WORKING PAPER 6

FAA PROJECT COORDINATION

MAY 2023

VERSION 1.0

DRAFT

Prepared by RS&H for the
Chisholm Hibbing Airport Authority

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 6

FAA PROJECT COORDINATION

6.1 FAA PLANNING REVIEW AND COORDINATION

Due to many factors beyond the control of the master plan project team, most resulting from challenges faced across all industries during the Covid-19 global pandemic, timely FAA review of analysis was not achieved consistently during the project. As an important stakeholder in the planning process, FAA review of alternatives and implementation planning is highly beneficial when it takes place at specific milestones (i.e., forecast, facility requirements, alternatives, and implementation) throughout the entirety of the master planning process. Full review of alternatives and implementation analysis was considerably delayed during the pandemic and did not occur until the end stages of the study. This review identified a few areas where more information and/or analysis was requested to support FAA AIP funding plans. All FAA-identified elements noted in the review were addressed (as applicable) in final master plan documentation ahead of this section. The following sections include three key areas where more thorough analysis was requested beyond what was previously scoped and performed within the master plan:

- Expansion of alternatives to address Runway 13-31 ROFA impacts
- Expansion of alternatives to address/clarify 'Airfield Pavement Design and Construction Phase I' project purpose, need, and justification
- Incorporation of apron tie-down configurations

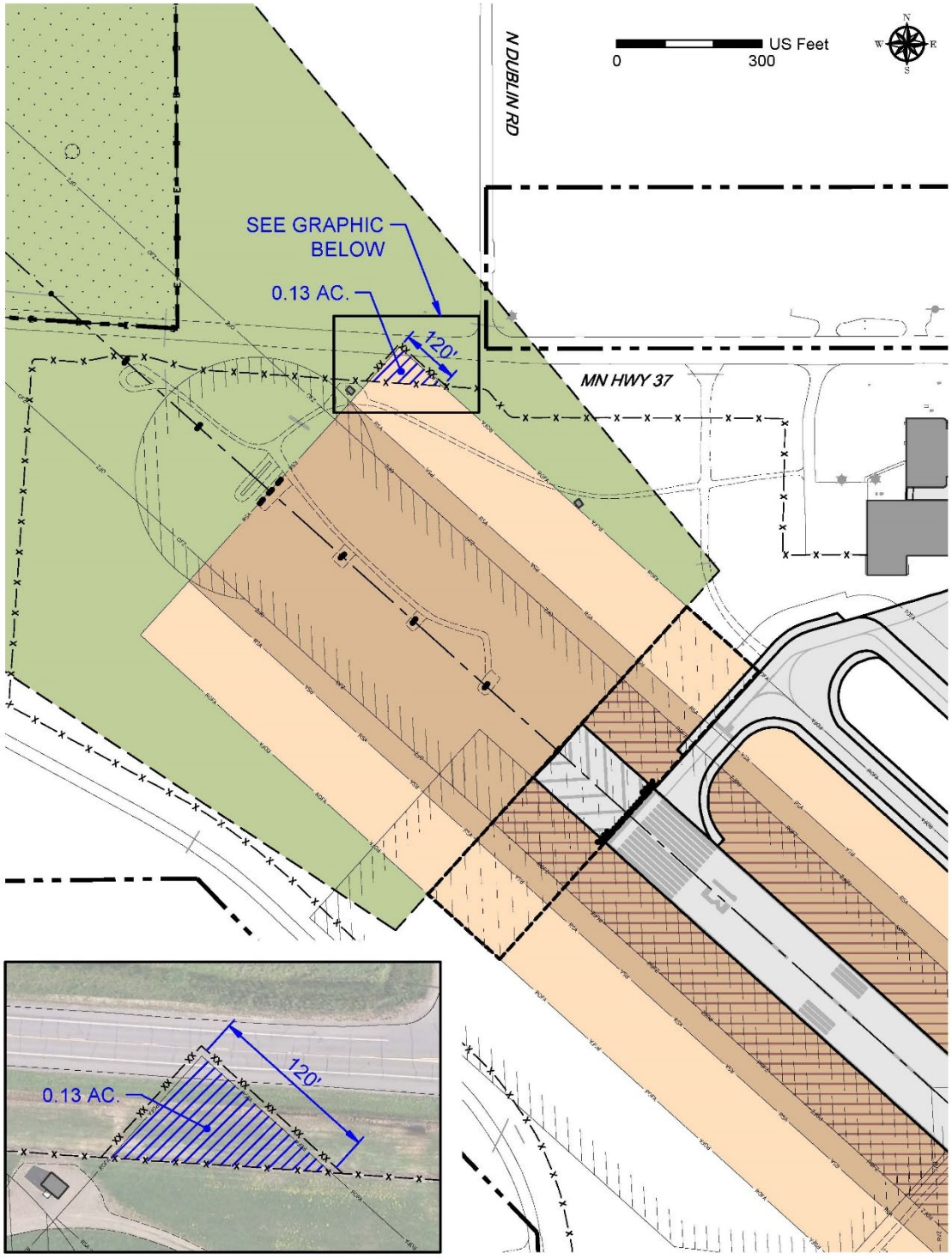
Each of the factors analyzed in the following sections achieve the FAA "planning complete" status for near-term projects, meaning the scope of each project is documented, it meets design standards, and it has a programmed funding source (FAA or otherwise), as per FAA comments provided in September 2022.

6.1.1 Runway 13-31 Runway Object Free Area (ROFA) Impact Alternatives

Runway 13-31 meets C-III category aircraft design standards but has a 0.13-acre fraction of land in the northeast corner with state highway Mn-37 right-of-way and an airport security/wildlife fence within the Runway Object Free Area (ROFA). Per FAA AC 150-5300-13A, *Airport Design* (since updated near the completion of the master plan study to -13B) the ROFA is clear area limited to equipment necessary for air and ground navigation, providing wingtip protection in the event of an aircraft excursion from the runway.

Figure 6-1 shows the impacted area of the ROFA penetration as well as how it correlates with the Runway 13 threshold. Review of FAA and NTSB accident/incident records did not demonstrate any recorded accidents or incidents in this area related to the non-standard ROFA condition, as shown in **Table 6-1**.

