



**South Big Horn County
Airport**

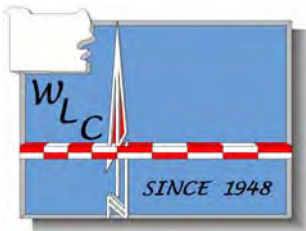
**Conceptual
Development and
Strategic Plan**

SOUTH BIG HORN COUNTY AIRPORT

CONCEPTUAL DEVELOPMENT AND STRATEGIC PLAN

Final Draft

4/27/06



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PART ONE: THE PLAN



CHAPTER 1 - INTRODUCTION

1.1 Conclusions and Recommendations

South Big Horn County Airport (GEY) is a viable aviation facility, with the support of the County, the Federal Aviation Administration, and Wyoming Aeronautics Commission and their support for long term upgrades of aviation facilities. Recent changes in Hawkins and Powers operations and management, the main operator at the airport for many years, indicates that the airport is also in transition. The county and private sector are currently working in an effort to continue the aircraft maintenance operations at the airport to a new a business or businesses that will retain jobs and create new jobs, as the airport is a critical element of the county economy. The facility is a critical economic development catalyst for the county.

Recommendation No. 1 - Infrastructure

The conclusion of this study and the recommendation to all involved is that the lack of basic infrastructure of water and sewer, limits both the ongoing operations and the future development of the airport. The general aviation element of the airport operation, the daily aviation activities of the airport, and the much needed Fixed Base Operator to service those operations, cannot function adequately without adequate water and sewer. The airport falls under the public water requirements of the Wyoming Department of Environmental Quality as a public water provider, but in contracting with the Airport Bench Water District for operations and maintenance the facility is not required to have to have a certified operator. The structures on site fall under the requirements of the UBC, IBC, and fire prevention codes for public buildings.

The second element of airport operations, the aircraft refurbishing, is in a similar condition. The existing large hangar used for aircraft refurbishing military aircraft is not adequate. It needs to be expanded and/or a new hangar constructed. Any remodeling or new construction would require adequate fire flow for the site as well as specific fire suppression for the hangars.

The infrastructure improvements are independent from the aviation improvements. There are separate funding sources for each which cannot be used to cross over from the aviation side to the infrastructure side. Even with a new runway the general aviation and aircraft refurbishment cannot continue and grow without the infrastructure improvements.

The recommendation of this study is that the County work with the private sector and pursue state funding through the Wyoming Business Council to match the existing grant from the Economic Development Administration to build an adequate infrastructure, update the existing hangar and/or build new facilities for businesses that will retain or create jobs.

Recommendation No. 2 – Economic Development and Marketing

The County, airport board, town and economic development professionals and board should establish a process of marketing the airport in cooperation with the Aeronautics Commission, the private sector operator on site, the county and town. The top priority should be specific marketing for aviation related business with second priority being non aviation related. The FAA has stated they are willing to review non-aviation businesses for location on the airport site on a one by one basis. The county should approach the Aeronautics Commission for funding to do specific marketing for aviation related businesses through their network of contacts, working with the successor to H&P. Goal 9 in the Goals section addresses the marketing plan.

1.2 Background

This document is a Conceptual and Strategic Plan for the South Big Horn County Airport. Part One is the Plan itself. Part Two is the Report of Inventory and background information on the airport. Part Two includes a significant amount of material from the ALP, from previously completed studies, from discussions with the County and Town of Greybull, and other information.

This strategic plan is not a plan for the aviation operations or physical plant of the airport facility. The previous planning for the Airport through the Airport Layout Plan (ALP), completed by Airport Development Group, and adopted by the Airport Board, County, Federal Aviation Administration (FAA), and Wyoming Aeronautics Commission—a branch of the Wyoming Department of Transportation (WYDOT). The ALP is excellent work which lays out the long range aviation facility capital improvement plan for the airport. It does not adequately address the infrastructure, the water, sewer and roadways that serve the facility.

This plan and strategies are designed to move to the next step for planning, the future of the Airport, such that the County and Airport Board may move forward in obtaining and using grant funding for the Airport's non-aviation facilities. The conceptual development plan is based on the Airport Layout Plan, Exhibits I and II, which follow. This plan attempts to move forward into a phase of providing required basic infrastructure improvements on the non-aviation side of the operation such that the Airport can flourish in the future.

As the ALP was completed before the changes with Hawkins and Powers, as described in the next section, there may need to be revisions to the ALP. However, at the January 23, 2006 Airport board meeting, representatives from the FAA and Wyoming Aeronautics Commission reaffirmed their commitment to moving forward with the construction of a new main (north/south) runway as spelled out in the ALP. With these critical agencies committed to the airport there is significant opportunity for the airport to continue as a viable aviation facility, with significant opportunities as well for the airport to be a critical economic development catalyst for Big Horn County.

1.3 History of the Facility and the Facility Itself

The South Big Horn County Airport is located in central Big Horn County, two miles west of the Town of Greybull, population 1,800. The North Big Horn Airport is located at Cowley, northwest of Lovell in the northwest corner of the county. The site encompasses approximately 736 acres of land, at an elevation of 3,939 feet. South Big Horn (GEY) was established in 1953. Currently there are two paved runways, a 3,950-foot east/west runway, and a 6,300-foot north/south runway. There are nearly forty structures on site, a major hangar and associated shop buildings, and office building, individual hangars, a building that serves as the Museum of Aviation and Flight, and an office building. There is a long term aircraft storage area is located to the north of the east/west runway.

The entire facility is accessed from U.S. Highway 14-16, which runs along the south side of the facility. The site is bounded by agricultural lands to the northwest and open space lands south and east.

The airport is a C-III facility servicing general aviation, the military, business, and recreational users. The airport is owned and operated by Big Horn County, Wyoming. The airport board, which is appointed by the Board of County Commissioners, operates the facility with an airport manager.

The airport serves as home base to approximately 56 based aircraft. (ALP) Until recently the airport was the base for the fire fighting operations of Hawkins and Powers, a long term institution in Greybull. The airport has been operated as H&P's home base, with less emphasis on general aviation or other businesses over a period of many years.

H&P encountered contractual problems with the Forest Service because of some unfortunate accidents with the big slurry bombers and ultimately the Forest Service eliminated the big planes from their contracts. H&P closed the fire fighting operations and began concentrating on manufacturing, avionics, and military aircraft refurbishing.

Exhibits I and II from the ALP

Exhibit I from the ALP, on the following page, shows the existing and proposed layout of the airport. Future paving is shown in yellow, which includes a new main runway east of and parallel to the exiting main runway. The east/west runway would be extended, as it is a critical cross wind runway.

Exhibit II, a close up of the land side facilities, indicates existing buildings in Green. The main hangar and associated maintenance building are the two large buildings fronting the main apron, buildings 5 and 6. Proposed buildings, shown in red, include a new hangar, adjacent to the existing hangar, and a new home for the museum, building 32, to the west. There is a large field for parking of museum piece aircraft around this building.

1.4 Summary of the Status of the Airport

- **Status of the Airport**

The loss of all H&P operations does not reduce the airport's need for aviation and non aviation improvements. At the January 2006 Airport board meeting, the FAA and Wyoming Aeronautics Commission representatives stated that their plan and reserved funding for construction of \$18 million of scheduled improvements over the next ten years, including construction of a new main runway parallel and east of the current main runway, are still on track and they consider the airport a viable facility well worth the investment.

Even if the large aircraft operations do not continue the Airport could be reclassified as an ARC C-II versus and ARC C- III operation, which still requires the construction of a new main runway and other aviation improvements.



- **Land and Facility Status**

Big Horn County owns all the land of the airport. The County owns a 50 by 100 foot hangar, which it leases. The major facilities on site were owned by Hawkins and Powers (H&P) and are now owned by Great American, a holding/liquidation company. Great American has until the end of 2006 to liquidate all the tangible assets of H&P.

- **H&P Cut Back**

Hawkins and Powers have had operating and financial difficulties and are dissolving as a company under their former organizational structure. . The company has occupied the majority of the facilities and space at the airport for many years, and the facility has been operated to suit their needs. Many jobs have been lost, many more may be lost.

- **Successor Companies**

Great American Group and H&P are having discussions with various parties concerning taking over the manufacturing and refurbishing operations. Those discussions are ongoing, with hopefully some action by February, when the current plan is scheduled to be completed. These companies also need to work with Great American on the acquisition of the hangar and other facilities.

Current Proposals

Duane Powers AeroFab—proposes take over lease on the main hangar, and recruit new planes for refurbishment.

B&G Industries is negotiating with the parties involved to be the successor to H&P.

- **The Airport as a critical economic development facility for Big Horn County**

For many years the airport has been an employment center critical to the county economy. With that function in transition, it is important that the County and airport board and economic development organizations work with the private sector to retain the current jobs and maintain viable aviation related businesses, such as the C-130 refurbishment operation, based on a skilled workforce.

- **The Airport Layout Plan**

The ALP was completed in the fall of 2003, prior to the ultimate decisions of H&P to dissolve their then current structure. The ALP was completed from point of view of H&P still operating fully, including aerial fire-fighting operations. Without H&P, the ALP is outdated. It may have to be updated based on proposals for new uses at the airport.

- **General Aviation**

As H&P has been the prime business at the airport for many years, there has not been a significant effort to promote general aviation. With the change in the H&P operation there may be new opportunities for a new beginning in general aviation, based on the airport board and County priorities.

- **Main Hangar**

A county priority is to purchase the main hangar from Great American or facilitate the ownership transition of that facility to a successor company. It may or may not be adequate in its current state for future refurbishment operations. However, there may be funding options available to the County for upgrading the facility not available to the private sector.

- **Build A New Major Hangar With Large Aircraft Capacity.**
The County has completed a design for a new hangar and understand the costs involved and that the airport lacks adequate water for fire suppression. The County has spent \$50,000 on design for new hangar. The county will pursue a new hangar when there is sufficient evidence that a new company needs and can sustain payments for the new hangar.
- **The ALP includes \$20 million in aviation improvements over ten years.**
The Aeronautics commission is holding funding now to use as match for the FAA 95/5 money. This money could be in jeopardy if there is no real resolution to the issue of a new operator for the C-130 rehab operation. Also, if there is no plan for future rehab work, there is no reason for the skilled labor to remain in Greybull.
- **There are currently two firms looking at locating in the former refinery site at Greybull.** One is a steel refabrication plant, which manufactures equipment from rolls of sheet steel, (with an estimated 200 jobs) and an ethanol plant (30 jobs on site, more off site) are built the airport could benefit from corporate use of the airport.
- **The Museum of Aviation**
The museum would possibly reduce operations if the number of planes available to it for display is cut too drastically. This is a private enterprise and funding is limited to donations.
- **Land uses must be aviation related**
Under the BLM and FAA requirements, individual uses could be proposed as unique situations, but the County must prove it has exhausted its search for aviation related businesses. The FAA stated at the January 2006 Airport Board meeting that they would consider non-aviation uses and would work with the board closely on that issue. The Airport Board can identify potential non-aviation areas and request permission from the FAA to allow the areas to be used for non-aviation-related purposes. Based on the proposed use, an environmental analysis may be required. The lease rate for the land will be greater than the General Aviation rate. The land will be leased and not sold. Any proposed non-aviation use of the airport land must be approved by FAA, and may require an environmental analysis.
- **The long term aircraft storage area**
This area is a parcel to the north of the terminal area and across the east-west runway. It is used for storage of decommissioned airplanes. These planes were used by H&P in their slurry operations, or airframes were salvaged for parts to use on other aircraft.
- **Long term storage of aircraft**
Long term storage of aircraft at this location is a viable future use of the facility. The dry climate, which is less damaging to aircraft than wet climates, and the remoteness from urban areas and therefore more secure, location, make the airport an attractive facility for long term storage of aircraft. There are situations when airlines cut back on service and must store airliners. Hurricanes and other natural disasters can create a need for temporary storage of aircraft. Future use of the long term storage area is a major opportunity under the scenario that Great American has the deadline of the end of 2006 to liquidate the several dozen aircraft now stored in this area.

