AIRPORT MASTER PLAN

SHIVELY FIELD – SARATOGA, WYOMING

AIRPORT MASTER PLAN
2014

SHIVELY FIELD
SARATOGA, WYOMING

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TOWN OF SARATOGA

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Airport Master Plan

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Airport Master Plan

Shively Field
Saratoga, Wyoming

Executive Summary

The Town of Saratoga in Carbon County, Wyoming, is located in the Platte Valley, a lush agricultural environment in southern Wyoming with magnificent vistas, incredible fishing, hot springs, and a growing tourist industry. Shively Field (SAA) is a public-use, general-aviation airport recently reclassified as a business-class airport by the Wyoming DOT Aeronautics Division. This Airport Master Plan is intended to help guide future development at and around Shively Field.

Key issues addressed include:

- Taxiways
- Runway Pavement Condition/Maintenance
- Hangar/Apron Access
- Apron Expansion
- GA Terminal Facilities/Business Park Planning
- NAVAIDS/Approach Lighting/Visibility Minima
- Land-Use Compatibility
- Land Acquisition (Runway Protection Zones)

Public participation and the availability of information as it pertains to the Master Plan was accomplished through a series of three (3) Public Workshops and regular attendance at Airport Advisory Board meetings throughout the completion of the plan.

Existing Conditions

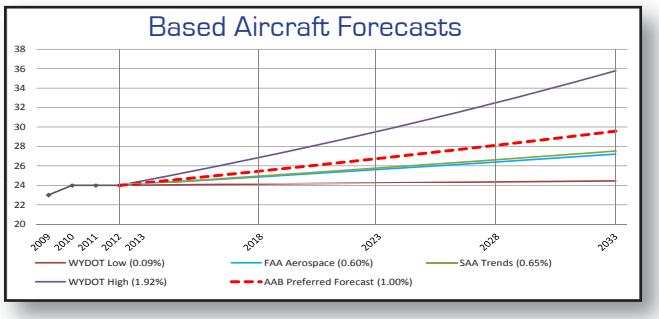
The existing conditions and inventory analysis involved an in-depth survey and analysis of the airport area and local environment. The airport was analyzed as an essential component of the community to insure the airport's role within the community and greater aviation system was fully understood and documented.

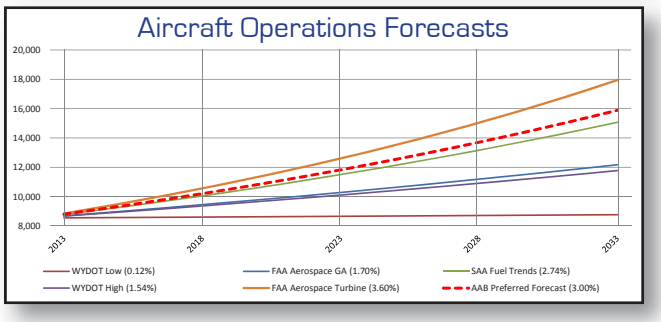
Existing conditions analyzed include:

- Airport History
- Community Socioeconomic Data
- Relevant Studies
- Airport Area Land-Use Analysis
- Public Utilities
- Meteorological Data
- Access, Circulation, and Parking
- General Aviation Terminal Area
- Airside
- Airside Support Equipment
- Airspace and Navigation Aids
- Airport Administration and Financial Summary
- Historical Aviation Activity

Aviation Forecasts

Based on current and projected trends in aviation, FAA estimates, historical/seasonal activity data, and the Wyoming State System Plan, projections for the 5-, 10-, and 20-year time frames were prepared and presented to the local community to initiate a cooperative process of agreement on forecasts. The resultant forecasts were approved by the Airport Advisory Board (AAB), Town Council, FAA, and WYDOT.





Facility Requirements

The Facility Requirements section of the Master Plan assessed the ability of existing facilities at Shively Field to meet current and future aviation demand and provide the additional guidance for future development to accommodate forecast activity in the airport area.

The current critical aircraft at Shively Field consists of an airport reference code (ARC) C-II (business jet aircraft), and it is anticipated to remain at this classification throughout the forecast horizon. The capacity of the C-II single runway/parallel taxiway configuration at Shively Field has a theoretical Annual Service Volume (ASV) of 230,000 operations per year, which is well beyond the expected forecast operations.

The AAB, stake holders, and planning consultants identified and recommended administrative, landside, and airside development goals to determine the necessary facility requirements for Shively Field.

Administrative Requirements

The administrative goals identified centered around promoting activities and investments in the airport which will create airport revenue-producing projects for both aeronautical and non-aeronautical uses while also considering the financial impacts.

Landside Requirements

The landside requirement goals include vehicular and pedestrian access to landside development areas, utility infrastructure improvements, and the support facilities required to accommodate aircraft and passengers while on the ground.

Landside development areas considered in the planning process for future expansion include:

- GA Terminal Area
- Hangar Development Area
- Airport Business Park
- North Expansion Area

The four development areas were planned to allow flexibility in the development process over time and the community to make improvements that best meet the existing and future needs on an as needed basis or as funding becomes available.

Airside Requirements

The airside requirement goals include the facilities necessary for the arrival and departure of aircraft. The airside facilities were broken down to five categories which include:

- Airside Support Facilities
- Taxiways/Taxilanes
- Runway
- Visual Navigation Aids
- Airspace and Instrument Approach Aids

The five categories and the resultant goals were focused towards improving instrument approach procedures, the construction of additional taxiways to expand future hangar construction options, and to insure existing runway and taxiway pavement is maintained to acceptable standards for pavement design strength and condition.

Development Alternatives

The specific alternatives developed from the facility requirement goals were further evaluated to determine the most efficient and practical alternative based on five relative variables:

- Airport Operational Requirements
- Cost
- Environmental Impact
- FAA Design Standards
- Planning & Land-Use Compatibility

Landside Alternatives Matrix

The landside development alternatives evaluated in the plan include the construction of a new GA terminal building to expand passenger facilities for airport users, the proposed airport business park expansion, hangar development and expansion, and additional long-term aircraft apron space.

Airside Alternatives Matrix

The airside development alternatives evaluated include the potential extension of the runway, the feasibility of constructing a crosswind runway, and potential approach improvements necessary to reduce visibility minima for arriving aircraft.

Environmental Analysis

The environmental portion of the planning process set out to identify and assess any potential negative impacts which might occur from any of the proposed development projects. Agency coordination letters were sent to applicable federal, state and local agencies to obtain feedback on any potential environmental impacts.

Impact categories investigated included:

- Air Quality
- Section 4(f)
- Farmlands
- Fish, Wildlife, Plants
- Floodplains
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archaeological, and Cultural Resources
- Light Emissions and Visual Impacts
- Noise
- Water Quality
- Wetlands
- Wild and Scenic Rivers

Compliance Planning

The compliance plan included a review of the existing approved airport layout plan (ALP), Exhibit 'A' Property Map, Airport Zoning Ordinance, Rules and Regulations, Minimum Standards, airport enterprise fund/budget, leases, easements, permits and any other pertinent governing

documents to ascertain consistency with the grant assurances. The assessment identified several potential compliance issues which need to be addressed. The potential compliance issues include a land release for future non-aeronautical land development, financial reporting practices, non-aeronautical local events, and wildlife attractants.

Airport Layout Plan Drawing Set

The drawing set includes the following drawings:

- Airport Layout Plan (ALP)
- General Aviation Area Plan
- Airport Airspacing Drawing - FAR PART 77 Surfaces
- Approach Plan and Profile
- Approach Plan and Profile Inner
- Departure Plan and Profile
- Land-Use Drawing
- Property Map "Exhibit A"

Implementation Plan

The implementation plan was developed to establish a feasible, financial implementation program to address the identified airport development requirements. The cost estimates were prioritized and ordered into three preferred phasing schedules over a 20-year planning horizon.

The primary source of funding for Shively Field will be AIP grants administered by the FAA. Another source of funds for construction, pavement maintenance, equipment, planning projects, and airport marking grants originate from the WYDOT Aeronautics Commission. The Wyoming Business Council - Business Ready Community Program also provides financing for publicly owned infrastructure which serves the needs of businesses and promotes economic development within Wyoming communities.

A Pro Forma cash flow analysis was also developed to project the operating revenues and operating expenses over the short-term planning period.

The proposed projects in the CIP are considered practicable, and it is anticipated the Town will be able to meet its future financial operational obligations with additional local subsidies. However, it is important the Town continually monitor the status of its operating revenues, operating expenses, and the implementation of its capital program.

Shively Field Capital Improvement Program (CIP)	
Phase 1 (Years 2014 - 2018)	
Hangar Area Taxilane Improvements	$ 666,667
Land-Use/Land Acquisition Improvements	$ 166,667
Runway Improvements	$ 3,000,000
Approach Improvements	$ 166,667
General Pavement Maintenance	$ 190,000
Phase 1 Totals	**$ 4,190,001**
Phase 2 (Years 2019 - 2023)	
Apron Expansion	$ 1,600,000
Airport Entrance Improvements	$ 350,000
New Terminal Area Access Improvements	$ 100,000
New Terminal Area Improvements	$ 800,000
Airport Business Plan/ALP Update	$ 125,000
General Pavement Maintenance	$ 210,000
Phase 2 Totals	**$3,185,000**
Phase 3 (Years 2024 - 2033)	
Apron Expansion	$ 1,300,000
General Pavement Maintenance	$ 250,000
Hangar Area Taxilane Improvements	$ 620,000
Taxiway Improvements	$ 1,400,000
General Pavement Maintenance	$ 275,000
Business Park Access Improvements	$ 825,000
Apron Expansion	$ 1,150,000
Airside Support Facilities	$ 300,000
Phase 3 Totals	**$6,120,000**
20 YEAR TOTAL FUNDS	**$13,495,001**

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Airport Master Plan

Introduction

The Town of Saratoga in Carbon County, Wyoming, is located in the Platte Valley, a lush agricultural environment in southern Wyoming with magnificent vistas, incredible fishing, hot springs, and a growing tourist industry. Much of the growing tourist industry, local ranchers, and second home owners in the area utilize the local airport on a regular basis.

Shively Field (SAA) is a public-use general aviation airport recently reclassified as a business class airport by the Wyoming DOT Aeronautics Division. As such, SAA is intended to serve a multi-county area and local economic center providing social and economical connections to state and national economies. The airport is intended to accommodate business-class jets and support local tourism and recreational demand.

Since the completion of the 1998 Master Plan, Shively Field's facilities have largely been built out. Also, a lot has changed in the Town since the previous plan which lead the Town of Saratoga, with guidance from Wyoming DOT Aeronautics (WYDOT) and Federal Aviation Administration (FAA) to initiate the completion of a new plan to assess SAA's ability to accommodate future growth and to assure eligibility to receive future atate and federal financial assistance.

Shively Field
Saratoga, Wyoming

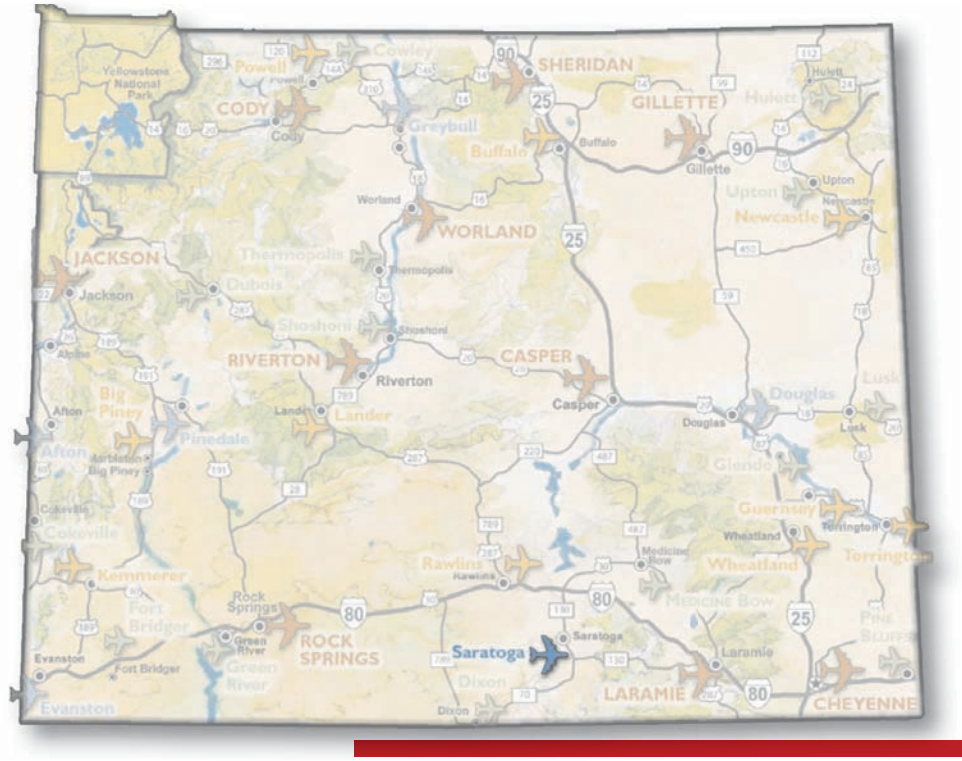
This Airport Master Plan is primarily intended to help guide future development at and around Shively Field. The Airport Master Plan will assess SAA's overall function within the local community and will investigate and identify the necessary physical facilities to accommodate future planning and development in the airport development area.

Purpose Of The Airport Master Plan

Overall, the primary goal of the Airport Master Plan is to identify the orderly development of on-airport facilities essential to meeting the needs of the airport's users while also considering the off-airport economic potential and compatibility within the community.

Key issues to be addressed include:

- Taxiways
- Runway Pavement Condition/Maintenance
- Hangar/Apron Access
- Apron Expansion
- GA Terminal Facilities/Business Park Planning
- NAVAIDS/Approach Lighting/Visibility Minima
- Land-Use Compatibility
- Land Acquisition (Runway Protection Zones)



"One of the truly unique economic assets in the Town of Saratoga is the local general aviation airport, Shively Field. ...Shively Field is one of the most active general-aviation airports in Wyoming."

Source: Saratoga Economic Impact Study, 2005. Northstar Consulting

Location Map

Source: Wyoming Statewide Inventory and Implementation Plan, 2009.

Master Plan Goals And Objectives

The goals of this Master Plan are to provide a flexible and evolving framework necessary to guide future planning and airport development which will cost-effectively satisfy aviation demand while considering potential on-and-off airport environmental and socioeconomic impacts. The Airport Master Plan presents both short-term and long-term development for the airport and graphically displays and reports data upon which proposed development is based.

The specific goals and objectives for the Airport Master Plan are to:

1. Address and document the issues while meeting the existing and future aviation needs of the community and customers.
2. Justify the proposals and protect and enhance community land use goals and regional aviation needs.
3. Provide effective graphic presentation through the preparation of a narrative report and Airport Layout Plan (ALP).
4. Establish a realistic schedule while ensuring that any short-term actions and recommendations do not preclude long-term planning objectives
5. Propose an achievable financial plan.
6. Identify potential environmental considerations.
7. Evaluate facility layout and address and satisfy local, state, and federal regulations.
8. Document policies and demand in order to support local decision making.
9. Set the stage and establish the framework for future planning.
10. Continue to meet the needs of SAA tenants and help expand and attract new tenants and businesses.
11. Ensure that SAA continues in its role of supporting the economy of Saratoga and Carbon County.

Elements of the Airport Master Plan

Element 1 - Scoping and Pre-Planning

Develop scope and outline of the Airport Master Plan and identify the necessary level of effort for each element.

Element 2 - Public Involvement Strategy

Exchange information and ideas between the Town of Saratoga, interested stakeholders, regulating agencies, airport users, community representatives, and the consultant team.

Element 3 - Existing Conditions Inventory

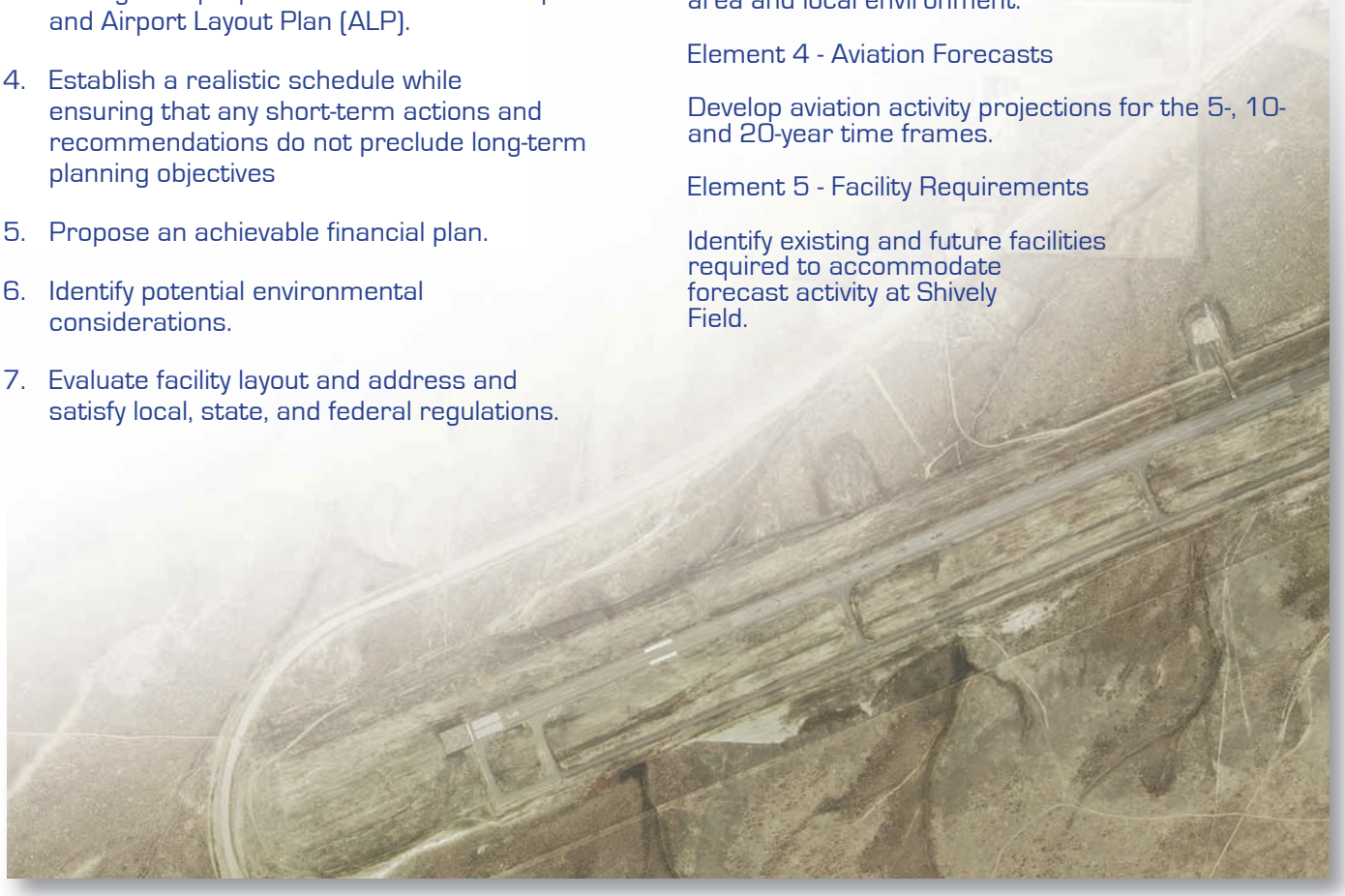
Conduct an inventory and analysis of the airport area and local environment.

Element 4 - Aviation Forecasts

Develop aviation activity projections for the 5-, 10- and 20-year time frames.

Element 5 - Facility Requirements

Identify existing and future facilities required to accommodate forecast activity at Shively Field.



Element 6 - Development Alternatives

Identify and evaluate development alternatives necessary to satisfy demand and achieve community consensus.

Element 7 - Environmental Coordination

Analyze proposed projects to consider and identify negative environmental impacts which may impede anticipated airport development projects.

Element 8 - Compliance Plan

Identify, list, and describe each existing and potential compliance issue and provide recommendations referenced to the specific Assurance or other obligation involved.

Element 9 - ALP Drawing Set

Develop the Airport Layout Plan Drawing Set to FAA Standards

Element 10 - Financial and Implementation Plan

Establish a feasible, financial implementation program to address the identified airport development requirements.

Applicable Federal Advisory Circulars

150/5020-1	Noise Control and Compatibility Planning for Airports
150/5050-4	Citizen Participation in Airport Planning
150/5060-5	Airport Capacity And Delay
150/5070-6B	Airport Master Plans
150/5070-7	The Airport System Planning Process
150/5300-13	Airport Design
150/5360-9	Planning and Design of Airport Terminal Facilities at Non-Hub Locations

Public Involvement Plan

As an essential element of the planning process and this plan, the primary purpose of the public involvement strategy was to promote a continuous exchange of information between the Town of Saratoga, interested stakeholders, regulating agencies, airport users, community representatives, and the planning team.

A total of three (3) public workshops were facilitated by the planning team throughout the planning process. The purpose of the workshops was to inform the general public of the work accomplished by the planning team and to solicit public comments to aide in the Airport Advisory Board's decision making process.

Public Workshop #1

Public Workshop #1 was held on December 12, 2012, at Town Hall in Saratoga. Ten full-size boards presenting the information were displayed in Town Hall, and the planning team, including Airport Advisory Board members, was available to answer the public's questions. Approximately 20 interested citizens and stakeholders were present at different times throughout the 3 hour open house.

The "open house" setting introduced the project and informed the public of the services and benefits the airport offers, identified the goals and objectives of the Master Plan, reiterated the importance of public participation, and allowed stakeholders and citizens to comment on the Existing Conditions Inventory and Aviation Forecasts.

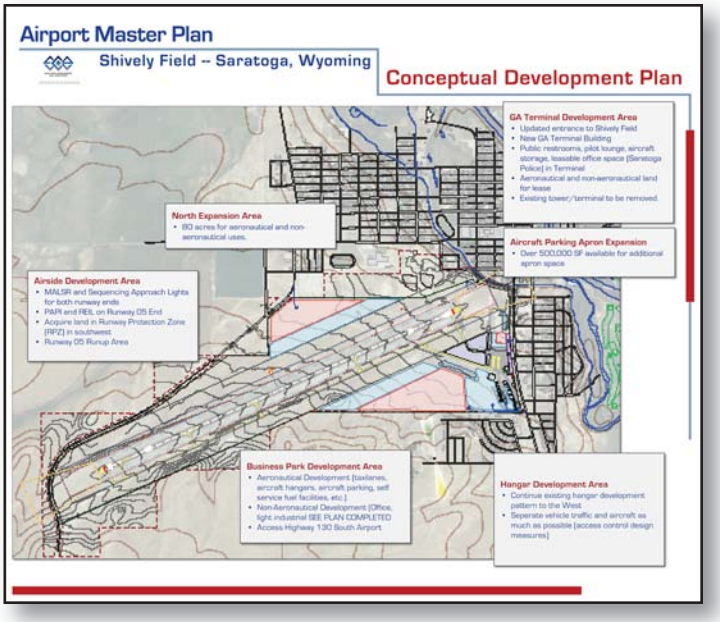
Public Workshop #2

Public Workshop #2 was held on April 15, 2013 at Town Hall in Saratoga. Six full-size boards presented potential development scenarios and options for the airport and development area. The planning team, including Airport Advisory Board members, was available during the three hour open house to answer the public's questions and explain the development concepts. Approximately 10-15 interested citizens and stakeholders were present at different times throughout the three hour open house.

After the public workshop held in April, the Airport Advisory Board approved the proposed facility requirements and development alternatives at their regularly scheduled June meeting. The Town Council provided final approval (June 18, 2013) to proceed with the preferred alternatives presented to the public and subsequently approved by the Advisory Board.

Public Workshop #3

The third and final public workshop was held during a regular Town Council meeting on February 4, 2014. A summary of the Compliance Plan, ALP Drawing Set, and Implementation Plan was presented and opened up for questions. The final workshop also allowed the consultant to present the final draft master plan report for review, comment, and approval.



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Existing Conditions

An existing-conditions analysis of the airport within its urban/rural context, as well as its role in the greater aviation system, is essential to fully understanding how the airport functions within the community – most importantly how it can best accommodate existing and future airport users and the community it serves. This analysis includes an investigation of the history, policies, plans, structures, facilities, adjacent land uses, and anything else necessary to adequately address growth and development pressures impacting Shively Field and the Town of Saratoga.

Airport History

Numerous expansion and development projects have taken place over the years. Shively Field's existing runway length of 8,800 feet gives it the distinction of being the longest GA runway in the State of Wyoming. It all began in 1934 when a committee of local residents met with federal airport inspectors to determine the location of a modern landing field in Saratoga. As it stands today, Shively Field has received over $10.3 million in federal funding over the past 30 years for the development and expansion of the airport. As equally important, donations of time and money from local community members and users of the airport have steadily played an essential role in the development of Shively Field. Over the years, the airport has also benefited greatly from the local agricultural industry and its use of aviation for travel and commerce. As a result, the growth and development of the airport has been instrumental in the growth of tourism in Saratoga. It has truly been a shared community effort to develop the airport thus far. It will continue to be so as the community effort to develop and advance its local economy parallels the growth of new and advancing technologies and practices in aviation.

- 1934 - Site for local airport inspected
- 1961 - Runway Paving
- 1983 - Install Apron Lighting and Runway Visual Vertical Guidance System
- 1984 - Install Runway Lighting System
- 1987 - Airport Master Plan
- 1989 - Expand Apron Area
- 1990 - Runway Construction
- 1993 - Acquire Land and Improve Access Road
- 1994 - Runway Safety Area Grading
- 1996 - Runway Construction
- 1997 - Airport Master Plan
- 1998 - Runway Construction
- 1998 - Construct Taxiway
- 1999 - Extend Runway 1,400'
- 2001 - Install Weather Reporting Equipment
- 2004 - Construct Parallel Taxiway
- 2006 - Rehabilitate Taxiway B
- 2009 - Apron Reconstruction/Expansion
- 2010 - Replace Beacon
- 2012 - Airport Master Plan

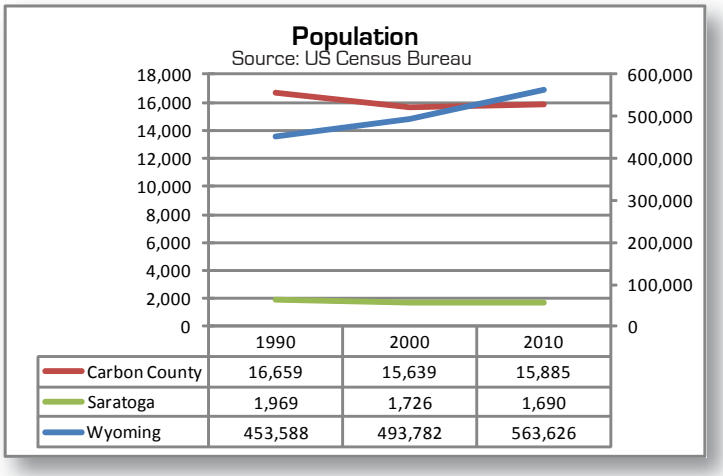
Community Socioeconomic Data

It is important early on in the planning process to obtain a clear understanding of the socioeconomic context of the community and greater region. Population, housing, and employment are three variables where data can easily be obtained and analyzed to obtain a better contextual understanding of the region.

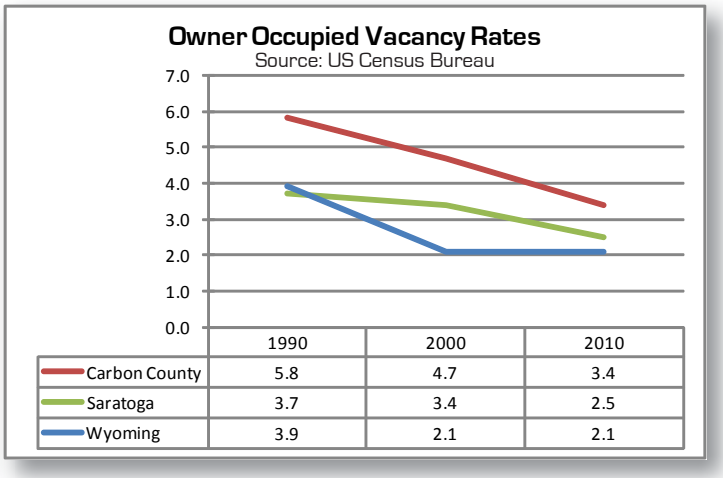
Population over the past 20 years has largely been flat or slightly declining in Saratoga, declining in Carbon County, and growing in Wyoming. Since 1990, the population has increased by 1.21% per year in the State of Wyoming and respectively declined by .23% and .71% per year in Carbon County and Saratoga.

The number of housing units over the past 20 years has experienced similar trends of remaining flat in Saratoga and Carbon County compared to noticeable gains in the state of Wyoming. Furthermore, there have been noticeable 1 - 2 % annual decreases in owner and renter occupied vacancy rates in Saratoga, Carbon County, and Wyoming. Over the 20-year period, vacancy rates in Wyoming across the board have decreased by nearly 46%, and Carbon County and Saratoga have seen similar decreases with 41% and 32% declines respectively. These decreased vacancy rates in the Saratoga area have led to significant shortages of workforce housing.

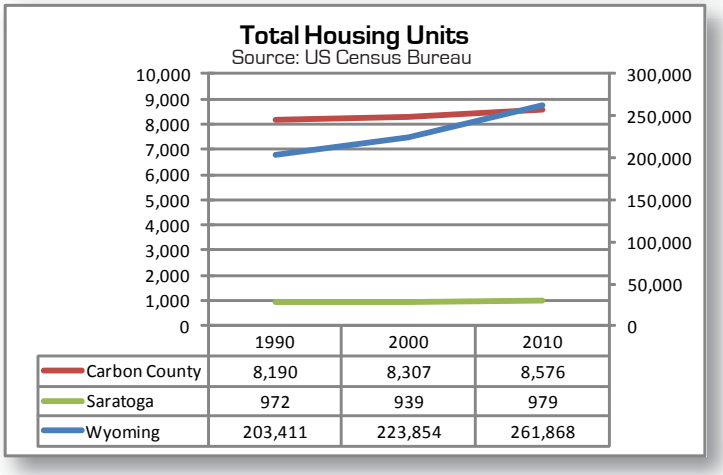
Historically, at the local and regional level, employment has been limited to three primary industries. The "3 legged stool" of agriculture/ forestry, tourism, and energy have seen both growth and decline over the years. Tourism has been a steady force for employment in Saratoga. The Saratoga Saw Mill, which closed in 2003, is scheduled to reopen in late 2012 and should provide approximately 80-120 new jobs for Saratoga. The growth of energy development related jobs has been noticeable in Carbon County over the past 10 years and will continue to grow in the future as evident by the largest wind farm in the United States being developed only 9 miles northwest of Saratoga. Growth of energy related development could provide ample new employment opportunities for existing and future residents of Saratoga. (Source: A Strategic Economic Development Plan for Saratoga, WY, 2005. Northstar Economics)



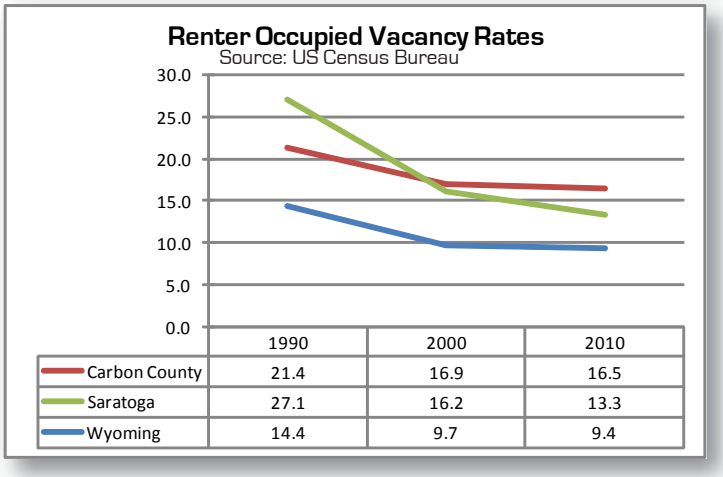
	1990	2000	2010
Carbon County	16,659	15,639	15,885
Saratoga	1,969	1,726	1,690
Wyoming	453,588	493,782	563,626



	1990	2000	2010
Carbon County	5.8	4.7	3.4
Saratoga	3.7	3.4	2.5
Wyoming	3.9	2.1	2.1



	1990	2000	2010
Carbon County	8,190	8,307	8,576
Saratoga	972	939	979
Wyoming	203,411	223,854	261,868



	1990	2000	2010
Carbon County	21.4	16.9	16.5
Saratoga	27.1	16.2	13.3
Wyoming	14.4	9.7	9.4

Relevant Studies

To understand the full context of the airport and its environment, a thorough effort to document and research existing and future studies that may pertain to the planning area was conducted.

FAA GA Airports: A National Asset Study – 2012

This study was an 18-month investigation of the nearly 3,000 general aviation (GA) airports, heliports, and seaplane bases identified in the FAA's National Plan of Integrated Airport Systems (NPIAS). This in depth analysis highlights the pivotal role GA airports play in our society, economy, and the aviation system. The study also aligns the GA airports into four new categories – national, regional, local, and basic – based on their existing activity levels. The new categories better capture their diverse functions and the economic contributions GA airports make to their communities and the nation.

Saratoga was classified as a Local Airport in the FAA study. The 1,236 local airports are the backbone of our general aviation system with at least one local airport in every state. Local airports account for 42 percent of the general aviation airports eligible for federal funding, approximately 38 percent of the total flying at the studied general aviation airports, and 17 percent of flying with flight plans. Most of the flying is by piston aircraft in support of business and personal needs. In addition, these airports also typically accommodate flight training, emergency services, and charter passenger service. The flying tends to be within a state or immediate region. Criteria used to qualify an airport to be in the Local category required an airport to have 15 or more based aircraft and10 or more Instrument Flight Rules (IFR) operations; or at least 2,500 enplanements.

Source: FAA General Aviation Airports: A National Asset, 2012. www.faa.gov.

Town of Saratoga Economic Development Plan – 2005

The 2005 report included an analysis of economic development activities related to Saratoga and the surrounding region and set out to identify opportunities to attract private business. The report identified four suggestions for economic development strategies not necessarily connected directly with tourism, recreation, or timber.

These suggestions are:

- Economic development around the arts.
- Economic development around a community center.
- Economic development around entrepreneurship and establishing new small businesses.
- Economic development around enhanced deal flow.

A major element of this 2005 report included a review of the work done by Mary Randolph and the Wyoming Rural Development Council. A summary of the ideas identified in the Rural Resources Report, better known as the "Randolph Report", addresses the community's desire to:

- Diversify from the "3-legged-stool", i.e., agriculture, tourism, and timber
- Construct a business incubator on city owned property (assorted shared services)
- Tourism is an important opportunity to introduce other business people to the community (getting information to these visiting business people about the desirability of establishing facilities in Saratoga during and after their stay)
- Look for value-added opportunities for agriculture and timber
- Encourage local businesses to better utilize the town's excellent airport.
- Concentrate on small industries, "cottage industries" and 3 to 12 employee businesses
- Realize successful community enterprises in rural America grow from within
- Prepare a "Community Development Plan"

Another major element of the Economic Development Plan included a section devoted entirely to the airport which explored the possibility of developing and marketing a business/industrial park on town-owned property located adjacent to the airport.

Source: A Strategic Economic Development Plan for Saratoga, WY, 2005. Northstar Economics

WYDOT Statewide Airport Inventory and

Implementation Plan – 2009

The Wyoming Statewide Airport Inventory and Implementation Plan is a component of the Wyoming Department of Transportation, Aeronautics Division's, continuous aviation system planning process. The study provided an inventory and evaluation of the 40 publicly owned airports in the state as well as an implementation plan to meet the established goals and objectives.

Notably, a new airport classification system was developed as part of this 2009 study. The classifying of the airports into more specific roles allows for a more focused approach in defining and implementing goals and objectives for the different types and uses of airports.

Shively Field was one of six airports statewide classified as a Business Airport and is intended to serve a multi-county area and economic centers while providing a connection to state and national economies. Business Airports are also intended to accommodate larger business jet activity and support tourism and recreational demand.

	Commercial Service Airport	Business Airport	Intermediate Airport	Local Airport
Geographic Significance	Statewide	Multi-County	County, Community	Community
Type of Facilities and Services Offered	Scheduled Air Service, Full GA services such as maintenance, fuel, charter, based and itinerant aircraft storage	Full GA, maintenance, fuel, charter, based and some itinerant aircraft storage	Fuel, limited maintenance, based aircraft storage	Basic
Type of Aircraft Accommodated	Regional Commercial, Jet GA	Jet GA	Twin, Small jet	Small twin, Single engine
Type of Activity	Commercial, Business GA	Business GA	Some Business and Recreational GA	Some Business, Training, Recreational GA, Emergency Use
Type of Community Served	Economic Centers, Population Centers	Economic Centers	Medium to small	Small
Economic Impact	Connect local, regional and statewide economy to national and global economies	Connect local and regional economy to state and national economies	Support local economy	Support local economy

Wyoming Airport Classification Summary
Source: WYDOT Statewide Airport Inventory and Implementation Plan, 2009. WYDOT Aeronautics Division.

Also addressed in the 2009 study are minimum facilities and service objectives by classification of airport. The minimum objectives have been established to provide adequate and safe facilities and services to meet the roles and attributes established for each classification. All objectives need to be justified and approved through the local master planning and environmental processes. Airport facilities and service objectives were subdivided by Airside, Landside, Services, and Administration and depicted on individual airport report cards.

REPORT CARD			
SAA	Shively Field	Saratoga	Business
Facility/Service Objectives	Objective	SAA	Objective Met?
AIRSIDE (Primary Runway)			
ARC	C-II	C-II	Yes
Runway Length	9000 Feet	8800 Feet	No
Runway Width	100 Feet	100 Feet	Yes
Runway Lights	MIRL	MIRL	Yes
Pavement Strength	Single 30000 lbs	Single 50000	Yes
Taxiway	Full Parallel, Width = 35 Feet	Full Parallel - Width = 35 Feet	Yes
Taxiway Lights	MITL	MITL	Yes
Instrument Approach Type	Non-Precision	Non-Precision	Yes
Approach Lighting System	MALSR Suggested	MALSR - None MALS - None ODALS - None	Not an Objective
Visual Aids	PAPI or VASI (both runway ends). Combination of REIL, MALSR, MALS or ODALS on each runway end. Beacon and Lighted Wind Cone	PAPI - One End VASI - None REIL - One End Beacon - Yes Wind Cone - Yes Lighted Wind Cone - Yes	No
Wind Coverage	Greater than or Equal to 95%	-	No
RSA	Standard RSA on all paved runways	No	No
LANDSIDE			
Weather Reporting	AWOS or ASOS	AWOS	Yes
Terminal	Terminal	Commercial - No General Aviation - Yes	Yes
Perimeter Fencing	Wildlife Fence	Perimeter - Yes Type - Wildlife Fence	Yes
Hangars	100% of Based Aircraft	100%	Yes
Lighted Hangar Areas	Lighted Hangar Areas	No	No
Paved Auto Parking	Paved Auto Parking	Yes Number of Spaces - 25	Yes
SERVICES			
FBO	Suggested	Yes	Not an Objective
Fuel	Jet A and 100LL	Jet A and 100LL	Yes
Ground Transportation	Courtesy Car	On-Airport Rental Car - Yes Taxi Service - No Courtesy Car - Yes	Yes
Pilot Lounge and Planning Room	Pilot Lounge & Planning Room	Pilot Lounge - Yes Planning Room - Yes	Yes
Public Restrooms	Public Restrooms – 24/7	Yes - Not 24 Hour	No
Public Phone	Public Phone – 24/7	Yes - 24 Hour	Yes
Food	Vending Machines Suggested	Restaurant - No Vending Machines - Yes	Not an Objective
Aircraft Maintenance	Major Airframe & Powerplant	Minor Airframe & Powerplant	No
Aircraft De-icing System	De-icing	De-icing - Yes	Yes
De-icing Containment System	Suggested	Containment System - No	Not an Objective
ADMINISTRATION			
Airport Master Plan	Less than 10 years old	08/1989	No
Airport Layout Plan	Less than 5 years old	07/1998	No
Land Use Protection Plan	On record with Aeronautics	No	No
Noise Contour Map	Less than 10 years old	02/1991	No
Pavement Management Plan	On record with Aeronautics	Yes	Yes
Minimum Standards	On record with Aeronautics	No	No
Airport Manager	Airport Manager	Yes	Yes
Legislative Liaison	Legislative Liaison	No	No
RPZ Ownership	Fee/Easement Ownership of all RPZs	No	No

Shively Field Report Card
Source: WYDOT Statewide Airport Inventory and Implementation Plan, 2009. WYDOT Aeronautics Division.

The 2009 Report Card for Shively Field identified 14 objectives that were not met. The majority of those objectives not met fell in the Administration element of the Report Card. Several of the objectives not met on the Report Card have been resolved or are currently in the process of being resolved.

Source: WYDOT Statewide Airport Inventory and Implementation Plan, 2009. WYDOT Aeronautics Division.

WYDOT Statewide Airport Economic Impact Study – 2009

The Wyoming Department of Transportation's Aeronautics Division completed this study in 2009 to measure the value of air transportation in Wyoming. The statewide economic impact study shows how aviation serves as an economic engine for Wyoming. The study also documents various ways air transportation is used in Wyoming and other benefits that air transportation supports.

Analysis of the study shows Shively Field accounts for 47 local jobs, resulting in $1,284,300 in annual payroll, and $4,654,500 in annual economic activity in the Saratoga area and North Platte River Valley.

WYDOT Rates and Charges Guide – 2011

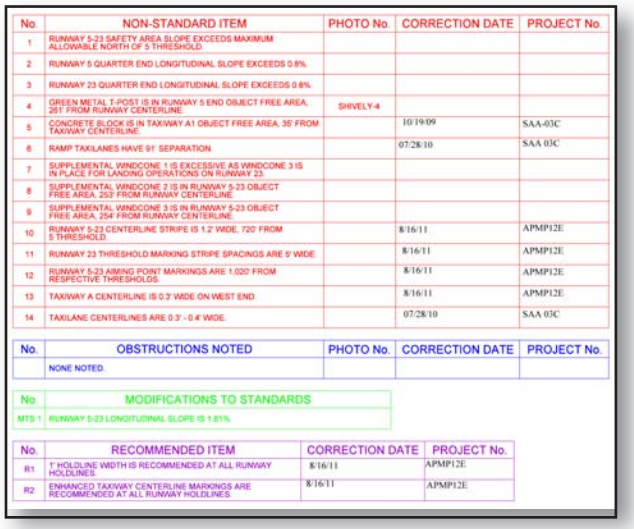
The Wyoming Department of Transportation (WYDOT) - Aeronautics Division routinely collects rates and charges information for many typical user fees, such as landing fees, fuel flowage fees, and hangar rental fees from airports in Wyoming and neighboring states. The guide provides a tool to ensure Wyoming airports offer fair and competitive fees to airport users and tenants, while at the same time adequately covering the costs of operating the airport.

Source: WYDOT Rates and Charges Guide, 2011. WYDOT Aeronautics Division.

WYDOT Design Standards Inventory – *2008*

The purpose of this project was to update the Wyoming Airport Design Standards Inventory for the Wyoming Department of Transportation - Aeronautics Division (WYDOT). This document was originally produced in 1993, and updated in 1995, 1999, and 2008. The document includes detailed airport inventory data, a summary of non-standard items and airspace obstructions in accordance with current FAA Advisory Circulars and Aviation Regulations, and color airport maps showing approximate locations of non-standard items and airspace obstructions found during the inventory site visit.

Source: WYDOT Design Standards Inventory, 2008. WYDOT Aeronautics Division.