FIGURE 6-1
BASELINE CONDITIONS OF RUNWAY 13 ROFA PENETRATION



Source: RS&H Analysis, 2022

TABLE 6-1
HIB ACCIDENT AND INCIDENT HISTORY

Date	Data Source	Aircraft	Fatalities	Flight Under	Location	Event Summary
6/24/2018	FAA	Cessna 185	None	Part 91 - GA	Unlisted	Loss of control on rollout; aircraft nose over due to braking
6/14/2007	FAA	Robinson R22	None	Part 91 - GA	Unlisted	Student froze on controls and instructor could not fully recover; hard landing
1/14/2006	NTSB	Cessna 120	None	Part 91 - GA	Frozen Lake (unnamed)	Ski collapse and nose-over landing on rough frozen lake
8/30/2001	FAA	Saab 340	None	Part 135 - Mesaba	Rwy 31	Deer strike landing Runway 31
5/23/2000	NTSB	Cessna 310R	None	Part 91 - GA	Rwy 31 2,000'	Deer strike to horizontal stabilizer during landing on Runway 31
1/19/1997	FAA	Piper PA-22	None	Part 91 - GA	Unlisted	Ski broke landing in designated ski area
12/01/1993	NTSB	Jetstream BA-3100	Fatal (18)	Part 135 - Express Airlines	3NM north arriving Rwy 13	Aircraft descended below mandatory IAP altitudes and struck trees/terrain 3NM north of Runway 13
2/26/1993	FAA	Cessna 150	None	Part 91 - GA	Unlisted	Student pilot landed short during T&G's; gear failed
1/02/1993	NTSB	Saab 340A	None	Part 135 - Express Airlines	Landing Rwy 31	Hard landing during icing conditions leading to substantial damage to aircraft (gear, tanks, spar, etc.)
4/24/1991	NTSB	Piper PA-38	None	Part 91 - GA	Runway 22	CFI and student pilot flared late during T&G's, lost control, nosed over, and settled in mud on side of Runway 22

Source: NTSB Aviation Accident Database; FAA Accident and Incident Database; RS&H Analysis, Retrieved December 15, 2022

The additional analysis requested by the FAA to address the Runway 13-31 impacts included the following items detailed in the text below:

- Supplemental runway length analysis
- Additional alternatives analysis to address the ROFA deficiency

Runway length analysis (shown in **Table 6-2**) was requested by FAA using performance calculation methods from AC 150/5325-4B, *Runway Length Requirements*. Runway length requirements were calculated for commercial jet aircraft currently in use and forecast to be used (E-175) at HIB. At the time of this analysis (February 2023), Skywest Airlines reached out to HIB leadership for information to support an analysis of the airport facilities ability to accommodate larger jet aircraft, specifically the CRJ-700, CRJ-900, and E-175 aircraft. While the conclusions of the Skywest analysis are not yet known, this further supports the Master Plan's forecast scenarios and future critical aircraft (E-175) conclusions.

TABLE 6-2
RUNWAY LENGTH REQUIREMENTS

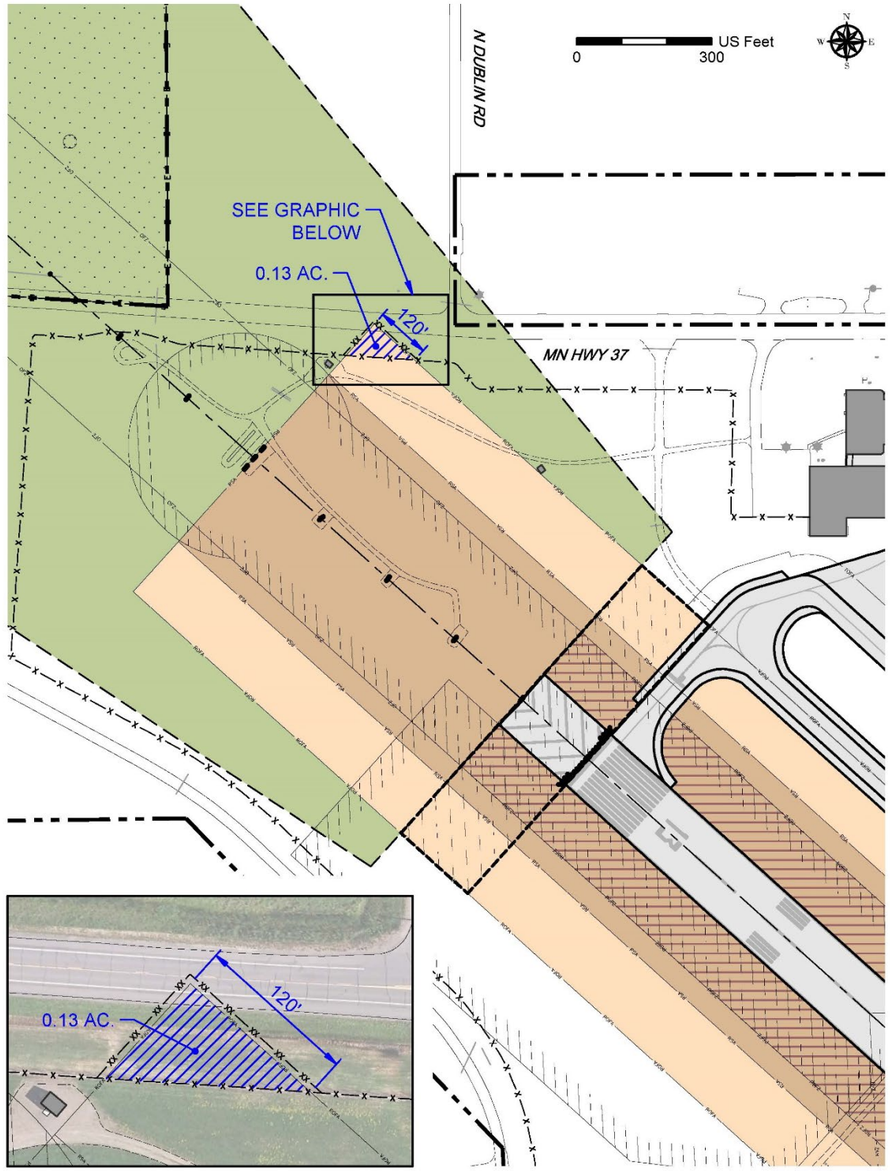
Attribute	CRJ-200	CRJ-700	CRJ-900	E-175	B737-800
Maximum Takeoff Weight (MTOW)					
Field Length for MTOW (ft)	7,227	6,648	7,917	8,809	9,522
MTOW (lbs)	53,000	75,000	82,500	89,000	174,200
Planned Takeoff Weight (PTOW)					
Field Length for PTOW (ft)	6,252	5,535	6,536	7,619	7,273
PTOW (lbs)	49,980	70,330	77,217	83,657	159,334
PTOW Destination (GC, nm)	DEN (684)	DEN (684)	DEN (684)	LAS (1203)	LAS (1203)

Notes: Planned Takeoff Weight is the weight required to support destination with desired payload accounting for reserve fuel, etc. All information calculated from Original Equipment Manufacturing (OEM) Airport Planning Manuals (APM). Calculations do not include accountability for one engine inoperative obstacle clearance or predicted runway conditions. Information used in APM calculation include Field Elevation of 1,325 feet MSL, Average Daily Maximum temperature of 78 degrees Fahrenheit, Average Daily Maximum atmospheric conditions of 23.9 ISA+F.
Source: Lean Engineering, 2023

The following analysis evaluates four alternatives considered to resolve the identified ROFA design standards deficiency.

