

2022 Terminal Area Plan (TAP) Alternatives Analysis

Prepared For:
Bear Lake County Airport

Prepared By:
T-O Engineers, Inc.

Date: Decemberr 2022

1 Introduction

A Terminal Area Plan (TAP) update was requested as part of AIP 3-16-0027-018 and includes an alternatives analysis and implementation study to reconfigure the hangar development areas. The 2017 ALP and existing TAP show hangar development areas impacting wetlands, which were delineated as part of the master plan project. In order to comply with Executive Order 11990, *Wetlands Protection*, and make the hangar development more practicable at the airport, the analysis of alternative layouts to the TAP update will focus on avoiding wetland areas. All design parameters are driven by the 2017 MPU which identifies the airport as having an Airport Reference Code (ARC) of B-II.

1.1 2021 Wetland Delineation Outcome Summary

An aquatic resources delineation was performed within the survey area for the TAP reconfiguration project at the Bear Lake County Airport and is attached as a separate addendum. To summarize, the delineation was performed on June 21, 2021, to verify previously delineated wetlands located east and west of the terminal area. Four large wetland areas, referred to as wetlands “A”, “B”, “C”, and “D”, were delineated. These wetlands occur in low-lying areas that are in close proximity to the water table, and also receive water from an unnamed irrigation supply ditch that flows along the northern border of the Airport.

In total 1,537,588 square feet (35.30) acres of palustrine emergent wetlands were delineated in the survey area. The wetland delineation is presented in **Figure 1.1**. The results of this delineation drove the development of the alternatives analysis so as to provide the airport with the most feasible development options.

Figure 1.1 2021 Wetland Delineation



Source: Google Earth, T-O Engineers

1.2 Development Constraints

The narrow area created between the wetlands edge and the 25-foot building restriction line (BRL) severely limits options for hangar development. The goal of this alternatives analysis is to determine the most effective use of space to support the greatest number of hangars within the limited area available.

1.3 TAP Alternatives Analysis

No Action Alternative

The no-action alternative would maintain the apron and parking areas as they currently exist and no apron or hangar development would occur. As noted in the 2017 Airport Master Plan Update, this alternative is not considered a viable option because it does not meet the goal of the study which is to provide the County with options for necessary improvements and future development. As noted in the FAA approved forecast in the 2017 MPU, growth is anticipated at the Airport; therefore, development is required to meet those needs as they occur.

Alternative 1: 10 Hangar Facilities

Alternative 1 presents an option for hangar development of various sizes within the developable areas not impacting wetlands. This alternative provides a layout that includes 10 total facilities consisting of four 60' x 60' box hangars and an apron extension on the existing apron, and in the western development area two 100' x 120' box hangars, two 80' x 100' box hangars, two 100' x 42' common wall hangars, with associated taxiway and road access.

All development in this alternative remains entirely on airport property, beyond the 25' building restriction line (BRL), and without any impacts to wetlands. See **Figure 1.2**.

Figure 1.2 Alternative 1, 10 Hangar Facilities



Alternative 2: Eight Hangar Facilities

Alternative 2 is similar to Alternative 1 on a slightly smaller scale. Alternative 2 includes the development of various sized hangars within the developable areas not impacting wetlands. Alternative 2 consists of eight total facilities including four 60' x 60' box hangars and an apron extension on the existing apron, and in the western development area one 100' x 120' box hangar, one 100' x 80' box hangar, and two 100' x 42' common wall hangars, with associated taxiway and road access.

All development in this alternative remains entirely on airport property, beyond the 25' building restriction line (BRL), and without any impacts to wetlands. See **Figure 1.3**.

Figure 1.3 Alternative 2, 8 Hangar Facilities



Alternative 3: 21 Hangars

Alternative 3 has the largest footprint with the proposed development of 21 hangars, 20 tie-downs, and a helicopter parking pad. This layout includes three 50' x 50' box hangars, and one 60' x 60' box hangar along the existing apron, and an apron and taxiway extension to include 20 tie-downs and a helicopter parking pad. East of the existing apron additional hangars are proposed including two 80' x 80', two 100' x 100', and two 60' x 60' box hangars. The western development area consists of five 40' x 40', four 60' x 60', and two 100' x 100' box hangars with associated taxiway access.

All development in this alternative remains entirely on airport property, beyond the 25' building restriction line (BRL), and without any impacts to wetlands. See **Figure 1.4**

Figure 1.4 Alternative 3, 21 Hangar Facilities



1.4 Public Involvement

A virtual public meeting was held on February 10, 2022 to discuss the project alternatives. Those in attendance were Jared Wingo – T-O Engineers, Jared Norton T-O Engineers, Dave Kramer – Bear Lake County Airport Board, and Danny McClendon – Bear Lake County Airport Board. No member of the public attended the meeting and no comments were received. Information on the public involvement process is included in **Appendix A**.

