

RECOMMENDED DEVELOPMENT CONCEPT

Following consideration of each of the alternatives described in the previous sections and discussion with the Holdrege Airport Authority, the City of Holdrege, NDOT, and the FAA, an overall development concept has been developed for Brewster Field Airport. The concept, depicted on **Exhibit 27**, plans for airside needs and addresses landside deficiencies identified in the previous sections. Primary Runway 18-36 is currently categorized as Runway Design Code (RDC) B-I-5000, while the future development plan adheres to RDC B-II-5000, and the ultimate development plan is based upon an RDC C-II-5000 condition. Crosswind Runway 11-29 in the existing, future, and ultimate condition will remain RDC A-I(s)-VIS. Typical airport planning considers up to 20 years; however, for this plan, an ultimate plan has been established to account for things that may be needed earlier but could exceed 20 years. While this timeframe surpasses the 20-year period examined in this planning study, it is important for the Holdrege Airport Authority to plan for this potential and the airfield modifications necessary to meet it. **Table 34** details the planning standards for each phase of the recommended development concept. The following sections describe the physical facilities needed to accommodate projected demand and meet the program requirements.

TABLE 34 | Airport and Runway Classifications

	Runway 18-36			Runway 11-29
	Existing	Future	Ultimate (20+ Years)	Existing/Future/Ultimate
Airport Reference Code (ARC)	B-I	B-II	C-II	A-I(s)
Representative Aircraft	Citation M2	King Air 200/300/400 Citation 560	Challenger 600/604 Gulfstream G280	Piper Super Cub
Runway Design Code (RDC)	B-I-5000	B-II-5000	C-II-5000	A-I(s)-VIS
Approach Reference Code (APRC)	B/III/5000	B/III/5000	B/III/5000	N/A ¹
Departure Reference Code (DPRC)	B/III	B/III	B/III	N/A ¹
Taxiway Design Group (TDG)	1A	2A*		N/A ¹

*Based on the Beechcraft King Air 200/300/350
¹ Given that Runway 11-29 is a turf runway and is not served by a parallel taxiway, this does not apply to the runway.

Source: FAA AC 150/5300-13B; Coffman Associates analysis

AIRSIDE DEVELOPMENT

Primary Runway | Primary Runway 18-36 is planned to meet RDC B-II-5000 in the future condition and C-II-5000 in the ultimate condition. These standards are based upon the types of aircraft anticipated to operate at the airport in the future, as well as the instrument approach capability of the runway.

Runway 18-36 is currently 4,701 feet long and 75 feet wide and is capable of safely accommodating operations by all small airplanes in the national fleet, as well as many turboprops and some business jets. To better serve a larger share of business jets, including the proposed future/ultimate critical aircraft, the future recommended development concept includes a 799-foot extension to Runway 18. The extension would increase the total runway length to 5,500 feet. The extended runway would be much more capable of accommodating larger business jets, particularly during hotter summer months

or wet/slippery conditions when aircraft performance is diminished. The proposed future runway extension would include the extension of Taxiway A to the future Runway 18 end and construction of a new connector. Expansion of the medium intensity runway lighting (MIRL) and medium intensity taxiway lighting (MITL) on Runway 18 and the relocation of runway end identifier lights (REILs) will also be included. In addition, the existing PAPI-2 equipment is planned to be relocated and upgraded to PAPI-4 on both runway ends. The PAPI-4 and REILs serving Runway 36 are planned to be relocated 1,000 feet from the new runway threshold. As noted in the Facility Requirements section, the current magnetic heading of Runway 18-36 is 185°/005° and, as such, the runway should be redesignated as Runway 01-19. While updating the designation is planned and presented on the development concept, the runway will continue to be referred to herein as Runway 18-36 to maintain consistency in discussion and eliminate potential confusion. The development concept includes a recommendation to update the runway end designation marking to reflect this when the runway extension occurs. The existing pavement strength for Runway 18-36 is 30,000 pounds for aircraft with a single wheel main landing gear configuration (SWL). As detailed in the Facility Requirements section, at this strength rating, the runway can accommodate all aircraft that currently routinely operate at HDE, as well as those in the future. Therefore, no additional pavement strength is planned in the future condition. Prior to the construction of the runway extension, terrain fill is planned.

It should be noted that Runway 18-36 is currently reported to be in 'fair' condition, with distress including cracking and weathering present. As such, a runway resurfacing project may be necessary during the short- or intermediate-term period.

In the ultimate condition, which is reflective of an RDC C-II-5000, the plan includes an additional 1,500-foot extension to Runway 18, bringing the total runway length to 7,000 feet. This proposed plan will allow the runway to accommodate larger/faster business jet aircraft on a regular basis. Connected actions associated with the ultimate runway extension include the extension of Taxiway A to the ultimate Runway 18 end; construction of new taxiway connector; relocation of PAPI-4 and REILs; and the extension of MIRL and MITL. In addition, the PAPI-4 and REILs serving Runway 36 are planned to be relocated 1,000 feet from the new runway threshold. When the airport transitions to an RDC C-II-5000, the runway width would no longer meet FAA design standards. As such, the preferred development concept includes a recommendation to increase the runway width to 100 feet in the ultimate condition, which could be accomplished by the addition of 12.5 feet on each side of the runway. The runway would also need to be strengthened to at least 50,000 pounds DWL to accommodate regular use by the larger ultimate critical aircraft (Challenger 600/604 and Gulfstream G280). Prior to the construction of the runway extension, terrain fill and grade are planned.

It should be noted that the proposed future and ultimate runway extensions are included for planning purposes as there is no current justification for either. Prior to construction of the planned extensions, documentation of 500 annual operations by aircraft requiring the longer runway must be provided for justification for federal funding assistance. In the meantime, planning for the runway extension projects aids in local land use planning to ensure that appropriate land use measures are put into place to allow for the extension in the future if specific demand can be identified. By planning for runway extensions, the airport sponsor can act appropriately to ensure there are no incompatible land use encroachments and/or flight hazards or obstacle penetrations to the Title 14 Code of Federal Regulations (CFR) Part 77 airspace that could prevent a future extension. Reflecting a future and an ultimate runway extension allows the airport sponsor to plan for compatible land uses in the extended runway approach/departure areas.

Runway 18-36- RDC B-II-5000
Runway 11-29- RDC A-I(small)-VIS

	DECLARED DISTANCES	
	Runway	
	01	19
Takeoff Run Available ¹	5,550'	5,220'
Takeoff Distance Available ²	5,500'	5,500'
Accelerate Stop Distance Available ³	5,500'	5,500'
Landing Distance Available ³	5,220'	5,500'

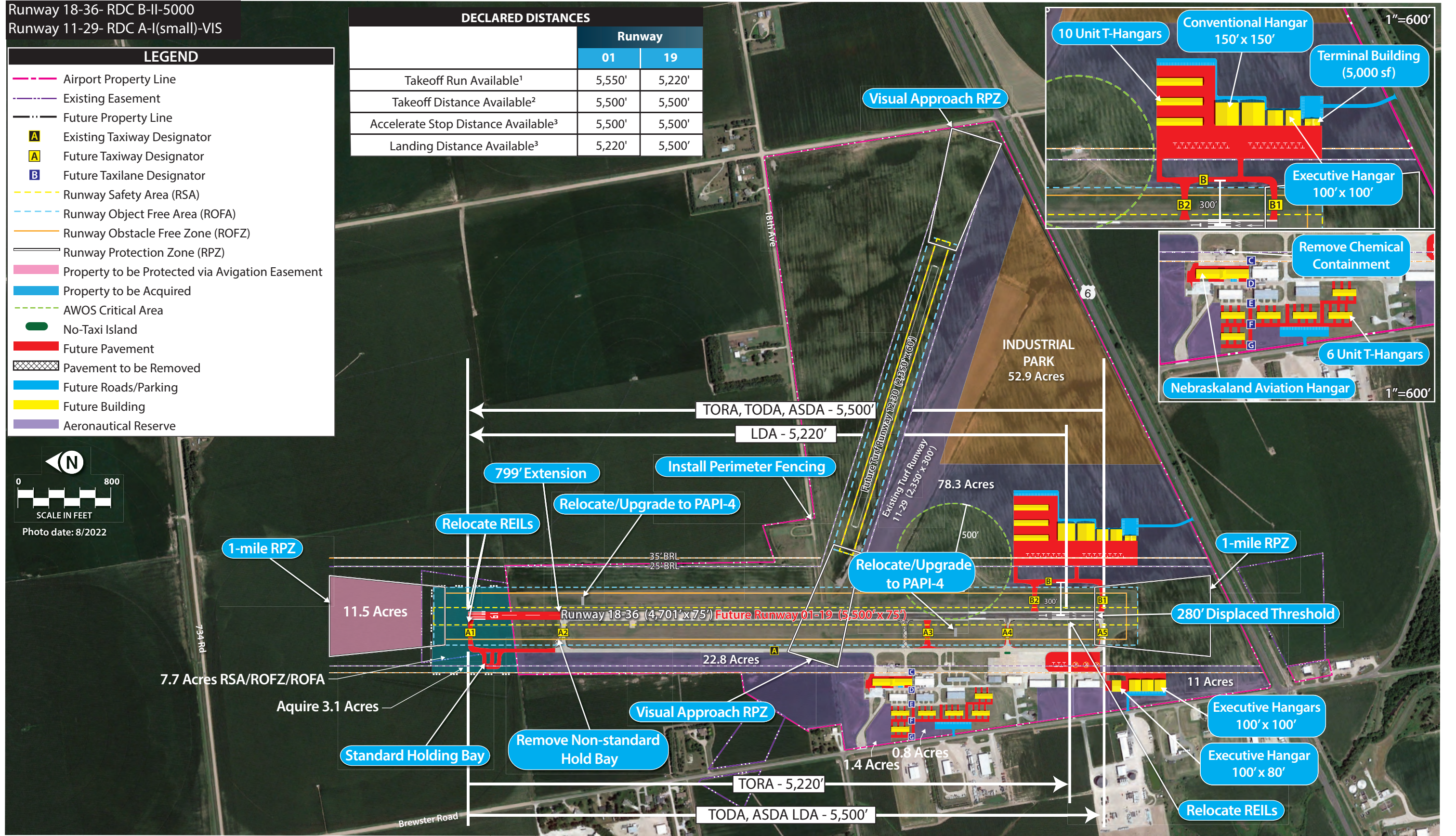
LEGEND

- Airport Property Line
- Existing Easement
- Future Property Line
- A Existing Taxiway Designator
- A Future Taxiway Designator
- B Future Taxilane Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Property to be Protected via Avigation Easement
- Property to be Acquired
- AWOS Critical Area
- No-Taxi Island
- Future Pavement
- X Pavement to be Removed
- Future Roads/Parking
- Future Building
- Aeronautical Reserve

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Photo date: 8/2022

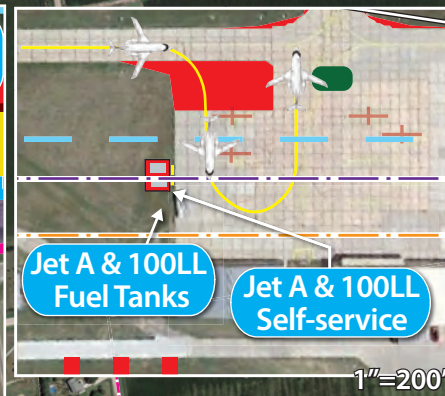
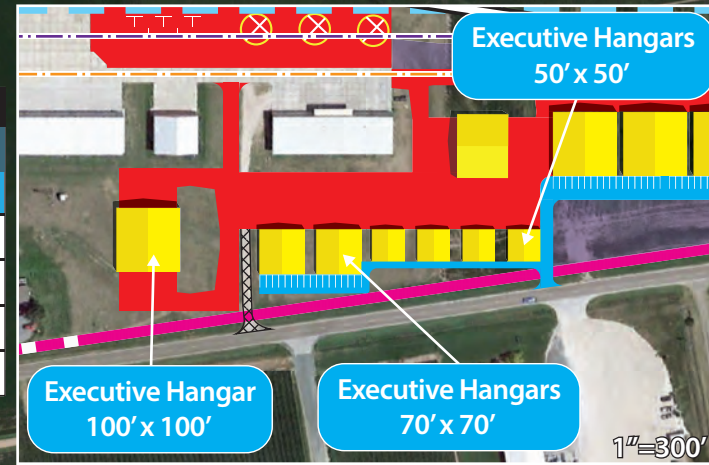


¹ Departure RPZ begins 200 feet from the end of the TORA. ² TORA cannot be longer than TODA. Departure surface is set on TODA. TODA can be shortened to mitigate departure surface penetrations; if so, TORA is shortened, too. If present, a clearway is included in the TODA. ³ Available runway length plus RSA. Approach RPZ set 200 feet from the landing threshold.

Runway 18-36- RDC C-II-5000
Runway 11-29- RDC A-I(small)-VIS

DECLARED DISTANCES

	Runway	
	01	19
Takeoff Run Available ¹	7,000'	5,970'
Takeoff Distance Available ²	7,000'	7,000'
Accelerate Stop Distance Available ³	7,000'	7,000'
Landing Distance Available ³	5,970'	7,000'



LEGEND

- Airport Property Line
- Existing Easement
- Future Easement
- Ultimate Property Line
- A Existing/Future Taxiway Designator
- A Ultimate Taxiway Designator
- B Future Taxilane Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Property to be Protected via Avigation Easement
- Property to be Acquired
- AWOS Critical Area
- No-Taxi Island
- Ultimate Pavement
- Pavement to be Removed
- Ultimate Roads/Parking
- Ultimate Building
- Aeronautical Reserve



Crosswind Runway | Crosswind Runway 11-29 is planned to remain an RDC A-I(s)-VIS in the future/ultimate condition and is currently 2,350 feet long and 300 feet wide. As no single runway provides 95 percent coverage for 10.5 knot crosswind components, a crosswind runway is justified at Holdrege. Runway 11-29 is planned to be relocated north of its existing location to mitigate RPZ incompatibilities, reduce the need for easement on the Runway 29 end, and maximize the future development on the east side of the airport. Relocated Crosswind Runway 11-29 is planned to meet the RDC A-I(s) design standard of 60 feet wide and to be designated as 12-30 in the future condition. Prior to the runway relocation, an FAA ADIP Survey type Design As-Built will be required in order to publish the new runway ends.

Connected actions with the relocation of the turf runway include the relocation of the reflective boundary cones and the addition of concrete threshold markers at each runway end.

Safety Areas | An important consideration when planning the future of an airport is to identify any adjacent property that may need to be acquired to accommodate potential growth or to protect the airport from encroachment. Fee simple acquisition is not always feasible financially or politically, and in such cases, the airport should consider acquisition of an aviation easement(s) to employ restrictive height and hazard zoning to protect navigable airspace. **Exhibit 27** depicts areas planned for fee simple acquisition (blue shading) or protection via an aviation easement (pink shading) in the future/ultimate conditions. In the existing B-I-5000 condition and the future B-II-5000 condition, the Runway 18-36 runway safety area (RSA), runway obstacle free zone (ROFZ), and runway object free area (ROFA) are fully contained on the airport property. However, the planned Runway 18 extension will shift the RSA, ROFZ, and ROFA beyond the existing airport property line. FAA design standards require these safety areas to be located on property owned/controlled by the airport. Furthermore, the RSA must be cleared, graded, and stabilized, and the ROFA must be clear of obstructions. It should be noted that there is an elevation change within the existing and future RSA off of the Runway 18 end, with elevation decreasing north of the runway end. This area is planned to be filled to meet RSA design standards. The FAA also recommends additional ownership of land by where aeronautical activity is present (taxiways and hold bay area). The future recommended development concept plan includes an acquisition of approximately 10.8 acres.

