



Bowers Field

Addendum - Airport Development Alternatives (Chapter 6)

This addendum to the Airport Development Alternatives chapter includes the preferred airside development alternative and the preliminary landside development alternatives.

PREFERRED AIRSIDE DEVELOPMENT

The preferred airside development was selected and refined, based on a review of the preliminary development options identified previously in this chapter. The selection was made by Kittitas County based on input from the Planning Advisory Committee. The recommended airside configuration is depicted in Figure 6.9.

The basic elements of the preferred airside alternative retain Runway 11/29 as the primary runway at Bowers Field. For planning purposes, Runway 7/25 is maintained as the secondary runway and will be reconfigured to meet Airplane Design Group I (ADG I) standards if funding can be obtained. In the interim, Runway 7/25 may be closed by airport management due to its deteriorating condition.

Key features are summarized below:

Runway 11/29

- The runway is extended to 5,128 feet. Runway extensions are added at the north end (660 feet) and the south end (167 feet) for a total of 828 feet;
- The future Runway Protection Zones (RPZ) for both runway ends are contained entirely on airport property with no incompatible land uses, including roads;
- The runway is narrowed to 75 feet to meet ADG II standards;
- The runway will be re-designated “12/30” due to a change in magnetic variation;
- Non-precision instrument markings are recommended for both runway ends;
- The excess 75 feet of runway width, consisting of two outer sections (37.5 feet wide each) of asphalt pavement will be removed as part of the runway reconfiguration;
- The runway’s existing lighting, visual approach aids, and stormwater drainage system will require replacement as part of the improvement project;



- A south parallel taxiway is recommended - Phase I adds a 2,245 x 35-foot section from the existing Taxiway Foxtrot to the future end of Runway 11 with two 90-degree exit taxiways connected to the runway. The remainder of the parallel taxiway will be constructed based on demand and funding availability;
- Taxiway access to the Runway 29 end will be reconfigured in conjunction with the south runway extension to eliminate the existing aligned taxiway;
- Aircraft hold areas will be constructed at both ends of Runway 11/29 on adjacent taxiways.

