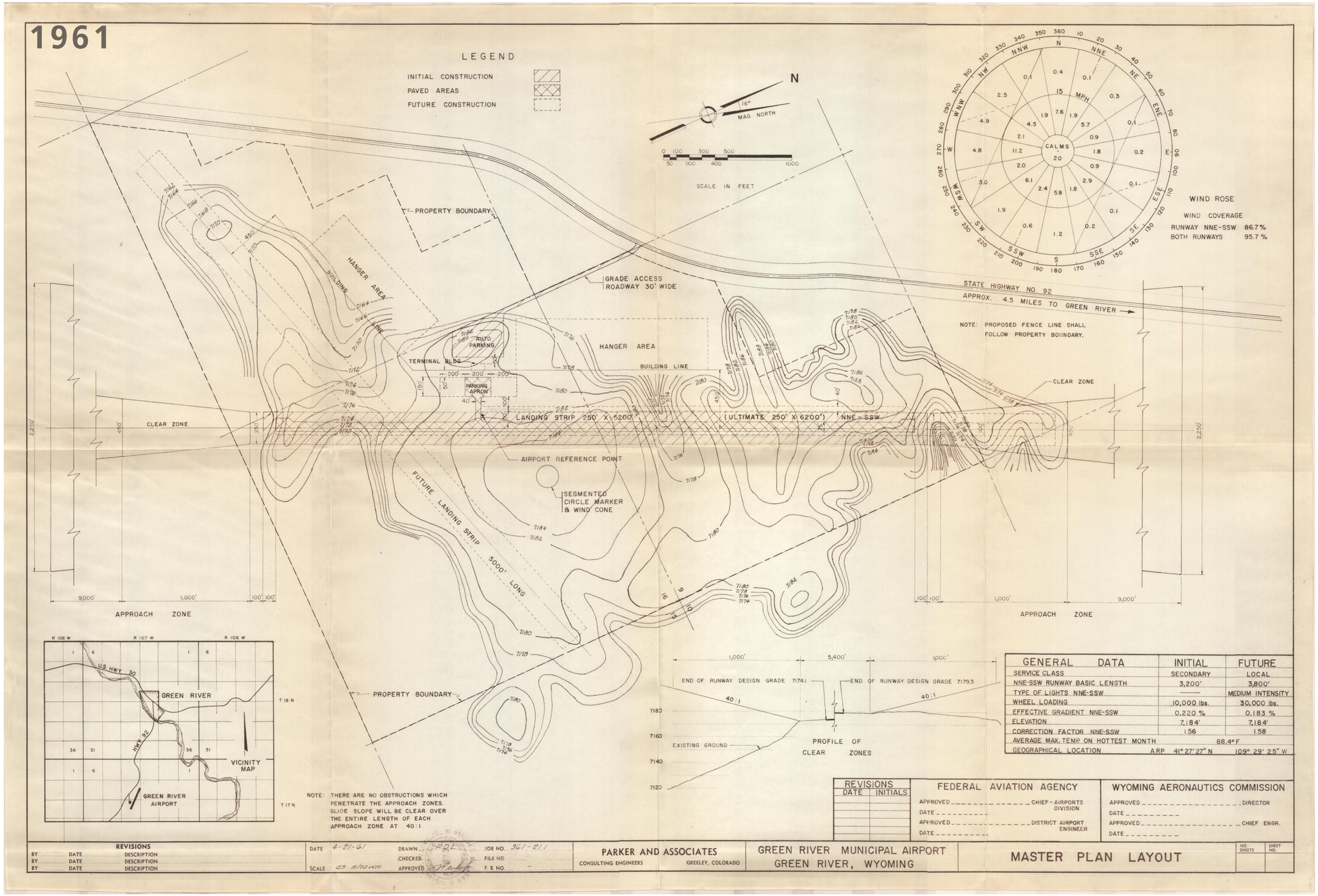
1961
LEGEND
INITIAL CONSTRUCTION
PAVED AREAS
FUTURE CONSTRUCTION
N
16°
MAG. NORTH
SCALE IN FEET
WIND ROSE
WIND COVERAGE
RUNWAY NNE-SSW 86.7%
BOTH RUNWAYS 95.7 %
CALMS 2.0
15 MPH
PROPERTY BOUNDARY
HANGER AREA
BUILDING LINE
GRADE ACCESS ROADWAY 30' WIDE
STATE HIGHWAY NO. 92
APPROX. 4.5 MILES TO GREEN RIVER
NOTE: PROPOSED FENCE LINE SHALL FOLLOW PROPERTY BOUNDARY.
TERMINAL BLDG.
AUTO PARKING
PARKING APRON
CLEAR ZONE
LANDING STRIP 250' X 5200'
(ULTIMATE 250' X 6200') NNE-SSW
AIRPORT REFERENCE POINT
SEGMENTED CIRCLE MARKER & WIND CONE
FUTURE LANDING STRIP 5000' LONG
APPROACH ZONE
9,000'
1,000'
100'
PROPERTY BOUNDARY
END OF RUNWAY DESIGN GRADE 7174.1
END OF RUNWAY DESIGN GRADE 7179.3
40:1
EXISTING GROUND
PROFILE OF CLEAR ZONES
1,000'
5,400'
1,000'
7180
7160
7140
7120
R 108 W
R 107 W
R 106 W
T 18 N
T 17 N
U.S. HWY 30
HWY 92
GREEN RIVER
GREEN RIVER AIRPORT
VICINITY MAP
NOTE: THERE ARE NO OBSTRUCTIONS WHICH PENETRATE THE APPROACH ZONES. GLIDE SLOPE WILL BE CLEAR OVER THE ENTIRE LENGTH OF EACH APPROACH ZONE AT 40:1
GENERAL DATA | INITIAL | FUTURE
SERVICE CLASS | SECONDARY | LOCAL
NNE-SSW RUNWAY BASIC LENGTH | 3,200' | 3,800'
TYPE OF LIGHTS NNE-SSW | —— | MEDIUM INTENSITY
WHEEL LOADING | 10,000 lbs. | 30,000 lbs.
EFFECTIVE GRADIENT NNE-SSW | 0.220 % | 0.183 %
ELEVATION | 7,184' | 7,184'
CORRECTION FACTOR NNE-SSW | 1.56 | 1.58
AVERAGE MAX. TEMP. ON HOTTEST MONTH | 88.4° F
GEOGRAPHICAL LOCATION | ARP 41° 27' 27" N | 109° 29' 25" W
REVISIONS
DATE INITIALS
FEDERAL AVIATION AGENCY
APPROVED CHIEF - AIRPORTS DIVISION
DATE
APPROVED DISTRICT AIRPORT ENGINEER
DATE
WYOMING AERONAUTICS COMMISSION
APPROVED DIRECTOR
DATE
APPROVED CHIEF ENGR.
DATE
REVISIONS
BY DATE DESCRIPTION
BY DATE DESCRIPTION
BY DATE DESCRIPTION
DATE 4-21-61
SCALE as shown
DRAWN R.D.L.
CHECKED
APPROVED
JOB NO. 361-211
FILE NO.
F. B. NO.
PARKER AND ASSOCIATES
CONSULTING ENGINEERS
GREELEY, COLORADO
GREEN RIVER MUNICIPAL AIRPORT
GREEN RIVER, WYOMING
MASTER PLAN LAYOUT
NO. SHEETS
SHEET NO.