Alternative 1 – Note the condition on the ALP with the resolution of establishing an administrative FAA modification of standards (MOS) at the time of the next runway reconstruction or rehabilitation.

FIGURE 6-2
RUNWAY 13 ROFA ALTERNATIVE 1 – MODIFICATION OF STANDARDS



Source: RS&H Analysis, 2023

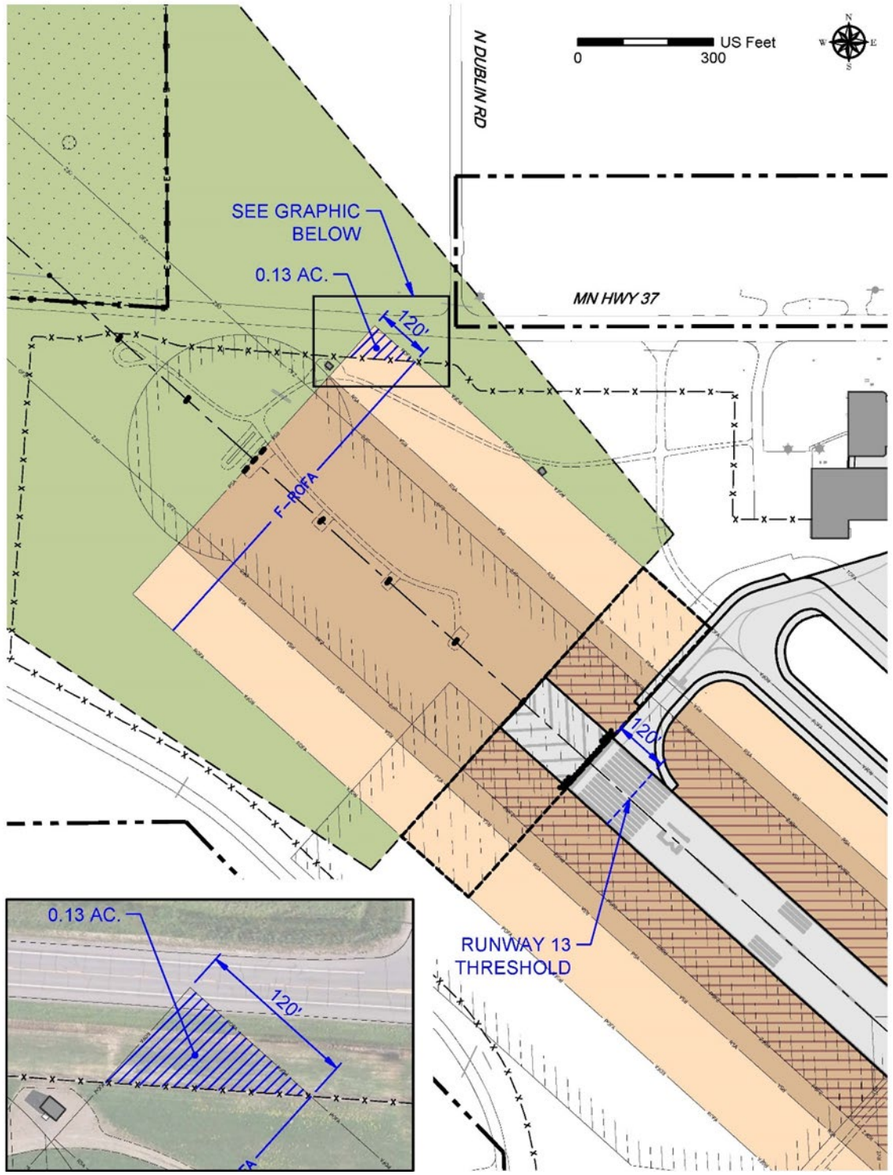
TABLE 6-3
ROFA ALTERNATIVE 1 EVALUATION

Benefits	Challenges
An MOS is a relatively simple administrative method implemented to alleviate a minor design standard issue with no history of safety impacts	Requires renewal of MOS on 5-year cycle, creating additional administrative effort for airport and regulators; not full resolution of issue
Process can be eliminated during future runway construction project that extends runway to the south	Requires waiting for a project that could ultimately not occur as circumstances change over time
RPZ impact from road remains the same	Does not resolve existing RPZ impacts
By far the lowest cost option to resolve the issue	Does not physically remove the fence or road from the ROFA

Source: RS&H Analysis, 2023

Alternative 2 – Physically shift runway infrastructure and supporting navigational aids by minimum of 120' south (at both runway ends) and update associated flight procedures and pilot guidance.