- **The Airport District zoning**

The Airport District zoning must be in place before the summer of 2006 in order to get further FAA money to expand runways. This information has been provided to the Town of Greybull for their adoption of it.

1.5 Grants and Grant History

- **FAA- Federal Aviation Administration**

The FAA funds aviation facility improvements through a grant program to the airport operators. FAA money is provided as a 95 percent grant with a 5 percent local match. The Wyoming Aeronautics Commission pays up to 80-85% of that 5 percent local match. This is an excellent program for aviation related facility improvement and the only way many small airports can afford the cost of aviation facility maintenance and improvement. The FAA money is not available for water, sewer, roadways, or dry utilities that serve the “land side” operations at the airport.

The Aeronautics Commission and FAA have in the past funded infrastructure, water, sewer, and roadways, on airports. However, the funding pool is very small and it may not be feasible to access these funds. The Capital Improvement Program developed by the airport and accepted by the FAA and WYDOT Aeronautics does identify the infrastructure needs and specifies funding by others.

- The County received a grant of \$1.25 million from the **Economic Development Administration (EDA)**, originally to construct a large new hangar at the airport. This is a grant based on job creation or job retention. The original grant was based on H&P being able to provide local match. That situation has changed. The grant is still available to the County through early August of 2006. It must be matched dollar for dollar. The county may opt to use those funds to purchase the existing main hangar, using match money from the County, and possibly combine that project with an infrastructure improvement project, based on the ability to reapply for the Business Council for up to \$1.5 million that was once in hand.

- **Business Council Grant, past and potential**

Business Council funding could be used for hangar purchase/maintenance, and infrastructure. This grant is also based on job creation or job retention. With a viable C-130 operation in place, this grant could be used for infrastructure upgrades and match for the EDA grant. This grant requires a 10 percent match for any grant over \$250,000 and is capped at \$1.5 million. The next deadline for this grant is March 3, 2006, with the caveat that the legislature has to fund the program during the February budget session.

CHAPTER 2 - MISSION STATEMENT, GOALS, AND STRATEGIES

2.1 Mission Statement

The mission of the South Big Horn Airport, as established jointly by the Big Horn County Commission and Big Horn County Airport Board is to continue to operate the airport as a viable aviation related facility serving as a nucleus for business and industry which provide quality aviation products and services; and a facility which provides stable employment and economic development growth opportunities for both aviation and non-aviation sectors of the county economy. The Mission of the airport also includes the provision of a viable facility and operation for growth of general aviation operations which as well will serve both the aviation and non aviation sectors of Big Horn County.

2.2 Goals and Strategies

In order to achieve the mission of the South Big Horn County airport, the following goals and strategies are established:

With assignment of responsibilities and a schedule, this becomes the work plan for the County and Airport Board.

Goal 1

Keep large aircraft maintenance operation and existing aviation related operations at the airport.

The key to the continued viability of the airport is to maintain a large airplane rehabilitation operation at the airport, not only to keep the skilled workers in Greybull, save jobs and potentially create new jobs, but also to retain the need for and the access to FAA and Wyoming Aeronautics Commission funding for aviation facility improvements.

- **Strategy 1.1**
The County and Airport Board will work with all viable proposals for continuing the C-130 rehabilitation operation. Pursue construction of a large commercial hangar which is secure to allow airframe structural repairs and advanced avionics on Department of Defense aircraft.
- **Strategy 1.2**
The County and Airport Board will work with all viable proposals for other large aircraft operations, such as one suggested to store retiring airliners and at the long term storage area, a viable proposition because of the dry climate at Greybull. Additionally, short term parking of in service corporate jets is a potential use.
- **Strategy 1.3**
Utilize the FAA, WYDOT Aeronautics, EDA, and Wyoming Business Council Grants, among others, to fund aviation facilities, land side and off site infrastructure.

- Strategy 1.4
Work with consultants and the Aeronautics Commission to obtain funding for specific marketing of the airport to the large plan rehab sector and the aviation industry.

Schedule: Immediately

Goal 2

Big Horn County Purchase the main hangar from Great American or coordinate the purchase of the hangar by the private sector.

The County should work with the private sector to determine if it is in the best interest of the county and the private sector to have private sector ownership of the main hangar or if the county should own it. There can be advantages to ownership by either. In order to make the hangar a viable candidate for public funds for expansion and remodeling to bring it up to standards necessary for future long term operations, Big Horn County could have ownership of the hangar. The County may not want to be a landlord, however. The County has determined that a new, large hangar, which would provide for an expanded large plane operation, would cost in excess of \$2.8 million, a cost which is not within the feasible range at this point.

Schedule: The purchase should occur before August of 2006 in order to use the EDA grant funds.

- Strategy 2.1
Use the Economic Development Administration Grant now available to the County with match from the County Commissioners to purchase the hangar by August of 2006, matching the EDA grant one to one with the County funds.
- Strategy 2.2
Work with Great American, the liquidator of the H&P tangible assets, to secure first position option on the hangar.
- Strategy 2.3
Work with H&P to arrange a disposition of the lease of the hangar and adjoining lease area to ensure that the Goals 1 and 2 are achievable.

Goal 3

Upgrade the Basic Infrastructure of the Airport

The water, sewer, and roadway infrastructure of the airport need to be upgraded in order for even the most basic expansion of facilities and operations to be feasible.

Section 1.3 of this report outlines the alternatives and costs for infrastructure improvement. Dry utilities, such as electricity, phone, gas, need to be evaluated as well, on a specific needs basis.

- Strategy 3.1
Reapply for the Wyoming Business Council Business Ready Communities Grant for funding to construct water and sewer infrastructure for the airport.
- Strategy 3.2
Work with the Town of Greybull and the Airport Bench Water District in developing an upgrade for airport water that will benefit all three entities.
- Strategy 3.3
In order to allow for fire flow for hydrants and fire suppression capabilities for buildings, construct a larger supply line (or use the Airport Bench line) for the water system and install a critical storage tank at the airport or in conjunction with the Airport Bench tanks of 250,000 to 500,000 gallons. This tank would potentially provide for better operation of the Greybull system, provide for fire flow and/or expansion of the Airport Bench service, and allow the airport the ability to remodel existing facilities.
- Strategy 3.4
Install the necessary onsite water improvements at the airport to serve the needs of the future site as projected in the ALP.
- Strategy 3.5
Future grant funding for a fire suppression system for the main hangar is possible, if the County owns the hangar and the private sector operation in the hangar wishes to expand the hangar or retrofit the hangar and create more jobs.
- Strategy 3.6
Upgrade the sewage disposal system on the airport from septic tanks to a public system. The only sewer collection system in the area is a holding tank and force main operation at the WYDOT rest area, adjacent to the airport. Sewer could be “gravitied” to the rest area and pumped into the WYDOT system if a complex phasing could be worked out, at least for a temporary solution. A less desirable alternate at this time is to construct a gravity sewer down the hill to the Greybull lagoon for the airport and connect the rest area to the gravity sewer. WYDOT will reconstruct Highway 14, 16, and 20 in the vicinity of the airport within the next five years. This line could be in conflict with that work.

Recommended Capital Improvements

The minimum requirements for improvements are listed below. If the airport is to expand its facilities with more hangars and development of the long term aircraft storage area, additional, and expensive water and sewer additions would be required. A roadway around the west end of the east/west runway, at a cost of nearly \$900,000 would also be necessary. An alternative would be an underpass under the east west runway, which is not estimated at this time.

- **Off-Site water improvements**

Alternative 2 – Upgrade Airport Bench Users System

- Install new 4 inch HDPE from Airport Bench System to new 250,000 gallon tank on hill west of airport.
 - A larger capacity storage tank could be a viable addition to the process based on the requirements of specific fire suppression need for expansion of the existing main hangar or construction of a new hangar. The problem to work out is how to keep that amount of water chlorinated when only a small amount of that is used per day. The projected daily demand is 30,000 gallons. This would increase if a process using large volumes of water were to locate on the site. Upsizing the tank to 500,000 gallons could increase the cost by \$300,000 as a rough estimate.
 - Install 10 inch PVC from tank to airport.
 - Cost - \$1,108,080.00
- Consider the feasibility and cost to place a line from the 250,000 gallon tank on Greybull River Road to the proposed 250,000 gallon tank for the airport to complete a looped system.

- **On-Site water improvements**

Schedule A – the main building area only, not the proposed hangar area or the long term aircraft storage area.

- Install 4,950 LF 8 inch PVC, valves, fittings, and hydrants to supply main airport area.
- Cost - \$435,510.00

- **Off-Site sewer improvements**

Alternative 2 – Connect to WYDOT System

- Install new lift station and piping to connect to WYDOT system
- Install controls to link new lift station to WYDOT lift station so they do not pump at the same time
- May require storage – 10,000 gallons+/-
- Cost - \$179,550.00

- Consider providing sanitary sewer for other Airport Bench customers and future customers such as new residential subdivisions.
- **On-Site Sewer System Improvements:**
Schedule A.
Install 4,340 LF 8 inch PVC, manholes and service lines to supply main airport area.
 - Cost - \$257,634.00

Total estimated cost of the proposed improvements - \$1,980,774

Goal 4

Ensure the county and Greybull have adopted the Aviation land use ordinance.

It is necessary for the County and the Town of Greybull to adopt the aviation land use ordinance/resolution prior to expenditure of any further FAA money on the airport. The ordinance is included in the appendix.

- Strategy 4.1
Work with the mayor and town council of Greybull to have the town adopt this ordinance. It affects a small portion of the town and the former refinery site. The basic requirements, height restrictions and radio transmission limitations, should be workable for industries proposing to build in that area.