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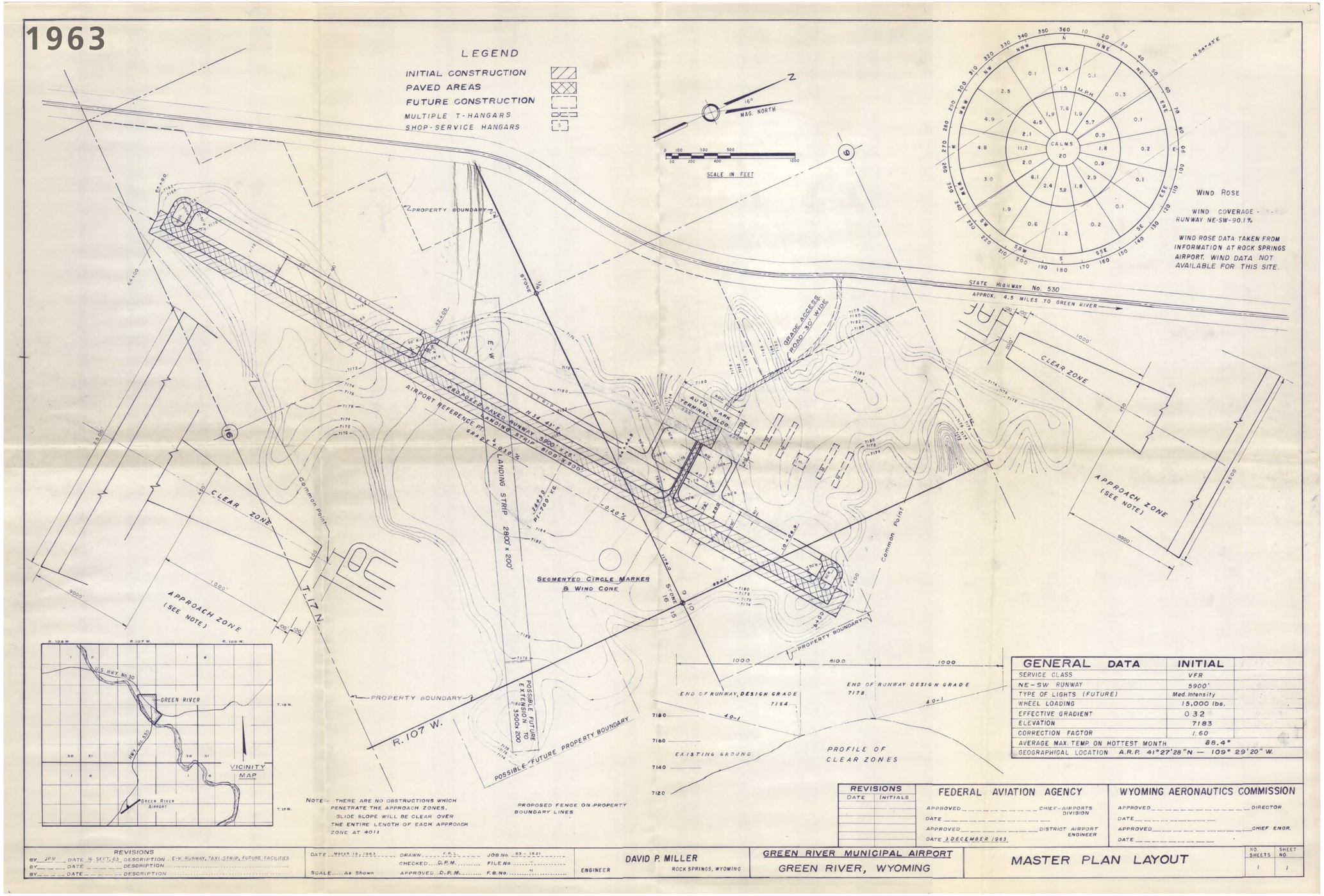
1963
LEGEND
INITIAL CONSTRUCTION
PAVED AREAS
FUTURE CONSTRUCTION
MULTIPLE T-HANGARS
SHOP-SERVICE HANGARS
MAG. NORTH
SCALE IN FEET
WIND ROSE
WIND COVERAGE - RUNWAY NE-SW-90.1%
WIND ROSE DATA TAKEN FROM INFORMATION AT ROCK SPRINGS AIRPORT. WIND DATA NOT AVAILABLE FOR THIS SITE.
STATE HIGHWAY No. 530
APPROX. 4.5 MILES TO GREEN RIVER
CLEAR ZONE
APPROACH ZONE (SEE NOTE)
AUTO PARK
TERMINAL BLDG.
GRADE ACCESS ROAD 30' WIDE
AIRPORT REFERENCE PT.
LANDING STRIP 2900' x 200'
SEGMENTED CIRCLE MARKER & WIND CONE
PROPERTY BOUNDARY
POSSIBLE FUTURE PROPERTY BOUNDARY
R. 107 W.
T. 17 N.
VICINITY MAP
GREEN RIVER
GREEN RIVER AIRPORT
U.S. HWY. No. 30
HWY. No. 530
END OF RUNWAY, DESIGN GRADE 7164
END OF RUNWAY DESIGN GRADE 7178
EXISTING GROUND
PROFILE OF CLEAR ZONES
NOTE:- THERE ARE NO OBSTRUCTIONS WHICH PENETRATE THE APPROACH ZONES. GLIDE SLOPE WILL BE CLEAR OVER THE ENTIRE LENGTH OF EACH APPROACH ZONE AT 40:1
PROPOSED FENCE ON PROPERTY BOUNDARY LINES
GENERAL DATA | INITIAL
SERVICE CLASS | VFR
NE-SW RUNWAY | 5900'
TYPE OF LIGHTS (FUTURE) | Med. Intensity
WHEEL LOADING | 15,000 lbs.
EFFECTIVE GRADIENT | 0.32
ELEVATION | 7183
CORRECTION FACTOR | 1.60
AVERAGE MAX. TEMP. ON HOTTEST MONTH | 88.4°
GEOGRAPHICAL LOCATION A.R.P. 41°27'28"N — 109° 29'20" W.
REVISIONS
DATE | INITIALS
FEDERAL AVIATION AGENCY
APPROVED ____ CHIEF-AIRPORTS DIVISION
DATE
APPROVED ____ DISTRICT AIRPORT ENGINEER
DATE 3 DECEMBER 1963
WYOMING AERONAUTICS COMMISSION
APPROVED ____ DIRECTOR
DATE
APPROVED ____ CHIEF ENGR.
DATE
REVISIONS
BY JPM DATE 16 SEPT. 63 DESCRIPTION E-W RUNWAY, TAXI STRIP, FUTURE FACILITIES
DATE March 15, 1963 DRAWN F.P.L. JOB No. 63-1521
CHECKED O.P.M. FILE No.
SCALE As Shown APPROVED O.P.M. F.B. No.
DAVID P. MILLER
ENGINEER ROCK SPRINGS, WYOMING
GREEN RIVER MUNICIPAL AIRPORT
GREEN RIVER, WYOMING
MASTER PLAN LAYOUT
NO. SHEETS 1
SHEET NO. 1

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Appendix 7 - Airport Layout Plan

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Wyoming Priority Rating Model for Project Evaluation

2014

Wyoming Aeronautics Commission

Wyoming Aeronautics Division

Wyoming Priority Rating Model for Project Evaluation – 2014

The purpose of the priority rating model is to evaluate and rank projects for planning, budgeting, and granting by utilizing objective information to make decisions considering the collective needs of the state's aviation system.

Developed by the Aeronautics Division of the
Wyoming Department of Transportation

Approved by the Wyoming Aeronautics Commission

Priority Rating Model Task Force:

Wyoming Aeronautics Commission: Charles Ksir, Pete Schoonmaker
Airport Representatives:
- Ray Bishop, Jackson Hole Airport
- Sean Christensen, Powell Municipal Airport
- Bob Hooper, Yellowstone Regional Airport
- Glenn Januska, Casper/Natrona County International Airport
- Hans Odde, Hot Springs County - Thermopolis Municipal Airport
- Jim Parker, Ralph Wenz Field

GDA Engineers: Rick Patton
Wyoming Aeronautics Division: Cheryl Bean, Christy Yaffa

Wyoming Priority Rating Model for Project Evaluation – 2014

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Wyoming Priority Rating Model for Project Evaluation – 2014

Purpose of the Priority Rating Model

The stated purpose of the priority rating model is to evaluate and rank airport projects for planning, budgeting, and granting by utilizing relevant information to make objective decisions considering the collective needs of the state's aviation system.

Development and Organization of the Priority Rating Model

The Wyoming Aeronautics Commission is responsible, by Wyoming Statute 10-3-402 and Commission Policy, for the disbursement of state funds for airport improvements. Commission Policy also ensures that the disbursement of funds be accomplished through consistent application. To meet this policy, the Commission has designated a priority rating system as a tool to maximize the use of available airport funding and assist in the evaluation of all airport projects proposed for state or federal funding.

Historically, the evaluation of projects for Aeronautics Commission funding has followed a defined process – eligibility, state evaluation, priority rating model - administered by the Wyoming Aeronautics Division, for consideration and acceptance by the Commission. The process of evaluating airport requested projects, for inclusion in the Wyoming Aviation Capital Improvement Program (WACIP), used an initial review for eligibility to assure that each project met state statute, Commission policies, grant assurances, regulations and precedence. Eligible projects were then assessed by the Aeronautics Division using a State Evaluation to assure that each project met State program requirements and priorities. Those projects that met both eligibility and state evaluation requirements were then ranked using evaluation categories outlined in the Wyoming Priority Rating Model for Project Evaluation – February 2006 (2006 PRM). Those seven categories represented important project objectives with each category weighted to recognize differing levels of importance in an overall evaluation and ranking of eligible projects.

The Aeronautics Commission, in 2013, directed the Aeronautics Division to establish a Task Force to review the 2006 PRM. This review was to determine if that Model could be improved and also address specific recommendations that resulted from a program evaluation completed by the Legislative Service Office, State of Wyoming. A Task Force was established and first met on September 5th and 6th, 2013, to initiate review of the 2006 PRM. 2014 Priority Rating Model (PRM) Task Force members were:

Wyoming Aeronautics Commission: Charles Ksir, Pete Schoonmaker

Airport Representatives:
Ray Bishop, Jackson Hole Airport
Sean Christensen, Powell Municipal Airport
Bob Hooper, Yellowstone Regional Airport
Glenn Januska, Casper/Natrona County International Airport
Hans Odde, Hot Springs County - Thermopolis Municipal Airport
Jim Parker, Ralph Wenz Field
GDA Engineers: Rick Patton
Wyoming Aeronautics Division: Cheryl Bean, Christy Yaffa

Brian Olsen, Timothy Dolan, Merri Burkett, and Danyelle Fuhrmann, from the Aeronautics Division, provided professional services to assist the Task Force. Galen Hesterberg provided consultant services to the Aeronautics Division and assistance to the Task Force.