FIGURE 6-3
RUNWAY 13 ROFA ALTERNATIVE 2 – PHYSICAL RUNWAY SHIFT



Source: RS&H Analysis, 2023

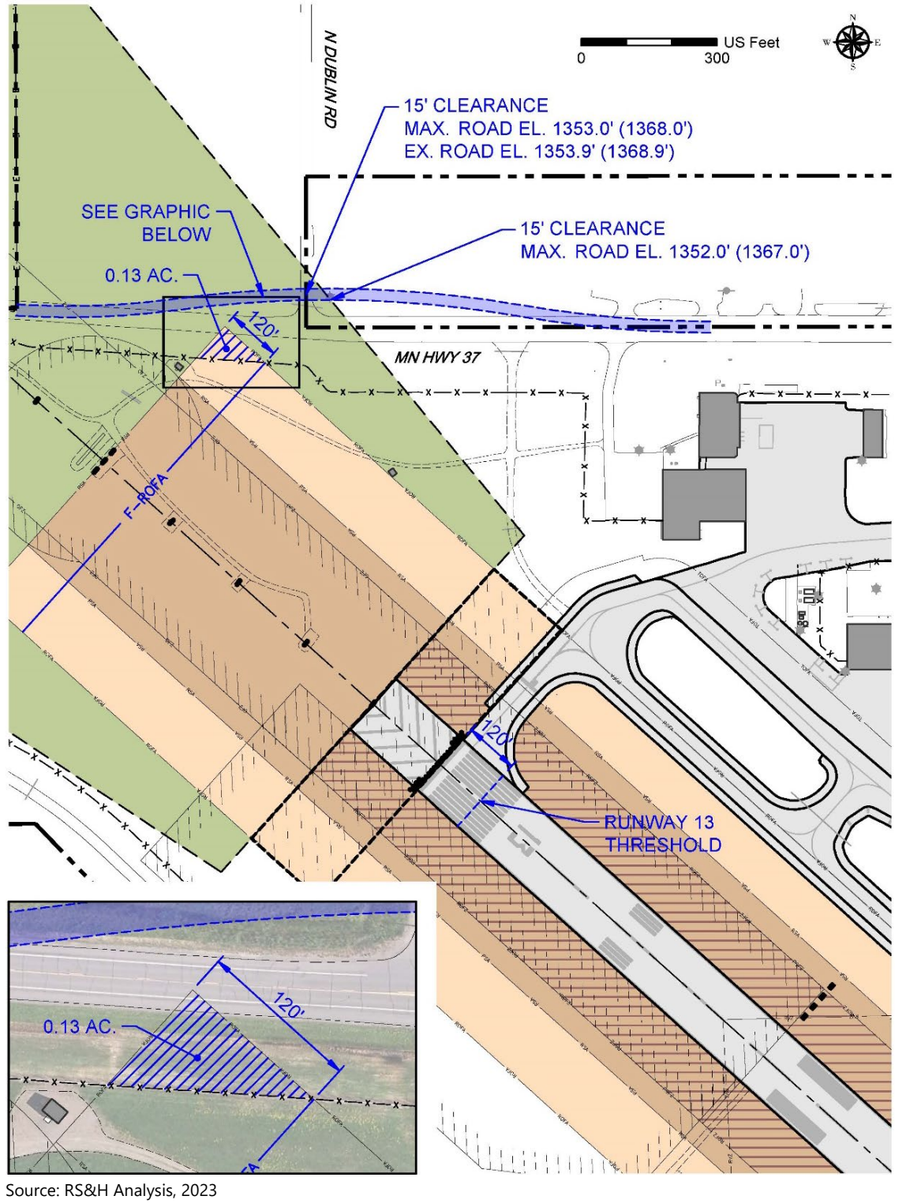
TABLE 6-4
ROFA ALTERNATIVE 2 EVALUATION

Benefits	Challenges
Resolves non-standard issues at infrastructure level by eliminating ROFA penetrations	High capital investment required
Maintains required runway length to serve existing and future critical aircraft/fleet mix	Environmental actions required (NEPA)
Issue could be resolved at time of future runway extension CIP project, therefore lessening overall funding requirement	Airspace and procedure impacts
RPZ impact from road remains generally the same	Does not resolve existing RPZ impacts
120' shift also resolves Part 77 obstructions north of Runway 13	

Source RS&H Analysis, 2023

Alternative 3 - Realign Mn-37 and airport fence to avoid the ROFA and eliminate/reduce Part 77 obstruction impacts. This alternative requires state coordination and MnDOT financial participation.

FIGURE 6-4
RUNWAY 13 ROFA ALTERNATIVE 3 – MN-37 ROAD REALIGNMENT



Source: RS&H Analysis, 2023

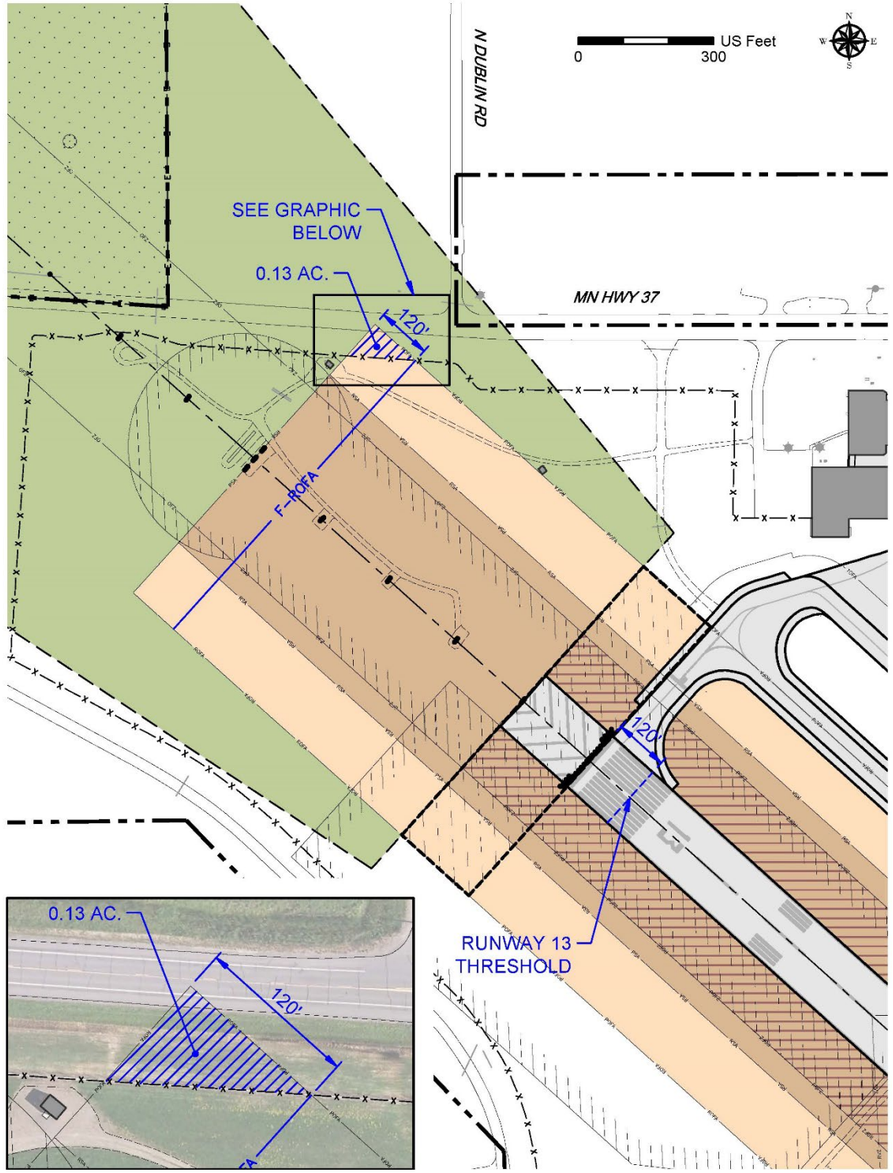
TABLE 6-5
ROFA ALTERNATIVE 3 EVALUATION

Benefits	Challenges
Resolves non-standard issues at infrastructure level by eliminating ROFA penetrations	Mn-37 remains within the RPZ long-term
Leaves existing airfield and navaid infrastructure in place	Road realignment impacts to existing cemetery must be avoided
Can simultaneously resolve ROFA penetration and outstanding Part 77 obstructions from road	Requires coordination and funding participation from state
Capital investment less than runway shift	Capital investment still required
	Environmental action required (NEPA)
	Land acquisition required

Source: RS&H Analysis, 2023

Alternative 4 – Displace Runway 13 threshold by 120' and update declared distances to eliminate ROFA penetration.