No.	NON-STANDARD ITEM	PHOTO No.	CORRECTION DATE	PROJECT No.
1	RUNWAY 5-23 SAFETY AREA SLOPE EXCEEDS MAXIMUM ALLOWABLE NORTH OF 5 THRESHOLD.			
2	RUNWAY 5 QUARTER END LONGITUDINAL SLOPE EXCEEDS 0.8%.			
3	RUNWAY 23 QUARTER END LONGITUDINAL SLOPE EXCEEDS 0.8%.			
4	GREEN METAL T-POST IS IN RUNWAY 5 END OBJECT FREE AREA, 261' FROM RUNWAY CENTERLINE.	SHIVELY-4		
5	CONCRETE BLOCK IS IN TAXIWAY A1 OBJECT FREE AREA, 35' FROM TAXIWAY CENTERLINE.		10/19/09	SAA-03C
6	RAMP TAXILANES HAVE 91' SEPARATION.		07/28/10	SAA 03C
7	SUPPLEMENTAL WINDCONE 1 IS EXCESSIVE AS WINDCONE 3 IS IN PLACE FOR LANDING OPERATIONS ON RUNWAY 23.			
8	SUPPLEMENTAL WINDCONE 2 IS IN RUNWAY 5-23 OBJECT FREE AREA, 253' FROM RUNWAY CENTERLINE.			
9	SUPPLEMENTAL WINDCONE 3 IS IN RUNWAY 5-23 OBJECT FREE AREA, 254' FROM RUNWAY CENTERLINE.			
10	RUNWAY 5-23 CENTERLINE STRIPE IS 1.2' WIDE, 720' FROM 5 THRESHOLD.		8/16/11	APMP12E
11	RUNWAY 23 THRESHOLD MARKING STRIPE SPACINGS ARE 5' WIDE.		8/16/11	APMP12E
12	RUNWAY 5-23 AIMING POINT MARKINGS ARE 1,020' FROM RESPECTIVE THRESHOLDS.		8/16/11	APMP12E
13	TAXIWAY A CENTERLINE IS 0.3' WIDE ON WEST END.		8/16/11	APMP12E
14	TAXILANE CENTERLINES ARE 0.3' - 0.4' WIDE.		07/28/10	SAA 03C

No.	OBSTRUCTIONS NOTED	PHOTO No.	CORRECTION DATE	PROJECT No.
	NONE NOTED.			

No.	MODIFICATIONS TO STANDARDS
MTS 1	RUNWAY 5-23 LONGITUDINAL SLOPE IS 1.81%.

No.	RECOMMENDED ITEM	CORRECTION DATE	PROJECT No.
R1	T HOLDLINE WIDTH IS RECOMMENDED AT ALL RUNWAY HOLDLINES.	8/16/11	APMP12E
R2	ENHANCED TAXIWAY CENTERLINE MARKINGS ARE RECOMMENDED AT ALL RUNWAY HOLDLINES.	8/16/11	APMP12E

Shively Field Design Standards Summary Sheet
Source: WYDOT Design Standards Inventory, 2008. WYDOT Aeronautics Division.

Carbon County Comprehensive Plan – 2010

The Carbon County Comprehensive Plan focused on the goals, strategies, and direction of the unincorporated areas of Carbon County while considering the context and character of the incorporated areas within the county. The plan defines the preferred growth options for the county by presenting a clear understanding of the local values and goals of the citizens of Carbon County.

Seven Citizen Driven Land Use Goals for Carbon County:

1. Achieve a sustainable balance between energy development, agriculture, and the environment.
2. Protect water supplies of established users.
3. Sustain scenic areas, wildlife habitat, and other important open spaces.
4. Retain ranching and agriculture as the preferred land uses in rural areas.
5. Locate new residential developments and commercial sites in close proximity to municipalities and developed areas.
6. Ensure that future land development is fiscally responsible and has adequate roads and other infrastructure.
7. Retain diversity of use on public lands and provide for conversion of public lands to other land uses as would benefit the orderly development of the county.

Source: Carbon County Comprehensive Land Use Plan, 2010. Carbon County, Wyoming.

Airport Area Land Use Analysis

Shively Field is comprised of approximately 766 acres on land owned by the Town of Saratoga in the southwestern corner of town. Land around the airport generally consists of open space and low-density residential in the south and west, however residential and commercial uses are in the north and east.

Carbon County Land Use/Zoning

Land adjacent to the airport generally consists of BLM and state public lands. Private land bordering the airport holds a future land use of "smaller lot rural" intended to accommodate

higher densities or rural residential development, limited commercial development, and where public and recreational uses could occur.

Carbon County zoning addresses height restrictions and development near airports by providing the following guideline in section 5.1.B.2 of the zoning code.

Airport Safety Zone Maximum Height

Except for field crops and fences under five feet high, the maximum height of any object, building, or structure located within 500 feet of either side of the center line of a landing strip or runway and extended to a distance of two miles from the end of landing strip or runway shall be no higher than 1/100 of the distance of the object, structure, or building to the landing strip or runway.

Source: Carbon County Zoning Resolution. April 5, 2011. Available Online: http://www.carbonwy.com/index.aspx?NID=974

Town of Saratoga Land Use/Zoning

Town of Saratoga land directly north and south of the airport is primarily low density residential zone districts. East of the airport, along Highway 130, land is zoned Highway Business and is intended to permit most types of commercial activities and includes the sale of commodities or performance of services designed for application on major streets and highways.

The town created and established certain airport related zones, which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces and conical surfaces as they apply to Shively Field.

Runway Larger than Utility Visual Approach Zone

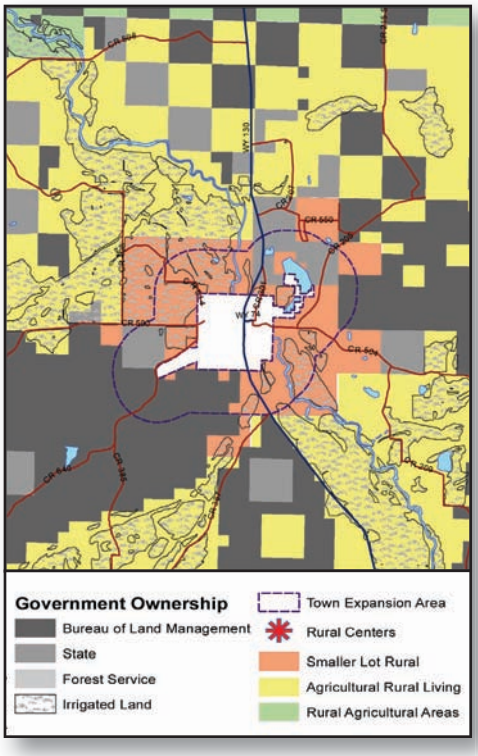
The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its center line is the continuation of the center line of the runway.

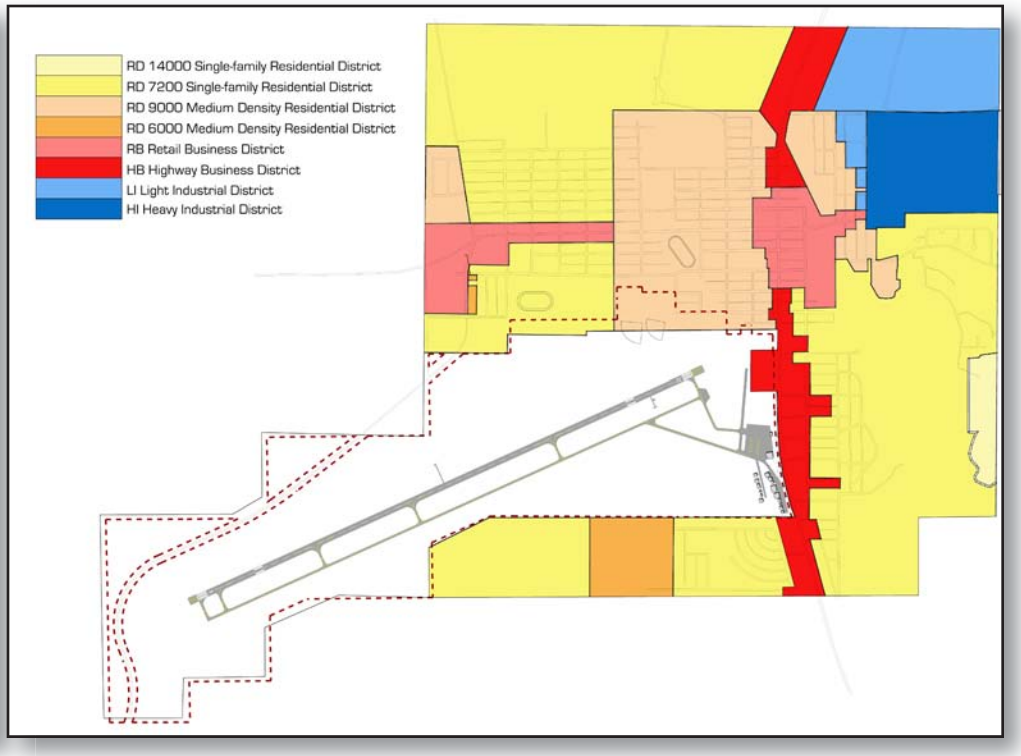
Runway Larger than Utility with a Visibility Minimum Greater than Three-Fourths Mile non precision Instrument Approach Zone

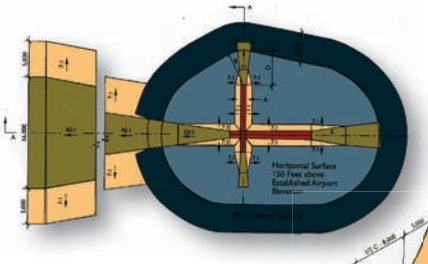
The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet from the primary surface. Its center line is the continuation of the center line of the runway.

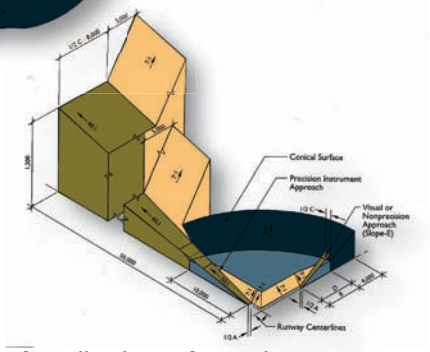
Transitional Zone

The transitional zones are the areas beneath the transitional surfaces.









Horizontal Zone

The horizontal zone is established by swinging arcs of 5,000 feet radii for all runways designated utility or visual and 10,000 feet for all others from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.

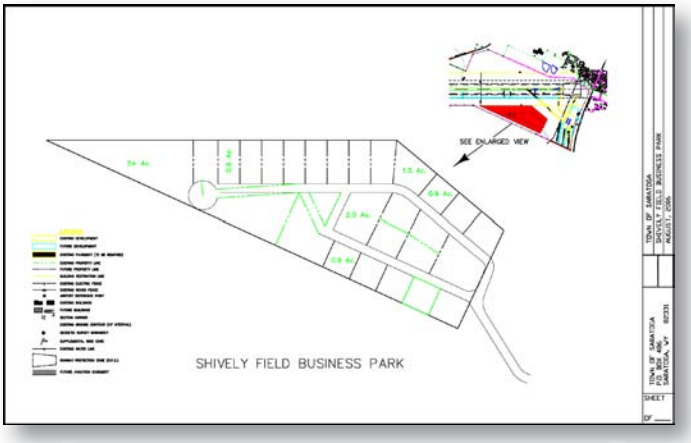
Conical Zone

The conical zone is established by the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

Source: Town of Saratoga Zoning Code. Available Online: http://qcode.us/codes/saratoga/

Airport Business Park Planning

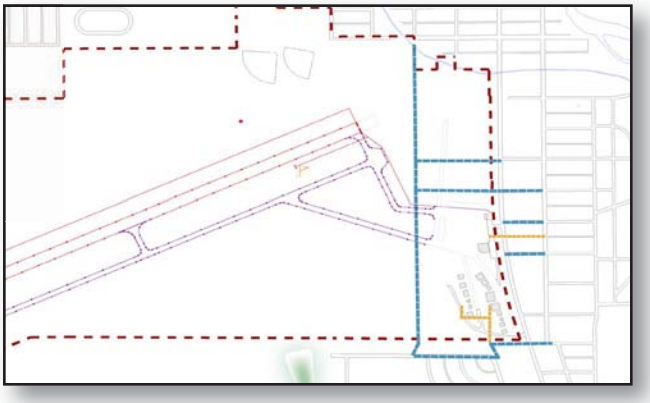
The Saratoga Planning Board has been working to develop a conceptual site plan and general planning guidelines for a business park on airport property consisting of approximately 45 acres. It is planned that the business park would consist primarily of light industrial business with inside storage, light manufacturing, office space, and car rental.



Airport Business Park Conceptual Site Plan
Source: Saratoga Town Engineer - Chuck Bartlett

Public Utilities

Gas to the airport is provided by Sourcegas with one, 2-inch steel line running to the Fixed Base Operator Saratoga Aviation. On the southeastern end of the airport there is a 3-inch steel line that has a 2-inch plastic line branching off to serve private hangars.



Airport Utility Lines
Source: Saratoga Town Engineer - Chuck Bartlett

Water to the airport is provided by the Town of Saratoga Water Department with a 6" line running north/south across the eastern end of airport property. There are two lines branching off to the east off of airport property which are 4" and 2" lines.

The airport is not serviced by sewer and the existing FBO has its own septic system.

Electricity to the airport is provided by Carbon Power & Light. There are three meters located at the airport where electrical usage is recorded and delivered.

Airport Electrical Usage Summary

	2010	2011
Beacon		
Annual Cost	$518.28	$516.84
Average Monthly Usage	163 kW	147 kW
AWOS		
Annual Cost	$467.52	$429.24
Average Monthly Usage	142 kW	115 kW
Runway/Taxiway Lights		
Annual Cost	$690.96	$682.92
Average Monthly Usage	320 kW	321 kW
Annual Cost of Electricity	$1,676.76	$1,629.00

Airport Electrical Usage Summary
Source: Carbon Power & Light.

Meteorological Data

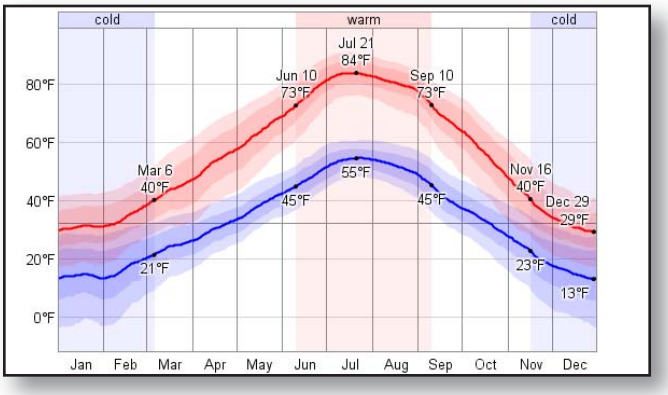
Accurate locally recorded weather data does not exist. The weather data presented was recorded at the Rawlins Airport AWOS. Data and graphics were retrieved from weatherspark.com.

Temperature

Over the course of a year, the temperature typically varies from 13°F to 84°F and is rarely below -4°F or above 91°F.

The warm season lasts from June 10 to September 10, with an average daily high temperature above 73°F. The hottest day of the year is July 21, with an average high of 84°F and low of 55°F.

The cold season lasts from November 16 to March 6, with an average daily high temperature below 40°F. The coldest day of the year is December 28, with an average low of 13°F and high of 29°F.

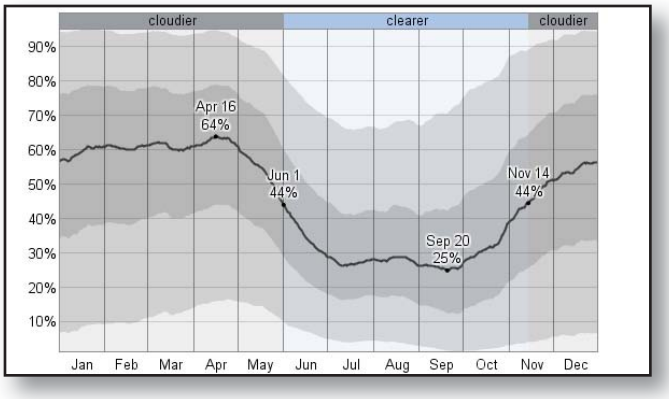


Cloud Cover

The median cloud cover ranges from 25% (mostly clear) to 64% (partly cloudy). The sky is cloudiest on April 16 and clearest on September 20. The clearer part of the year begins around June 1. The cloudier part of the year begins around November 14.

On the clearest day of the year, September 20, the sky is clear, mostly clear, or partly cloudy 58% of the time, and overcast or mostly cloudy 26% of the time.

On April 16, the cloudiest day of the year, the sky is overcast, mostly cloudy, or partly cloudy 55% of the time, and clear or mostly clear 29% of the time.

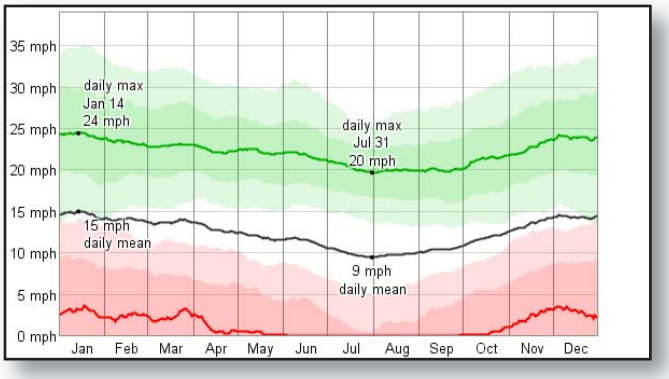


Wind

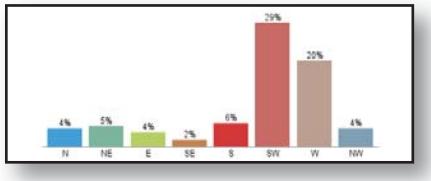
Over the course of the year typical wind speeds vary from 0 mph to 25 mph, rarely exceeding 35 mph.

The highest average wind speed of 15 mph occurs around January 14, at which time the average daily maximum wind speed is 24 mph.

The lowest average wind speed of 9 mph occurs around July 31, at which time the average daily maximum wind speed is 20 mph.



The wind is most often out of the southwest (29% of the time) and west (20% of the time). The wind is least often out of the southeast (2% of the time), east (4% of the time), northwest (4% of the time), north (4% of the time), and northeast (5% of the time).

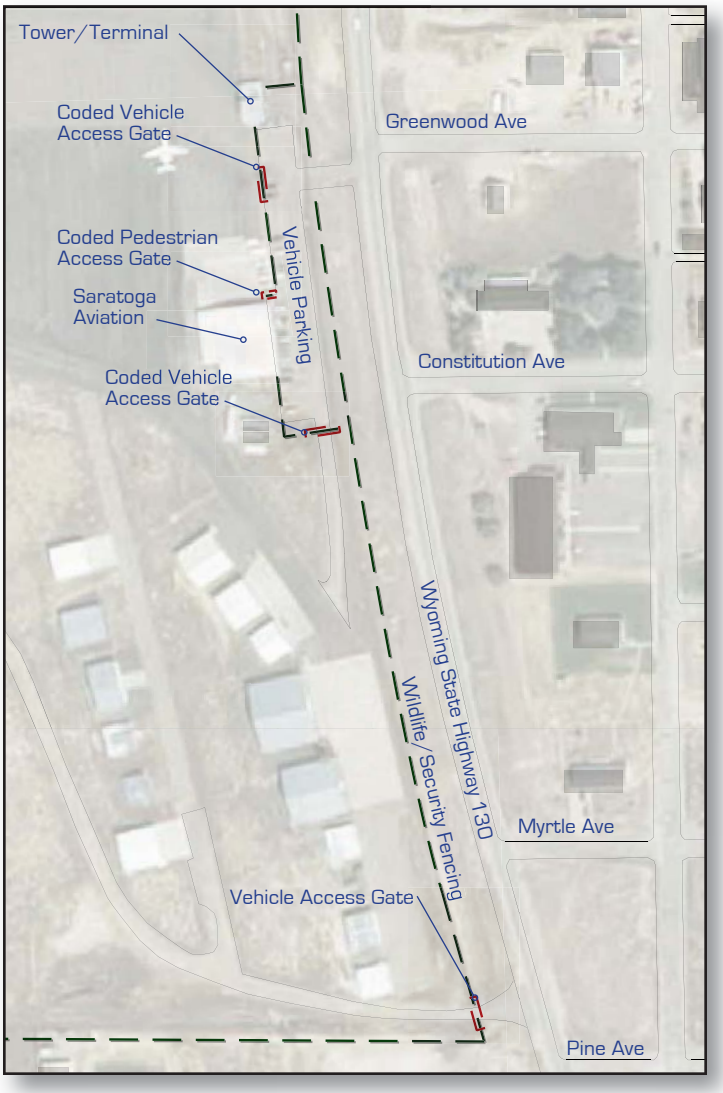


"Local pilots report there is a local phenomenon that makes Saratoga's weather better than anywhere around. They report that all around the Saratoga area can be socked in with low visibility, but the area, 30 miles in radius, around Saratoga will be clear"

Source: Shively Field Airport Master Plan. 1989.

Access, Circulation, and Parking

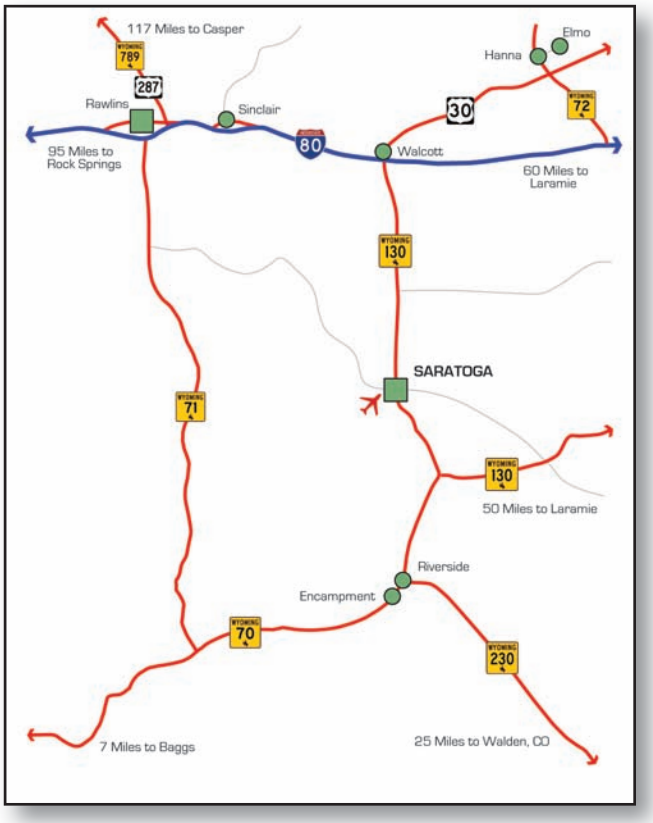
On the east side of the airport, access is from Wyoming State Highway 130 onto a 24,000 SF loose-gravel parking lot and throughway with approximately 8,000 SF available for parking. This provides enough space for approximately 40 vehicle parking spaces. Once in the parking lot, there are two coded gates for vehicle entrance to the apron/hangar area as well as a broken coded pedestrian gate next to the FBO.



Many users of the airport often fly into Shively Field and walk to Main Street for lunch or dinner. Access for pedestrians is along Highway 130 which does not have sidewalks or standard pedestrian amenities.

Many hangar owners utilize access farther south on Highway 130 through a secondary vehicle gate.

Shively Field is entirely surrounded by wildlife fencing which serves double duty as security fencing. There are two additional access gates to the airport primarily for construction and larger vehicle access on the north and south side of the airport.



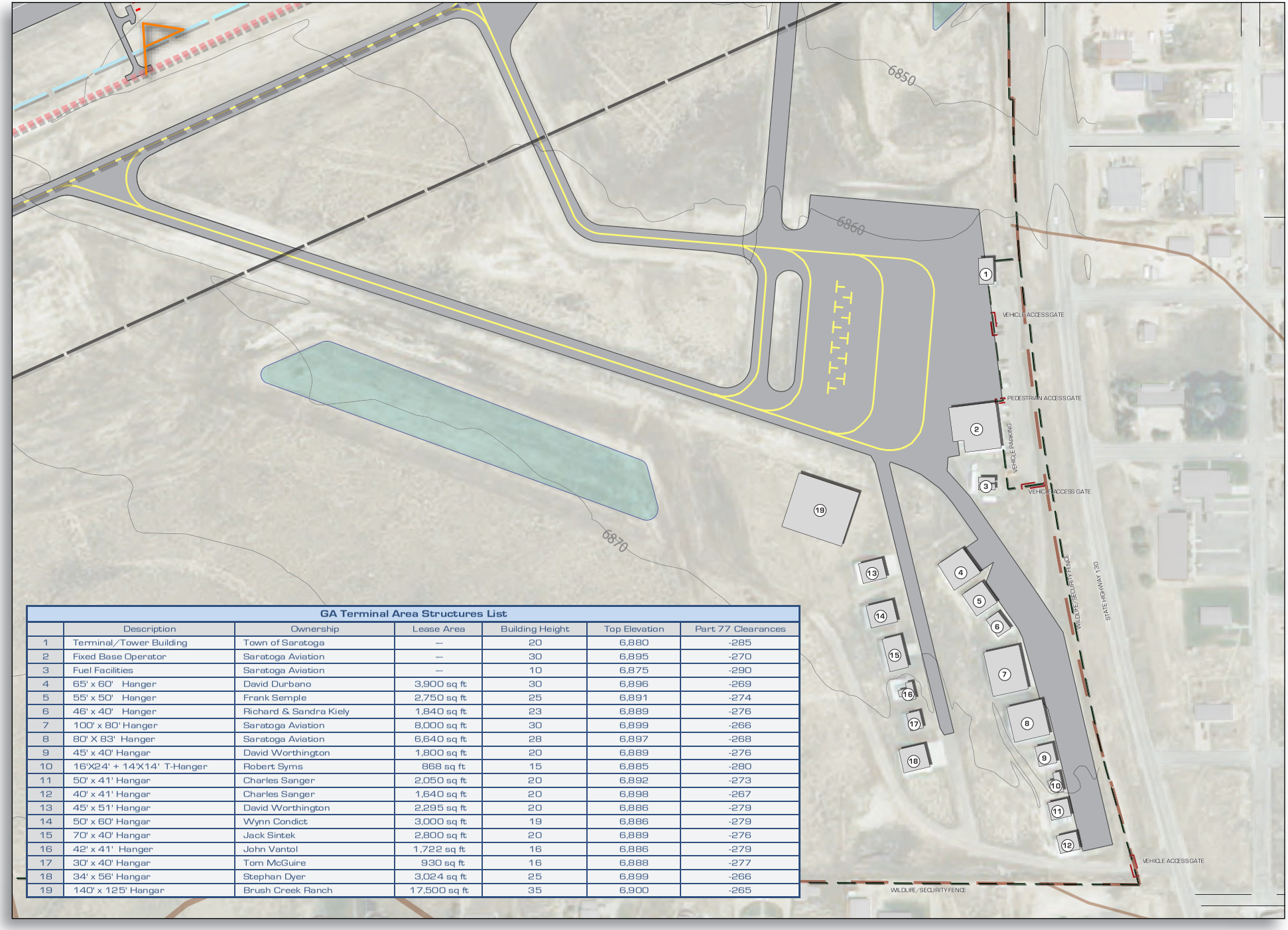
General Aviation Terminal Area

GA terminal area facilities include the original terminal building and observation tower which has been converted into office space. The tower building has been leased out over the years from time to time. The condition of the building is nominal and the high costs necessary to heat and cool the space make it a less than ideal, day-to-day usable office space.

The larger hangar on the apron is privately owned, serves as the FBO (Saratoga Aviation), and is located south of the terminal building. The hangar (approximately 10,100 SF) has a waiting area and lobby, pilot briefing room, office space, rest rooms (1,600 SF), and aircraft storage space consisting of approximately 8,500 SF. Saratoga Aviation provides a variety of services including car rental, catering, aircraft fueling, and other miscellaneous aircraft services. There are no aircraft maintenance services of any kind, and the facilities are not open 24 hours.

There are 16 additional hangars located south of the FBO hangar that are privately owned. The hangars generally range from multiple aircraft storage units upwards of 75' x 100' to smaller single aircraft T-hangars. Six new hangars have been built since 1990 with the most recent completed in 2012 during the completion of this plan.

The apron and tie-down aircraft parking area is approximately 24,000 square yards, constructed of asphalt, and is in excellent condition. There is space to park approximately 40 aircraft with 11 spaces for aircraft tie-downs.



GA Terminal Area Structures List

	Description	Ownership	Lease Area	Building Height	Top Elevation	Part 77 Clearances
1	Terminal/Tower Building	Town of Saratoga	--	20	6,880	-285
2	Fixed Base Operator	Saratoga Aviation	--	30	6,895	-270
3	Fuel Facilities	Saratoga Aviation	--	10	6,875	-290
4	65' x 60' Hanger	David Durbano	3,900 sq ft	30	6,896	-269
5	55' x 50' Hanger	Frank Semple	2,750 sq ft	25	6,891	-274
6	46' x 40' Hanger	Richard & Sandra Kiely	1,840 sq ft	23	6,889	-276
7	100' x 80' Hanger	Saratoga Aviation	8,000 sq ft	30	6,899	-266
8	80' X 83' Hanger	Saratoga Aviation	6,640 sq ft	28	6,897	-268
9	45' x 40' Hangar	David Worthington	1,800 sq ft	20	6,889	-276
10	16'X24' + 14'X14' T-Hanger	Robert Syms	868 sq ft	15	6,885	-280
11	50' x 41' Hangar	Charles Sanger	2,050 sq ft	20	6,892	-273
12	40' x 41' Hangar	Charles Sanger	1,640 sq ft	20	6,898	-267
13	45' x 51' Hangar	David Worthington	2,295 sq ft	20	6,886	-279
14	50' x 60' Hangar	Wynn Condict	3,000 sq ft	19	6,886	-279
15	70' x 40' Hangar	Jack Sintek	2,800 sq ft	20	6,889	-276
16	42' x 41' Hanger	John Vantol	1,722 sq ft	16	6,886	-279
17	30' x 40' Hangar	Tom McGuire	930 sq ft	16	6,888	-277
18	34' x 56' Hangar	Stephan Dyer	3,024 sq ft	25	6,899	-266
19	140' x 125' Hangar	Brush Creek Ranch	17,500 sq ft	35	6,900	-265

Existing Terminal Area Layout

Airside

Taxiway

The taxiway system is constructed of asphalt and consists of Taxiway 'A' which is a full parallel taxiway running the entire 8,800' length of Runway 05-23 and is 35' wide.

Taxiway 'B' is approximately 2,000' x 35' feet wide and connects Taxiway 'A' to the apron and hangar areas.

Taxiway 'A1' is approximately 1,250' long and 35' wide and connects Runway 23 with the apron area.

There are also 5 other connector taxiways (35' wide): A2, A3, A4, A5, and A6 that connect Runway 05-23 with Taxiway 'A.'

The taxiway system is lighted with medium intensity taxiway lights (MITLs).

Pavement Condition Index
Source: WYDOT Aeronautics and Sage Civil Engineering

Runway 05-23

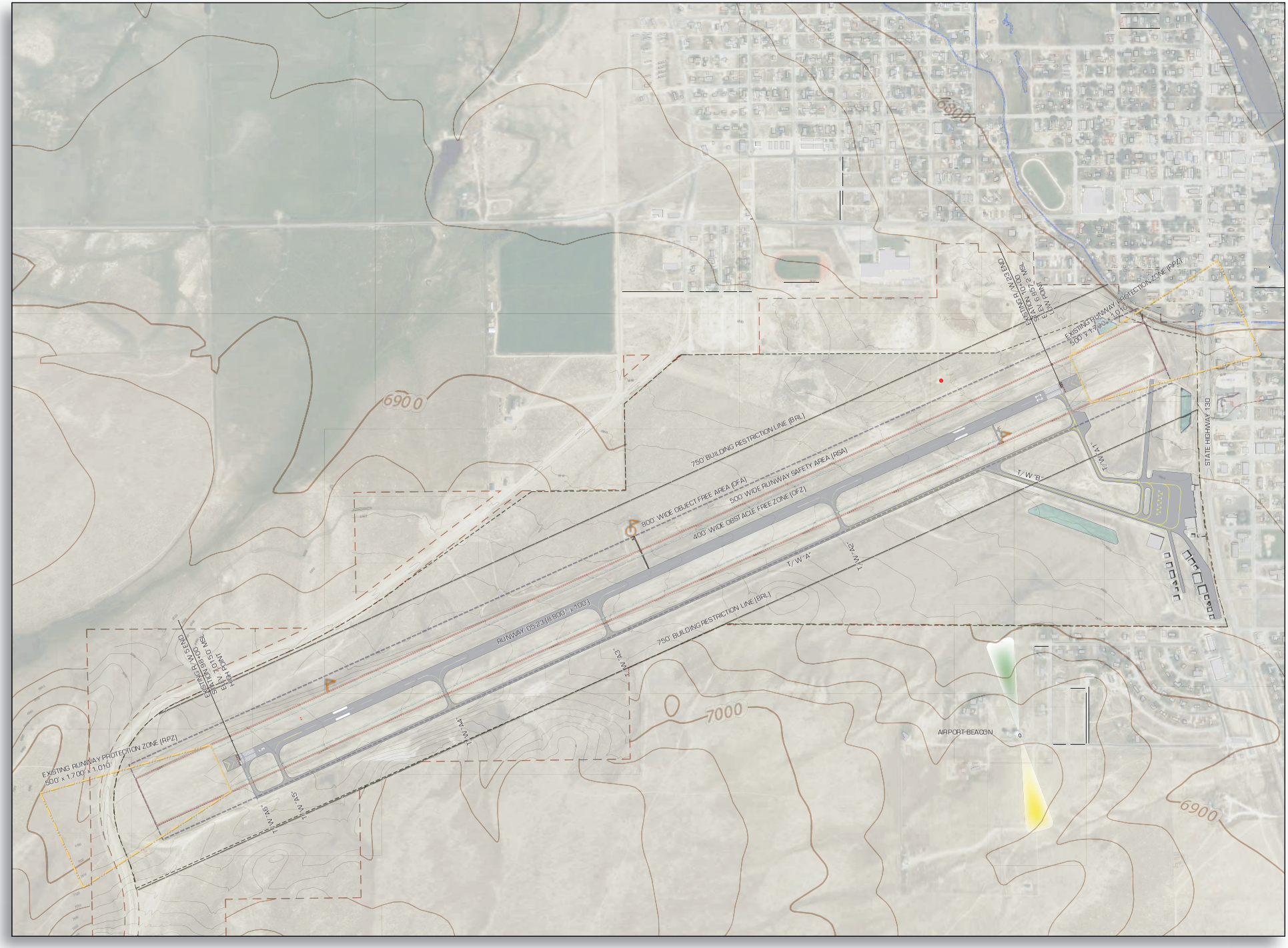
Runway 05-23 at SAA is an 8,800 ft by 100 ft runway constructed of asphalt with non-precision markings, 50,000 pound Double Wheel Gear (DWG) weight rating, and runway blast pads – 200' long and 120' wide – on each runway end.

The runway is lighted by medium intensity runway lights (MIRLs), with runway end identifier lights (REILs) and a precision approach path indicator (PAPI) on Runway 23 end.

Runway 05-23 has a non-standard gradient of 1.81% and received a Modification to Standards from the FAA in 1991.

Runway 05
Elev: 7,015.0' msl Lat: 41° 26'18.998" N Long: 106° 50'31.830" W

Runway 23
Elev: 6,857.2' msl Lat: 41° 26'54.368" N Long: 106° 48'46.323" W



Existing Airport Layout

Airside Support Equipment

The fuel storage facility is located south of the FBO hangar and is owned and operated by the FBO - Saratoga Aviation. The fuel farm consists of two fuel storage tanks, one 20,000 gallon Jet A fuel tank and one 10,000 gallon AVGAS tank.

Fuel delivery is provided by the FBO operator via two trucks, one carrying JET A and the other AVGAS. There are also two, much older, back-up trucks which are operational but rarely used.

Snow removal equipment (SRE) is owned and operated by Saratoga Aviation on an as-needed basis. When there is snow, the FBO plows at their discretion and charges the community an hourly rate.

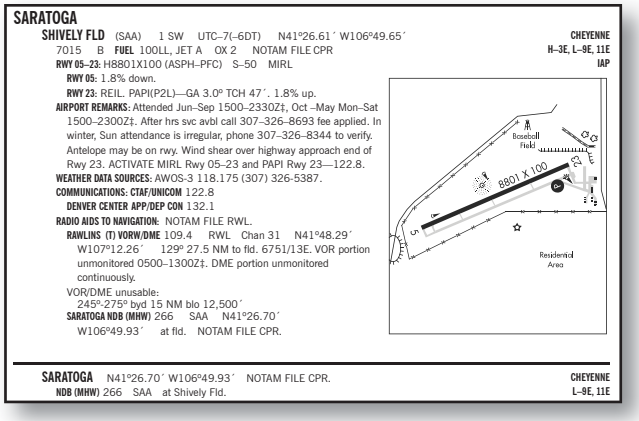
SRE equipment consists of one truck with an 11' blade as well as one 8' snow blower attachment .

Emergency medical aid and fire support service is provided to the airport by the Saratoga Volunteer Fire Department which has a volunteer force of approximately 32 individuals that respond to fires in Saratoga and the surrounding area. The volunteers also respond to wild fires and forest fires as well as motor vehicle accidents to assist EMS personnel with extraction.

Many of the volunteer firemen are also members of Carbon County's search and rescue team that responds to mountain rescue for victims of snowmobile accidents, hiking and fishing accidents, or individuals lost and stranded in the wilderness.

Airspace and Navigation Aids

With an airport elevation of 7,015' MSL, Shively Field is a high altitude airport located in uncontrolled Class G Airspace 700 ft below controlled Class E airspace. The Airport Reference Point, or the approximate geometric center of the airport, as identified in the Airport Facility Directory is located at 41°26.61' North and 106°49.65' West.



SARATOGA

SHIVELY FLD (SAA) 1 SW UTC–7(–6DT) N41°26.61´ W106°49.65´ CHEYENNE
7015 B FUEL 100LL, JET A OX 2 NOTAM FILE CPR H–3E, L–9E, 11E
RWY 05–23: H8801X100 (ASPH–PFC) S–50 MIRL IAP
RWY 05: 1.8% down.
RWY 23: REIL. PAPI(P2L)—GA 3.0° TCH 47´. 1.8% up.
AIRPORT REMARKS: Attended Jun–Sep 1500–2330Z‡, Oct –May Mon–Sat 1500–2300Z‡. After hrs svc avbl call 307–326–8693 fee applied. In winter, Sun attendance is irregular, phone 307–326–8344 to verify. Antelope may be on rwy. Wind shear over highway approach end of Rwy 23. ACTIVATE MIRL Rwy 05–23 and PAPI Rwy 23—122.8.
WEATHER DATA SOURCES: AWOS-3 118.175 (307) 326-5387.
COMMUNICATIONS: CTAF/UNICOM 122.8
DENVER CENTER APP/DEP CON 132.1
RADIO AIDS TO NAVIGATION: NOTAM FILE RWL.
RAWLINS (T) VORW/DME 109.4 RWL Chan 31 N41°48.29´ W107°12.26´ 129° 27.5 NM to fld. 6751/13E. VOR portion unmonitored 0500–1300Z‡. DME portion unmonitored continuously.
VOR/DME unusable:
245°-275° byd 15 NM blo 12,500´
SARATOGA NDB (MHW) 266 SAA N41°26.70´ W106°49.93´ at fld. NOTAM FILE CPR.

SARATOGA N41°26.70´ W106°49.93´ NOTAM FILE CPR. CHEYENNE
NDB (MHW) 266 SAA at Shively Fld. L–9E, 11E

Visual Navigation Aids and Communications

Airfield signage is located at all taxiway/taxiway intersections and runway/taxiway intersections to assist pilots with airfield navigation and prevent potential airfield incidents and runway incursions by increasing situational awareness.

Runway 23 has operational Runway End Identifier Lights (REIL) and both Runways 05 and 23 have operational Threshold Lights to aid night-time visual operations and enhanced visual identification of the runway end points .

Runway 23 has a 2 box Precision Approach Path Indicator (PAPI) to assist pilots with visual approaches when landing to the west.

There are three windsocks located on the airport. One near each runway end and another located midfield which is also lighted with a segmented circle.

Existing on-airport weather information is provided by an Auxiliary Weather Observation System (AWOS-3) transmitting on radio frequency 118.175 or available by calling 307.326.5387. The automated AWOS information is not recorded or stored to provide historic weather data, but provides real time wind speed and direction, visibility, cloud ceilings, temperature, dew point, and pressure. (AWOS wind data record keeping began January 2013)

Communications at Shively Field are facilitated by the Common Traffic Advisory Frequency (CTAF) of 122.8. Denver Approach and Departure Control can be reached at 132.1 when airborne. The Groundlink Ground Communications Outlet on 121.72 can be used to contact Clearance Delivery and Flight Service Stations.

The airport beacon, installed in 2010, is located on top of one of two water towers located south of the airfield.

Source: FAA, Denver ADO.

Source: FAA, Denver ADO.

Instrument Navigation Aids

Shively Field has three published instrument approach procedures:

- NDB - A
- RNAV (GPS) RWY 5
- RNAV (GPS) - B

Departure Procedures and Takeoff Minimums from Shively Field as published are:

TAKEOFF MINIMUMS: Rwy 23, 400-1 or std. with a min. climb of 220' per NM to 7400.

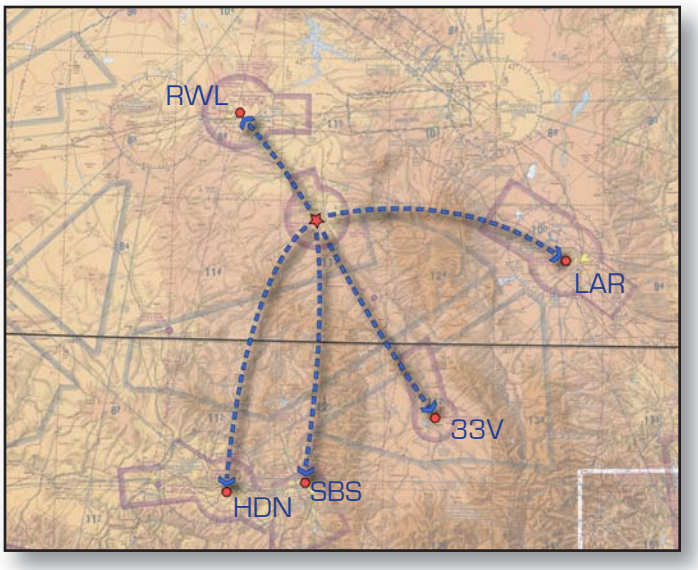
DEPARTURE PROCEDURE: Rwy 5, turn left heading 280°. Rwy 23, turn right heading 340°. All aircraft climb to 9000 via 310° bearing from SAA NDB then continue climb on course.

Airport Approach Minimums

Approach Procedure	Minimum Altitude (AMSL)	Visibility (mi)	Category
NDB - A			
Circling	7,720'	1 1/4	A,B
	7,720'	2	C
	7,720'	2 1/4	D
RNAV (GPS) RWY 5			
LPV	7,265'	1	A,B,C,D
LNAV/VNAV	7,484'	1 5/8	A,B,C,D
LNAV MDA	7,620'	1	A,B
Circling	7,620'	1 3/4	C,D
	7,620'	1	A,B
	7,620'	1 3/4	C,D
RNAV (GPS) - B			
Circling	7,620'	1	A,B
	7,620'	1 3/4	C
	7,620'	2	D

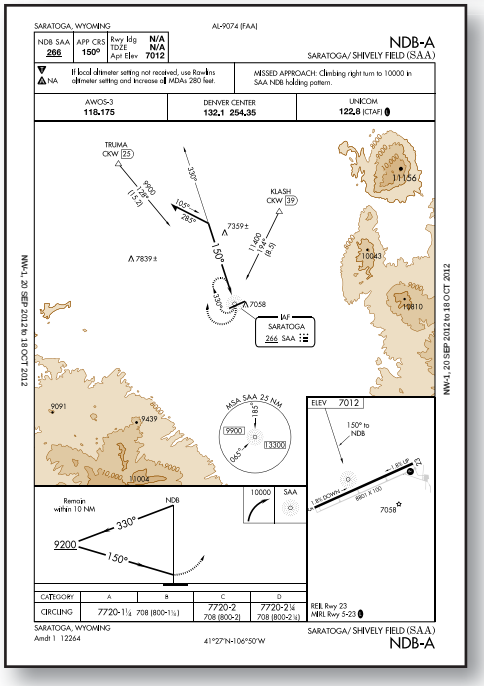
There are five airports within 60 nm with instrument approaches that can serve as alternates for cross-country planning to Shively Field.