The existing Runway 18 RPZ extends off airport property; however, the airport has acquired an aviation easement allowing for airspace control. If the runway is extended as planned, approximately 11.5 acres of the RPZ will be further outside the property line and existing aviation easement. As such, this property is proposed to be controlled via an aviation easement, at a minimum. On the existing Runway 36 end, approximately 1.4 acres extend beyond the airport's current boundary. This RPZ also encompasses a potentially incompatible land use (Highway 6/34) and is recommended by the FAA to mitigate when possible. The following paragraphs detail the corrected actions as they pertain to the mitigation of the Runway 36 RPZ.

In the future condition, the recommended development concept includes a plan to displace the Runway 36 threshold by 280 feet to shift the RPZ off Highway 6/34 so it would remain entirely within the airport property. Displacing the threshold results in a reduction of available runway length during certain operations and necessitates the implementation of declared distances. The FAA strongly advises mitigation of the RPZ incompatibility, and therefore the airport should consider implementing declared distances when practical. However, it should be noted that the location of the Runway 36 RPZ in the future condition does not change in size or location and the Runway 36 RPZ could remain within its existing location.

Declared distances are used to define the effective runway length for landing and takeoff when a standard safety area cannot be achieved. The declared distances are defined by the FAA as:

- *Takeoff run available (TORA)* - the runway length declared available and suitable for the ground run of an aircraft taking off (factors in the positioning of the departure RPZ);
- *Takeoff distance available (TODA)* - the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA; the full length of the TODA may need to be reduced because of obstacles in the departure area;
- *Accelerate-stop distance available (ASDA)* - the runway plus stopway length declared available and suitable for the acceleration and deceleration of an aircraft aborting a takeoff (factors in the length of RSA/ROFA beyond the runway end); and
- *Landing distance available (LDA)* - the runway length declared available and suitable for landing an aircraft (factors in the length of RSA/ROFA beyond the runway end and the positioning of the approach RPZ).

Table 35 presents the recommended declared distances to be applied to Runway 18-36. The intent of the declared distances is to shift the Runway 36 approach and departure RPZs north so that Highway 6/34 is not impacted. Recommended actions include displacing the Runway 36 threshold by 280 feet, resulting in an LDA of 5,220 feet. Similarly, the TORA for Runway 18 is also reduced by 280 feet for a length of 5,220 feet. Both actions result in the approach and departure RPZs beginning 200 feet prior to the displaced Runway 36 landing threshold and avoiding Highway 6/34.

TABLE 35 | Recommended Development Concept

Parameters	Runway 18	Runway 36
Takeoff Run Available (TORA) ¹	5,220'	5,500'
Takeoff Distance Available (TODA) ²	5,500'	5,500'
Accelerate Stop Distance Available (ASDA) ³	5,500'	5,500'
Landing Distance Available (LDA) ³	5,500'	5,220'

¹ Departure RPZ begins 200 feet from the end of the TORA.

² TORA cannot be longer than TODA. Departure surface is set on TODA. TODA can be shortened to mitigate departure surface penetrations; if so, TORA is shortened, too.

³ Available runway length plus RSA. Approach RPZ begins 200 feet from the landing threshold.

Source: FAA AC 150/5300-13B, *Airport Design*; Coffman Associates analysis

In the ultimate condition, the airport is planned to transition to a critical aircraft design of C-II-5000. The resulting increase in the RSA, ROFZ, ROFA, and RPZ pushes these safety areas beyond the airport's existing property line at the Runway 18 end. Furthermore, when Runway 18 is extended 1,500 feet north, additional property will need to be acquired. The ultimate recommended development concept includes acquisition of approximately 45.6 acres within the RSA, ROFZ, and ROFA, and the property around the taxiway/hold bay area. Approximately 10.2 acres of the RPZ are planned for an avigation easement, which will afford the airport some level of control in terms of land use and structure heights. New incompatible issues develop within the safety areas on both ends of Runway 18-36: 734 Road will be within the RSA/ROFA and Highway 6/34 will be within the Runway 36 RPZ. The ultimate plan calls for 734 Road to be rerouted north so that it lies outside of the ultimate RSA/ROFA and RPZ. To mitigate Highway 6/34, the Runway 36 threshold is planned to be displaced 1,030 feet. Declared distances would then be applied to shift the approach and departure RPZs off Highway 6/34. The ultimate RSA is planned to be filled/graded, and the vegetation in the ultimate ROFA is planned to be cleared as well.

Table 36 presents the declared distances to be applied to the ultimate runway. The Runway 36 LDA and the Runway 18 TORA are both reduced by 1,030 feet to cause the north shift in the approach and departure RPZs to mitigate impacts on Highway 6/34. All other declared distances are the full runway length of 7,000 feet.

TABLE 36 | Recommended Development Concept

Parameters	Runway 18	Runway 36
Takeoff Run Available (TORA) ¹	5,970'	7,000'
Takeoff Distance Available (TODA) ²	7,000'	7,000'
Accelerate Stop Distance Available (ASDA) ³	7,000'	7,000'
Landing Distance Available (LDA) ³	7,000'	5,970'

¹ Departure RPZ begins 200 feet from the end of the TORA.

² TORA cannot be longer than TODA. Departure surface is set on TODA. TODA can be shortened to mitigate departure surface penetrations; if so, TORA is shortened, too.

³ Available runway length plus RSA. Approach RPZ begins 200 feet from the landing threshold.

Source: FAA AC 150/5300-13B, *Airport Design*; Coffman Associates analysis

In the existing, future, and ultimate conditions, the Runway 11-29 RSA, ROFZ, and ROFA and the Runway 11 RPZ are fully contained on the airport property. The Runway 29 RPZ extends off airport property, encompassing a portion of Highway 6/36 in the existing condition. When the turf runway is relocated in the future, the Runway 29 RPZ will no longer be impeded by incompatible land uses as it will be moved within the airport property boundary. The future/ultimate RSA on both ends of Runway 11-29 have elevation changes and are planned to be filled and graded.

TAXIWAY IMPROVEMENTS

Taxiway Design | Taxiway and the associated taxiway connectors are planned to meet Taxiway Design Group (TDG) 2A, which calls for a width of 35 feet. Taxiway A and most of the associated taxiway connectors are 35 feet wide, with the exception of the 50-foot-wide connector to Runway 18 and the 30-foot-wide taxiway connector that connects to the main apron. All taxiway widths are planned to be maintained except for the 30-foot-wide taxiway connector, which is planned to meet the 35-foot-wide standard.

Taxiway Nomenclature | The plan includes updating the taxiway nomenclature in the future and ultimate condition per guidelines detailed in the FAA’s Engineering Brief (EB) No. 89, *Taxiway Nomenclature Convention*. Assigning taxiway designations makes it easier and safer for pilots to navigate the airfield. EB 89 states that taxiway designations should be simple and logical, using letters for parallel taxiways and two-character alphanumeric designations for connecting taxiways. Connecting taxiways between the runway and parallel taxiway are identified as A1, A2, A3, A4, A5, A6, and A7 beginning at the north end of the runway.

Taxiway | As outlined previously, Taxiway A is planned to be extended to the north to match the proposed 799-foot runway extension in the future plan. The existing taxiway pavement connecting Taxiway A with the Runway 18 threshold is planned to be reconstructed, with plans to have the non-standard hold bay removed and a new connector constructed at the extended Runway 18 threshold. This connector will be marked with standard hold lines 200 feet from the runway centerline, in

accordance with B-II design standards. In conjunction with the extension of Taxiway A, the MITL system is also planned to be extended. On the east side of the airport, a new partial parallel Taxiway B is planned to provide access to the future east side development.

A no-taxi island is planned for the future A4 taxiway connector entrance to mitigate the direct access from the main aircraft parking apron to the runway via the A4 taxiway connector. This will force pilots to make turns prior to entering the runway, improving safety and pilot situational awareness. Additionally, the future A3 taxiway connector is planned to be removed to eliminate direct access from the second apron to Runway 18-36. The new connecting taxiway is planned to be located south of the existing taxiway connector.

Current taxiway design standards provide for wider taxiway fillets at the intersection with other taxiways and runways. Standard taxiway fillets are planned in the future and ultimate conditions.

In the ultimate condition, Taxiway A and the MITL are planned to be extended to the north to match the 1,500-foot runway extension and a new taxiway connector that is planned to be constructed at the extended Runway 18 threshold. All the taxiway connectors are planned to be marked 250 feet from the runway centerline to meet C-II design standards.

Holding Bays | Busy general aviation airports with a high volume of activity, particularly by smaller fixed-wing aircraft, should provide holding bays for pilots to perform pre-flight checks and engine run-ups in order to enhance capacity. Holding bays should be located near the ends of parallel taxiways. They should not extend beyond the lateral edge of the runway threshold to ensure clear safety surfaces surrounding and leading to runways.

Holding bays should be designed to allow aircraft to bypass one another to taxi to the runway. The typical configuration includes clearly marked entrances and exits. Each parking area is independent, with the ability for aircraft to bypass others on both entrance and exit. Non-movement islands situated between the parking positions provide additional cues to pilots.

As mentioned previously, a non-standard hold bay that is currently located at the edge of the Taxiway A connector is planned for removal when the runway extension is constructed. In addition, with operations expected to increase over the planning period and beyond, the future recommended concept plans for the construction of a new standard holding bay on the west side of the extended Runway 18 end. In the ultimate condition, when another runway extension is constructed, a replacement hold bay is planned near the extended Runway 18 end. The holding bays are planned to be designed to meet ADG II and TDG 2A standards and are depicted on **Exhibit 27**.

Instrument Approach Procedures | Currently, Runway 18-36 offers an LPV(GPS) instrument approach offering visibility minimums down to one mile on both ends of the runway. This system allows properly equipped aircraft to navigate to each end of the primary runway in reduced visibility conditions. These approaches adequately serve both the current and future activity levels that are planned to be maintained in the future and ultimate conditions.

Currently, Runway 11-29 does not offer any instrument approaches and is planned to remain as a visual approach runway.

Visual Aids | Both ends of Runway 18-36 are equipped with a PAPI-2 system, which is planned to be upgraded to PAPI-4 for both runway ends in the future plan. When Runway 18-36 is extended in the future condition, the PAPI-4 serving the Runway 18 end is planned to be moved to a new location approximately 1,000 feet from the future runway threshold. In addition, when the Runway 36 end is planned to be displaced in the future, the PAPI-4 will be relocated. In the ultimate condition, when Runway 18 is planned to be extended 1,500 feet and Runway 36 is to be displaced, the PAPI-4s are planned to be relocated. REILs are present on both ends of Runway 18-36. Both REILs are planned to be relocated when the extension on Runway 18 is constructed and Runway 36 is displaced in the future and ultimate conditions.

There are no visual approach aids available at either end of Runway 11-29, and none are planned.

Weather Reporting Equipment | The airport is equipped with an AWOS, located near the Runway 36 end, which is planned to be maintained. HDE is also equipped with a lighted wind cone and segmented circle, located east of Runway 18-36 approximately 210 feet from the runway pavement edge, which are planned to be maintained in the future condition. When the airport transitions to a C-II, in the ultimate condition, the wind cone will be within the ultimate ROFA and therefore is planned to be relocated outside of the ROFA north of Runway 11-29 near the Runway 11 end.

LANDSIDE DEVELOPMENT

Future landside development is mainly focused on three areas: 1) meeting FAA standards for safety; 2) expansion of hangar storage capacity; and 3) identification of reserve property suitable for both aviation and non-aviation development. The landside development plan depicted on **Exhibit 27** illustrates these focus areas.

Hangars | HDE currently has 78,900 square feet (sf) of aircraft storage, with the future need increasing to 129,000 sf in the long term. In total, the future recommended development concept shows an additional 184,800 sf of aircraft storage which would be needed only in response to actual demand levels. Future landside development is focused on vacant property to the south of the airport, west of the existing T-hangars, and east of Runway 18-36 near the Runway 36 end. Currently, the airport has plans in place for a new 342-foot by 60-foot Nebraskaland Aviation Hangar, which necessitates the removal of two existing executive hangars and a chemical containment facility, as shown on the exhibit.

25-foot and 35-foot building restriction lines (BRLs) are depicted on the exhibit, set at 425 feet and 495 feet from the runway centerline, respectively, for the existing, future, and ultimate conditions. As previously detailed, the BRL is based on Part 77 primary and transitional surface clearance requirements and identifies suitable building locations on the airport. It should be noted that the BRL does not serve as a standard but as a guideline for vertical development. Structures should generally be planned behind the BRL to ensure that they do not penetrate the transitional surface; however, through coordination with the FAA, exceptions can be made. For planning purposes, all new hangars are planned to be constructed behind and below the BRL.

A new apron of approximately 4,200 square yards (sy) in size is planned to be constructed on the southwest side of the airport, capable of supporting one 8,000-sf and three 10,000-sf executive hangars. Preliminary design plans are already in place for the 100-sf by 80-sf executive hangar, which is planned to be located south of the existing conventional hangar. Additional vehicle parking is planned west of the three future executive hangars, with an access road extending from Brewster Road.

As seen on **Exhibit 27** and **Figure 13**, six additional six-unit T-hangars are planned on the west side of the future Nebraskaland Aviation Hangar and the existing T-hangars. Existing taxiway designations are planned to be redesigned to Taxiways C, D, and E, and new Taxiways F and G are planned to provide aircraft access to the future hangars. An access road and additional vehicle parking are planned for tenant access to this area.

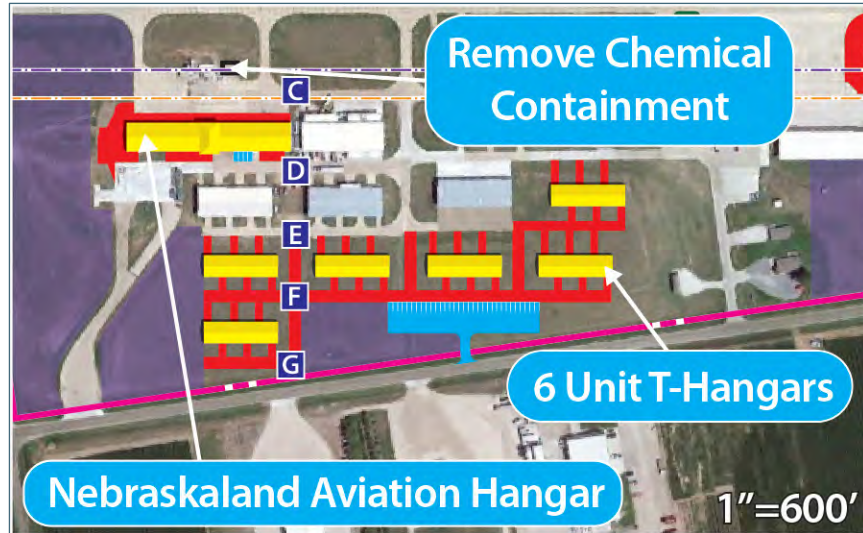


Figure 13 – West Side Development

The east side of the airport is currently undeveloped but offers significant opportunity for future aviation and non-aviation developments. It is anticipated that once the west side reaches a built-out condition, new development will begin on the east side, as shown in **Figure 14**. A major challenge to development of the east side is a need for expanded utility infrastructure. Once this infrastructure is in place, the plan includes the addition of an approximately 41,000-sy aircraft parking apron. This apron would be able to support three new 10-unit T-hangars on its north side, two 22,500-sf conventional hangars, and two 10,000-sf executive hangars on its south side. The plan calls for a new terminal building on the south edge of the apron. Additionally, an access road and additional vehicle parking are planned around the new development area, with dedicated parking areas for tenants utilizing the hangars.