The PRM Task Force completed its review of the priority rating model in early 2014. The review process focused on identification of issues concerning use of the 2006 PRM and subsequent recommendations for updating and restructuring that Model to better support the stated purpose of the priority rating model as a tool to assist in the evaluation of all airport projects proposed for state or federal funding.

The Priority Rating Model Task Force recommended that the evaluation of projects, for Aeronautics Commission funding, be reorganized with the historical State Evaluation incorporated into the priority rating model. The evaluation of projects by the Aeronautics Division will continue to use an initial review for eligibility to assure that each project meets state statute, Commission policies, grant assurances, regulations and precedence. Eligible projects will then be assessed and ranked by the Aeronautics Division using evaluation categories incorporating both the historical State Evaluation and restructuring of the 2006 PRM categories.

The Wyoming Priority Rating Model for Project Evaluation – 2014, as approved by the Aeronautics Commission, will evaluate projects requested by airport sponsors, for State or Federal funding, using six weighted categories. These six categories represent important project evaluation criteria with each category weighted to recognize differing levels of importance in an overall evaluation and ranking of eligible projects. The six categories, with weights and brief descriptions, as recommended by the Task Force are:

Purpose of Project – 5 point weight – this category, previously used in the 2006 PRM, is also recognized as one of the most important individual categories as it defines the primary purpose of each project: Safety, Security, Maintenance, Airport Enhancement, or Planning.

Project Component – 3 point weight – this category, previously used in the 2006 PRM, continues to prioritize those projects that are directed to preservation and enhancement of airside facilities.

Type of Federal Funding – 5 point weight – this category, previously used in the 2006 PRM, is one of the most important individual categories as, in general, federal funds provide the majority of financial assistance to airport sponsors for airport improvement projects.

Systems Impact – 3 point weight – this new category has been developed to incorporate the historical State Evaluation and allows the Aeronautics Division to consider an individual project's overall impact to the State Aviation System Plan (SASP), the timing and funding requirements of state or federal programs, and the importance/priority of any project as determined by the Airport Sponsor.

Airport Usage – 3 point weight – this category, previously used in the 2006 PRM, continues to prioritize projects based on the airport's benefit to the most airport users/citizens. New to this category is the use of the airport's state system plan classification, which is assigned based on the airport's type and level of usage, the role of the airport in the overall system, and the facilities and services offered at the airport.

Status of Airport Protection – 1 point weight – this category, previously used in the 2006 PRM, recognizes the importance of safeguarding airport operations and minimizing impact to properties in proximity to the airport by implementing land use protections.

The Wyoming Priority Rating Model – 2014, using each of these six categories, will result in a numerical rating for each project; the process of matching a project proposal to a numerical rating is later defined for each category. The numerical rating is assigned, and then multiplied by the category weight to determine a final category numerical value. The six category values are then summed to conclude the final priority model ranking for those projects proposed for State or Federal funding. A maximum of 97 points are available for a project that meets the highest value for each of the six categories.

Use of the Priority Rating Model

The Wyoming Aviation Capital Improvement Program (WACIP) represents the State's funding plan for airport improvement projects. Individual airport projects are outlined by location, program year, project status, project description, priority model rating, and proposed funding source/sources. The WACIP is developed annually, with monthly updates by the Aeronautics Division for Aeronautics Commission approval.

Airport sponsors evaluate their airport needs and initiate projects designed to address those needs. The sponsors then propose their projects for inclusion in the WACIP; their evaluation of proposed projects should consider eligibility of the project against the requirements of the proposed funding sources. The airport sponsor should also consider the likely priority model

ranking when evaluated against other proposed projects statewide, using the six weighted categories of the Wyoming Priority Rating Model – 2014.

The Aeronautics Division evaluates all proposed projects for eligibility and, if eligible, evaluates each project as outlined in the Wyoming Priority Rating Model – 2014. As presented earlier, the Wyoming Priority Rating Model – 2014 will result in a numerical rating for each project; that rating is summarized for proposed projects. The proposed projects are subsequently shown by ranking, based on the numerical rating, in the WACIP. The Aeronautics Division develops the WACIP annually and updates the WACIP monthly for Aeronautics Commission approval.

The Aeronautics Commission designates the Wyoming Priority Rating Model – 2014 as a tool to assist in the evaluation of all airport projects proposed for State or Federal funding. This evaluation is needed as available funding for airport improvements generally does not allow for funding of all proposed projects. The Aeronautics Commission applies the Wyoming Priority Rating Model – 2014, to ensure that the disbursement of funds is accomplished through consistent application, but reserves its authority to make decisions considering the collective needs of the state's aviation system.

Categories Used by the Priority Rating Model

The Wyoming Priority Rating Model – 2014 will be used to establish a numerical rating for evaluation of proposed projects with the numerical rating based upon the following six categories, weights, and descriptions.

Purpose of Project
(Weight of 5)

The Purpose of Project category receives a weight of 5, and is one of the most important individual categories in the priority rating model.

The Purpose of Project category identifies the type of project and provides for five general purposes and award of points:

4 = Safety
3 = Security, Maintenance
2 = Airport Enhancement and Planning
1 = Not Used
0 = Not Used

The Airport Sponsor should note that preparation of planning studies, engineering documents, and land acquisition, as required for development of a specific capital improvement project, will be awarded points according to the purpose of the overall project.

Safety (4 points) is the most important project purpose and includes many different project types. These projects are seen as highly important as they are consistent with the Aeronautics Commission's overall mission to provide a safe and efficient aviation system.

Safety projects are generally defined as improvements to existing infrastructure, facilities and equipment, which support the daily functions of the airport, support the short-term and long-term operations of the airport, and provide for the safety of airport personnel and airport users. The final determination if a project meets the definition of Safety will be made by the Aeronautics Division.

Key considerations to be used by the Division in this determination include, but are not limited to:

- Potential, likelihood, and severity of property damage, personal injury and/or loss of life.
- Necessary to support safe operations pertaining to current aircraft activity.
- FAA Airport Design Standards.

Project types include, but are not limited to:

- Emergency repair of isolated areas of severe pavement deterioration, as safe operation of aircraft is impaired
- New, expanded, or upgraded airfield/airside lighting
- Visual Approach Aids including: runway end identifier lights (REIL), precision approach path indicators (PAPIs), beacons, approach lighting
- Snow and ice control and snow removal equipment
- Aircraft Rescue and Fire Fighting (ARFF) equipment, training, and training facilities
- Automated Weather Observation Systems (AWOS)
- Airfield fencing
- New, expanded, or upgraded airfield/airside signage
- Wildlife hazard management
- Navigational hazard removals/markings
- Equipment purchase: Airfield mowers and brooms
- Airfield pavement markings: New or additional uses, or restriping that provides for the replacement of deteriorated markings serving airport operations
- Air traffic control towers
- Fire protection systems
- Rubber removal
- Removal of identified obstructions with priority to Runway Protection Zones
- Improvements to the Runway or Taxiway Safety Area, Obstacle Free Zone (OFZ), Object Free Area (OFA), runway site distance, separation standards etc., to comply with Airport Design Standards for current aircraft activity
- Structures to house and protect equipment identified for Safety

Security (3 points) is an important project purpose as these projects provide for facilities or equipment that are designed to prevent or deter persons or vehicles from unauthorized access to airside operations, and provide facilities or equipment designed to aid in providing secure (and safe) movement in and around all airport facilities.

- Security fencing
- New, expanded, or upgraded lighting – landside – for public spaces including parking lots
- Closed-Circuit television/cameras
- TSA required security components
- Access Control systems/equipment – fences, gates, locks, alarms, guards and badge systems
- Advisory/directional signing
- Fingerprinting machines

Maintenance (3 points) is an important project purpose as it accomplishes essential projects that facilitate the existing operations of the airport. The maintenance purpose, as a high priority, is consistent with the Commission and Division's overall philosophy of 'maintain before build'. (Sponsors should note that maintenance/preservation type projects which extend the service life of existing infrastructure are given a higher category weighted point than those projects in the Airport Enhancement project purpose that require a significant expenditure of funds.) These projects include a range of different project types:

- Pavement Preservation, including but not limited to, crack and joint sealing, seal coat, minor concrete pavement repair (CPR) – and any preservation strategy in an airport's approved pavement management program (PMP)
- Pavement Rehabilitation or Pavement Reconstruction when identified in an airport's approved pavement management program (PMP) for the purpose of pavement preservation
- Maintenance/Repair to airport facilities and infrastructure: Non-routine maintenance/repair
- Maintenance/repair/replacement of NAVAIDs and AWOS
- Equipment purchase: Airfield maintenance

Airport Enhancement (2 points) includes projects directed towards creating new or expanded facilities that accommodate more passengers, cargo, aircraft operations, or based aircraft; or the enhancement of airport use and efficiency.