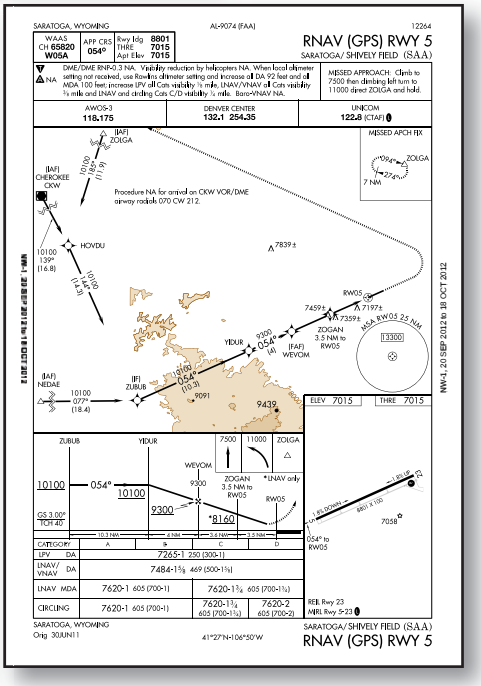
- RWL - Rawlins Municipal Airport (27 nm NW)
- 33V - Walden Airport (49 nm SE)
- LAR - Laramie Regional Airport (52 nm E)
- SBS - Steamboat Springs Airport (56 nm S)
- HDN - Yampa Valley Airport (60 nm S)

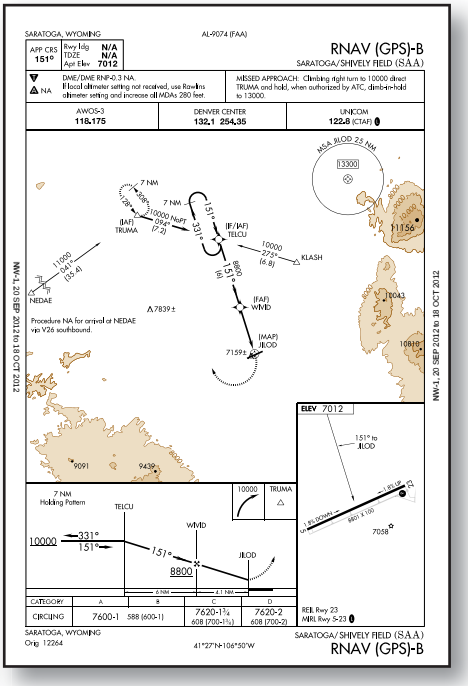


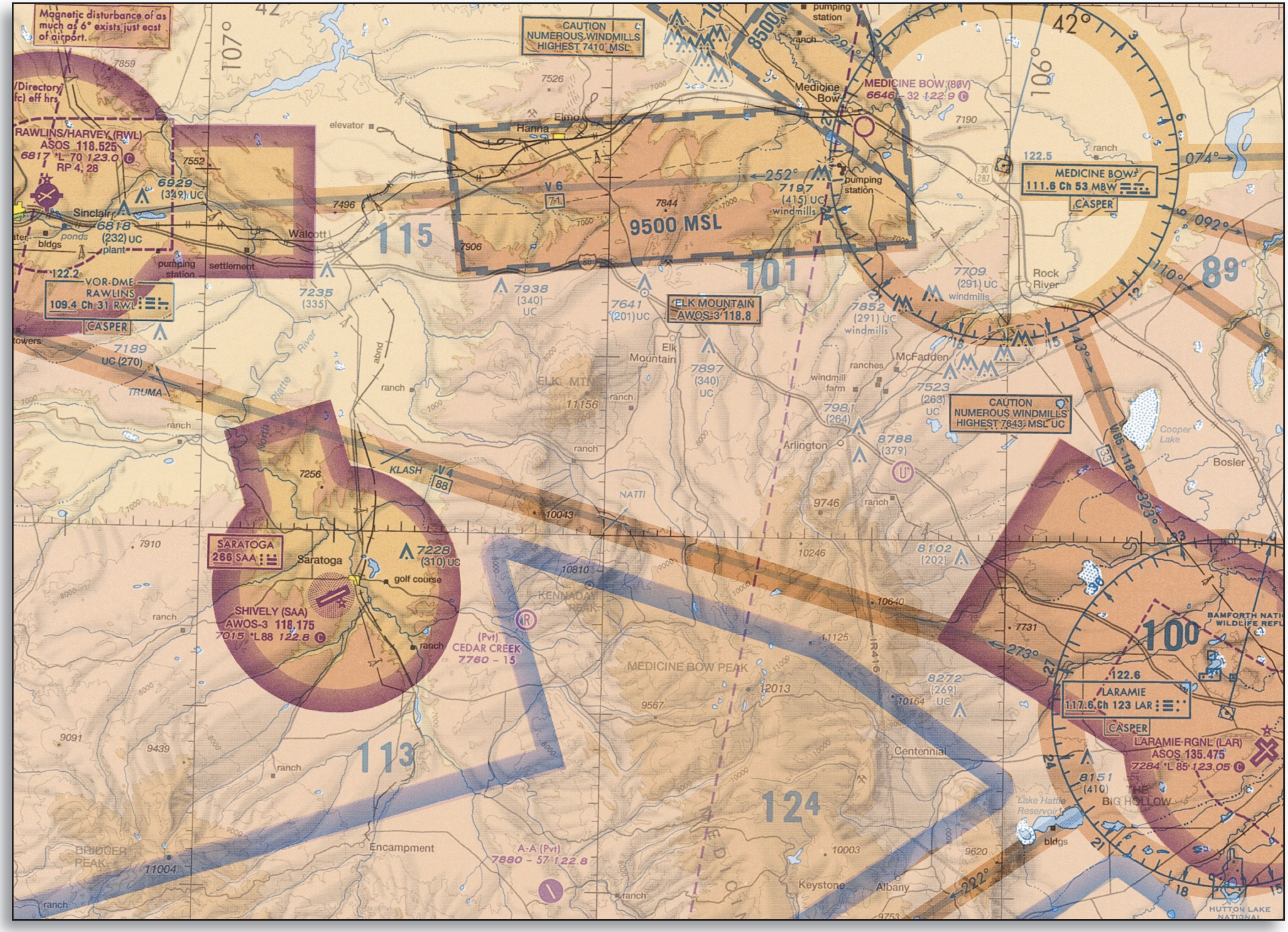
Maps and Flight Planning Aids

Shively Field can be located on the Cheyenne Sectional Aeronautical Chart; IFR Enroute Aeronautical Charts L-9, L-10, L-11, and L-12, and the Airport/Facility Directory Northwest U.S.









Cheyenne Sectional Navigation Map Excerpt

Airport Administration and Financial Summary

Shively Field is administered by a 5 member advisory board appointed by Town Council.

Airport budget surplus remains in the Airport Enterprise Fund and any budget deficits are paid for out of the town General Fund.

General airport maintenance and operational issues are typically handled by Saratoga Aviation on an as needed basis.

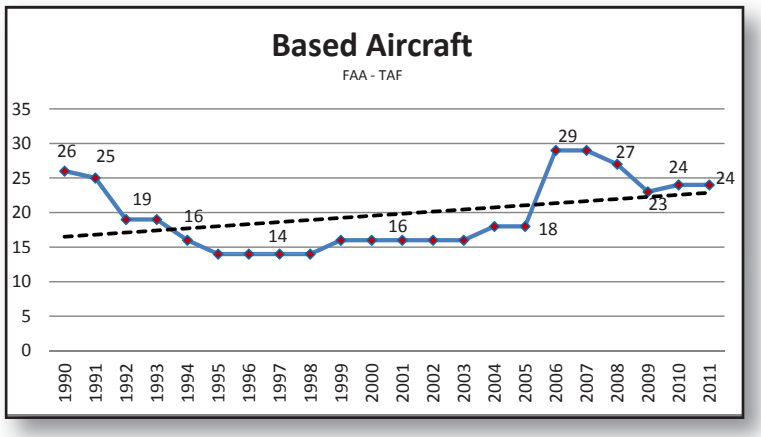
Over the past 30 years approximately $11 Million dollars has been invested towards the development and maintenance of Shively Field.

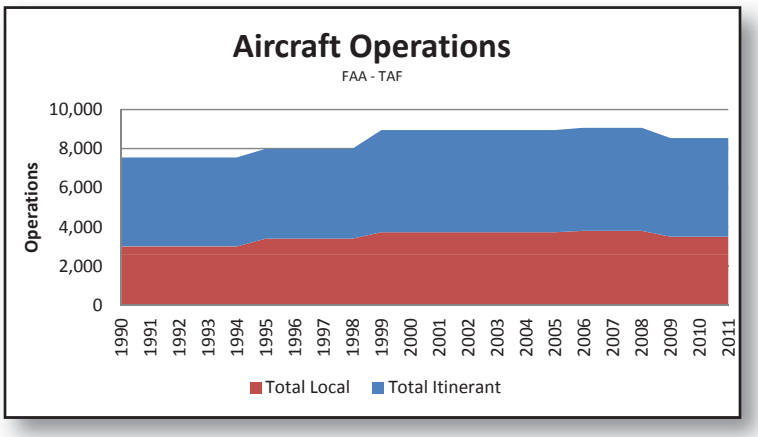
Airport Financials

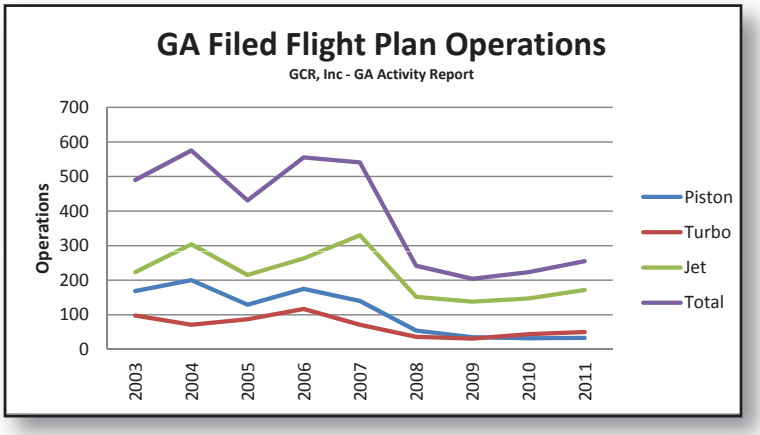
Fiscal Year	2008	2009	2010	2011	2012
Revenue					
Local Taxes	$ -	$ 7,500.00	$ -	$ -	$ -
Intergovernmental Revenue	$ 12,081.00	$ 48,928.00	$ 1,079,532.00	$ 618,622.00	$ 154,413.00
Interest Income	$ 8.75	$ 2.52	$ 2.99	$ 1.51	$ 10.85
Airport FBO Rental	$ 4,457.84	$ 5,644.60	$ 5,229.04	$ -	$ -
Airport Hangar Rental	$ 3,900.00	$ 4,150.00	$ 3,775.00	$ 3,875.00	$ 5,250.00
Airport Terminal Rental	$ -	$ -	$ -	$ -	$ -
Airport WYDOT Gas Tax	$ 5,727.96	$ 5,986.56	$ 6,698.24	$ 12,337.00	$ 6,650.40
Airport Flowage Fees	$ -	$ -	$ -	$ -	$ 6,630.60
Contributions and Transfers (County)	$ 7,000.00	$ 7,500.00	$ 7,500.00	$ -	$ -
	$ 33,175.55	$ 79,711.68	$ 1,102,737.27	$ 634,835.51	$ 172,954.85
Expenses					
Advertising	$ -	$ -	$ (729.38)	$ (18.75)	$ (146.25)
Travel	$ -	$ (25.00)	$ -	$ -	$ -
Supplies	$ -	$ (18.09)	$ -	$ (235.52)	$ (264.27)
Repair & Maintenance - BLDGS/Grounds	$ (1,114.70)	$ (2,470.28)	$ (2,108.98)	$ (6,160.04)	$ (8,064.81)
Utilities	$ (1,539.49)	$ (1,771.33)	$ (1,444.65)	$ (1,731.50)	$ (1,655.36)
Telephone	$ (1,242.11)	$ (1,175.14)	$ (1,351.96)	$ (1,238.95)	$ (1,235.16)
Professional Fees	$ (7,517.00)	$ (7,720.50)	$ (7,813.00)	$ (10,250.00)	$ (11,302.95)
Contract Services - Airport MGR	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)
Professional Fees - Audit	$ -	$ (552.38)	$ (1,000.00)	$ (1,500.00)	$ (3,200.00)
Snow Plowing	$ (15,357.50)	$ (8,990.00)	$ (8,030.00)	$ (7,857.50)	$ (4,495.00)
Insurance - Property	$ (150.00)	$ (631.47)	$ (726.93)	$ (737.50)	$ (866.67)
Insurance - Liability	$ -	$ (494.00)	$ (671.45)	$ -	$ (637.87)
Capital Improvements	$ -	$ (3,510.43)	$ (767.00)	$ (5,000.00)	$ -
Project Expenses	$ (902.50)	$ (61,818.50)	$ (1,075,806.14)	$ (617,107.16)	$ (163,012.55)
	$ (30,323.30)	$ (91,677.12)	$ (1,102,949.49)	$ (654,336.92)	$ (197,380.89)
Total Balance	**$ 2,852.25**	**$ (11,965.44)**	**$ (212.22)**	**$ (19,501.41)**	**$ (24,426.04)**

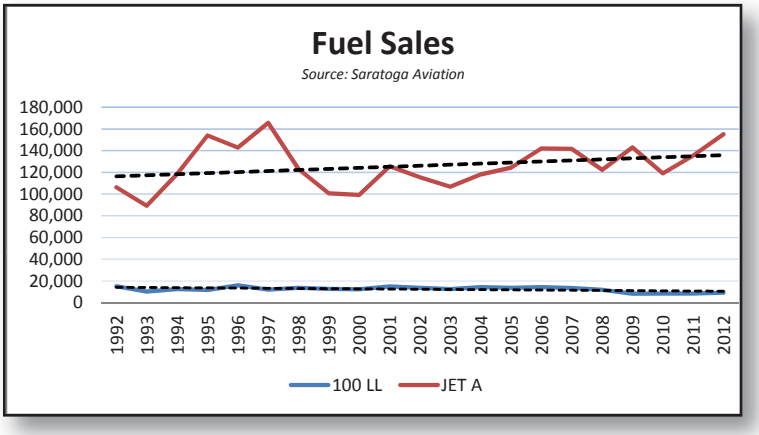
Airport Grant History

			FAA					
Fiscal Year	Grant Number	Project Description	Entitlement	Discretionary	Total Federal	State	Local	Total
1983	001-1983	Install Apron Lighting	$11,990		$11,990			$11,990
		Install Runway Vertical/Visual Guidance System	$21,000		$21,000			$21,000
		Construct Taxiway	$54,560	$139,080	$193,640			$193,640
1984	002-1984	Install Runway Lighting	$82,336		$82,336			$82,336
1986	003-1986	Rehabilitate Runway	$0	$230,000	$230,000			$230,000
1987	004-1987	Conduct Airport Master Plan Study	$0	$30,150	$30,150			$30,150
1989	005-1989	Expand Apron	$317,290		$317,290			$317,290
1990	006-1990	Extend Runway	$389,549		$389,549			$389,549
1991	007-1991	Improve Runway Safety Area	$495,785		$495,785			$495,785
1992	008-1992	Conduct Miscellaneous Study	$81,500		$81,500			$81,500
1993	009-1993	Improve Access Road	$350,000		$350,000			$350,000
		Acquire Land for Development	$81,161		$81,161			$81,161
		Improve Runway Safety Area	$444,999		$444,999			$444,999
1994	010-1994	Extend Runway	$969,266		$969,266			$969,266
1996	011-1996	Extend Runway	$69,133		$69,133			$69,133
		Construct Taxiway	$16,825		$16,825			$16,825
1997	012-1997	Conduct Airport Master Plan Study	$33,300		$33,300			$33,300
1998	013-1998	Extend Runway	$843,030		$843,030			$843,030
		Construct Taxiway	$862,747		$862,747			$862,747
1999	014-1999	Extend Runway	$1,313,187		$1,313,187			$1,313,187
1999	015-1999	Extend Runway	$660,294		$660,294			$660,294
2001	016-2001	Rehabilitate Runway	$25,000		$25,000			$25,000
		Rehabilitate Apron	$25,000		$25,000			$25,000
		Install Weather Reporting Equipment	$95,400		$95,400			$95,400
2003	017-2003	Construct Taxiway	$162,000		$162,000			$162,000
2004	018-2004	Construct Taxiway	$1,913,900		$1,913,900			$1,913,900
2006	019-2006	Rehabilitate Taxiway	$310,966		$310,966	$9,619	$6,413	$326,998
2006	SAA-02X	Recon T/W "B" STATE ONLY				$228,712	$25,412	$254,124
2007	SAA-02X	Reconstruct Taxiway "B"	$6,366		$6,366	$201	$134	$6,701
2009	020-2009	Rehabilitate Apron	$89,178		$89,178			$89,178
2010	021-2010	Rehabilitate Apron	$10,000		$10,000			$10,000
2010		Construct Taxiway	$13,010		$13,010			$13,010
2010	SAA-06A	Replace Beacon				$8,400	$2,100	$10,500
2010	SAA-05A	Rehab Apron & T/W	$176,306		$176,306	$5,568	$3,712	$185,586
2011		Seal Coat & Mark (PA)				$189,000	$21,000	$210,000
2012	022-2012	Update Airport Master Plan Study	$150,000		$150,000	$4,737	$3,158	$157,895
							TOTAL	$10,982,474









Historical Aviation Activity

Historically, Shively Field has been one of the busiest business class general aviation airports in the State of Wyoming. As a requirement of the Master Plan, a snapshot of historical aviation related airport activity from multiple sources has been documented and depicted. This information will serve as a baseline for developing forecasts throughout the 20-year planning period from 2013 to 2033.

Based Aircraft

Based aircraft data at Shively Field has experienced peaks and valleys over the past 20 years but trends indicate .65% average growth over the period. There are currently 24 aircraft based at Shively Field according to the FAA Terminal Area Forecast (TAF) Detailed Report - January 2012. Retrieved from: http://aspm.faa.gov/main/taf.asp

Aircraft Operations

Based on historical FAA estimates retrieved from the TAF, aircraft operations over the past 20 years at Shively Field have held relatively steady at approximately 8,000 - 9,000 takeoffs and landings per year. More than half of the operations at the airport are itinerant in nature.

GA Filed Flight Plan Operations

An analysis of General Aviation (GA) activity retrieved from GCR, Inc. combines general aviation activity with aircraft ownership databases to provide a more accurate view of GA operations at the airport. The data indicates operations have decreased by -3.59% on average from 2003 - 2011. However, recent trends indicate operations are slowly increasing with a 2.65% growth average for 2009 - 2011.

Fuel Sales

Fuel sales information provided by Saratoga Aviation indicate a 2.74% increase on average over the 20 year period. Jet A fuel sales are responsible for the majority of the growth with 3.29% while 100LL fuel sales have declined with a -0.96% average rate.

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Aviation Forecasts

Aviation forecasts are time-based projections that provide a reasonable expectation for anticipating airport demand and serve as a guide in determining required airport infrastructure, equipment, and service needs.

History has repeatedly demonstrated that actual airport utilization will vary significantly depending on the level of service provided for the public and the regional economic conditions that exist at any given moment. Due to the highly elastic nature of the aviation industry, most aviation forecasts tend to follow trends in growth rather than fluctuations in a given year as depicted in the historical aviation activity.

As part of the Master Plan process, various sources of existing and projected airport activity were confirmed to validate projections using the most current airport activity trends and conditions. These sources include:

- Airport FBO (Saratoga Aviation) Fuel Sales Records
- FAA Terminal Area Forecasts (TAF)
- FAA Aerospace Forecasts, 2012-2032
- Wyoming Statewide Airport Inventory and Implementation Plan, 2009
- Shively Field Airport Master Plan, 1989

Forecast Planning Horizon

Aviation demand forecasts have been prepared for the 20-year planning period, which extends from 2013 to 2033, and spans the following planning intervals:

- Short-term (0-5-year planning period)
- Mid-term (6-10-year planning period)
- Long-term (11-20-year planning period)

In order to correspond with the Master Plan project time line, 2013 is used as the beginning of the 20-year planning period. Data from the calendar year 2011 erves as the baseline for historic activity levels. The demand for facilities beyond 2033 has not been contemplated as part of this Master Plan.

Forecast Approach

Regression analysis and trend extrapolation were utilized as the primary methods of projecting future aircraft operations and based aircraft at Shively Field. Regression analysis is a statistical technique that ties aviation demand (dependent variables), such as based aircraft, to other measures (independent variables), such as fuel sales and existing aviation forecasting efforts. Trend analysis and extrapolation uses the historical pattern of an activity and projects this trend into the future.

The forecast extrapolations and regression analyses have been developed on the basis of a review of:

1. Historical and projected local demographic and economic characteristics of the airport area.
2. Historical based aircraft, aviation operations, and fuel sales at the Airport.
3. Existing and future trends in the aviation industry and other external factors that affect aviation activity forecasts.

Local knowledge of this information was critical in understanding the potential for future air traffic growth in the Saratoga area and, consequently, in determining the necessary actions to accommodate future development of Shively Field. As a result, and due to variations and reliability of available information, aviation forecasts for Shively Field will be less dependent on mathematical analysis and geared more towards developing and finalizing forecasts based on the local knowledge and understanding of the local trends witnessed by the Airport Advisory Board.

Existing Forecasts

An examination and analysis of historical patterns and trends as well as existing forecasts for the State of Wyoming Aviation System and FAA Aerospace Forecast - Fiscal Years 2012-2032 will provide an industry overview and outlook which will serve as forecast scenarios for the local aviation forecasting effort.

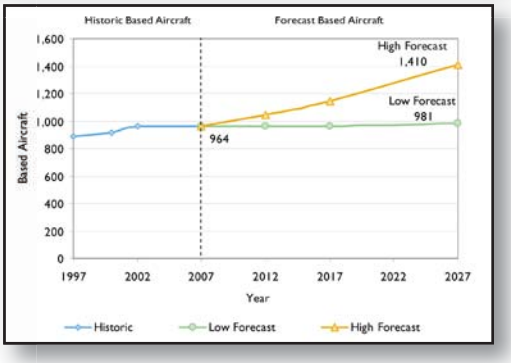
WYDOT Statewide Airport Inventory and Implementation Plan – 2009

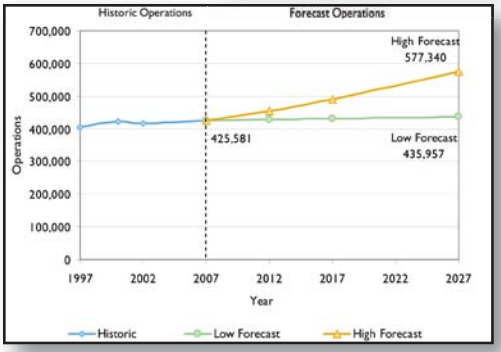
The forecasts prepared in a 2005 Wilbur Smith Associates study completed for the state of Wyoming were updated in 2007 for the Statewide Inventory and Implementation Plan. An updated high and low forecast was prepared for based aircraft and operations statewide and subsequently applied to Shively Field's estimated market share of the statewide system. For based aircraft projections, a low growth rate of 0.09% was utilized along with a high growth rate of 1.92%. Aircraft operations were respectively 0.12% for the low estimate and 1.54% for high estimates.

	2007	2012		2017		2027		2007-2027 CAGR	
	Actual	Low	High	Low	High	Low	High	Low	High
Based Aircraft	964	962	1,041	966	1,148	981	1,410	0.09%	1.92%
Operations	425,581	428,059	456,141	430,617	491,029	435,957	577,340	0.12%	1.54%
Enplanements	495,739	527,784	547,336	562,985	604,303	644,139	736,642	1.25%	2.00%

Statewide Based Aircraft Forecasts

Source: WYDOT Inventory and Implementation Plan





Statewide Aircraft Operations Forecasts

Source: WYDOT Inventory and Implementation Plan

When the low and high growth rates in the Statewide Airport Inventory and Implementation Plan were applied to historical operations and based aircraft data for Shively Field the following projections were generated and included in the report.

Based Aircraft						
2007	2012		2017		2027	
Actual	Low	High	Low	High	Low	High
27	28	30	29	35	31	47

Shively Field Based Aircraft Forecasts
Source: WYDOT Inventory and Implementation Plan

Operations						
2007	2012		2017		2027	
Actual	Low	High	Low	High	Low	High
8,965	9,109	9,596	9,256	10,272	9,557	11,769

Shively Field Aircraft Operations Forecasts
Source: WYDOT Inventory and Implementation Plan

FAA Aerospace Forecasts (2012 - 2032)

FAA Aerospace Forecasts are updated every year and provide a summary of potential growth scenarios and forecasts for the aviation industry nationwide.

A summary of the FAA forecasts depicts several potential scenarios for General Aviation over the next 20 years.

- The active general aviation fleet is projected to increase at an average annual rate of 0.6% over the forecast period.
- Piston-powered aircraft are projected to decline at an annual rate of 0.1%.
- Light Sport Aircraft are projected to experience 4% annual growth until 2013, then slow to about 2 percent thereafter.
- The number of general aviation hours flown is projected to increase by 1.7%.
- Turbine aircraft hours flown are forecast to increase 3.6% yearly, compared with essentially no growth (0.03 percent) for piston-powered aircraft.
- Jet aircraft are forecast to account for most of the increase in general aviation hours flown with an average annual rate of 5.3 percent over the forecast period.

Over the next 20 years, the FAA is anticipating demand for general aviation will continue to grow primarily due to continued growth in the business jet and light sport aircraft categories.

Forecast Scenarios

The following phase of the forecasting process extrapolates past trends and associations into visual projections of the future which will allow the planning team to evaluate the validity of the forecasting effort. Several potential forecast scenarios exist for each Aircraft Operations and Based Aircraft. The information was based primarily on historical trends witnessed on the airport or related national and state aviation forecasts. Historical socioeconomic data was not utilized in the forecast scenario building process as the information did not prove to be statistically significant. The potential forecast scenarios can be visualized in combination with the following graphs and associated text.

Aircraft Operations

Aircraft Operations forecasts for Shively Field can be narrowed down to approximately five different scenarios on which to base potential forecasts.

1. WYDOT Low
2. WYDOT High
3. FAA Forecasts - GA Hours Flown
4. FAA Forecasts - Turbine Hours Flown
5. Saratoga Aviation - Fuel Sales

WYDOT Low

The WYDOT Inventory and Implementation Plan forecasts a low growth rate of .12% for aircraft operations at Shively Field through 2027. Extrapolating this scenario over the planning period depicts the lowest growth in aircraft operations through 2033.

WYDOT High

The WYDOT Inventory and Implementation Plan forecasts a high growth rate of 1.54% for aircraft operations through 2027. This growth scenario when extrapolated over the planning period depicts a relatively modest growth rate when compared to other forecasts of projected aircraft operations.

FAA Aerospace Forecasts - GA Hours Flown

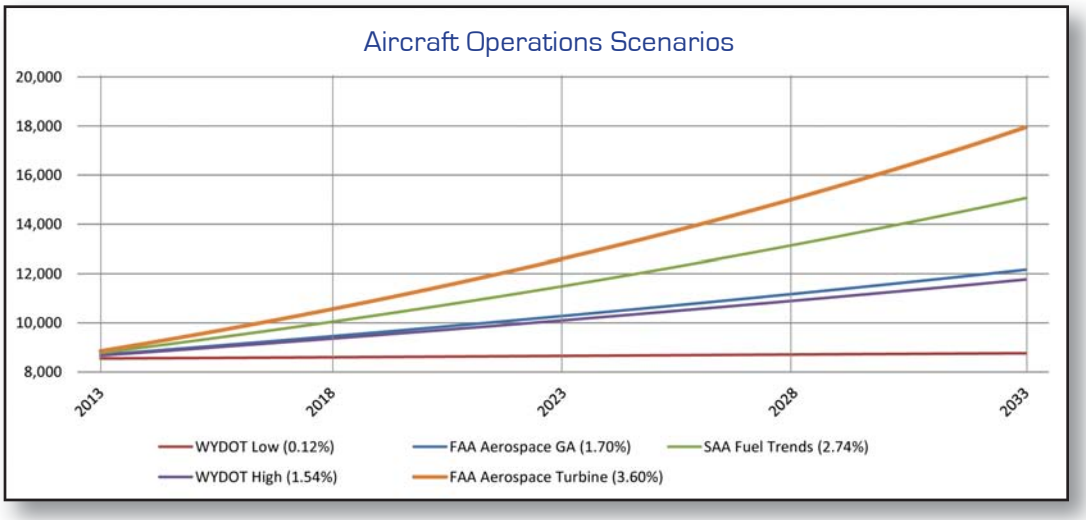
FAA Aerospace Forecasts project the number of general aviation hours flown will grow at a rate of 1.7% over the FAA 20-year planning period ending in 2032. This growth rate is very similar to the WYDOT High growth rate when extrapolated out over the Shively Field planning period to 2033.

FAA Aerospace Forecasts - Turbine Hrs Flown

FAA Aerospace Forecasts project that turbine aircraft hours flown are forecast to increase 3.6% annually over the FAA's planning period. This growth scenario provides the highest potential increase in aircraft operations over the forecast period for Shively Field.

Saratoga Aviation - Fuel Sales Trend

Fuel sales information over the past 20 years indicates on average a 2.74% growth in fuel sales which can be correlated to aircraft operations. This growth rate of 2.74% is slightly higher than the WYDOT High and FAA GA Hours Flown rates and slightly less than the FAA Turbine Hours Flown over the planning period.



Aircraft Operations Forecast Scenarios:

WYDOT Low: 0.12%
WYDOT High: 1.54%
FAA Aerospace GA: 1.70%
FAA Aerospace Turbine: 3.60%
Shively Field Fuel Trends: 2.74%

Based Aircraft

Based Aircraft forecasts for Shively Field can be narrowed down to four different scenarios on which to base potential forecasts.

1. WYDOT Low
2. WYDOT High
3. FAA Forecasts - GA Fleet
4. Shively Field Historical Trends

WYDOT Low

The WYDOT Inventory and Implementation Plan forecasts a low growth rate of .09% for based aircraft at Shively Field through 2027. Extrapolating this scenario out over the planning period depicts the lowest potential growth in based aircraft at Shively Field.

WYDOT High

The WYDOT Inventory and Implementation Plan forecasts a high growth rate of 1.92% for based aircraft through 2027. Extrapolating this growth scenario out over the planning period depicts the highest potential growth in based aircraft at Shively Field.

FAA Aerospace Forecasts - GA Fleet

FAA Aerospace Forecasts project the active general aviation fleet will increase at an average annual rate of 0.6% over the forecast period. This growth scenario depicts a moderate growth over the planning period.

Shively Field Historical Trends

Based aircraft data at Shively Field has experienced .65% average growth over the past 20 years. Extrapolating the .65% growth rate scenario over the forecast period depicts a moderate growth rate which closely resembles FAA Aerospace Forecasts for the general aviation fleet.

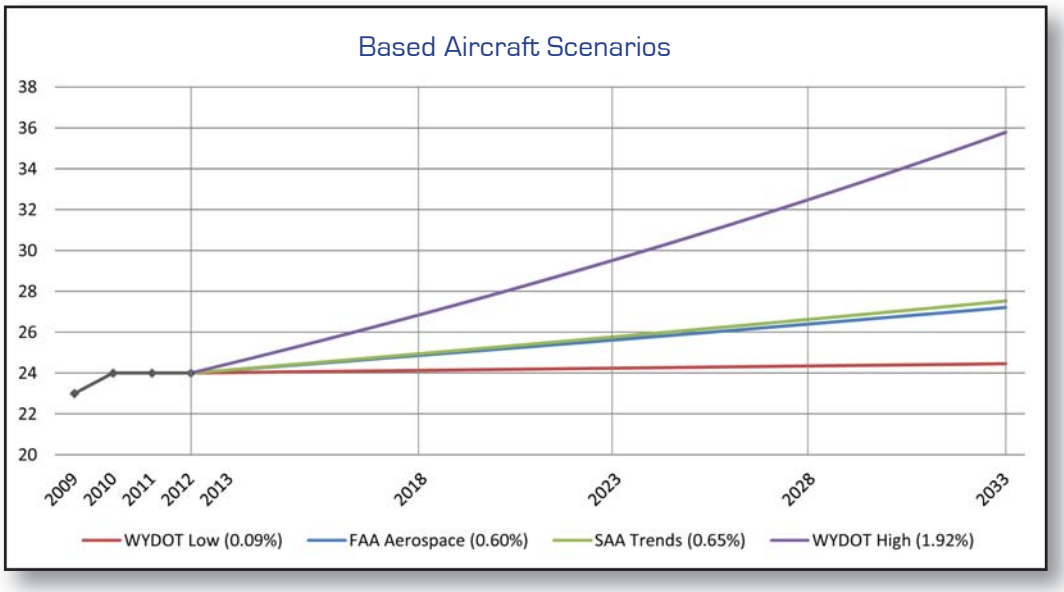
Preferred Forecasts Summary

Selection of the preferred forecasts for Shively Field were finalized after a series of meetings and discussions with the Airport Advisory Board (AAB) at regularly scheduled AAB meetings as well as with public stakeholders during Public Workshop #1 in December 2012.

The AAB was intent on developing and approving realistic and modest aviation forecasts that reflected the true nature of aviation at Shively Field relative to the growth and decline experienced over the previous 20 years. As a result, the preferred forecasts for Aircraft Operations and Based Aircraft closely resemble observed historical trends over the previous 20 years while also accounting for the increasing trend in business turbine aircraft operations, slow growth of light sport aircraft, and general decline of smaller GA aircraft recognized nationwide.

Aircraft Operations

The majority of Shively Field traffic over the past 20 years has been itinerant in nature, consisting primarily of mid-size business class turbine jet aircraft, and it is expected this trend will continue. As a result, the AAB placed a major emphasis on the Aircraft Operations Forecast due to the

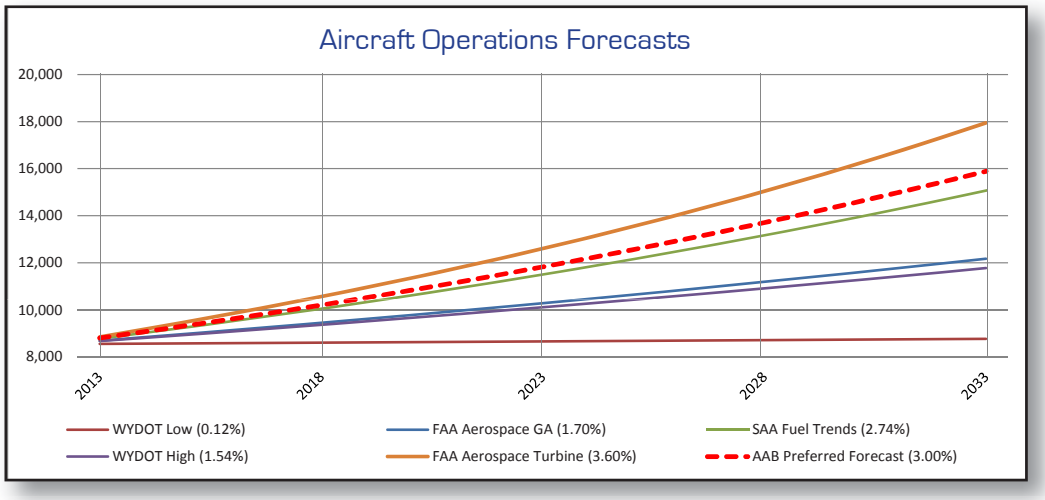


Based Aircraft Forecast Scenarios:

WYDOT Low: 0.09%
WYDOT High: 1.92%
FAA Aerospace GA Fleet: 0.60%
Shively Field Trends: 0.65%

locally recognized contribution of business jet traffic in and out of Saratoga. An ideal indicator of the growth in aircraft operations at Shively Field has been fuel sales. On average, over the past 20 years, 90% of the fuel sold at Shively Field has been Jet A with noticeable declines in the sales of 100LL.

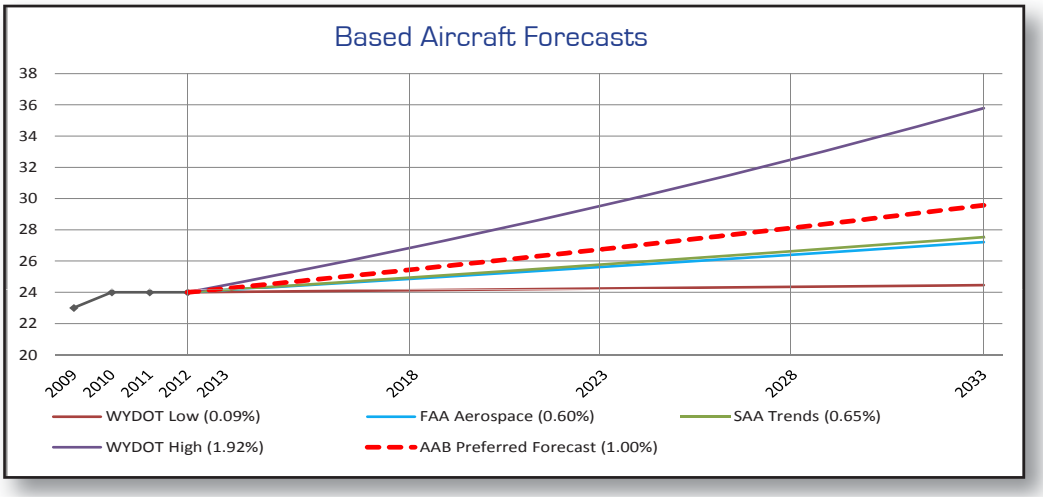
Based on these historical trends and the anticipated growth of business jets and turbine traffic over the next 20 years, the AAB can justify an annual growth rate of 3% for aircraft operations.



Aircraft Operations Forecasts					
	2013	2018	2023	2028	2033
FAA Aerospace Turbine (3.60%)	8,900	10,600	12,700	15,100	18,000
SAA Fuel Trends (2.74%)	8,800	10,100	11,500	13,200	15,100
FAA Aerospace GA (1.70%)	8,700	9,500	10,300	11,200	12,200
WYDOT High (1.54%)	8,700	9,400	10,200	11,000	11,800
WYDOT Low (0.12%)	8,600	8,700	8,700	8,800	8,800
AAB Preferred Forecast (3.00%)	**8,800**	**10,200**	**11,900**	**13,800**	**15,900**
Peak Month (30% of Operations)	2,640	3,060	3,570	4,140	4,770
Peak Day (Peak Month/30)	88	102	119	138	159
Peak Hour (Peak Day x 15%)	13	15	18	21	24

Based Aircraft

Based aircraft at Shively Field has experienced slow and sporadic growth over the previous 20 years while the number of hangars on the airport continues to grow at a higher rate. Considering the relative slow growth and uncertainty of full-time based aircraft, but the continued development of new hangars, the AAB can justify a modest growth rate of 1% for based aircraft over the 20-year period. This rate is slightly higher than historical based aircraft trends from FAA 5010 Data and FAA aerospace forecasts for the general aviation fleet, but well below that of the WYDOT High Forecasts for based aircraft. The preferred forecast anticipates an increase of only 6 aircraft from the current based aircraft count to the end of the 20-year forecast period.



Based Aircraft Forecasts					
	2013	2018	2023	2028	2033
WYDOT Low (0.09%)	24	24	24	24	24
FAA Aerospace (0.60%)	24	25	26	26	27
SAA Trends (0.65%)	24	25	26	27	28
WYDOT High (1.92%)	24	27	30	33	36
AAB Preferred Forecast (1.00%)	**24**	**25**	**27**	**28**	**30**

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Facility Requirements

The Facility Requirements section of the Airport Master Plan assesses the ability of existing facilities at Shively Field to meet current and future aviation demand and provides guidance for future development needs by establishing the necessary goals and objectives.

Airport Reference Code/Critical Aircraft

The critical aircraft is the largest airplane or family of aircraft conducting at least 500 annual operations (250 takeoffs and 250 landings combined) per year at Shively Field. The critical aircraft is evaluated with respect to size, speed, and weight and is important for determining airport design, structural, and equipment needs for the airfield and terminal area facilities.

The FAA specifies a runway coding system that relates airport design criteria to the operational and physical characteristics of the critical aircraft using the airport, termed the Airport Reference Code (ARC). The code has two designators represented by a letter and a roman numeral.

The Aircraft Approach Category, represented by a letter, relates to aircraft approach speed, an aircraft operational characteristic (1.3 x Vso (the speed of an aircraft in the landing configuration)).

Aircraft Approach Category	
Approach Category	**Aircraft Approach Speed**
A	Less than 91 knots
B	More than 91 knots, but less than 121 knots
C	More than 121 knots, but less than 141 knots
D	More than 141 knots, but less than 166 knots
E	166 knots or more

The Airplane Design Group, represented by a roman numeral, is related to aircraft wingspan, a physical characteristic.

Airplane Design Group	
Design Group	**Wingspan**
I	Up to, but not including, 49'
II	49' up to, but not including, 79'
III	79' up to, but not including, 118'
IV	118' up to, but not including, 171'
V	171' up to, but not including, 214'
VI	214' up to, but not including, 262'

In addition to the ARC, two other design criteria are of concern when determining facility requirements – aircraft weight and instrument approach capability. Small aircraft and large aircraft are the two weight classifications and are the criteria used for pavement design. Small aircraft weigh less than 12,500 pounds maximum-gross-certificated weight, while large aircraft exceed that weight.

The current critical aircraft at Shively Field consists of an airport reference code (ARC) C-II (business jet aircraft), and it is anticipated to remain at this classification throughout the forecast horizon. As such, this chapter assesses the airport facilities based on needs of the current category of aircraft that routinely use the airport (i.e. business jet aircraft).

Aircraft representative of the various ARCs are found in the following images:

Regional/Local Role

As part of the 2009 WYDOT Statewide Aviation Inventory and Implementation Plan, the statewide airport system and each individual airport's current facilities were evaluated against the Plan's objectives. Facilities and services at Shively Field that were deemed to be in need of improvement were identified in the report.

The recommended physical facility and airport service objectives previously identified for Shively Field include:

- Remain C-II Business Class Airport
- Runway Length - Extend 8,800 ft runway to 9,000 ft
- Approach Lighting System - MALSR and Sequencing Approach Lights
- Visual Aids - PAPI or VASI and REIL on both runway ends
- Wind Coverage - Unknown coverage should be addressed
- 24-hour public rest rooms
- Provide Major Airframe and Powerplant Maintenance

REPORT CARD

SAA	Shively Field	Saratoga	Business
Facility/Service Objectives	Objective	SAA	Objective Met?
AIRSIDE (Primary Runway)			
ARC	C-II	C-II	Yes
Runway Length	9000 Feet	8800 Feet	No
Runway Width	100 Feet	100 Feet	Yes
Runway Lights	MIRL	MIRL	Yes
Pavement Strength	Single 30000 lbs	Single 50000	Yes
Taxiway	Full Parallel, Width = 35 Feet	Full Parallel - Width = 35 Feet	Yes
Taxiway Lights	MITL	MITL	Yes
Instrument Approach Type	Non-Precision	Non-Precision	Yes
Approach Lighting System	MALSR Suggested	MALSR - None MALS - None ODALS - None	Not an Objective
Visual Aids	PAPI or VASI (both runway ends), Combination of REIL, MALSR, MALS or ODALS on each runway end, Beacon and Lighted Wind Cone	PAPI - One End VASI - None REIL - One End Beacon - Yes Wind Cone - Yes Lighted Wind Cone - Yes	No
Wind Coverage	Greater than or Equal to 95%	-	No
RSA	Standard RSA on all paved runways	No	No
LANDSIDE			
Weather Reporting	AWOS or ASOS	AWOS	Yes
Terminal	Terminal	Commercial - No General Aviation - Yes	Yes
Perimeter Fencing	Wildlife Fence	Perimeter - Yes Type - Wildlife Fence	Yes
Hangars	100% of Based Aircraft	100%	Yes
Lighted Hangar Areas	Lighted Hangar Areas	No	No
Paved Auto Parking	Paved Auto Parking	Yes Number of Spaces - 25	Yes
SERVICES			
FBO	Suggested	Yes	Not an Objective
Fuel	Jet A and 100LL	Jet A and 100LL	Yes
Ground Transportation	Courtesy Car	On-Airport Rental Car - Yes Taxi Service - No Courtesy Car - Yes	Yes
Pilot Lounge and Planning Room	Pilot Lounge & Planning Room	Pilot Lounge - Yes Planning Room - Yes	Yes
Public Restrooms	Public Restrooms – 24/7	Yes - Not 24 Hour	No
Public Phone	Public Phone – 24/7	Yes - 24 Hour	Yes
Food	Vending Machines Suggested	Restaurant - No Vending Machines - Yes	Not an Objective
Aircraft Maintenance	Major Airframe & Powerplant	Minor Airframe & Powerplant	No
Aircraft De-icing System	De-icing	De-icing - Yes	Yes
De-icing Containment System	Suggested	Containment System - No	Not an Objective
ADMINISTRATION			
Airport Master Plan	Less than 10 years old	08/1989	No
Airport Layout Plan	Less than 5 years old	07/1998	No
Land Use Protection Plan	On record with Aeronautics	No	No
Noise Contour Map	Less than 10 years old	02/1991	No
Pavement Management Plan	On record with Aeronautics	Yes	Yes
Minimum Standards	On record with Aeronautics	No	No
Airport Manager	Airport Manager	Yes	Yes
Legislative Liaison	Legislative Liaison	No	No
RPZ Ownership	Fee/Easement Ownership of all RPZs	No	No

Airfield Capacity Analysis

FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, determines the capacity of an airport based on the number and configuration of its runways. The single runway/parallel taxiway configuration at Shively Field has a theoretical Annual Service Volume (ASV) of 230,000 operations per year with an hourly capacity of 98 aircraft operations in VFR conditions and 59 aircraft operations in IFR conditions.