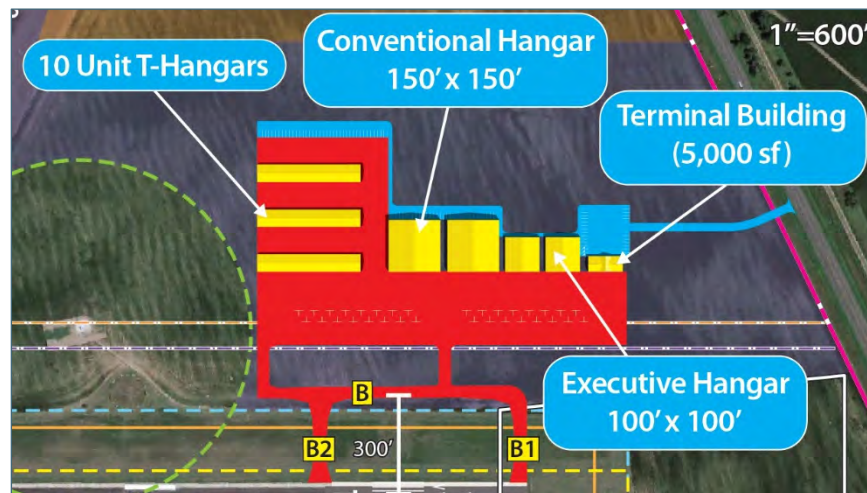


Figure 14 – East Side Development

In the ultimate development concept, depicted in **Figure 15**, an additional 29,800 sf of aircraft storage is proposed. The plan calls for a 10,000-sf executive hangar west of the main apron development, which will be accessed via a new taxilane in between the existing executive and conventional hangars. An additional 7,000-sy apron is planned south of the 10,000-sf executive hangar to support two 4,900-sf executive hangars and four 2,500-sf executive hangars. An access road and vehicle parking for tenants are planned west of the executive hangars.

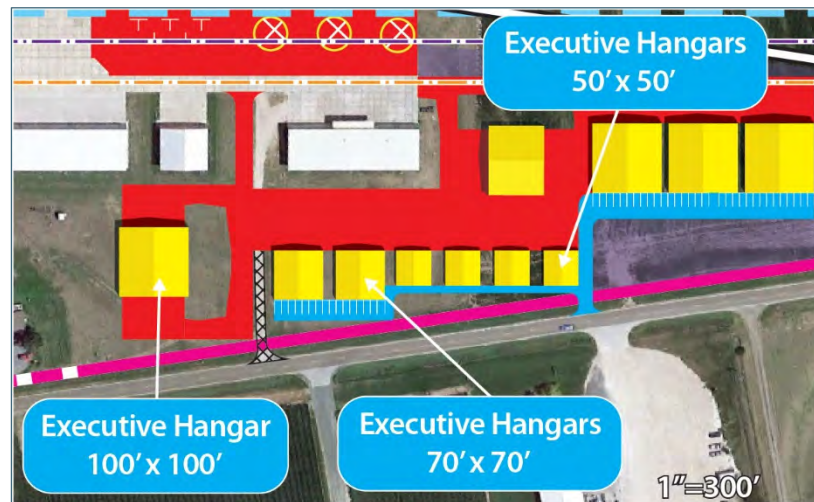


Figure 15 – Ultimate West Side Development

It should be noted that the hangar layouts depicted are conceptual. The types, sizes, and location for all future hangar development should be dictated by demand and the needs of the hangar developer and their customer(s). The conceptual layout is intended to be used as a guide for the airport sponsor when considering new landside facility developments.

Aircraft Parking | The existing main apron is planned to be expanded to the south by approximately 8,400 sy. This additional pavement would provide support for five tiedowns and three helicopter parking positions. On the east side development, two groups of 16 tiedowns are planned in front of the T-hangars, executive hangars, and conventional hangars. In the ultimate condition, when the airport transitions to C-II, the plan calls for four existing tiedowns to be removed as they are located within the ultimate ROFA.

Terminal | Currently, the terminal consists of approximately 2,800 sf of available terminal space. The future plan calls for a new 5,000-sf terminal on the east side development to provide better accessibility for tenants and visitors to the airfield and to meet the long-term need. The gravel lot in front of the new terminal is planned to be paved and marked with parking stripes for a total of 26 vehicle parking spaces, including three handicap spaces. In addition, there will be a new access road to the terminal from Highway 6/34.

Fuel Facility | Currently, the airport offers a self-serve 100LL fuel pump and a Jet A fuel truck; however, the 100LL pump is outdated and the location poses environmental issues. The airport has indicated interest in a Jet A self-service fuel pump. The ultimate development concept, depicted in **Figure 16**, plans for the establishment of a new 100LL and Jet A self-service fuel facility with two 8,000-gallon above-ground fuel tanks on the north edge of the main apron. To accomplish this, approximately 640 sy of additional apron pavement will be filled to the east of the main apron and an additional aircraft parking position will be removed. Self-service fuel is typically cheaper per gallon than full-service fuel. The less expensive option may attract new itinerant operators.

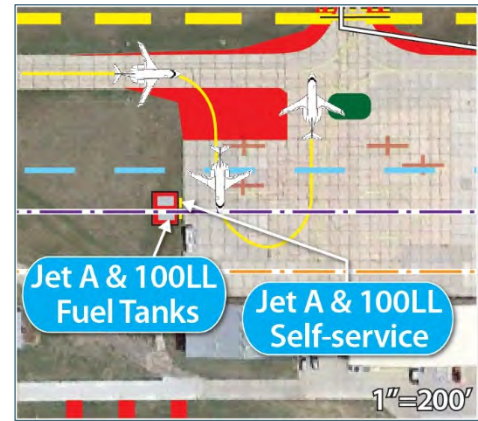


Figure 16 – Fuel Facility Development

Industrial Park Reserve | As seen on **Exhibit 27** (shaded in orange), an area of approximately 53 acres east of Runway 18-36 is reserved for the development of an industrial park. In most cases, industrial parks are well suited for non-aeronautical use, with tenants involved in light manufacturing and/or warehousing offering revenue diversification and generation beyond typical aviation uses. In this location, the area has the opportunity to offer highway, rail, and air access but will need to be released from aviation use obligation prior to development.

Development Reserve Land | The future and ultimate plans also include potential aviation reserve areas, shown in purple shading on **Exhibit 27**. The current aviation reserve area comprises approximately 36 acres west of Runway 18-36 and 78.3 acres on the east side of Runway 18-36. In the ultimate condition, the safety areas increase in size, which limits some of the aeronautical use and plans for 24 acres west and 77.8 acres east of Runway 18-36.

AIRPORT RECYCLING, REUSE, and WASTE REDUCTION

REGULATORY GUIDELINES

FAA Modernization and Reform Act of 2012

The *FAA Modernization and Reform Act of 2012* (FMRA), which amended Title 49, United States Code (USC), included several changes to the Airport Improvement Program (AIP). Two of these changes are related to recycling, reuse, and waste reduction at airports:

- Section 132(b) of the FMRA expanded the definition of airport planning to include “developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable state and local recycling laws, including the cost of a waste audit.”
- Section 133 of the FMRA added a provision requiring airports that have or plan to prepare a master plan, and that receive AIP funding for an eligible project, to ensure that the new or updated master plan addresses issues relating to solid waste recycling at the airport, including:

- The feasibility of solid waste recycling at the airport;
- Minimizing the generation of solid waste at the airport;
- Operation and maintenance requirements;
- A review of waste management contracts; and
- The potential for cost savings or the generation of revenue.

State of Nebraska Solid Waste Management

Nebraska Department of Environment and Energy (NDEE) Land Management Division enforces the state's Integrated Waste Management Program.⁵ Solid waste regulations are incorporated in NDEE Title 132 – *Integrated Solid Waste Management Regulations*. The purpose of the program is to ensure proper management of solid waste. Solid waste includes municipal solid waste, typically collected and disposed of in municipal landfills, and other nonhazardous waste. The regulations provide technical criteria for land disposal areas and solid waste processing facilities. Duties assigned to this program include, but are not limited to:

- Permit issuance, renewal, and modification;
- Response to inquiries related to facility operations;
- Compliance inspections and enforcement actions;
- Investigation of citizen complaints;
- Alternate waste management method approvals; and
- Assisting regulated facilities and the general public in recycling, reuse and proper management of waste-like materials.⁶

Nebraska's Integrated Solid Waste Management Regulations address all aspects of city waste, from generation to final disposition. To address recycling and sustainability principles, NDEE created the Waste Reduction and Recycling Incentive Grant. The Grant Program provides funds to assist in financing sound integrated waste management programs and projects. NDEE also manages the Litter Reduction and Recycling Grant Program, which provides financial support to programs that aim to reduce litter, provide education, and promote recycling in Nebraska.

SOLID WASTE

Typically, airport sponsors have purview over waste handling services in facilities they own and operate, such as the passenger terminal building, city-owned hangars, and maintenance facilities. Tenants of airport-owned buildings/hangars or tenants who own their own facilities are typically responsible for coordinating their own waste handling services. While the focus of this plan is airport-operated facilities, the airport should work to incorporate facility-wide strategies that create consistency in waste disposal mechanisms. This would ultimately result in the reduction of materials sent to the landfill.

⁵ NDEE Land Management <http://deq.ne.gov/NDEQProg.nsf/WasteHome.xsp>

⁶ Integrated Waste Management (IWM) Program <http://dee.ne.gov/NDEQProg.nsf/OnWeb/IWM>

For airports, waste can generally be divided into eight categories:⁷

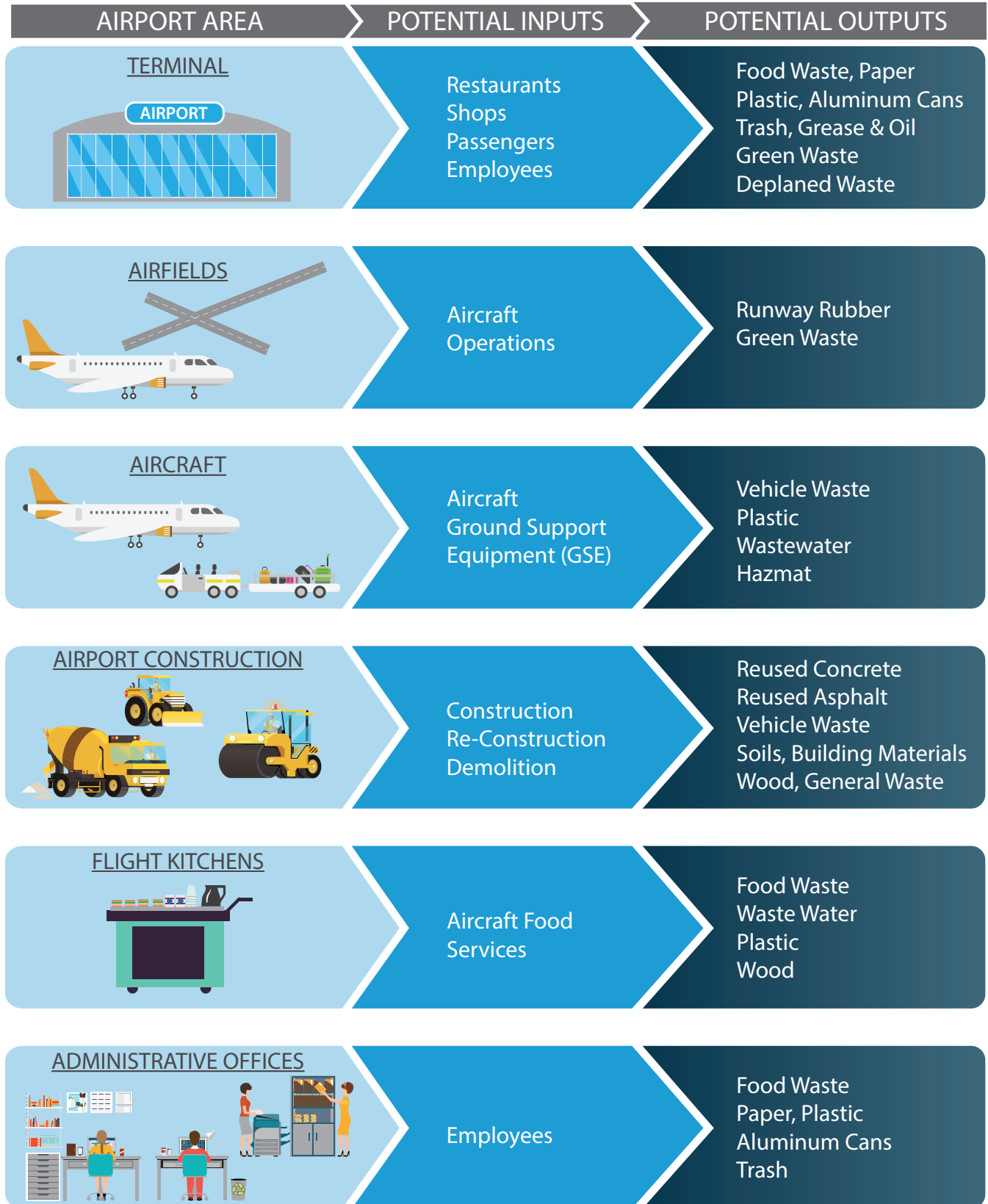
- **Municipal Solid Waste (MSW)** is more commonly known as trash or garbage and consists of everyday items that are used and then discarded, such as product packaging.
- **Construction and Demolition Waste (C&D)** is considered non-hazardous trash resulting from land clearing, excavation, demolition, and renovation or repair of structures, roads, and utilities, including concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labeled as MSW.
- **Green Waste** is a form of MSW yard waste consisting of tree, shrub, and grass clippings, leaves, weeds, small branches, seeds, and pods.
- **Food Waste** includes unconsumed food products or waste generated and discarded during food preparation and is also considered MSW.
- **Deplaned Waste** is waste removed from passenger aircrafts. Deplaned waste includes bottles, cans, mixed paper (e.g., newspapers, napkins, and paper towels), plastic cups, serveware, food waste, and food-soiled paper/packaging.
- **Lavatory Waste** is a special waste that is emptied through a hose and pumped into a lavatory service vehicle. The waste is then transported to a triturator⁸ facility for pretreatment prior to discharge in the sanitary sewage system. Chemicals in lavatory waste can present environmental and human health risks if mishandled; therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewerage system prior to pretreatment.
- **Spill Clean and Remediation Wastes** are also special wastes and are generated during cleanup of spills and/or the remediation of contamination from several types of sites on an airport.
- **Hazardous Wastes** are governed by the Resource Conservation and Recovery Act (RCRA), as well as the regulations in 40 Code of Federal Regulations (CFR) Subtitle C, Parts 260 to 270. The U.S. Environmental Protection Agency (EPA) developed less stringent regulations for certain hazardous waste, known as universal waste, described in 40 CFR Part 237, *The Universal Waste Rule*.

As seen on **Exhibit 28**, there are multiple areas where the airport potentially contributes to the waste stream, including the passenger terminal building, flight kitchens, on-airport tenants, hangars, airfield, aircraft ground support equipment, and airport construction projects. To create a comprehensive waste reduction and recycling plan for the airport, all potential inputs must be considered.

⁷ Recycling, Reuse and Waste Reduction at Airports, FAA (April 24, 2013)

⁸ A triturator facility turns lavatory waste into fine particulates for further processing.

AIRPORT WASTE STREAMS



Source: Recycling, Reuse, and Waste Reduction at Airports, FAA (April 24, 2013)

EXISTING SERVICES

The airport manages its solid waste through a monthly trash pickup schedule provided by Schaben Sanitation. There is no recycling program established at the airport.

SOLID WASTE MANAGEMENT SYSTEM

Airports generally utilize either a *centralized* or a *decentralized* waste management system. The differences between these two methods are described below and summarized in **Exhibit 29**.