Goal 5

Provide a fueling station at the airport

A fueling station is a significant need for the future viability of the airport as a rehab operation and a general aviation airport. The County is currently working on this.

Goal 6

Maintain a Fixed Base Operator

An FBO is a necessary provision of aviation services supporting general aviation and commercial aviation. FBO services are defined by Jim Sirhall of ADG, who prepared the ALP, in the appendix, and vary from place to place, but are intended to service the aircraft using the airport, maintain the runways, and provide assistance to pilots among other services.

- Strategy 6.1
Determine a scope of work and a budget for an FBO. Work with local individuals or firms who are involved with the airport and have an interest to provide FBO services as part of a total package of employment or contracting.

- Strategy 6.2
Solicit proposals for firms who provide FBO services, from a larger area if local services are not obtainable.

Goal 7

Operate the airport as a general aviation facility in cooperation with other air related operations.

General aviation operations and developing a market for general aviation is the basic function of the airport.

- Strategy 7.1
Complete the fueling station, establish some form of FBO and market the general aviation sector.

Goal 8

Save the Museum of Flight

The Aeronautics and Aviation Museum is in a state of flux until the issues of liquidation of the airplanes are settled. The County will work with the museum, Great American, and other interested parties to assure that the air museum has planes to exhibit and a location, per the ALP, to move to.

Goal 9

Marketing

The County, airport board, town and economic development professionals and board should establish a process of marketing the airport in cooperation with the Aeronautics Commission, the private sector operator on site, the county and town. The top priority should be specific marketing for aviation related business with second priority being non aviation related. The FAA has stated they are willing to review non-aviation businesses for location on the airport site on an individual basis.

- Strategy 9.1
Work with the successor companies to H&P to provide information for businesses with potential to relocate to or expand to the airport. This will include advantages of the site, a good climate for aircraft storage, good security, good quality of life for employees, etc.
- Strategy 9.2
Provide grant assistance for companies that may want to relocate to or expand on the airport site through training grants or capital improvement grants through the Business Council, SBA, EDA and other funding sources.
- Strategy 9.3
Work to recruit businesses such as FedEx/UPS to the airport.

- Strategy 9.4
Market the potential steel mill and ethanol and alfalfa plant operations for use of the airport facilities as non aviation operations. The airport has good industrial facility potential for temporary or permanent operations that are not available at other locations.
- Strategy 9.5 Foreign Trade Zone
There is a Foreign Trade Zone established at the Natrona County International Airport. This designation is based on a customs agent being available at that location, but able to travel anywhere in the state. the advantage of the FTZ is that good may be imported into the FTA from overseas, such as part of equipment imported to the airport with the equipment being assembles on site, and the taxes paid on the assembled equipment being manufactured and sold being much less than the taxes on the parts themselves. There may be some application for this with the alfalfa plant, or other businesses that may find it advantageous to import material to the airport and assemble them there.

CHAPTER 3 - INFRASTRUCTURE

3.1 Existing Infrastructure - Summary by WLC

3.1.1 Water Supply

Water was supplied to the airport by a two inch main owned by the county with water service provided by the Town of Greybull. The line runs from the town system just west of the railroad tracks north of Greybull Avenue as shown on Exhibit D.1 in Appendix D. A few years ago, a small booster station was installed on this 2-inch line just south of the highway. The booster station has been problematic and still only provides a few gallons per minute and very low pressure. This system has only been used to provide water for the fire base.

The only water storage at the airport consists of a 10,000 gallon cistern which was installed over 30 years ago. The cistern is no longer considered potable as it has been contaminated by rodents and insects. H&P currently uses water from the cistern for restroom and shop needs. Lack of storage and low pressures is the major problem as any development of new businesses or upgrading of existing buildings or construction of new aviation facilities will require fire flow/fire suppression capabilities.

Water is routed to the county hangar via a one-inch water line from the Airport Bench water system. They use this water to maintain a restroom for the pilots' lounge. Because the cistern is bypassed, the water in the county hangar is potable. Output in this hangar is approximately five gallons per minute.

The second means of water service to the Airport is a ¾-inch tap off the Airport Bench Water Users system. The Airport Bench Water Users system, which serves residential and agricultural customers throughout a district to the west of the airport, is served by a four inch line which parallels the County line and is also served by the Town of Greybull. The district has two 10,000 gallon water storage tanks located west of the airport, and provides domestic water to approximately 30 customers. Exhibit D.1 presents the location of the Airport Bench Users system. Presently, the terminal building gets potable water via a ¾-inch tap off the Airport Bench Water Users system.

The Pied Piper hangar is supplied by a separate tap off the Airport Bench Water Users system as well. This is a private hangar and the owner paid for this tap and continues to pay for the water used. The Airport Bench Water Users system also supplies water to the WYDOT rest area located immediately west of the airport entrance. When the Airport Bench system was constructed both the WYDOT rest area and H&P hooked on to that line. Water is fed back to the airport complex from the original line that served the rest area.

3.1.2 On-Site Water

As discussed previously, there are a couple of service lines to individual buildings on the airport from the County/Airport Bench lines. However, these are old and small service lines and are not adequate to meet the requirements of current day or future development needs of the airport.

The only potable water at the airport comes from the taps off the Airport Bench Users system or water that bypasses the cistern on the County line.

3.1.3 Sewage Collection and Treatment

There are several small and large septic tanks on site for the major buildings. There is no public sewer, which again is inadequate for present and future aviation and non-aviation operations of an airport. The existing septic systems also provide health hazards due to the fact that they may be located in close proximity to existing water lines.

WYDOT installed a pressure sanitary sewer system in the early '90s. This system consists of holding tanks and a grinder effluent pump. The sanitary waste is pumped downhill to the Greybull lagoons through a 1-1/2-inch force main. An effluent pump in the sump pumps the waste into a 1-1/2-inch force main.

3.1.4 On-Site Roadways and Access

The existing roads and parking lots on the site are in fair shape and would need to be improved if the airport is to be upgraded and used in the future.

Currently, there is no vehicle access to the long-term aircraft storage area without crossing an active taxiway. Crossing an active runway is considered unsafe and violates FAA regulations unless the vehicle is authorized and has radio contact with the operating aircraft in the airport operations area or airspace above the airport.

Constructing utilities to the long term aircraft storage area is proposed as part of the current upgrades. In order to access the long term storage area for future development of that site as an aviation operation such as storage of old planes, a new road around the west end of the site would need to be constructed the long term storage area.

3.2 Summary of Possible Water and Sewer System Improvements

Alternatives for on-site and off-site water, sewer, and roadway improvements are discussed in the following sections.

General Information:

- 2 inch County water system used a 10,000 gallon cistern. Cistern is contaminated; therefore, this water is no longer potable.
- Rest Area tapped the 2 inch county line and operated for a while from this system. When the Airport Bench System came along the Rest Area tapped the Airport Bench System.
- H&P tapped into the Airport Bench System near the Rest Area tap and reversed flow in line to H&P Complex.
- County Hangar was supplied from a tap off the 2 inch county line. County Hangar now supplied from a tap off the Airport Bench System.
- 2 inch county system only capable of 5 gpm.
- Estimated Future Water Demand:
 - Fire: Ideal Scenario – 1500 gpm at 35 psi for 2 hours
 - Domestic: 27,720 gpd at 45-65 psi
 - Storage: 250,000 gallon minimum.
- Estimated Future Sewer Demand:
 - Domestic: 29.1 gpm

Proposed Off-Site Water System Improvements:

- Alternative 1 – Totally New System
 - Burst the 2 inch PVC County line with 4 inch HDPE.
 - Install new Booster Station
 - Install 4 inch HDPE from new Booster to new 250,000 gallon tank on hill west of the airport.
 - Install 10 inch PVC from new tank to airport.
 - Cost - \$2,340,090.00
- Alternative 2 – Upgrade Airport Bench Users System
 - Install new 4 inch HDPE from Airport Bench System to new 250,000 gallon tank on hill west of airport.
 - Install 10 inch PVC from tank to airport.
 - Cost - \$1,108,080.00

Proposed On-Site Water System Improvements:

- Schedule A
 - Install 4,950 LF 8 inch PVC, valves, fittings, and hydrants to supply main airport area.
 - Cost - \$435,510.00
- Schedule B
 - Install 1,430 LF 8 inch PVC, valves, fittings, and hydrants to supply the proposed expansion area to the west.
 - Cost - \$131,206.50
- Schedule C
 - Install 1,390 LF 8 inch PVC, valves, fittings, and hydrants to supply the proposed expansion area to the west.
 - Cost - \$80,149.5
- Total Cost = \$646,866.00

Proposed Off-Site Sewer System Improvements:

- Alternative 1 – Totally New System
 - Install 6,870 LF of 8 inch PVC gravity sewer line, and 16 manholes.
 - Connect to existing Greybull line near the lagoon
 - Cost - \$369,387.00
- Alternative 2 – Connect to WYDOT System
 - Install new lift station and piping to connect to WYDOT system
 - Install controls to link new lift station to WYDOT lift station so they do not pump at the same time
 - May require storage – 10,000 gallons+/-
 - Cost - \$179,550.00

Proposed On-Site Sewer System Improvements:

- Schedule A
 - Install 4,340 LF 8 inch PVC, manholes and service lines to supply main airport area.
 - Cost - \$257,634.00

- Schedule B
 - Install 1,430 LF 8 inch PVC, manholes and service lines to supply the proposed expansion area to the west.
 - Cost - \$85,428.00

- Schedule C
 - Install 1,390 LF 8 inch PVC, manholes and service lines to supply the proposed expansion area to the west.
 - Cost - \$64,989.00
 - If Schedule C is decided to be installed, Schedule A will be more expensive due to increased depth - \$350,595.00

- Total Cost - \$501,012.00 (All Schedules)

Proposed On-Site Roadway Improvements:

- Install 24 foot wide paved roadway, no curb/gutter around to access the long term storage area.
- Cost - \$521,307.90

3.3 Utility Specific Analysis

Future Water Demand

Hawkins and Powers hired Graham, Dietz, and Associates to conduct a water distribution study for the airport in 1996. Several different alternatives were analyzed to provide adequate water supply to the airport. This 1996 study was used as a reference for this strategic plan. At the time this study was conducted, H&P anticipated large growth in their operations, and would have required much larger future water demands than what are currently being predicted.

Table 3-1 below presents the estimate future water demands at the airport based on information from the ALP.