FAA planning standards state that when 60% of the ASV is reached, the airport should start planning to increase runway capacity, including construction of a new runway or the extension of an existing runway. Once 80% of ASV is reached, construction should begin in order to increase capacity of the existing facilities.

Based on the preferred forecasts for Shively Field and the 16,000 operations expected near the end of the planning period, it is anticipated that Shively Field will not exceed these hourly and annual capacities in any year of the 20-year planning period.

Administrative Requirements

The five-member Shively Field Airport Advisory Board (AAB) provides guidance, management, and recommendations for Saratoga Town Council approval. General administrative and area land use goals for the AAB to consider throughout the planning period include:

Recommended Goal: Continue to investigate and promote potential aeronautical and non-aeronautical revenue sources for the airport and development area.

Recommended Goal: Promote the development of infrastructure and activities that will help to realize a financially self-sustaining airport.

Recommended Goal: Work with Carbon County to update County Zoning Code for compatibility with local land use and federal airspace clearance standards.

Landside Requirements

The landside requirements analyzed by the planning team include vehicular and pedestrian access to the airport as well as utility infrastructure and the support facilities necessary for handling aircraft and passengers while on the ground.

The existing capabilities and anticipated capacities of the various landside components were examined to help identify future landside facility needs and were subsequently presented as a series of goals and objectives which are expected to satisfy projected demand.

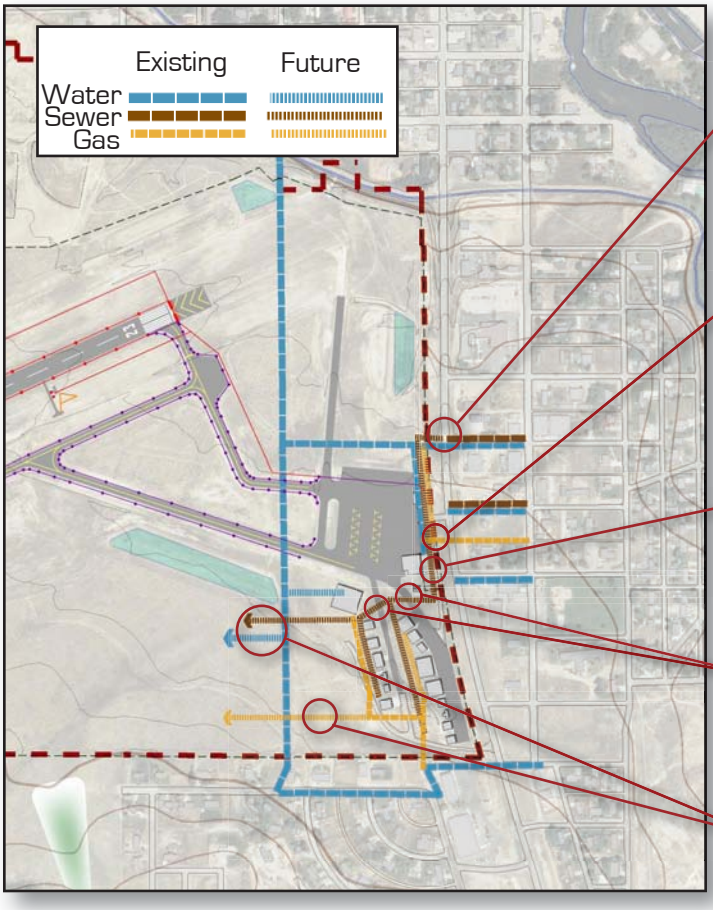
Public Utilities

Currently, the electric and phone utilities are adequate to meet existing and future demand at Shively Field. However, the airport currently does not have adequate water, sewer, and gas infrastructure to meet forecast growth.

Recommended Goal: Plan and develop the necessary infrastructure to service all existing and future on-airport buildings and hangars with public water and sewer.

Recommended Goal: Research and promote potential energy efficiency and savings which could reduce annual airport expenses.

Sewer and gas extension and construction projects will need to be phased with other major construction projects expected to occur in the planning period. Specifically, the paving and expansion of the existing vehicle parking lot and the reconstruction and construction of existing and future aircraft taxilanes should consider the short-term and long-term needs for sewer and gas infrastructure. Furthermore, the primary sewer connection to the existing Town of Saratoga sewer system will require crossing of the right-of-way for State Highway 130. Coordination and permitting through WYDOT will be required. Long-term connections for sewer and gas will need to be considered for the future Airport Business Park as the need arises.



Primary off-airport sewer connection point at Ceder Avenue under State Highway 130.

Approximately 800' feet of new gas line under existing and future vehicle parking areas connecting at existing on-airport location.

Approximately 2,000' feet of new sewer lines under existing and future vehicle parking also extending west under existing and future taxilanes.

Consideration of sewer line phasing to coincide with taxilane reconstruction and construction.

New sewer, water, and gas lines to serve future Airport Business Park.

Access, Circulation, Parking

Vehicle and pedestrian access to the airport is functional, but is in need of updating and improvements to increase general curb appeal of the airport as well as to strengthen the connection between the airport (GA Terminal Area specifically) and Town of Saratoga. The existing entrance and future airport access points, as well as existing and future vehicle parking areas, should be updated to include both functional and aesthetic improvements designed to increase the visual appeal of the airport and GA Terminal Area while also considering the operational needs of the community and Shively Field.

Recommended Goal: Update/upgrade/enhance entrance to SAA from Highway 130. (i.e. sidewalks on Hwy 130, signage, accessibility for multiple modes of travel to airport, better connection between downtown Saratoga and Shively Field)

Recommended Goal: Concentrate additional compatible development to existing terminal area and along Highway 130.

Recommended Goal: Provide additional vehicle parking as necessary for anticipated growth and development.

Recommended Goal: Pave parking area with asphalt for FOD reduction on ramp.

Recommended Goal: Encourage upgrades and enhancements to existing FBO access. (i.e. relocate/update pedestrian access, provide direct access to pilot lounge from vehicle parking, new landscaping, and security improvements).

Recommended Goal: Provide additional coded entrance gates as necessary.

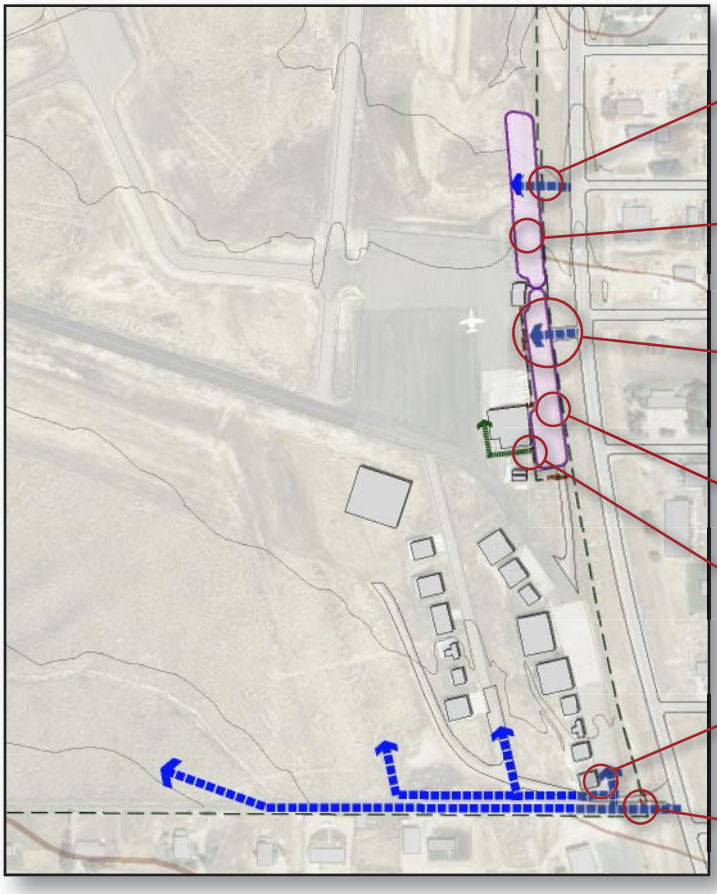
Recommended Goal: Provide primary access for Airport Business Park and Hangar Development area along south fence line at Highway 130.

Perimeter/Security Fencing

Recommended Goal: Fix and/or replace and relocate existing pedestrian access gate.

Recommended Goal: Maintain quality, condition, and functionality of existing perimeter fencing as necessary for airport security and wildlife control.

Recommended Goal: Remove any unnecessary fencing.



- Future primary airport access point for new GA Terminal Development Area.
- Future expanded paved parking area.
- Updated access and airport entrance landscaping improvements. Remove unnecessary fencing relocate coded gate to new hangar access area.
- Pave existing vehicle parking area.
- Updated pedestrian access to Saratoga Aviation.
- Future primary Hangar Development Area access off of future Airport Business Park access road.
- Future Airport Business Park access road.

Landside Development Areas

Landside development areas considered in the planning process for future expansion include:

- GA Terminal Area
- Hangar Development Area
- Airport Business Park
- North Expansion Area

The four development areas are planned to allow flexibility in the development process over time and allow for the community to make improvements that best meet the existing and future needs on an as-needed basis or as funding becomes available.

Recommended Goal: Construct a new GA Terminal Building north of apron (Include: 24-hour public rest rooms, office space for Saratoga Police Department, and restaurant/cafe space).

Recommended Goal: Investigate potential opportunities to provide major airframe and power plant maintenance at Shively Field.

Recommended Goal: Remove the "Old Terminal/ Tower Building."

Recommended Goal: Continue to investigate and promote potential development and expansion opportunities in the existing terminal and hangar development areas.

Recommended Goal: Provide lighting for hangar areas.

Recommended Goal: Expand transient aircraft parking apron to meet cyclical peak demand.

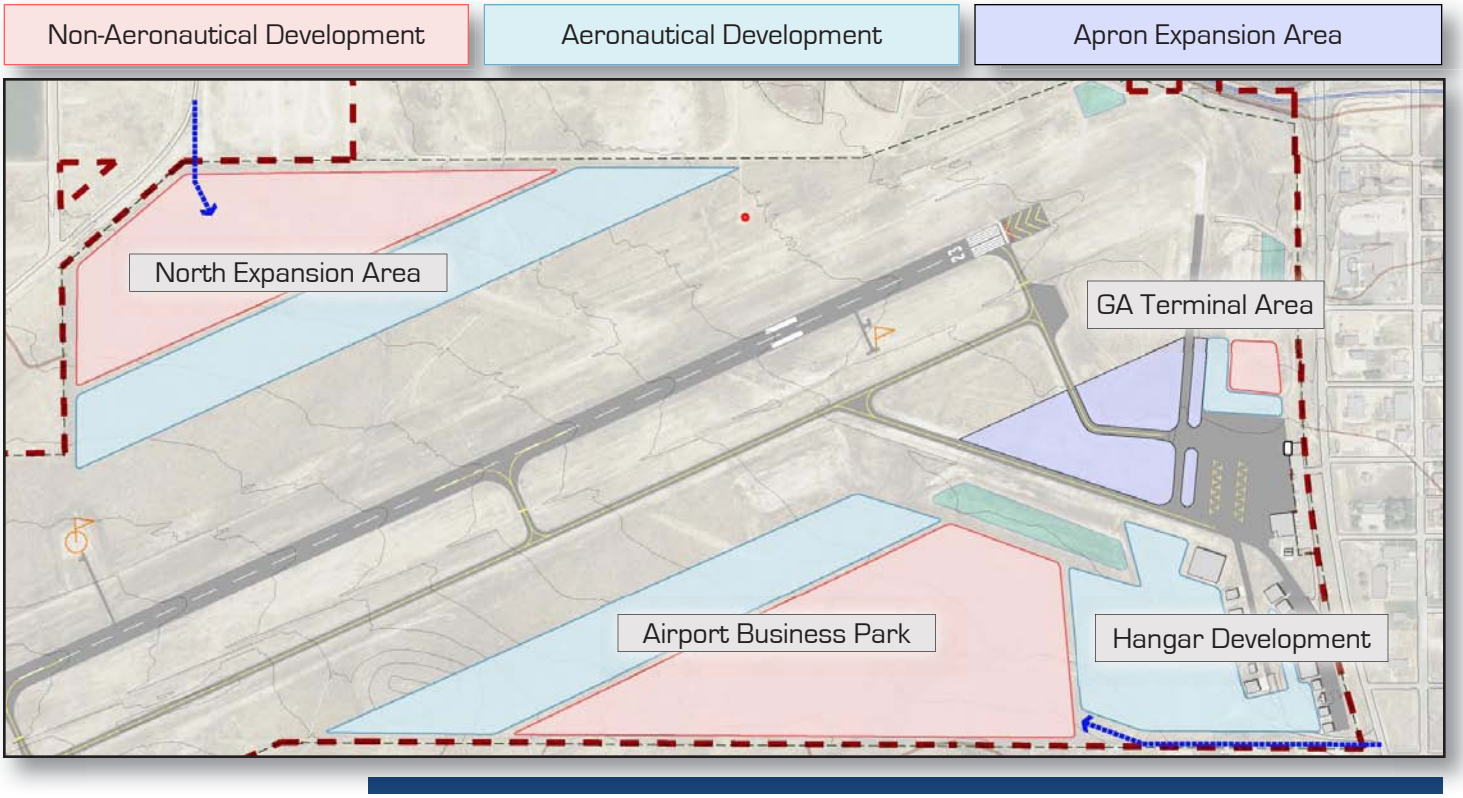
Recommended Goal: Expand existing hangar development area to increase opportunities for additional hangar development.

The landside development areas identified were further segregated into aeronautical and non-aeronautical development areas.

Aeronautical Development

Aeronautical development is best described as compatible on-airport land uses, usually with direct aircraft access to airside development, and typically includes:

- Airline Maintenance and Support
- Aircraft Rescue and Fire Fighting Facilities
- Public Safety and Emergency Facilities
- Aviation Light Industrial and Manufacturing
- Fixed Base Operation (Charter, Supplies, Pilot Lounges, Flight Planning, Flight Training)
- Fuel Sales, Storage, Dispensing
- Food Services/Catering
- Office, Restrooms
- General Aviation Non-Commercial Development
- T-Hangars and Executive Hangars



Non-Aeronautical Development

Non-aeronautical development is aviation compatible land development that provides the airport with additional opportunities for enhancing non-aeronautical revenues on potentially under-utilized airport property. This development can soften the effects of economic downturns by diversifying revenue streams, reducing financial risk, and strengthening cash flow while also improving the social, environmental, and economical interfaces between Shively Field and Saratoga.

Non-aeronautical compatible land uses (with FAA Approval) generally include:

- Postal Annex
- Greenhouses (with covenants)
- Auto Retail/Mall
- Rental Car Ready Return/Storage
- Auto/Boat/Mini-Storage
- Manufacturing
- Agricultural
- Warehousing
- Office/Data Storage
- Mass Transportation Park and Ride
- Public Parks and Recreation
- Golf Course
- Hotel/Motel
- Support Commercial (Bank, Convenience Store, Coffee/Snack Sandwich shop)

General Aviation Terminal Area

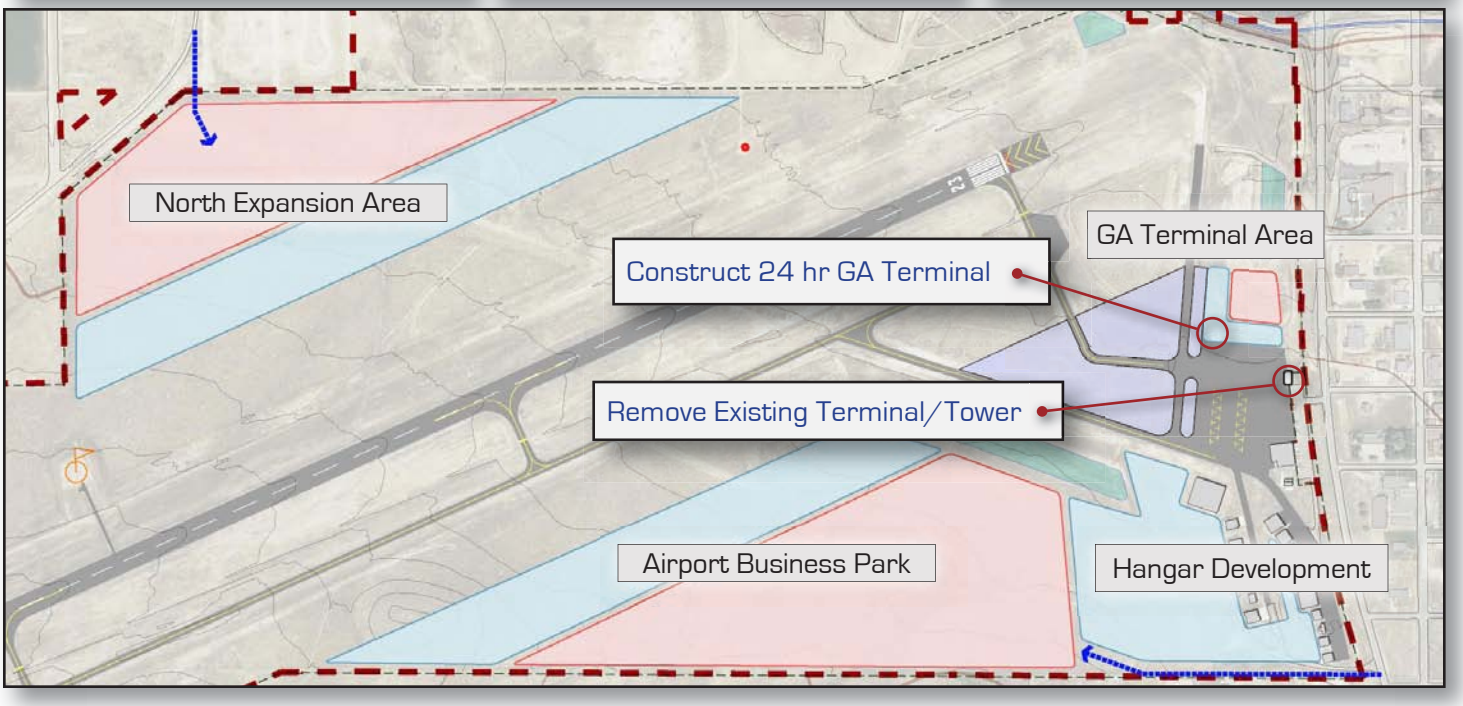
General Aviation (GA) Terminal Area improvements are driven primarily by the need to develop new and improved pilot/passenger facilities to better serve the current users while simultaneously expanding revenue producing opportunities generated on the airport. It is expected that removal of the old unused terminal building and construction of a new GA terminal building and associated infrastructure directly north of the existing aircraft parking apron will serve as a catalyst for future aeronautical and non-aeronautical development facing Highway 130 further expanding aeronautical and non-aeronautical land-use potential at Shively Field.


Source: mbkahn.com


Source: fwairport.com


Source: mbkahn.com

Non-Aeronautical Development | Aeronautical Development | Apron Expansion Area



Apron/Aircraft Parking

Additional apron and overflow aircraft parking for larger business-class transient aircraft during peak periods is also necessary in the GA Terminal Area. Accurately quantifying the necessary apron space for the short-, mid-, and long-term planning periods is unrealistic due to the highly elastic nature of transient operations occurring at Shively Field. As such, a more qualitative than quantitative assessment and determination of the required space for apron expansion is preferred to allow for more flexible on-demand development to occur over the planning period. The proposed remote apron area identified for future apron expansion is approximately 47,000 square yards and capable of providing parking and wing-tip clearance for approximately 29 additional C-II business aircraft parking spaces during peak day operations. For business jets (which can be much larger), a planning criterion of 1,600 square yards per aircraft position was used.

North Expansion Area

The north expansion area should be made available for aeronautical and non-aeronautical development opportunities as the need arises. Additional planning, coordination, and approvals will be required before any construction can begin. In the short term, the north expansion area should generally be limited to RV storage, vehicle storage, and other similar uses which require minimal infrastructure and physical improvements.

Hangar Development Area

The existing hangar development area has experienced slow growth over the past 20 years as the majority of operations at Shively Field are itinerant in nature and the need for additional long-term indoor storage is minimal. It is anticipated that the new construction of primary and secondary hangars for airport users will be privately developed on an as-needed basis and will occur slowly over the next 20 years. Future planning for hangars should consider this relative slow growth and encourage flexibility in the type and location of future hangar space. Therefore, it is preferred that the hangar development area be planned with flexibility in mind while being mindful of any future hangar's access to the airfield and aviation facilities.

Airport Business Park

The Saratoga Planning Board has approved plans for an on-airport business park. The plan is dependent on Airport Advisory Board and Town Council approval. The preferred location of the business park is on the south side of the airport. The proposed business park is intended to increase non-aeronautical revenue potential on under-utilized airport property, as well as provide locations for new aeronautical development opportunities in the Town of Saratoga. The future development of the Airport Business Park shall include a mix of non-aeronautical development sites and aeronautical development areas (fronting airside) with space reserved for expanded on-airport fuel facilities (site to be determined).

Airside Requirements

Airside requirements include the facilities needed for the arrival and departure of aircraft. The adequacy of existing airside facilities at Shively Field has been analyzed from a number of perspectives, including:

- Airside Support Facilities
- Taxiways/Taxilanes
- Runway
- Visual Navigation Aids
- Airspace and Instrument Approach Aids

Airside Support Facilities

All of the airside support facilities, including snow plows, fuel equipment, etc., are privately owned and operated by Saratoga Aviation. It is assumed the existing agreement will continue in the future. However, due to unforeseeable changes in aviation fuel demand and availability as well as existing site constraints limiting expansion of the existing fuel facilities, it is recommended space in the proposed aeronautical development area of the Airport Business Park be reserved for the development of either private or public aircraft fueling facilities should the need arise in the future.

Recommended Goal: Develop existing and future fuel facilities as necessary to accommodate future demand and future fuel types. (MOGAS, self-serve, etc...)

Taxiways/Taxilanes

As detailed in the Existing Conditions chapter, the taxiway system at Shively Field consists of a full-length parallel taxiway, Taxiway A, to the south of Runway 05-23, along with a series of connectors and taxilanes which provide connections to aircraft parking and terminal facilities.

Recommended taxiway width is determined by the Airplane Design Group (ADG) of the most demanding aircraft to use the taxiway. The current critical aircraft for the airport falls within ADG II. FAA design criteria require a width of 35 feet for taxiways serving aircraft within ADG II. All taxiways and taxilanes at the airport currently meet and/or exceed this requirement.

Recommended Goal: Construct additional 35' wide taxilane (ADG II) to expand future hangar construction options.

Recommended Goal: Ensure appropriate taxiway system dimensional criteria and safety clearances for existing and future taxiways/taxilanes are met.

Recommended Goal: Ensure taxiway pavement is maintained to acceptable standards for pavement design strength and condition.

Recommended Goal: Maintain and update taxiway signage, marking, and edge lighting (MITL) as necessary to accommodate existing and future airfield development.

Recommended Goal: Construct aircraft runup area near Runway 05 end per FAA design criteria standards.

Pavement Strength and Condition

The taxiways have a pavement strength of no greater than 50,000 pounds for DWG aircraft. The majority of the taxiway and taxilane system pavement condition ranges from "Excellent" to "Fair". However, there are also areas where the pavement has "Failed" as noted on WYDOT Aeronautics Pavement Condition Index as depicted on Page 26 in the Existing Conditions.

Runway 05-23

The adequacy of the existing runway system at Shively Field has been analyzed from a number of perspectives, including runway orientation, runway length & width, pavement strength & condition, safety areas, and dimensional criteria. From this information, requirements and recommended goals for runway improvements were determined for the airport.

Recommended Goal: Ensure runway dimensional criteria, as determined by FAA design criteria, meets existing and future standards.

Recommended Goal: Ensure runway pavement is maintained to acceptable standards for pavement design strength and condition.

Recommended Goal: Maintain and update runway signage, marking, and edge lighting (MIRL) as necessary to accommodate existing and future airfield development.

Runway Orientation

The most important factor in determining a runway's orientation is the prevailing wind direction. However, recorded wind data specific to Shively Field is not currently available. As such, a wind rose has never been developed to accurately analyze whether the runway orientation provides 95% or greater wind coverage for aircraft that use the airport on a regular basis. Regardless, general knowledge of local users suggests the existing runway orientation is sufficient as there has never been a request or concern identified by frequent users. Also, the 1989 Airport Master Plan did not address a need for a cross-wind runway to provide adequate coverage for aircraft landing and departing from Shively Field.

In 2013 the Automated Weather Observation System (AWOS) was connected to the national system of weather monitoring equipment (NADIN). With this connection, all of the weather observations will now be stored with the National Climatic Data Center (NCDC). After one year of data has been recorded, an interim wind rose will need to be developed to ensure the 95% or greater wind coverage threshold is met by Runway 05-23.

Runway Length

Runway 05-23 has been extended to a current length of 8,800 feet long over the years to accommodate the increased demand from larger business jet aircraft. Local knowledge confirms numerous long-haul business aircraft (i.e. Airbus 320, Gulfstream IV, etc) have departed Shively Field's runway with room to spare.

FAA Advisory Circular 150/5325-4B Runway Length Requirements for Airport Design provides guidance for a simple runway length analysis based on certain aircraft characteristic performance curves. These performance curves include analysis of "Runway Lengths for Airplanes within a Maximum Certificated Takeoff Weight of More than 12,500 Pounds Up To and Including 60,000 Pounds" (which applies to Shively Field) and goes on to discuss curves for "75 Percent of Fleet at 60 to 90 Percent Useful Load" and "100 Percent of Fleet at 60 to 90 Percent Useful Load".

The curves indicate Runway 05-23's length of 8,800 feet is sufficient to meet the runway length requirements of 75 percent of the fleet utilizing the airport at 60 to 90 percent useful load. However, to meet 100 percent of the fleet's runway length requirements at 60 to 90 percent useful load, the runway would need to be extended beyond 11,000 feet.

WYDOT Statewide Airport Inventory and Implementation Plan – 2009 recommended a final length of 9,000 feet for Runway 05-23 and the Airport Advisory Board discussed the potential advantages and disadvantages of a runway extended to 9,800 feet. However, the benefits of extending the runway to 9,000 feet, 9,800 feet, or beyond 11,000 may not outweigh the costs associated with extending the runway and it is the Advisory Board's preference and recommendation that Runway 05-23 not be extended at this time.

Runway Width

Runway 05-23 is currently 100 feet wide, meeting C-II design standards. The 100 foot width is sufficient for current and projected future runway use at an ARC of C-II.

Runway Pavement Strength and Condition

Runway 05-23 is constructed of asphalt and designed with a weight-bearing capacity of no greater than 50,000 pounds for Dual Wheel Gear (DWG) aircraft. Runway 05-23's pavement strength is adequate to accommodate all existing and forecasted aircraft and additional pavement strengthening is not required.

The runway pavement is in "Good" condition and the runway blast pads are in "Very Good" condition as noted on WYDOT Aeronautics Pavement Condition Index. Care should be given to maintain the pavement as needed in order to preserve both the condition and strength of the runway over the planning period.

Runway Safety Areas and Dimensional Criteria

Several safety areas have been established to protect aircraft operation areas and keep them free from obstructions. The safety areas addressed include the runway safety area (RSA), object free area (OFA) and runway protection zone (RPZ). The dimensions of these safety areas are dependant upon the critical aircraft ARC and approach visibility minimums.

Runway Safety Area - RSA

The RSA is centered on the runway and dimensioned in accordance to the approach speed of the critical aircraft using the runway. The FAA requires the RSA to be entirely on airport property, cleared and graded, drained by grading or storm sewers, capable of accommodating the design aircraft and fire and rescue vehicles, and free of obstacles not fixed by navigational purpose.

For ARC C-II aircraft, the FAA calls for the RSA to be 500 feet wide and extend 1,000 feet beyond the runway ends. The existing condition for Runway 05-23 meets this standard. The RSA standard for Runway 05-23 is expected to remain constant through the planning period.

Object Free Area - OFA

The runway OFA is "a two-dimensional ground area which is clear of objects except for objects whose location is fixed by function (i.e., airfield lighting)." The OFA is centered on the runway, extending out in accordance to the critical aircraft design category utilizing the runway. For ARC C-II aircraft, the FAA calls for the OFA to be 800 feet wide (centered on the runway), extending 1,000 feet beyond each runway end. Runway 05-23 currently meets OFA standards for ARC C-II aircraft.

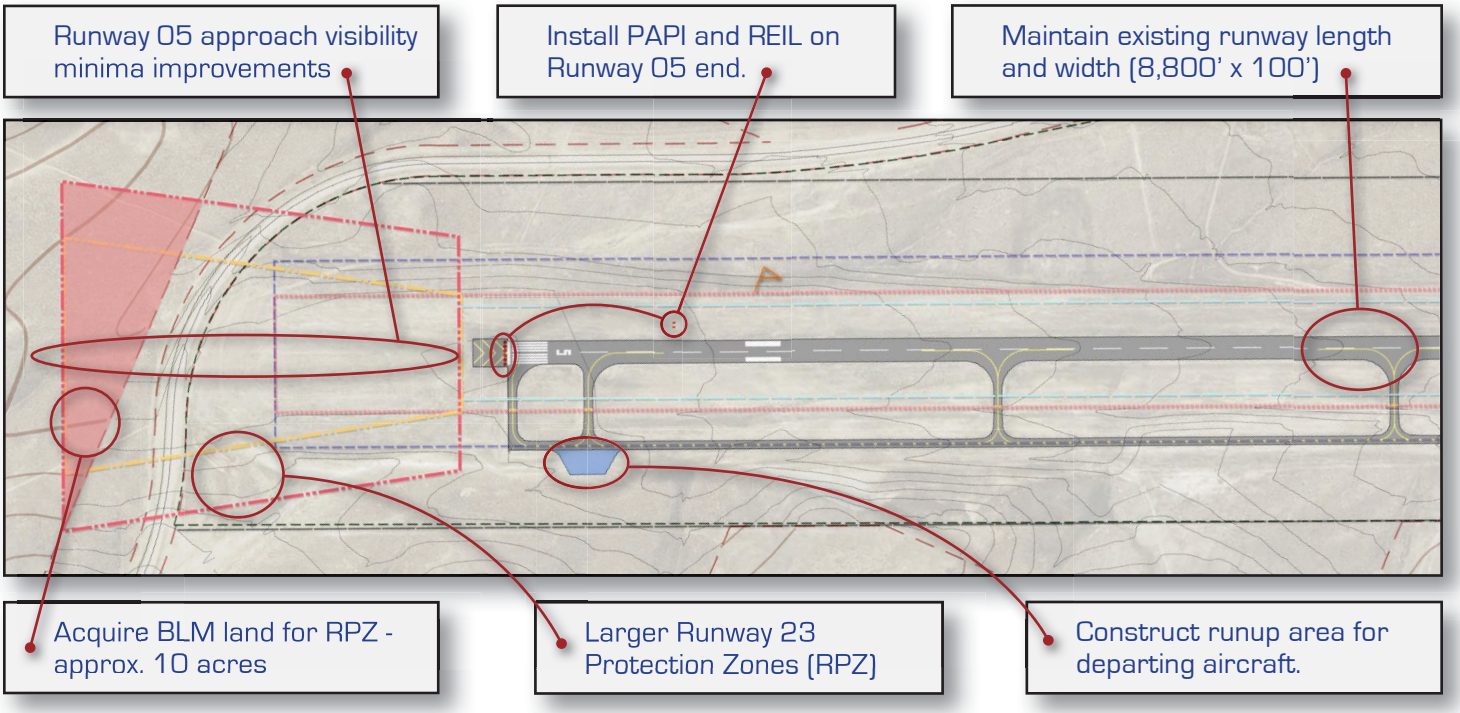
Runway Protection Zone - RPZ

The RPZ's function is to enhance the protection of people and property on the ground. Like the OFA, the RPZ can extend beyond airport bounds as long as obstructions do not exist within the protected area. It is not required that the RPZ be under airport ownership, but it is strongly recommended. An alternative to outright ownership of the RPZ is the purchase of avigation easements (acquiring control of designated airspace within the RPZ).

The RPZ is a trapezoidal area centered on the runway, typically beginning 200 feet beyond the runway end. The RPZ has been established by the FAA to provide an area clear of obstructions and incompatible land uses, in order to enhance the protection of approaching aircraft, as well as people and property on the ground. The dimensions of the RPZ vary according to the visibility minimums serving the runway and the type of aircraft operating on the runway.

The existing area of the RPZ for Shively Field is currently 29.465 acres and complies with approach visibility minimums of "not lower than 1 mile." It is anticipated the approach visibility minimums can realistically be reduced to "not lower than 3/4 mile." As such, the size of the RPZ for both runway ends will need to be increased to 48.978 acres.

Recommended Goal: Increase the size of the RPZ on both runway ends to reduce approach visibility.



Visual Navigation Aids

To provide pilots with visual glideslope and descent information, Visual Approach Slope Indicators (VASIs) or Precision Approach Path Indicators (PAPIs) are commonly found to the side of the runway. These systems consist of either a two- or four-box unit. Four-box systems are recommended for use by business jet aircraft. Currently, PAPIs are installed on Runway 23 only.

Runway End Identification Lighting (REIL) provides rapid and positive identification of the approach end of the runway. The REIL system consists of two synchronized flashing lights located laterally on each side of the runway threshold facing the approaching aircraft. Currently, REILs are installed on the Runway 23 threshold only.

Recommended Goal: Ensure both runway ends are served by PAPI (Precision Approach Path Indicator) light systems and REIL (Runway End Identifier Lights) light systems.

Recommended Goal: Ensure the airfield has a sufficient number of wind cones with an appropriate number outfitted for visual night operations.

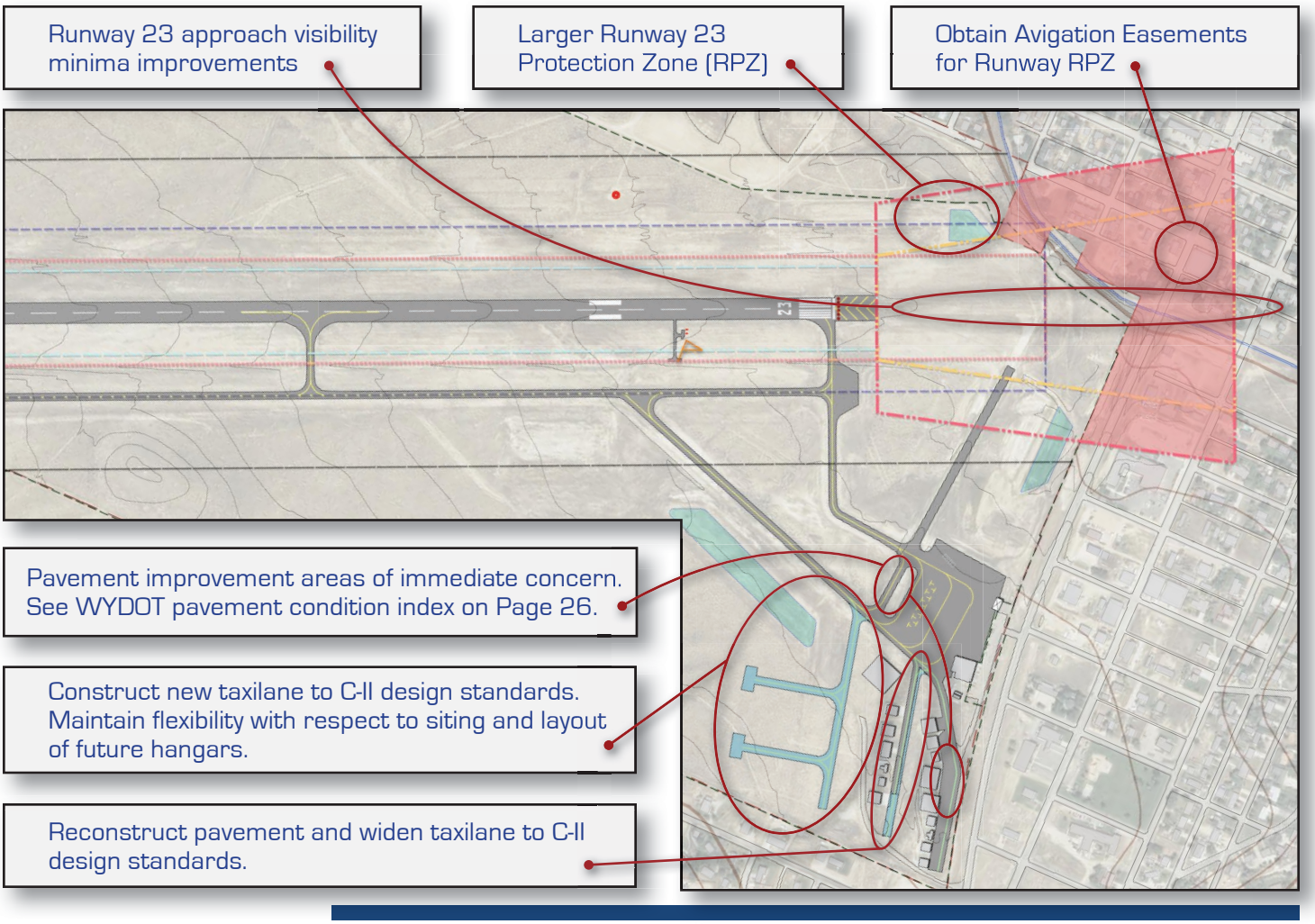
Airspace and Instrument Approach Aids

The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance that the pilot must be able to see to complete the approach. Cloud ceilings define the lowest level of a cloud layer. If the observed visibility or cloud ceiling is below the minimums prescribed for the approach, the pilot cannot complete the instrument approach.

The lowest visibility minimum available is one mile using the RNAV and GPS approach to the less used Runway 05.

Recommended Goal: Pursue the potential installation of approach lighting systems on both runway ends to increase instrument approach capability.

Recommended Goal: Work with FAA to reduce approach visibility and minimums and increase operational efficiency in inclement weather.



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Development Alternatives

In this chapter, specific airside and landside facility requirements that required further consideration have been evaluated to determine the best option to meet the forecast growth and needs of airport users and the community.

There are many combinations and options for development, but the alternatives presented are those with the greatest potential for implementation based on discussions with the Airport Advisory Board and local stakeholders. The alternatives selected have been evaluated to determine the most efficient and practical alternative based on five relative variables which include:

- Airport Operational Requirements
- Cost
- Environmental Impact
- FAA Design Standards
- Planning & Land-Use Compatibility

In some instances, the needs and improvements identified in the Facility Requirements section of the Master Plan which did not require significant construction or expansion were discussed in greater detail in the development alternatives to ensure the potential improvement was clearly understood and all options had been considered.

Landside Alternatives Matrix

The landside development alternatives discussed are intended to accommodate forecast aviation growth at the airport while also expanding opportunities for non-aeronautical development to occur on unused airport property. The alternatives considered primarily revolve around the construction of a new GA terminal building or the reconstruction of the existing tower/terminal to expand passenger facilities for airport users. The alternatives presented consider flexibility in the development while simultaneously encouraging a greater social and physical connection between Shively Field and the Town of Saratoga. The landside alternatives evaluated include:

- Airport Business Park Development Area
- General Aviation (GA) Terminal Development
- Hangar Development Area
- Apron Expansion

Airside Alternatives Matrix

The airside development alternatives discussed were developed to further identify and evaluate the needs of airport users and the community, as well as the strategic vision of the airport. The potential extension of the runway, the feasibility of constructing a crosswind runway, and any potential approach improvements necessary to reduce visibility minima for arriving aircraft were identified in the Facility Requirements section of this plan and were considered over the course of several Airport Advisory Board meetings leading up to Public Workshop #2 in April 2013. The airside alternatives evaluated include:

- Runway 05-23 Extension
- Crosswind Runway Construction
- Airport Approach Improvements

The potential development alternatives identified by outside agencies in previous planning efforts or by interested stakeholders were discussed and included as potential alternatives even if the Airport Advisory Board had previously determined there was no need for the proposed improvements. Furthermore, within the landside and airside functional areas, each development alternative is treated separately, but future planning must integrate the individual project elements so they may compliment one another in future development of the airport.

Airport Business Park Development Area	Airport Operational Requirements	Cost
No Changes 	The "no change" alternative would not expand or improve aeronautical or non-aeronautical operations or development options at Shively Field.	The cost of doing nothing may have a greater impact than the other alternatives over the long term. Doing nothing will reduce the potential for additional land lease revenues.
Alternative 1 - South Development Area ***Preferred Alternative*** 	Construction of a business park in the area directly south of the existing runway could provide expanded opportunities for both aeronautical and non-aeronautical development over the long term with the potential to increase airport revenues. Utilizing the currently vacant land to generate new airport revenues can help the airport become financially self-sufficient which could increase operational efficiency, capacity, and capability.	The substantial cost of constructing in the south development area may be overshadowed by the potential for future revenue generated, the "shared use" of extended public utilities planned for the hangar development area, and the availability of grants and public/ private partnerships for funding. Also, there has been a significant amount of time, money, and effort already spent to locating the Airport Business Park in the south location.
Alternative 2 - North Development Area 	Construction of a business park in the area directly north of the existing runway could provide expanded opportunities for both aeronautical and non-aeronautical development over the long term with the potential to increase airport revenues. Utilizing the currently vacant land to generate new airport revenues is one step closer towards become financially self-sufficient which could also increase operational efficiency, capacity, and capability.	The cost of constructing a business park north of the airport will also be significant. However, this option is least favorable because of the costs necessary to provide improved vehicle access on local residential streets to the site and extending public utilities solely for the purpose of an airport business park.

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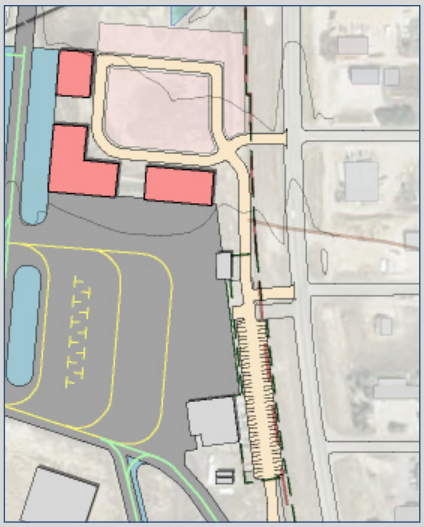
Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land, and it is anticipated there would not be any significant environmental impacts.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
The construction of the business park south of the runway will be entirely on airport property and no new land would need to be acquired. Although not likely to be items of concern, wetlands, drainage, and sensitive areas should be given consideration. The service capacity and extension of public utilities should also be evaluated. A new access road off Highway 130 leading to the development will need to be considered. The project improvements associated with the construction of the business park are generally categorically excluded from environmental review; however, it will be evaluated to be certain an environmental assessment is not required.	The construction of the business park to the south of the runway will be entirely outside the Building Restriction Line and in compliance with the guidance provided in AC 150/5300-13A. Construction south of the runway will provide better opportunities for aeronautical sites to connect directly to the taxiway system without impacting design standards.	The layout and construction of a business park south of the runway has been proposed and approved by the Saratoga Planning Board over the course of numerous public meetings. As such, the plan meets local planning goals and is compatible with existing or proposed land uses in the area. Release of the preferred non-aeronautical lands from the FAA will need to be obtained before any construction begins.
The construction of the business park north of the runway will be entirely on airport property and no new land would need to be acquired. Wetland, drainage, and sensitive areas should be given consideration along with the service capacity and extension of public utilities. Access to the proposed site would require additional consideration and local approval. The project improvements associated with the construction of the business park are generally categorically excluded for environmental review, however, an environmental assessment may be necessary.	The construction of the business park to the north of the runway will be entirely outside the Building Restriction Line and in compliance with the guidance provided in AC 150/5300-13A.	The layout of a business park north of the runway has been considered by the Saratoga Planning Board, and it is preferred the Airport Business Park be situated south of the runway due to direct access from Highway 130. However, the north area could still be developed on a case-by-case basis for light storage and other aeronautical and non-aeronautical uses dependent on expected traffic impacts. Release of any non-aeronautical lands for development will need to be obtained from the FAA.