- Pavement strengthening – Airport must have implemented an approved PMP
- New pavement construction – such as runway and taxiway extension or widening, apron expansion – Airport must have implemented an approved PMP
- Equipment purchases: Other than for Safety or Maintenance purposes

- Noise monitoring, including equipment purchase
- New NAVAIDs
- Building remodel
- Building construction: New, replacement, or expansion
- Land use protection: Fee title or full control of lands within the RPZ; directed to the removal of incompatible land uses with priority to the removal of wildlife attractions and facilities that serve congregations of people
- New or expanded deicing containment facilities
- Identified Non-Standard Conditions that do not meet the "Safety" project purpose as determined by the Aeronautics Division

Planning Projects (2 points) are directed to a comprehensive or specific issue/location study of short-term or long-term airport needs; resultant recommendations support the development of a project or program of projects. Planning projects include, but are not limited to, the following studies/analyses:

- Master Plans
- Airport Layout Plans: Complete drawing set and narrative or stand-alone components such as Terminal Area Plans, Land-use Plans, other adopted plans
- NEPA compliance: Required environmental documentation and related analyses and reports including public involvement
- Special studies, such as Noise Analysis and Safety Management Systems, Security Systems, Sustainability Analysis, Instrument Approach Analysis
- Obstruction Survey and AGIS submittal
- Activity counting/recording
- Wind analysis
- Wildlife assessments and plans

The Project Purpose category is given a weight of 5, with sub-category points from 4 to 0, resulting in a range of 20 to 10 points depending on the airport's proposed project purpose (there are no 1 or 0 point awards for the category).

Project Component
(Weight of 3)

The Project Component category receives a weight of 3. This category prioritizes those projects from the Purpose of Project Category that are directed to preservation and enhancement of airside facilities and infrastructure and also prioritizes those facilities that have regular/daily use, with a lower priority for secondary use facilities.

4 = Airside Primary Runway or Taxiway, Airfield Fencing
3 = Airside Secondary Runway or Taxiway

2 = Airside Aprons, Structures, and Equipment
1 = Airside Taxilanes (other than Apron), Landside and Other (Any Purpose of Project without an identified Component)

Primary runways and/or taxiways are given preference with a 4–point ranking. Airfield perimeter fencing supports regular use of the primary runway.

Secondary runways and/or taxiways are given preference with a 3–point ranking.

Aprons, Structures/Facilities, and Equipment Purchases are awarded a 2–point ranking. These facilities and equipment purchases support aviation traffic.

Airside Taxilanes (see Definitions for other than Apron), Landside (see Definitions) and Other projects are awarded 1–point rankings. Other projects include planning projects or any proposed project that cannot be directly assigned to a specific component/location.

The Project Component category is given a weight of 3, with sub-category points from 4 to 1, resulting in a range of 12 to 3 points.

Type of Federal Funding
(Weight of 5)

The Type of Federal Funding category receives a weight of 5, and is one of the most important individual categories in the priority rating model. In general, federal funds provide the majority of financial assistance to airport sponsors for airport improvement projects. Federal funding comes into the State for use on in-State projects and the use of State and Local funds to match federal funds is given a high priority and resultant high weight. The number of points awarded for this category is by type of federal funding available:

4 = Discretionary Funding
3 = State Apportionment Funding
2 = Entitlement Funding
1 = Not Used
0 = No Federal Funds

Discretionary Funding (4 points) including any Congressional allocation is given the highest priority as it is based on Federal legislative requirements, is additional funding to the State, is typically dedicated to a location/airport or project improvement type, and must be expended in a timely manner.

State Apportionment Funding (3 points) is an annual allocation of funds that is assigned to each state for airports; the State's non-primary, federally eligible airports compete within the State for these funds.

Entitlement Funding (2 points) is guaranteed to airports in the federal NPIAS (National Plan of Integrated Airport Systems) plan. Entitlement funding is non-competitive and receives a lesser number of category points.

No Federal Funding (0 points) is awarded 0 points, under this category.

The Type of Federal Funding category is given a weight of 5, with sub-category points from 4 to 0, resulting in a range of 20 to 0 points for an airport's proposed project, depending on the type of federal funds directed to the project.

Any project receiving multiple types of federal funding is awarded the highest sub-category point for the type of federal funding used.

Systems Impact
(Weight of 3)

The Systems Impact category is directed to addressing issues identified in the State Aviation System Plan (SASP), project timing, project and program funding, and local priorities; this category receives a weight of 3 as this category accumulates points. The category awards points, based on: 1) the proposed project's overall impact to the State Aviation System Plan; 2) the optimal timing of the proposed project to support effective utilization of available funding; and 3) the airport sponsor's prioritization of this project as compared with their other capital development needs.
The number of points awarded for this category accumulates as follows:

Project's Overall Impact to the State Aviation System Plan (3 points maximum)

2 points are awarded if the project supports system performance measures as identified in the State Aviation System Plan, the Air Service Enhancement Benchmark Report (6 statutory items), or through Commission priorities. These are the areas by which the performance of the aviation system is measured. Points will be awarded based on the professional judgment of the Aeronautics Division staff.
1 point is awarded if the project supports the current classification facility and service objectives as identified in the Airport's individual SASP Report Card. The Point will be awarded based on the professional judgment of the Aeronautics Division staff.
0 points is awarded if neither of the above two conditions are met.

Project Optimal Timing for Effective Utilization of Available Funding (3 points maximum)
Points are awarded based on a selected year for funding; the selected year may be the Airport Sponsor's proposed year to construct the project, or may be a different year (project moved forward or delayed) if determined by the Aeronautics Division or Commission to be advantageous based on funding availability or other budgeting or programming analyses.

3 points are awarded when the project is determined to be most effective if funded in the selected year - It is essential that the project occur in the selected year.

2 points are awarded when the project is determined to be most effective if funded within 1-2 years of the selected year - It is essential that the project occur within 1-2 years of the selected year.
1 point is awarded when the project is determined to be most effective if funded within 3-4 years of the selected year - It is important that the project occur within 3-4 years of the selected year.
0 points are awarded when the project is determined to be effective if funded 5 + years of the selected year - It is not necessary that the project occur closer than 5 years of the selected year.

Points will be awarded based on the professional judgment of the Aeronautics Division staff.

Considerations that will be evaluated during award of points include:
Pavement Management Plan recommendations and timing of the proposed work if critical;
Funding timing (lose entitlements, entitlement transfer agreement, close-in discretionary);
Regulatory Compliance;
Economy of scale, making the project whole;
Cycle optimization on regularly occurring project (pavement preservation, planning, etc.).
Phased or multi-year projects are evaluated as one project. Optimal timing will be determined for the project as a whole and applied uniformly to all phases.

Local Priority (2 points maximum)
Points are awarded based on the importance of the proposed project to the local sponsor as compared to other projects being requested for funding.

2 points are awarded for High priority – limited to 2 projects unless multi-phased.
1 point is awarded for Medium priority – limited to 2 projects unless multi-phased.
0 points are awarded for Low priority – all other projects.

Airport sponsors should note that project documentation which is submitted on time and is complete and accurate will greatly assist in the assignment of category points.

The Systems Impact category is given a weight of 3, with sub-category points from 8 to 0, resulting in a range of 24 to 0 points for those projects meeting the stated requirements.

Airport Usage
(Weight of 3)

The Airport Usage category receives a weight of 3. This category recognizes that Wyoming's larger airports typically benefit the most users/citizens. New to this category is the use of the airport's state system plan classification, which is assigned based on the airport's type and level of usage, the role of the airport in the overall system, and the facilities and services offered at the airport.

The Wyoming State Aviation System Plan (SASP) establishes four airport classifications: Commercial Service Airports, Business Airports, Intermediate Airports, and Local Airports.

4 points = Commercial Service Airport
3 points = Business Airport
2 points = General aviation airport - Intermediate
1 point = General aviation airport - Local

The Airport Usage category is given a weight of 3, with sub-category points from 4 to 1, resulting in a range of 12 to 3 points for an airport's SASP classification.

Status of Airport Protection
(Weight of 1)

The Status of Airport Protection Component category receives a weight of 1. This category recognizes the importance of safeguarding airport operations and minimizing impact to properties in proximity to the airport by implementing land use protections and airspace protections for the runway protection zone (RPZ) and/or the airport influence area (AIA). Development of property in proximity to an airport can result in non-compatible uses that diminish the utility of the airport, reduce safety for both aircraft in the air and persons on the ground, reduce the value of the public's investment in the airport, and potentially risk both State and Federal funding for the airport.

The Airport Protection Component category is given a weight of 1 as this category accumulates points, based on the result of an airport's efforts to work with private land owners and/or government agencies – Municipal, County, State or Federal – to effect land use protections. There are three acceptable legal documents to provide RPZ protections:

Ownership – in fee title;
Lease – with a federal or state government agency that provides for a minimum lease period greater than 20 years;
Easements – must limit the height of vegetation and structures and limit the allowable land uses within the boundaries (acreage) of the easement.

<u>Land Ownership Control (4 points maximum)</u>

4 Points – Airport Owner owns 100% of the acreage in runway protection zone in fee title. For purposes of RPZ protection, a Lease with a federal or state government agency is considered equal to ownership; the Lease agreement must provide for a minimum lease period greater than 20 years.