1.5 Preferred Alternative

Table 1.1 compares the three alternatives in terms of total facilities and individual hangars. The sponsor selected preferred alternative is alternative 3 with 21 additional hangar facilities, and over 42 hangar and tiedown spots. The orientation of the taxilane for hangar access is an essential element for this hangar layout. Because of the constrained area, the orientation of the taxilane in Alternative 3 limits the impact on developable land, allowing for a greater number of facilities to be constructed. This alternative presents the most effective use of space allowing for the greatest number of hangars and aircraft parking. Additionally, this layout provides a strategic control measure for drifting snow, as well as enhanced melting of snow in front of south facing hangars.

Table 1.1 Alternatives Comparison

Alternative	Facilities	Hangars
1	10	14
2	8	11
3	21	21

2022 TAP Alternatives Analysis

The estimated cost of the full buildout of the preferred alternative is \$5,842,018.01, not including hangar construction. This alternative should be phased appropriately as the need becomes apparent. The estimated cost of phased development is presented in **Table 1.2**. Currently, all available hangar spaces are leased at the Airport, therefore, the development of the first phase of this buildout should occur in the short-term (0-5 years) of this TAP update.

Table 1.2 Preferred Alternative Phasing and Engineer's Cost Estimate

Phase	Project	Paved Area	Unit	Total Cost
1	East Side Taxilane	76,073	S.F.	\$1,409,632.69
2	Apron	124,564	S.F.	\$2,308,170.92
2	Fuel Tank	N/A	L.S.	\$1,300,000.00
				\$3,608,170.92
3		44,480	S.F.	\$824,214.40
Total Cost of Buildout				\$5,842,018

2. Environmental Overview

The 2017 MPU provides a detailed environmental overview of the existing conditions and impacts with the development alternatives. The 2017 MPU preferred hangar development alternative impacted wetlands, therefore, it was assumed wetland mitigation and a Clean Water Act Section 404 permit would be required as part of the development.

With the alternatives analyzed as part of this TAP Update, including the preferred alternative, there are no impacts to wetlands, as verified with an updated wetland delineation. This eliminates the need for wetland mitigation and permitting, although a local building permit will be required as dictated by Bear Lake County.

3. Facilities Implementation Plan Addendum

The timing for this addendum occurs in the 2017 MPU mid term development - phase 2 (5-10 years). All of the projects for the short term development - phase 1 (0-5 years) have been completed or are currently underway.

The 2017 MPU development plan included the taxilane in the mid term development phase, and the apron, and west side taxilane and hangar development in the long-term development phase (11-20 years). Due to the existing need and similarly phased approach for the TAP Update preferred alternative, the first phase of development, the east side taxilane, should occur in the 2017 MPU defined mid term development phase, between 2022 and 2032.

Phase 2, apron extension and fuel tank, and phase 3, west side taxilane, should remain in the 2017 MPU long term development phase. Development phases are outlined in **Tables 3.1 and 3.2**. Only the cost estimates for the TAP Update preferred alternative has been updated (TAP Update cost estimates are in current dollars), all other project costs remain the same as the 2017 MPU.

2022 TAP Alternatives Analysis

Table 3.1 Mid Term Development Projects and Cost Estimates

ID	Description	Funding Source			Total Project Cost
		Federal 90%	State 2.5%	Local	
2-2	Acquire Land for Approach Protection	\$90,000	\$2,500	\$7,500	\$100,000
2-3	Pavement Maintenance on Apron, Taxiways, and Runway 16-34	\$360,000	\$10,000	\$30,000	\$400,000
2-4	Wildlife/Security Fence	\$810,000	\$22,500	\$67,500	\$900,000
2-5	Taxilane Extension	\$1,268,669	\$35,241	\$105,722	\$1,409,633
2-6	Decouple Runway Ends and Access Taxiway	\$472,500	\$13,125	\$39,375	\$525,000
Mid Term Total					\$6,774,633