Table 3-1. Estimated Future Water Demand Rates

Building	Area (ft ²)	Type	# Of People	Estimated Water Demand		
				ADD (gpd)	MDD (3*ADD) gpd	PHD (5*ADD) gpm
1	80	Electrical Vault	-	-	-	-
2	1104	Terminal/FBO Office	4	132	396	0.45804
3	1200	Trailer	2	66	198	0.22902
4	1200	Trailer	2	66	198	0.22902
5	27000	Rehabilitation Facility	20	660	1980	2.2902
6	28900	Hangar	20	660	1980	2.2902
7	1932	Hangar	2	66	198	0.22902
8	1932	Hangar	2	66	198	0.22902
9	1230	Hangar	2	66	198	0.22902
10	450	Storage Facility	1	33	99	0.11451
11	972	T-Hangar		TO BE REMOVED		
12	972	T-Hangar		TO BE REMOVED		
13	900	T-Hangar		TO BE REMOVED		
14	900	T-Hangar		TO BE REMOVED		
15	972	T-Hangar		TO BE REMOVED		
16	900	T-Hangar		TO BE REMOVED		
17	3100	Hangar	2	66	198	0.22902
18	816	T-Hangar		TO BE REMOVED		
19	2116	Hangar	2	66	198	0.22902
20	5250	Hangar	4	132	396	0.45804
21	1665	Hangar	2	66	198	0.22902
22	1505	Hangar	2	66	198	0.22902
23	1665	T-Hangar	2	66	198	0.22902
24	2250	Hangar	2	66	198	0.22902
25	6000	Hangar	4	132	396	0.45804
26	3150	Hangar	2	66	198	0.22902
27	2000	Future-Hangar	2	66	198	0.22902
28 * 7	3600	Future-Hangar * 7	28	924	2772	3.20628
29	3600	Future-Hangar	4	132	396	0.45804
30	62500	Future-Hangar	60	1980	5940	6.8706
31	2400	Equipment Building	1	33	99	0.11451
32	62500	Museum Building	60	1980	5940	6.8706
33*2	10000	Future-Hangar*2	16	528	1584	1.83216
34*3	5625	Future-Hangar*3	12	396	1188	1.37412
35*3	4200	Future-Hangar*3	12	396	1188	1.37412
36	14700	Future-Hangar	8	264	792	0.91608
Total =				9240	27720	32.0628

Table 3-1 presents all existing and future buildings as shown in the ALP. Based on the size of the buildings, an estimate of the number of people utilizing the building was determined. An average daily sewer demand of 30 gallons per day per person (WDEQ Water Quality Rules and Regulations Chapter 11) was estimated and to account for consumption, a factor of 1.1 was applied to that to determine average daily water demand (ADD). A factor of three (3) was applied to the ADD to determine the maximum daily demand (MDD) and a factor of five (5) was applied to the ADD to determine the peak hour demand (PHD). As shown in Table 3-1, the ADD for the airport is 9,240 gallons per day, the MDD is 27,720 gallons per day, and the PHD is 32.1 gallons per minute.

Based on information gathered from the International Fire Code and the National Fire Protection Association, the minimum required fire flow demand is 1,500 gallons per minute for a duration of two hours in conjunction with the MDD at 35 psi. This assumes that the larger hangars are equipped with fire suppression systems. Alternatives for off-site water system improvement were based on these criteria.

3.3.1 Off-Site Water System Improvements

Alternative 1 – Totally New System

This alternative involves constructing a totally new system. The existing county line is too small to supply the required demands to the airport. The existing 2-inch county line would be burst and replaced with a 4-inch HDPE line. The existing booster station would be removed and replaced with a new larger station. New 4-inch HDPE would be installed from the new booster station to a new 250,000 gallon storage tank located west of the airport. 10-inch PVC would be installed from the new tank to the airport and connected to the on-site improvements. Exhibit D.2 in Appendix D presents the layout of Alternative 1.

These improvements would benefit only the Bighorn County Airport. No other users would be connected to this system.

- **Supply:** Supply would be from the Town of Greybull. The Town's storage Tanks are not high enough to supply the pressure required to the fill the proposed tank; therefore, a booster station is required.
- **Storage:** A new 250,000 gallon storage tank would provide the pressure and volume to meet the required fire flows and anticipated domestic flows. Supply would be from the Town of Greybull.
- **Cost:** \$2,340,090.00 (See Table 3-2 below).

Table 3-2. Cost Estimate for Alternative 1

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
BURST 2" PVC WITH 4" HDPE	LF	8300	\$55.00	\$456,500.00
4" HDPE PIPE	LF	11150	\$42.00	\$468,300.00
10" PVC	LF	10200	\$38.00	\$387,600.00
NEW BOOSTER STATION AND CONTROLS	EA	1	\$100,000.00	\$100,000.00
AIRVACS	EA	10	\$2,500.00	\$25,000.00
HIGHWAY BORE	LF	120	\$100.00	\$12,000.00
ISOLATION VALVES	EA	6	\$1,500.00	\$9,000.00
250,000 GALLON STORAGE TANK	LS	1	\$250,000.00	\$250,000.00
EASEMENTS, PERMITTING, EIS	LS	1	\$25,000.00	\$25,000.00

		\$1,733,400.00
Contingency	\$	260,010.00
Design Engineering	\$	173,340.00
Construction Engineering	\$	173,340.00
	<u>ESTIMATED TOTAL COST</u>	<u>\$2,340,090.00</u>

- Revenue: None. Since the water is purchased from the Town of Greybull this Cost would be passed through to the customers.

Alternative 2 – Totally New System

This alternative would upgrade the Airport Bench Users system with additional storage on the hill northwest of the airport. The existing 4-inch Airport Bench line and booster station would be utilized. A new 4-inch HDPE line would be tapped off the existing 4-inch line to a new 250,000 gallon supply the tank. A 10-inch PVC line would be installed from the new tank line to the airport and connected to the airport on-site improvements. The layout of Alternative 2 is presented on Exhibit D.3 in Appendix D.

This alternative benefits the airport as well as the Airport Bench Users. The Town of Greybull has expressed a willingness to assume operation and maintenance of this type of system.

- Supply: Supply would be from the Town of Greybull. The Town’s storage tanks are not high enough to supply the pressure required to the fill the proposed tank. The existing Airport Bench Booster Station is capable of supplying 68 gallons per minute and adequate pressure to fill the new tank. The estimated ADD for the Airport Bench Users is 14,850 gallons per day, the MDD is 44,550 gallons per day, and the PHD is 51.5 gallons per minute. Therefore, the existing booster station is not quite capable of supplying the total PHD of 83.6 galloons per minute (airport plus Airport Bench Users); however, the new storage tank will provide the difference.

- Storage: A new 250,0000 gallon storage tank would provide the pressure and volume to meet the required fire flows and anticipated domestic flows. Supply would be from the Town of Greybull. The airport will be supplied directly from the tank through the new 10-inchPVC. A tap off the new 10-inch line to the existing Airport Bench 4-inch line will also be necessary. Check valves will be installed in the 4-inch supply line to the tank and the connection from the existing 4-inch to the new 10-inch to force the supply to Airport Bench Users to be from the new tank. This will prevent water from remaining in the tank too long which would allow for the chlorine residual in the tank to decay and become ineffective in killing bacteria.
- Cost: \$1,108,080.00 (See Table 3-3 below)

Table 3-3. Cost Estimate for Alternative 2

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
4" HDPE PIPE	LF	2850	\$42.00	\$119,700.00
10" PVC	LF	10200	\$38.00	\$387,600.00
NEW BOOSTER STATION CONTROLS	EA	1	\$20,000.00	\$20,000.00
AIRVACS	EA	5	\$2,500.00	\$12,500.00
ISOLATION VALVES	EA	4	\$1,500.00	\$6,000.00
CHECK VALVES	EA	2	\$5,000.00	\$10,000.00
250,000 GALLON STORAGE TANK	LS	1	\$250,000.00	\$250,000.00
EASEMENTS	LS	1	\$15,000.00	\$15,000.00

		\$820,800.00
Contingency	\$	123,120.00
Design Engineering	\$	82,080.00
Construction Engineering	\$	82,080.00
	<u>ESTIMATED TOTAL COST</u>	<u>\$1,108,080.00</u>

- Revenue: None. Since the water is purchased from the Town of Greybull this cost would be passed through to the customers.

3.3.2 On-Site Water System Improvements

The following Section describes the recommended on-site water system improvements for the airport. The on-site improvements have been split into three separate schedules: Schedule A consists of water system improvements to the main airport area; Schedule B consists of water system improvements to the western area expansion; and Schedule C consists of water system improvements to the bone yard north of the main airport area.

Improvements to each area are discussed in further detail below. The on-site water system improvements discussed in Schedules A, B and C are presented on Exhibit D.4.

Schedule A Improvements

The Schedule A improvements consist of approximately 4,950 lineal feet of 8-inch PVC water line, 9 fire hydrant assemblies, fittings and valves, services and pressure reducers to provide domestic water and fire protection to the main airport area. The main airport area consists of several small hangars, a future large hangar, and the rehabilitation facility. Table 3-4 presents the estimated costs associated with the Schedule A Water System Improvements. The total estimated cost for these improvements is \$435,510.00.

Table 3-4. Schedule A Water System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC WATER	LF	4950	\$33.00	\$163,350.00
FIRE HYDRANT ASSEMBLY	EA	9	\$5,200.00	\$46,800.00
8" PVC FITTINGS	EA	15	\$450.00	\$6,750.00
8" GATE VALVE	EA	8	\$1,100.00	\$8,800.00
1" WATER SERVICE	EA	30	\$1,500.00	\$45,000.00
6" WATER SERVICES	EA	3	\$2,300.00	\$6,900.00
PRESSURE REDUCERS	EA	30	\$1,500.00	\$45,000.00
				\$322,600.00
	Contingency		\$	48,390.00
	Design Engineering		\$	32,260.00
	Construction Engineering		\$	32,260.00
			<u>ESTIMATED TOTAL COST</u>	<u>\$435,510.00</u>

Schedule B Improvements

The Schedule B improvements consist of approximately 1,430 lineal feet of 8-inch PVC water line, 3 fire hydrant assemblies, fittings and valves, services and pressure reducers to provide domestic water and fire protection to the proposed expansion area to the west. The proposed western expansion area would consist of several small to medium sized hangars and a proposed museum. Table 3-5 presents the estimated costs associated with the Schedule B water system improvements. The total estimated cost for these improvements is \$131,206.50.

Table 3-5. Schedule B Water System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC WATER	LF	1430	\$33.00	\$47,190.00
FIRE HYDRANT ASSEMBLY	EA	3	\$5,200.00	\$15,600.00
8" PVC FITTINGS	EA	4	\$450.00	\$1,800.00
8" GATE VALVE	EA	3	\$1,100.00	\$3,300.00
1" WATER SERVICE	EA	9	\$1,500.00	\$13,500.00
6" WATER SERVICES	EA	1	\$2,300.00	\$2,300.00
PRESSURE REDUCERS	EA	9	\$1,500.00	\$13,500.00

		\$97,190.00
Contingency	\$	14,578.50
Design Engineering	\$	9,719.00
Construction Engineering	\$	9,719.00
	<u>ESTIMATED TOTAL COST</u>	<u>\$131,206.50</u>

Schedule C Improvements

The Schedule C improvements consist of approximately 1,390 lineal feet of 8-inch PVC water line and 2 fire hydrant assemblies to provide domestic water and fire protection to the bone yard area to the north. Table 3-6 presents the estimated costs associated with the Schedule C water system improvements. The total estimated cost for these improvements is \$80,149.50.