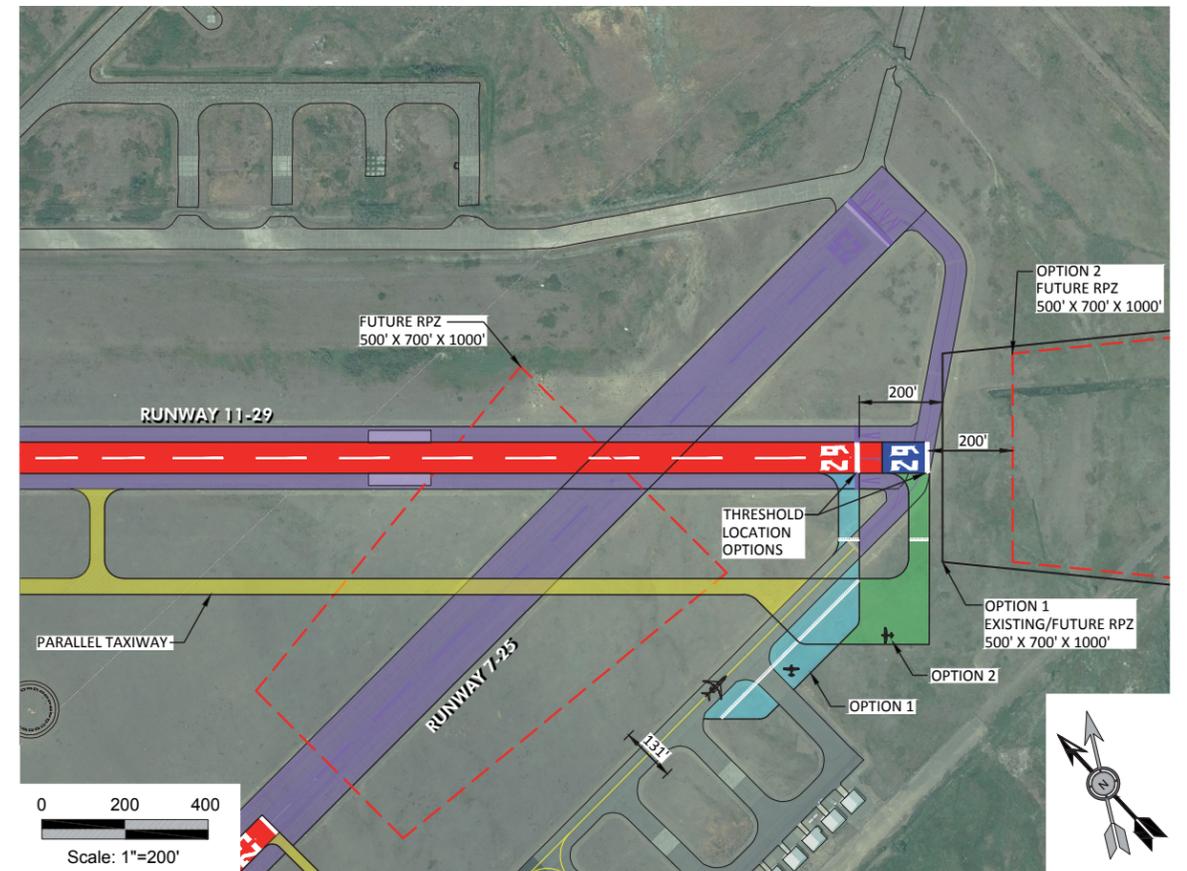
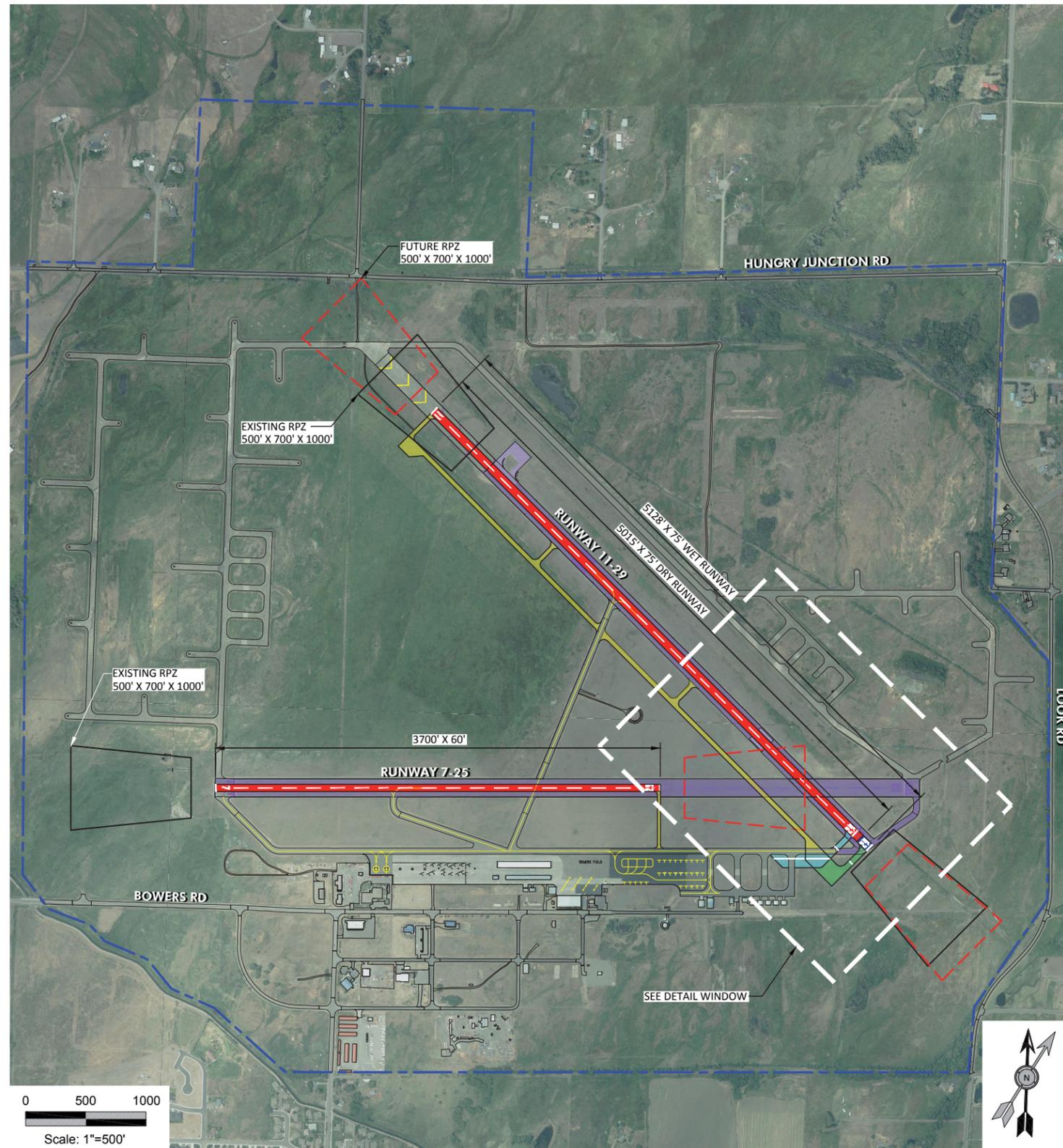
Airspace protections and building setbacks required to accommodate an instrument approach with 3/4-mile approach visibility minimums on Runway 29 will be maintained in the event that the airport sponsor wishes to pursue a future approach upgrade.