- **Centralized waste management system:** With a centralized waste management system, the airport provides receptacles for the collection of waste, recyclables, or compostable materials and contracts for the removal by a single local provider.⁹ The centralized waste management system allows for more participation from airport tenants, who may not be incentivized to recycle on their own, and can reduce the overall cost of service for all involved. A centralized strategy can be inefficient for some airports, as it requires more effort and oversight on the part of airport management. However, the centralized system is advantageous in that it has fewer players involved in the overall management of the solid waste and recycling efforts and allows greater control by the city over the type, placement, and maintenance of dumpsters, thereby saving space and eliminating the need for individual tenants to have their own containers.
- **Decentralized waste management system:** Under a decentralized waste management system, the airport provides waste containers and contracts for the hauling of waste materials in airport-operated spaces only. However, airport tenants—such as fixed-base operators, retail shops, and other tenants—manage the waste from their leased spaces, with separate contracts, billing, and hauling schedules. A decentralized waste management system can increase both the number of receptacles on airport property and the number of trips by a waste collection service provider, should the collection schedule for a tenant differ from that of the airport.

The airport utilizes a centralized waste management system and has one dumpster located at the airport that is serviced by Schaben Sanitation.

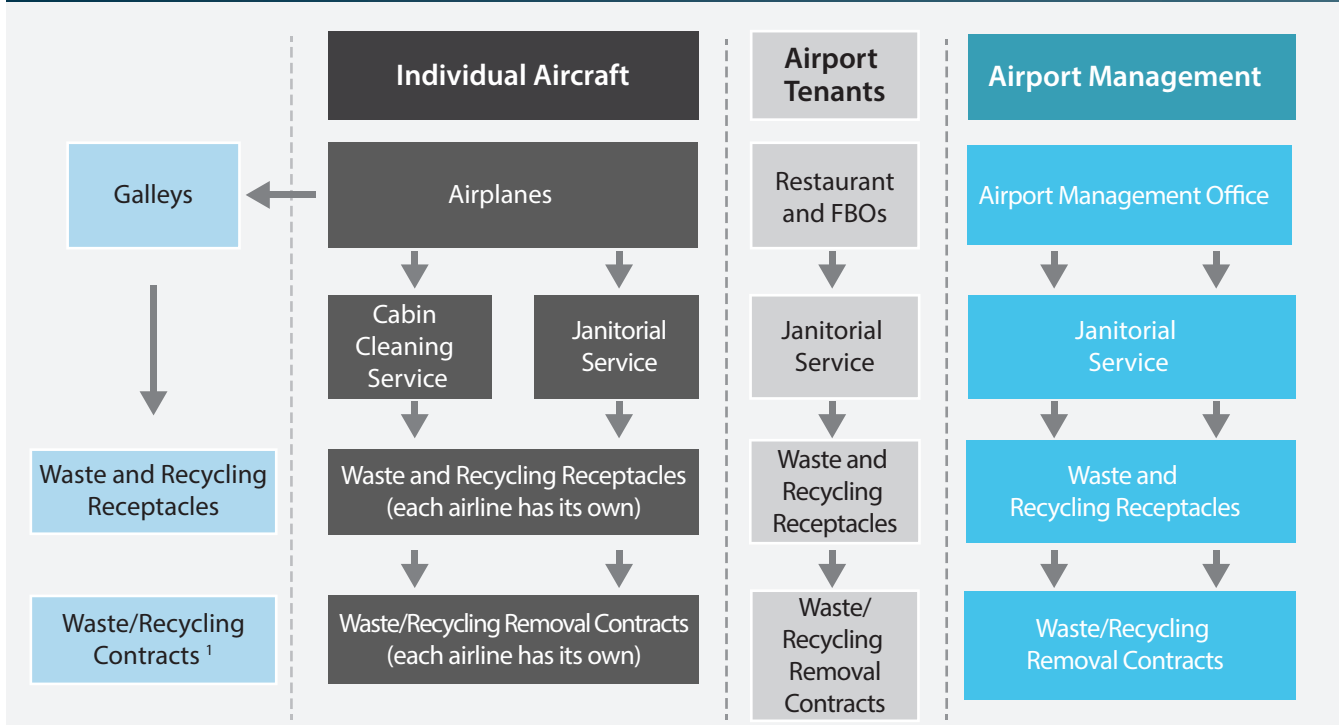
GOALS AND RECOMMENDATIONS

Solid Waste and Recycling Goals

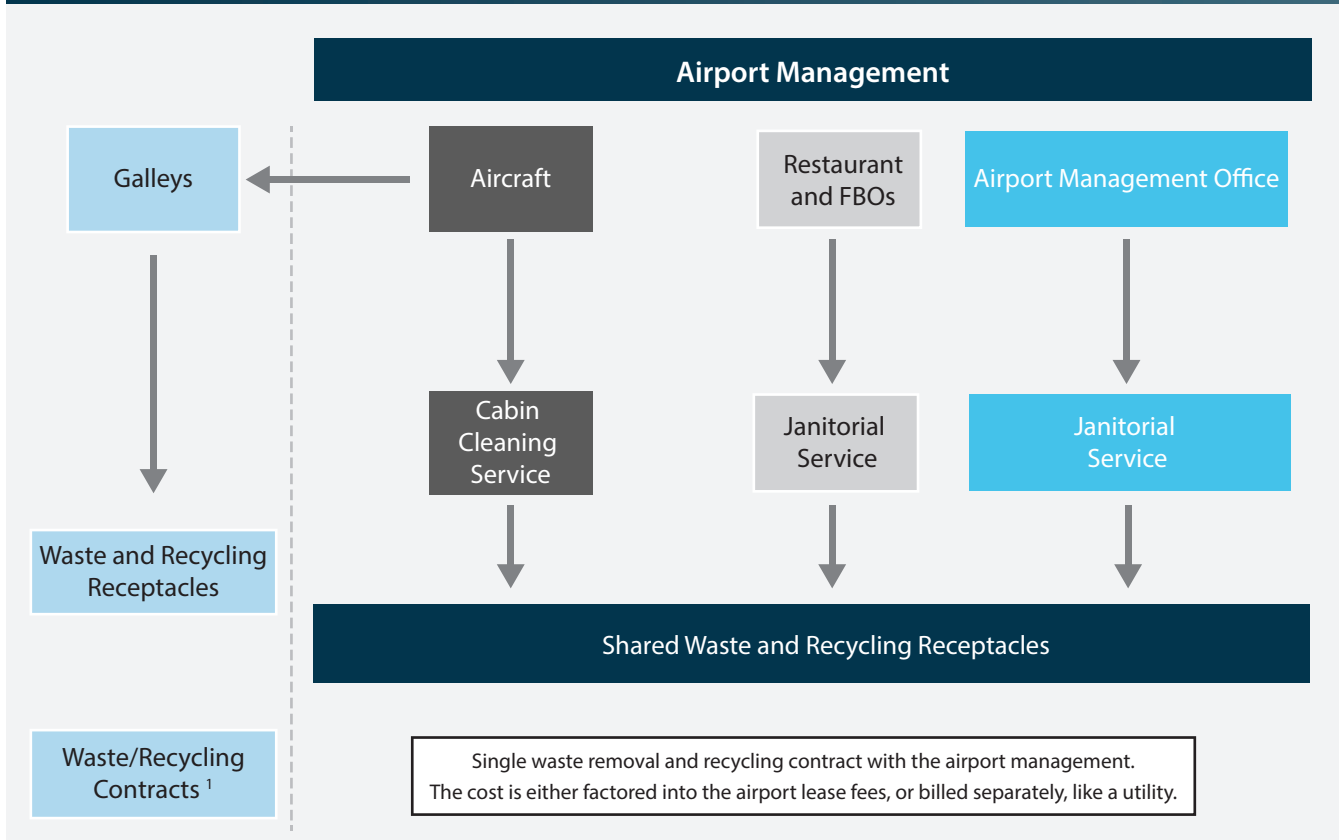
Table 37 outlines objectives that could help reduce waste generation and increase recycling efforts at the airport. To increase the effectiveness of tracking progress at the airport, a baseline state of all suggested metrics should be established to provide a comparison over time.

⁹ *Airport Waste Management and Recycling Practices* (2018) The National Academies of Sciences, Engineering, and Medicine Airport Cooperative Research Program, Synthesis 92.

Components of a Decentralized Airport Waste Management System



Components of a Centralized Airport Waste Management System



¹ Galleys usually manage their own waste even if an airport relies on a centralized system

Source: Natural Resources Defense Council, Trash Landings: How Airlines and Airports Can Clean Up Their Recycling Programs, December 2006.

TABLE 37 | Waste Management and Recycling Goals - Brewster Field - Nebraska

Goals	Objectives
Reduce amount of solid waste generated	Switch to online bill pay to eliminate monthly paper bills
	Conduct a waste audit to identify most common types of waste
	Eliminate purchase of items that are not recyclable (e.g., Styrofoam, plastic bags)
Reuse materials or equipment	Reuse grass clippings as mulch
	Offer reusable dishes to employees
	Reuse cardboard boxes for storage
Increase amount of materials recycled	Promote the availability of recycling services to all areas of the airport
	Initiate waste and recycling tracking and data management
	Incorporate recycling requirements and/or recommendations into tenant lease agreements
	Provide recycling marketing and promotion efforts throughout public areas
	Require contractors to implement strategies to reduce, reuse, and recycle construction and demolition waste

Source: Coffman Associates analysis

Recommendations

To maximize waste reduction and initiate recycling efforts at the airport, the following recommendations are made:

- **Assign the responsibility of waste management to a dedicated individual(s).** Having one person or a group of people oversee and manage solid waste and recycling at the airport will create efficient and cost-saving solutions to solid waste management. People dedicated to this operational aspect of the airport will be familiar with processes and will help identify areas of improvement and cost-cutting measures.
- **Audit the current waste management system.** The continuation of an effective program requires accurate data about current waste and recycling rates. There are several ways an airport can gain insight into its waste stream, such as requesting weights from the hauler, tracking the volume, or reviewing the bills; however, managing the waste system starts with a waste audit. A waste audit is an analysis of the types of waste produced and is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables. A waste audit should include the following actions:
 - Examination of records
 - Waste hauling and disposal records and contracts
 - Supply and equipment invoices
 - Other waste management costs (commodity rebates, container costs, etc.)
 - Track waste from the point of origin
 - Establish a baseline for metrics
 - Facility walk-through conducted by the airport
 - Gather qualitative waste information to determine major waste components and waste-generating processes
 - Identify the locations of the airport that generate waste

- Identify what types of waste are generated by the airport to determine what can be reduced, reused, or recycled
 - Understand waste pickup and hauling practices
 - Waste sort
 - Provides quantitative data on total airport waste generation
 - Allows problem-solving design/enhancement of the recycling program for the airport
- **Create a tracking and reporting system.** Tracking solid waste generated will allow the airport to identify areas where a significant amount of waste is generated and will help the airport estimate annual waste volumes. Understanding the cyclical nature of waste generation will allow the airport to estimate costs and will identify areas of improvement. Once the airport engages in recycling services, the airport can track recycling rates and waste quantities to identify cost-saving measures that are currently unidentified simply based on a lack of quantitative data.
- **Reduce waste through controlled purchasing practices and the consumption of nonessential products.** The airport can control the amount of waste generated by prioritizing the purchase of items or supplies that are reusable, recyclable, compostable, or made from recycled materials.
- **Create a recycling program at the airport.** To guarantee the airport continues to reduce the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. The city should review internal procedures to ensure there are no unacceptable items contaminating recycling containers or recyclables thrown in the trash. Clearly-marked signage indicating what is and is not accepted, placed near the solid waste and recycling containers, is another significant component of a consistent, effective recycling program.
- **Provide ongoing education for airport employees.** To minimize waste within the airport, it is crucial to inform and provide airport employees with a thorough education on waste management at both an individual and group level. As part of the onboarding process, new employees should be given the tools needed to achieve a thorough understanding of the airport's solid waste and recycling goals. It is crucial that this education is also tailored to the type of job in which an individual may be employed within the airport.
- **Provide ongoing tenant education.** It is crucial to encourage tenant participation to assure buy-in of the airport's recycling efforts. To ensure recycling is part of the airport's everyday business, airport administration can provide training and education to support personnel, tenants, and others who conduct business at the airport. In-person meetings with airport tenants could be held to create mutual understanding of the airport's solid waste and recycling goals and how tenants play a vital role in the airport's overall success.
- **Incorporate an airport-wide waste reduction strategic plan.** Designing an airport-wide waste reduction strategic plan will create consistency in waste disposal mechanisms, ultimately resulting in the reduction of materials sent to the landfill.

- **Recycle electronic waste (e-waste).** To guarantee the airport continues to reduce the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. Recyclable materials such as paper, aluminum, plastic, electronics, etc. should be sorted from the airport's solid waste.

ENVIRONMENTAL OVERVIEW

An analysis of potential environmental impacts associated with proposed airport projects is an essential consideration in the airport layout plan (ALP) update process. The primary purpose of this discussion is to review the recommended development concept (**Exhibit 27**) and associated capital program at the airport to determine whether projects identified in the ALP update could, individually or collectively, significantly impact existing environmental resources. Information contained in this section was obtained from previous studies, official internet websites, and analysis by the consultant.

The *FAA Reauthorization Act of 2018* (Act) changed how the FAA historically operates with respect to airport oversight. Section 163 of the Act limits the FAA's approval authority over certain projects. Pursuant to Section 163, when a sponsor submits a change to the ALP for a project that would not be federally funded, requests a change in land use from aeronautical to non-aeronautical, or requests to dispose of airport-owned land, the FAA needs to determine if the proposal would be subject to the agency's approval authority. This approval is a two-step process. The FAA exercises its regulatory authority consistent with the Act and separately examines and reaches a determination regarding its authority under both of the following steps. First, the FAA determines if it has ALP approval authority under Section 163 of the Act. The second step is to determine how the land was acquired and if land release obligations are required. Projects depicted on the ALP that were approved prior to the Act must be evaluated to determine whether the FAA retains its approval authority.

If the FAA retains approval authority over a project, then the project is typically subject to the *National Environmental Policy Act* (NEPA). For projects not categorically excluded under FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an environmental assessment (EA). In instances where significant environmental impacts are expected, an environmental impact statement (EIS) may be required.

The following portion of the ALP update is not designed to satisfy the NEPA requirements for a specific development project, but it provides a preliminary review of environmental issues that may need to be considered in more detail within the environmental review processes. It is important to note that the FAA is ultimately responsible for determining the level of environmental documentation required for airport actions.

The environmental inventory included in the first section of the report provides baseline information about the airport environs. This section provides an overview of potential impacts to existing resources that could result from implementation of the planned improvements outlined on the recommended development concept.

Table 38 summarizes potential environmental concerns associated with implementation of the recommended development concept for Brewster Field Airport. Analysis under NEPA includes effects or impacts a proposed action or alternative may have on the human environment (see 40 Code of Federal Regulations [CFR] §1508.1). Effects have been recently defined in the Council of Environmental Quality guidelines as changes that are not only reasonably foreseeable, but that have a close causal relationship to the proposed action or alternatives.