Table 3-6. Schedule C Water System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC WATER	LF	1390	\$33.00	\$45,870.00
FIRE HYDRANT ASSEMBLY	EA	2	\$5,200.00	\$10,400.00
8" PVC FITTINGS	EA	2	\$450.00	\$900.00
8" GATE VALVE	EA	2	\$1,100.00	\$2,200.00

		\$59,370.00
Contingency	\$	8,905.50
Design Engineering	\$	5,937.00
Construction Engineering	\$	5,937.00
	<u>ESTIMATED TOTAL COST</u>	<u>\$80,149.50</u>

At the present time only the Schedule A improvements would be required. At the time the airport was expanded then Schedules B and C would be necessary. If all three Schedules were constructed at this time, the total cost of the on-site water system improvements would be approximately \$646,866.00.

3.3.3 Future Sewer Demand

As discussed previously, 30 gallons per day per person was estimated for the average daily sewer demands. Table 3-7 below presents the estimated future sewer demands at the airport based on information from the ALP.

Table 3-7. Estimated Future Sewer Demand Rates

Building	Area (ft ²)	Type	# Of People	Estimated Sewer Demand	
				ADD (gpd)	MDD (5*ADD) gpm
1	80	Electrical Vault	-	-	-
2	1104	Terminal/FBO Office	4	120	0.4164
3	1200	Trailer	2	60	0.2082
4	1200	Trailer	2	60	0.2082
5	27000	Rehabilitation Facility	20	600	2.082
6	28900	Hangar	20	600	2.082
7	1932	Hangar	2	60	0.2082
8	1932	Hangar	2	60	0.2082
9	1230	Hangar	2	60	0.2082
10	450	Storage Facility	1	30	0.1041
11	972	T-Hangar	TO BE REMOVED		
12	972	T-Hangar	TO BE REMOVED		
13	900	T-Hangar	TO BE REMOVED		
14	900	T-Hangar	TO BE REMOVED		
15	972	T-Hangar	TO BE REMOVED		
16	900	T-Hangar	TO BE REMOVED		
17	3100	Hangar	2	60	0.2082
18	816	T-Hangar	TO BE REMOVED		
19	2116	Hangar	2	60	0.2082
20	5250	Hangar	4	120	0.4164
21	1665	Hangar	2	60	0.2082
22	1505	Hangar	2	60	0.2082
23	1665	T-Hangar	2	60	0.2082
24	2250	Hangar	2	60	0.2082
25	6000	Hangar	4	120	0.4164
26	3150	Hangar	2	60	0.2082
27	2000	Future-Hangar	2	60	0.2082
28 * 7	3600	Future-Hangar * 7	28	840	2.9148
29	3600	Future-Hangar	4	120	0.4164
30	62500	Future-Hangar	60	1800	6.246
31	2400	Equipment Building	1	30	0.1041
32	62500	Museum Building	60	1800	6.246
33*2	10000	Future-Hangar*2	16	480	1.6656
34*3	5625	Future-Hangar*3	12	360	1.2492
35*3	4200	Future-Hangar*3	12	360	1.2492
36	14700	Future-Hangar	8	240	0.8328
Total =				8400	29.148

As shown in Table 3-7, the ADD for sewer at the airport is 8,400 gallons per day, the MDD is 29.1 gallons per minute. The MDD of 29.1 gallons per minute was utilized to determine alternatives for conveying sewer flows from the airport to the Greybull sewage lagoon. The Town of Greybull has expressed willingness and the capacity to accept the sewer flows from the airport into their lagoon.

3.3.4 Off-Site Sewer System Improvements

Alternative 1 – Totally New System

This alternative involves constructing a totally new system to convey airport sewer flows to the Greybull sewage lagoon. Alternative 1 consists of installing approximately 6,870 lineal feet of 8 inch PVC gravity sewer line from the airport entrance to the existing 18-inch interceptor sewer near the lagoons. Approximately 16 new manholes will be required. Exhibit D.5 in Appendix D presents the layout of this alternative. As shown in Exhibit D.5 the proposed sewer line will run along the north side of the highway right of way to an existing manhole south of the Greybull sewage lagoon. This manhole is on an 18-inch interceptor that will have the capacity to convey these flows to the lagoon. Table 3-8 presents the estimated costs associated with this alternative. The total cost of Alternative 1 is \$369,387.00. This alternative will involve permitting with the Department of Transportation to install the sewer line within their right-of-way.

Table 3-8. Cost Estimate for Alternative 1

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC SANITARY SEWER	LF	6870	\$26.00	\$178,620.00
SANITARY MANHOLE	EA	16	\$5,000.00	\$80,000.00
EASEMENTS, PERMITTING, EIS	LS	1	\$15,000.00	\$15,000.00
				\$273,620.00
	Contingency		\$	41,043.00
	Design Engineering		\$	27,362.00
	Construction Engineering		\$	27,362.00
			<u>ESTIMATED TOTAL COST</u>	<u>\$369,387.00</u>

Alternative 2 – Connect to WYDOT System

This alternative consists of conveying sewer flows from the airport to the existing force main from the WYDOT rest area. WYDOT installed a pressure sewer system to pump sewer flows from the rest area which is located just west of the airport entrance. The force main runs along the north side of the highway to Greybull's 18-inch sewer main located south of Greybull's sewage lagoon. Exhibit D.6 presents the location of this existing system.

This alternative would consist of approximately 100 lineal feet of 2-inch HDPE to connect from the airport system to the WYDOT system, a grinder pump station for the airport sewage, septic tanks for storage and controls to link the airport's pump station to WYDOT's pump station.

Table 3-9 presents the estimated costs associated with this alternative. The total estimated cost of Alternative 2 is \$179,550.00.

Table 3-9. Cost Estimate for Alternative 1

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
2" HDPE PIPE	LF	100	\$30.00	\$3,000.00
NEW LIFT STATION AND CONTROLS	LS	1	\$100,000.00	\$100,000.00
SEPTIC/STORAGE TANKS	LS	1	\$15,000.00	\$15,000.00
EASEMENTS, PERMITTING, EIS	LS	1	\$15,000.00	\$15,000.00
				\$133,000.00
Contingency				\$ 19,950.00
Design Engineering				\$ 13,300.00
Construction Engineering				\$ 13,300.00
<u>ESTIMATED TOTAL COST</u>				<u>\$179,550.00</u>

WYDOT’s sewer system is designed with solids settling tanks and a sump. The solids settle out and only the liquids are pumped down the hill to the lagoon. The force main is only a 1-1/2-inch diameter pipe and was not designed with much excess capacity. WYDOT has indicated that it would be possible if the airport pumps their sewage into the line only at night when the demands at the WYDOT rest area are less.

WLC evaluated the capacity of the existing line and concluded that the line does have the capacity to convey the flows from the airport. The flows from the WYDOT rest area are not known and were not taken into account. It is likely that the line is too small to convey both the WYDOT rest area flows and the airport flows together. In order to utilize this system, the airport and the WYDOT rest area pumping systems would have to be controlled so they did not pump at the same time. This scenario may be difficult to achieve. One of the obvious problems with this scenario is that if the airport pump system can only pump at night or periodically when the WYDOT rest area pump is not pumping, then a significant amount of storage may be required. This alternative will require a significant amount of coordination with WYDOT.

3.3.5 On-Site Sewer System Improvements

The following Section describes the recommended on-site sewer system improvements for the airport. Currently there exist a few septic tanks and leach fields servicing some of the buildings at the airport. As discussed previously this is inadequate to service the current and future needs of the airport.

Similarly to the on-site water system improvements, the on-site sewer improvements have been split into three separate schedules: Schedule A consists of sewer system improvements to the main airport area; Schedule B consists of sewer system improvements to the western area expansion; and Schedule C consists of sewer system improvements to the long term storage area north of the main airport area. Improvements to each area are discussed in further detail below.

The on-site sewer system improvements discussed in Schedules A, B and C are presented on Exhibit D.7 in Appendix D.

Schedule A Improvements

The Schedule A improvements consist of approximately 4,340 lineal feet of 8-inch PVC sewer line, 17 manholes and 30 service lines to provide sewer service to the main airport area. The main airport area consists of several small hangars, a future large hangar, and the rehabilitation facility. Table 3-10 presents the estimated costs associated with the Schedule A sewer system improvements. The total estimated cost for these improvements is \$257,634.00.

Table 3-10. Schedule A Sewer System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC SANITARY SEWER	LF	4340	\$26.00	\$112,840.00
SANITARY MANHOLE	EA	17	\$3,000.00	\$51,000.00
4" PVC SANITARY SERVICE	EA	30	\$900.00	\$27,000.00
				\$190,840.00
Contingency				\$ 28,626.00
Design Engineering				\$ 19,084.00
Construction Engineering				\$ 19,084.00
<u>ESTIMATED TOTAL COST</u>				<u>\$257,634.00</u>

Schedule B Improvements

The Schedule B improvements consist of approximately 1,430 lineal feet of 8-inch PVC sewer line, 6 manholes and 9 service lines to provide sewer service to the proposed expansion area to the west. The proposed western expansion area would consist of several small to medium sized hangars and a proposed museum. Table 3-11 presents the estimated costs associated with the Schedule B sewer system improvements. The total estimated cost for these improvements is \$85,428.00.

Table 3-11. Schedule B Sewer System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC SANITARY SEWER	LF	1430	\$26.00	\$37,180.00
SANITARY MANHOLE	EA	6	\$3,000.00	\$18,000.00
4" PVC SANITARY SERVICE	EA	9	\$900.00	\$8,100.00
				\$63,280.00
Contingency				\$ 9,492.00
Design Engineering				\$ 6,328.00
Construction Engineering				\$ 6,328.00
<u>ESTIMATED TOTAL COST</u>				<u>\$85,428.00</u>

Schedule C Improvements

The Schedule C improvements consist of approximately 1,390 lineal feet of 8 inch PVC sewer line and 4 manholes to provide sewer service to the long term storage area to the north. Table 3-12 presents the estimated costs associated with the Schedule C sewer system improvements. The total estimated cost for these improvements is \$64,989.00.

Table 3-12. Schedule C Sewer System Improvement Costs

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC SANITARY SEWER	LF	1390	\$26.00	\$36,140.00
SANITARY MANHOLE	EA	4	\$3,000.00	\$12,000.00
				\$48,140.00
Contingency				\$ 7,221.00
Design Engineering				\$ 4,814.00
Construction Engineering				\$ 4,814.00
<u>ESTIMATED TOTAL COST</u>				<u>\$64,989.00</u>

At the present time only the Schedule A improvements would be required. At the time the airport was expanded then Schedules B and C would be necessary. The problem with Schedule C is that extending the gravity sewer line out this distance will require the sewer line in Schedule A to be constructed deeper. This extra depth will increase the costs to Schedule A. Table 3-13 presents the estimated costs associated with Schedule A if Schedule C is to be completed.