FIGURE 6-5
RUNWAY 13 ROFA ALTERNATIVE 4 – DISPLACED THRESHOLD AND DECLARED DISTANCES



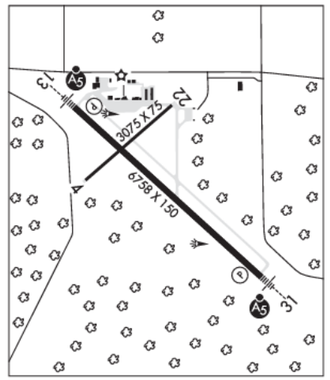
Source: RS&H Analysis, 2023

Declared distances for a runway represent the maximum distances available and suitable for meeting takeoff and landing distance performance requirements. As described in the FAA *Aeronautical Information Manual*, these distances are determined in accordance with FAA runway design standards by adding to the physical length of paved runway any clearway or stopway and subtracting from that sum any lengths necessary to obtain the standard runway safety areas, runway object free areas, or runway protection zones. As a result of these additions and subtractions, the declared distances for a runway may be more or less than the physical length of the runway as depicted on aeronautical charts and related publications. **Figure 6-6** shows the HIB runway declared distances as valid through February 23, 2023. HIB declared distances are equal to the physical runway distances, which is the preference of FAA for the purposes of pilot flight safety and avoiding capital expenditures on pavement that is not fully utilized for landing and takeoff.

FIGURE 6-6
HIB DECLARED DISTANCES (EFFECTIVE THROUGH 15 JUN 2023)

HIBBING

RANGE RGNL (HIB)(KHIB) 4 SE UTC-6(-5DT) N47°23.19′ W92°50.34′ — **GREEN BAY H-2J, L-14I IAP, AD**
1354 B ARFF Index—See Remarks NOTAM FILE HIB MON Airport
RWY 13–31: H6758X150 (ASPH–GRVD) S–60, D–100, 2S–127, 2D–160 PCN 33 F/C/X/T HIRL
RWY 13: MALSR. PAPI(P4L)—GA 3.0° TCH 50′.
RWY 31: MALSR. PAPI(P4L)—GA 2.9° TCH 62′.
RWY 04–22: H3075X75 (ASPH) S–35, D–45 PCN 3 F/B/Y/U
RWY 04: Road.
RWY 22: Road.
RUNWAY DECLARED DISTANCE INFORMATION
RWY 04: TORA–3075 TODA–3075 ASDA–3075 LDA–3075
RWY 13: TORA–6758 TODA–6758 ASDA–6758 LDA–6758
RWY 22: TORA–3075 TODA–3075 ASDA–3075 LDA–3075
RWY 31: TORA–6758 TODA–6758 ASDA–6758 LDA–6758
SERVICE: S4 **FUEL** 100LL, JET A **LGT** Actvt or incr intst MALSR Rwy 13 and 31; HIRL Rwy 13/31—CTAF. PAPI Rwy 13 and 31 opr consly; HIRL Rwy 13–31 preset low intst.
AIRPORT REMARKS: Attended 1200–0400Z‡. Birds on and invof arpt. Fld conds unmon 0400–1200Z‡. Rwy 04–22 CLOSED durg the hrs of darkness. Class I, ARFF Index A. Acr ops NA in excess of 15 min bfr or aft skedd arr/dep times wo prior cdn with AMGR. 24 hr PPR for unsked acr ops gtr than 30 pax seats call AMGR 218–262–3451. Rwy 04–22 clsd to skedd acr ops gtr than 9 pax seats or unsked acr ops gtr than 30 psgr seats. Clsd at ngt. Diverted acft limitations–No intl passenger processing, only one acr gate, ltd sterile area space (70 passengers), vending concessions only. Twy A and Twy B at the apch end of Rwy 22 clsd to acr ops durg the hrs of darkness and conds blw VFR mnms airfield. Guidance signs unlit. Ldg fee for all acft ovr 12,500 lbs.



Source: FAA Airport Facilities Directory (valid 20 APR 2023 to 15 JUN 2023); Prepared by RS&H, 2023

FAA AC 150/5300-13B, *Airport Design*, *Appendix H* describes application and conditions for determining declared distances at airports. These are defined as follows:

Takeoff Run Available (TORA) – Runway length declared available and suitable for ground run of an airplane taking off. Typically, the physical length, but can be shorter such as to satisfy runway protection zone requirements.

Takeoff Distance Available (TODA) – Takeoff run available plus the length of any remaining runway or clearway beyond the far end of the takeoff run available. The TODA satisfies takeoff distance required for airplanes where

certification and operating rules and available performance data allow for consideration of a clearway in takeoff performance computations (varies by operator).

Accelerate-Stop Distance Available (ASDA) – Runway plus stopway length declared available and suitable for the acceleration and deceleration of an airport aborting takeoff. The ASDA may be longer than the physical runway length when a stopway has been designated available or may be shorter than the physical runway length if necessary to satisfy runway design standards. For example, where a portion of the runway is used to achieve the runway safety area requirement.

Landing Distance Available (LDA) – Runway length declared available and suitable for a landing airplane. The LDA may be less than the physical runway length or the length of runway remaining beyond a displaced threshold when satisfying runway design standards (such as the ROFA).

Table 6-6 shows the declared distance impacts of establishing at 120′ displaced threshold for Runway 13. Retaining the 1000′ departure RSA at the Runway 13 end impacts the ASDA, reducing it to 6,638 feet. Reducing the usable pavement for landing on Runway 13 makes the new LDA 6,638 feet.

TABLE 6-6
DECLARED DISTANCES IMPACT WITH RUNWAY 13 DISPLACED THRESHOLD

Facility	TORA	TODA	ASDA	LDA
Runway 13 – Existing Length (ft)	6,758	6,758	6,758	6,758
Runway 13 – Reduced Length (ft)	6,758	6,758	6,758	6,638
Runway 31 – Existing Length (ft)	6,758	6,758	6,758	6,758
Runway 31 – Reduced Length (ft)	6,758	6,758	6,638	6,758

Note: Red indicates a reduction in declared distance.
Source: FAA Airport Facilities Directory (valid 20 APR 2023 to 15 JUN 2023); RS&H, 2023

TABLE 6-7
ROFA ALTERNATIVE 4 EVALUATION

Benefits	Challenges
Resolves non-standard issues "administratively" by addressing deficiencies through aircraft performance calculations	Displacing Runway 13 threshold requires changes to runway declared distances (declared distances not FAA preference)
	Reduces landing distance available (LDA) when landing on Runway 13, therefore shortening usable runway length for many aircraft operators in performance planning and potentially eliminating HIB as a viable airport to continue operations
	At times when runway is reported as "wet", the aircraft performance manuals use stricter declared distance calculation, which is common at HIB (northern climate), therefore further reducing the runway's capabilities
	Maintaining Runway 13 LDA would involve a runway extension to the south, movement of navigational aids, and updated procedures, requiring a large capital investment
	Reduction of declared distances could limit existing operators' ability to operate at current performance benchmarks (i.e., implementation of weigh restrictions, inability to maintain necessary load factors)
	Requires pilot diligence in calculating performance requirements based on current declared distances as published in Airport Facilities Directory (where none currently exist)
	Does not improve any Part 77 obstruction deficiencies (based on physical pavement)

Source: RS&H Analysis, 2023

Figure 6-7 provides a comparative evaluation of each ROFA alternatives based on the same criteria used in **Chapter 3, Alternatives**.