TABLE 38 | Summary of Potential Environmental Concerns

AIR QUALITY	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	Threshold: The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States (U.S.) Environmental Protection Agency (EPA) under the <i>Clean Air Act</i> , for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.
Potential Environmental Concerns	Potential Impact. An increase in operations could occur over the 21+ year planning horizon of the development concept (Exhibit 27) that would likely result in additional emissions. Phelps County currently complies with federal NAAQS requirements; therefore, general conformity review per the <i>Clean Air Act</i> is not required. According to the most recent <i>FAA Aviation Emissions and Air Quality Handbook</i> (2015), an emissions inventory under NEPA may be necessary for any proposed action that would result in a reasonably foreseeable increase in emissions due to plan implementation. For construction emissions, a qualitative or quantitative emissions inventory under NEPA may be required, depending on the type of environmental review needed for projects defined on the development plan concept.
BIOLOGICAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	Threshold: The U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat. The FAA has not established a significance threshold for non-listed species. However, factors to consider are if an action would have the potential for: <ul style="list-style-type: none"> • Long-term or permanent loss of unlisted plant or wildlife species; • Adverse impacts to special status species or their habitats; • Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or • Adverse impacts on a species' reproductive rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.
Potential Environmental Concerns	<u>Federally Protected Species</u> Potential Impact. According to the USFWS Information for Planning and Consultation (IPaC) report, there is the potential for three candidate, threatened, or endangered species within the vicinity of the airport: piper plover (<i>Charadrius melodus</i>), whooping crane (<i>Grus americana</i>), and monarch butterfly (<i>Danaus plexippus</i>). Habitat to support these species may occur near the future/ultimate turf Runway 12-30 because of the freshwater emergent wetland that occupies airport property. <u>Designated Critical Habitat</u> No Impact. The nearest critical habitat area is for the whooping crane (<i>Grus americana</i>) and is over 12 miles north of the airport. <u>Non-Listed Species</u> Potential Impact. Non-listed species of concern include those protected by the <i>Migratory Bird Treaty Act</i> (MBTA) and the <i>Bald and Golden Eagle Protection Act</i> . Although no migratory birds of conservation are expected to occur at the airport, there may be potential for occurrence of other migratory bird species protected under the MBTA.
CLIMATE	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	The FAA has not established a significance threshold for climate; refer to FAA Order 1050.1F, <i>Desk Reference</i> , for the most up-to-date methodology for examining impacts associated with climate change.
Potential Environmental Concerns	Unknown. An increase in greenhouse gas (GHG) emissions could occur over the 21+ year planning horizon of the airport layout plan update. A project-specific analysis may be required per FAA Order 1050.1F, <i>Environmental Impacts: Policies and Procedures</i> , based on the parameters of the individual projects; however, at this time, the FAA does not have an impact threshold to use to determine significance under NEPA.



COASTAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	The FAA has not established a significance threshold for Coastal Resources.
Potential Environmental Concerns	No Impact. The airport is not located within a coastal zone.
DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f)	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	Threshold: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a “constructive use” based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.
Potential Environmental Concerns	Potential Impact. No wilderness areas, public recreational facilities, or National Register of Historic Places (NRHP)-listed resources would be impacted by proposed development at the airport. The closest known potential Section 4(f) resource is the Phelps County Courthouse, located 1.5 miles to the west; however, any airport structures 50 years or older should be evaluated for historic significance prior to alteration or demolition. If determined to be a significant historic resource, they would likely qualify as a Section 4(f) resource.
FARMLANDS	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>Threshold: The total combined score on Form AD-1006, <i>Farmland Conversion Impact Rating</i>, ranges between 200 and 260. (Form AD-1006 is used by the U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] to assess impacts under the <i>Farmland Protection Policy Act</i> [FPPA].)</p> <p>FPPA applies when airport activities meet the following conditions:</p> <ul style="list-style-type: none"> • Federal funds are involved; • The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses. Important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land; or • None of the exemptions to FPPA apply. These exemptions include: <ul style="list-style-type: none"> ○ When land is not considered “farmland” under FPPA, such as land that is already developed or already irreversibly converted. These instances include when land is designated as an urban area by the U.S. Census Bureau, or the existing footprint includes rights-of-way. ○ When land is already committed to urban development. ○ When land is committed to water storage. ○ Construction of non-farm structures necessary to support farming operations. ○ Construction/land development for national defense purposes.
Potential Environmental Concerns	Potential Impact. According to the NRCS Web Soil Survey (WSS), approximately 97.4 percent of the airport is prime farmland. A small portion of the soils classified as not prime farmland is located east of Runway 11-29 (Exhibit 6). In the past and at present, the airport has allowed farming in the land that abuts the airport’s turf runway and Runway 18-36 (at the end approach of Runway 36). Proposed changes to airside and landside areas of the airport (i.e., relocation of existing turf runway 11-29, proposed industrial park, ultimate buildings, and ultimate pavement) could convert farmlands protected by the FPPA. This should be confirmed on a project-by-project basis and Form AD-1006 should be completed, when appropriate.



HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>The FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention. However, factors to consider are if an action would have the potential to:</p> <ul style="list-style-type: none"> • Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management; • Involve a contaminated site; • Produce an appreciably different quantity or type of hazardous waste; • Generate an appreciably different quantity or type of solid waste, or use a different method of collection or disposal, and/or would exceed local capacity; or • Adversely affect human health and the environment.
<p>Potential Environmental Concerns</p>	<p>No Impact. There are no identified brownfields or Superfund sites located within a one-mile buffer of the airport.</p> <p>Because of the existing regulatory environment regarding hazardous materials and waste and stormwater management, no impacts related to ultimate airport development are anticipated. There is one FBO (Holdrege Aviation) that offers fuel services at the airport. The FBO is required to maintain spill response procedures to minimize non-stormwater discharges from contaminating waterways under federal regulations. Proposed landside development southwest of Runway 18-36 includes a Jet A and 100LL fuel facility. Similar to the FBO, the proposed fuel facility will be required to manage and maintain spill response procedures.</p> <p>Ultimate airport improvements could include an industrial park, additional hangars, extending/widening Runway 18-36, rerouting a public road, relocating a lighted wind cone, relocating runway lighting, and relocating a holding bay (Exhibit 27). The construction of planned developments would temporarily increase solid waste. The closest landfill, Holdrege Prairie Landfill, is located more than two miles south of the airport. No impacts related to solid waste disposal are expected.</p> <p>See discussion on Surface Water for information on water quality pollution prevention.</p>
HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>The FAA has not established a significance threshold for Historical, Architectural, Archaeological, and Cultural Resources. Factors to consider are if an action would result in a finding of “adverse effect” through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of an EIS (i.e., a significant impact).</p>
<p>Potential Environmental Concerns</p>	<p>Potential Impact. The closest resource listed on the National Register of Historic Places (NRHP) is the Phelps County Courthouse, located 1.5 miles west; however, Phelps County Courthouse is not located near any proposed airfield improvements, as it is located outside of airport property boundaries.</p> <p>An airport-wide cultural resources survey should be completed to document any other resources at the airport. The FAA would then make a determination on the level of impact airport projects would have on these historic properties under NEPA and through the <i>National Historic Preservation Act’s</i> Section 106 process. If previously undocumented buried cultural resources are identified during ground-disturbing activities for ultimate airport development, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP, as appropriate. Work must not resume in the area without the approval of the FAA.</p>
LAND USE	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>The FAA has not established a significance threshold for Land Use. There are also no specific independent factors to consider. The determination that significant impacts exist is normally dependent on the significance of other impacts.</p>
<p>Potential Environmental Concerns</p>	<p>Potential Impact. Proposed airport improvements include new hangars, the construction of an industrial park, a future runway extension (Runway 18-36), an ultimate runway extension/widening (Runway 18-36), relocating the existing turf Runway 11-29, an aviation easement, property acquisition, new roads/parking, an aeronautical reserve, rerouting a public road, relocating a lighted wind cone/segmented circle, and a new fuel facility (see Exhibit 27).</p> <p>The property to be designated as an aviation easement is in an area with no development; however, as a result of the aviation easement, 734 Road (a public road) would need to be rerouted to align with the aviation easement ordinance and a one-mile runway protection zone (RPZ) at the approach end of Runway 18.</p> <p>There are two scattered residential areas that abut airport property boundaries on the north side of 18th Avenue. The nearest proposed development to these residential areas would be the construction of a new turf runway; however, this proposed development would be contained to the airport and would not relocate any nearby residential areas.</p>



NATURAL RESOURCES AND ENERGY SUPPLY	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	The FAA has not established a significance threshold for Natural Resources and Energy Supply. However, factors to consider include whether an action would have the potential to cause demand to exceed available or future supplies of these resources.
Potential Environmental Concerns	No Impact. Planned development projects at the airport could increase demands on energy utilities, water supplies and treatment, and other natural resources during construction; however, significant long-term impacts are not anticipated. Should long-term impacts be a concern, coordination with local service providers is recommended.
NOISE AND NOISE-SENSITIVE LAND USE	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	Threshold: The action would increase noise by Day-Night Average Sound Level (DNL) 1.5 decibels (dB) or more for a noise-sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. Special consideration needs to be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in Title 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.
Potential Environmental Concerns	No Impact. There are only a few scattered residents near the airport (north side of 18 th Avenue). The ultimate development at the airport is not expected to change the overall noise environment more than the 1.5 dB threshold; however, this should be confirmed prior to implementing a runway extension along proposed ultimate Runway 1-19. No other noise-sensitive land uses, i.e., places of worship, schools, or overnight medical facilities, are near the airport.
SOCIOECONOMIC, ENVIRONMENTAL JUSTICE, AND CHILDREN’S HEALTH AND SAFETY RISKS	
Socioeconomic	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	The FAA has not established a significance threshold for Socioeconomics. However, factors to consider are if an action would have the potential to: <ul style="list-style-type: none"> • Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area); • Disrupt or divide the physical arrangement of an established community; • Cause extensive relocation when sufficient replacement housing is unavailable; • Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities; • Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or • Produce a substantial change in the community tax base.
Potential Environmental Concerns	Potential Impact. Proposed development would not relocate or disrupt current businesses or residents. No division of existing neighborhoods or housing or businesses relocations would occur due to proposed development on the airport. Ultimate airport projects would result in temporary disruption of local traffic patterns during construction or once operational. The proposed development concept includes the realignment of one public road to remove it from the Runway 18 approach runway protection zones (RPZs) and the proposed aviation easement.



Environmental Justice	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>The FAA has not established a significance threshold for Environmental Justice. However, factors to consider are if an action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (i.e., a low-income or minority population), due to:</p> <ul style="list-style-type: none"> • Significant impacts in other environmental impact categories; or • Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population.
Potential Environmental Concerns	<p>No Impact. Both low-income and minority populations have been identified in the vicinity of the airport. The nearest residential area abuts the northern airport property boundary; however, it is unlikely that implementation of the proposed improvements outlined in the development concept plan would affect these populations in a disproportionate or adverse manner.</p> <p>Executive Order (E.O.) 12898, <i>Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations</i>, and the accompanying Presidential Memorandum, and Order DOT 5610.2, <i>Environmental Justice</i>, require the FAA to provide meaningful public involvement for minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. Environmental justice impacts may be avoided or minimized through early and consistent communication with the public and allowance of ample time for public consideration; therefore, disclosure of ultimate airport development to potentially affected environmental justice populations near the airport as the projects are proposed is crucial. If disproportionately high or adverse impacts are noted, mitigation and enhancement measures and offsetting benefits should be considered.</p>
Children’s Health and Safety Risks	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>The FAA has not established a significance threshold for Children’s Environmental Health and Safety Risks. However, factors to consider are whether an action would have the potential to lead to a disproportionate health or safety risk to children.</p>
Potential Environmental Concerns	<p>No Impact. No disproportionately high or adverse impacts are anticipated to affect children living, playing, or attending school near the airport because of the proposed ultimate development. The airport is an access-controlled facility, and children will not be allowed within the fenced portions of the airport without adult supervision. All construction areas should be controlled to prevent unauthorized access.</p>
VISUAL EFFECTS	
Light Emissions	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>The FAA has not established a significance threshold for light emissions. However, a factor to consider is the degree to which an action would have the potential to:</p> <ul style="list-style-type: none"> • Create annoyance or interfere with normal activities due to light emissions; and • Affect the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resource.
Potential Environmental Concerns	<p>No Impact. The existing lighting at the airport includes runway/taxiway lighting (medium intensity), and lighting used for navigation (such as a rotating beacon, two-light precision approach path indicator (PAPI) system at both ends of Runway 18-36, and runway end identification lights (REILs) at both ends of Runway 18-36). New proposed lighting would be a four-light PAPI at the end approach of the future Runway 1-19 and new airfield signage installed. Existing REILs would also be relocated to the end approach of future and ultimate Runway 01-19. All new airport lighting will be part of the overall airport environment and is not expected to cause significant lighting issues to areas outside of the airport property.</p> <p>Night lighting during construction phases within the runway environment is typically directed down to the construction work area to prevent light from spilling outside the airport boundaries. Other ultimate projects are likely to include additional lighting during operation of the airport’s new structures and facilities but would not significantly change the amount of lighting seen from outside the airport.</p>

Visual Resources/Visual Character	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>The FAA has not established a significance threshold for Visual Resources/Visual Character. However, a factor to consider is the extent to which an action would have the potential to:</p> <ul style="list-style-type: none"> • Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; • Contrast with the visual resources and/or visual character in the study area; and • Block or obstruct the views of the visual resources, including consideration of whether these resources would still be viewable from other locations.
Potential Environmental Concerns	No Impact. Ultimate airport improvements are likely to emulate what currently exists on the airport and would not change the overall visual character of the airport.
WATER RESOURCES	
Wetlands	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p>Threshold: The action would:</p> <ol style="list-style-type: none"> 1. Adversely affect a wetland’s function to protect the quality or quantity of municipal water supplies, including surface waters and sole source/other aquifers; 2. Substantially alter the hydrology needed to sustain the affected wetland system’s values and functions, or those of a wetland to which it is connected; 3. Substantially reduce the affected wetland’s ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare (the term “welfare” includes cultural, recreational, and scientific resources or property important to the public); 4. Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands; 5. Promote development of secondary activities or services that would cause the circumstances listed above to occur; or 6. Be inconsistent with applicable state wetland strategies.
Potential Environmental Concerns	<p>Potential Impact. According to USFWS National Wetlands Inventory, one riverine and three freshwater emergent wetlands were identified on airport property. The proposed aeronautical reserve and proposed future/ultimate turf Runway 12-30 are located within the area occupied by a freshwater emergent wetland (Exhibit 6).</p> <p>If development occurs in these areas involving the relocation or removal of wetlands, or impacting other potential waters of the U.S., a delineation of the area should be completed by a qualified wetland biologist to help determine if the area is protected by the <i>Clean Water Act</i>. Based on the results of this study, consultation with the U.S. Army Corps of Engineers may be required to determine if a Section 404 permit under the <i>Clean Water Act</i> is warranted. A Section 404 permit regulates the discharge of dredged or fill material into jurisdictional waters and wetlands. Mitigation for impacts to wetlands or other jurisdictional waters may be required.</p>
Floodplains	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	Threshold: The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, <i>Floodplain Management and Protection</i>.
Potential Environmental Concerns	No Impact. A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel 31137C030330C (effective January 16, 2008), indicates the airport is in Zone X, an Area of Minimal Flood Hazard.