Table 3-13. Schedule A Sewer System Improvement Costs if Schedule C Constructed

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" PVC SANITARY SEWER	LF	4340	\$30.00	\$130,200.00
SANITARY MANHOLE	EA	17	\$5,500.00	\$93,500.00
4" PVC SANITARY SERVICE	EA	30	\$1,200.00	\$36,000.00
				\$259,700.00
Contingency				\$ 38,955.00
Design Engineering				\$ 25,970.00
Construction Engineering				\$ 25,970.00
<u>ESTIMATED TOTAL COST</u>				<u>\$350,595.00</u>

Constructing Schedule C will increase the costs to Schedule A by approximately \$92,961.00. If all three Schedules are constructed, the total estimated cost for on-site sewer improvements would be approximately \$501,012.00. If Schedule C is eliminated, then the total estimated cost for on-site sewer improvements would be approximately \$343,062.00.

3.3.6 On-Site Roadway Improvements

As discussed previously, the existing roads and parking lots on the site are in fair shape and would need to be improved if the airport is to be upgraded in the future.

Currently, there is no access to the long term aircraft storage area without crossing an active runway. Constructing utilities to the long term aircraft storage area is proposed as part of the current upgrades. In order to access the long term storage area for future development of that site as an aviation operation, such as storage of old planes, a new road around the west end of the site would need to be constructed the long term storage area.

Exhibit D.8 in Appendix D presents the possible location for a new road to access the bone yard area. This road would be a 24-foot wide paved road. Table 3-14 presents the estimated costs associated with installing this new road. The total estimated cost for this new roadway \$521,307.90.

Table 3-14. Cost Estimate for Future Roadway

ITEM	UNIT	EST. QUANTITY	ENG. ESTIMATE	
			UNIT PRICE	ESTIMATED TOTAL PRICE
8" CRUSHED BASE	SY	17650	\$6.50	\$114,725.00
6" PLANT MIX PAVEMENT	SY	17650	\$14.50	\$255,925.00
18" RCP STORM CULVERT	LF	100	\$35.00	\$3,500.00
18" RCP FLARED END SECTIONS	EA	6	\$334.00	\$2,004.00
EASEMENTS, PERMITTING, EIS	LS	1	\$10,000.00	\$10,000.00
				\$386,154.00
Contingency				\$ 57,923.10
Design Engineering				\$ 38,615.40
Construction Engineering				\$ 38,615.40
<u>ESTIMATED TOTAL COST</u>				<u>\$521,307.90</u>

This roadway would not have to be constructed immediately. It could be held off until development on the north yard area begins to occur.

3.3.7 Conclusions and Recommendations

Off-Site Water System Improvements

Each of the two alternatives for off-site water system improvements can stand alone and each would meet the needs of the airport. Alternative 1 is approximately twice the cost of Alternative 2, and only benefits the Airport itself. Alternative 2 would benefit the Airport Bench Users by providing additional storage and capacity to provide fire flows and the ability for future expansion.

The Town of Greybull has expressed a willingness to assume maintenance and operation of the system for Alternative 2, which would be a benefit to both the Airport Bench Users and the airport.

On-Site Water System Improvements

As discussed previously Schedule A of the on-site water system improvements would be necessary at the current time. Schedules B and C would provide water service to airport

expansion areas to the west and north, and could be constructed at some time in the future. The on-site improvements will provide adequate water to the airport for domestic use as well as fire flows. It is recommended that Schedule A be included as immediate needs for the Airport Improvements.

Off-Site Sewer System Improvements

Each of the two alternatives for off-site sewer system improvements can stand alone and each should meet the needs of the airport. Alternative 1 is approximately twice the cost of Alternative 2. Each alternative only benefits the Airport directly. Alternative 1 could benefit other users in the future; it would provide additional capacity for other users to connect to.

Alternative 1 would be the cheapest system to operate and maintain. The pressure system outlined in Alternative 2 would require routine monitoring of the pump station and controls. Also, Alternative 2 will require significant coordination with WYDOT in order to be able to utilize their force main. The force main is large enough to handle the airport flows and the WYDOT rest area flows, but maybe not at the same time. This would mean that the two pump stations would have to be controlled so that they do not pump at the same time. This arrangement would be difficult to achieve, but is possible. The airport system may only be able to pump at night, which would mean that it would have to have a large amount of storage available to store sewage until it could be pumped. The overall logistic of utilizing the WYDOT force main have not been worked out, but this is being looked at.

On-Site Sewer System Improvements

As with the on-site water improvements, Schedule A of the on-site sewer system improvements would be necessary at the current time. Schedules B and C would provide water service to airport expansion areas to the west and north, and could be constructed at some time in the future. However, if Schedule C is a definite possibility for the future, Schedule A improvements will be more expensive to accommodate the added depth caused by Schedule C. If it is determined that Schedule C will likely never occur, then Schedule A can be constructed at shallower depths. If Schedule A is constructed at the shallow depths, then Schedule C should be installed in the future, but it would likely require its own lift station which will be more expensive.

On-Site Roadway Improvements

The roadways on-site are in fair condition and will need to be improved or upgraded as the airport experiences increased use. The only new road that is recommended is a roadway to the west around the smaller runway to provide adequate access to the bone yard area. This roadway is only recommended if expansion to the northern area is expected in the near future. In addition, with the extension of the east/west runway, this roadway may have to be moved further to the west to be outside the required aviation clear zones.

Exhibit D.1

Exhibit D.2

Exhibit D.3

Exhibit D.4

Exhibit D.5

Exhibit D.6

Exhibit D.7

Exhibit D.8

PART TWO

South Big Horn County Airport

Conceptual Development and Strategic Plan

Report of Inventory Appendices



**Submitted to the Big Horn County Airport Board
and Board of County Commissioners**

January 2006

This document is an initial statement of the site and situation at the Airport, with a draft mission statement, goals, policies and an outline for a draft Conceptual and Strategic Plan for the Airport which will follow. It includes a significant amount of material from the ALP, from previously completed studies, from discussions with the County and Town of Greybull, and other information. Ultimately, the recommendations for the mission and the strategies for the County and Airport Board come from this document. The final strategic plan itself may contain some or all of the material presented here.

This strategic plan is not a plan for the aviation operations or physical plant of the airport facility. The previous planning for the Airport through the ALP is excellent work, and this plan and strategies are designed to move to the next step for planning, the future of the Airport, such that the County and Airport Board may move forward in obtaining and using grant funding for the Airport's non-aviation facilities. The conceptual development plan does not change the Airport Layout Plan but attempts to move forward into a phase of providing required basic infrastructure improvements on the non-aviation side of the operation such that the Airport can flourish in the future.

APPENDIX A

BACKGROUND FROM THE AIRPORT LAYOUT PLAN

Airport Facility Summary

This section is taken from the Airport Layout Plan, prepared by Airport Development Group in 2003, adopted by the Airport Board and County.

The section is printed in Italic. Comments on this section as updates by the airport consulting engineers are printed in normal font.

Air Service Area

The community and surrounding areas served by an airport facility are referred to as an "airport service area". The size of a service area is normally determined by an airport's proximity to its users, its location in relation to physical boundaries such as mountains, forests and streams, by the quality of ground access to the facility and by its proximity to other airports which provide similar facilities and services, such as commercial service, comparable airfield capabilities, aircraft storage, security, fuel and maintenance. The service area for South Big Horn County Airport is generally defined to occur within the borders of the southern portions of Big Horn County and areas immediately adjacent thereto.

Access to the main terminal area is directly off US Highways 14, 16 and 20. U.S. Highway 14 is an east/west highway that runs from Cody to Burgess Junction. U.S. Highway 16 runs from Cody to Worland to Buffalo, and U.S. Highway 20 runs from Cody to Thermopolis to Casper and points beyond.

Auto Parking is provided by a large gravel lot adjacent to Hawkins and Powers terminal or next to individual hangars. There is not enough designated parking at this time, even on an average day.

Since the cut back at H&P, there is adequate parking available near the H&P office building.

Population Trends

The population of Big Horn County was 10,525 in 1990 and is now 11,461, as measured by the year 2000 census. This calculates to approximately a 7.3 percent increase for the ten-year period or slightly less than 1 percent annually. Census data forecasts indicate that the population is expected to increase an additional 3.2 percent over the next 5 years or less than 1 percent per year. Following the above population trends, Big Horn County employment figures have followed suit as well. In 2000, county employment numbers totaled 4,999 with a four percent unemployment rate. In summary, Big Horn County received a modest increase in population and continued a stable economic environment over the last ten-year period.

Utilities and City Services

Utilities to the Airport are provided by the following:

<u>Utility</u>	<u>Provider</u>
Water	Town of Greybull
Sewer	Septic - on airport
Gas	Wyoming Gas Company
Electricity	PacificCorp
Telephone	TCT West

Landside facilities are those portions of the airport which are not directly related to aircraft operations but support them. The major landside facility requirements for this airport are somewhat different than exist at airports owned and operated by a public agency. The landside facilities to be considered in this Airport Master Plan include:

- Terminal Building
- Fuel Farm
- Hangar Facilities
- Automobile Parking
- Surface Access

Terminal Building

A general aviation terminal building should typically provide an office space, a waiting room, an area for food and drink dispensers, and public restroom facilities. The floor space requirements for each area are functions of the anticipated number of peak hour operations and passengers. Space requirements for a terminal building are presented in Table 3-9. The location should be adjacent to the public apron.

There is a project underway in 2006 to construct snow removal equipment building. This building could house a pilot lounge.

**TABLE 3-9
TERMINAL BUILDING REQUIREMENTS
SOUTH BIG HORN COUNTY AIRPORT**

<i>Items</i>	<i>2001</i>	<i>2006</i>	<i>2011</i>	<i>2021</i>
<i>Busy Hour Operations</i>	<i>12</i>	<i>14</i>	<i>16</i>	<i>19</i>
<i>Busy Hour Passengers</i>	<i>30</i>	<i>32</i>	<i>37</i>	<i>44</i>
<i>Waiting Lounge (SF)</i>	<i>680</i>	<i>770</i>	<i>850</i>	<i>930</i>
<i>Office (SF)</i>	<i>200</i>	<i>200</i>	<i>200</i>	<i>200</i>
<i>Pilot's Room</i>	<i>340</i>	<i>570</i>	<i>620</i>	<i>680</i>
<i>Restrooms (SF)</i>	<i>300</i>	<i>300</i>	<i>300</i>	<i>300</i>
<i>Tel./Mech/Elect. (SF)</i>	<i>230</i>	<i>260</i>	<i>290</i>	<i>320</i>
<i>Concession (SF)</i>	<u><i>100</i></u>	<u><i>100</i></u>	<u><i>100</i></u>	<u><i>100</i></u>
<i>Total (SF)</i>	<i>1,850</i>	<i>2,200</i>	<i>2,360</i>	<i>2,530</i>

Note: Passengers computed as 1.5 per local arrival and 2.5 for itinerant arrivals; terminal space computed based on AC 150/5360-9; Other Space = Coin-operated concessions, circulations, walls, storage closets, etc.; tel/mech/elect = utility closets and space for telephone equipment and mechanical equipment, heating and etc.