3 Points – Airport Owner has 100% land use protections and airspace protections for the RPZ through any combination of ownership, lease, or easements.

2 points – Airport Owner has greater than 75% to 99% land use protections and airspace protections for the RPZ through any combination of ownership, lease, or easements.

1 point – Airport Owner has greater than 25% to 75% land use protections and airspace protections for the RPZ through any combination of ownership, lease, or easements.

For Land Use Protection, the accumulation of points, up to 4 points maximum, will be based on submittal of supporting documents to the Aeronautics Division. The documents to be submitted are copies of deeds identifying the individual parcels owned in fee title, copy of lease, and/or copies of easements identifying boundaries of easements and height restrictions.

Airspace Protections (3 points maximum)

1 Point – Airport Owner has an adopted zoning ordinance (overlay zoning) approved by the Wyoming Aeronautics Division with height restrictions in the Approach Zone of the AIA.

1 Point – Airport Owner has an adopted zoning ordinance (overlay zoning) approved by the Wyoming Aeronautics Division with height restrictions for the AIA.

1 Point – Airport Owner has an adopted zoning ordinance (overlay zoning) approved by the Wyoming Aeronautics Division that restricts non-compatible land uses in the AIA.

For Airspace Protection, the accumulation of points, up to 3 points maximum, will be based on submittal of supporting documents to the Aeronautics Division. The documents to be submitted are copies of adopted zoning ordinances.

Plan Integration (1 point)

1 Point – The airport zoning ordinance is incorporated into a municipality and/or county comprehensive land use plan. It is desirable that the municipality and/or county provide an opportunity for the airport representative to review and comment on all variance requests for properties within the AIA.

For Plan Integration, the 1 point will be based on submittal of supporting documents to the Aeronautics Division. The documents to be submitted are copies of the municipal and/or county comprehensive land use plan.

Disclosure Statement (1 point)

1 Point – The municipality and/or county has passed a resolution and adopted an ordinance requiring that a Real Estate Disclosure Statement be provided to the purchaser of any property within the AIA. Sample wording is provided in Definitions for Real Estate Disclosure Statement.

For Disclosure Statement, the 1 point will be based on submittal of supporting documents to the Aeronautics Division. The documents to be submitted are copies of adopted resolutions and ordinances requiring a Real Estate Disclosure Statement.

The Airport Protection category is given a weight of 1, with sub-category points accumulating from 0 to 9, resulting in a range of 9 to 0 points for those land use efforts directed to protecting airport operations.

Conclusions from the Priority Rating Model

The Priority Rating Model Task Force concluded its efforts to develop the Wyoming Priority Rating Model for Project Evaluation at their February 27th and 28th, 2014 meeting. Their efforts resulted in a rating/ranking model that will assist the Wyoming Aeronautics Division and Aeronautics Commission in their mission to produce a safe and efficient aviation system, through funding of airport capital improvement projects. The Model is summarized in the following table.

Category	Category Weight	Maximum Points Available	Percent of Total Points Available
Purpose of Project	5	20	21
Project Component	3	12	12
Type of Federal Funding	5	20	21
Systems Impact	3	24	25
Airport Usage	3	12	12
Status of Airport Protection	1	9	9
Summary		**97 Points**	**100%**

To further support use of the Wyoming Priority Rating Model for Project Evaluation – 2014, airport sponsors and other users are encouraged to periodically review Grant Information, State Systems Plan Documents, and the current Wyoming Aviation Capital Improvement Program (WACIP) located at: https://www.dot.state.wy.us/home/aeronautics/planning-grants--loans.html

ACRONYMS AND DEFINITIONS

Acronyms - - used in the Wyoming Priority Rating Model for Project Evaluation

ACIP	Federal Airports Capital Improvement Plan
AGIS	Airport Geographical Information System
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ARFF	Aircraft Rescue and Fire Fighting
AWOS	Automated Weather Observation System
CPR	Concrete Pavement Restoration
FAA	Federal Aviation Administration
NAVAID	Navigational aids
NEPA	National Environmental Policy Act
NPIAS	National Plan of Integrated Airport Systems
OFA	Object Free Area
OFZ	Object Free Zone
PAPIs	Precision approach path indicators
PMP	Pavement Management Program
PRM	Priority Rating Model
REIL	Runway end identifier lights
RPZ	Runway Protection Zone
RSA	Runway Safety Area
SASP	State Aviation System Plan
TSA	Transportation Security Administration or Taxiway/Taxilane Safety Area
WACIP	Wyoming Aviation Capital Improvement Program

Definitions

The following definitions are provided to gain a better understanding of the Wyoming Priority Rating Model for Project Evaluation (PRM). These definitions are referenced to source documents, but do not present a full definition as may be used for regulatory purposes. As a result, they are not intended to be used as regulatory, rather are intended to be used to guide the development of a capital improvement project, evaluated with the PRM for State funding.

PRM Category – Purpose of Project

Airport Facilities and Infrastructure – Airports eligible for Federal/State funding are public use airports that serve civil aviation and used for landing and takeoff of aircraft. Airport facilities and infrastructure are those permanent buildings, installations, and equipment that are needed to support airport use for commercial service, cargo service, or general aviation. (FAA and industry literature).

Airside and Landside – The Airside of an airport is the non-public portion where aircraft operations occur, including runways, taxiways, aprons, aircraft parking, and facilities to service and maintain aircraft; the airside is separated from other areas of the airport by fencing or other boundaries. The airside generally includes those areas beyond security checks and passport and customs control in an airport terminal. The Landside of an airport is the remaining portion of the airport property not defined as airside; it typically includes all public areas such as portions of the terminal, access roadways, rental car facilities, vehicle parking facilities, and taxi and ground transportation areas. (DOT/FAA/AR-00/52).

Navigation Aid (NAVAID) – Electronic and visual air navigation aids, lights, signs, and associated supporting equipment (FAA AC 150/5300.13A).

Pavements: Runway, Taxiway, and Apron – Bituminous Asphalt (HMA or Flexible) and Concrete Cement Pavement (Concrete or Rigid) including Pavement Structure (subgrade-earth, subbase-earth or aggregate, base-aggregate or HMA) and Pavement Surface (HMA or Concrete). Reference: FAA Order 5100.38C & AIP Handbook, and industry literature.

Emergency Repair (Safety): Any strategy up to reconstruction of sections of pavement structure or pavement surface, to resume or assure airport operations.

Preservation (Maintenance): Any strategy, typically a continuous treatment on a selected facility such as the full length of a runway, taken from the Statewide Pavement Management Program or documented by the sponsor that extends the service life of an existing pavement. HMA strategies could include, but are not limited to, crack sealing, seal coats, patching, and friction surface treatments. Concrete strategies could include, but are not limited to, joint sealing, spall or slab repair, and friction surface treatments.

Rehabilitation (Maintenance): Any strategy, typically a continuous treatment on a selected facility such as the full length of a runway, taken from the Statewide Pavement Management Program or documented by the sponsor that extends the existing pavement surface life. HMA strategies could include, but are not limited to, milling, and thin overlays (not for increased strength). Concrete strategies could include, but are not limited to, grinding and limited slab replacement.

Reconstruction (Maintenance) of the full length of a selected facility. For an existing HMA surface, work could include reconstruction of the pavement structure and pavement surface through removal and replacement. For an existing Concrete surface, work could include reconstruction of the existing Concrete pavement structure and pavement surface (Concrete or HMA) through extensive slab replacement and grinding, or complete removal and replacement.

New Construction including extension, widening, and strengthening (Airport Enhancement): Construction of pavement structure (subgrade, sub-base (if required), and base) and pavement surface including site work, earthwork, drainage, paving, erosion control, and other utilities needed for operations of the runway, taxiway, or apron.

Compatible Land Uses – Those developments that comply with generally accepted restrictions on location, height, and activity that provides for safe aircraft movement and airport operation.

Runway Protection Zone (RPZ) – The RPZ is an area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground. Dimensions of the RPZ for each runway are shown on the approved Airport Master Plan or Airport Layout Plan for the airport. (FAA AC 150/5300.13A)

Runway Safety Area (RSA) – A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway (FAA AC 150/5300.13A).

Taxiway/taxilane Safety Area – A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to aircraft deviating from the taxiway (FAA AC 150/5300.13A).

Obstacle Free Zone (OFZ) – The OFZ is the three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles for protection for aircraft landing or taking off from the runway and for missed approaches (FAA AC 150/5300.13A).

Object Free Area (OFA) – An area centered on the ground on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by remaining clear of objects, except objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes (FAA AC 150/5300.13A).

PRM Category – Project Component

Movement Area – the runways, taxiways, and other areas of an airport that are used for taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas. (FAA AC150/5300-13A and 14 CFR Part 139).

Primary Runway – A single primary runway; the primary runway provides a runway length for all airplanes that will regularly use it without causing operational weight restrictions. (FAA AC No: 150/5325-4B).

Secondary Runway – Secondary runway, not primary, to serve as a crosswind runway, to separate general from non-general aviation, or to accommodate existing or forecasted aviation traffic volumes (FAA AC No: 150/5325-4B).