Surface Waters	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>Threshold: The action would:</p> <ul style="list-style-type: none"> • Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or • Contaminate public drinking water supply such that public health may be adversely affected. <p>Factors to consider are when a project would have the potential to:</p> <ul style="list-style-type: none"> • Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; • Adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or • Present difficulties based on water quality impact when obtaining a permit or authorization.
<p>Potential Environmental Concerns</p>	<p>Potential Impact. The closest natural surface water feature is Sacramento Creek, located 0.25 miles north of the airport. The nearest impaired waterbody is Holdrege Park Lake, located 1.75 miles west of the airport. Long-term impacts to water quality from the proposed airfield improvements may need to be assessed, depending on how or if stormwater runoff is conveyed to airport stormwater infrastructure.</p> <p>The airport manages its stormwater discharges with a National Pollutant Discharge Elimination System (NPDES) permit issued and regulated by Nebraska Department of Environment and Energy (NDEE). Improvements to the airport will require a revised permit to be issued, addressing operational and structural source controls, treatment best management practices (BMPs), and sediment and erosion control.</p> <p>An NPDES General Construction permit would be required for all projects involving ground disturbance over one acre. The FAA’s Advisory Circular (AC) 150/5370-10G, <i>Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control</i> should also be implemented during construction projects at the airport.</p>
Groundwater	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>Threshold: The action would:</p> <ol style="list-style-type: none"> 1. Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or 2. Contaminate an aquifer used for public water supply such that public health may be adversely affected. <p>Factors to consider are when a project would have the potential to:</p> <ul style="list-style-type: none"> • Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values; • Adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or • Present difficulties based on water quality impact when obtaining a permit or authorization.
<p>Potential Environmental Concerns</p>	<p>No Impact. The airport property is not located near a sole source aquifer. Elk Mountain Aquifer is the nearest sole source aquifer and is located approximately 370 miles west of the airport.</p>
Wild and Scenic Rivers	
<p>FAA Order 1050.1F, Significance Threshold/Factors to Consider</p>	<p>The FAA has not established a significance threshold for Wild and Scenic Rivers. Factors to consider are when an action would have an adverse impact on the values for which a river was designated (or considered for designation) through:</p> <ul style="list-style-type: none"> • Destroying or altering a river’s free-flowing nature; • Introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river’s setting; • Causing the river’s water quality to deteriorate; • Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or • Any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river that is not included in the NRI from being included in the Wild and Scenic River System, or causing a downgrade in its classification (e.g., from wild to recreational).
<p>Potential Environmental Concerns</p>	<p>No Impact. The nearest designated Wild and Scenic River, the Niobrara River, is located approximately 156 miles north of the airport. The closest river on the NRI is a segment of Middle Loup River 84 miles north of the airport.</p> <p>Projects delineated on the ALP update concept would not have adverse effects on these rivers’ outstanding remarkable values (i.e., scenery, recreation, geology, fish, wildlife, and history).</p>

Source: Coffman Associates analysis

SUMMARY

This section has been prepared to help inform those making decisions about the future growth and development of the airport by describing, both narratively and graphically, the recommended development concept. The plan represents an airfield facility that fulfills aviation needs for the airport, while also conforming to safety and design standards to the extent practicable. It also provides a landside complex that can be developed as demand dictates. The Airport Layout Plan (ALP) drawing set, which is included as **Appendix C** of this report, details these plans and includes airspace analysis.

Flexibility will be very important to future and ultimate development at the airport, as activity may not occur as predicted. The recommended concept provides stakeholders with a general guide that, if followed, can maintain the airport's long-term viability and allow it to continue providing aviation services to the region.

CAPITAL IMPROVEMENT PROGRAM

The future and ultimate recommended development concept presented in the previous section outlined airside and landside improvements for HDE that provide the airport sponsor with a plan to preserve and develop the airport to meet future aviation demands. Using the recommended concept as a guide, this section will provide a description and overall cost estimate for projects identified in the capital improvement program (CIP), as well as a potential development schedule.

The presentation of the capital improvement program is organized into two sections. First, the airport's CIP and associated cost estimates are presented in narrative and graphic form. The first five years of the CIP are programmed by years, with the remaining projects grouped into intermediate (years 6-10), long-term (years 11-20), and ultimate (years 20+) planning horizons. By utilizing planning horizons instead of specific years for intermediate, long-term, and ultimate development, the city will have greater flexibility to adjust capital needs as demand dictates. The second section identifies capital improvement funding sources on state and local levels.

Several factors, such as funding availability and justification, may influence the timing of projects in the intermediate, long-term, and ultimate planning periods; therefore, greater flexibility must be considered regarding their implementation. The timing for capacity-related projects, such as hangar construction, will need to be based upon demand and the types of aircraft using the facility. Other projects, such as improving the taxiway system and acquiring property within the safety areas, focus on meeting FAA design standards and providing a safe operating environment. This planning study has been developed in a manner designed to provide airport administration with maximum flexibility in adapting the concepts presented to potential changes over time. The short-term, intermediate, long-term, and ultimate CIP for Brewster Field Airport is listed in **Exhibit 30**. **Exhibit 31** graphically depicts the development staging by overlaying each project onto the aerial photograph of HDE.

NOTE: Hangar development is assumed to be funded by private developers through ground lease agreements with the sponsor. For this reason, hangar development has been excluded from the airport's CIP.

Several of the project-specific cost estimates were prepared by Alfred Benesch and Company, the airport's engineer. The cost estimates also include design, construction administration, and contingencies that may arise on the project. Capital costs presented here should be viewed only as "order-of-magnitude" estimates and are subject to further refinement during design. Nevertheless, they are considered sufficient for planning purposes. It should be noted that each project should only be undertaken after further refinement of its design and costs through detailed architectural or engineering analysis.

Project funding sources are also identified, including the federal Airport Improvement Program (AIP) that is administered by the FAA. An estimate of FAA and state funding eligibility has been included, although actual funding is not guaranteed. For those projects that would be eligible for federal funding, AIP provides up to 90 percent of the total project cost. The remaining 10 percent of project costs would be funded locally by Holdrege Airport Authority. The goal for any airport is to generate enough revenue to cover all operating and capital expenditures, if possible. For most airports, this is not always possible, and other financing methods may be needed.

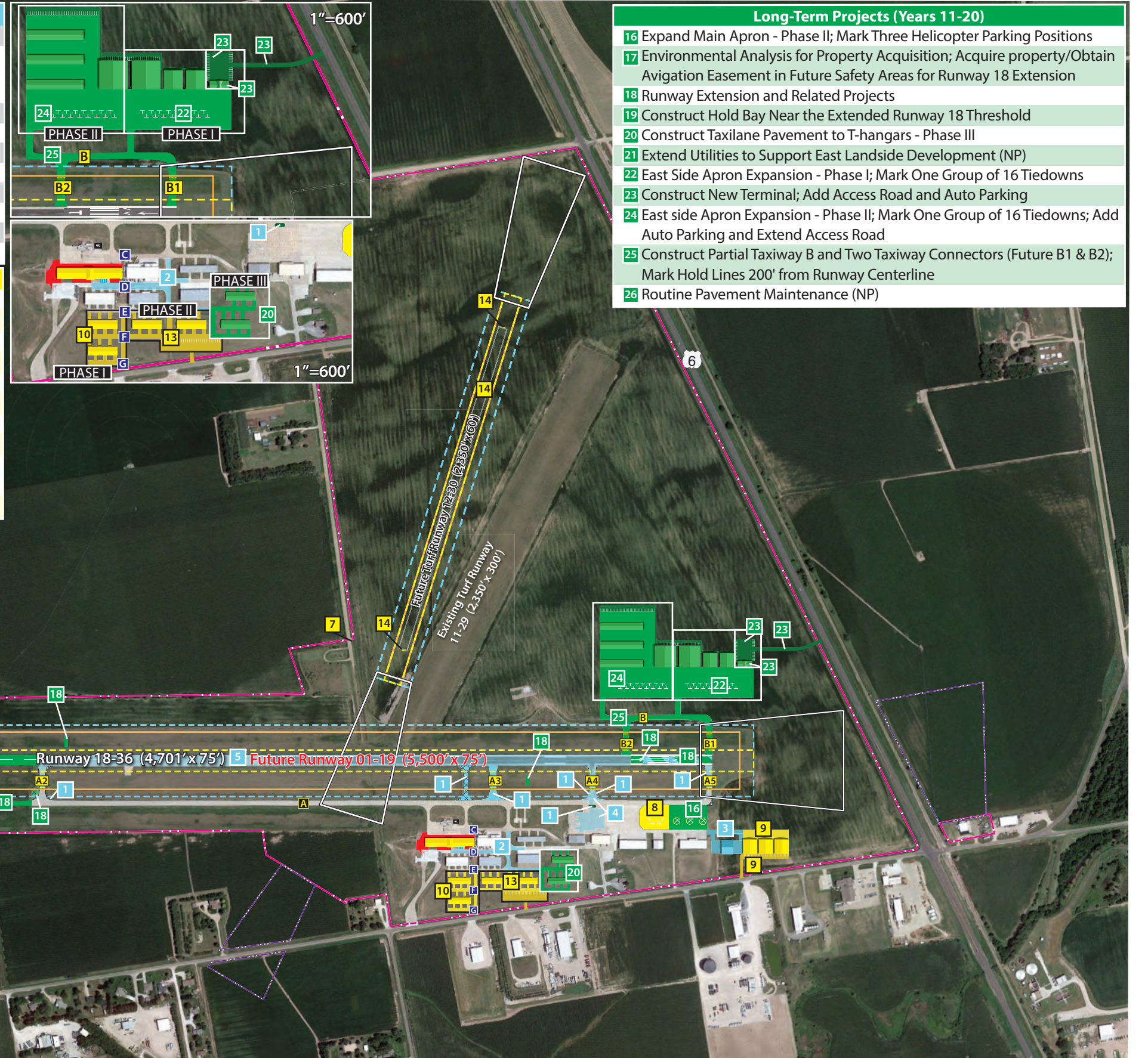
#	Project Description	Cost Estimate	Federal Funding	Local Share
SHORT-TERM PROJECTS				
2023				
1*	Construct Taxiway Fillets (Future A2, A4, and A5); Widen Existing 3rd Taxiway Connector from Runway 18 Threshold to 35' (Future A4); Remove/Relocate 2nd Taxiway Connector (Future A3); Mark Existing 3rd Taxiway Connector with No-taxi Island	\$2,380,000	\$2,142,000	\$238,000
2024				
2	Taxilane & Approach Rehabilitation	\$320,000	\$288,000	\$32,000
2025				
3	Construct 100' x 80' Executive Hangar and Supporting Pavement	\$1,239,000	\$1,115,100	\$123,900
2026				
4	Rehabilitate Taxiway (T1-1) and Main Apron (A1-1, A1-2, A1-4)	\$578,000	\$520,200	\$57,800
2027				
5	Rehabilitate Runway Pavement	\$1,249,200	\$1,124,280	\$124,920
TOTAL SHORT-TERM PROJECTS		\$5,766,200	\$5,189,580	\$576,620
INTERMEDIATE-TERM PROJECTS				
6	Snow Removal Equipment - Broom for Tractor	\$52,500	\$47,250	\$5,250
7	Install Perimeter Fence Around Airport Property	\$911,000	\$819,900	\$91,100
8	Expand Main Apron - Phase I; Mark Five Tiedowns	\$418,000	\$376,200	\$41,800
9	Construct Taxilane to the South; Add Access Road and Auto parking	\$496,000	\$446,400	\$49,600
10	Construct Taxilane Pavement to T-hangars - Phase I	\$1,000,000	\$900,000	\$100,000
11	Install Water Main	\$280,000	\$252,000	\$28,000
12	Ground Transportation/Courtesy Car	\$5,000	\$0	\$5,000
13*	Construct Taxilane Pavement to T-hangars - Phase II; Add Auto Parking and Access Road	\$1,250,000	\$1,125,000	\$125,000
14*	Environmental Analysis; AGIS Survey; Relocate Turf Runway (Future 12-30); Add Strip of Concrete Pavement on Runway Threshold Ends	\$1,450,000	\$1,305,000	\$145,000
15	Routine Pavement Maintenance	\$1,000,000	\$900,000	\$100,000
TOTAL INTERMEDIATE-TERM PROJECTS		\$6,862,500	\$6,171,750	\$690,750
LONG-TERM PROJECTS				
16	Expand Main Apron - Phase II; Mark Three Helicopter Parking Positions	\$776,000	\$698,400	\$77,600
17	Environmental Analysis for Property Acquisition; Acquire property/Obtain Avigation Easement in Future Safety Areas for Runway 18 Extension	\$319,500	\$287,550	\$31,950
18*	Runway Extension and Related Projects	\$4,070,000	\$3,663,000	\$407,000
19	Construct Hold Bay Near the Extended Runway 18 Threshold	\$800,000	\$720,000	\$80,000
20	Construct Taxilane Pavement to T-hangars - Phase III	\$1,000,000	\$900,000	\$100,000
21*	Extend Utilities to Support East Landside Development	\$890,000	\$801,000	\$89,000
22	East Side Apron Expansion - Phase I; Mark One Group of 16 Tiedowns	\$1,858,000	\$1,672,200	\$185,800
23*	Construct New Terminal; Add Access Road and Auto Parking	\$3,880,000	\$0	\$3,880,000
24	East side Apron Expansion - Phase II; Mark One Group of 16 Tiedowns; Add Auto Parking and Extend Access Road	\$3,972,000	\$3,574,800	\$397,200
25*	Construct Partial Taxiway B and Two Taxiway Connectors (Future B1 & B2); Mark Hold Lines 200' from Runway Centerline	\$2,160,000	\$1,944,000	\$216,000
26	Routine Pavement Maintenance	\$2,000,000	\$1,800,000	\$200,000
TOTAL LONG-TERM PROJECTS		\$21,725,500	\$16,060,950	\$5,664,550
ULTIMATE PROJECTS				
27	Remove C-II ROFA Obstructions	\$161,000	\$144,900	\$16,100
28*	Install Self-Service Fuel Facility; Expand Main Apron to the East; Remove One Existing Tiedown	\$1,290,000	\$600,000	\$690,000
29	Environmental Analysis; Acquire property/Obtain Avigation Easement in Ultimate Safety Areas for Runway 18 Extension	\$745,600	\$671,040	\$74,560
30*	Runway Extension and Related Projects	\$9,890,000	\$8,901,000	\$989,000
31	Remove Existing Hold Bay; Construct Hold Bay Near the Extended Runway 18 Threshold	\$1,070,000	\$963,000	\$107,000
32	Reroute 734 Rd Around Runway 18 RPZ	\$2,556,000	\$2,300,400	\$255,600
33	Construct New Apron/Taxilane Pavement for Executive Hangars; Add Access Road and Auto Parking	\$1,145,000	\$1,030,500	\$114,500
34*	Increase Runway 18-36 Pavement Strength to 50,000 lbs. DWL	\$3,960,000	\$3,564,000	\$396,000
35	Routine Pavement Maintenance	\$2,000,000	\$1,800,000	\$200,000
TOTAL ULTIMATE PROJECTS		\$22,817,600	\$19,974,840	\$2,842,760
TOTAL CIP		\$57,171,800	\$47,397,120	\$9,774,680

*Cost estimates were prepared by Alfred Benesch and Company Engineers, April 2023

Short-Term Projects (Years 0-5)	
Fiscal Year 2023	
1	Construct Taxiway Fillets (Future A2, A4, and A5); Widen Existing 3rd Taxiway Connector from Runway 18 Threshold to 35' (Future A4); Remove/Relocate 2nd Taxiway Connector (Future A3); Mark Existing 3rd Taxiway Connector with No-taxi Island
Fiscal Year 2024	
2	Taxilane & Approach Rehabilitation
Fiscal Year 2025	
3	Construct 100' x 80' Executive Hangar and Supporting Pavement
Fiscal Year 2026	
4	Rehabilitate Taxiway (T1-1) and Main Apron (A1-1, A1-2, A1-4)
Fiscal Year 2027	
5	Rehabilitate Runway Pavement

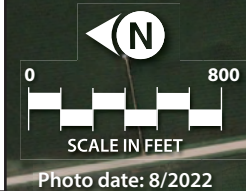
Intermediate-Term Projects (Years 6-10)	
6	Snow Removal Equipment - Broom for Tractor (NP)
7	Install Perimeter Fence Around Airport Property
8	Expand Main Apron - Phase I; Mark Five Tiedowns
9	Construct Taxilane to the South; Add Access Road and Auto parking
10	Construct Taxilane Pavement to T-hangars - Phase I
11	Install Water Main (NP)
12	Ground Transportation/Courtesy Car (NP)
13	Construct Taxilane Pavement to T-hangars - Phase II; Add Auto Parking and Access Road
14	Environmental Analysis; AGIS Survey; Relocate Turf Runway (Future 12-30); Add Strip of Concrete Pavement on Runway Threshold Ends
15	Routine Pavement Maintenance (NP)