Fuel Storage

Fuel use at general aviation airports averages about 7,039 gallons per based aircraft per year. This is not the most accurate portrayal of actual usage as many of the aircraft are larger tanker types and utilize much more fuel than smaller aircraft. Currently, 56 based aircraft consume about 394,202 gallons per year or approximately 32,850 gallons per month. These figures will increase to approximately 76 based aircraft by 2011, consuming 532,172 annual gallons of fuel, or approximately 44,347 gallons per month. This trend indicates a need to expand the Airport's current fuel farm capabilities. Also, the current fuel storage facility is owned by Hawkins and Powers. It is not completely on their leasehold. This should be corrected. Further, it appears the area does not fully meet state requirements. This should also be corrected.

Hawkins and Powers has planned a new fuel dispensing island on the north end for the general aviation fleet. This would be a cardrol system that would be used by the individual aircraft

operator by inserting a credit card for payment. The location is shown on the ALP. The County may wish to own this facility to insure control.

Because of the cutback at H&P this is in question.

Aircraft Storage Hangars

The requirement for aircraft storage hangars is dependent upon local demand. A greater demand should be anticipated in severe climate areas for protection from weather such as the Big Horn County area. One of the objectives of this study is to provide the Airport sponsor recommendations and plans for accommodating projected demand. Areas for the development of future aircraft storage hangars are shown on Exhibit II of the ALP drawings.

Aircraft storage hangars are often constructed with private funds, thereby eliminating the need for the Airport to serve as financier and rental manager for these facilities. However, there should be ground leases with appropriate rates.

Hangar Facilities

It is assumed that approximately 90 percent of all non-tanker based aircraft will require hangar space, made up of either privately-owned individual hangars or community hangar space. Demand for additional hangars is already present and will increase in the future. The Airport's planning process should call for the development of additional new individual/community hangars and several corporate-style hangars depending on configuration. Such development will be necessary to accommodate future forecast demand at the South Big Horn County Airport. Proposed locations have been shown on the ALP.

Automobile Parking

Existing public parking is already dominated by employees working for the various entities at the Airport leaving little space for transient airport customers. New public parking facilities will be required to accommodate both present and future demand. A minimum additional parking area for 50 cars should be provided for itinerant users somewhere in the vicinity of a new itinerant apron. Space should also be provided for five or six rental or courtesy cars. Proposed locations have been shown on the ALP.

ALP Capital Improvement Plan Summary

The ALP includes alternatives for development of the site in the future. These will obviously change depending on the situation at the airport:

Alternative One

Alternative One allows for a new, large hangar for Hawkins and Powers and more auto parking. It allows for almost a doubling in the main apron area that is used for based and itinerant users. It provides for a new fuel island for the smaller general aviation aircraft as well as more hangars for the smaller aircraft.

It provides a defined area for the Aircraft Museum with appropriate parking and access.

Alternative Two

This alternative is similar to Alternative One in the main apron area, however, it reconfigures the future hangar area to the northwest. One problem with this alternative is that it puts future hangars in an area that will not allow direct, secured auto parking and auto access.

Alternative Three

This alternative is similar to Alternative One in that it allows the hangar now south of the existing general aviation hangars a south facing door with taxiway access. This reduces some of the auto parking as well and will then require secured auto access to all hangars in the existing hangar area.

Recommended Terminal Area Plan

The Airport Board selected Alternative Three.

Additional items that should not be overlooked in future airfield development for the South Big Horn County Airport include upgraded NAVAIDs, increased fuel capacity, auto parking and water supply issues.

- *The South Big Horn County Airport does not currently qualify for additional instrument approach aids such as a VOR or ILS approach. However, it is worth pursuing potentially lower approach minimums down to 200 feet with an improved GPS approach to runways 33 or 7.*
- *Additionally, future demands will stress existing fuel farm capabilities. Planning for an expanded fuel farm and storage capacity should be a high priority for the airport.*
- *Sufficient water to support airport and tenant operations has been an issue for years. Planning and coordination between the Airport and Greybull to extend a city water line to the airport is paramount in addressing this issue.*
- *Additional auto parking adjacent to the new itinerant apron will be necessary to accommodate future traffic utilizing that facility. At a minimum, 50 new automotive spaces should be developed.*

TABLE 6-6
FUNDING SCHEDULE

<i>Phase</i>	<i>Total Cost</i>	<i>FAA</i>	<i>State</i>	<i>Local</i>	<i>Other</i>
<i>Phase I (2001-2005)</i>	\$2,448,000	\$1,586,700	\$149,040	\$37,260	\$675,000
<i>Phase II (2006-2010)</i>	9,675,000	8,707,500	709,500	258,000	0
<i>Phase III (2011-2020)</i>	5,900,000	5,130,000	456,000	114,000	200,000
TOTAL	\$18,023,000	\$15,424,200	\$1,314,540	\$409,260	\$875,000

Operating Revenues– Provided by Jim Sirhall, ADG

Most of the revenue the South Big Horn County Airport is from leases. There is no fuel flowage fee yet although we have recommended a fuel flowage fee in the past. The airport does get a State Fuel Tax Refund based upon the number of gallons sold. Below is a summary of revenues from 1997 to 2001. The lease rates for H&P went up dramatically in 2005 and are not reported here. The state and federal grants are spent on specific projects, so they are not regular income. The water is purchased from Greybull so it is a wash.

<i>Operating Revenues</i>	<i>Fiscal Year</i>				
	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>
State fuel tax refund	4,000	8,801	9,164	16,134	8,400
Leases	18,231	18,231	18,231	18,231	18,231
Water	2,660	2,277	2,183	3,239	4,086
State and Federal Grants	<u>514,220</u>	<u>5,254</u>	<u>267,820</u>	<u>41,398</u>	<u>41,508</u>
Total	539,111	34,563	297,397	79,002	72,226

A number of fees that ADG recommended in 2002 that would be appropriate to the South Big Horn County Airport structure are indicated below:

- *Fuel Flowage Fee* *\$0.05 per gallon pumped*
(Avgas or jet fuel sold)
- *Transient Aircraft Tiedown Fee*
 - Small Aircraft per night* *\$3.50*
 - Large Aircraft per night* *\$10.00*
- *Land Lease per sf/yr.* *\$0.05*

The state average is over \$0.10/ sf., however, the Airport Board has chosen not raise rents over \$0.05.

APPENDIX B
REQUIREMENTS FOR A FIXED BASE OPERATOR – FBO
JIM SIRHALL - ADG

There are currently no requirements to be an FBO. However, many airports have “minimum standards” in place to evaluate such proposals for aeronautical operators. Typically, a Commercial/General Aviation Operator may be classified as either a Fixed Base Operator (FBO) or an Aviation Shop Operator (ASO). A Fixed Base Operator must engage in at least six (6) commercial aeronautical activities such as

A. Aircraft Line Services:

1. Fueling, lubricating and miscellaneous service
2. Ramp parking and tie down
3. Lounge facilities
4. Public rest rooms and telephone
5. Towing
6. Hangar storage

B. New and/or "Used" Aircraft Sales and Rental

C. Aircraft Charter

D. Flight Instruction and Training

E. Aircraft Airframe and Engine Repair, Maintenance and Overhaul

F. Ground Handling of Air Carrier/Charter Aircraft.

1. An Aviation Shop Operator (ASO) may provide one or more of the activities or services as noted above. The County recognizes the need for hangar, shop and office facilities for Special Services Operations. The County recognizes also that some operators may not want to offer a full line of services that a Fixed Base Operator offers. Aviation Shop Operators are encouraged to be tenants of Fixed Base Operators. If suitable permanent facilities cannot be obtained in this manner, the Aviation Shop Operator may construct his/her own facility in the area designated on the Airport upon land leased from the County. The terms of the lease will be determined and plans and specifications shall be approved by the County. All commercial businesses shall be subject to Airport Rules and Regulations, one of which states; “There shall be no maintenance for profit conducted on the ramp or in aircraft hangars”. This is not meant to prohibit aircraft owners from performing routine caretaking functions such as oil changes, minor adjustments, washing, waxing and the like. However, repairs to aircraft requiring the expertise of a

licensed airframe and/or power plant mechanic shall only be performed by those commercial operators licensed to so operate on the airport in their facilities.

2. Typically only an FBO or the County can sell fuel to the public.
3. Yes, an airport manager can be an FBO, but usually ends up only selling fuel, renting hangar space or tie downs and perhaps rental cars and not the more heavy-duty services like aircraft maintenance or flight training. This is the case at Rock Springs. Call Gary Valentine for more information on how this works. His number is 307-352-6880. The County is also the “FBO” of sorts at North Big Horn County Airport.
4. Minimum Standards should in place before a major operator comes in or is marketed, especially at Greybull since H&P was allowed to “rule the roost” for so many years.

APPENDIX C

Opinion of Probable Construction Cost New Hangar from the Report by SEH

The following is a summary of the estimate. A detailed breakdown is provided under a separate attachment.

Description	Sq. Ft.	\$/SF	Total
Building Shell	27,500	\$55.15	\$1,530,500
Interior Fit-Out	27,500	\$4.58	\$127,037
Hvac/Plumbing	27,500	\$8.82	\$244,850
Fire Protection	27,500	\$11.55	\$320,475
Electrical	27,500	\$9.27	\$257,125
Subtotal	27,500	\$89.37	\$2,479,987
Sitework			\$125,279
Subtotal			\$2,605,266
Contingency			\$267,040
Total			\$2,872,306

APPENDIX D

AVIATION SERVICES - YELLOWSTONE REGIONAL AIRPORT IN CODY

Aviation Services

Spirit Mountain Aviation offers a full range of general aviation services, including Exxon 100LL and Jet A aircraft fuels, hangar, aircraft deice and preheat, tie downs, maintenance and charter. Spirit Mountain Aviation also provides flight instruction, mountain flying checkouts and scenic aerial flights over Yellowstone National Park and Teton National Park.

Air Cargo

Air cargo services are provided by UPS and FedEx.