Table 3.2 Long Term Development Projects and Cost Estimates

ID	Description	Funding Source			Total Project Cost
		Federal 90%	State 2.5%	Local	
3-1	Widen Parallel Taxiway	\$373,500	\$10,375	\$31,125	\$415,000
3-2	Reconfigure Apron	\$1,035,000	\$28,750	\$86,250	\$1,150,000
3-3	Helicopter parking	\$45,000	\$1,250	\$3,750	\$50,000
3-4	Taxilane, Apron, and Landside Development	\$2,077,354	\$57,704	\$173,113	\$2,308,171
3-5	Fuel Tank	\$1,170,000	\$32,500	\$97,500	\$1,300,000
3-6	Pave Airport Access Road	\$2,062,800	\$57,300	\$171,900	\$2,292,000
3-7	Airport Master Plan Update	\$153,000	\$4,250	\$12,750	\$170,000
3-8	Environmental Assessment for Runway Extension	\$270,000	\$7,500	\$22,500	\$300,000
3-9	Acquire Land for Runway 10-28 Extension	\$214,425	\$5,956	\$17,869	\$238,250
3-10	Extend Runway 10-28	\$1,579,500	\$43,875	\$131,625	\$1,755,000
3-11	Relocate Road	\$2,205,000	\$61,250	\$183,750	\$2,450,000
3-12	Extend Parallel Taxiway	\$1,714,500	\$47,625	\$142,875	\$1,905,000
3-13	Relocate Windcone and Segmented Circle	\$19,800	\$550	\$1,650	\$22,000
Long Term Total					\$14,355,421

Appendix A Public Involvement

AD# 196520AD#

PUBLIC MEETING

The Bear Lake County Airport (1U7) is preparing an Airport Layout Plan to update the goals and direction of the airport for the community. The FAA assists in sponsoring these planning efforts to assist communities that are eligible for federal airport grants and to ensure the airport meets applicable safety standards for users and the public and provides guidance on future hangar and terminal area development.

The study is being conducted by T-O Engineers for the County and has been ongoing for several months. On February 10th, 2022, a virtual public meeting will be held to discuss the proposed planning changes and provide the public with an opportunity to make comments on the project.

The content will focus on proposed changes to the terminal area, including potential areas of hangar development and apron expansion.

In addition, project material can be found on the T-O Engineers' website, starting February 2nd, with the public comment period ending February 18th. Instructions to access the project materials can be found using the following steps:

1. Go to <http://www.to-engineers.com/>.
2. Click on the "Project portal" tab in the upper right-hand corner.
3. Under "Recent Jobs Posted." Click on "Bear Lake County Airport – ALP Update."
4. You may then view information and documents under different tabs. No registration is needed.

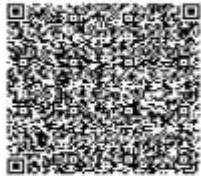
The virtual public meeting will be conducted from 6PM to 8PM Thursday, February 10th, 2022. Instructions to access the public meeting can be found using the following steps:

1. Attend the Virtual Meeting using the following link:
https://teams.microsoft.com/dl/launcher/launcher.html?url=%2F_%23%2F1%2Fmeetup-join%2F19%3A-meeting_OTI0MTY2YjctYTVhNS00OWM-wLTg4OWEtZDAyNTBiYWl1NTI5%40thread.v2%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%25225e32a5f4-3463-46a8-8603-d047aeb966aa%2522%252c%2522Oid%2522%253a%25220264a120-b2db-4f5f-a0b1-b1ae291b0a0d%2522%257d%26anon%3Dtrue&type=meetup-join&deeplinkId=c0d87351-26f4-497b-9da5-ad70b61c0c71&directDl=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true
2. Call-in Access:

Phone Number: (833) 721-1215

Code: 253356537#

3. Scan the following QR Code with an electronic device.



4. Access the Virtual Meeting link found on the Project Portal website, as described previously in this notice.

Please provide your feedback through the Comments Form available on the Project Portal or directly to Jared Wingo via email: jwingo@to-engineers.com or via phone 509-319-2580.

Published Feb 2 and 9 2022 (NEX3982-196520)

**AIRPORT MASTER PLAN UPDATE - TERMINAL AREA PLAN UPDATE
AGENDA**

Virtual Public Meeting
February 10, 2022
6PM – 8PM
Virtual (See Information Below)

Agenda

- Welcome
- Public Presentation
- Open Forum
- Public Outreach Period (Closes 02.18.22)

Comments may be submitted to the Project Team as follows:

Jared Wingo, CM
Aviation Planning Leader
Email: jwingo@to-engineers.com
Office: 509.342.9355

Comments may also be mailed to:

T-O Engineers
7950 N. Meadowlark Way, Suite A
Coeur d'Alene, Idaho 83815

To access the virtual meeting, please follow the these instructions:

The virtual public meeting will be conducted from 6PM to 8PM Thursday, February 10th, 2022. Instructions to access the public meeting can be found using the following steps:

1. Attend the Virtual Meeting using the following link:
https://teams.microsoft.com/dl/launcher/launcher.html?url=%2F%23%2F%2Fmeetup-join%2F19%3Ameeting_OTI0MTY2YjctYTVhNS00OWMwLTg4OWEtZDAyNTBiYWI1NTI5%40thread.v2%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%25225e32a5f4-3463-46a8-8603-d047aeb966aa%2522%252c%2522Oid%2522%253a%25220264a120-b2db-4f5f-a0b1-b1ae291b0a0d%2522%257d%26anon%3Dtrue&type=meetup-join&deeplinkId=c0d87351-26f4-497b-9da5-ad70b61c0c71&directDI=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true
2. Call-in Access:
Phone Number: (833) 721-1215
Code: 253356537#

3. Scan the following QR Code with an electronic device.



4. Access the Virtual Meeting link found on the Project Portal website, as described previously in this notice.

Please reach out to Jared Wingo via email: jwingo@to-engineers.com or via phone 509-342-9355 if you have issues accessing the Virtual Meeting.



1



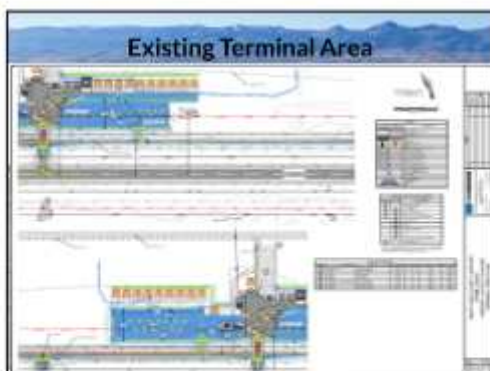
2



3



4



5



6



7.

1. Identify the Need

- Identified Wetland Concern
- Strong Demand for Private Hangar Development
- Operational Factors Taken into Account

8

2. Identify Critical Aircraft

- Airport Reference Code (ARC)
- Existing Operations: A/B-I
- Future Consideration: A/B-II
- Partial Parallel Taxiway Constructed to B-II Standards

9

Critical Aircraft Examples

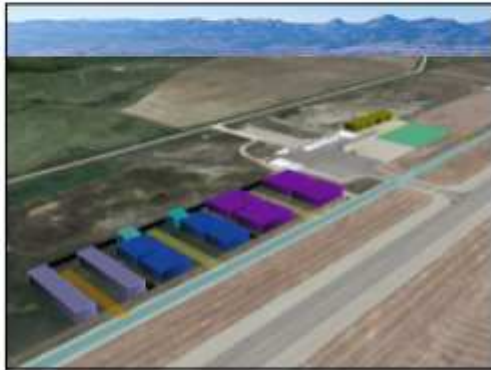
10

3. Propose Alternatives

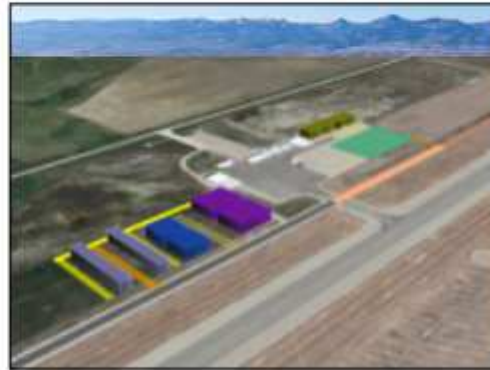
11

2017 ALP Preferred Alternative

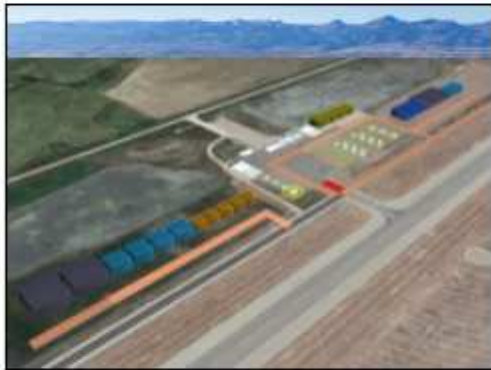
12



13



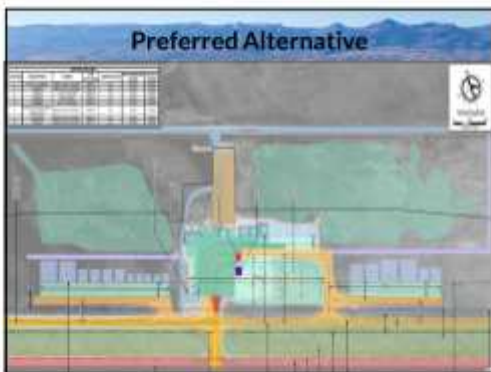
14



15



16



17



18



19



20



21



22