General Aviation (GA) Terminal Area Development	Airport Operational Requirements	Cost
No Changes 	This alternative proposes the existing configuration and operations of the GA Terminal Area remain as is with no improvements. Operationally, the "no changes" scenario would not have a significant impact on passenger and aircraft handling at Shively Field as one might see it today. In the short term and immediate future, as demand increases and consumer needs continue to become more specific, the existing operation will require 24-hour facilities to accommodate all users throughout the day and night.	The cost of doing nothing is perhaps more expensive than the other alternatives. Doing nothing will limit the potential for additional land lease revenues by not utilizing one of the most valuable assets, the land itself.
Alternative 1 - New Construction north of existing apron ***Preferred Alternative*** 	Construction of a new terminal building to the north of the existing apron area meets the short- and long-term goals and capacity demand for the terminal area. The construction of a new terminal building and the necessary infrastructure north of the existing apron will provide the airport with updated 24-hour passenger facilities, additional aircraft storage and hangar space, non-aeronautical revenue development opportunities, aeronautical commercial business and general aviation business expansion areas, as well as expanded vehicle parking and public facilities.	Construction of a new terminal building and the necessary infrastructure is the more expensive alternative. However, on further examination, this alternative provides greater opportunities for outside funding, expands opportunities for private development on leasable land, and includes leasable office space which will ideally offset the higher costs associated with this preferred development over the long term.
Alternative 2 - Reconstruction of existing terminal/tower 	The existing terminal/tower is an outdated building and has been vacant off and on over the years. The operational requirements of the airport cannot be met by the existing condition of the terminal/tower building without significant reconstruction and alterations. Furthermore, reconstruction of the existing terminal/tower is less likely to serve as a catalyst for additional expansion on developable airport land.	The reconstruction of the existing terminal/tower is the least expensive option and costs to reconstruct would be less than the preferred alternative of constructing a new terminal building. However, state and federal funding for reconstruction of the existing terminal/tower would likely be difficult to obtain as it would be a very low priority.

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Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land and it is anticipated there would be no environmental impacts.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
The construction of the new terminal area along with the removal of the old terminal/tower would remain on airport property and no off-airport land would be affected or need to be acquired. However, wetland and sensitive areas should be given consideration in addition to drainage containment and control. Furthermore, public utilities would need to be connected to off-airport lines across Highway 130. Service capacity should be considered as part of the environmental review process as well. A new access road off Hwy 130 will need to be constructed in line with Cedar Avenue. The project improvements associated with the GA Terminal Area Development are generally considered to be categorically excluded for environmental review.	FAA Airport Design Advisory Circular (AC) 150/5300-13A provides guidance and direction with respect to the siting and location of buildings and objects as they relate to the runway and taxiway design/protection surfaces of the airport. The proposed GA Terminal Development Area will be well outside the Building Restriction Line and clear of all design surfaces on the airport. There are no foreseeable issues or deficiencies with respect to FAA Design Standards.	The proposed GA Terminal Development Area and new terminal construction is consistent with local planning and land-use character along Highway 130, as well as with other on- and off-airport development. The proposed development is intended to expand existing operational capacity to meet existing and future needs and will not result in any significant changes to the planning character or local land-use patterns in the area.
The reconstruction of the terminal/tower would be located on previously disturbed land. No significant environmental impacts are anticipated. However, construction drainage and connection to public sewer service would still need to be addressed.	The reconstruction of the terminal/tower would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The reconstruction of the existing terminal/tower building would have a minimal impact with regard to local planning and adjacent land uses. It is anticipated the reconstruction would not alter on- or off-airport land use.

Hangar Development Area	Airport Operational Requirements	Cost
No Changes 	The "no change" alternative will continue the existing hangar development pattern and expansion of the hangar area.	This alternative does not specify any facility improvements to the hangar development area. The potential income lost to the airport by not accommodating future hangar expansion needs could be significant near the end of the planning period. This alternative does not consider the cost to maintain existing taxilane pavements or the reconstruction/ construction of taxilanes.
Alternative 1 - Flexible Design ***Preferred Alternative*** 	The flexible design approach to developing the hangar area will allow the airport to expand to meet necessary capacity levels, while ensuring an organized and planned yet adaptive hangar development area. This alternative will provide the airport advisory board and airport users the flexibility to choose a site while maintaining the ability to quickly review hangar development proposals on a case-by-case basis. This alternative will encourage the advisory board to continually consider the potential taxiway alignment and construction requirements for long-term expansion in the hangar area.	The cost to construct this alternative is dependent on the final taxiway alignment and funding availability. It is generally expected there will be two distinct projects that will need to be funded, including the widening and improvement of an existing taxilane as well as construction of a new taxilane west of the existing facilities.
Alternative 2 - Specific Design 	The specific design approach would establish a preferred layout for future hangar facilities. The specific layout would provide the same opportunities for increasing capacity but may deter some potential developers from locating at SAA due to rigid siting requirements.	The cost to construct the taxiways/ lanes for the specific design approach will be similar to the flexible design approach.

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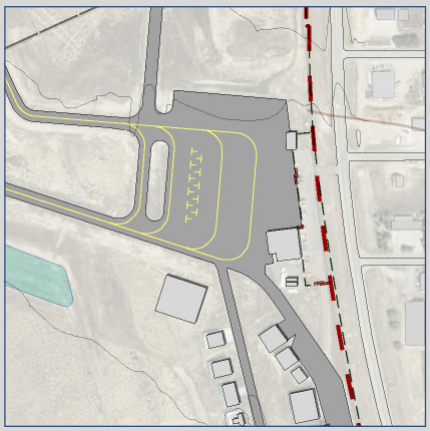
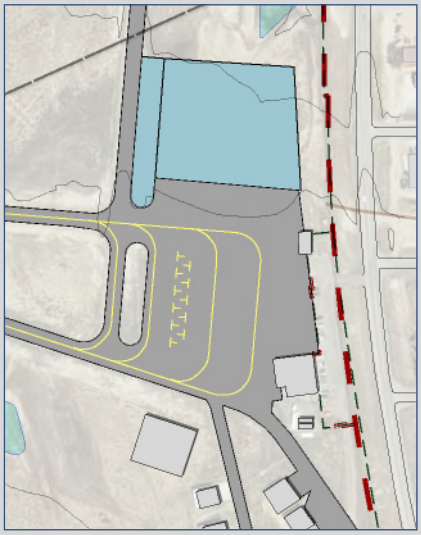
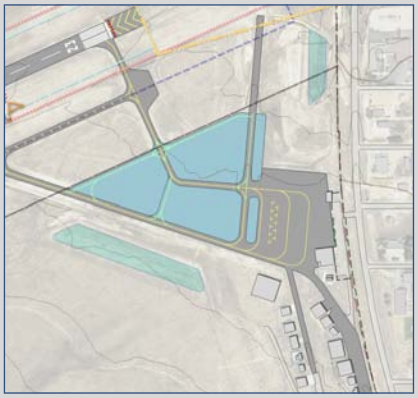
Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not significantly disturb new lands. It is anticipated any environmental impacts from the expected slow growth in hangar development would be reviewed on a case-by-case basis at the local level.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria, assuming hangars continued to be developed to C-II Taxiway Object Free Area (TOFA) standards.	The "no change" alternative would not alter existing land uses either on or off the airport.
Two distinct areas were identified for additional hangar development in the flexible alternative. It is expected the new construction or reconstruction of any taxiway/taxilane will each require individual environmental reviews. Typically, however, taxilanes are categorically excluded.	It is anticipated the proposed development would not result in any known issues or deficiencies with respect to FAA Airport Design AC 150/5300-13A. It is suggested C-II standards be the default design standard with the flexible approach unless a lower standard is deemed sufficient without jeopardizing future development. Layout and actual taxiway alignment for the hangar development area may change as needs change over the planning period. The area reserved for future hangar development will remain the same.	The proposed hangar development area and new construction is consistent with local planning and land-use character along Highway 130. The proposed development will not result in any significant changes to the planning character or local land-use patterns in the area. Future vehicle access to the area will be through a coded gate off the future extension of Pine Road serving the Airport Business Park.
The two taxiways identified for improvements or construction will each require individual environmental analysis which is generally categorically excluded.	There are no known issues or deficiencies identified with respect to FAA Airport Design Advisory Circular (AC) 150/5300-13A. The taxiways/lanes will be constructed to C-II standards.	The proposed hangar development area and new construction is consistent with local planning and land-use character along Highway 130. The proposed development will not result in any significant changes to the planning character or local land-use patterns in the area. Future vehicle access to the area will be through a coded gate off the future extension of Pine Road serving the Airport Business Park.

Apron Expansion	Airport Operational Requirements	Cost
No Changes 	The "no change" alternative will not meet the operational requirements of Shively Field during peak-week operations. The capacity of the existing apron area is already exceeded periodically throughout the year and is expected to remain inadequate from a capacity standpoint throughout the planning period.	This alternative leaves the apron area in its current configuration, with no improvements specified. The potential income lost to the airport by not accommodating traffic during peak periods could be significant near the end of the planning period. The cost of maintaining the existing apron area should also be a factor.
Alternative 1 - Expansion North 	Expanding the apron to the north could provide an additional 15,000 to 16,000 square yards of apron space for long-term aircraft parking. However, expanding north will limit the operational capability and efficiency of the airport by limiting future development and expansion potential in the General Aviation Terminal Area. This alternative also conflicts with the preferred GA Terminal Area Development alternative.	The cost of expanding the apron north would be substantial relative to the actual size of the apron due to the embankment construction required to expand the existing apron at standard grades. Also, the potential revenue lost from not developing the land for aeronautical and non-aeronautical uses could be significant.
Alternative 2 - Expansion West ***Preferred Alternative*** 	Expanding the apron area to the west of the existing apron area could provide more than 47,000 square yards of space which can be phased to meet future aircraft parking needs. This alternative will greatly expand the operational capacity, capability, and efficiency of the parking apron as well as the GA Terminal Area as a whole. This alternative compliments the preferred GA Terminal Development Area alternative.	The total cost of expanding the apron west would be substantial. However, the expansion can be completed in phases based on funding availability. Also, expanding west provides the greatest area available for aircraft parking while still providing additional aeronautical and non-aeronautical revenue development opportunities on airport property.

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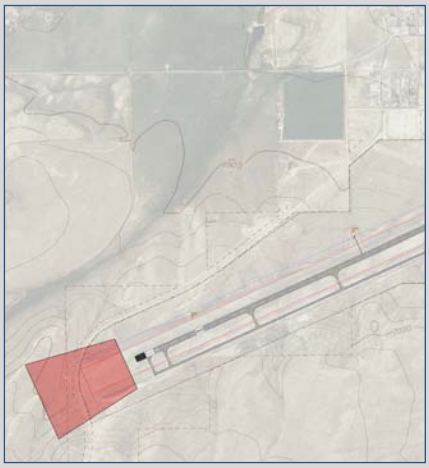
Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land, and it is anticipated there would be no environmental impacts.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
Drainage facilities to protect the airport and property downstream of the airport are already in place. However, drainage and runoff to watershed control and containment strategy should still be considered throughout the construction of the GA Terminal Area regardless of constructing north or west of the existing apron.	A north aircraft parking area would be well outside the Building Restriction Line and clear of all design surfaces on the airport. There are no issues or deficiencies identified with respect to FAA Airport Design Advisory Circular (AC) 150/5300-13A for a north expansion.	Expanding the existing apron north would have a minimal impact with regard to local planning and adjacent land uses. However, it would reduce the land area available for aeronautical and non-aeronautical land uses.
Drainage and runoff to watershed control and containment strategy should be considered throughout the construction of the GA Terminal Area regardless of constructing north or west of the existing apron. Specific attention when developing a new apron west should be given to the environmental review process. It would be advantageous to consider the entire apron area (3 phases) during the environmental review process which is likely to be categorically excluded.	A west aircraft parking area would be well outside the Building Restriction Line and clear of all design surfaces on the airport. There are no issues or deficiencies identified with respect to FAA Airport Design Advisory Circular (AC) 150/5300-13A over the phased development of the proposed apron area and taxiway connections.	Expanding the existing apron west would have a minimal impact with regard to local planning and adjacent land uses. Construction of new apron west would allow for new development opportunities along Highway 130.

Runway 05-23 Extension	Airport Operational Requirements	Cost
No Changes ***Preferred Alternative** 	The existing runway length is capable of meeting the needs of 75 percent of the current fleet at 60 to 90 percent useful load according to AC 150/5325-4B.	The only costs associated with the "no change" alternative are limited to the continued maintenance of the runway pavement and land acquisition for the RPZs.
Alternative 1 - 200' Extension 	The extension of the runway by 200 feet to the southwest would not expand the operational capability of Shively Field.	The cost of extending the runway by 200 feet would be a significant cost which may be difficult to justify eligibility for AIP funding.
Alternative 2 - 1000' Extension 	Extending the runway by 1,000 feet to 9,800 feet would provide slightly more distance for long-haul and heavier aircraft but would still not significantly increase the percentage of fleet or useful-load factor for the runway according to AC 150/5325-4B.	The cost of extending the runway by 1,000 feet would be extensive and the benefit of the extension may be difficult to establish which is necessary to insure eligibility for AIP funding.

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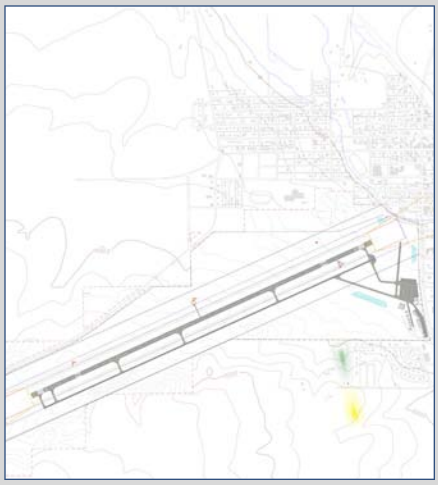
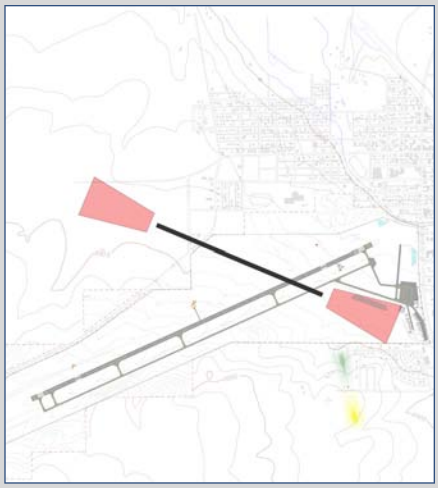
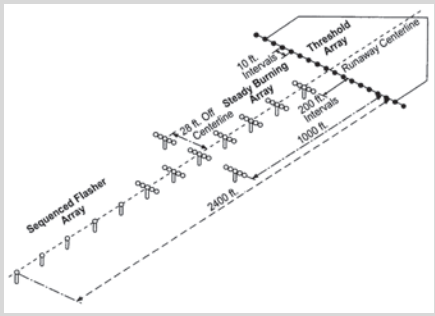
Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land, and it is anticipated there would not be any significant environmental impacts. The existing configuration still requires land acquisition or avigation easements for future C-II RPZs.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
This alternative requires acquisition of BLM land for future runway protection zones but will not require additional land for runway safety areas. It is anticipated this alternative may not require a full environmental assessment.	The existing runway has a modification to standards for an existing non-standard runway gradient. The extension of 200 feet may require specialized design and construction techniques to meet design standards with respect to runway gradient.	Expanding the runway 200 feet to the southwest would have minimal impact at the local level but would still require acquisition of land or easements from the BLM.
This alternative requires the most acquisition of BLM land for runway safety areas and protection zones. This alternative will also require the relocation of Spring Creek Road outside runway safety areas. The construction of a 1,000-foot extension would require an Environmental Assessment in order to fully evaluate the potential environmental impacts.	The existing runway has a modification to standards for an existing non-standard runway gradient. An extension of 1,000 feet will require specialized design and construction techniques, particularly to construct the entire proposed runway extension to meet FAA design standards for runway gradient.	Expanding the runway 1,000 feet to the southwest would have minimal impact at the local level but would still require acquisition of land or easements from the BLM.

Cross-wind Runway Construction	Airport Operational Requirements	Cost
No Changes ***Preferred Alternative*** 	Based on the knowledge and experience of local users, the existing runway alignment is capable of accommodating a large majority of operations of both small and large aircraft. There has never been a request or concern related to the existing runway alignment identified in past planning efforts or at local airport board meetings. It is generally accepted that the existing alignment and wind coverage is acceptable.	There are no costs associated with the "no change" alternative.
Alternative 1 - Construct X-wind 	Because there is no historical wind data available to accurately calculate the wind coverage of the existing runway and its ability to meet the 95% coverage threshold (FAA standards), determining the actual operational efficiency, capacity, and capability of this alternative is difficult. The layout presented in this alternative is highly conceptual and included as an option only to demonstrate the logical layout of a potential cross-wind runway. It is generally plotted along a "scar" on the airport seen in aerial photography. This scar has been discussed numerous times with local users, but no evidence has been provided to indicate this was indeed a historic runway of any sort.	Construction of a cross-wind runway in addition to land acquisition and environmental review, would be a very expensive project which may be difficult to justify for state and federal funding over the long term. Also, the area required for runway protection would limit future hangar expansion in the preferred hangar expansion area.

MATRIX

Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land, and it is anticipated there would be no environmental impacts.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
This alternative would require substantial land acquisition and extensive environmental review. An Environmental Assessment would be required with the construction of a cross-wind runway.	The construction of a cross-wind runway would require specialized design and construction techniques, as well as significant land acquisition, to meet FAA design standards for runway gradient requirements and safety areas.	The construction of a cross-wind runway may require additional review at the local level for compliance with local land use and planning compatibility.

Airport Approach Improvements	Airport Operational Requirements	Cost
No Changes ***Preferred Alternative*** 	The "no change" alternative does not involve the construction of new ground-based infrastructure intended to aid in the reduction of approach minimums for SAA. This alternative, however, does include pursuing new GPS satellite-based approaches and advanced instrument procedures to increase operational efficiency and capacity during reduced visibility and Instrument Meteorological Conditions (IMC) operations.	The "no change" alternative is the least cost prohibitive due to no physical infrastructure or construction costs. The costs associated with this alternative are specific to coordinating the effort at the local level that includes requesting a "procedures analysis" to be conducted by the FAA which the FAA funds entirely.
Alternative 1 - Construct MALSR Lighting System 	Construction of MALSRs on either runway end would only serve as an additional runway visual cue for pilots conducting instrument approaches into SAA and could not in any way reduce visibility minimums due to existing procedural limitations and topographical/approach surface penetrations in the vicinity of SAA.	The cost to construct MALSRs on both runway ends would be extensive. However, construction of MALSRs would not substantially increase operational efficiency at SAA, insuring difficulty obtaining AIP eligibility and funding from the FAA and WYDOT. The project would likely be funded only at the local level which makes the project extremely difficult to realize.
Alternative 2 - Construct MALSRs with Sequencing Approach Lighting 	Construction of MALSRs and the addition of Sequencing Approach Lights on either runway end would only serve as an additional runway visual cue for pilots conducting instrument approaches into SAA and could not in any way reduce visibility minimums due to existing procedural limitations and topographical/approach surface penetrations in the vicinity of SAA.	The cost to construct MALSRs and Sequencing Approach Lighting on both runway ends (where it is physically possible) would be extensive. However, construction would not substantially increase operational efficiency therefore making it difficult to obtain AIP eligibility and funding from the FAA and WYDOT. The project would likely be funded only at the local level which makes the project extremely difficult to realize.

MATRIX

Environmental Impact	FAA Design Standards	Planning & Land-Use Compatibility
The "no change" alternative would not disturb any land and it is anticipated there would be no environmental impacts.	The "no change" alternative would not result in any known deficiencies with respect to FAA design standards and safety criteria.	The "no change" alternative would not alter existing land uses either on or off the airport.
Construction of the infrastructure associated with MALSRs is categorically excluded from the environment review process.	Construction of MALSR that would significantly benefit the airport approach capability is not practical on the northeast side of the runway due to siting restrictions and topographical constraints. It is anticipated construction on the southwest side of the runway is feasible but a low priority.	This alternative would not significantly impact local planning and land-use compatibility.
Construction of the ground-based infrastructure associated with the construction of MALSRs with Sequencing Approach Lighting may require an environmental assessment if extraordinary circumstances exist.	Construction of the MALSRs and Sequencing Approach Lights would require additional land acquisition on the southwest side of the airport. Construction on the northeast side of the runway is not feasible due to topography constraints.	This alternative would not significantly impact local planning and land-use compatibility.

Development Alternatives Summary

The development alternatives were presented in Public Workshop #2 on April 15, 2013, and subsequently approved by the Airport Advisory Board. The following projects were discussed in an open forum with interested members of the community, airport board members, consultants, and other interested stakeholders.

The projects of particular importance and discussion included:

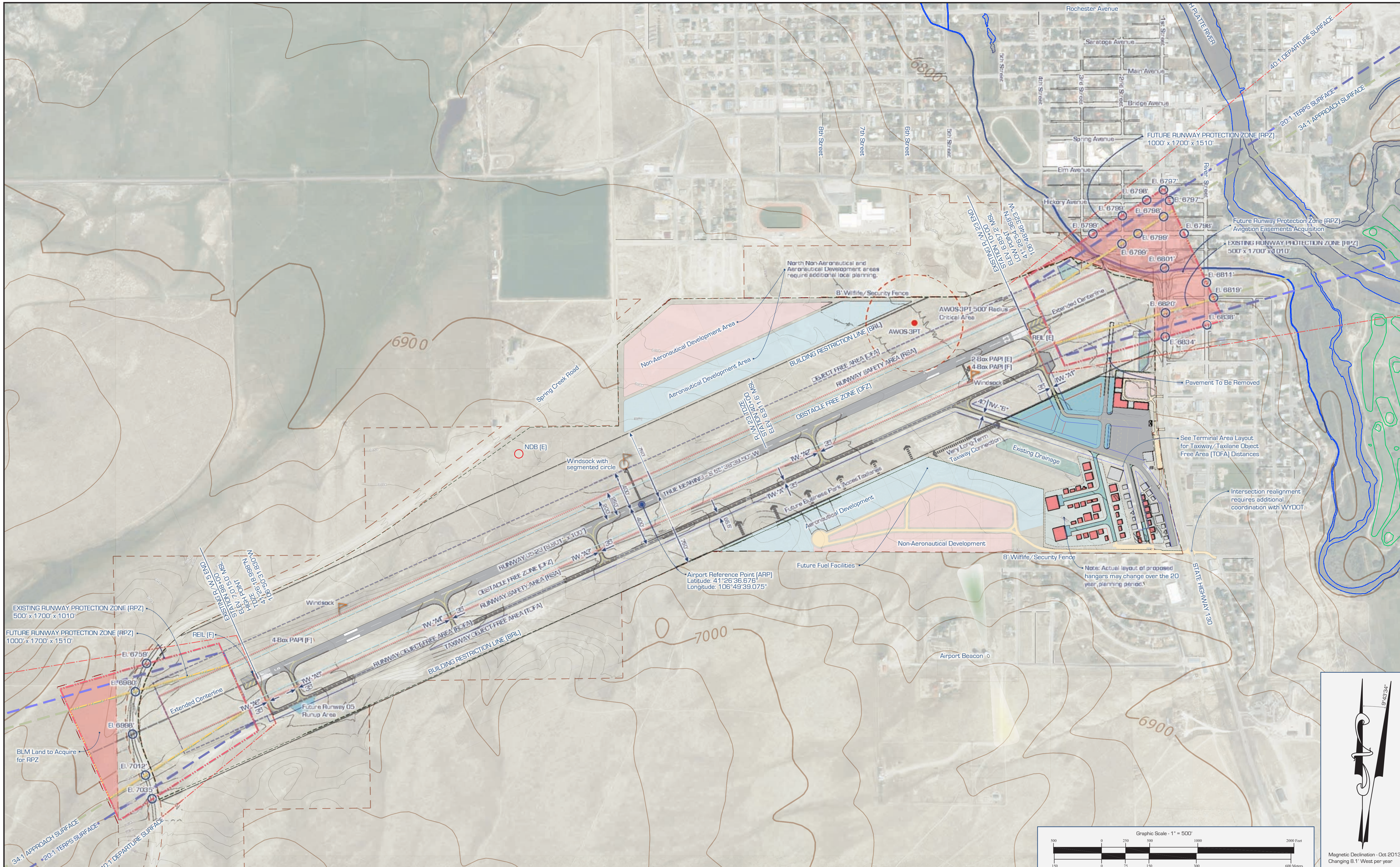
- Apron Expansion
- General Aviation (GA) Terminal Development
- Hangar Development Area
- Airport Business Park Development Area
- Runway 05-23 Extension
- Cross-wind Runway Construction
- Airport Approach Improvements

Arguably, the most important element of the Master Plan over the long-term development of Shively Field may be to expand the long-term aircraft parking area. Expanding the apron area to the west of the existing apron area will provide more than 47,000 square yards of new long-term aircraft parking. The preferred expansion area will greatly expand the operational capacity, capability, and efficiency of the parking apron and compliments the preferred GA Terminal Development Area improvements.

Construction of a new terminal building to the north of the existing apron area meets the short- and long-term goals and capacity demand for the terminal development area. The construction of a new terminal building and the necessary infrastructure north of the existing apron will provide the airport with updated 24-hour passenger facilities, additional aircraft storage and hangar space, non-aeronautical revenue development opportunities, aeronautical commercial business and general aviation business expansion areas, as well as expanded vehicle parking and public facilities.

The AAB concluded that the construction of a business park in the area directly south of the existing runway would provide expanded opportunities for both aeronautical and non-aeronautical development over the long term with the potential to increase airport revenues and achieve financial self-sufficiency.

After significant consideration, the AAB determined pursuing new GPS satellite-based approaches and advanced instrument procedures may be more advantageous than the construction of new ground-based infrastructure intended to aid in the reduction of approach minimums for SAA. The AAB committed to continually considering the technological advancements and improvements in approach technology with a goal of increasing operational efficiency and capacity during reduced visibility and Instrument Meteorological Conditions (IMC) operations.


Rochester Avenue
Saratoga Avenue
Main Avenue
Bridge Avenue
Spring Avenue
Elm Avenue
Hickory Avenue
N PLATTE RIVER
River Street
8th Street
7th Street
6th Street
5th Street
4th Street
3rd Street
2nd Street
1st Street
40:1 DEPARTURE SURFACE
20:1 TERPS SURFACE
34:1 APPROACH SURFACE
FUTURE RUNWAY PROTECTION ZONE (RPZ)
1000' x 1700' x 1510'
Future Runway Protection Zone (RPZ)
Aviation Easements Acquisition
EXISTING RUNWAY PROTECTION ZONE (RPZ)
500' x 1700' x 1010'
North Non-Aeronautical and Aeronautical Development areas require additional local planning.
8' Wildlife/Security Fence
AWOS-3PT 500' Radius Critical Area
AWOS-3PT
Extended Centerline
REIL (E)
2-Box PAPI (E)
4-Box PAPI (F)
Windsock
Pavement To Be Removed
Non-Aeronautical Development Area
Aeronautical Development Area
BUILDING RESTRICTION LINE (BRL)
OBJECT FREE AREA (OFA)
RUNWAY SAFETY AREA (RSA)
OBSTACLE FREE ZONE (OFZ)
Spring Creek Road
NDB (E)
Windsock with segmented circle
TRUE BEARING
Very Long-Term Taxiway Connection
Existing Drainage
See Terminal Area Layout for Taxiway/Taxilane Object Free Area (TOFA) Distances
Intersection realignment requires additional coordination with WYDOT
Future Business Park Access/Taxilane
Aeronautical Development
Non-Aeronautical Development
8' Wildlife/Security Fence
Note: Actual layout of proposed hangars may change over the 20 year planning period.
Future Fuel Facilities
Airport Reference Point (ARP)
Latitude: 41°26'36.676"
Longitude: 106°49'39.075"
RUNWAY 05-23 (8,501' x 100')
OBSTACLE FREE ZONE (OFZ)
RUNWAY SAFETY AREA (RSA)
RUNWAY OBJECT FREE AREA (ROFA)
TAXIWAY OBJECT FREE AREA (TOFA)
BUILDING RESTRICTION LINE (BRL)
STATE HIGHWAY 130
Airport Beacon
EXISTING RUNWAY PROTECTION ZONE (RPZ)
500' x 1700' x 1010'
FUTURE RUNWAY PROTECTION ZONE (RPZ)
1000' x 1700' x 1510'
REIL (F)
4-Box PAPI (F)
Windsock
Extended Centerline
Future Runway 05 Runup Area
BLM Land to Acquire for RPZ
34:1 APPROACH SURFACE
20:1 TERPS SURFACE
40:1 DEPARTURE SURFACE
6900
7000
6800
Graphic Scale - 1" = 500'
Magnetic Declination - Oct 2013
Changing 8.1' West per year

Environmental Analysis

The impact of an airport on its environment is an important consideration toward future development. The objective of this section is to note the potential changes in environmental conditions which could result from the recommendations made in the Facility Requirements and discussed in the Development Alternatives. This environmental overview is intended to be a review of environmental conditions at Shively Field in accordance with Appendix A – Analysis of Environmental Impact Categories in FAA Order 1050.1E Change 1 Environmental Impacts: Policies and Procedures (March 20, 2006).

Detailed environmental analyses will have to be performed as each proposed project outlined on the ALP is implemented to determine compliance with environmental rules and regulations.

Air Quality

Determination of the need for an air quality analysis at an airport is based on the ultimate forecast level of aircraft operations. FAA Order 1050.1E Appendix A, Section 2.4b states that for detailed guidance on air quality procedures see FAA's report "Air Quality for Civilian Airports and Air Force Bases." The report states "if the level of annual enplanements exceeds 1,300,000, the level of general aviation and air taxi activity exceeds 180,000 operations per year or a combination thereof, a National Ambient Air Quality Standards (NAAQS) assessment should be considered."

Forecasts for Shively Field indicate aircraft operations are currently well below the requirements and will continue to be throughout the 20-year period.

Coastal Resources

Due to the mid-continent location of Shively Field there are no coastal zones associated with the master plan. No significant impact will occur to coastal resources or barriers.

Compatible Land Use

The Town of Saratoga has designated airport overlay zones which protect SAA's imaginary surfaces. Article 14.12.070 of the town ordinance specifically states: "no use may be made of land or water within any zone established by this chapter in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards or otherwise in any way endanger or interfere with the landing, takeoff or maneuvering of aircraft intending to use the airport."

All development proposed within this district shall be subject to the standards specified within this part, in addition to the standards and regulations contained in the particular base district in which the development occurs.

Potential land-use impacts associated with future development of Shively Field as outlined on the ALP are described in terms of airport and community planning efforts, jurisdictional coordination, and development patterns. The compatibility of existing and planned land uses in the vicinity of the airport should consider two factors in particular: 1) the extent of noise impacts from and to the airport and related development and 2) consistency with local land-use plans and development policies.

It should be noted that the responsibility for determining the acceptable and permissible land use in the vicinity of an airport remains with local authorities in response to local needs and values in achieving compatible land use.

Construction Impacts

During construction of the proposed development at Shively Field outlined on the ALP, there are a number of potential environmental impacts that could occur to air and water quality, as well as impacts caused by construction noise; however, these would be controlled through

careful attention to construction methods and implementation of best management practices.

DOT Section 4(f) Lands

Section 4(f) of the U.S. Department of Transportation Act states the Secretary of Transportation shall not approve any program or project, which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as determined by federal, state, or local officials having jurisdiction thereof, or any land from an historic structure of national, state, or local significance as so determined by such officials unless:

- There is no feasible and prudent alternative to the use of such land.
- The project includes all possible planning to minimize harm to the land resulting from such use.

None of the proposed alternatives will require the use or acquisition of any public property as defined by Section 4(f). The Wyoming Department of Transportation was contacted during this master plan process and no correspondence was returned.

Farmlands

The goal of Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.

For the purposes of implementing the FPPA, farmland is defined as prime or unique farmlands or farmland that is determined by the state or unit of local government agency to be farmland of statewide or local importance. Prime and unique farmlands are defined as those that on a national level produce unusually high yields or lands that produce crops that can be grown only in specific climates.

Development of Shively Field as outlined on the ALP will have an impact on soils by converting undeveloped land; however, these soils are not considered prime, unique, or statewide important. Therefore, there would be no impact to farmland.

Fish, Wildlife, and Plants

The U.S. Fish and Wildlife Service and the Wyoming Game and Fish Department were contacted during the planning process. The USFWS determined that there are species and designated habitat which may be present in the project area and provided the requirements to address the list of the species and critical habitat identified. The USFWS indicated they "would appreciate receiving a status update on each of the species" on the airport and provided additional guidance on the permitting and compliance requirements in the event of any nest manipulation for migratory birds.

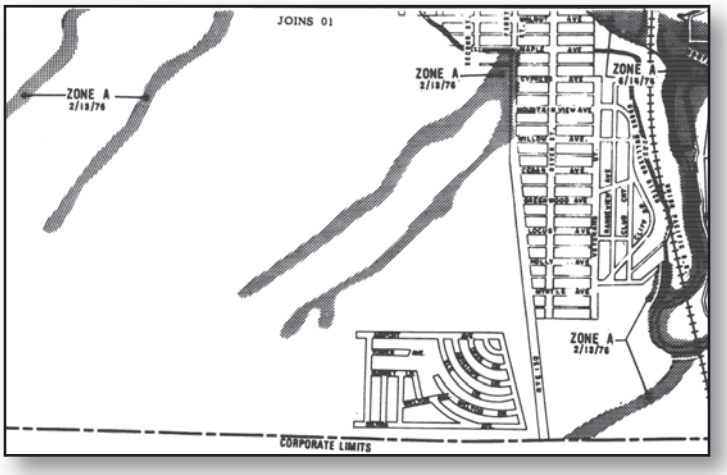
Wyoming Game and Fish indicated the airport is currently within a sage grouse core area and "future expansion into currently unoccupied lands surrounding the airport may require the completion of a DDCT (disturbance and density analysis tool) to determine and record the acres disrupted in the core area."

The Wyoming Game and Fish also noted department personnel have observed mule deer inside the airport's game-proof fence and recommended physical improvements or better attention to closing the gates when not in use to better minimize potential collisions with wildlife.

A copy of the Wyoming Game & Fish and USFWS letters are included at the end of this chapter.

Floodplains

There are two Zone A areas identified on the 1976 FIRM Map that run perpendicular to the runway and taxiway portions of the airport. Zone A areas are those zones that have a 1% probability of flooding every year (also known as the "100-year floodplain"), and where predicted flood water elevations have not been established. Properties in Zone A are considered to be at high risk of flooding under the National Flood Insurance Program (NFIP).



Based on a 2003 drainage study, the design and construction of parallel Taxiway A included a series of upstream detention ponds sized to hold a 50-year event and to release flows at a rate not to exceed the 5-year event. The detention ponds have an emergency overflow capable of handling a 100-year event.

Hazardous Materials, Pollution Prevention, and Solid Waste

Construction projects may require permitting for water and solid waste disposal by the Wyoming Department of Environmental Quality. The Wyoming DEQ was contacted as part of the planning process but provided no specific response.

Historical, Architectural, Archeological, and Cultural Resources

The Wyoming State Historical Preservation Office (SHPO) was contacted during the planning process. It is possible the proposed improvements, particularly the removal of the old terminal/tower building, may need to be evaluated as a historic property to determine if the building holds any historical significance.

A copy of the SHPO letter is provided at the end of this chapter.

Light Emissions and Visual Impacts

The visual impacts of the proposed improvements should be minimal. The proposed development will not significantly increase light emissions or hinder traffic on nearby roads. If light emissions from the airport becomes a problem, the lights can be shielded to reduce the impacts.

Natural Resources, Energy Supply, and Sustainable Design

There are no known impacts to natural resources or energy supply expected to occur in the area due to the construction of the proposed improvements.

Noise

Potential noise generation by aircraft operations at Shively Field was evaluated using the Integrated Noise Model (INM) developed by the FAA. Common practice lends to the belief the FAA noise model is unreliable when total operations are below 10,000 and operational counts are uncertain. However, the model was run, and the output indicated the 65 DNL contour is entirely within airport property.

Noise complaints can occur; however, future noise impacts are not expected to increase above existing levels.

Secondary (Induced) Impacts

Positive economic impacts, due to development of the proposed projects outlined on the ALP, could include an increase in business locations in the vicinity of SAA, as well as economic development because of new businesses locating to the region. In addition, the proposed projects would create temporary employment opportunities for laborers, equipment operators, and other construction-type employees.

Negative impacts would result from the expenditure of public funds for construction and long-term maintenance of the proposed projects outlined on the ALP. Regardless of how the facility is funded, there would be an additional economic burden imposed on the general public.

Overall, any principle negative social impacts on existing or planned property from the proposed projects outlined on the ALP are not expected to cause shifts in population patterns or growth or place demands on public services.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

There are no known impacts or anticipated impacts expected to result from the development of the proposed projects outlined on the ALP; however, an analysis will be performed before each project to determine whether there will be impacts to the health and safety of children, minority or low-income populations, and the socioeconomics of the area.

Water Quality

There are no known existing water quality concerns in the proximity of the airport. Best management practices will be implemented during construction to minimize potential impacts to surrounding water sources. Construction of improvements may require a storm water runoff permit to be issued by the Wyoming Department of Environmental Quality. Chemical waste products at the site must be disposed of properly to avoid groundwater contamination.

Wetlands

Based on the map generated online at the United States Fish and Wildlife Service's online Wetlands Mapper, there are no wetlands located on Shively Field. However, there are wetlands located in the vicinity of the airport.

The Wyoming Game and Fish and USFWS recommended certain precautions and best management practices (BMPs) be implemented for development projects to ensure all sediments and pollutants are contained and disturbed areas

are re-vegetated to maintain water quality. It is also recommended all construction equipment is serviced and fueled away from streams and riparian areas.

A copy of the Wyoming Game & Fish and USFWS letters are included at the end of this chapter.

The U.S. Army Corps of Engineers was contacted, and a copy of their letter is included at the end of this chapter.

Wild and Scenic Rivers

Wyoming has approximately 108,767 miles of river, of which 408 miles are designated as wild & scenic—less than 4/10ths of 1% of the state's river miles. The Yellowstone River, Clarks Fork and Snake River Headwaters are designated Wild and Scenic Rivers and are located in northwest Wyoming, which will not be impacted by the proposed plans on Shively Field.

Environmental Contacts

Wyoming Department of Environmental Quality
Herschler Building
122 W 25th St.
Cheyenne, WY 82002
307-777-7391

State Historic Preservation Office
2301 Central Ave., Barrett Bldg. 3rd Floor
Cheyenne, WY 82002
307-777-7697

NRCS Field Office
PO Box 6
510 Utah
Medicine Bow, WY 82329
307-379-2542

US Fish and Wildlife Service - Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009

Wyoming Game and Fish Department
5400 Bishop Blvd.
Cheyenne, WY 82006
307-777-4600

Corps of Engineers, Omaha District
Wyoming Regulatory Office
2232 Dell Range Boulevard, Suite 210
Cheyenne, WY 82009

Wyoming State Engineer's Office
122 West 25th Street
Herschler Building, 4 East
Cheyenne, WY 82002

Carbon County Planning
215 West Buffalo
Suite 336
Rawlins, WY 82301

Wyoming Public Health
Wyoming Department of Health
401 Hathaway Building
Cheyenne, WY 82002
(307) 777-7656

US EPA
US EPA, Region 8
1595 Wynkoop St (80C-EISC)
Denver, CO 80202-1129
Direct: 303-312-6312

Wyoming DOT Environmental Services
Tim Carrol
5300 Bishop Boulevard
Cheyenne, WY 82009
307-777-4417

August 8, 2013

Agency Contact
Address
Address

Subject: Airport Master Plan – Environmental Analysis
Shively Field (SAA)
Saratoga, Wyoming

To Whom It May Concern:

The Town of Saratoga, Wyoming is in the process of completing an Airport Master Plan for Shively Field (SAA) and is requesting your guidance as it relates to any environmental factors which might need to be addressed in the future. The consideration of environmental factors in the airport master planning process is done in order to better understand future environmental impacts of planned development and is not completed to the level of detail required for an Environmental Analysis or Environmental Impact Statement. Rather, it is intended to provide an overview of the level of environmental analysis that may be expected for each planned development project.

In this environmental review for Shively Field we would like you to identify any key environmental issues that will need to be addressed in the future when the Town of Saratoga proceeds with the proposed facility improvements and development alternatives illustrated in the attachments provided.

Your comments are important for further evaluation of the proposed facility requirements and development alternatives and will be included in the environmental analysis section of the master plan report. Please call if any additional information is needed to complete your response. Your efforts on this environmental analysis are greatly appreciated.

Sincerely,

Michael Haak
Airport Planner

Cc: John Sweeney, Community Planner, FAA – Denver ADO
Kandice Krull, Environmental Protection Specialist, FAA – Denver ADO
John Mahoney, Aviation Planner, WYDOT Aeronautics

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
WYOMING REGULATORY OFFICE
2232 DELL RANGE BOULEVARD, SUITE 210
CHEYENNE WY 82009-4942

REPLY TO
ATTENTION OF

August 19, 2013

Wyoming Regulatory Office

Mr. Michael Haak
Airport Planner
Aeroland Planning, LLC
700 Colorado Blvd., #152
Denver, Colorado 80206

Dear Mr. Haak:

This is in response to your letter dated August 8, 2013, which we received on this date, requesting comments on the Airport Master Plan – Environmental Analysis for Shively Field (SSA) near Saratoga, Wyoming. The Shively airport facility is located in approximately the NW ¼, Section 14, Township 17 North, Range 84 West, Carbon County, Wyoming.

The U.S. Army Corps of Engineers regulates the placement of dredged and fill material into waters of the United States under Section 404 of the Clean Water Act (33 U.S.C. 1344). The Corps' regulations are published in the *Code of Federal Regulations* as 33 CFR Parts 320 through 332. Information on Section 404 requirements in Wyoming can be obtained from our website at: http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Wyoming.aspx

It appears from the information you provided that there are no near term activities proposed in the Master Plan that would involve the placement of fill material into waters of the U.S. Accordingly, recommend you contact our office at a future date if/when specific expansion plans are developed that could involve the placement of fill material into waters of the U.S.

Thank you for your interest in cooperating with the requirements of the U.S. Army Corps of Engineers' regulatory program. If you have any questions regarding this determination, please contact me at (307) 772-2300 and reference file NWO-2013-01518.

Sincerely,

Matthew A. Bilodeau
State Program Manager
Wyoming Regulatory Office

Omaha District, Regulatory Branch, Wyoming Regulatory Office is committed to providing quality and timely service to our customers. Please take a moment to complete a Customer Service Survey found on our web site at http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Wyoming.aspx Paper copies of the survey are also available upon request for those without Internet access.

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
2301 Central Ave., Barrett Bldg. 3rd Floor
Cheyenne, WY 82002
307-777-5497
FAX: 307-777-6421
http://wyoshpo.state.wy.us

August 30, 2013

Michael Haak, Airport Planner
Aeorland Planning, LLC
700 Colorado Blvd #152
Denver, CO 80206

Re: Draft Airport Master Plan - Environmental Analysis, Shively Field (SAA), Saratoga, WY (SHPO File #0813MKR007)

Dear Mr. Haak:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced planning document.