FIGURE 6-7
ROFA ALTERNATIVES EVALUATION

Source: RS&H Analysis, 2023

ROFA Alternative 1 (Modification of Standard) is an appropriate near-term solution, but ultimately does not address the primary safety concern. While the history at HIB shows the risk probability is very low for an accident/incident occurring within the 0.13 acres of non-standard ROFA, the preferred long-term solution should address the underlying non-standard condition. An MOS is the lowest cost solution

because it is purely administrative. For these reasons, the MOS is the preferred near-term solution but is recognized that a long-term solution must also be included in this plan. Establishing an MOS can act as a step toward resolving the issue when included as part of a larger preferred program.

ROFA Alternative 2 (Displaced threshold and physical runway shift) does address some long-standing nonstandard conditions by eliminating the nonstandard ROFA condition, and potentially some Part 77 obstructions at the north end of the runway, but it also creates new obstruction challenges at the south runway end. RPZ impacts at the Runway 13 approach end would remain with similar impacts to existing conditions. Pursuit of Alternative 2 would require a detailed advanced planning study and cost-benefit analysis to document the full breadth of impact to existing facilities and operations at HIB. This alternative would require, at a minimum, a NEPA environmental assessment study, relocation of navigational aids, and updated flight procedures. One noteworthy benefit is that a shift of up to 200 feet at the Runway 31 end would not require any additional land acquisition. Alternative 2 would likely require the most capital investment if ever pursued as the long-term solution. At this time, Alternative 2 is not the recommended long-term solution.

ROFA Alternative 3 (Mn-37 Realignment) addresses long-standing nonstandard conditions by realigning Mn-37. Realigning the roadway requires coordination with MnDOT and is a practical long-term solution. Preliminary roadway engineering analysis of curve tangents, superelevation, and runoff requirements prove the project is feasible. Planning level rough order of magnitude cost estimates show a realignment of Mn-37 is more financially practical than infrastructure changes to Runway 13-31 shown in Alternative 2. Like Alternative 2, a cost-benefit analysis should be performed. The NEPA environmental process and land acquisition would also be necessary. Analysis shows the road realignment could be achieved without impacting the neighboring cemetery. One additional benefit of realigning the road is that it can also address existing Part 77 obstructions created by the road.

ROFA Alternative 4 establishes a displaced threshold for Runway 13 to allow the ROFA to meet FAA design standards. Displacing the Runway 13 threshold reduces usable landing distance (LDA) which is not a feasible solution to support aircraft performance needs, especially when considering the runway requirements analysis in **Appendix B, Aircraft Performance and Instrument Procedure Considerations** which demonstrate the need for a longer runway to support existing operations that don't yet meet the 500 annual operations criteria for critical aircraft. Additionally, a displaced threshold does not address long-standing Part 77 obstructions created by Mn-37 which was expressed by both FAA and MnDOT as a desirable outcome. This alternative would also require FAA to review/update established instrument procedures as well as require a degree of pilot diligence that erodes standard safe airfield conditions. Alternative 4 is not the preferred solution to address the non-standard ROFA.

Alternative 3 is the preferred long-term solution at this time when combined with the near-term Alternative 1 (MOS) solution. FAA expressed that an MOS was a feasible near-term solution and could be pursued when Runway 13-31 rehabilitation was needed. At that time, additionally advanced planning to focus on implementing the roadway solution would be necessary.

6.1.2 Airfield Pavement Design and Construction Phase I Alternatives

Project Implementation General Description (restated from Chapter 4):
This project includes the reconstruction/realignment of portions of Taxiway A and Taxiway B that are not in compliance with FAA design standards set forth in AC 150/5300-13A, *Airport Design* (since updated to -13B effective March 31, 2022). This project is necessary to improve safe airfield operating conditions.

Project Purpose and Need:

- Bring portions of taxiway not currently meeting FAA design standards into compliance to promote safe operations. Design standards need to meet the aircraft categories served.
- Provide adequate safe space for the movement of aircraft along Taxiway A without impeding safe operations/activities in the commercial terminal area, especially during deicing operations performed at the terminal apron perimeter.
- Replace degraded pavement with low PCI rating to prevent unsafe operating conditions related to failing pavement hazards.

One element included in each original alternative analyzed is the construction of a new portion of Taxiway A south of existing apron, along the existing Taxiway A edge. Doing so increases usable space on the apron for movement and deicing of commercial aircraft. Supporting evidence for this need is surveillance video of the terminal apron captured May 2021 showing a near miss between a deicing truck actively deicing an air carrier aircraft and a taxiing general aviation aircraft. The video shows the deicing truck positioning for deicing, with an operator in the boom, nearly colliding with a taxiing Cessna aircraft. **Figure 6-8** shows a still frame of the video captured that day when the incident was narrowly avoided.

Deicing is performed away from the gates to keep the terminal apron free of spent glycol where ground operations are performed, thereby mitigating other hazards, such as 'slip and fall' accidents, near the gate where ground crews are working. Instead, spent glycol is captured by the trench drains at the apron edge, as is preferred for safe ground operations.

FIGURE 6-8
NEAR-MISS INCIDENT MAY 2021

Source: Airport Records, 2022

The following alternatives were evaluated to address non-standard conditions and operational safety concerns:

Alternative 1 – No action (Do nothing to change Taxiway A/Runway 4-22 connector)

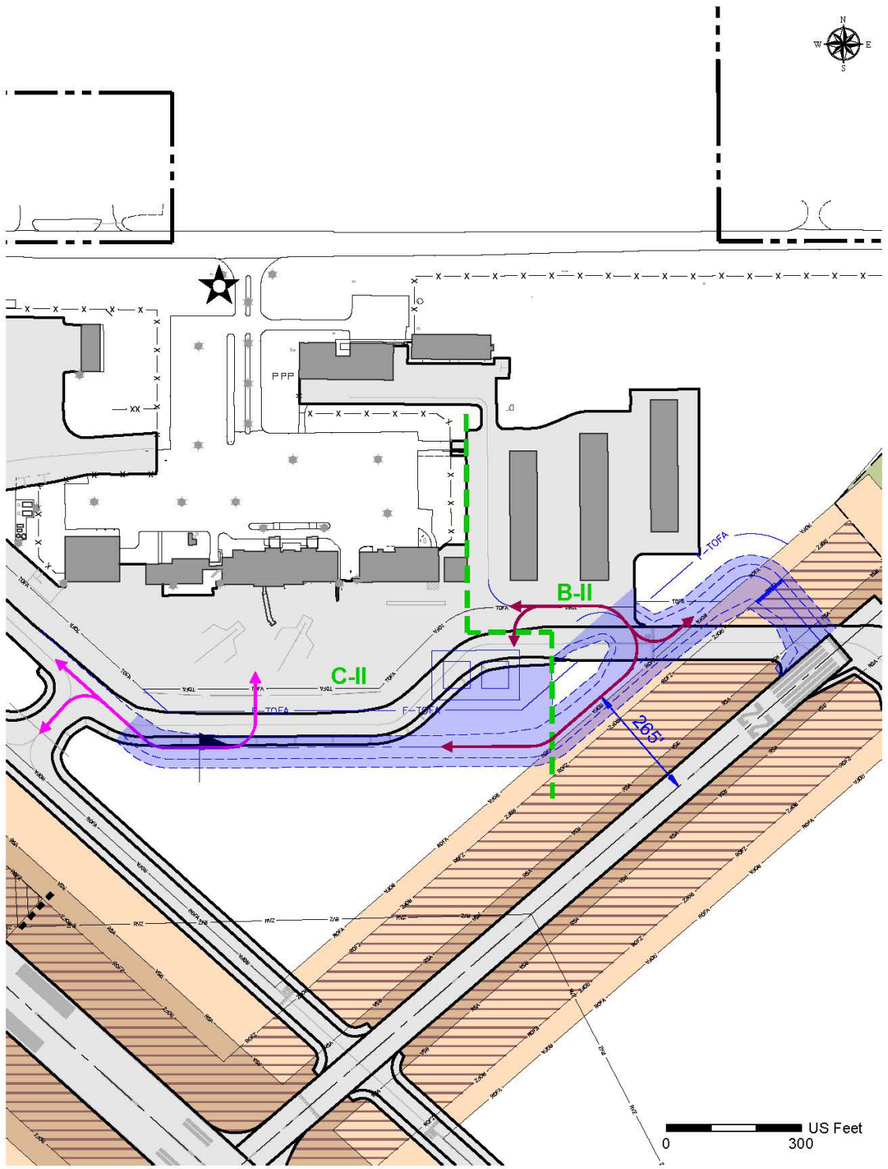
TABLE 6-8
TAXIWAY A ALTERNATIVE 1 EVALUATION