Runway 7/25

Runway 7/25 will be fully reconfigured at 3,700 x 60-feet. The runway will be shifted to its western end, and the existing pavement located east of the future Runway 25 end will be removed. The excess pavement created by the runway narrowing will also be removed. A new 90-degree taxiway connector is required to access the future Runway 25 end from Taxiway Bravo. The aligned taxiway at the Runway 7 end will be eliminated as part of the runway reconfiguration.

As noted in the preliminary alternatives discussion, the poor condition of Runway 7/25 creates an operational challenge and liability exposure for the airport. The lack of FAA funding eligibility for the runway limits Kittitas County's financial options. State funding through WSDOT Aviation is not considered adequate to perform the reconstruction required to address the deteriorated pavement, although the ability to leverage WSDOT funding may be a significant factor in the overall financial feasibility of rehabilitating the runway. CWU has highlighted the importance of maintaining Runway 7/25 in support of its flight training program and has expressed a willingness to consider providing funding to keep the runway operational.

For planning purposes, preserving the future configuration of Runway 7/25 and its protected airspace is recommended. It is recognized that the runway may be closed in the near future until such a time that it can be rehabilitated. If the runway closure occurs prior to FAA approval of the ALP drawing at the conclusion of the master plan, the runway will be depicted with "X" markings and noted as "closed" consistent with FAA standards. Closing the runway will require county-submittal of FAA Form 7480-1 (Notice for Construction, Alteration, and Deactivation of Airports). Reactivating the runway would then require submittal of FAA form 7480-1, outlining the proposed change.



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LEGEND	
BUILDING (EXISTING)	
RUNWAY LENGTH (FUTURE)	
PARALLEL TAXIWAY	
TAXIWAY OPTION A	
TAXIWAY OPTION B	
TO BE REMOVED	
AIRPORT PROPERTY LINE	

PREFERRED AIRSIDE ALTERNATIVE
FIGURE 6.9

KITTITAS COUNTY - BOWERS FIELD
AIRPORT MASTER PLAN



PRELIMINARY LANDSIDE DEVELOPMENT ALTERNATIVES

The preliminary landside alternatives address facility requirements related to aircraft parking aprons, aircraft hangars, and support facilities. Potential large-scale tenant developments (DNR and CWU) are identified in conceptual form to illustrate their overall compatibility with other airfield facilities; site development within the tenant leases will vary based on specific design requirements.

As noted in the Inventory chapter, all existing landside facilities at Bowers Field are located on the south side of the runway-taxiway system, in the area identified as the “south flight line.” The preliminary landside development alternatives divide the south flight line into two sections—east and west of the main hangar, along the south side of Taxiway Bravo. The **west landside alternative** focuses on the area between the main hangar and the DNR lease area. The **east landside alternative** focuses on the area between the main hangar and the east end of the flight line. Two options are presented for each alternative to provide variety in facility configurations.

LANDSIDE ALTERNATIVE 1 (WEST)

The primary theme in this alternative is to accommodate future hangar development in the west area, with public use aircraft parking located on the main apron (east of the FBO apron).

Large Tenant Lease Areas

The proposed improvements are compatible with the existing lease boundaries for Central Washington University (CWU) and the Washington Department of Natural Resources (DNR). The current use of the west apron for flight school aircraft parking may continue within CWU’s lease area. Expansion of aviation-related facilities within these lease areas is anticipated within the current twenty-year planning period, but is dependent on tenant needs and resources.

A conceptual aviation technology building (actual scale) is depicted within the CWU lease area to demonstrate the overall capabilities of the site. The building depicted is the actual University of Alaska Anchorage (UAA) Aviation Technology Center located on Merrill Field in Anchorage. The UAA building includes hangar space, aircraft maintenance facilities, classrooms, labs, office space, and support areas. This concept indicates that the existing CWU lease located north of Bowers Road is sufficient to accommodate a large building, aircraft parking, and vehicle parking.