Our office's only concern with the proposed plans is the eligibility of the "Old Terminal/Tower Building" since one of the plan's stated goals is to remove it and replace it with a new building. It is unclear when the Old Terminal/Tower Building was initially built or what historical significance it may have. As the Federal agency involved in the proposed undertaking, we would encourage the FAA to evaluate the building for its eligibility and make a determination of effect which is shared with our office. This will complete the Section 106 process. I have also discussed this need with John Sweeney, Community Planner of FAA.

Please refer to SHPO project #0813MKR007 on any future correspondence regarding this undertaking. If you have any questions, please contact me at 307-777-7566.

Sincerely,

Melissa Robb

Melissa Robb
Historic Architecture Specialist

Cc: John Sweeney, Community Planner, FAA – Denver ADO

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

September 5, 2013

WER 13255
Aeroland Planning, LLC
Environmental Analysis
Airport Master Plan
Shively Field
Town of Saratoga
Carbon County

Michael Haak
Airport Planner
Environmental Scientist
Aeroland Planning, LLC
700 Colorado Blvd #152
Denver, CO 80206

Dear Mr. Haak:

The staff of the Wyoming Game and Fish Department has completed the environmental analysis for the Town of Saratoga's Shively Field Airport Master Plan in Carbon County. We offer the following comments for your consideration.

Terrestrial Considerations:

Recent greater sage-grouse research in the Saratoga area has indicated that sage-grouse use habitat inside the airport boundary during the winter months. Be aware that the use of the area by sage-grouse and other bird species may present a hazard to air traffic.

As the airport site is currently within a sage-grouse core area, future expansion into currently unoccupied lands surrounding the airport may require the completion of a DDCT (disturbance and density analysis tool) to determine and record the acres disrupted in this core area per the Governor's Executive Order for Sage-grouse. This effort may not affect the outcome of an airport expansion per se, but the expansion would need to be accounted for as it may impact neighboring development within the core area.

Department personnel have observed mule deer inside the airport's game-proof fence, in close proximity to the runway. We recommend improving fences and gates to better exclude big game use of Shively Field and minimize potential collisions with wildlife.

We recommend consultation with the U.S. Fish and Wildlife Service in regard to direct and indirect impacts to raptors, and any potential threatened and endangered species.

Aquatic Considerations:

For future construction activities, we recommend the following recommendations to minimize impacts to the aquatic resources of nearby waterways:

- Accepted best management practices be implemented to ensure that all sediments and other pollutants are contained within the boundaries of the work area. Disturbed areas that are contributing sediment to surface waters as a result of project activities should be promptly re-vegetated to maintain water quality.

- Equipment should be serviced and fueled away from streams and riparian areas. Equipment staging areas should be at least 300 feet from riparian areas.

- Preventing the spread of aquatic invasive species (AIS) is a priority for the State of Wyoming, and in many cases, the intentional or unintentional spread of organisms from one body of water to another would be considered a violation of State statute and Wyoming Game and Fish Commission Regulation. To prevent the spread of AIS, the following is required:

  If equipment has been used in a high risk infested water [a water known to contain Dreissenid mussels* (zebra/quagga mussels)], the equipment must be inspected by an authorized aquatic invasive species inspector recognized by the state of Wyoming prior to its use in any Wyoming water.

  Any equipment entering the State by land from March through November (regardless of where it was last used), must be inspected by an authorized aquatic invasive species inspector prior to its use in any Wyoming waters.

  If aquatic invasive species are found, the equipment will need to be decontaminated by an authorized aquatic invasive species inspector.

  Any time equipment is moved from one 4th level (8-digit) Hydrological Unit Code watershed to another within Wyoming, the following guidelines are recommended:

  DRAIN: Drain all water from watercraft, gear, equipment, and tanks. Leave wet compartments open to dry.
  CLEAN: Clean all plants, mud, and debris from vehicle, tanks, watercraft, and equipment.

DRY: Dry everything thoroughly. In Wyoming, we recommend drying for 5 days in Summer (June - August); 18 days in Spring (March - May) and Fall (September - November); or 3 days in Winter (December - February) when temperatures are at or below freezing.

*A list of high risk infested waters and locations in Wyoming to obtain an AIS inspection can be found at: wgfd.wyo.gov

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Mike Snigg, Laramie Region Fisheries Supervisor, at 307-745-5180 Ext. 237.

Sincerely,

Mark Konishi
Deputy Director

MK/mf/gb

cc: USFWS
Mike Snigg, Laramie Region

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

SEP 13 2013

In Reply Refer To:
06E13000/WY13CPA0273

Michael Haak, Airport Planner
Aeroland Planning, LLC
700 Colorado Blvd. #152
Denver, Colorado 80206

Dear Mr. Haak:

Thank you for your letter dated August 8, 2013, received in our office on August 15, regarding the Airport Master Plan for Shively Field (Project). This Project is located at the existing Shively Field airport 1 mile southwest of the central business district of Saratoga in Carbon County, Wyoming. The Project consists of aeronautical and non-aeronautical facility developments and improvements to serve future aircraft operations and projected air traffic growth over the next twenty years.

You have requested information regarding species listed under the Endangered Species Act of 1973, as amended (ESA), 16 U.S.C. 1531 *et seq.* In response to your request, the U.S. Fish and Wildlife Service (Service) is providing recommendations for protective measures for threatened and endangered species in accordance with the ESA. We are also providing recommendations concerning migratory birds in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (Eagle Act), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 *et seq.*, and the Fish and Wildlife Act of 1956, as amended, 16 U.S.C. 742a-742j.

The Service has transitioned to a new online program to deliver species lists: the Information, Planning, and Conservation (IPaC) system. To obtain a current list of endangered, threatened, proposed, and candidate species and their designated and proposed critical habitat that occur in or may be affected by actions associated with your proposed project, please visit our website at http://ecos.fws.gov/ipac/. This website will provide you with an immediate response to your species list request. The response will also include information regarding other Service trust authorities.

In accordance with section 7(c) of the ESA, we have determined that the following species or their designated habitat may be present in the proposed project area. We would appreciate receiving information as to the current status of each of these species within the proposed project area.

Endangered, Threatened, and Candidate Species
And Their Designated and Proposed Critical Habitat That Occur
In or May Be Affected by Actions in the Proposed Project Area
September 2013

Species/Critical Habitat	Scientific Name	Status	Habitat
Platte River Species • Least Tern (Interior Population), • Pallid Sturgeon, • Piping Plover, • Western Prairie Fringed Orchid, • Whooping Crane	 *Sterna (Sternula) antillarum* *Scaphirhynchus albus* *Charadrius melodus* *Platanthera praeclara* *Grus americana*	 Endangered Endangered Threatened Threatened Endangered	Riverine habitat downstream of Wyoming in the Platte River system
Platte River Species Critical Habitat	Designated for whooping crane in Nebraska in riverine habitat of the Platte River system (see 50 CFR 17.95(b))		
Ute Ladies'-tresses	*Spiranthes diluvialis*	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 ft. elevation
Greater Sage-grouse	*Centrocercus urophasianus*	Candidate	Sagebrush communities

Platte River Species: If the proposed action may lead to consumptive use of water or have the potential to affect water quality in the Platte River System, there may be impacts to threatened and endangered species inhabiting the downstream reaches of this river system. For more information on how to seek coverage under the Act for water-related activities through the Platte River Recovery Implementation Program, please visit our web site at http://www.fws.gov/platteriver.

Ute Ladies'-tresses: Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial orchid, 8 to 20 inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. Ute ladies'-tresses typically blooms from late July through August. However, it may bloom in early July or still be in flower as late as early October, depending on location and climatic conditions. Ute ladies'-tresses is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams where it colonizes early successional point bars or sandy edges. The elevation range of known occurrences is 4,200 to 7,000 feet (although no known populations in Wyoming occur above 5,500 feet). Soils where Ute ladies'-tresses have been found typically

range from fine silt/sand, to gravels and cobbles, as well as to highly organic and peaty soil types. Ute ladies'-tresses is not found in heavy or tight clay soils or in extremely saline or alkaline soils. Ute ladies'-tresses typically occurs in small, scattered groups found primarily in areas where vegetation is relatively open.

Many orchid species take 5 to 10 years to reach reproductive maturity; this appears to be true for Ute ladies'-tresses (FR 57 2048). Furthermore, reproductively mature plants do not flower every year. For these reasons, 2 to 3 years of surveys are necessary to determine presence or absence of Ute ladies'-tresses. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys.

Greater Sage-grouse: The greater sage-grouse (*Centrocercus urophasianus*) is a candidate for listing under the Act (75 FR 13910, March 23, 2010). Please see our recent *Federal Register* notice for detailed information concerning the status of the species; this notice is available at http://www.fws.gov/wyominges/Pages/Species/Findings/GrtSageGrouse_CandidateBulletin.html. Greater sage-grouse are dependent on sagebrush habitats year-round. Habitat loss and degradation, as well as loss of population connectivity have, been identified as important factors contributing to the decline of greater sage-grouse populations rangewide. Therefore, any activities that result in loss or degradation of sagebrush habitats that are important to this species should be closely evaluated for their impacts to sage-grouse.

We recommend you contact the Wyoming Game and Fish Department to identify important greater sage-grouse habitats, recommended seasonal restrictions within the project area, and appropriate measures to minimize potential impacts from the proposed project. The Service recommends surveys and mapping of important greater sage-grouse habitats where local information is not available. The results of these surveys should be used in project planning to minimize potential impacts to this species. No project activities that may exacerbate habitat loss or degradation should be permitted in important habitats.

The State of Wyoming has adopted a "Greater Sage-grouse Core Area Protection" Executive Order 2011-5 to ensure greater sage-grouse conservation. The recommendations of the State Sage-grouse Implementation Team and Executive Order 2011-5 state that development of any type in the identified core areas is done only when no decline to the species can be demonstrated. Executive Order 2011-5 further states the burden of proof for showing development does not affect sage-grouse rests with the industry or proponent in question, and any research they feel is necessary to convey this, should be conducted outside of core areas. If a proposed project is located in an area designated by the State of Wyoming as a core sage-grouse population area, we recommend you pursue additional consultation with the Wyoming Game and Fish Department on the core area strategy as appropriate.

Wetlands/Riparian Areas

Wetlands or riparian areas may be impacted by the proposed project. Wetlands perform significant ecological functions which include: (1) providing habitat for numerous aquatic and terrestrial wildlife species, (2) aiding in the dispersal of floods, (3) improving water quality through retention and assimilation of pollutants from storm water runoff, and (4) recharging the

aquifer. Wetlands also possess aesthetic and recreational values. If wetlands may be destroyed or degraded by the proposed action, those wetlands in the project area should be inventoried and fully described in terms of their functions and values. Acreage of wetlands, by type, should be disclosed and specific actions should be outlined to avoid, minimize, and compensate for all unavoidable wetland impacts.

Riparian or streamside areas are a valuable natural resource and impacts to these areas should be avoided whenever possible. Riparian areas are the single most productive wildlife habitat type in North America. They support a greater variety of wildlife than any other habitat. Riparian vegetation plays an important role in protecting streams, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian areas should be avoided. Any potential, unavoidable encroachment into these areas should be further avoided and minimized. Unavoidable impacts to streams should be assessed in terms of their functions and values, linear feet and vegetation type lost, potential effects on wildlife, and potential effects on bank stability and water quality. Measures to compensate for unavoidable losses of riparian areas should be developed and implemented as part of the project.

Plans for mitigating unavoidable impacts to wetland and riparian areas should include mitigation goals and objectives, methodologies, time frames for implementation, success criteria, and monitoring to determine if the mitigation is successful. The mitigation plan should also include a contingency plan to be implemented should the mitigation not be successful. In addition, wetland restoration, creation, enhancement, and/or preservation does not compensate for loss of stream habitat; streams and wetlands have different functions and provide different habitat values for fish and wildlife resources.

Best Management Practices (BMPs) should be implemented within the project area wherever possible. BMPs include, but are not limited to, the following: installation of sediment and erosion control devices (*e.g.*, silt fences, hay bales, temporary sediment control basins, erosion control matting); adequate and continued maintenance of sediment and erosion control devices to insure their effectiveness; minimization of the construction disturbance area to further avoid streams, wetlands, and riparian areas; location of equipment staging, fueling, and maintenance areas outside of wetlands, streams, riparian areas, and floodplains; and re-seeding and re-planting of riparian vegetation native to Wyoming in order to stabilize shorelines and streambanks.

Migratory Birds: The Migratory Bird Treaty Act (MBTA), enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs, except as permitted by regulations, and does not require intent to be proven. Section 703 of the MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird...." The Bald and Golden Eagle Protection Act (Eagle Act) prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing.

Removal or destruction of such nests or causing abandonment of a nest could constitute violation of one or both of the above statutes. Removal of any active migratory bird nest or nest tree is prohibited. For golden eagles, inactive nest permits are limited to activities involving resource extraction or human health and safety. Mitigation, as determined by the local Service field office, may be required for loss of these nests. No permits will be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety. Therefore, if nesting migratory birds are present on or near the project area, timing is a significant consideration and needs to be addressed in project planning.

Work that could lead to the take of a migratory bird or eagle, their young, eggs, or nests (e.g., if you are going to erect new roads, or power lines in the vicinity of a nest), should be coordinated with our office before any actions are taken. If nest manipulation is proposed for this project, the project proponent should contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued for this project. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur.

Eagles/Raptors

Enclosed please find our general recommendations for the protection of eagles and other raptor species. We strongly encourage project proponents to fully implement the protective measures described in the enclosures in order to help ensure compliance with the MBTA and the Eagle Act. We are also available to assist you in developing a project specific plan to address the MBTA and Eagle Act concerns.

For our internal tracking purposes, the Service would appreciate notification of any decision made on this project (such as issuance of a permit or signing of a Record of Decision or Decision Memo). Notification can be sent in writing to the letterhead address or by electronic mail to FW6_Federal_Activities_Cheyenne@fws.gov.

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If you have questions regarding this letter or your responsibilities under the ESA and/or other authorities or resources described above, please contact Kim Vincent of my office at the letterhead address or phone (307) 772-2374, extension 229.

Sincerely,

R. Mark Sattelberg
Field Supervisor
Wyoming Field Office

Enclosure (1)

cc: WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

U.S. Fish and Wildlife Service, Wyoming Ecological Services Field Office

Protections for Raptors

Raptors, or birds of prey, and the majority of other birds in the United States are protected by the Migratory Bird Treaty Act, 16 U.S.C. 703 (MBTA). A complete list of migratory bird species can be found in the Code of Federal Regulations at 50 CFR 10.13. Eagles are also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. 668 (Eagle Act).

The MBTA protects migratory birds, eggs and nests from possession, sale, purchase, barter, transport, import, export, and take. The regulatory definition of take, defined in 50 CFR 10.12, means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect a migratory bird. Activities that result in the unpermitted take (e.g., result in death, possession, collection, or wounding) of migratory birds or their eggs are illegal and fully prosecutable under the MBTA. Removal or destruction of active nests (i.e., nests that contain eggs or young), or causing abandonment of an active nest, could constitute a violation of the MBTA, the Eagle Act, or both statutes. Removal of any active migratory bird nest or any structure that contains an active nest (e.g., tree) where such removal results in take is prohibited. Therefore, if nesting migratory birds are present on or near a project area, project timing is an important consideration during project planning. As discussed below, the Eagle Act provides additional protections for bald and golden eagles and their nests. For additional information concerning nests and protections under the MBTA, please see the U.S. Fish and Wildlife Service's (Service) Migratory Bird Permit Memorandum, MBMP-2.

The Service's Wyoming Ecological Services Field Office works to raise public awareness about the possible occurrence of birds in proposed project areas and the risk of violating the MBTA, while also providing guidance to minimize the likelihood that take will occur. We encourage you to coordinate with our office before conducting actions that could lead to the take of a migratory bird, their young, eggs, or active nests (e.g., construction or other activity in the vicinity of a nest that could result in a take). If nest manipulation is proposed for a project in Wyoming, the project proponent should also contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued. Permits generally are not issued for an active nest of any migratory bird species, unless removal of the nest is necessary for human health and safety. If a permit cannot be issued, the project may need to be modified to ensure take of migratory birds, their young or eggs will not occur.

For infrastructure (or facilities) that have potential to cause direct avian mortality (e.g., wind turbines, guyed towers, airports, wastewater disposal facilities, transmission lines), we recommend locating structures away from high avian-use areas such as those used for nesting, foraging, roosting or migrating, and the travel zones between high-use areas. If the wildlife survey data available for the proposed project area and vicinity do not provide the detail needed to identify normal bird habitat use and movements, we recommend collecting that information prior to determining locations for any infrastructure that may create an increased potential for avian mortalities. We also recommend contacting the Service's Wyoming Ecological Services office for project-specific recommendations.

Additional Protections for Eagles

The Eagle Act protections include provisions not included in the MBTA, such as the protection of unoccupied nests and a prohibition on disturbing eagles. Specifically, the Eagle Act prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagle or their body parts, nests, chicks or eggs, which includes collection, possession, molestation, disturbance, or killing. The term "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.3 and see also 72 FR 31132).

The Eagle Act includes limited exceptions to its prohibitions through a permitting process. The Service has issued regulations concerning the permit procedures for exceptions to the Eagle Act's prohibitions (74 FR 46836), including permits to take golden eagle nests which interfere with resource development or recovery operations (50 CFR 22.25). The regulations identify the conditions under which a permit may be issued (i.e., status of eagles, need for action), application requirements, and other issues (e.g., mitigation, monitoring) necessary in order for a permit to be issued.

For additional recommendations specific to Bald Eagles please see our Bald Eagle information web page (http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html).

Recommended Steps for Addressing Raptors in Project Planning

Using the following steps in early project planning, agencies and proponents can more easily minimize impacts to raptors, streamline planning and permitting processes, and incorporate measures into an adaptive management program:

1. Coordinate with appropriate Service offices, Wyoming Game and Fish Department, Tribal governments, and land-management agencies at the earliest stage of project planning.
2. Identify species and distribution of raptors occurring within the project area by searching existing data sources (e.g., Wyoming Game and Fish Department, Federal land-management agencies) and by conducting on-site surveys.
3. Plan and schedule short-term and long-term project disturbances and human-related activities to avoid raptor nesting and roosting areas, particularly during crucial breeding and wintering periods
4. Determine location and distribution of important raptor habitat, nests, roost sites, migration zones and, if feasible, available prey base in the project impact area.
5. Document the type, extent, timing, and duration of raptor activity in important use areas to establish a baseline of raptor activity.
6. Ascertain the type, extent, timing, and duration of development or human activities proposed to occur, and the extent to which this differs from baseline conditions.
7. Consider cumulative effects to raptors from proposed projects when added to past, present, and reasonably foreseeable actions. Ensure that project mitigation adequately addresses cumulative effects to raptors.
8. Minimize loss of raptor habitats and avoid long-term habitat degradation. Mitigate for unavoidable losses of high-valued raptor habitats, including (but not limited to) nesting, roosting, migration, and foraging areas.
9. Monitor and document the status of raptor populations and, if feasible, their prey base post project completion, and evaluate the success of mitigation efforts.
10. Document meaningful data and evaluations in a format that can be readily shared and incorporated into wildlife databases (contact the Service's Wyoming Ecological Services office for details).

Protection of nesting, wintering (including communal roost sites), and foraging activities is considered essential to conserving raptors. In order to promote the conservation of migratory bird populations and their habitats, Federal agencies should implement those strategies directed by Executive Order 13186, "Responsibilities of Federal Agencies To Protect Migratory Birds" (66 FR 3853).

Recommended Seasonal and Spatial Buffers to Protect Nesting Raptors

Because many raptors are particularly sensitive to disturbance (that may result in take) during the breeding season, we recommend implementing spatial and seasonal buffer zones to protect individual nest sites/territories (Table 1). The buffers serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or

replacement nest trees. The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there is little or no forested or topographical separation, distance alone must serve as the buffer. Adequate nesting buffers will help ensure activities do not take breeding birds, their young or eggs. For optimal conservation benefit, we recommend that no temporary or permanent surface occupancy occur within species-specific spatial buffer zones. For some activities with very substantial auditory impacts (e.g., seismic exploration and blasting) or visual impacts (e.g., tall drilling rig), a larger buffer than listed in Table 1 may be necessary, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

As discussed above, for infrastructure that may create an increased potential for raptor mortalities, the spatial buffers listed in Table 1 may not be sufficient to reduce the incidence of raptor mortalities (for example, if a wind turbine is placed outside a nest disturbance buffer, but inadvertently still within areas of normal daily or migratory bird movements); therefore, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

Buffer recommendations may be modified on a site-specific or project-specific basis based on field observations and local conditions. The sensitivity of raptors to disturbance may be dependent on local topography, density of vegetation, and intensity of activities. Additionally, individual birds may be habituated to varying levels of disturbance and human-induced impacts. Modification of protective buffer recommendations may be considered where biologically supported and developed in coordination with the Service's Wyoming Ecological Services Field Office.

Because raptor nests are often initially not identified to species (e.g., preliminary aerial surveys in winter), we first recommend a generic raptor nest seasonal buffer guideline of January 15th – August 15th. Similarly, for spatial nesting buffers, until the nesting species has been confirmed, we recommend applying a 1-mile spatial buffer around the nest. Once the raptor species is confirmed, we then make species-specific and site-specific recommendations on seasonal and spatial buffers (Table 1).

Activities should not occur within the spatial/seasonal buffer of any nest (occupied or unoccupied) when raptors are in the process of courtship and nest site selection. Long-term land-use activities and human-use activities should not occur within the species-specific spatial buffer of occupied nests. Short-term land use and human-use activities proposed to occur within the spatial buffer of an occupied nest should only proceed during the seasonal buffer after coordination with the Service, State, and Tribal wildlife resources management agencies, and/or land-management agency biologists. If, after coordination, it is determined that due to human or environmental safety or otherwise unavoidable factors, activities require temporary incursions within the spatial and seasonal buffers, those activities should be planned to minimize impacts and monitored to determine whether impacts to birds occurred. Mitigation for habitat loss or degradation should be identified and planned in coordination with applicable agencies.

Please contact the Service's Wyoming Ecological Services Field Office if you have any questions regarding the status of the bald eagle, permit requirements, or if you require technical assistance regarding the MBTA, Eagle Act, or the above recommendations. The recommended spatial and seasonal buffers are voluntary (unless made a condition of permit or license) and are not regulatory, and they do not supersede provisions of the MBTA, Eagle Act, Migratory Bird Permit Memorandum (MBMP-2), and Endangered Species Act. Assessing legal compliance with the MBTA or the Eagle Act and the implementing regulations is ultimately the authority and responsibility of the Service's law enforcement personnel. Our recommendations also do not supersede Federal, State, local, or Tribal regulations or permit conditions that may be more restrictive.

Table 1. Service's Wyoming Ecological Services Field Office's Recommended Spatial and Seasonal Buffers for Breeding Raptors

Raptors of Conservation Concern (see below for more information)

Common Name	Spatial buffer (miles)	Seasonal buffer
Golden Eagle	0.50	January 15 - July 31
Ferruginous Hawk	1.00	March 15 - July 31
Swainson's Hawk	0.25	April 1 - August 31
Bald Eagle	see Bald Eagle information web page[1]	
Prairie Falcon	0.50	March 1 - August 15
Peregrine Falcon	0.50	March 1 - August 15
Short-eared Owl	0.25	March15- August 1
Burrowing Owl	0.25	April 1 – September 15
Northern Goshawk	0.50	April 1 - August 15

Additional Wyoming Raptors

Common Name	Spatial buffer (miles)	Seasonal buffer
Osprey	0.25	April 1 - August 31
Cooper's Hawk	0.25	March 15 – August 31
Sharp-shinned Hawk	0.25	March 15 – August 31
Red-tailed Hawk	0.25	February 1 – August 15
Rough-legged Hawk (winter resident only)	----	----
Northern Harrier	0.25	April 1 - August 15
Merlin	0.50	April 1 - August 15
American Kestrel	0.125	April 1 – August 15
Common Barn Owl	0.125	February 1 – September 15
Northern Saw-whet Owl	0.25	March 1 - August 31
Boreal Owl	0.25	February 1 – July 31
Long-eared Owl	0.25	February 1 – August 15
Great Horned Owl	0.125	December 1 – September 30
Northern Pygmy-Owl	0.25	April 1 – August 1
Eastern Screech -owl	0.125	March 1 – August 15
Western Screech-owl	0.125	March 1 – August 15
Great Gray Owl	0.25	March 15 – August 31

[1] http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html

Raptors of Conservation Concern

The Service's Birds of Conservation Concern (2008) report identifies "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing" under the Endangered Species Act (16 U.S.C 1531 et seq.). This report is intended to stimulate coordinated and proactive conservation actions among Federal, State, and private partners. The Wyoming Partners in Flight Wyoming Bird Conservation Plan identifies priority bird species and habitats, and establishes objectives for bird populations and habitats in Wyoming. This plan also recommends conservation actions to accomplish the population and habitat objectives.

We encourage project planners to develop and implement protective measures for the Birds of Conservation Concern as well as other high-priority species identified in the Wyoming Bird Conservation Plan. For

additional information on the Birds of Conservation Concern that occur in Wyoming, please see our Birds of Conservation Concern web page.

Additional Planning Resources

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Edison Electric Institute and the Raptor Research Foundation. 1996. Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1996. Washington, D.C.

Edison Electric Institute's Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service. 2005. Avian Protection Plan Guidelines.

Edison Electric Institute and the Raptor Research Foundation. 1994. Mitigating Bird Collisions with Power Lines - The State of the Art in 1994. Washington, D.C.

U.S. Fish and Wildlife Service. 2000. Siting, Construction, Operation and Decommissioning of Communications Towers and Tower Site Evaluation Form (Directors Memorandum September 14, 2000), Arlington, Virginia.

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. United States Department of Interior, Fish and Wildlife Service, Arlington, Virginia. 23 pp.

Wyoming Game and Fish Department Internet Link to Raptor Information

References

50 CFR 10.12 – Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 10--General Provisions.

50 CFR 10.13– Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 10--General Provisions.

50 CFR 22.3 – Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 22—Eagle Permits.

50 CFR 22.25– Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 22—Eagle Permits.

66 FR 3853 - Presidential Documents. Executive Order 13186 of January 10, 2001. Responsibilities of Federal Agencies To Protect Migratory Birds. Federal Register, January 17, 2001.

72 FR 31132 - Protection of Eagles; Definition of "Disturb". Final Rule. Federal Register, June 5, 2007.

74 FR 46836 - Eagle Permits; Take Necessary To Protect Interests in Particular Localities. Final Rule. Federal Register, September 11, 2009.

U.S. Fish and Wildlife Service. 2003. Migratory Bird Permit Memorandum, MBMP-2, Nest Destruction (Directors Memorandum April 15, 2003), Washington, D.C.

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.

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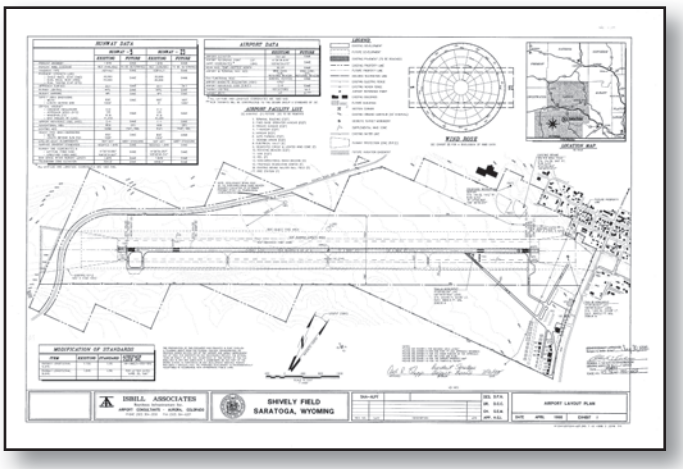
Compliance Planning

Document Review

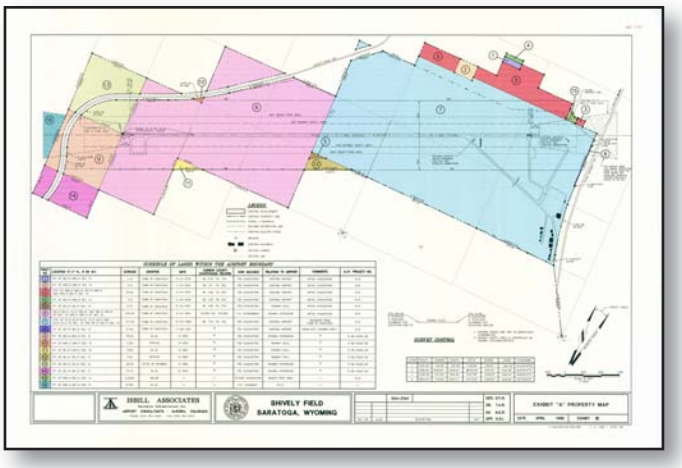
Airport Layout Plan (ALP)

The last signed ALP on record with WYDOT Aeronautics was signed July 13, 1998. An "as-built" ALP was provided in 2005 following construction of the parallel taxiway.



Airport Property Map – Exhibit "A"

The 1998 Exhibit "A" identifies the airport owns 66% of the land within the existing Runway Protection Zones and does not have an easement over the remaining unowned portions.



Town of Saratoga Ordinances

Title 14 of the Town of Saratoga Municipal Ordinances covers the Airport and offers specific information regarding:

- Chapter 14.04 – Airport Regulations
- Chapter 14.08 – Airport Board
- Chapter 14.12 – Airport Zoning

Wyoming DOT Priority Rating Model (PRM)

The Wyoming DOT Aeronautics Division updates the PRM annually and continuously provides airports opportunities to update the information as changes are made. The PRM update in 2011 identified three deficiencies with respect to Airport Protection which provide opportunities for improved airport protection and increased points in the model. The deficiencies identified include:

- Runway Protection Zones (RPZ) Ownership/Easements
- Land ownership in 65DNL noise contour
- Real Estate Disclosure Statement is not required when purchasing land in Airport Influence Area

Airport Minimum Standards

Airport minimum standards set forth the minimum requirements an individual or entity wishing to provide aeronautical services to the public on a public-use airport must meet in order to provide those services, such as minimum leasehold size, required equipment, hours of operation, and fees. Minimum standards should be imposed to ensure an adequate level of safe and efficient service is available to the public. (Source: Airport Sponsors Guide to Minimum Standards & Airport Rules and Regulations. National Air Transport Association, 2009)

Amended Minimum Airport Standards were passed and approved by the Airport Advisory Board on January 11, 2012, and a copy of the document is available at Town Hall upon request.

Airport Enterprise Fund/Budget

The June 30, 2011, Town of Saratoga Financial and Compliance Report identified two significant deficiencies with respect to the accounting and agreement with Saratoga Aviation. According to the report:

- The town had failed to enforce the requirements of the agreement with Saratoga Aviation.
- The town was not requiring fuel receipts be submitted by Saratoga Aviation upon the purchase of fuel.

Grant Assurances - Sponsor Certification

As a requirement of applying for federal funds the airport continuously strives to meet the following grant assurances. The following is a brief overview of each assurance and the requirements described in FAA Order 5190.6B *FAA Airport Compliance Manual*.

General Federal Requirements: The sponsor will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for improvement projects.

Responsibility and Authority of the Sponsor: The sponsor has legal authority to apply for grants, and to finance and carry out proposed projects.

Sponsor Fund Availability: The sponsor will assure sufficient funds available for sponsor's portion of project costs and assure continued operation and maintenance of airport and grant-funded items.

Good Title: The sponsor assures that it holds good title for airport property and land upon which a federally funded project will be constructed.

Preserving Rights and Powers: The sponsor agrees to not enter into any action that would deprive the airport of the rights and powers necessary to meet the terms of a grant agreement, and not to sell, lease, encumber, transfer, or dispose of any part of airport property as shown on an Exhibit A without FAA approval.

Consistency with Local Plans: The sponsor assures the proposed projects identified in the ALP will be reasonably consistent with development plans of local public agencies controlling land-use surrounding the airport.

Consideration of Local Interest: The sponsor assures the FAA that it has given fair consideration to the interests of the local communities in the vicinity of the airport by complying with the requirements included in the National Environmental Policy Act (NEPA).

Consultation with Users: The sponsor assures the FAA it will undertake a reasonable consultation and planning process with affected parties utilizing the airport when the decision is made to begin any airport development project.

Public Hearings: The sponsor must provide the opportunity for public hearings on development projects involving the location of an airport, runway, or major runway extension. The public hearings should provide the public an opportunity to discuss the economic, social, and environmental impacts of the project.

Air and Water Quality Standards: The sponsor will assure projects involving airport location, a major runway extension, or runway location it will provide for the Governor of the state in which the project is located to certify in writing to the Secretary that the project will be located, designed, constructed, and operated so as to comply with applicable air and water quality standards.

Pavement Preventive Maintenance: Any federally funded pavement project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, the sponsor assures or certifies that it has implemented an effective airport pavement maintenance-management program.

Terminal Development Prerequisites: The sponsor will assure that any terminal development project has all of the required safety equipment required by airport certification regulations. This assurance does not apply to non-certificated GA airports.

Accounting System, Audit, and Record Keeping: The sponsor assures that it will keep all project accounts and records that disclose the amount and disposition of grant funds, and will use an accounting system that facilitates an effective audit in accordance with the Single Audit Act of 1984. The sponsor must also make available to the FAA any books, documents, papers, and records pertinent to the grant.

Minimum Wage Rates: The sponsor will, in accordance with the Davis-Bacon Act, assure provisions establishing minimum wage rates as determined by the Secretary of Labor on all contracts in excess of $2,000.

Veteran's Preference: The sponsor will assure that projects involving labor include provisions that ensure preference is given to Veterans of the Vietnam era and disabled veterans, specifically when individuals are available and qualified to perform the work required.

Conformity to Plans and Specifications: The sponsor assures that it will execute projects in accordance with the plans, specifications, and schedules approved by the FAA.

Construction Inspection and Approval: The sponsor assures that it will provide and maintain competent technical supervision at the project site throughout the duration of the project to ensure that the work conforms to the approved plans, specifications, and schedules.

Planning Projects: The sponsor will assure that planning projects executed with federal grants will include periodic reports, notice of public funding on published documents, and readily available copies of published material for public examination.

Operation and Maintenance: The sponsor will assure that the aeronautical and common use areas will be operated for the benefit of the public and in a manner that will eliminate hazards to aircraft and persons. The sponsor will also assure that it will airport facilities operated at all times in a safe and serviceable condition and in accordance with the approved minimum standards.

Hazard Removal and Mitigation: The sponsor assures the protection of the terminal airspace, including clearing, removing, lowering, relocating, marking, lighting, or mitigating airport hazards (either obstruction or wildlife hazards).

Compatible Land Use: The sponsor assures it will take appropriate action, to reasonable extents, to restrict the use of lands in the vicinity of the airport to those land uses compatible with normal airport operations.

Economic Nondiscrimination: The sponsor assures the aeronautical facilities will be made available to the public and tenants on reasonable terms without unjust discrimination.

Exclusive Rights: The sponsor assures that it will operate the airport without granting or permitting any exclusive right to conduct any aeronautical activity at the airport, which can include air taxi and charter operations, aircraft storage, aviation fuel services, etc.

Fee and Rental Structure: The sponsor assures that it will maintain a fee and rental structure of the aviation facilities and services in a manner which will make the airport as financially self-sustaining as possible.

Airport Revenues: The sponsor assures that it will use all airport revenues for the capital or operating costs of the airport, local airport system, or local facilities directly related to the actual air transportation of passengers or property.

Reports and Inspections: The sponsor will provide annual or special financial reports as requested by the FAA and subsequently make them available to the public.

Use by Government Aircraft: The sponsor assures that the federal government will retain the right to use airport facilities jointly, without charge, unless the use is substantial.

Land for Federal Facilities: The sponsor assures it will provide airport land at no cost for air traffic control, weather, and communication facilities.

Airport Layout Plan: The sponsor assures that it will develop, operate, and maintain the airport in accordance with the latest approved airport layout plan. The sponsor also assures that any land depicted in the latest property map cannot be disposed of or otherwise encumbered without prior FAA approval.

Civil Rights: The sponsor will assure that no person will be excluded from participating in any activity conducted with or benefiting from funds received from a Federal grant on the basis of race, creed, color, national origin, gender, age, or handicap.

Disposal of Land: The sponsor will assure that the current fair market value cost of any land purchased with Federal grant funds determined no longer needed for its intended purpose, including airport development, airport noise compatibility, or aeronautical protection, will be repaid to the United States.

Engineering and Design Services: The sponsor assures that contracts or subcontracts for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping, or related services will be awarded in a qualifications based manner.

Foreign Market Restrictions: The sponsor will not allow funds from a Federal grant to be used to fund any project which uses products or services of a foreign country listed by the USA Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

Policies, Standards, and Specifications: The sponsor assures it will carry out projects in accordance with policies, standards, and specifications approved by the FAA, including advisory circulars.

Relocation and Real Property Acquisition: The sponsor will conduct real property acquisition in accordance with state law and 49 CFR Part 24.

Access by Intercity Buses: The sponsor assures, in as much is possible, access to the airport by buses or other modes of transportation.

Disadvantaged Business Enterprise: (DBE) The sponsor assures that the sponsor does not discriminate on the basis of race, color, national origin, or gender in the award and performance of Federally-assisted contracts or in the administration of a DBE plan.

Hangar Construction: The sponsor agrees that if a hangar is to be constructed for an aircraft at the aircraft owner's expense, the airport owner or operator will grant the aircraft owner a long-term lease that is subject to term and conditions as the airport owner or operator may impose.

Competitive Access: This assurance only applies to medium or large hub airports.

Potential Compliance Issues

Land Release for Non-Aeronautical Land Use

The improvements of the business park, north development area, and terminal area expansion all include proposed areas for aeronautical and non-aeronautical development. Any non-aeronautical development will require the submittal and approval of a land release request to the FAA.

Financial Reporting

The June 30, 2011, Town of Saratoga Financial and Compliance Report identified two significant deficiencies with respect to the accounting and agreement with Saratoga Aviation. According to the report:

- The town had failed to enforce the requirements of the agreement with Saratoga Aviation.
- The town was not requiring fuel receipts be submitted by Saratoga Aviation upon the purchase of fuel.

Since the report, the town has responded and demonstrated continued commitment to enforcing proper procedures in regards to the collection of funds from Saratoga Aviation and has had legal counsel review and update the agreement with Saratoga Aviation.

Non-Aeronautical Local Events

The FAA, as part of the conditions of receiving federal financial assistance, requires the sponsor of a federally obligated airport not to cause or permit any activity that would interfere with its use for airport purposes. An airport developed or improved with federal funds may not be closed for the purpose of using the airport facilities for special outdoor events, such as sports car races, county fairs, parades, etc., without FAA approval. (Temporary Airport Closure for Special Events, AOPA)

Wildlife Attractants

Numerous residents of Saratoga, existing and former Airport Board Members, and Wyoming Game and Fish personnel have observed mule deer inside the airport's game-proof fence and recommended improvements to the fences and gates to better minimize potential collisions with wildlife.

Record of Survey

As part of this Master Plan project scope, a Record of Survey to delineate the "Airport Boundary" was completed. The reasons for the record of survey were to:

- Establish a boundary within which the Town of Saratoga can specify as being for "airport purposes only,"
- Research all Town-owned lands to verify their existence, the control of such land by the

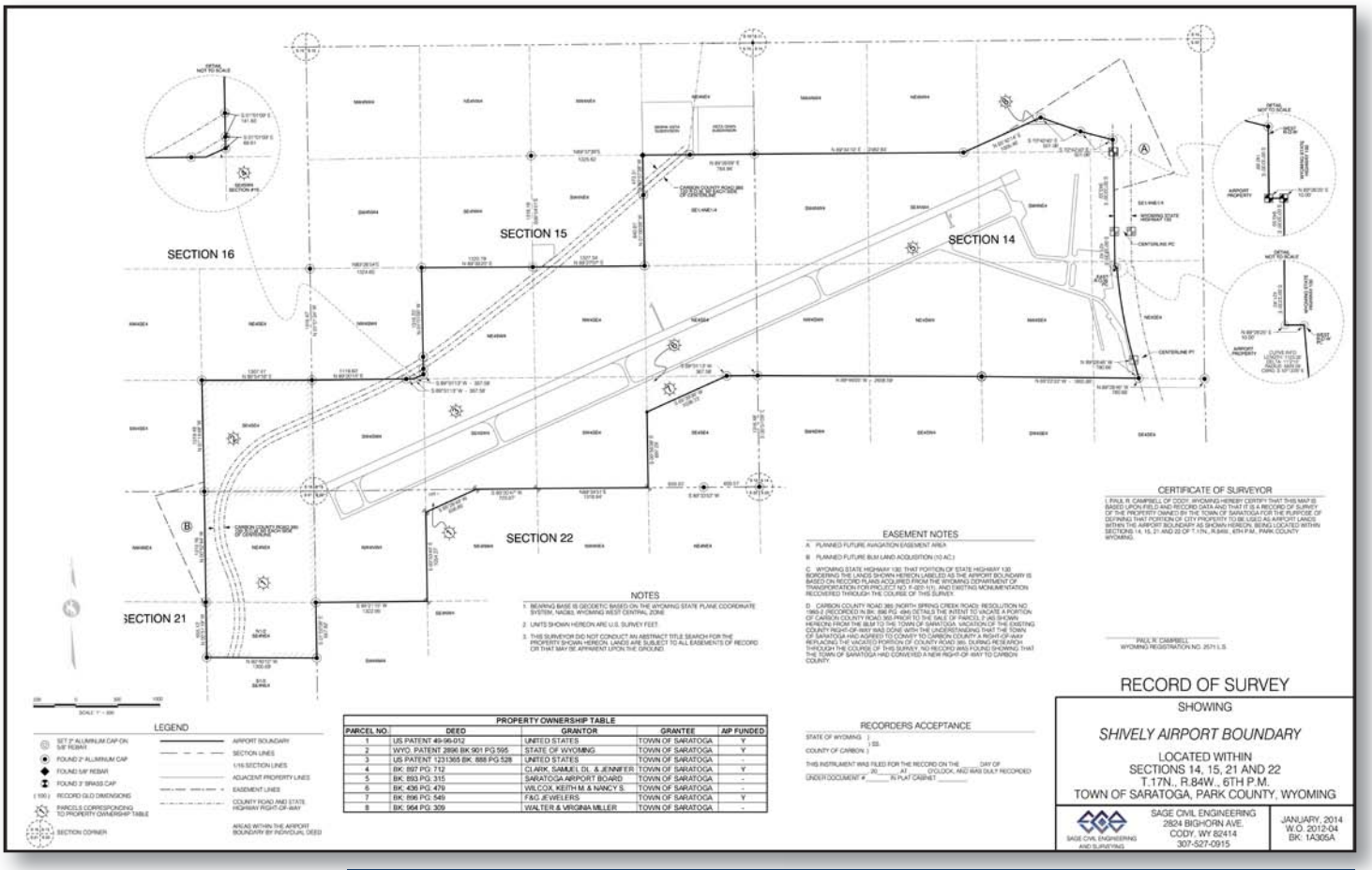
Town, and identify all parcels purchased with Airport Improvement Program (AIP) funds.

All lands that are currently being utilized for airport purposes are owned by the Town of Saratoga. The boundary shown on the Record of Survey splits some of these parcels, resulting in them being shown as partially within the airport boundary, but the parcel, deed, ownership, etc. are identical. The boundary line was chosen based on aeronautical needs, clearances, and imaginary surfaces. The lands within the airport boundary cannot be deeded separately because no autonomous airport authority currently exists.

Within Parcels 1, 2, and 3 shown on the Exhibit A, Airport Property Map, is a county road that was apparently relocated during a project in circa 1993 to extend Runway 23. No formal right-of-way or easement for this road was found during the completion of the Record of Survey. However, it is expected that such an agreement was intended to be completed, and it is also expected it was done with the full knowledge and consent of the FAA, since it is across land purchased with AIP funds. The following is included as Easement Note D on the Record of Survey plat:

CARBON COUNTY ROAD 385 (NORTH SPRING CREEK ROAD): RESOLUTION NO 1993-2 (RECORDED IN BK: 896 PG: 494) DETAILS THE INTENT TO VACATE A PORTION OF CARBON COUNTY ROAD 385 PRIOR TO THE SALE OF PARCEL 2 (AS SHOWN HEREON) FROM THE BLM TO THE TOWN OF SARATOGA. VACATION OF THE EXISTING COUNTY RIGHT-OF-WAY WAS DONE WITH THE UNDERSTANDING THAT THE TOWN OF SARATOGA HAD AGREED TO CONVEY TO CARBON COUNTY A RIGHT-OF-WAY REPLACING THE VACATED PORTION OF COUNTY ROAD 385. DURING RESEARCH THROUGH THE COURSE OF THIS SURVEY, NO RECORD WAS FOUND SHOWING THAT THE TOWN OF SARATOGA HAD CONVEYED A NEW RIGHT-OF-WAY TO CARBON COUNTY.