Long-Term Projects (Years 11-20)	
16	Expand Main Apron - Phase II; Mark Three Helicopter Parking Positions
17	Environmental Analysis for Property Acquisition; Acquire property/Obtain Avigation Easement in Future Safety Areas for Runway 18 Extension
18	Runway Extension and Related Projects
19	Construct Hold Bay Near the Extended Runway 18 Threshold
20	Construct Taxilane Pavement to T-hangars - Phase III
21	Extend Utilities to Support East Landside Development (NP)
22	East Side Apron Expansion - Phase I; Mark One Group of 16 Tiedowns
23	Construct New Terminal; Add Access Road and Auto Parking
24	East side Apron Expansion - Phase II; Mark One Group of 16 Tiedowns; Add Auto Parking and Extend Access Road
25	Construct Partial Taxiway B and Two Taxiway Connectors (Future B1 & B2); Mark Hold Lines 200' from Runway Centerline
26	Routine Pavement Maintenance (NP)



LEGEND

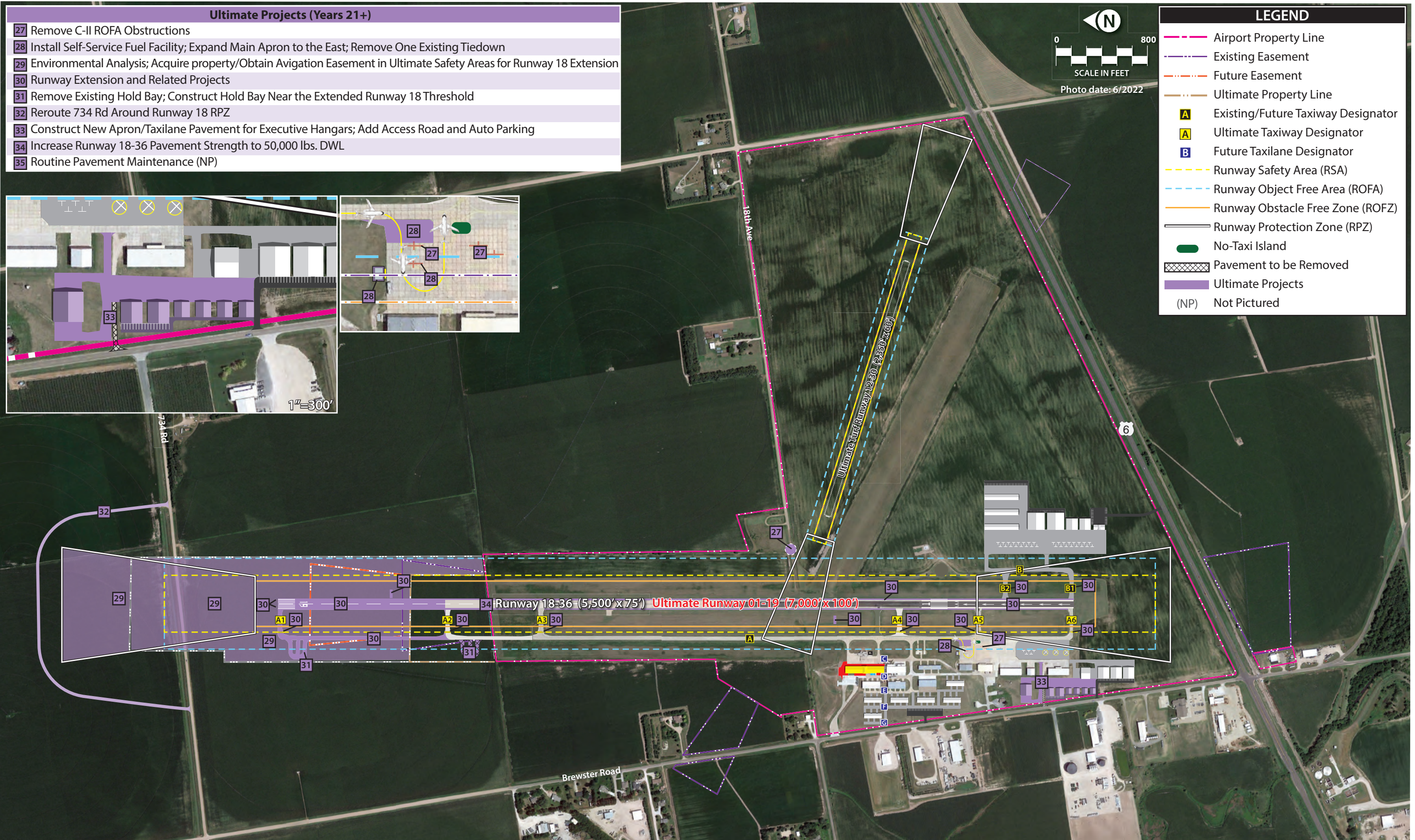
- Airport Property Line
- Existing Easement
- Future Easement
- Ultimate Property Line
- A Existing Taxiway Designator
- A Future Taxiway Designator
- B Future Taxilane Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- No-Taxi Island
- Pavement to be Removed
- Short-Term Projects
- Intermediate-Term Projects
- Long-Term Project
- (NP) Not Pictured



- Ultimate Projects (Years 21+)**
- 27 Remove C-II ROFA Obstructions
 - 28 Install Self-Service Fuel Facility; Expand Main Apron to the East; Remove One Existing Tiedown
 - 29 Environmental Analysis; Acquire property/Obtain Avigation Easement in Ultimate Safety Areas for Runway 18 Extension
 - 30 Runway Extension and Related Projects
 - 31 Remove Existing Hold Bay; Construct Hold Bay Near the Extended Runway 18 Threshold
 - 32 Reroute 734 Rd Around Runway 18 RPZ
 - 33 Construct New Apron/Taxilane Pavement for Executive Hangars; Add Access Road and Auto Parking
 - 34 Increase Runway 18-36 Pavement Strength to 50,000 lbs. DWL
 - 35 Routine Pavement Maintenance (NP)



- LEGEND**
- Airport Property Line
 - Existing Easement
 - Future Easement
 - Ultimate Property Line
 - A Existing/Future Taxiway Designator
 - A Ultimate Taxiway Designator
 - B Future Taxilane Designator
 - Runway Safety Area (RSA)
 - Runway Object Free Area (ROFA)
 - Runway Obstacle Free Zone (ROFZ)
 - Runway Protection Zone (RPZ)
 - No-Taxi Island
 - Pavement to be Removed
 - Ultimate Projects
 - (NP) Not Pictured



There are several local financing options to fund future development at airports, including airport revenues, issuance of a variety of bond types, and leasehold financing. These strategies could be used to fund the local matching share or complete a project if grant funding cannot be arranged.

The FAA utilizes a national priority rating system to help objectively evaluate potential airport projects. Projects are weighted towards safety, infrastructure preservation, meeting design standards, and capacity enhancement. These entities will participate in the highest-priority projects before considering lower-priority projects, even if a lower-priority project is considered a more urgent need by the local sponsor. Nonetheless, the project should remain a priority for the airport, and funding support should continue to be requested in subsequent years.

Some projects identified in the CIP, such as extension of Runway 18-36 and relocation of Runway 11-29, are likely to require environmental documentation. The level of documentation necessary for each project must be determined in consultation with the FAA/NDOT. There are three major levels of environmental review to be considered under NEPA: Categorical Exclusions (CatEx), Environmental Assessment (EA), and Environmental Impact Statements (EIS). Each level requires more time to complete and more detailed information. Guidance on what level of documentation is required for a specific project is provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*. The Environmental Overview presented in the previous section addresses NEPA and provides an evaluation of various environmental categories for HDE.

SHORT-TERM IMPROVEMENTS

The projects included in the short-term development concept are those planned to occur within the next five years (2023-2027). These projects are scheduled by year and are prioritized based on the airport's needs, with projects related to safety and preservation receiving higher priority.

2023 PROJECT

Project #1: Construct Taxiway Fillets (Future A2, A4, and A5); Widen Existing 3rd Taxiway Connector from Runway 18 Threshold to 35' (Future A4); Remove/Relocate 2nd Taxiway Connector (Future A3); Mark Existing 3rd Taxiway Connector with No-Taxi Island

Description: This project includes the construction/removal of taxiway fillet pavement on future Taxiways A2, A4, and A5 to meet TDG 2A design standards, which will widen the pavement at the inside turns. The existing 3rd taxiway connector (Future A4) is planned to be widened to 35 feet to meet TDG 2A design standards. The existing 2nd taxiway connector and the 3rd taxiway connector (Future A3 and A4) provide direct access from both aprons to Runway 18-36, which is considered non-standard. To mitigate this, the 2nd taxiway connector is planned to be relocated south of its existing location and a no-taxi island is planned at the entrance to the 3rd taxiway connector. A no-taxi island is a portion of apron pavement painted green and clearly marked as a non-movement area.

Cost Estimate: \$2,380,000

Funding Eligibility: State or Federal – 90% / Local – 10%

2024 PROJECT

Project #2: Taxiway and Approach Rehabilitation

Description: Portions of existing Taxiways C and D (future D and E) are in poor condition and in need of rehabilitation to maintain the structural integrity. Rehabilitation to include various slab replacement and crack and joint sealing.

Cost Estimate: \$320,000

Funding Eligibility: State or Federal – 90% / Local – 10%

2025 PROJECT

Project #3: Construct 100' x 80' Executive Hangar and Supporting Pavement

Description: There are current plans in place for a 100-foot by 80-foot executive hangar located south of the main apron adjacent to the existing conventional hangar. This project will also include the construction of a taxiway to provide access to the executive hangar.

Cost Estimate: \$1,239,000

Funding Eligibility: State or Federal – 90% / Local – 10%

2026 PROJECT

Project #4: Rehabilitate Taxiway (T1-1) and Main Apron (A1-1, A1-2, A1-4)

Description: This project is the rehabilitation of the T1-1 section on the 3rd taxiway connector from the Runway 18 end and sections of the main apron, including A1-1, A1-2, and A1-4. The 2020 Pavement Condition Index (PCI) report determined that the majority of the taxiway is in very poor condition and portions of the apron are in poor to serious conditions.

Cost Estimate: \$578,000

Funding Eligibility: State or Federal – 90% / Local – 10%

2027 PROJECT

Project #5: Rehabilitate Runway Pavement

Description: The majority of Runway 18-36 has a PCI value of between 56-70, which is an indicator that the pavement is in fair condition and in need of rehabilitation to maintain the structural integrity. This is a rehabilitation project that will improve the runway and extend its useful life for several years.

Cost Estimate: \$1,249,200

Funding Eligibility: State or Federal – 90% / Local – 10%

SHORT-TERM SUMMARY

The short-term CIP addresses several high-priority projects, including safety-related projects, such as the addition of expanded taxiway fillets to maintain the taxiway edge safety margin (TESM), pavement rehabilitation, removal/relocation of a taxiway connector, and installation of a no-taxi island to eliminate

the direct access from the aprons to Runway 18-36. Construction of new taxiway pavement and hangar is planned to meet anticipated demand levels. The short-term projects total approximately \$5.8 million, with approximately \$5.2 million eligible for FAA funding. \$576,620 would be local funding responsibility.

INTERMEDIATE-TERM IMPROVEMENTS

To provide maximum flexibility for airport management when programming capital improvement projects, the intermediate-term projects have been grouped and generally include those projects that may be needed in years six through 10. Airport management should regularly assess the need and timing for these projects based on actual demand and growth at the airport.

Project #6: Snow Removal Equipment – Broom for Tractor

Description: Currently, the airport does have snow removal equipment (SRE); however, it does not have a broom for the tractor that is utilized for the snow removal. As such, this project is for the purchase of a broom for the tractor.

Cost Estimate: \$52,500

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #7: Install Perimeter Fence Around Airport Property

Description: Perimeter fencing is used at airports primarily to secure the aircraft operational area and reduce wildlife incursions. The airport is partially enclosed with a four-foot post and wire fence around the north end of Runway 18; however, the remainder of the airport property is not enclosed by a perimeter fence. In addition, a dirt road extending from 18th Avenue, which allows public access to the airfield. This project is for the construction of a four-foot-high chain link fence out to 500 feet from sensitive areas of the airport, and a four-foot-high woven wire fence around the remaining perimeter of the airport operations area boundary.

Cost Estimate: \$911,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #8: Expand Main Apron – Phase I; Mark Five Tiedowns

Description: As more aircraft base at the airport, additional aircraft apron will be needed. This project involves two phases and will expand the main apron to the south. This portion of the apron is approximately 3,900 sq and will include five marked tiedowns for fixed-wing aircraft.

Cost Estimate: \$418,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #9: Construct Taxiway to the South; Add Access Road and Auto Parking

Description: This project plans for the construction of taxiway pavement to support new hangar development on the south side of the airfield. An access road and auto parking area for tenants are also included in this project.

Cost Estimate: \$496,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #10: Construct Taxilane Pavement to T-Hangars – Phase I

Description: This project involves three phases which will expand the existing T-hangar development area to the northwest. The first phase is planned to construct pavement from future Taxilanes F and G to two future T-hangars located northwest of the existing T-hangars. These taxilanes are planned to meet ADG 1A design standards.

Cost Estimate: \$1,000,0000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #11: Install Water Main

Description: This project installs a water main, which will connect city utilities to support future growth at the airport.

Cost Estimate: \$280,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #12: Ground Transportation/Courtesy Car

Description: Currently, the airport provides ground transportation/courtesy car services. This project is a placeholder for any foreseen maintenance that the airport might experience.

Cost Estimate: \$5,000

Funding Eligibility: State or Federal – 0% / Local – 100%

Project #13: Construct Taxilane Pavement to T-Hangars – Phase II; Add Access Road and Auto Parking

Description: This project plans for construction of taxilane pavement to a third and fourth T-hangar located northwest of the existing T-hangars and extends Taxilane F to the south. These taxilanes are planned to meet ADG 1A design standards. An access road from Brewster Road and auto parking for tenants are also included in this project.

Cost Estimate: \$1,250,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #14: Environmental Analysis; AGIS Survey; Relocate Turf Runway (Future 12-30); Add Strip of Concrete Pavement on Runway Threshold Ends

Description: This project relocates Runway 11-29 north of its existing location and is planned to be designated as future Runway 12-30. The turf runway is planned to meet the RDC A-I(s) design standard of 60 feet width and maintain the current runway length of 2,350 feet. Relocation of the boundary cones and addition of concrete threshold markers at each runway end are planned. Before relocation of the turf runway can be completed, an environmental analysis is scheduled as project #14.

Cost Estimate: \$1,450,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #15: Routine Pavement Maintenance

Description: This project serves as a placeholder for routine pavement maintenance that will be necessary during the intermediate timeframe. This includes runway, taxiway, taxilane, and apron pavement, with specific projects to be determined based on need.

Cost Estimate: \$1,000,000

Funding Eligibility: State or Federal – 90% / Local – 10%

INTERMEDIATE-TERM SUMMARY

The intermediate-term projects include the relocation of the turf runway, installation of a perimeter fence around the airport, and expansion projects to accommodate increased aviation demand anticipated to occur. The intermediate-term projects total approximately \$6.9 million, with the share eligible for FAA funding estimated at \$6.2 million. The remaining \$690,750 is comprised of local funding.

LONG-TERM IMPROVEMENTS

Long-term projects are planned for the years 11-20. These projects are grouped as demand and/or funding availability could shift over time. The need for these projects could be accelerated if exceptional growth occurs at the airport. All relevant elements for each project, including environmental documentation, design, and construction, are included in the cost estimate for each project.

Project #16: Expand Main Apron – Phase II; Mark Three Helicopter Parking Positions

Description: Phase II of this project will include the other half of the apron, which will extend further to the south. This portion of the apron area is approximately 4,500 sy and will include three helicopter parking positions.