Expansion of DNR helicopter parking pads is depicted along the existing flight line, west of the two existing parking pads. The expanded helicopter parking directly abuts the south edge of Taxiway Bravo. Maintaining Taxiway Bravo is recommended to provide access to the west landside area, regardless of the status of Runway 7/25. DNR has indicated a need to expand their helicopter parking capabilities and has space within its current lease area to accommodate a significant expansion. DNR and contractor



helicopters are routinely parked on the apron located within the CWU lease during fire season when operations levels are high. Expanding helicopter parking within the DNR lease is expected to accommodate the peak demand levels at the facility.

Facility Development Options A and B

The proposed development in **Option A** is configured to accommodate small aircraft and uses ADG I taxilane design standards. Hangar door openings 50 feet or less are planned, which is consistent with small aircraft use (wingspans up to 49 feet). The proposed development in **Option B** is configured to accommodate a combination of large and small aircraft, and uses ADG II taxilane design standards for most of the development. Aircraft with wingspans up to 79 feet can be accommodated within the portions of the development with ADG II taxilane access. Large hangars may contain multiple units or a single large floor area. Large hangars may have door openings greater than 79 feet, but taxilane access would be restricted to the upper wingspan limit (79 feet) of ADG II.

Both options provide a non-aeronautical building site located adjacent to the southeast corner of the CWU lease. The development of the site may be complimentary to future CWU development or independent. The non-aeronautical site does not have direct access to the aircraft apron or adjacent taxilanes, although it is recommended as aviation-related use based on its proximity to the flight line and its location on the north side of Bowers Road. Both options provide vehicle parking located adjacent to new hangars and the non-aeronautical building site, on the north side of Bowers Road.

Key features of Option A and B are summarized below:

Option A

- 2 T-hangars provide approximately 37 units;
- 2 small conventional hangars are located near the southwest corner of the hangar development;
- The reconfigured hangar development provides standard ADG I taxilane object free area (OFA) clearances (79 feet) for all new taxilanes;
- The proposed configuration shifts the hangars to the west to accommodate east and west taxilane connections to Taxiway Bravo;
- The existing vehicle gate located west of the main apron is maintained;
- New vehicle parking is located near the southeast end of the T-hangar development and adjacent to the conventional hangars;
- A non-aeronautical use building site with vehicle parking is located adjacent the southeast corner of the CWU lease area; and
- Existing fencing would be relocated (north of existing sidewalk).



Option B

- 4 large conventional hangars (building footprints may vary) located along the southern edge of the development;
- 1 T-hangar—approximately 19 units located within the apron area;
- 1 small conventional hangar located within the apron area;
- The hangar development provides standard ADG II taxilane object free area (OFA) clearances (115 feet) for the major taxilanes;
- The taxilane between the existing (Carrera) and future T-hangar provides standard ADG I taxilane object free area (OFA) clearance (79 feet);
- The proposed configuration shifts the hangars to the west to accommodate east and west taxilane connections to Taxiway Bravo;
- The existing vehicle gate located west of the main apron is maintained;
- New vehicle parking is located along the entire southern edge of the development;
- A non-aeronautical use/commercial building site with vehicle parking is located adjacent the southeast corner of the CWU lease area; and
- Existing fencing would be relocated to accommodate new development.

A note about redevelopment:

Both options assume the existing county-owned T-hangar and three existing small conventional hangars located south and west of the county T-hangar will be relocated. As noted in the facility requirements chapter, the taxilane object free area (OFA) clearances associated with these hangars do not meet FAA standards. Reconfiguration of the taxilanes and the adjacent hangars is recommended.

It is assumed that the affected hangars will reach the end of their useful lives within the current twenty-year planning period, which provides an opportunity to redevelop the site to accommodate future hangar demand. It is noted that the proposed new development is flexible and can be modified as needed, to accommodate the existing hangars until they are removed/relocated. In any event, the development of new hangars would be phased over time, based on demand. This will allow phased development of new taxilanes and relocation of individual hangars based on specific factors such as remaining lease term and building condition.

Landside Alternative 2 (East)

The primary theme in this alternative is to accommodate future hangar development, address apron taxilane clearance issues, and provide for additional aircraft parking. The east landside area is identified to accommodate future hangar and aircraft parking development on the current Airport Layout Plan (ALP). This evaluation follows a similar path, although some changes in facility configurations are proposed.



The east landside area is divided into two sections—the main apron and undeveloped area to the south; and the east row of hangars and three undeveloped cutouts located between the hangar row and Taxiway Bravo.