The research to identify and formalize an agreement between the Town and the County for this road is anticipated to be completed during the "Land-Use/Land Acquisition Improvements" projects contemplated for Phase 1 in the Airport's Capital Improvement Program (CIP).



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ALP Drawing Set

The Airport Layout Plan (ALP) Drawing Set was completed as an element of the Airport Master Plan for Shively Field.

Airport Layout Plan (ALP)

The ALP depicts the existing and future airport facilities. The drawing includes required facility identifications, description labels, imaginary surfaces, runway protection zones, runway safety areas and basic airport and runway data tables.

Terminal Area Layout

The Terminal Area Layout presents a large-scale depiction of the terminal area facility development reflecting existing and proposed hangar areas, FBO facilities, apron tie down areas, fence and access gate locations, etc.

Airport Airspace Drawing – FAR PART 77

The Airport Airspace Drawing (14 CFR Part 77, Objects Affecting Navigable Airspace) depicts PART 77 surfaces as well as the airspace obstructions.

Approach Plan and Profile (Outer)

The approach plan and profile drawing depicts the plan and profile of both the existing and proposed approaches to the full extent of the approach surface dimensions.

Approach Plan and Profile (Inner)

The approach plan and profile inner drawing depicts the approach area plan and profile of both the existing and proposed approach surfaces within the area of the existing and proposed Runway Protection Zones (RPZs). Any obstructions within the RPZ are identified in the obstruction table and on the drawings.

Departure Plan and Profile

The departure plan and profile drawing depicts the plan and profile of both the existing and proposed departure surfaces to the full extent of the surface dimensions.

Land-Use Drawing

The land-use drawing depicts on- and off-airport land uses and zoning in the area around the airport.

Property Map "Exhibit A"

The Airport Property Map "Exhibit A" drawing depicts the airport property boundary, the various tracts of land that were acquired to develop the airport, and the method of acquisition. The property map was prepared using information provided by the Town as well as from a Record of Survey completed as an element of this plan.

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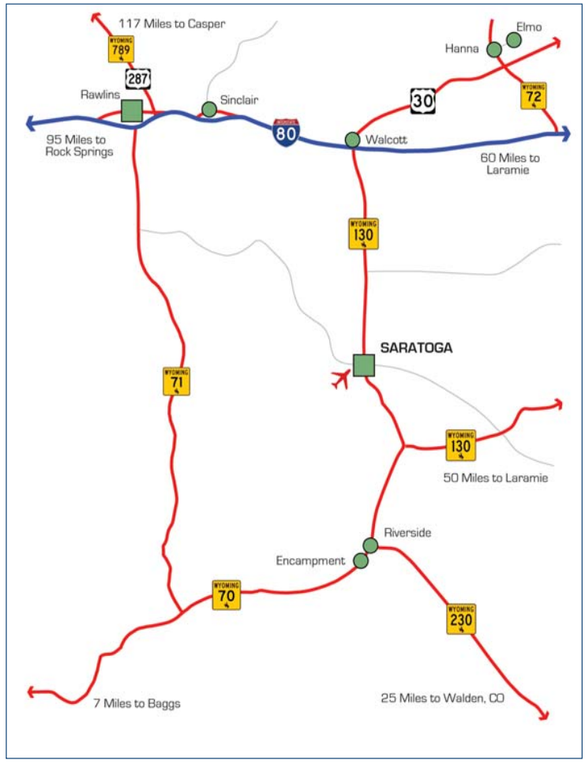
LOCATION MAP



AIRPORT LAYOUT PLAN DRAWING SET
SHIVELY FIELD
SARATOGA, WYOMING

August 2014

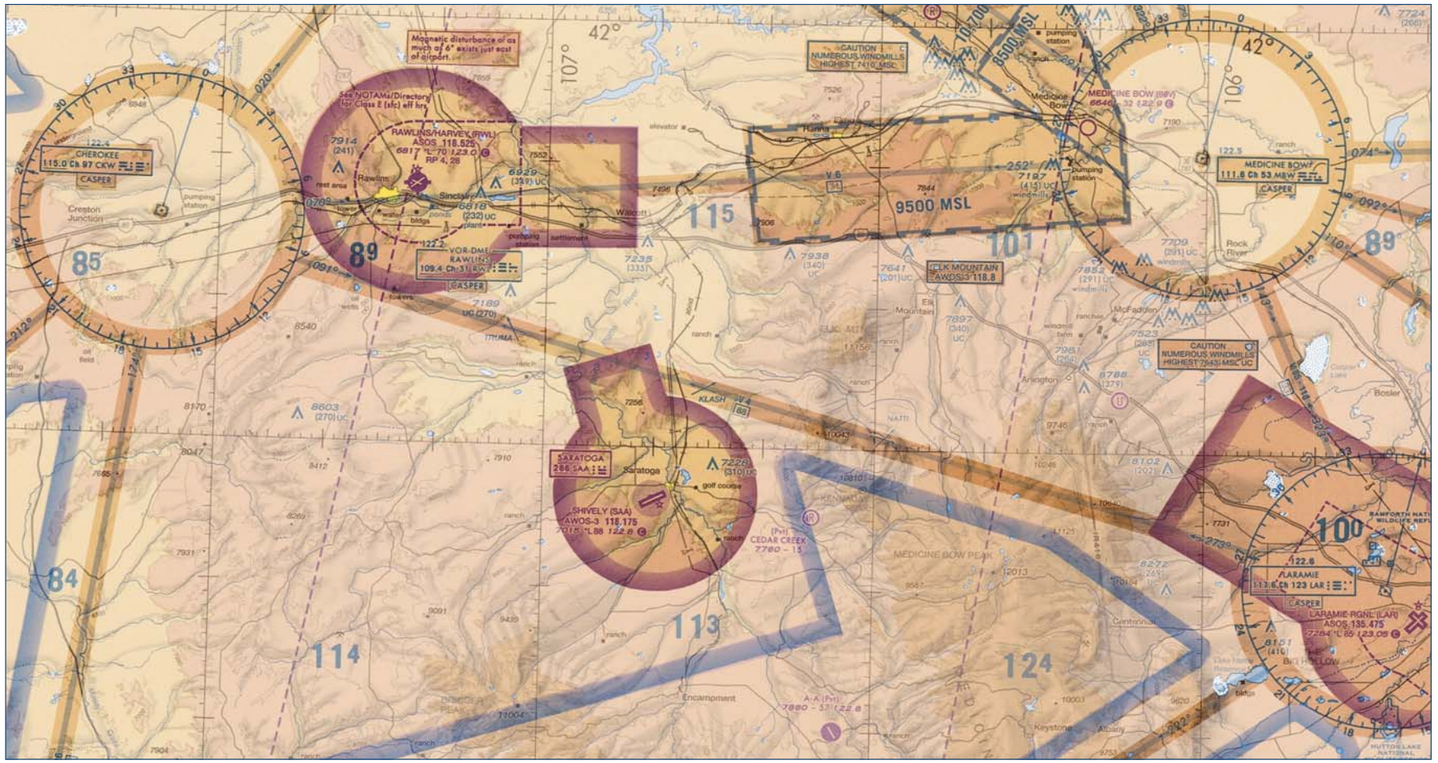
1 – COVER SHEET
2 – AIRPORT LAYOUT PLAN
3 – TERMINAL AREA LAYOUT
4 – PART 77 AIRSPACE PLAN
5 – RUNWAY 05/23 APPROACH PLAN AND PROFILE
6 – RUNWAY 05/23 INNER APPROACH PLAN AND PROFILE
7 – RUNWAY 05/23 DEPARTURE PLAN AND PROFILE
8 – LAND USE PLAN
9 – AIRPORT PROPERTY MAP "EXHIBIT A"

THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

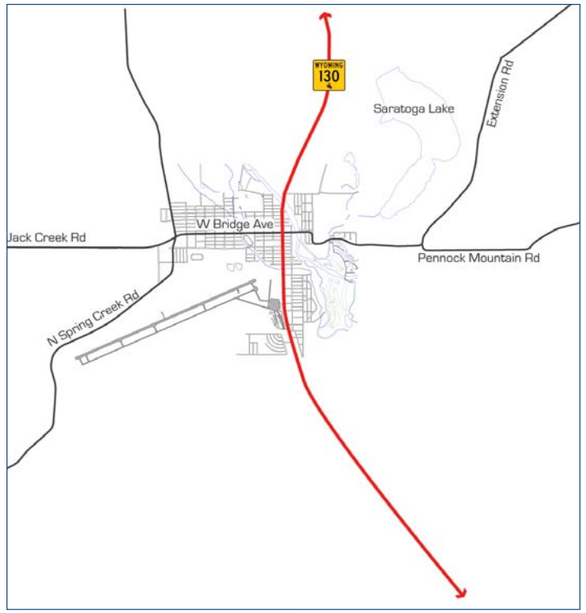
STATE OF WYOMING

Base Image Source: Wyoming State Aeronautics Inventory & Implementation

CHEYENNE SECTIONAL CHART



VICINITY MAP



WYDOT Aeronautics Approval	Sponsor Approval
Accepted: WYDOT Aeronautics	Accepted: Chairman, Airport Board
Date	Date

SHIVLEY FIELD - SARATOGA, WYOMING

NO.	REVISION/ISSUE	DATE
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COVER SHEET

AEROLAND PLANNING, LLC

SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT # SAA-04A	SHEET 1 OF 9
FEDERAL PROJECT # 3-56-0026-22	
DATE August 2014	

Legend

Airport Reference Point	
Airport Property Line	
(F) Airport Property Line	
Airport Pavement	
(F) Airport Pavement	
Airport Building	
(F) Airport Building	
Airport Building Remove	
Streets/Auto Parking	
(F) Streets/Auto Parking	
Taxiway Marking/Tiedowns	
(F) Taxiway Marking/Tiedowns	
Wildlife/Security Fence	
(F) Wildlife/Security Fence	
Wildlife/Security Fence Remove	
Security Gate	
(F) Security Gate	
Rotating Beacon	
Lighted Wind Cone	
AWOS	
2-Box PAPI	
(F) 4-Box PAPI	
REIL	
(F) REIL	
NDB	
Runway Hold Position Sign	
20:1 TERPS Surface	
34:1 Runway Approach Surface	
Runway Protection Zone - RPZ	
(F) Runway Protection Zone - RPZ	
Runway Object Free Area - OFA	
Runway Obstacle Free Zone - OFZ	
Runway Safety Area - RSA	
Building Restriction Line - BRL	
20' Contour	
10' Contour	

Airport Reference Point

	Existing	Ultimate
Latitude	41°26'36.676" N	41°26'36.676" N
Longitude	106°49'39.075" W	106°49'39.075" W

Runway End Coordinates

	Existing		Ultimate	
	Latitude	Longitude	Latitude	Longitude
Runway 05	41° 26'18.998" N	106° 50'31.830" W	Same	
Runway 23	41° 26'54.368" N	106° 48'46.323" W	Same	

Runway End Station and Elevation

	Existing		Ultimate	
	Station	Elevation	Station	Elevation
Runway 05	98+00	7,015.0'	98+00	7,015.0'
Runway 23	10+00	6,857.2'	10+00	6,857.2'

Note: NAD83 coordinate system and NAVD88 vertical datum was used

Taxiway Data Table

	Existing		
	Length and Width	Object Free Area Width	Safety Area Width
Taxiway 'A'	8,800' x 35'	131'	79'
Taxiway 'A1'	1,250' x 35'	131'	79'
Taxiway 'B'	2,000' x 40'	131'	79'
	Ultimate		
	Length and Width	Object Free Area Width	Safety Area Width
Taxiway 'A'	8,800' x 35'	131'	79'
Taxiway 'A1'	1,250' x 35'	131'	79'
Taxiway 'B'	2,000' x 40'	131'	79'

Touchdown Zone Elevation

	Existing	Ultimate
Runway 05	7,015.0'	Same
Runway 23	6,911.4'	Same

Obstacle Free Zone (OFZ) Object Penetrations

Description	Penetration	Elevation
None		

Threshold Siting Surface Object Penetration

Description	Penetration	Elevation
None		

Modifications to Design Standards

Approval Date	Case Number	Modification	Description
7/14/2004	MTS 1	Runway Gradient Standards	Runway 05-23 Longitudinal Slope is 1.81%

Airport Data Table

	Existing	Ultimate
Airport Reference Code	C-II	Same
Approach Speed	125	Same
Wingspan	61.8'	Same
Taxiway Design Group	TDG-2	Same
Approach Reference Code - APRC	D/IV/4000 - D/V/4000	Same
Departure Reference Code - DRRC	D/IV - D/V	Same
Runway Design Code - RDC	C/II/4000	Same
Critical Aircraft	Challenger 600	Same
NAVAIDS	NDB	NDB
Mean Max Temperature	84°F	-
Airport Elevation	7,015.0' MSL	-
NPIAS Service Level	GA - Local	Same
State Service Level	Business Class	Same

Runway 05 - 23 Data Table

	Existing	Ultimate
Runway Length and Width	8,801' x 100'	Same
Runway High Point - MSL	7,015.0'	Same
Runway Low Point - MSL	6,857.2'	Same
Runway Approach	Non-Precision	Same
Runway Gradient	1.81%	Same
Runway Type	Non-Utility	Same
Pavement Type	Asphalt	Same
Pavement Strength	50,000 DWG	Same
Runway Pavement Strength - PCN	50/F/X/U	Same
Runway Lighting	MIRL	Same
Runway Marking	Non-Precision	Same
14 CFR Part 77 Approach Category	Rwy 05 - 34:1 Rwy 23 - 34:1	Same
Runway Visual Aids	Rwy 05 - None Rwy 23 - PAPI, REIL	PAPI, REIL Same
TORA, TODA, ASDA, LDA	8,800'	Same

Note: Runway numbers will change to 6-24 in the near future and requires coordination with FAA Flight Procedures.

Runway Protection Zone

	Inner Width	Length	Outer Width
Existing	500'	1,700'	1,010'
Ultimate	1,000'	1,700'	1,510'

Runway Safety Area

	Width	Length Beyond Runway End
Existing	500'	1,000'
Ultimate	Same	Same

Runway Object Free Area

	Width	Length Beyond Runway End
Existing	800'	1,000'
Ultimate	Same	Same

Runway Object Free Zone

	Width	Length Beyond Runway End
Existing	400'	200'
Ultimate	Same	Same

Existing Airport Approach Minimums

Approach Procedure	Minimum Altitude (AMSL)	Visibility (mi)	Category
NDB - A			
Circling	7,720'	1 1/4	A,B
	7,720'	2	C
	7,720'	2 1/4	D
RNAV (GPS) RWY 5			
LPV	7,265'	1	A,B,C,D
LNAV/VNAV	7,484'	1 5/8	A,B,C,D
LNAV MDA	7,620'	1	A,B
Circling	7,620'	1 3/4	C,D
	7,620'	1	A,B
	7,620'	1 3/4	C,D
RNAV (GPS) - B			
Circling	7,620'	1	A,B
	7,620'	1 3/4	C
	7,620'	2	D

Notes:
1. 40:1 Departure Surfaces
2. Future visibilities greater than or equal to 3/4 mile
3. Vertically Guided Airport Airspace Analysis Survey required

16 Knot Windrose
Wind Data Period:
5-2-2013 to 2-26-2014

CONDITIONALLY APPROVED

Subject Letter Dated: _____

(FAA Administrator)
Federal Aviation Administration

Denver Airports District Office
Date: _____
FAA Case#: _____

(Mayor)
Accepted: Town of Saratoga, Wyoming
Date: _____

Graphic Scale - 1" = 500'

Magnetic Declination - Oct 2013
Changing 8.1' West per year

SHIVLEY FIELD - SARATOGA, WYOMING

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AIRPORT LAYOUT PLAN

AEROLAND PLANNING, LLC

SAGE CIVIL ENGINEERING AND SURVEYING

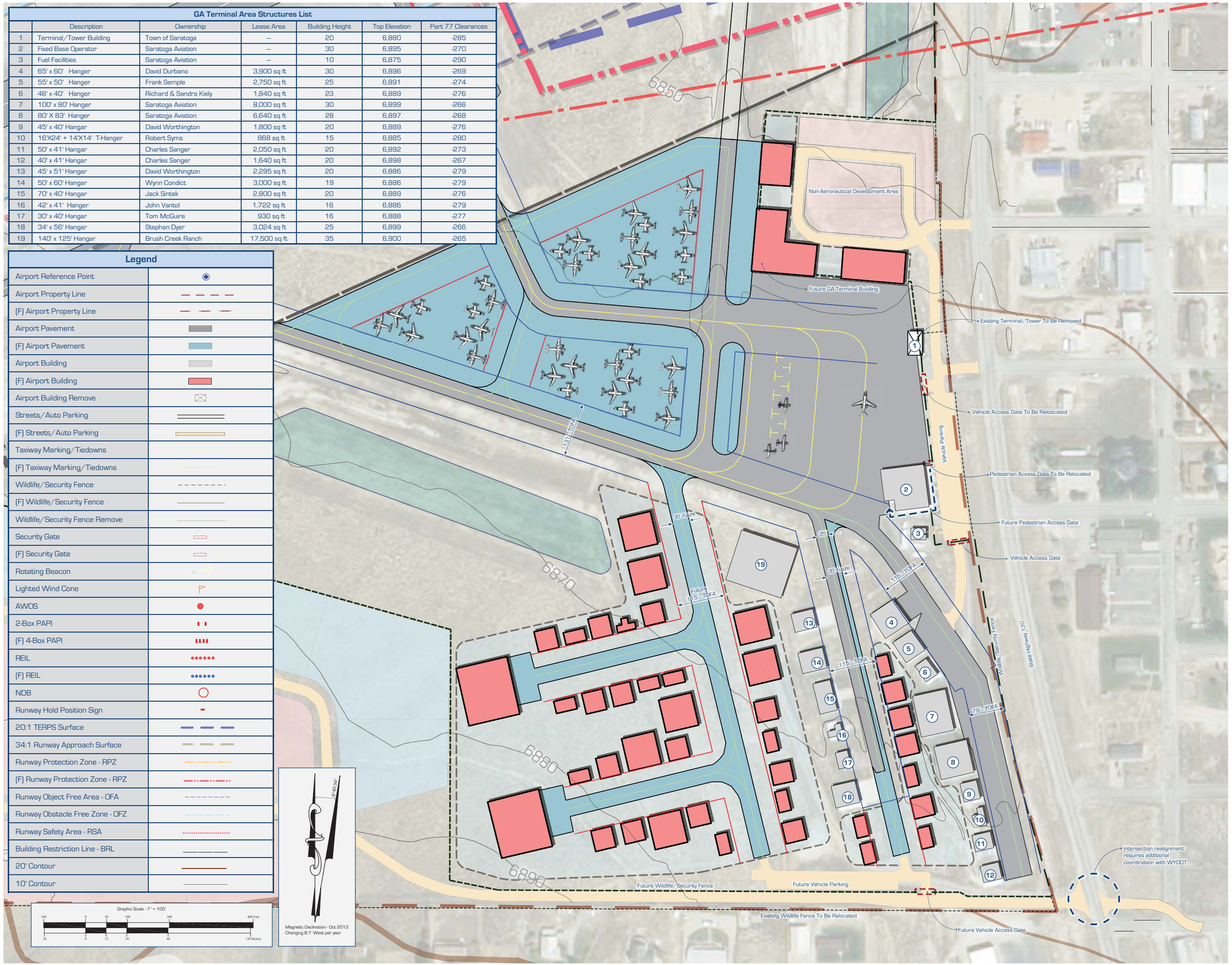
STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
DATE	August 2014
SHEET	2 OF 9

GA Terminal Area Structures List

	Description	Ownership	Lease Area	Building Height	Top Elevation	Part 77 Clearances
1	Terminal/Tower Building	Town of Saratoga	--	20	6,880	-285
2	Fixed Base Operator	Saratoga Aviation	--	30	6,895	-270
3	Fuel Facilities	Saratoga Aviation	--	10	6,875	-290
4	65' x 60' Hanger	David Durbano	3,900 sq ft	30	6,896	-269
5	55' x 50' Hanger	Frank Semple	2,750 sq ft	25	6,891	-274
6	46' x 40' Hanger	Richard & Sandra Kiely	1,840 sq ft	23	6,889	-276
7	100' x 80' Hanger	Saratoga Aviation	8,000 sq ft	30	6,899	-266
8	80' X 83' Hanger	Saratoga Aviation	6,640 sq ft	28	6,897	-268
9	45' x 40' Hangar	David Worthington	1,800 sq ft	20	6,889	-276
10	16'X24' + 14'X14' T-Hanger	Robert Syms	868 sq ft	15	6,885	-280
11	50' x 41' Hangar	Charles Sanger	2,050 sq ft	20	6,892	-273
12	40' x 41' Hangar	Charles Sanger	1,640 sq ft	20	6,898	-267
13	45' x 51' Hangar	David Worthington	2,295 sq ft	20	6,886	-279
14	50' x 60' Hangar	Wynn Condict	3,000 sq ft	19	6,886	-279
15	70' x 40' Hangar	Jack Sintek	2,800 sq ft	20	6,889	-276
16	42' x 41' Hanger	John Vantol	1,722 sq ft	16	6,886	-279
17	30' x 40' Hangar	Tom McGuire	930 sq ft	16	6,888	-277
18	34' x 56' Hangar	Stephan Dyer	3,024 sq ft	25	6,899	-266
19	140' x 125' Hangar	Brush Creek Ranch	17,500 sq ft	35	6,900	-265

Legend

Airport Reference Point	
Airport Property Line	
(F) Airport Property Line	
Airport Pavement	
(F) Airport Pavement	
Airport Building	
(F) Airport Building	
Airport Building Remove	
Streets/Auto Parking	
(F) Streets/Auto Parking	
Taxiway Marking/Tiedowns	
(F) Taxiway Marking/Tiedowns	
Wildlife/Security Fence	
(F) Wildlife/Security Fence	
Wildlife/Security Fence Remove	
Security Gate	
(F) Security Gate	
Rotating Beacon	
Lighted Wind Cone	
AWOS	
2-Box PAPI	
(F) 4-Box PAPI	
REIL	
(F) REIL	
NDB	
Runway Hold Position Sign	
20:1 TERPS Surface	
34:1 Runway Approach Surface	
Runway Protection Zone - RPZ	
(F) Runway Protection Zone - RPZ	
Runway Object Free Area - OFA	
Runway Obstacle Free Zone - OFZ	
Runway Safety Area - RSA	
Building Restriction Line - BRL	
20' Contour	
10' Contour	



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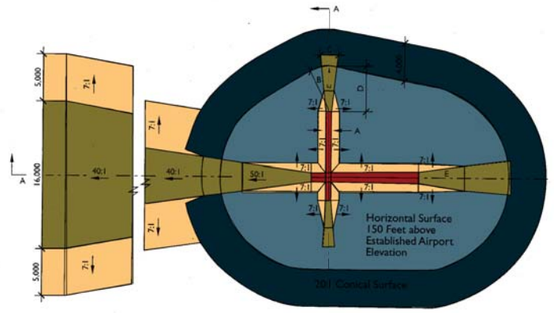
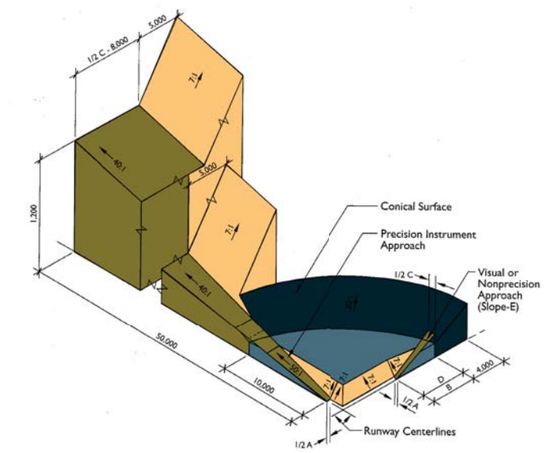
TERMINAL AREA LAYOUT

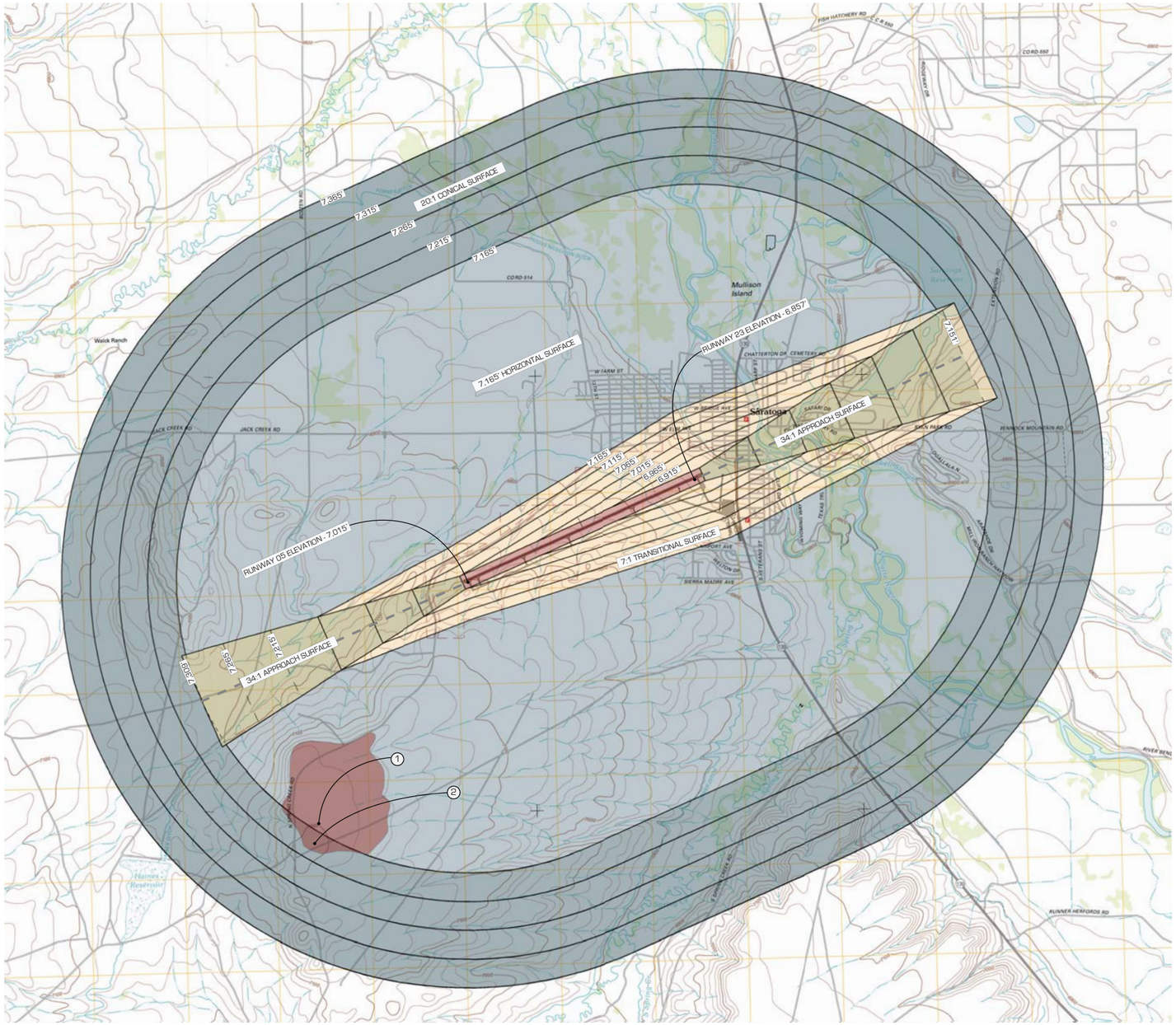
AEROLAND PLANNING, LLC

SAGE CIVIL ENGINEERING AND SURVEYING

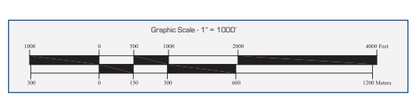
STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
DATE	August 2014
SHEET	3 OF 9

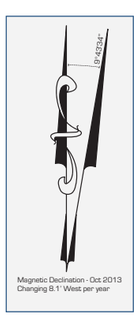






Runway 23 Inner Approach Obstruction Table					
	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Ground	7,200	35	Horizontal	None
2	Ground	7,200	35	Conical	None





SHIVLEY FIELD - SARATOGA, WYOMING

NO.	REVISION/ISSUE	DATE
1	Draft Airport Layout Drawn by: MDH	11/13
2	Draft Airport Layout Drawn by: MDH	3/14
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PART 77 AIRSPACE PLAN

AEROLAND PLANNING, LLC

SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
DATE	August 2014
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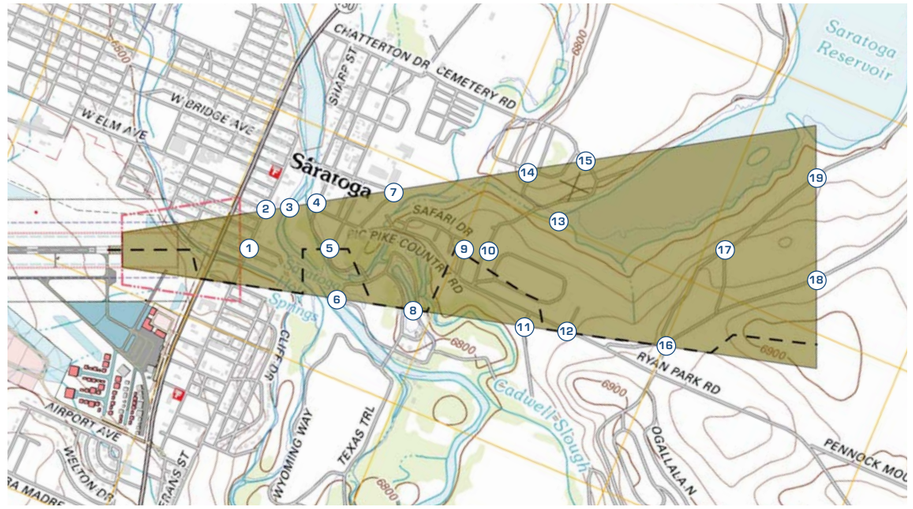

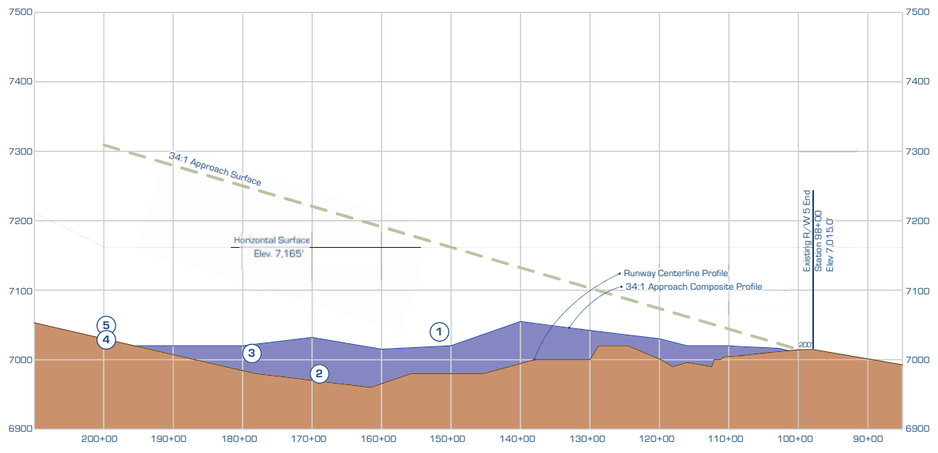

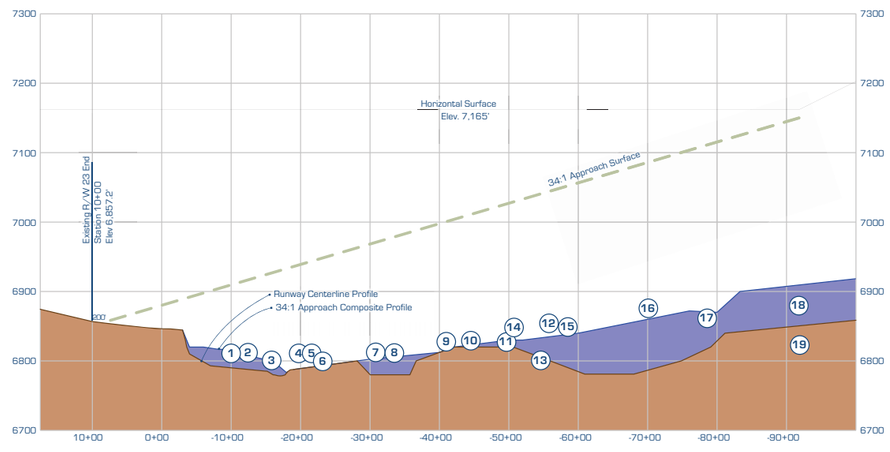

Runway 05 Approach Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Road	7,040	-128	34:1	None
2	Road	6,990	-225	34:1	None
3	Road	7,005	-239	34:1	None
4	Road	7,030	-279	34:1	None
5	Road	7,020	-289	34:1	None

Notes:
1. Top elevation for all roads is 15' above ground elevation.
2. Top elevation for wildlife fence is 10' above ground elevation.

Vertical Scale: 1" = 100'
Horizontal Scale 1" =1,000'

Runway 23 Approach Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Road	6,815	-95	34:1	None
2	Road	6,815	-104	34:1	None
3	River	6,800	-128	34:1	None
4	Road	6,815	-124	34:1	None
5	Road	6,815	-133	34:1	None
6	River	6,800	-151	34:1	None
7	Road	6,815	-157	34:1	None
8	Road	6,815	-166	34:1	None
9	Road	6,835	-166	34:1	None
10	Road	6,835	-169	34:1	None
11	Road	6,835	-190	34:1	None
12	Road	6,850	-195	34:1	None
13	Lake	6,800	-242	34:1	None
14	Road	6,840	-191	34:1	None
15	Road	6,840	-208	34:1	None
16	Road	6,875	-211	34:1	None
17	Road	6,855	-255	34:1	None
18	Road	6,885	-266	34:1	None
19	Road	6,825	-326	34:1	None

Notes:
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SHIVLEY FIELD - SARATOGA, WYOMING

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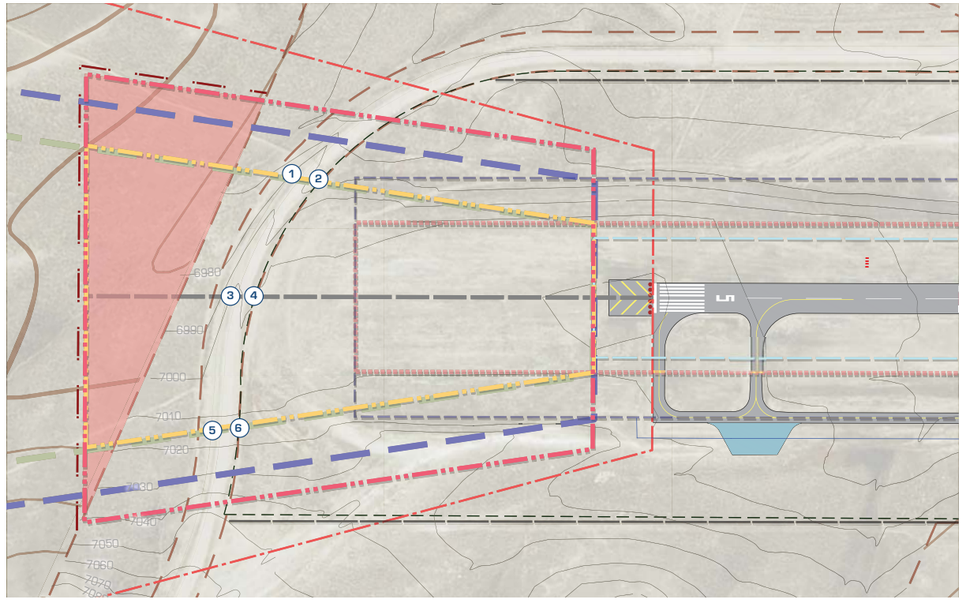
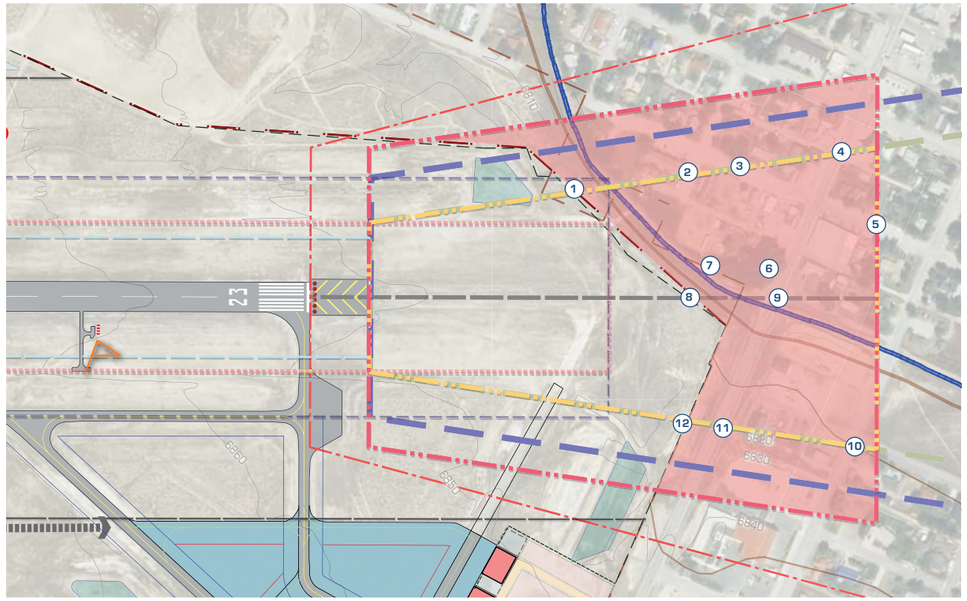
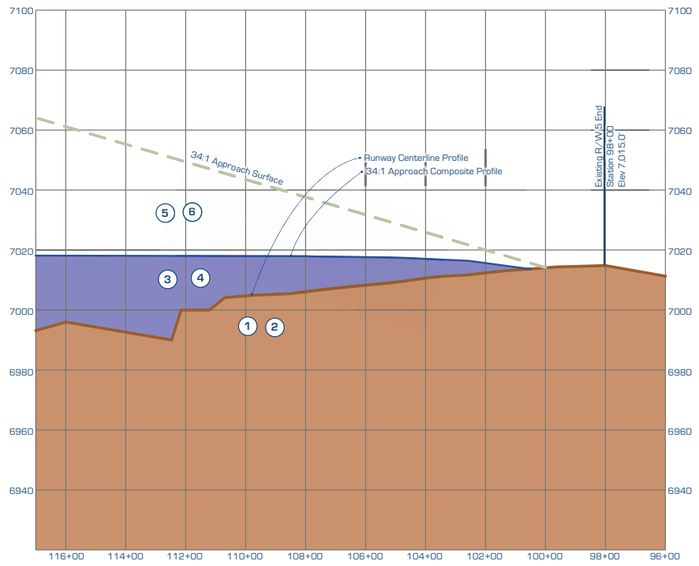
RUNWAY 05/23 APPROACH PLAN AND PROFILE

AEROLAND PLANNING, LLC
SAGE CIVIL ENGINEERING AND SURVEYING

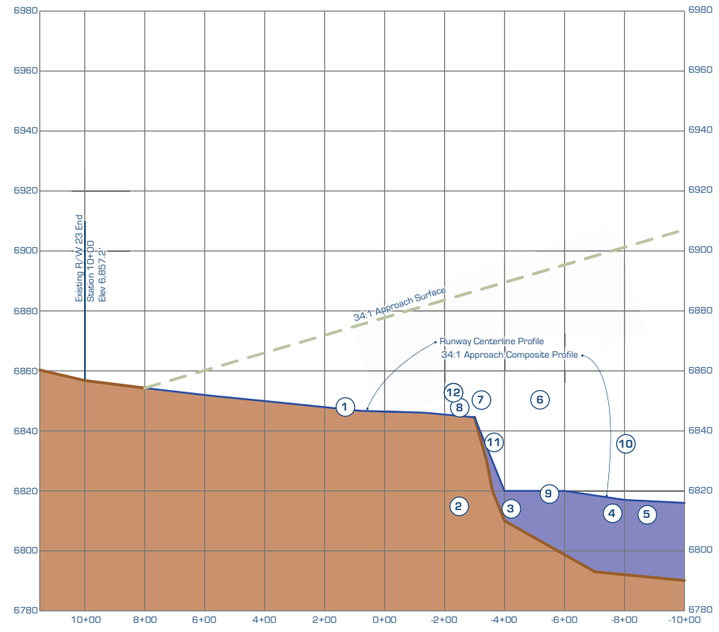
STATE PROJECT # SAA-04A
FEDERAL PROJECT # 3-56-0026-22
DATE August 2014
SHEET 5 OF 9







Vertical Scale: 1" = 20'
Horizontal Scale 1" =200'



Runway 05 Inner Approach Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Road	6,995	-49	34:1	None
2	Wildlife Fence	6,995	-46	34:1	None
3	Road	7,013	-39	34:1	None
4	Wildlife Fence	7,013	-36	34:1	None
5	Road	7,027	-25	34:1	None
6	Wildlife Fence	7,025	-25	34:1	None

Notes:
1. Top elevation for all roads is 15' above ground elevation.
2. Top elevation for wildlife fence is 10' above ground elevation.