Taxilane: A taxiway designed for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area, providing access from taxiways (usually an apron taxiway) to aircraft parking positions and other terminal areas (FAA AC 150/3500-13A).

Taxiway – A defined path established for the taxiing of aircraft from one part of an airport to another (FAA AC150/5300-13A).

Apron (Ramp) – A defined area on an airport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. (FAA AC No: 120-57A)

The apron area includes the following components: (AIM and AC 150/5340-1G)

(1) Aircraft Parking Positions: Intended for parking aircraft to enplane/deplane passengers, load or unload cargo.

(2) Aircraft Service Area: On or adjacent to an aircraft parking position; intended for use by personnel/ equipment for servicing aircraft and staging of equipment to facilitate loading and unloading of aircraft.

(3) Taxilane: Apron areas which provide taxiing aircraft access to and from parking positions.

(4) Vehicle Roadways Markings: Identified rights of way on the apron area designated for service and Aircraft Rescue and Fire Fighting (ARFF) vehicles.

Airside and Landside – Definition presented in PRM Category – Purpose of Project

PRM Category – Type of Federal Funding

Entitlement Funds – Title 49 'apportionment' or 'formula' or 'entitlement' funds that are made available, each year, to States or Sponsors based on formulas in a current legislative Act (FAA Order 5100.20C).

Discretionary Funds – Funds remaining, within the obligation limitation, after the formula entitlement funds are made to States or Sponsors. Discretionary funds, subject to restrictions in legislation, are available for distribution at the discretion of the FAA (FAA Order 5100.20C).

PRM Category – Systems Impact

State Aviation System Plan (SASP) – the Wyoming Aeronautics Division's State Aviation System Plan (SASP) provides an inventory and evaluation of the Wyoming Aviation System and establishes four airport classifications for the 40 publicly owned airports in the state. Structured to each of the four airport classifications, the SASP presents Airside, Landside, and Services and Administration Facilities and Services Objectives to meet established System goals and objectives. In the SASP, the airport classification system is further used to:

Align airports with similar physical facility and service attributes;

Assign roles for each airport classification based on services they provide;

Define the types of facilities and services needed at each functional group of airport to meet the existing and future needs of the State of Wyoming;

Establish facility and service objectives by classification of airport to meet the system.

Wyoming State Aviation System Plan (SASP) Report Card – The Report Card presents a listing of an individual airport' Facility/Service Objectives for Airside, Landside, Services, and Administration. Each Objective is evaluated against presented criteria to determine the extent to which an airport meets it's established Objectives.

Optimal Timing – Optimal timing is an indicator of the importance of accomplishing the project in the time frame requested. The need to complete a project within a defined time frame may be

due to a number of reasons: an emergency repair to assure safe operation of aircraft; a relationship between project completion and regulatory compliance, licensing, or certification (such as an inspection requirement or recommendation); condition of the facility/component; projects closely tied to Commission priorities, special recommendation, or other special conditions tying project completion to a fiscal year or contract completion date (general definition).

Available Funds – Federal funds are authorized by Congress in legislation and are subsequently appropriated. These annual (fiscal year) appropriations are made in specific dollar levels and give authority for FAA to enter into contracts (issue grants) that will obligate the federal government to make payments at some future time up to the amount of the contract (grant). State funds are also made available on an annual (fiscal year) basis. Consistent with the dollar amount and fiscal year of available funding, airport sponsors submit proposed projects and the Aeronautics Division develops or updates the Wyoming Aviation Capital Improvement Program (general definition).

PRM Category – Airport Usage

Wyoming State Aviation System Plan (SASP) – The State Aviation System Plan (SASP) is a component of the Wyoming Aeronautics Division's continuous aviation system planning process. This study provides an inventory and evaluation of the Wyoming Aviation System, the 40 publicly owned airports in the state and an implementation plan, to meet established goals and objectives. This *Plan* establishes four airport classifications: Commercial Service Airports, Business Airports, Intermediate Airports, and Local Airports. (SASP)

Commercial Service Airports – these airports (10 Wyoming airports) are intended to serve major populations, economic centers and areas of tourism providing a connection to national and global economies; they are designed to accommodate commercial air service and business general aviation activity consistent with user demand. (SASP)

Business Airports – these airports (6 Wyoming airports) are intended to serve multi-county areas and economic centers providing a connection to state and national economies; they are intended to accommodate larger business jet activity and support tourism and recreational demand. (SASP)

Intermediate Airports – these airports (10 Wyoming airports) are intended to serve counties and medium to small communities to support local economies and accommodate medium to small business jet activity and recreational users. (SASP)

Local Airports – these airports (14 Wyoming airports) are intended to serve small communities and have the basic facilities to accommodate business, training, and recreational users and support emergency use. (SASP)

PRM Category – Status of Airport Protection

Airport Influence Area – All lands under the approach surfaces defined in FAA Part 77, Objects Affecting Navigable Airspace, and as shown on an approved Airport Master Plan or Airport Layout Plan drawings. (FAA Part 77)

Runway Protection Zone (RPZ) – see above Definition for PRM Category Purpose of Project

Fee Title (Fee Simple) – Absolute ownership with title to land, free of any other claims against the title, which one can sell or pass to another by will or inheritance. (general definition)

Easement – the right to use the real property of another for a specific purpose. The easement is itself a real property interest, but legal title to the underlying land is retained by the original owner for all other purposes. Typical easements are for access to another property, for utility lines, water, entry for maintenance, or a "negative easement" such as a prohibition against a building structure height or use. Easements can be created by a deed to be recorded just like any real property interest, for a number of years, and can be specifically described by boundaries. (general definition)

Real Estate Disclosure Statement – A statement provided to the purchaser of any property within the boundary of the Airport Influence Area (AIA). A Real Estate Disclosure Statement could read: The property known as (legal description and address) is located with the Airport Influence Area identified in the (name of airport) Zoning Ordinance and may be subject to aircraft over-flights both now and in the future; concerns with over-flights may include increased noise levels, air-quality impacts, and light intensity impacts. Airport operations are expected to increase and the fleet mix of aircraft is subject change as industry and community needs change. (general definition)

Zoning Ordinance – A model zoning ordinance (adopted zoning ordinance (overlay zoning)), to restrict building or vegetation height can be found at:
http://www.faa.gov/documentLibrary/media/advisory_circular/150-5190-4A/150_5190_4A.PDF

Aeronautics Commission Policy Guidelines

WHEREAS, the Wyoming Aeronautics Commission is charged as the sole authority to determine disbursement of funds to the state's airports; and

WHEREAS, the Wyoming Aeronautics Commission wishes to insure consistency in the application of policies;

THEREFORE, based on the above and foregoing, the Wyoming Aeronautics Commission formally adopts the following policies except and unless they conflict with federal and/or Wyoming law, in which case the federal or state law controls.

Definitions

Commission hereinafter refers to the Wyoming Aeronautics Commission

Aeronautics Division hereinafter refers to the Wyoming Department of Transportation Aeronautics Division

Policies

1. Commission Officers, Terms of Office, and meetings

The officers of the Wyoming Aeronautics Commission shall consist of a Chairman and Vice-Chairman whose terms of office shall be two calendar years. These officers shall be elected by the Commission at the 2nd quarterly meeting of each even year. The election shall be the last item of new business. The chairman elect will assume his/her duties immediately after the election and official passing of the gavel.

The Commission shall meet quarterly, generally scheduled in February, May, September, and November. The Commission shall conduct monthly teleconferences when no quarterly meeting is anticipated. Additional teleconferences may be scheduled as determined necessary by the Chairman.

2. Qualifying Projects for Airport Grants-In-Aid

The following are project types which qualify for funding by the Commission. Projects considered eligible shall be aviation related, for public use, and conform to the approved Airport Layout Plan as applicable.

The Commission reserves the right to allow or reject any project proposed for funding. Facilities shall be proactively maintained in order to be eligible for funding. Projects

identified as Safety, Security, Maintenance, Airport Enhancement, or Planning, are as defined in the Wyoming Priority Rating Model for Project Evaluation (PRM). The following project types are eligible for Commission funding:

- Safety
- Security
- Maintenance
- Airport Enhancement
- Planning
- Marketing and Promotion of Commercial Service Airports
- Aviation Encouragement

Federal projects: The Commission will partially match federal projects whenever possible, provided the project conforms to Commission policy and goals. The Commission will also consider funding revenue producing aeronautical support facilities, including fuel farms and hangars, which are programmed for federal funding.

Revenue generating facilities: Except as noted above, the Commission will not approve grants-in-aid for the construction of: hangars; fuel farms, fuel trucks, or other fuel delivery equipment; or any other airport structure or improvement that, in the judgment of the Commission, is appropriately the responsibility of private enterprise. The Commission encourages development of revenue generating facilities at airfields and, as supported by statute, may provide loans to airports for the construction of these facilities. While terminals are eligible, areas, furnishings and equipment related to revenue generation are not eligible for Commission grant funds. Pavement facilities are eligible for funding without regard to fees assessed by the sponsor

Exclusive use: Pavement considered exclusive use is not eligible for funding. Exclusive use includes 15 feet in front of private-use hangars, aprons leased for exclusive use, etc.