A 35-foot building restriction line (BRL) for Runway 11/29 is maintained in this area based on the potential future upgrade to $\frac{3}{4}$ -mile instrument approach visibility minimums. Vehicle parking is located adjacent to hangar clusters, adjacent to Bowers Road.

The proposed construction of an aircraft hold area at the end of Runway 29 may require eliminating the connection between the eastern-most hangar taxilane and Taxiway Bravo (depending on the selected hold area and threshold configuration).

Main Apron Taxilanes

Both options depict a recommended reconfiguration of the main apron taxilanes to meet ADG II standards. The reconfiguration includes the taxilanes located at east end of the tiedown apron and in the middle section of the apron. These taxilane reconfigurations are in part driven by the current construction of a new large hangar (identified as “Mitchell Hangar Site”) adjacent to the southeast corner of the apron that can accommodate ADG II aircraft. Providing ADG II taxilane access to this hangar will create two unconnected sections of ADG II taxilane at the east and west ends of the apron. The reconfiguration of the taxilane in the middle of the apron connects these parts of the apron and provides a clear taxi path between the FBO apron, fueling area, and business aircraft parking positions and the east end of the apron, without requiring ADG II aircraft to use Taxiway Bravo.

The expansion of the taxilane object free area (OFA) from 79 feet to 115 feet required to meet ADG II standards will eliminate six existing tiedowns. Other existing tiedowns located near the west end of the apron would be eliminated in the future to accommodate hangar development. Additional aircraft tiedowns are planned in both options. The eastern section of Bowers Road is planned for upgrade (same roadway/sidewalk configuration as the existing improved sections).

Facility Development Options A and B

Option A locates new small conventional hangar rows south of main tiedown apron, with three (ADG I) north-south taxilane connections to the apron. 16 small hangars are depicted in this area. Infill sites for several new hangars are also located within the existing east hangar area. A 35-foot building restriction line (BRL) for Runway 11/29 is maintained in this area based on the potential future upgrade to $\frac{3}{4}$ -mile instrument approach visibility minimums. Vehicle parking is located adjacent to hangar clusters, adjacent to Bowers Road.

Two of the unpaved cutouts located east of the tiedown apron are identified as future aircraft tiedown apron. As depicted, the expanded apron would provide an additional 24 small airplane tiedowns, which



may be phased based on demand. The tiedowns will accommodate new demand and mitigate the loss of existing tiedowns due to apron reconfiguration noted earlier. The first cutout provides 9 additional tiedowns based on the clearances of the adjacent taxilanes. As depicted, development within the second cutout eliminates the adjacent north-south section of taxilane between the east hangar row and Taxiway Bravo and provides 15 additional tiedowns (9 tiedowns if the short taxilane is maintained). Development of 6 small hangars is depicted in the east hangar row and the eastern-most unpaved cutout.

Option B locates new large multi-unit hangars south of main tiedown apron and concentrates new development of small hangars in the east hangar row (infill) and in the unpaved cutouts north of the hangar row. The large hangars are typical of multi-unit conventional hangars designed to accommodate larger aircraft. The hangars are configured with uniform north wall placement, which reflects the required ADG II taxilane clearances in the middle section of the apron. Additional pavement will be required from the southern edge of the apron to the north walls of the hangars. Alternatively, the western large hangar could be positioned forward of the eastern hangar to reduce additional apron pavement. Vehicle parking is located adjacent to the hangars, adjacent to Bowers Road.

Small hangar development is located east of the main apron, including three (infill) hangar sites in the existing east hangar row and 11 small hangars are depicted in the unpaved cutouts north of the east hangar row. The western unpaved cutout located is identified as future aircraft tiedown apron with 9 additional tiedowns.

Key features of Option A and B are summarized below:

Option A

- Main apron ADG II taxilane reconfiguration (eliminates 11 existing tiedowns at full development);
- Phased tiedown apron expansion:
 - Phase 1 – 9 small airplane tiedowns (western unpaved cutout);
 - Phase 2 – 15 small airplane tiedowns (middle unpaved cutout);
- Small hangar rows located south of main apron:
 - 3 north-south ADG I taxilanes serving six hangar rows;
 - 16 small conventional hangars (east/west facing doors);
 - Vehicle parking adjacent to hangars;
- Small conventional hangars in east unpaved cutout (3 depicted); and
- Infill development - 3 small conventional hangars in east hangar row.