Benefits	Challenges
No actions to implement, conditions remain the same	This portion of airfield remains non-standard to FAA guidance and does not accomplish goals of AC 150/5300-13B
No capital costs to implement	Capital savings potentially come at expense of safe operations
No environmental impacts	Requires an MOS without an anticipated future correction timeline

Source: RS&H Analysis, 2023

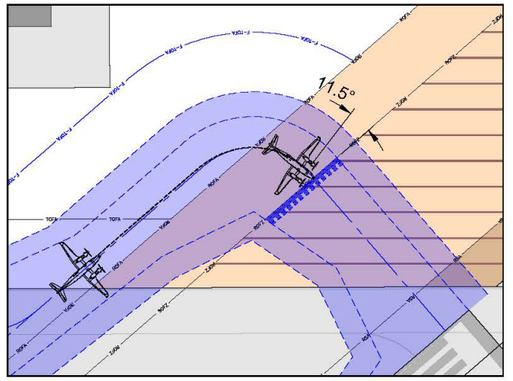
Alternative 2 – Meet all design standards for C-II in terminal apron area and B-II for Runway 22 to the general aviation hangars. Protect taxilane serving rear box hangars specific to King Air 350 safety area requirements.

FIGURE 6-9
TAXIWAY A ALTERNATIVE 2



Source: RS&H Analysis, 2023

FIGURE 6-10
RUNWAY 22 MODELED B-II HOLD SHORT POSITION



Source: RS&H Analysis, 2023

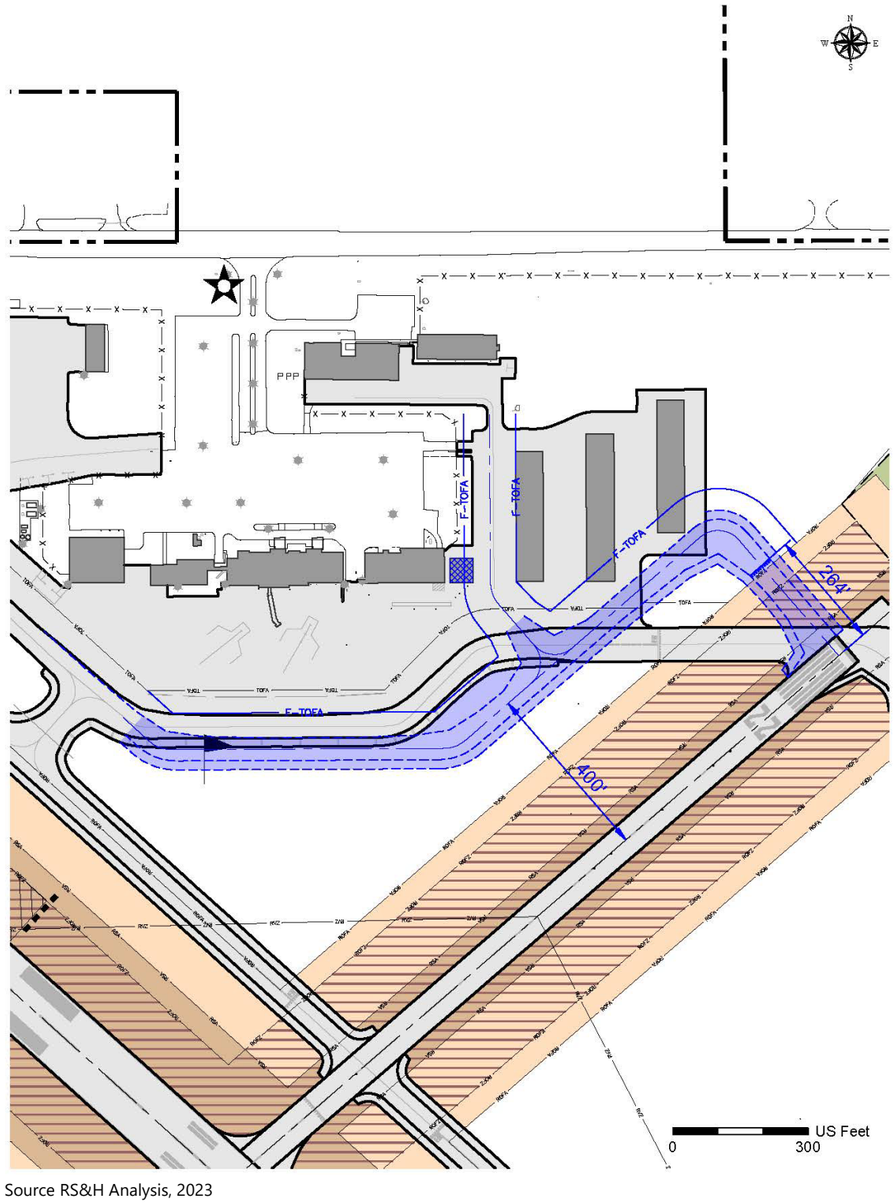
TABLE 6-9
TAXIWAY A ALTERNATIVE 2 EVALUATION

Benefits	Challenges
Meet standards for B-II (Runway 4-22) and C-II (Taxiway A terminal apron area)	Eliminates some pervious space for snow storage and melt
Provide adequate safe movement space for aircraft taxiing past terminal apron	
Runway 22 hold position angle below 15 degrees perpendicular to runway (modeled at 11.5 degrees)	
Provides common route for GA aircraft to/from Runway 13-31	
Allows greater separation of air carrier and general aviation operations and movements	
Expanded apron allows parking positions for aircraft during busiest periods and when more large aircraft are occupying apron space (ex. two commercial jets parked at terminal gate overnight)	
B-II separations for taxilane to rear box hangars (Hangars 10 and 11 on ALP)	

Source: RS&H Analysis, 2023

Alternative 3 – Meet C-III standards (future critical aircraft) on full length of Taxiway A to establish taxi route alternatives for commercial aircraft to/from terminal.