Through-the-fence (TTF): Development of any kind for the purpose of through-the-fence operations is not eligible for funding.

Buildings: Furnishings and equipment not relevant to the operation of the building itself are not eligible for funding.

Hazardous material removal: The Commission will not provide grant or loan funding for projects involving removal of hazardous material, including but not limited to, the removal or disposal of asbestos, fuel storage devices, equipment, and vehicles.

3. Eligible Expenditures

Expenditures on grant projects are only eligible if the Commission has approved the project for funding as indicated in the WACIP. In addition, expenditures are only eligible

if the sponsor or their representative has followed the procedures for grant or loan projects, as identified in the Procedural Assistance and Information Manual.

Project approval is not a guarantee of funding. Expenditures prior to actual grant issuance are at the risk of the sponsor. In the case of emergency or extraordinary urgency, the initial request may be made by verbal request to the Aeronautics Division project manager. The project preapplication shall also be submitted to the Division within five (5) working days.

Change orders, amendments, or modifications to a project work scope must be approved prior to the commencement of work for the expenditure of monies associated with said changes. Change orders are approved by the Aeronautics Division staff and do not constitute a commitment of funds.

The Aeronautics Division Administrator is authorized by the Commission to approve project scope changes, amendments, or new grant applications in an amount not to exceed $100,000. Administratively approved new projects, project scope changes, and budget amendments shall be presented to the Commission for concurrence at the next possible business meeting through the Wyoming Aviation Capital Improvement Program (WACIP).

4. Vehicular and Portable Equipment

Vehicular and portable equipment purchased in whole or in part with funds disbursed by the Commission shall be clearly and permanently marked with the name of the airport receiving those funds, and shall be reserved exclusively for use by the airport for airport business.

As a condition to receiving funding from the Commission, the airport sponsor shall provide information regarding vehicular and portable equipment purchased with state and/or federal funds. An updated inventory shall be provided at the time of each equipment grant request, upon request by the Aeronautics Division.

The sponsor will be required to provide written justification for equipment which is different than the recommended type for the size of airport as described in the Advisory Circular 150/5220-11.

5. Professional Services

The Commission requires that each consultant providing professional services for Wyoming airports for projects funded by the Commission be in good standing with the Aeronautics Division as indicated by the Consultant Performance Review procedure established by WYDOT.

6. Procedures

Airport improvements at public owned/public use airports in the state of Wyoming shall be performed in accordance with procedures implemented by the Aeronautics Division. Plans, specifications, and related documents shall be compiled in compliance with applicable FAA Advisory Circulars and the current Aeronautics Division procedures manual.

7. In-Kind Grant Match

Qualifying in-kind match on projects must be approved in advance in writing by the Aeronautics Division project manager. Appropriate documentation providing the value of the in-kind work or product is required.

Qualifying in-kind product or work accomplished by the Sponsor shall only be credited toward the Sponsor's share of the match and will not be reimbursed with grant monies. Examples of qualifying in-kind match are labor, materials, equipment hours, etc. Airport administrative staff hours do not qualify as in-kind work.

In-kind grant match is not applicable to marketing grants.

8. State Funded Projects Involving Federal Funds

In occasional instances where a state matching grant is awarded to a project prior to the federal grant being awarded, the state grant is still contingent upon receiving federal funds and is subject to being withdrawn if the federal funding is not provided.

9. Aircraft Rescue and Firefighting (ARFF) Training Facility and Supplies

The Commission recognizes that the entire state benefits from ARFF training. Therefore, the Commission will consider reimbursement to the Natrona County ARFF Training Facility for up to 90 percent of ARFF training supplies and related expenses to offset reduced in-state airport firefighter tuition and fees at the facility.

The following are eligible expenditures for ARFF training facility grants:

- Fuel for live burns
- Fire extinguishing agents
- Fire extinguishers, air packs, hoses, nozzles, etc., including maintenance of these items
- Utilities for ARFF training facility
- Parts and labor for major repairs and winterizing of large equipment, burn pit, fuel system, and water system

The Sponsor will be allowed a set 10 percent in-kind match of training operations labor (setup, instructor hours, etc.) and incidentals.

10. Airport Grants-In-Aid for Marketing

The Commission may grant up to 5% of the available grant-in-aid funding to any Part 139 certified airport for the direct advertisement and promotion of an existing commercial air service provider or a commercial air service provider intending to provide services at that airport. Any amount granted under this policy shall be equally matched by the airport sponsor. Promotion of the usage of the airport, its services and the fly local concept will also be eligible under this program. The creation and analysis of reports, studies and surveys used to enhance advertising efforts will be considered an acceptable part of a promotional campaign.

Fees and expenses incurred by airports for the hiring of marketing or other consulting firms which aid or execute a marketing campaign will be considered eligible under this program.

The Request for State Aid may be submitted at any time during the WYDOT fiscal year and shall include a detailed description of the marketing plan. Deviation from the original marketing plan will require a written request and approval prior to proceeding. A final report outlining the marketing activities undertaken will be required at closeout of the grant. No more than 95% of the total grant amount may be reimbursed prior to receiving this final report. A marketing grant may remain active for a maximum of eighteen (18) months.

The commission prohibits airports using grant monies to directly advertise negatively toward other Wyoming airports. No employee's wages or incentives given to the public for participation in activities will be considered for reimbursement. State funds cannot be used for the purchase of alcohol.

11. Percentage of Funding for the Programming of Projects

The Aeronautics Division will use the following percentages as a guideline in the programming of projects. Funding percentages are based on Purpose of Project categories, as defined in the Wyoming Aeronautics Priority Rating Model (PRM), where noted. The Commission reserves the right to deviate from this guideline.

Federal Projects: Sponsor portion will be matched at 60% State/ 40% Local

90 % Federal / 6 % State / 4 % Local or 93.75% Federal/ 3.75% State/ 2.5% Local

- All Federal Projects

100% State/0% Local

- Aviation encouragement ($5,000 limit per project)
- NAVAID Maintenance service contract

90% State/10% Local

- Safety (PRM)
- Pavement maintenance when part of a state group maintenance project, price agreement, or other similar significant cost saving measure.
- Projects with engineering and/or inspection provided by the Division will be 80% state/20% local for construction portion, and 100% state for engineering and inspection portion.

80 % State / 20 % Local

- Security (PRM)
- Maintenance (PRM)

60 % State / 40 % Local

- Planning (PRM)
- Airport Enhancement (PRM)

50 % State / 50 % Local

- Marketing/Promotional
- Operations vehicles

A project that meets more than one category will be placed in the category determined most appropriate by the Aeronautics Division staff.

Airport sponsors may request a deviation from the standard funding matches outlined above by submitting a written letter of justification for the request for Commission consideration. The letter shall include an explanation of why the additional state funding is needed, including but not limited to: why local funds are not adequate, what solutions the sponsor has pursued to alleviate the situation and the ramifications if the funding is not granted.

12. Prompt Project Completion and Grant Closeout

Grants are provided by the Aeronautics Commission with the understanding that the airport sponsor has financial and professional resources in place to complete the project in the timeframe necessary for effective and efficient grant administration.

Projects not finalized and closed within 18 months from the date of Sponsor signature on the Certificate of State Grant-In-Aid, unless exhibiting measurable progress are subject to be closed and any unused state funds returned to the Commission. Written notice will be provided to the airport sponsor of one of the following actions:

- Close grant with no further reimbursement.
- Extend the grant for a defined period of time.

13. Review Appraisals

Review appraisals for land related projects funded by the Commission will be performed by the Wyoming Department of Transportation Right-of-Way Program.

14. Retainage

The Aeronautics Division may retain up to 10 percent (10%) of the total grant amount until the work, as defined in the scope of the project, is substantially complete. After substantial completion, payment of the remaining grant amount may resume in accordance with the work accomplished. Up to 2.5 percent (2.5%) of the total grant amount may be retained until all approved, final documentation (financial, technical and administrative) has been provided to the Division and the project has been finished to the Division's satisfaction.

15. Operations and Administration Vehicles

Vans, sedans, station wagons, SUVs, pickups, and similar vehicles will be considered by the Commission to be operations/administration vehicles for the purpose of this policy. The maximum total vehicle purchase cost eligible for funding by the Commission is equal to the equivalent WYDOT standard vehicle most recently bid, as determined by the Aeronautics Division.

Purchases under this policy will be eligible in the second half of the second year of the budget biennium, as funds permit.

Attachments for these vehicles, if approved and eligible, will be funded at the same percentage as the vehicle, regardless of the category of the attachment. Attachments eligible for funding are: light bars, sirens, aircraft communication and emergency radios, public address systems and speakers, snow removal attachments, friction testing equipment, and airport logo decals.

At the discretion of the Commission, vehicles used primarily for snow removal, friction testing, and other safety related requirements may be exempt from this policy.

16. Annual and Recurrent Projects

Grants for projects of an annual or recurrent nature will require expenditures be completed within the October 1 through September 30 fiscal year or as specified by the project manager. Examples of these projects include ARFF training facility and supplies, and NAVAID maintenance.