Option B

- Main apron ADG II taxilane reconfiguration (eliminates 11 existing tiedowns at full development);



- Tiedown apron expansion (9 small airplane tiedowns in western unpaved cutout);
- Large (multi-unit) hangars located south of main apron:
 - 2 large conventional hangars (north facing doors);
 - Typical 3 or 4-unit hangars with interior bays and common roof;
 - Vehicle parking adjacent to hangars;
- Small conventional hangars in east unpaved cutout (3 depicted); and
- Infill development - 3 small conventional hangars in east hangar row.

Environmental Conditions

As noted in Chapter 5 Environmental Assessment, there are several listed hazardous materials and cleanup sites in the vicinity of the proposed improvements shown in the east and west landside alternatives. Prior to development of sites with a previous history of hazardous materials and/or cleanup, it is recommended that a Phase I Environmental Site Assessment (ESA) be conducted to ascertain site history. If the Phase I ESA indicates the potential presence of contamination, site sampling may need to be conducted to confirm the presence and concentration of any contaminants that may be present. Additionally, you should state something like if contaminants are found, coordination with Washington Department Environmental Quality would be conducted to ascertain further actions such as cleanup.

The future parallel taxiway to Runway 11/29 goes through an area mapped as wetlands. However, this area has not been delineated as wetlands on the National Wetland Inventory. Prior to construction, the wetlands would be delineated and a US Army Corps of Engineers 404 permit and any critical area permits should be obtained as necessary.

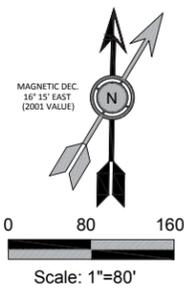
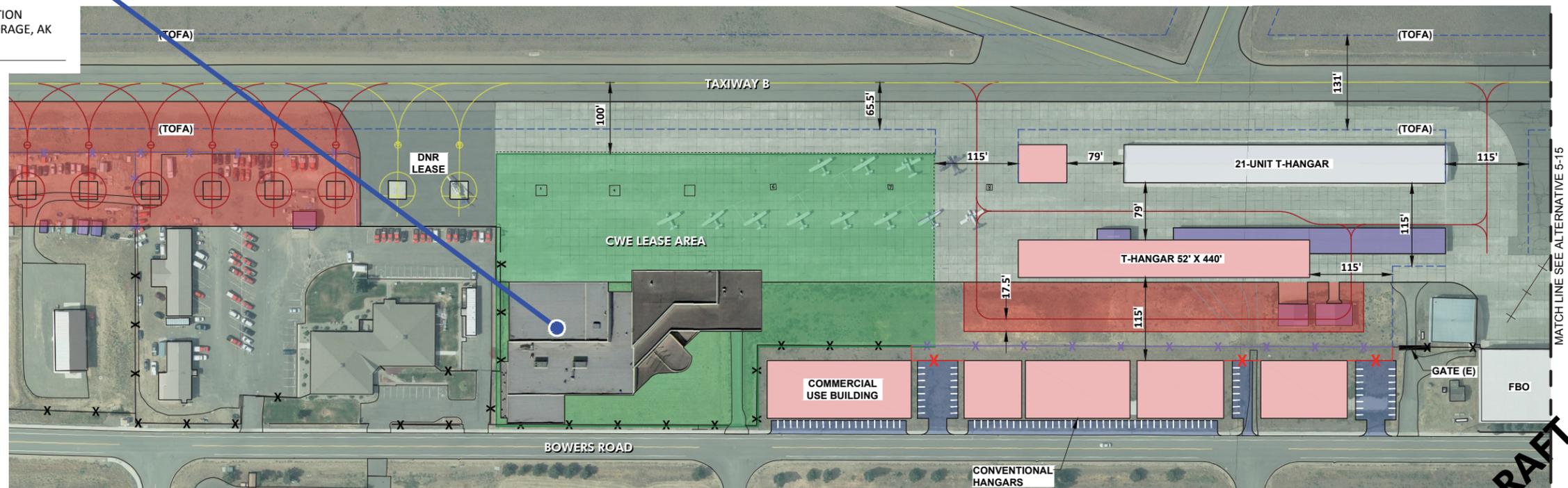
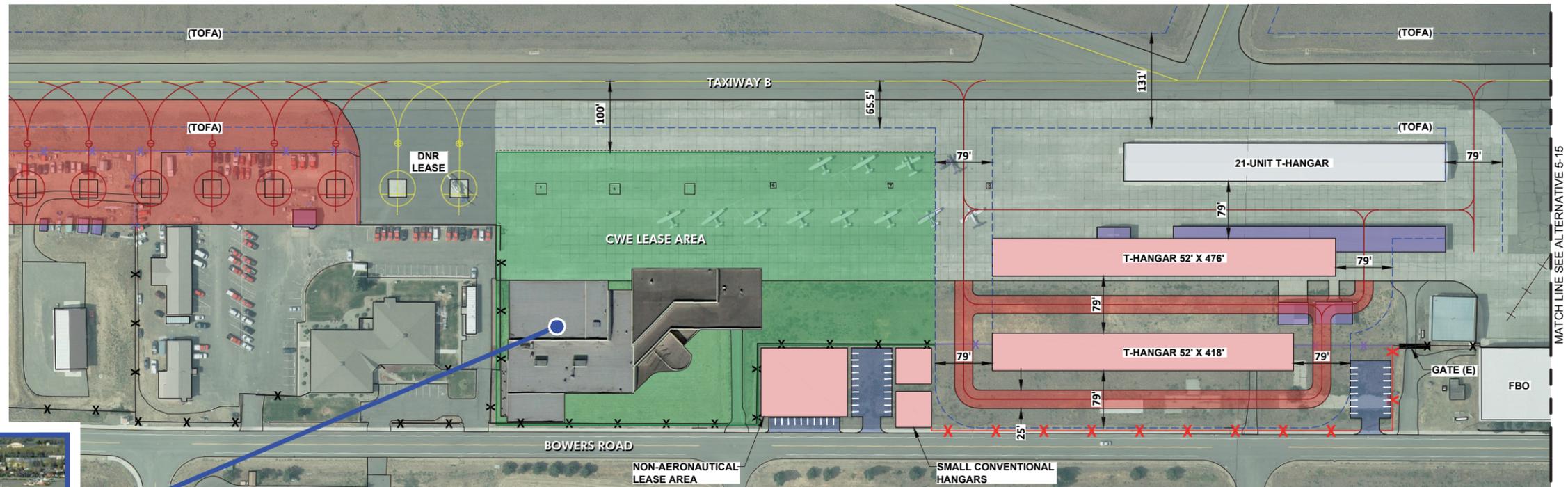
There is also a wetland area adjacent to the north of Runway 7/25. Although it does not appear any impacts would occur there, during removal of the existing runway and construction of the new runway section, wetlands in that area should be avoided wherever possible, otherwise applicable permits will be required.