Airport Services

Fuel available: 100 JET-A

Parking: Hangars and tie downs

Airframe service: Major

Power plant service: Major

Bottled oxygen: None

Bulk oxygen: High

Restaurant

The Landing, in-house restaurant

APPENDIX E

LAND USE ORDINANCE

PROPOSED SOUTH BIG HORN COUNTY AIRPORT LAND USE COMPATIBILITY ORDINANCE

Intent

This ordinance is meant to minimize exposure of residential and other sensitive land uses to aircraft overflight areas, to avoid danger from aircraft overflight areas, to avoid danger from aircraft accidents; and to encourage compatible land uses within the area; and to restrict noncompatible land uses within the airport influence area. Noncompatible land uses can be defined as:

- Residential and other noise sensitive uses.
- Congregations of people in approach and departure areas to protect people and property on the ground,
- Manmade and natural structures that can interfere with flight.
- Uses which may be affected by vibration or fumes from aircraft operations.
- Uses of land on the airport that interfere with areas needed for aviation-related activities.

Airport Influence Area District

The purpose of this district is to maintain land use compatibility in the areas influenced by airport operations. Permitted uses should consider the factors of airport operations, overflight exposure and density of proposed development. A special mandatory review process should study each land use change proposal to determine its specific compatibility. The Airport requires that all land use change proposals in the Airport Influence Area District be considered only after a prior review and comment by the Airport Board and the Airport Manager. The imposition of aviation easements will be required for all development in the Airport Influence Area District, as well as notice to prospective buyers through fair disclosure.

General Provisions

1. **Jurisdiction:** This section shall apply to all lands within or around the airport which would be impacted by air traffic, overflight or any hazard related to the operation and maintenance of an airport facility whose operation may increase or whose fleet mix of aircraft may change.
2. **Boundaries:** The approximate boundaries of all established airport influence areas shall be as they appear on the current Land Use Plan, to the South Big Horn County Airport Layout Plan, or other documents approved by the Planning Commission and County Commissioners.
3. **Warning and Disclaimer of Liability:** The degree of protection provided by this section is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. This section does not imply that areas outside of the airport influence area

district will be totally free from hazards. Nor shall this section create a liability on the part of or a cause of action against the County or any officer or employee thereof for any damages that may result directly or indirectly from the reliance on this section.

Uses

No building or land shall be used and no building shall hereafter be erected, converted or structurally altered unless otherwise provided for herein, with the exception of one or more of the following uses:

1. No use may be made of land within the designated airport influence area district in such a manner as to create electrical interference with radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and other lights, cause glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport or otherwise endanger the landing, taking off, or maneuvering of aircraft at the airport or in the vicinity of the airport. Review of land use proposals and/or changes shall utilize the airport district boundaries and their relationship to airport operations.
2. The regulations prescribed in this section shall not be construed to require the removal, lowering, or other changes or alteration of any structure or object of natural growth not conforming to this section as of the effective date of this section, or otherwise interfere with the continuance of any nonconforming use.
3. Nothing herein contained 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 section and is diligently prosecuted; provided, however, that when the nonconforming structure is destroyed or damaged to the extent of over 50% of the appraised value of the nonconforming structure, any reuse, reconstruction or replacement shall be deemed a new use or shall be subject to the applicable provisions of these regulations.
4. The owner of any nonconforming structure or object of natural growth is hereby required to permit the installation, operation and maintenance thereon of such markers and lights as shall be deemed as necessary by the Airport Board and Airport Manager to indicate to the operators of aircraft in the vicinity of the airport the presence of such nonconforming structures or objects of natural growth. Such markers and lights shall be installed, operated, and maintained at the expense of the airport owners.

Special Limitations Within the Airport Influence Area District

1. Height Limitations

Height limitations within the airport influence area district, except as otherwise provided in this section, are subject to the limitation of the district within which the property is located, recommendations of the Airport Board, and other appropriate referral agencies. No structure or object of natural growth shall be constructed, erected, altered, allowed to grow, or to be maintained in excess of height limits and zones herein established.

Submission of a "Notice of Proposed Construction and Alteration" (Form 7460-1), and subsequent approval from the Federal Aviation Administrator shall be required for the construction or alteration of any structure penetrating a 100:1 foot plane located within twenty thousand (20,000) feet of any runway. Receipt of FAA Form 7640-9 Determination of No Hazard for any structure is required before issuing a building permit.

2. FAR Part 77 Imaginary Surface Limitations

Imaginary surface limitations as prescribed by Federal Aviation Regulation Part 77, within the Airport Influence Area District include all land and air space within the area, which would be hazardous to air navigation. These limitations represent areas above imaginary surfaces and are designed to regulate the height of structures and trees in the airport vicinity. They are set forth by the FAA in the Federal Aviation Regulations, Part 77. All of the surface limitation categories listed below have their dimensions given in the FAA approved South Big Horn County Airport Layout Plan, dated _____.

- a. Runway Protection Zone: A runway protection zone (RPZ) is trapezoidal in shape and centered about the extended runway centerline. The RPZ is the land at ground level that begins 200 feet beyond the end of each runway.
- b. Object Free Area: The object free area (OFA) is a two dimensional ground area surrounding runways, taxiways and taxilanes which is clear of all objects except those whose location is fixed by function and excepted by the FAA.
- c. Runway Safety Area: A defined surface area surrounding the runway prepared or suitable for reducing the risk of damage to airplanes.
- d. Primary Surface: A Part 77 airport surface longitudinally centered on a runway. The primary surface extends 200 feet beyond the paved surface end.
- e. 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. Refer to the ALP for the airport to determine the approach surfaces and slope for the runway.
- f. Transitional Surfaces: The transitional surfaces are located on both sides of the approach and primary surfaces. These surfaces extend outward and upward at right angles to the runway centerline and runway centerline extended, at a slope of 7 feet horizontal for every 1 foot vertical rise from the sides of the primary and approach surfaces, until it reaches 150 feet above the highest point on any runway (airport elevation).
- g. Horizontal and Conical Surfaces: These are the upper aeronautical surfaces surrounding an airport that are used by aircraft for turning and maneuvering in close proximity to the airport preceding landing and immediately after takeoff.

3. Land Use Limitations

To assure the protection of the public from overflight impacts and hazards associated with flying operations, and to comply with FAR Part 77, the following airport zones are established.

- a. Horizontal and Conical Surfaces Zone: Exposure to airport overflight is considered minimal, but increases as the runway ends are approached. Residential construction should be limited to low density development. The siting of public facilities, such as hospitals, schools, churches, etc., should be especially reviewed and noise-sensitive development near runway approaches should be discouraged.
- b. Approach Surface Zone: Exposure to airport noise is considered moderate. Residential and public facilities should be especially reviewed and prohibited in the approach surface zone. Nonresidential development should be restricted as to density and should only be approved provided noise attenuation measures are incorporated into facility design.
- c. Runway Protection Zone: All land in this zone should be kept clear of any structures. Land use in this area should be restricted to open space or agriculture.
- d. Critical Zones:
 - ▶ Areas 2,000 feet wide extending 5,000 feet horizontally from a point 200 feet from each end of visual runways
 - ▶ Areas 4,000 feet wide extending 10,000 feet horizontally from a point 200 feet from each end of instrument runways.

Besides the overlapping concerns of the above zones (3a, 3b and 3c) the critical zones need to require that no use may be made or activity carried on, on land within this zone in a manner as to:

- (1) create electrical interference with navigational signals or radio communication between the airport and aircraft;
- (2) make it difficult for pilots to distinguish between airport lights and other lighting;
- (3) result in glare in the eyes of pilots using the airport;
- (4) impair visibility in the vicinity of the airport; or
- (5) otherwise in any way create a hazard or endanger the landing, takeoff, or maneuvering of aircraft intending to use the airport.

Avigation Easement

An avigation easement is a nonpossessing property interest in airspace over a land parcel or portion of land. It is a legally developed document obtained by an airport to cover items such as the right of flight, right to remove obstructions, etc., but not necessarily to the extent of prohibiting the use of the land within the limits of the rights obtained (see Avigation Easement).

Fair Disclosure Statements

Fair disclosure statements serve to notify prospective buyers of property near airports that they may be exposed to potentially impactful levels of aircraft overflight. These statements in no way abrogate an individual's right to take later action against the airport, but they at least give buyers a fair warning (see sample Fair Disclosure Statement).

APPENDIX F

WLC SCOPE OF WORK FOR THE STUDY

APPROACH

WLC will:

- Develop a quickly conceptual development plan for the Airport, with immediate input from the Airport Board and others, as designated by the County
- Develop an infrastructure plan for the development concept, including water, sewer, fire flow, storm water, roadways and other facilities, including utilities
- Prepare a preliminary design of the infrastructure improvements required for the site, and a cost estimate suitable for use in preparing a WBC Community Readiness grant application for submission by the end of February.

Specific Items:

1. WLC will review the:
 - FAA airport district regulation
 - The Airport Five Year Plan and ALP
 - The Greybull Master Plan that WLC is developing,
 - The Airport Bench Water District plans
 - WYDOT plans as the initial step in the study.
2. WLC will make recommendations on how to work with these agencies and their adopted plans to coordinate development of the conceptual plan.

Future improvements to support the Museum of Flight and Aerial Firefighting, one of the economic development projects in Greybull, will be a priority.

3. Land Use:
 - Water capacity and storage requirements.
 - Cost effective wastewater and storm water disposal. WLC will look at the industrial waste stream as well.
 - WLC will work with DEQ to ensure their approval of our preliminary design elements. Fire flow and water supply to the individual hangars.
 - Upgrades and expansions of interior roadways.
 - Beneficial use of present long-term storage area.

4. Marketing:

WLC has developed a marketing plan for Greybull, which will be included as an appendix to the community development plan. We have worked with Barbara Greene from BHCED and will tie the elements from that plan together with a more specific marketing plan for the Airport. We will tie marketing the Airport with a county-wide marketing program and a Greybull marketing program.

5. Economic Development:

The uncertainties of Hawkins and Powers' operation make this a difficult time for the Airport. Again, we have worked with Barbara and the Greybull Chamber on their marketing plans and economic development. We are currently working with the ethanol plant people and another significant industrial operation and the Town to locate these facilities in the town-owned industrial lands on the former refinery site.

Rather than work for heavy industrial development at the Airport, we would work to recruit air-related businesses and support of the museum with the County and Town economic staffs and the Airport Board and manager and tie those efforts together. We will also work with the Business Council staff on their airport recruitment efforts to ensure that the Airport is on the list for their recruitment efforts. A very significant element of airport economic development is a design for sites and buildings that have adequate ground and air access within a flexible building design. Many family-owned businesses are able to relocate at the desire of the owner and having facilities available that are attractive to a variety of users is often critical to attracting business.

Tasks

1. WLC will meet with the County Commissioners, the Town, the Airport Board and the public at an advertised work session as early in the project as possible.
2. WLC will work with these groups individually on an ongoing basis.
3. WLC will collect information and prepare an outline for a study report.
4. WLC will present a Report Of Inventory and draft to all concerned.
5. After input on this draft, WLC will prepare a final report for presentation to all concerned, including preliminary engineering reports and costs estimates for infrastructure improvements for use in the Business Council application, due in early March of 2006.