FIGURE 6-11
TAXIWAY A ALTERNATIVE 3



Source RS&H Analysis, 2023

TABLE 6-10
TAXIWAY A ALTERNATIVE 2 EVALUATION

Benefits	Challenges
Meet standards for C-III entire length of Taxiway A in preparation for future critical aircraft alternate taxi route	Not currently required to meet design standards for existing critical aircraft (C-II)
Provide adequate safe movement space for aircraft taxiing past terminal apron	Requires demolition of T-hangars within the TOFA, one of which is relatively new
	Eliminates space available for aircraft parking when compared with other alternatives

Source: RS&H Analysis, 2023

Alternative 2 is the preferred design for Taxiway A improvements under the "Airfield Pavement Design and Construction Phase I" project. This option balances safety with airport user needs based on how the airport facilities are used. Alternative 2 provides necessary parking position to meet near-term need without overbuilding apron space that may go unused once general aviation facilities transition more to the east side of the airport. The same proposed parking spaces provide an opportunity to be later transitioned into a deicing pad.

6.1.3 Apron Tie-Down Configurations

During FAA documentation review, the question was raised, "How many parking positions does the apron space defined in facility requirements accommodate?" Because the types of transient aircraft parking on transient apron can vary widely in size, flexibility was modeled into the space formula based on anticipated fleet use. **Table 6-11** shows the amount of apron space needed over the 20-year planning period to accommodate the corresponding mix of aircraft based on design groups I and II.

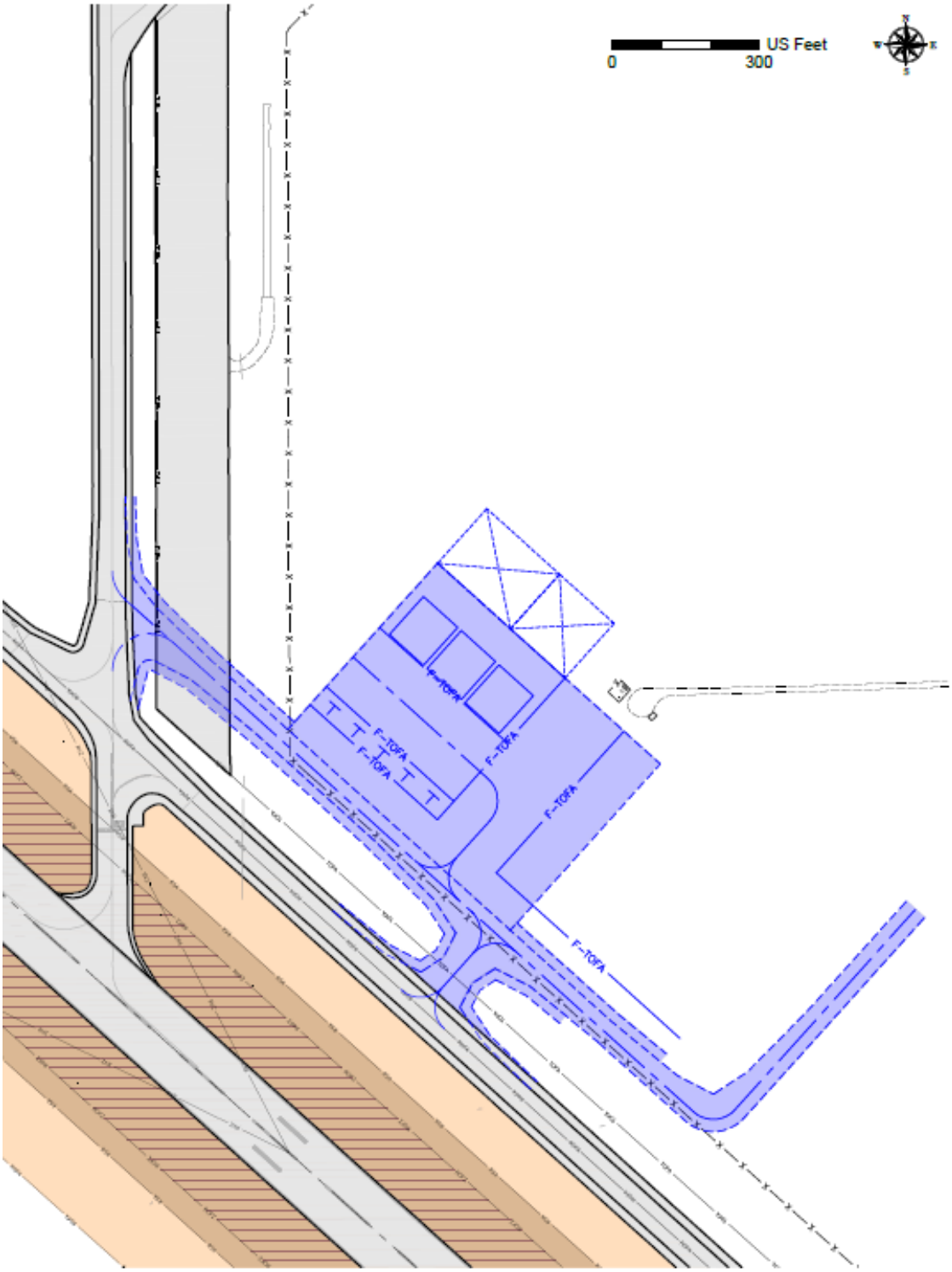
TABLE 6-11
TRANSIENT AIRCRAFT PARKING REQUIREMENTS

		Planning Activity Level		
	Existing	PAL 1	PAL 2	PAL 3
Transient Apron Requirement (sq yds)	10,200	11,800	11,800	13,500
Surplus / (Deficit) (sq yds)	-5,000	-6,700	-6,700	-8,300
Total Needed Spaces (ADG-II)	3	3	3	4
Total Needed Spaces (ADG-I)	8	8	8	10

Source: RS&H Analysis, ACRP Report 113, 2022

With the understanding that transitioning general aviation operations to the east side of the airport will occur over time, **Figure 6-12** shows the initial planned apron and parking position requirements when that development begins. As development of the east side facilities begins, it is recommended that further analysis be done to determine specific apron size and parking position needs.

FIGURE 6-12
EAST SIDE GENERAL AVIATION APRON PARKING POSITIONS



Source: RS&H Analysis, 2023