LEGEND	
BUILDING (E)	
BUILDING (F)	
AIRFIELD PAVEMENT (F)	
CWU LEASE AREA	
TO BE REMOVED	
VEHICLE PARKING (F)	
FENCE (EXISTING)	
FENCE (FUTURE)	
TAXIWAY OBJECT FREE AREA (TOFA)	

- | KEY FEATURES | |
|--------------|--------------------------------------|
| • | COMMERCIAL HANGAR AREA |
| • | LARGE CONVENTIONAL HANGARS |
| • | VEHICLE PARKING & ACCESS |
| • | EXISTING LONG TERM LEASES UNAFFECTED |



UNIVERSITY OF ALASKA ANCHORAGE AVIATION TECHNOLOGY BUILDING, MERRILL FIELD, ANCHORAGE, AK (EXAMPLE OF CONCEPT)

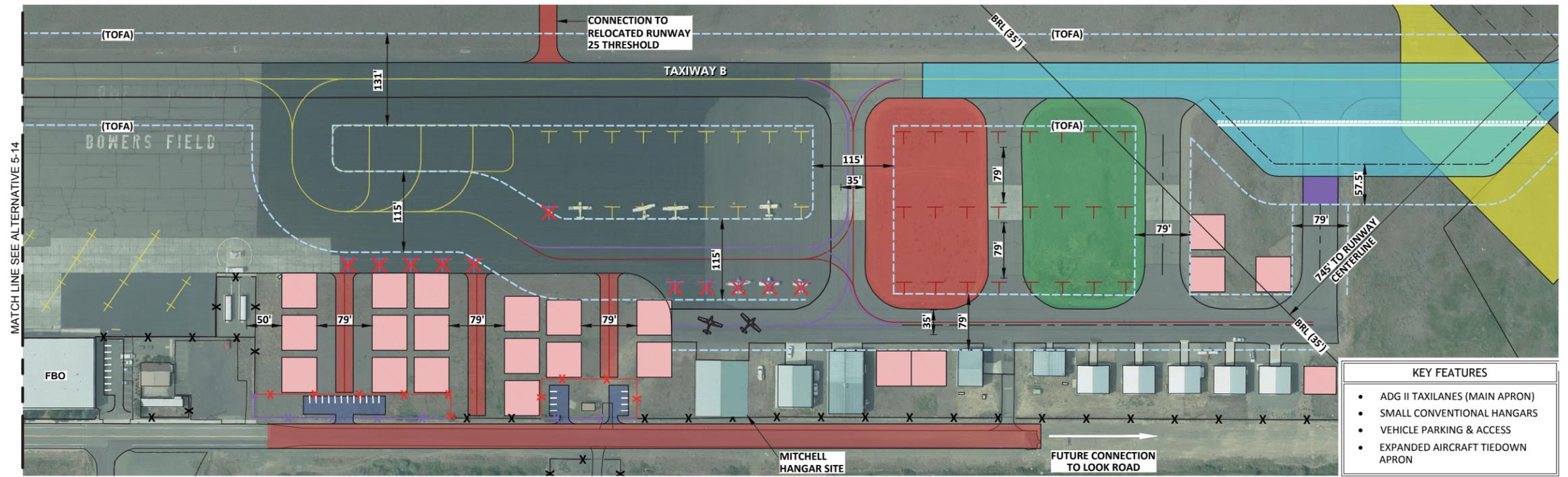


MATCH LINE SEE ALTERNATIVE 5-15

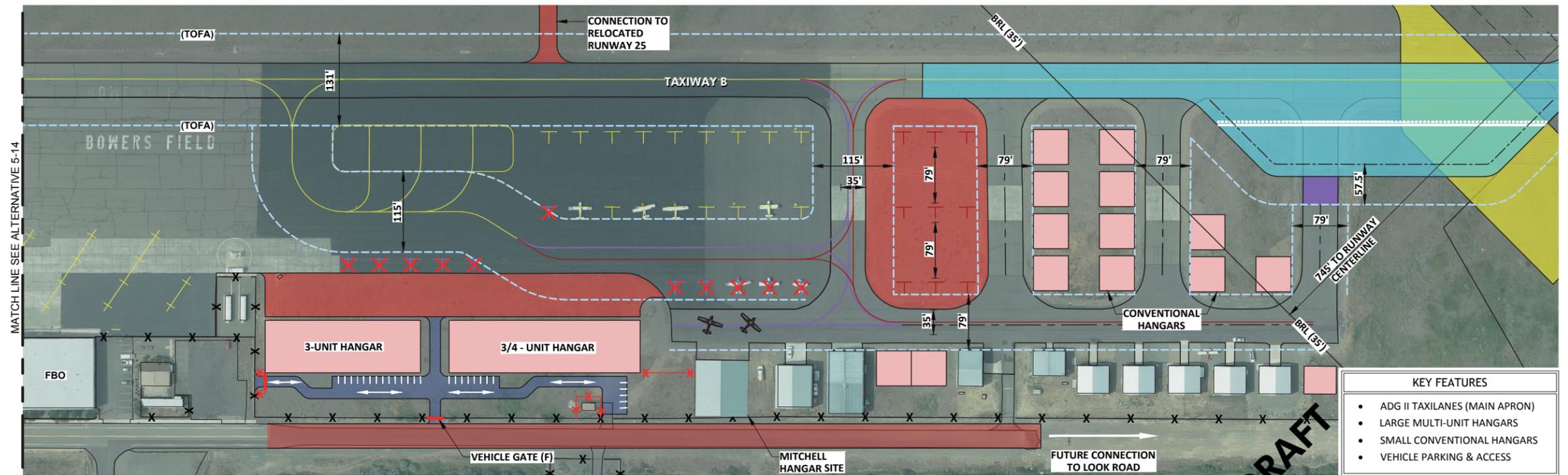
MATCH LINE SEE ALTERNATIVE 5-15

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LEGEND	
BUILDING (E)	[White box]
BUILDING (F)	[Pink box]
AIRFIELD PAVEMENT (PHASE I)	[Red hatched box]
AIRFIELD PAVEMENT (PHASE II)	[Green hatched box]
VEHICLE PARKING (F)	[Blue hatched box]
TAXIWAY OPTION A	[Yellow hatched box]
TAXIWAY OPTION B	[Light blue hatched box]
TO BE REMOVED	[Purple hatched box]
FENCE (EXISTING)	[Black 'X' symbol]
FENCE (FUTURE)	[Red 'X' symbol]
TAXIWAY OBJECT FREE AREA (TOFA)	[Dashed blue line]
BUILDING RESTRICTION LINE (BRL)	[Solid black line]



OPTION A



OPTION B

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