Notes:
1. Top elevation for all roads is 15' above ground elevation.
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Runway 23 Inner Approach Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Wildlife Fence	6,840	-37	34:1	None
2	Road	6,815	-73	34:1	None
3	Road	6,815	-78	34:1	None
4	Road	6,815	-88	34:1	None
5	Road	6,815	-90	34:1	None
6	Tree	6,860	-36	34:1	None
7	Tree	6,860	-30	34:1	None
8	Wildlife Fence	6,840	-48	34:1	None
9	Road	6,815	-82	34:1	None
10	Road	6,835	-69	34:1	None
11	Road	6,835	-57	34:1	None
12	Wildlife Fence	6,850	-38	34:1	None

SHIVLEY FIELD - SARATOGA, WYOMING

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RUNWAY 05/23 INNER APPROACH PLAN AND PROFILE

AEROLAND PLANNING, LLC
SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
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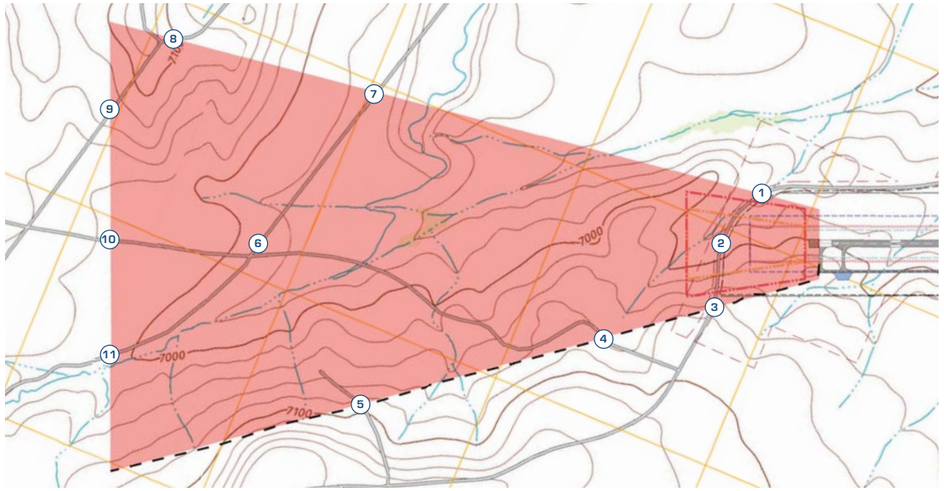

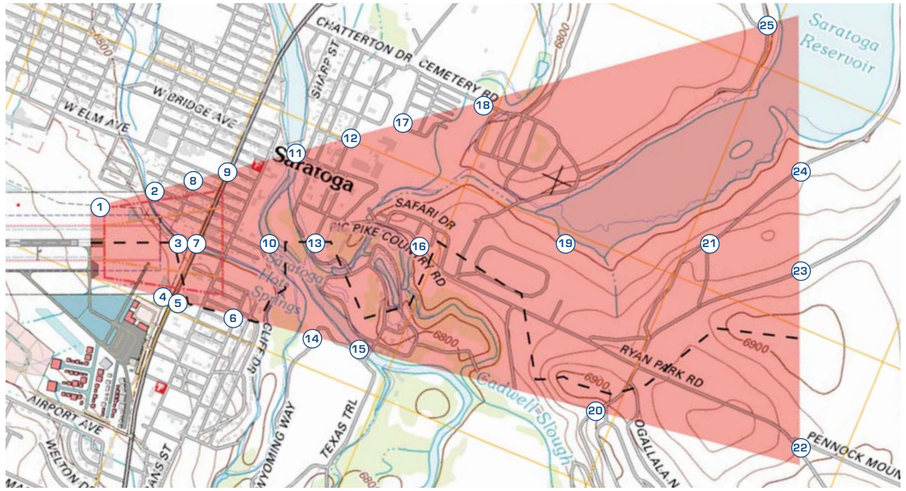

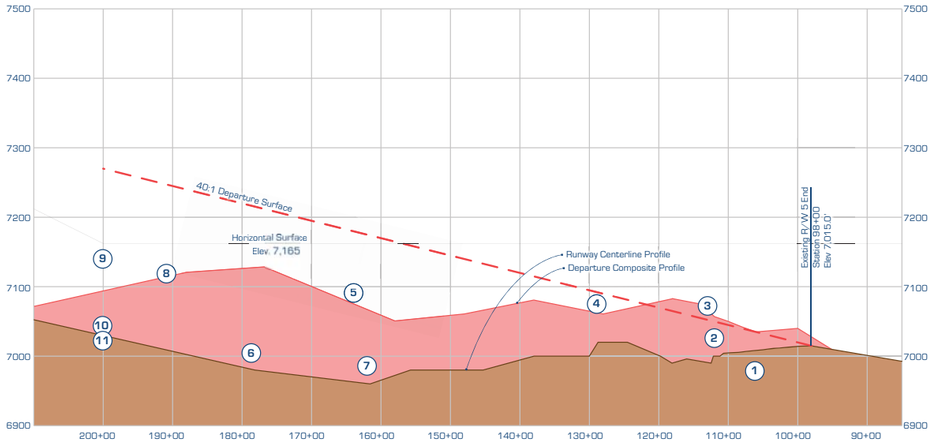

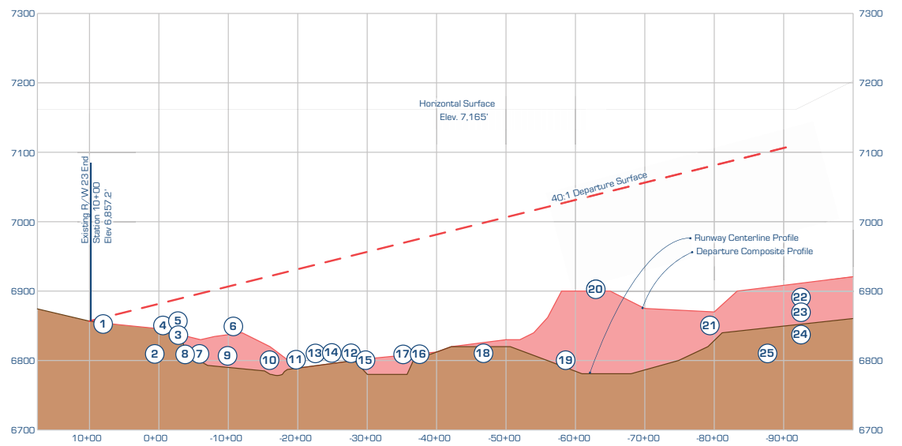

Runway 05 Departure Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Road	6,970	-68	40:1	None
2	Road	7,013	-40	40:1	None
3	Road	7,075	20	40:1	Relocate or Decommission
4	Road	7,075	-15	40:1	None
5	Road	7,095	-83	40:1	None
6	Road	7,005	-210	40:1	None
7	Road	6,985	-190	40:1	None
8	Road	7,115	-133	40:1	None
9	Road	7,145	-125	40:1	None
10	Road	7,030	-240	40:1	None
11	Road	7,020	-250	40:1	None

Notes:
1. Top elevation for all roads is 15' above ground elevation.
2. Top elevation for wildlife fence is 10' above ground elevation.

Vertical Scale: 1" = 100'
Horizontal Scale 1" =1,000'

Runway 23 Departure Obstruction Table

	Description	Top Elevation	Vertical Penetration	Surface	Disposition
1	Wildlife Fence	6,855	-5	40:1	None
2	Road	6,815	-66	40:1	None
3	Wildlife Fence	6,840	-48	40:1	None
4	Wildlife Fence	6,850	-32	40:1	None
5	Road	6,855	-37	40:1	None
6	Road	6,855	-55	40:1	None
7	Road	6,815	-82	40:1	None
8	Road	6,815	-80	40:1	None
9	Road	6,815	-92	40:1	None
10	River	6,800	-122	40:1	None
11	River	6,800	-132	40:1	None
12	Road	6,815	-137	40:1	None
13	Road	6,815	-125	40:1	None
14	Road	6,815	-122	40:1	None
15	River	6,800	-155	40:1	None
16	Road	6,815	-162	40:1	None
17	Road	6,815	-155	40:1	None
18	Road	6,815	-182	40:1	None
19	Lake	6,800	-230	40:1	None
20	Road	6,905	-135	40:1	None
21	Road	6,855	-227	40:1	None
22	Road	6,895	-217	40:1	None
23	Road	6,885	-227	40:1	None
24	Road	6,830	-282	40:1	None
25	Road	6,815	-287	40:1	None

Notes:
1. Top elevation for all roads is 15' above ground elevation.
2. Top elevation for wildlife fence is 10' above ground elevation.

SHIVLEY FIELD - SARATOGA, WYOMING

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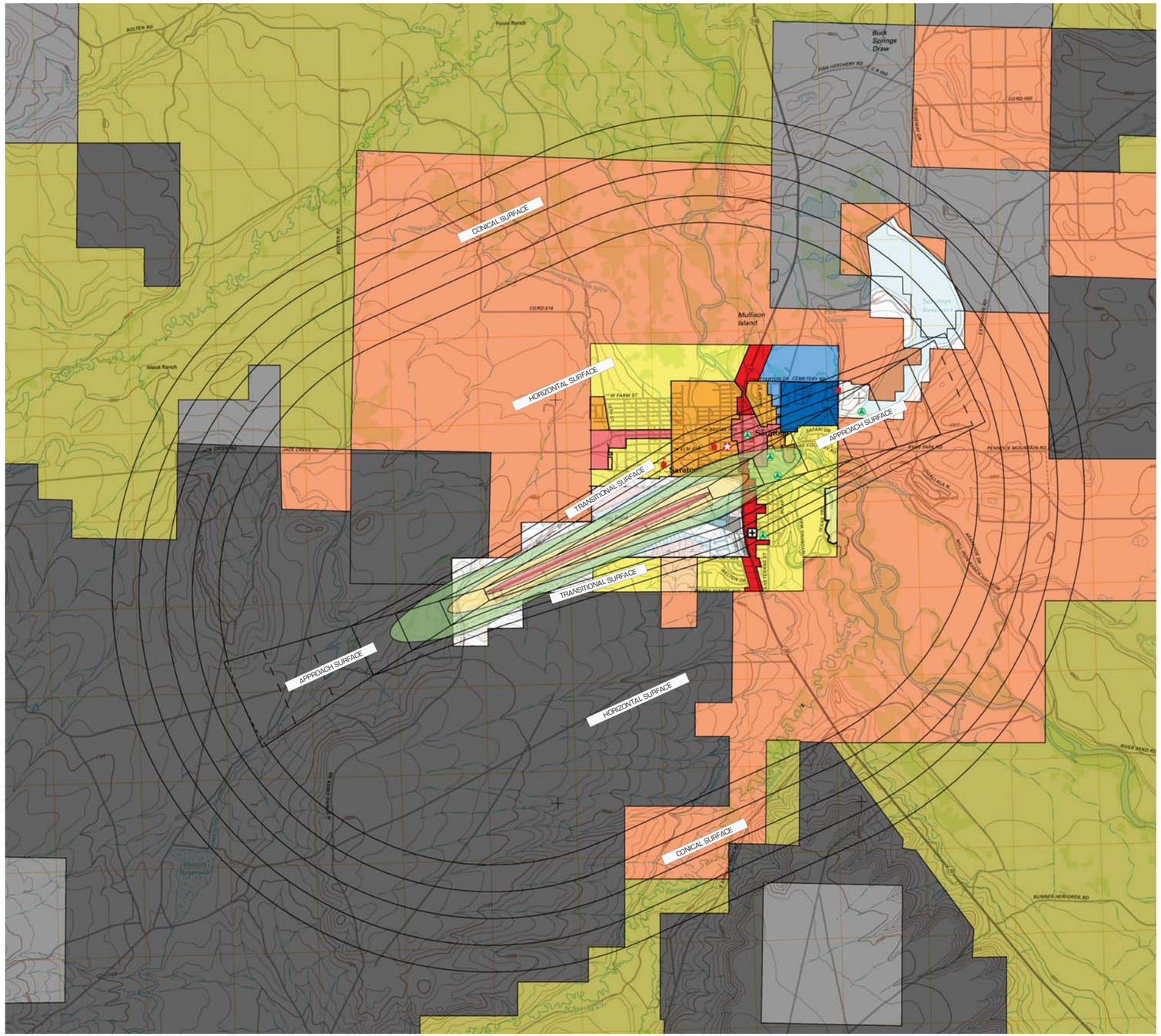
RUNWAY 05/23 DEPARTURE PLAN AND PROFILE

AEROLAND PLANNING, LLC
SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT # SAA-04A
FEDERAL PROJECT # 3-56-0026-22
DATE August 2014
SHEET 7 OF 9



Land Use Legend	
	RD 14000 Single-family Residential
	RD 7200 Single-family Residential
	RD 9000 Medium Density Residential
	RD 6000 Medium Density Residential
	RB Retail Business
	HB Highway Business
	LI Light Industrial
	HI Heavy Industrial
	Bureau of Land Management - County
	State Land - County
	Smaller Lot Rural - County
	Agricultural Rural Living - County

Carbon County Airport Safety Zone Maximum Height

Except for field crops and fences under five feet high, the maximum height of any object, building, or structure located within 500 feet of either side of the center line of a landing strip or runway and extended to a distance of two miles from the end of landing strip or runway shall be no higher than 1/100 of the distance of the object, structure, or building to the landing strip or runway.

Town of Saratoga Land Use/Zoning

Except as otherwise provided in this chapter, no structure shall be erected, altered or maintained and no tree shall be allowed to grow in any zone created by this chapter to a height in excess of the applicable height limit established in this section for such zone. Such applicable height limitations are established for each of the zones in question as follows:

Approach Zone

The inner edge of this approach zone coincides with the width of the primary surface and is five hundred feet wide. The approach zone expands outward uniformly to a width of three thousand five hundred feet at a horizontal distance of ten thousand feet from the primary surface. Its center line is the continuation of the center line of the runway.

Transitional Zone

The transitional zones are the areas beneath the transitional surfaces.

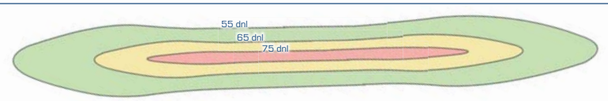
Horizontal Zone

The horizontal zone is established by swinging arcs of five thousand feet radii for all runways designated utility or visual and ten thousand feet for all others from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.

Conical Zone

The conical zone is established by the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of four thousand feet.

Additional information available in Title 14 of Town of Saratoga Municipal Code available online at: http://qcode.us/codes/saratoga/



Noise Contours

The 55, 65, and 75 DNL noise contours were developed using a combination of operational and fleet mix data, prior noise contour models, and the FAA Integrated Noise Model version 7.0d.

Place Legend

- School
- Cemetary
- Park
- Community Center
- Medical

Aeronautical Development Areas

Aeronautical development is best described as compatible on-airport land uses, usually with direct aircraft access to airside development, and typically includes:

- Airline Maintenance and Support
- Aircraft Rescue and Fire fighting Facilities
- Public Safety and Emergency Facilities
- Aviation Light Industrial and Manufacturing
- Fixed Base Operation (Charter, Supplies, Pilot Lounges, Flight Planning, Flight Training)
- Fuel Sales, Storage, Dispensing
- Food Services/Catering
- Office, Rest rooms
- General Aviation Non-Commercial Development
- T-Hangars and Executive Hangars

Non-Aeronautical Development Areas

Non-Aeronautical development is aviation compatible land development that provides the airport with additional opportunities for enhancing non-aeronautical revenues on otherwise under utilized airport property. This development can soften the effects of economic downturns by diversifying revenue streams, reducing financial risk, and strengthening cash flow while also improving the social, environmental, and economical interfaces between Shively Field and Saratoga. Non-aeronautical compatible land uses (with FAA Approval) generally include:

- Postal Annex
- Greenhouses (with covenants)
- Auto Retail/Mall
- Rental Car Ready Return/Storage
- Auto/Boat/Mini-Storage
- Manufacturing
- Agricultural
- Warehousing
- Office/Data Storage
- Mass Transportation Park and Ride
- Public Parks and Recreation
- Golf Course
- Hotel/Motel
- Support Commercial (Bank, Convenience Store, Coffee/Snack Sandwich shop)

SHIVLEY FIELD - SARATOGA, WYOMING

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LAND USE PLAN

AEROLAND PLANNING, LLC
SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
DATE	August 2014
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AIRPORT AND TOWN OF SARATOGA DEEDS SURROUNDING AIRPORT				
MAP#	DEED	GRANTOR	GRANTEE	AIP FUNDED
1	US PATENT 49-96-012	UNITED STATES	TOWN OF SARATOGA	Y
2	WYO. PATENT 2896 BK 901 PG 595	STATE OF WYOMING	TOWN OF SARATOGA	Y
3	US PATENT 1231365 BK: 888 PG 528	UNITED STATES	TOWN OF SARATOGA	-
4	BK: 897 PG: 712	CLARK, SAMUEL DL. & JENNIFER	TOWN OF SARATOGA	Y
5	BK: 893 PG: 315	SARATOGA AIRPORT BOARD	TOWN OF SARATOGA	-
6	BK: 436 PG: 479	WILCOX, KEITH M. & NANCY S	TOWN OF SARATOGA	-
7	BK. 896 PG. 549	F&G JEWELERS	TOWN OF SARATOGA	Y
8	BK. 208 PG. 405	MILLER ESTATE CO.	TOWN OF SARATOGA	-
9	BK: 235 PG: 610	BOYD, MARION C & W.R.	TOWN OF SARATOGA	-
10	BK: 576 PG: 120	PUBLIC SALE	TOWN OF SARATOGA	-
11	BK: 964 PG: 309	WALTER & VIRGINIA MILLER	TOWN OF SARATOGA	-
12	SARATOGA RESOLUTION 95-6	VACATION OF SUBDIVISION LANDS		-
13	BK: 208 PG: 405 *	MILLER ESTATE CO.	TOWN OF SARATOGA	-

SECTION 16 SECTION 15 SECTION 14 SECTION 21 SECTION 22

6800 6900 7000

SARATOGA LIBRARY

SIERRA VISTA SUBDIVISION VISTA DAWN SUBDIVISION

BLOCK 1 BLOCK 2 BLOCK 4 BLOCK 6 BLOCK 10 BLOCK 11 BLOCK 12 BLOCK 7

HUGUS MULLISON DITCH

SOUTH FIRST STREET

120' R.O.W. 60' EACH SIDE

COUNTY ROAD 395

SE1/4 NE1/4 NE4SE4 NW4SE4 SE4SW4 SW4SE4 NE4NW4 NW4NW4 SE4SE4 SW4SW4 N1/2 SE4NE4 LOT 1

FAC MACE FAC BLANK FAC RWY FBC BLM

½" REBAR

LEGEND

- SECTION LINE
- 1/16 SECTION LINE
- AIRPORT BOUNDARY
- FENCELINE
- COUNTY ROAD RIGHT-OF-WAY
- (A) FUTURE AVIGATION EASEMENTS
- (B) FUTURE BLM LAND ACQUISITION (10 AC)
- SET AL. CAP
- FOUND AL. CAP
- FOUND GLO BRASS CAP
- FOUND RIGHT-OF-WAY MON
- FOUND 5/8" REBAR

SCALE 1" = 500'

SHIVLEY FIELD - SARATOGA, WYOMING

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"EXHIBIT A" AIRPORT PROPERTY MAP

AEROLAND PLANNING, LLC
SAGE CIVIL ENGINEERING AND SURVEYING

STATE PROJECT #	SAA-04A
FEDERAL PROJECT #	3-56-0026-22
DATE	August 2014
SHEET	9 OF 9

Implementation Plan

The purpose of this element is to establish a feasible financial implementation program to address the identified airport development requirements.

Cost Estimates and CIP

A professional engineer registered in the state of Wyoming prepared cost estimates in tables on the following pages which present the staged schedule of development which will ultimately serve as the Capital Improvement Plan (CIP) for SAA. Cost estimate tables will summarize total project costs including sales taxes, design, construction, inspection and testing fees, contingencies, and administrative costs. These cost estimates will be prioritized and ordered into three preferred phasing schedules over a 20-year planning horizon:

Phase I (2014 – 2018)

- Hangar Area Taxilane Improvements
- Land and Avigation Easement Acquisition
- Runway Improvements
- Approach Improvements
- Pavement Maintenance

Phase II (2019 – 2023)

- Apron Expansion
- Terminal Area Entrance Improvements
- Construct GA Terminal Building and Access
- Airport Business Plan and ALP Update
- Pavement Maintenance

Phase III (2024 – 2033)

- Apron Expansion
- Hangar Area Taxilane Construction
- Taxiway Improvements
- Business Park Access Improvements
- Apron Expansion
- Airside Support Facilities
- Pavement Maintenance

Outside Sources of Funding

FAA - Airport Improvement Program (AIP)

Grants administered by the FAA through the AIP represent a critical, capital funding source to realize the projects recommended in the plan. However, given the uncertainty of the future status of the AIP Program, it is not possible to confirm the level of future AIP grants available to provide funding for the recommended projects. Nonetheless, for the purpose of this plan, it is assumed the AIP will continue to be authorized and appropriated at levels reasonably consistent with recent historical trends.

WYDOT Aeronautics Commission

The Aeronautics Commission provides grants from state funds for construction and development of airports to counties, cities, and towns within Wyoming. Typical projects funded by the Wyoming Aeronautics Commission include:

- Construction Projects
- Maintenance Projects
- Equipment Grants
- Planning Projects
- Marketing Grants

Wyoming Business Council - Business Ready Community Program

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

Pro Forma Cash Flow Analysis

A Pro Forma cash flow analysis was developed to project the operating revenues and operating expenses over the short-term planning period. The Pro Form Cash Flow Analysis Table presents the Airport's estimated operating income/(deficit) for the period of FY 2014 through FY 2018 based on a simple averaged projection of operating revenues, operating expenses, projected capital expenses, and expected grant money to be received. Based on the analysis, operating income/(deficit) is expected to fluctuate and slightly increase on average over the short-term planning period.

As a result of the proposed projects outlined in this Master Plan Update, the financial impact to the Town of Saratoga can be drawn based on the information presented and the recommendations provided.

- The total 20-year project costs in the CIP amount to $13.5 million, as presented in the following tables.
- The funding for the proposed projects during the short-term (Phase 1) development program is presented in the table on Page 105 and is as follows:
  - FAA $ 3,771,000
  - State $ 251,400
  - Local $ 167,600
  - Total $ 4,190,000
- Funding the local share of the proposed projects short-term planning period, with the proposed funding levels from the FAA and WYDOT results in SAA's funding approximately $167,600 of the local share from its general fund and/or annual cash flow from the Airport, which is consistent with the manner in which capital projects have been paid for historically at Shively Field.
- It is recommended the Town of Saratoga closely monitor the federal AIP and WYDOT funding programs for any changes that may enhance or adversely affect future funding of the proposed projects.
- The staging of the proposed projects is flexible. The Airport Advisory Board should proactively monitor and revise these projects on an annual basis to ensure that projects are not implemented before the appropriate demand levels.

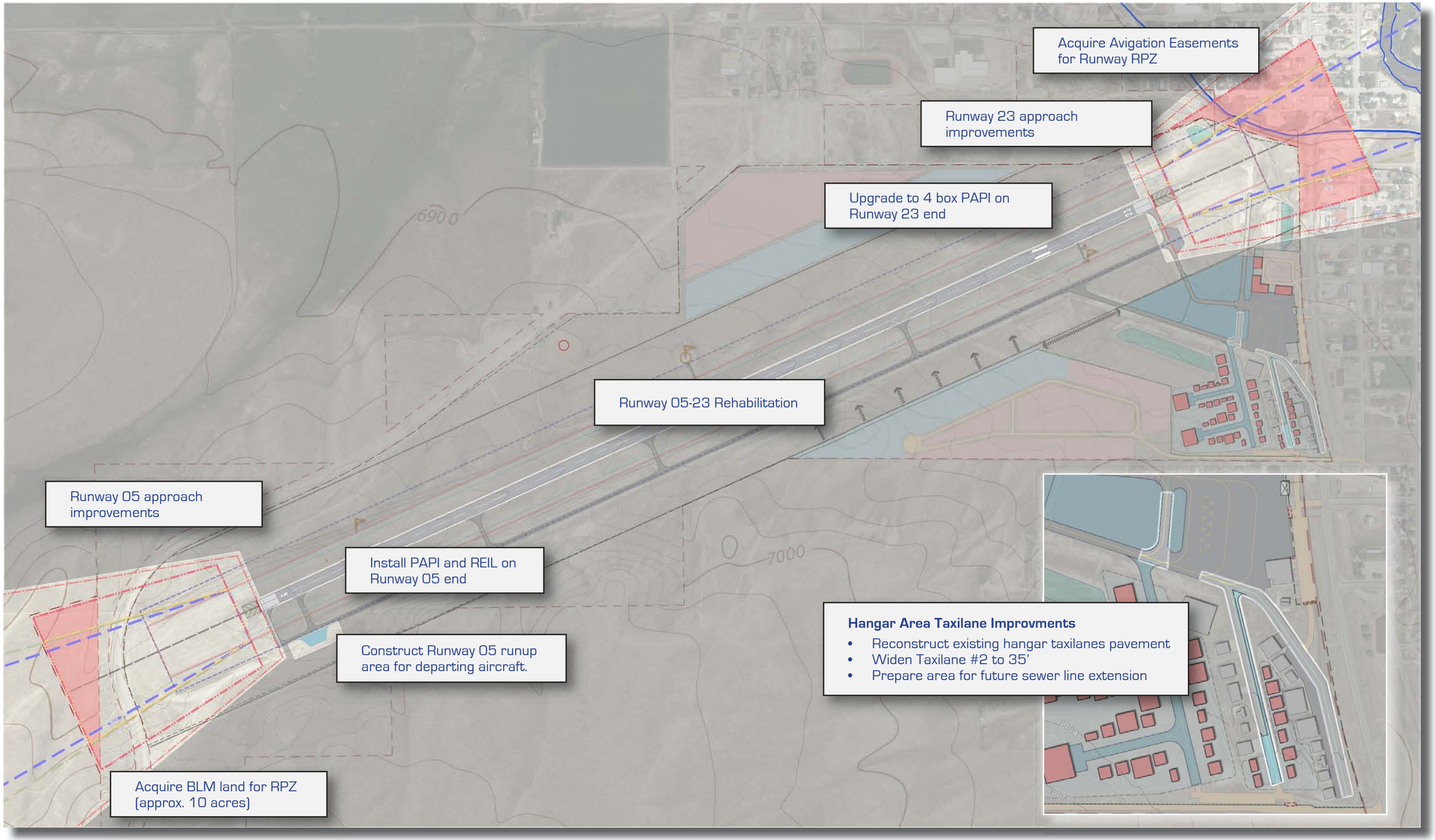
Based on the assumptions and the financial analyses presented herein, the proposed projects in the CIP are considered practicable, and it is anticipated the Town will be able to meet its future financial operational obligations with additional local subsidies. The financial overview presented reflects implementation of the proposed projects in the short-term development program. It is important the Town continually monitor the status of its operating revenues, operating expenses, and the implementation of its capital program. Future analyses may suggest adjusting the implementation of certain projects in the CIP to meet the Town of Saratoga's other financial objectives.

Airport Financials							Phase 1 - Cash Flow Projections				
Fiscal Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Revenue											
Local Taxes	$ -	$ 7,500.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Income	$ 8.75	$ 2.52	$ 2.99	$ 1.51	$ 10.85	$ -	$ 10	$ 10	$ 10	$ 10	$ 10
Airport FBO Rental	$ 4,457.84	$ 5,644.60	$ 5,229.04	$ -	$ -	$ 3,025.00	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
Airport Hangar Rental	$ 3,900.00	$ 4,150.00	$ 3,775.00	$ 3,875.00	$ 5,250.00	$ 1,475.00	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Airport Terminal Rental	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Airport WYDOT Gas Tax	$ 5,727.96	$ 5,986.56	$ 6,698.24	$ 12,337.00	$ 6,650.40	$ 4,196.00	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Airport Flowage Fees	$ -	$ -	$ -	$ -	$ 6,630.60	$ 8,075.36	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Contributions and Transfers (County)	$ 7,000.00	$ 7,500.00	$ 7,500.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Operating Revenue	$ 21,094.55	$ 30,783.68	$ 23,205.27	$ 16,213.51	$ 18,541.85	$ 16,771.36	$ 24,010	$ 24,010	$ 24,010	$ 24,010	$ 24,010
Intergovernmental Revenue/Grants	$ 12,081.00	$ 48,928.00	$ 1,079,532.00	$ 618,622.00	$ 154,413.00	$ 111,689.00	$ 640,000	$ 160,000	$ 2,980,000	$ 160,000	$ 172,400
TOTAL REVENUE	**$ 33,175.55**	**$ 79,711.68**	**$ 1,102,737.27**	**$ 634,835.51**	**$ 172,954.85**	**$ 128,460.36**	**$ 664,010**	**$ 184,010**	**$ 3,004,010**	**$ 184,010**	**$ 196,410**
Expenses											
Advertising	$ -	$ -	$ (729.38)	$ (18.75)	$ (146.25)	$ (139.50)	$ (500)	$ (500)	$ (500)	$ (500)	$ (500)
Travel	$ -	$ (25.00)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Supplies	$ -	$ (18.09)	$ -	$ (235.52)	$ (264.27)	$ (15.98)	$ (250)	$ (250)	$ (250)	$ (250)	$ (250)
Repair & Maintenance - BLDGS/Grounds	$ (1,114.70)	$ (2,470.28)	$ (2,108.98)	$ (6,160.04)	$ (8,064.81)	$ (1,697.83)	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)
Utilities	$ (1,539.49)	$ (1,771.33)	$ (1,444.65)	$ (1,731.50)	$ (1,655.36)	$ (5,294.32)	$ (2,200)	$ (2,200)	$ (2,200)	$ (2,200)	$ (2,200)
Telephone	$ (1,242.11)	$ (1,175.14)	$ (1,351.96)	$ (1,238.95)	$ (1,235.16)	$ (1,243.60)	$ (1,500)	$ (1,500)	$ (1,500)	$ (1,500)	$ (1,500)
Professional Fees	$ (7,517.00)	$ (7,720.50)	$ (7,813.00)	$ (10,250.00)	$ (11,302.95)	$ (8,048.40)	$ (8,000)	$ (8,000)	$ (8,000)	$ (8,000)	$ (8,000)
Contract Services - Airport MGR	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)	$ (2,500.00)	$ -	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)
Professional Fees - Audit	$ -	$ (552.38)	$ (1,000.00)	$ (1,500.00)	$ (3,200.00)	$ (3,552.50)	$ (3,500)	$ (3,500)	$ (3,500)	$ (3,500)	$ (3,500)
Snow Plowing	$ (15,357.50)	$ (8,990.00)	$ (8,030.00)	$ (7,857.50)	$ (4,495.00)	$ (8,726.25)	$ (8,000)	$ (8,000)	$ (8,000)	$ (8,000)	$ (8,000)
Insurance - Property	$ (150.00)	$ (631.47)	$ (726.93)	$ (737.50)	$ (866.67)	$ (2,599.42)	$ (1,200)	$ (1,200)	$ (1,200)	$ (1,200)	$ (1,200)
Insurance - Liability	$ -	$ (494.00)	$ (671.45)	$ -	$ (637.87)	$ (650.46)	$ (700)	$ (700)	$ (700)	$ (700)	$ (700)
Capital Improvements	$ -	$ (3,510.43)	$ (767.00)	$ (5,000.00)	$ -	$ -	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)	$ (2,500)
Total Operating Expenses	$ (29,420.80)	$ (29,858.62)	$ (27,143.35)	$ (37,229.76)	$ (34,368.34)	$ (31,968.26)	$ (33,350)	$ (33,350)	$ (33,350)	$ (33,350)	$ (33,350)
Operating Income/(Deficit)	$ (8,326.25)	$ 925.06	$ (3,938.08)	$ (21,016.25)	$ (15,826.49)	$ (15,196.90)	$ (9,340)	$ (9,340)	$ (9,340)	$ (9,340)	$ (9,340)
Capital Projects Expenses	$ (902.50)	$ (61,818.50)	$ (1,075,806.14)	$ (617,107.16)	$ (163,012.55)	$ (112,870.89)	$ (666,667)	$ (166,667)	$ (3,000,000)	$ (166,667)	$ (190,000)
TOTAL OPERATING INCOME/(DEFICIT)	**$ 2,852.25**	**$ (11,965.44)**	**$ (212.22)**	**$ (19,501.41)**	**$ (24,426.04)**	**$ (16,378.79)**	**$ (36,007)**	**$ (16,007)**	**$ (29,340)**	**$ (16,007)**	**$ (26,940)**

Phase 1 Development Schedule

Shively Field Capital Improvement Program (CIP)					
Phase 1 (Years 2014 - 2018)					
Project	**Total**	**FAA (90%)**	**State (6%)**	**Local (4%)**	**Other**
Hangar Area Taxilane Improvements					
Reconstruct and/or repair existing hangar taxilanes	$ 666,667	$ 600,000	$ 40,000	$ 26,667	
Sewer line extension under existing and proposed future taxilanes to serve hangar development area and future business park					
Land-Use/Land Acquisition Improvements					
Acquire Land/Avigation Easements for RPZs	$ 166,667	$ 150,000	$ 10,000	$ 6,667	
Work with Carbon County to update airport zoning in county					
Facilitate non-aeronautical land-use release for future development					
Develop real estate disclosure requirements for properties within airport area (65 DNL)					
Runway Improvements					
Runway 05-23 Rehabilitation (pavement overlay)	$ 3,000,000	$ 2,700,000	$ 180,000	$ 120,000	
Construct Runup area near Runway 05					
Approach Improvements					
Install 4-box PAPI on both runway ends (upgrade existing 2 box on Runway 23 to 4 box)	$ 166,667	$ 150,000	$ 10,000	$ 6,667	
Install REILS on Runway 05 end					
Facilitate FAA Procedures Analysis and Upgrades					
General Pavement Maintenance					
Sealcoat all pavement surfaces	$ 190,000	$ 171,000	$ 11,400	$ 7,600	
Phase 1 (5 YEAR TOTALS)	**$ 4,190,001**	**$ 3,771,001**	**$ 251,400**	**$ 167,600**	

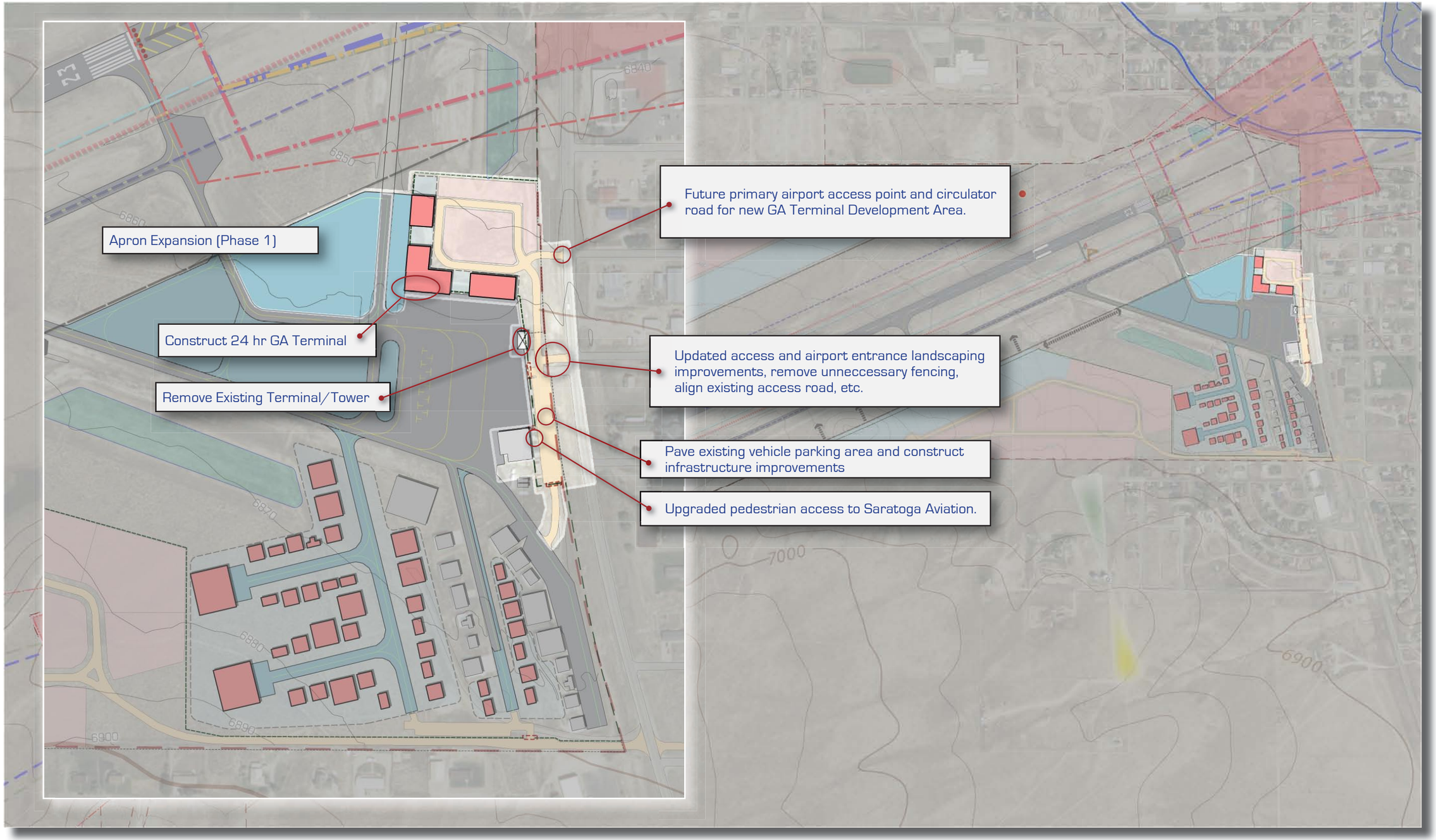
Phase 1 Map


Acquire Avigation Easements for Runway RPZ
Runway 23 approach improvements
Upgrade to 4 box PAPI on Runway 23 end
Runway 05-23 Rehabilitation
Runway 05 approach improvements
Install PAPI and REIL on Runway 05 end
Construct Runway 05 runup area for departing aircraft.
Acquire BLM land for RPZ (approx. 10 acres)
Hangar Area Taxilane Improvments
• Reconstruct existing hangar taxilanes pavement
• Widen Taxilane #2 to 35'
• Prepare area for future sewer line extension

Phase 2 Development Schedule

Shively Field Capital Improvement Program (CIP)					
Phase 2 (Years 2019 - 2023)					
Project	**Total**	**FAA (90%)**	**State (6%)**	**Local (4%)**	**Other**
Apron Expansion					
Phase I Apron Expansion	$ 1,600,000	$ 1,440,000	$ 96,000	$ 64,000	
Airport Entrance Improvements					
Existing parking lot paving and infrastructure improvements					
Remove existing unnecessary fencing near existing entrance					
Align existing access road to Greenwood Avenue					
Landscaping/entrance improvements (signage, ground cover, etc...)					
Relocate and make improvements to existing Saratoga Aviation access	$ 350,000	$ 315,000	$ 21,000	$ 14,000	
Sewer lines under parking lot (approx 1000') to serve Saratoga Aviation and future terminal area expansion					
Gas lines under parking lot (approx 1000') to serve future terminal area expansion					
Sewer connection under Highway 130 at Cedar Avenue					
New Terminal Area Access Improvements					
Construct future access road off Highway 130 to expanded terminal area at Cedar Ave	$ 100,000	$ 90,000	$ 6,000	$ 4,000	
Construct circulator road and general site prep for future terminal area development					
New Terminal Area Improvements					
Remove existing terminal/tower					
Construct new GA terminal building	$ 800,000	$ 720,000	$ 48,000	$ 32,000	
Fencing improvements and relocation for GA terminal development area					
Planning Project					
Airport Business Plan/Marketing Strategy Development and ALP Update	$ 125,000	$ 112,500	$ 7,500	$ 5,000	
General Pavement Maintenance					
Sealcoat all pavement surfaces	$ 210,000	$ 189,000	$ 12,600	$ 8,400	
Phase 2 (5 YEAR TOTALS)	**$3,185,000**	**$2,866,500**	**$191,100**	**$127,400**	

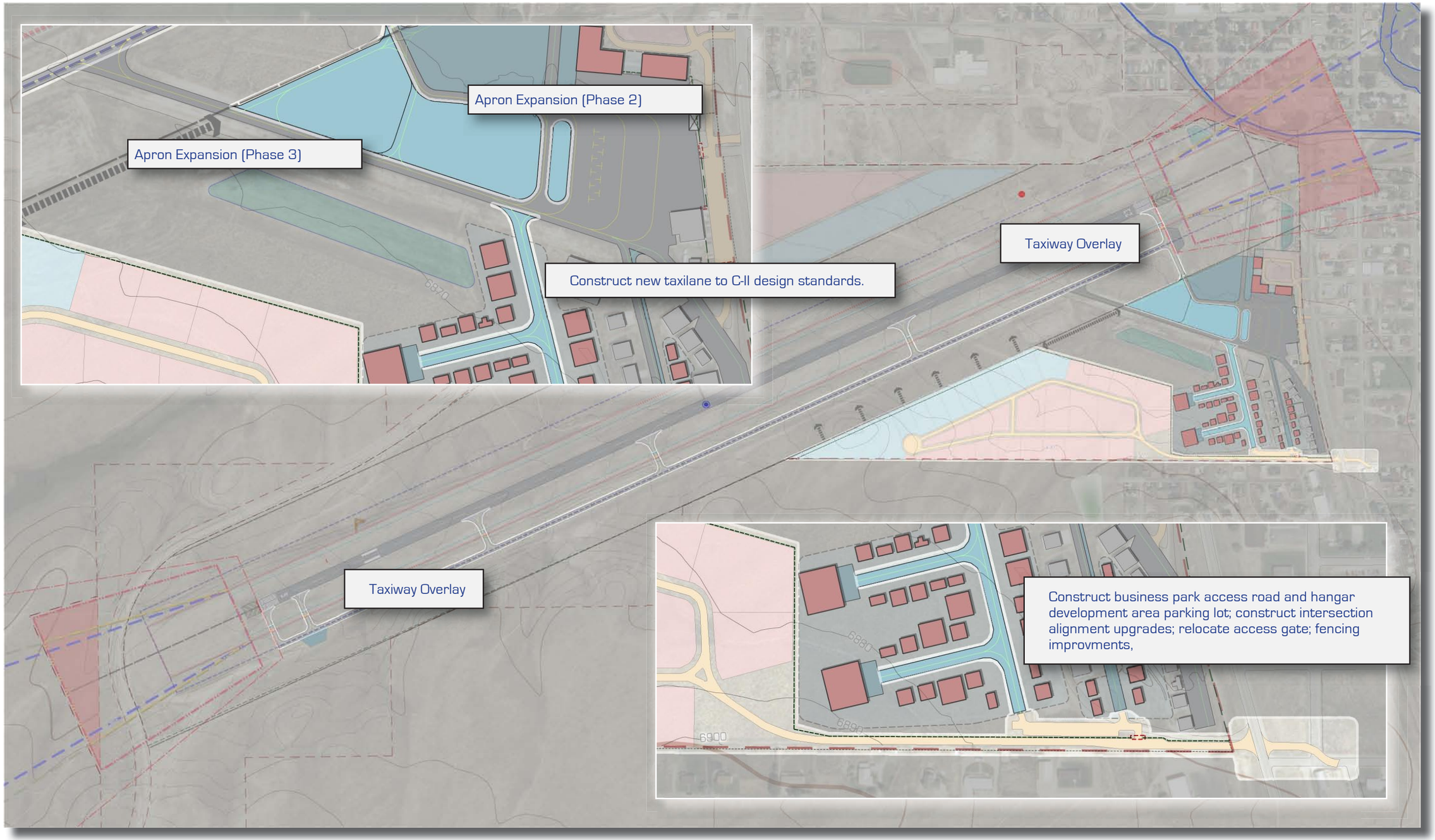
Phase 2 Map


Apron Expansion (Phase 1)
Construct 24 hr GA Terminal
Remove Existing Terminal/Tower
Future primary airport access point and circulator road for new GA Terminal Development Area.
Updated access and airport entrance landscaping improvements, remove unneccessary fencing, align existing access road, etc.
Pave existing vehicle parking area and construct infrastructure improvements
Upgraded pedestrian access to Saratoga Aviation.
6850
6860
6870
6880
6890
6900
7000

Phase 3 Development Schedule

Shively Field Capital Improvement Program (CIP)					
Phase 3 (Years 2024 - 2033)					
Project	**Total**	**FAA (90%)**	**State (6%)**	**Local (4%)**	**Other**
Apron Expansion					
Construct Phase 2 of expanded aircraft parking	$ 1,300,000	$ 1,170,000	$ 78,000	$ 52,000	
General Pavement Maintenance					
Sealcoat all pavement surfaces	$ 250,000	$ 225,000	$ 15,000	$ 10,000	
Hangar Area Taxilane Improvements					
Construct additional taxilane (Taxilane #3)	$ 620,000	$ 558,000	$ 37,200	$ 24,800	
Taxiway Improvements					
Overlay Parallel/Connector Taxiways	$ 1,400,000	$ 1,260,000	$ 84,000	$ 56,000	
General Pavement Maintenance					
Sealcoat all pavement surfaces	$ 275,000	$ 247,500	$ 16,500	$ 11,000	
Business Park Access Improvements					
Construct new access road to business park and hangar development area (alignment with Pine Avenue improvements)	$ 825,000	$ 742,500	$ 49,500	$ 33,000	
Relocate/install new access gate to hangar development area off of business park road					
Fencing improvements adjacent to business park road and hangar development area					
Apron Expansion					
Construct Phase 3 of expanded aircraft parking	$ 1,150,000	$ 1,035,000	$ 69,000	$ 46,000	
Airside Support Facilities					
Construct public aviation fuel facilities in business park	$ 300,000	$ 270,000	$ 18,000	$ 12,000	
Phase 3 (10 YEAR TOTALS)	**$6,120,000**	**$5,508,000**	**$367,200**	**$244,800**	
20 YEAR TOTAL FUNDS	**$13,495,001**	**$12,145,501**	**$809,700**	**$539,800**	

Phase 3 Map


Apron Expansion (Phase 2)
Apron Expansion (Phase 3)
Construct new taxilane to C-II design standards.
Taxiway Overlay
Taxiway Overlay
Construct business park access road and hangar development area parking lot; construct intersection alignment upgrades; relocate access gate; fencing improvments,

AIRPORT MASTER PLAN
2014

SHIVELY FIELD
SARATOGA, WYOMING

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AIRPORT MASTER PLAN

SHIVELY FIELD – SARATOGA, WYOMING