17. State Aviation System and Funding

The Commission utilizes multiple resources for development of the Wyoming Aviation Capital Improvement Program (WACIP) for improvements to the State Aviation System. These sources include but are not limited to:

- Wyoming State Aviation System Plan (WySASP) and supporting inventories, studies, and evaluations
- Priority Rating Model for Project Evaluation
- Aeronautics Division staff assessment and recommendations

The WACIP has been adopted by the Commission as the programming and budgeting tool for funding Wyoming airport improvements with state funds. All projects funded with state grant funds must be included in the WACIP.

Project requests will be made to the Commission in accordance with the current Aeronautics Division procedures. Projects will be presented to the Commission through the WACIP for approval.

18. Aviation Encouragement

The Wyoming Aeronautics Commission, in an effort to promote aviation throughout the state of Wyoming and increase the public's awareness of aviation, will give airport aid in an amount not to exceed $5,000.00 for events which promote interest in community airports, encourage private flying, or aid in the expansion of commercial air service in the community.

The commission encourages the airport to seek local sponsorships and donations, but will require no local matching funds for events which promote the airport or aviation and meet one or more of the following criteria:

- Promotes interest and enthusiasm for aviation
- Provides opportunity for aviation education events or programs
- Provides information of the local facility and surrounding area to the public
- Enables opportunity for the public to further explore and understand the economic and social benefits of the local facility.

- Promotes aviation and airport safety to aviators and the general public
- Encourages further use and/or development of the airport
- Encourages current or new commercial air service providers to expand service levels at the airport

Expenses not approved as part of the scope of work at time of request for state aid will not be approved for reimbursement. No employee's wages or incentives given to the public for participation in activities will be considered for reimbursement. State funds cannot be used for the purchase of alcohol.

Application for state aid may be made at any time during the WYDOT fiscal year up to two (2) months prior to activity date. All grants issued under this policy shall be closed prior to the end of the WYDOT fiscal year in which the funds were requested unless otherwise approved by the Division.

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Appendix 10 - Airport Zoning and Land Use

Proper land use planning and zoning for an airport and surrounding areas are critical to safegaurd the public and protect the substantial local and public investment in the airport. The FAA and other agencies has published numerous documents providing guidance towards implementation of airport land use planning. The FAA website on airport land use planning, which includes an assortment of documents, is located at http://www.faa.gov/airports/environmental/land_use/. All documents found on this website should be reviewed and taken into consideration by the local Green River city planners. City planners, in coordination with an airport consultant and the Wyoming Department of Transportation Aeronautics Division planners, should create an acceptable land use policy that incorporates FAA guidelines and meets the need of the local city and residents. Currently, the Greater Green River Intergalactic Spaceport is surrounded by undeveloped land, making zoning and planning for future use relatively easy. Regulations should be set forth before any development occurs.

Reproduced below is example airport land use zoning language, which is also included on sheet eight of the Airport Layout Plan. This verbiage is incomplete, with multiple sections missing, with the intent that the community will customize it to fit local needs. The drawing depicts the minimum zoning regulations as described in the verbiage, which can provide the City of Green River a starting point in creating their own regulations.

A brief list of documents to be considered for zoning regulation creation, as listed in the FAA *Land Compatibility and Airports* report, includes:

- National Environmental Policy Act (NEPA) of 1969
- FAA Advisory Circular 150/5200-33, Hazardous Wildlife Attractants on or Near Airports
- Federal Aviation Regulation Part 77
- FAA Advisory Circular 70/7460-2J, Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace

Example airport zoning and land use ordinance:

SECTION 1.01 TITLE (incomplete)

SECTION 1.02 PURPOSES To promote the public health, safety and general welfare, to protect the lives and property of users of the airport and of occupants of land in its vicinity and to preserve the utility of the airport and the public investment in it, this Resolution has been established. Accordingly, it is the purpose of this Resolution to:
a.) Restrict or prohibit developments or uses which endanger airport users or persons and the property in the vicinity of the airport.

b.) Designate an airport influence area based on Federal Aviation Administration rules and guidelines, within which no person may recover from the local government damages caused by noise and vibrations from normal and anticipated normal airport operations.

SECTION 1.03 CONFLICT WITH OTHER RESOLUTIONS (incomplete)

SECTION 1.04 SEVERABILITY (incomplete)

SECTION 1.05 DEFINITIONS (incomplete)

SECTION 1.06 WARNING AND DISCLAIMER OF LIABILITY (incomplete)

SECTION 2.01 PURPOSES In order to implement the provisions of this Resolution, there are hereby created and

established certain Airport Influence Area Zones which include all of the land lying with the approach zones, transitional zones, horizontal zones, and conical zones as they apply to the Airport. However, such Airport Influence Area Zones shall not exceed one (1) mile in width on each side of the runway and its extended centerline.

SECTION 2.02 OFFICIAL AIRPORT INFLUENCE AREA MAP AND OFFICIAL ARIPORT INFLUENCE AREA BOOK OF RECORD (incomplete)

SECTION 2.03 INTERPRETATION OF BOUNDARIES (incomplete)

SECTION 2.04 AIRPORT INFLUENCE AREA (incomplete)

SECTION 2.05 HEIGHT RESTRICTIONS WITHIN THE AIRPORT INFLUENCE AREA (*note that the surfaces and heights for the following sections can be found on Sheet 5 of the Airport Layout Plan set.*)
Except as otherwise provided in this Resolution, no structure shall be erected, altered or maintained, nor shall any tree be allowed to grow in any zone created by the Resolution to a height in excess of the applicable height limit established by each zone. Such zone and applicable height limitations are hereby established.
1. UTILITY RUNWAY VISUAL APPROACH ZONE – The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach zone expands outward uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline being the continuation of the centerline of the runway. The approach surface slopes upward one (1) foot vertically for each twenty (20) feet horizontally beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline. The primary surface elevation is ___ feet Mean Sea Level.

2. UTILITY RUNWAY NONPRECISION INSTRUMENT APPROACH ZONE – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline being the continuation of the centerline of the runway. The approach surface slopes upward one (1) foot vertically for each thirty-four (34) feet horizontally beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline. The primary surface elevation is ___ feet Mean Sea Level.

3. TRANSITIONAL ZONE – These zones are hereby established as the area beneath the transitional surfaces. These surfaces extend outward and upward at 90-degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the side of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. The transitional surface slopes upward and outward one (1) foot vertically for each seven (7) feet horizontally beginning at the side and at the same elevation as the primary surface and approach zones, and extending to a height of 150 feet above the airport elevation, or ___ feet above Mean Sea Level. In addition to the foregoing, there are established height limits sloping upward and outward one (1) foot vertically for each seven (7) feet horizontally beginning at the side of and at the same elevations as the approach zones, and extending to where they intersect the conical surface.

4. HORIZONTAL ZONE – The horizontal zone is hereby established by swinging the arcs of 5,000 feet radii from the center of each end of the primary surface of each runway, and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones. The horizontal zone surface lies 150 feet above the airport elevation of ___ feet above Mean Sea Level.

5. CONICAL ZONE – The conical zone is hereby established as the area that commences at the periphery of the horizontal zone and extends outward there from a horizontal distance of 4,000 feet. The conical surface does not include the transitional zones. The conical surface slopes upward and outward one (1) foot vertically for each twenty (20) feet horizontally beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of ___ feet Mean Sea Level, or 350 feet above the airport elevation.

SECTION 3.01 ADMINISTRATIVE OFFICER (incomplete)

SECTION 3.02 BOARD OF AIRPORT HAZARD ADJUSTMENT (incomplete)

SECTION 3.03 PERMITS (incomplete)

SECTION 3.04 NOTICE OF HEARING (incomplete)

SECTION 3.05 CREATION AND AMENDMENT OF DISTRICT BOUNDARIES (incomplete)

SECTION 3.06 AMENDMENT OF REGULATIONS (incomplete)

SECTION 3.07 VARIANCES (incomplete)

SECTION 3.08 NON-CONFORMING USES, STRUCTURES AND TREES The regulations prescribed by this Resolution shall not be construed to require the removal, lowering, or other changes or alteration of any structure or tree not conforming to the regulations as of the effective date of this Resolution. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Resolution and is diligently being pursued.
A. RULES FOR NOCONFORMING STRUCTURES AND TREES

1. No structure may be enlarged or altered in a way that increases its nonconformity unless an enlargement or structural alteration is required by law.

2. Any structure destroyed by any means to an extent of more than fifty percent (50%) of its replacement costs at time of destruction shall not be reconstructed except in conformity with the provisions of this Resolution.

3. Any structure moved for any reason for any distance whatever shall thereafter conform to the provisions of this Resolution.

4. Trees in place at the time of adoption or amendment of this Resolution shall be allowed to be maintained by the governing body, at its expense, at heights attained at that time.

5. The owner of any existing nonconforming structure or tree shall be required to permit the installation, operation and maintenance thereon of such markers and lights as shall be deemed necessary by the FAA to indicate to the operators of aircraft in the vicinity of the airport, the presence of such airport hazards. Such markers and lights shall be installed, operated, and maintained at the expense of the local government.

SECTION 3.09 COMPLAINTS AND VIOLATIONS (incomplete)