Cost Estimate: \$776,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #17: Environmental Analysis for Property Acquisition; Acquire Property/Obtain Avigation Easement in Future Safety Areas for Runway 18 Extension

Description: Environmental analysis and property acquisition are scheduled as project #17. Before property can be acquired with federal funds, the FAA requires an environmental finding prior to grant programming. To support the planned future extension to Runway 18-36, approximately 7.7 acres of the RSA/ROFA/ROFZ are planned to be acquired in fee by the airport sponsor. An additional 3.1 acres are necessary for construction of the future hold bay on Taxiway A at the Runway 18 end. This project also plans for the purchase of an avigation easement covering approximately 11.5 acres in the ultimate Runway 18 RPZ.

Cost Estimate: \$319,500

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #18: Runway Extension and Related Projects

Description: This project plans for a 799-foot extension to Runway 18, bringing the total length of Runway 18-36 to 5,500 feet. Based on the current magnetic heading of Runway 18-36, the runway is planned to be redesignated as Runway 01-19. Taxiway A is also planned to be extended to the future Runway 18 end, with the future A1 connector providing access to the threshold. The existing Taxiway A connector is planned to be reconstructed with the non-standard hold bay being removed. Navaids that will need to be extended as a result of the runway extension include the medium intensity runway lighting (MIRL), medium intensity taxiway lighting (MITL), and pavement markings. In addition, REILs are planned to be relocated and new runway and taxiway directional signage will be installed. This project also plans for the upgrade of the existing PAPI-2 serving Runway 18-36 to PAPI-4. The new PAPI-4s are

planned to be located 1,000 feet from the new runway thresholds. Lastly, this project will also include the displacement and re-marking of the Runway 36 threshold to eliminate incompatibilities in the Runway 36 RPZ. Prior to construction of the runway extension terrain fill is planned.

Cost Estimate: \$4,070,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #19: Construct Hold Bay Near the Extended Runway 18 Threshold

Description: A new standard holding bay is planned on the extended Runway 18 threshold, which will allow for greater aircraft circulation on the north side of the airfield.

Cost Estimate: \$800,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #20: Construct Taxilane Pavement to T-Hangars – Phase III

Description: Phase III of the taxilane pavement construction project will include the last taxilane pavement sections, which will extend future Taxilanes E and F farther to the south. These taxilanes are planned to meet ADG 1A design standards.

Cost Estimate: \$1,000,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #21: Extend Utilities to Support East Landside Development

Description: In support of planned east side development, this project plans for the addition of utilities (electricity, gas, water, sewer, communications) to this side of the airport.

Cost Estimate: \$890,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #22: East Side Apron Expansion – Phase I; Mark One Group of 16 Tiedowns

Description: This project involves two phases that plan for the construction of a second general aviation apron on the east side, which could support a variety of hangar types and sizes. This portion of the apron is approximately 12,600 sy and will include one group of 16 tiedowns.

Cost Estimate: \$1,858,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #23: Construct New Terminal; Add Access Road and Auto Parking

Description: In the long term, the plan proposes a new location for the terminal on the east side apron development, which will be approximately 5,000 sf in size. This will meet the needed terminal space in the long term and will provide better accessibility to the airfield, as it is centrally located relative to both runways. There will be 26 auto parking spaces, including three handicap spaces, available for tenants and visitors in front of the terminal. The new terminal and the east side development will be accessed via an access road from Highway 6/34 and will extend around the new apron with additional auto parking.

Cost Estimate: \$3,880,000

Funding Eligibility: State or Federal – 0% / Local – 100%

Project #24: East Side Apron Expansion – Phase II; Mark One Group of 16 Tiedowns; Add Auto Parking and Extend Access Road

Description: Phase II of the east side apron expansion project will include the last apron section, which will extend farther to the north. This portion of the apron area will be approximately 28,500 sy and will include one group of 16 tiedowns. An access road will be extended around the remaining apron with additional auto parking for tenants.

Cost Estimate: \$3,972,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #25: Construct Partial Taxiway B and Two Taxiway Connectors (Future B1 and B2); Mark Hold Lines 200' from Runway Centerline

Description: In order to access the landside facilities on the east side, this project plans for the construction of a second partial parallel taxiway, future Taxiway B. Future Taxiway B will extend to the south to connect to the Runway 36 end. Connectors B1 and B2 will provide access to and from the runway and will be marked with 200-foot hold lines to meet RDC B-II design standards.

Cost Estimate: \$2,160,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #26: Routine Pavement Maintenance

Description: This project serves as a placeholder for routine pavement maintenance that will be necessary during the long-term timeframe. This includes runway, taxiway, taxilane, and apron pavement, with specific projects to be determined based on need.

Cost Estimate: \$2,000,000

Funding Eligibility: State or Federal – 90% / Local – 10%

LONG-TERM PROJECTS SUMMARY

The long-term projects focus on a 799-foot runway extension and parallel taxiway extension project, and on the landside, additional aircraft storage space is planned to accommodate project growth in based aircraft. Improvements to the terminal are also planned, including a relocation and expansion. The long-term projects total approximately \$21.7 million, with the share eligible for FAA funding estimated at \$16.1 million. The remaining \$5.7 million is comprised of local funding.

ULTIMATE IMPROVEMENTS

As discussed previously, ultimate projects are planned for 20+ years into the future and will be based on actual demand rather than a point in time. The ultimate program is based upon C-II-5000 design standards and features a runway extension, new fuel facility, mitigations for safety-related issues, and expanded landside facilities. Some projects have been grouped together. These groupings allow Holdrege Airport Authority more flexibility in longer-range planning, where priorities may shift, and adjustments are made. Additionally, the airport and the FAA draft and review a five-year ACIP each year; therefore, the list of projects and their prioritization can change in the future and will likely be based on current needs and trends.

Project #27: Remove C-II ROFA Obstructions

Description: The lighted wind cone and segmented circle are located on the east side of Runway 18-36 and south side of Runway 11-29. When the airport transitions to an ARC C-II, the lighted wind cone and segmented circle will fall within the ultimate runway object free area (ROFA). These navigational aids are to be relocated north of Runway 11-29 near the Runway 11 end. In addition, four existing aircraft parking positions will be removed as they are located within the ultimate ROFA. Lastly, the vegetation in the ultimate ROFA is planned to be cleared.

Cost Estimate: \$161,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #28: Install Self-Service Fuel Facility; Expand Main Apron to the East; Remove One Existing Tiedown

Description: This project entails adding approximately 640 sy of new pavement to the north of the main apron and removing one existing tiedown for the purpose of adding a self-serve fueling facility. Currently, an Avgas fuel pump and an underground tank are located between the terminal and an executive hangar. However, the tank needs to be replaced due to deterioration of the pump over time, as well as environmental issues. The fuel facility will include a new 8,000-gallon public-use self-serve 100LL (Avgas) and an 8,000-gallon Jet A bulk storage tanks, pumps, and credit card fueling system for the sale and distribution of aviation fuel. Fuel farms projects are eligible for non-primary entitlement funding (NPE). For non-primary airports, like HDE, the FAA provides \$150,000 in NPE funding annually, which can be rolled over for up to four years, with the maximum amount of \$600,000.

Cost Estimate: \$1,290,000

Funding Eligibility: State or Federal – 46.5% / Local – 53.5%

Project #29: Environmental Analysis; Acquire Property/Obtain Avigation Easement in Ultimate Safety Areas for Runway 18 Extension

Description: To support the planned ultimate extension to Runway 18-36 and the transition to an RDC C-II-500, approximately 42.3 acres of the RSA/ROFA/ROFZ are planned to be acquired in fee by the airport sponsor. An additional 3.3 acres will be necessary for construction of the ultimate hold bay on Taxiway A at the Runway 18 end. This project also plans for the purchase of an avigation easement covering approximately 10.2 acres in the ultimate Runway 18 RPZ. As with the previous projects, an environmental analysis is needed prior to grant programming and prior to purchase.

Cost Estimate: \$745,600

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #30: Runway Extension and Related Projects

Description: This project plans for the 1,500-foot extension to Runway 18, bringing the ultimate total length of Runway 18-36 to 7,000 feet. Taxiway A is also planned to be extended to the ultimate Runway 18 end, with the ultimate A1 connector providing access to the threshold. To meet the ultimate C-II design standards, Runway 18-36 is planned to be widened to 100 feet and all taxiway connectors are planned to be marked with 250-foot hold lines. Extension of MIRL and MITL, pavement markings, and the relocation of directional signage, PAPI-4s and REILs are included as well. Lastly, this project will also include the displacement and re-marking of the Runway 36 threshold to eliminate incompatibilities in the Runway 36 RPZ. Prior to construction of the runway extension terrain is planned to be filled and graded.

Cost Estimate: \$9,890,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #31: Remove Existing Hold Bay; Construct Hold Bay Near the Extended Runway 18 Threshold

Description: With the ultimate runway extension, the hold bay—which was constructed in project #19—will have to be removed and a new hold bay will have to be constructed near the new extended Runway 18 threshold.

Cost Estimate: \$1,070,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #32: Reroute 734 Road Around Runway 18 RPZ

Description: This project will plan to reroute 734 Road outside of the Runway 18 RPZ.

Cost Estimate: \$2,556,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #33: Construct New Apron/Taxilane Pavement for Executive Hangars; Add Access Road and Auto Parking

Description: This project plans for construction of approximately 7,000 sy of new apron pavement to the west of the existing hangars near the Runway 36 end and projects #3 and #9 development. A new taxilane between the existing executive and conventional hangars, located on the south side of the main apron, will be constructed to provide access to the landside development. An access road and auto parking spaces will also be planned.

Cost Estimate: \$1,145,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #34: Increase Runway 18-36 Pavement Strength to 50,000 lbs. DWL

Description: This project plans to increase the pavement strength of Runway 18-36 to 50,000 lbs. DWL. This project is only justified when activity by C-II aircraft increases significantly.

Cost Estimate: \$3,960,000

Funding Eligibility: State or Federal – 90% / Local – 10%

Project #35: Routine Pavement Maintenance

Description: This project serves as a placeholder for routine pavement maintenance that will be necessary during the ultimate timeframe. This includes runway, taxiway, taxilane, and apron pavement, with specific projects to be determined based on need.

Cost Estimate: \$2,000,000

Funding Eligibility: State or Federal – 90% / Local – 10%

ULTIMATE PROJECTS SUMMARY

The ultimate projects focus on the ultimate 1,500-foot runway extension, the rerouting of a public road outside of the RPZ, and the addition of a fuel facility. On the landside, additional aircraft storage space is planned to accommodate project growth in based aircraft. The ultimate projects total approximately \$22.8 million, with the share eligible for FAA funding estimated at \$20.0 million. The remaining \$2.8 million is comprised of local funding.

CAPITAL IMPROVEMENT SUMMARY

The CIP is intended as a road map of airport improvements to help guide the airport sponsor, the FAA, and state aviation officials on needed projects. The plan as presented will meet the forecast demand over the next 20 years, and, in many respects, beyond. The first five years of the CIP are separated into yearly installments, and the intermediate and long-term projects are grouped together. The sequence of projects will likely change due to availability of funds or changing priorities in the years to come. In addition, other projects not anticipated during this study may arise and should then be added to the airport ACIP. Nonetheless, this is a comprehensive list of capital improvement projects the airport should consider in the next 20 years.

The total CIP is estimated at approximately \$57.2 million. The share eligible for FAA funding is estimated at \$47.4 million and the local share is estimated at \$9.8 million.

CAPITAL IMPROVEMENT FUNDING SOURCES

There are generally four sources of funds used to finance airport capital development projects: airport revenues, revenue/general obligation bonds, federal/state/local grants, and passenger facility charges (PFCs), which are reserved for commercial service airports. Access to these sources of financing varies widely among airports, with some large airports maintaining substantial cash reserves and smaller commercial service and general airports often requiring subsidies from local governments to fund operating expenses and finance modest improvements.

Financing capital improvements at HDE will not rely solely on the financial resources of the Holdrege Airport Authority. Capital improvement funding is available through various grant-in-aid programs on both the state and federal levels. While more federal/state funding could be available during some years, the CIP was developed with project phasing to remain realistic and within the range of anticipated grant assistance. The following discussion outlines key sources of funding potentially available for capital improvements at the airport.

FEDERAL GRANTS

Through federal legislation over the years, various grant-in-aid programs have been established to develop and maintain the system of public-use airports across the United States. The purpose of this system, and its federally based funding, is to maintain national defense and to promote interstate commerce. The *FAA Modernization and Reform Act of 2012*, enacted on February 17, 2012, authorized the FAA's AIP at \$3.35 billion for fiscal years 2012 through 2015. The law was then extended through a series of continuing resolutions. In 2016, Congress passed legislation (H.R. 636, *FAA Extension, Safety, and Security Act of 2016*) amending the law to expire on September 30, 2017. Subsequently, Congress passed a bill (H.R. 3823, *Disaster Tax Relief and Airport and Airway Extension Act of 2017*) authorizing appropriations to the FAA through March 31, 2018, and the *Consolidated Appropriations Act, 2018* extended the FAA's funding and authority through September 30, 2018. In October 2018, Congress passed a legislation entitled **FAA Reauthorization Act of 2018, which funds the FAA's AIP at \$3.35 billion annually until later this year (2023)**. The bill reauthorized the FAA for five years, at a cost of \$97 billion, and represents the longest funding authorization period for the FAA since 1982.

The source for AIP funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Aviation Trust Fund also finances the operation of the FAA. It is funded by user fees, including taxes on airline tickets, aviation fuel, and various aircraft parts.

Several projects identified in the CIP are eligible for FAA funding through the AIP, which provides entitlement funds to airports based, in part, on their annual enplaned passengers and pounds of landed cargo weight. Additional AIP funds, designated as discretionary, may also be used for eligible projects based on the FAA’s national priority system. Although the AIP has been reauthorized several times and the funding formulas have been periodically revised to reflect changing national priorities, the program has remained essentially the same. Public-use airports that serve civil aviation—like HDE—may receive AIP funding for eligible projects, as described in the FAA’s *Airport Improvement Program Handbook*. The airport must fund the remaining projects costs using a combination of other funding sources, which are discussed in the following sections.

Table 39 presents the approximate distribution of the AIP funds as described in FAA Order 5100.38D, Change 1, *Airport Improvement Program Handbook*, issued February 26, 2019. Currently, the airport is eligible to apply for grants, which may be funded through several categories.

TABLE 39 | Federal AIP Funding Distribution

Funding Category	Percent of Total	Amount*
Apportionment/Entitlement		
Passenger Entitlements	27.01%	\$904,840,000
Cargo Entitlements	3.50%	\$117,250,000
Alaska Supplemental	0.67%	\$22,450,000
Nonprimary Entitlements	12.01%	\$402,340,000
State Apportionment	7.99%	\$267,670,000
Carryover	22.85%	\$765,480,000
Small Airport Fund		
Small Hubs	2.33%	\$78,060,000
Non-Hubs	4.67%	\$156,450,000
Nonprimary (GA and Reliever)	9.33%	\$312,560,000
Discretionary		
Capacity/Safety/Security/Noise	4.36%	\$146,060,000
Pure Discretionary	1.45%	\$48,580,000
Set Asides		
Noise and Environmental	3.37%	\$112,900,000
Military Airports Program	0.39%	\$13,070,000
Reliever	0.06%	\$2,010,000
Total	100.00%	\$3,350,000,000

*FAA Modernization and Reform Act of 2018

Source: FAA Order 5100.38D, Change 1, *Airport Improvement Program Handbook*

Funding for AIP-eligible projects is undertaken through a cost-sharing arrangement in which the FAA share varies by airport size and is generally 75 percent for large and medium hubs and 90 percent for all other airports. In exchange for this level of funding, the airport sponsor is required to meet various grant assurances, including maintaining the improvement for its useful life, usually 20 years.

Another source for federal grants is the Bipartisan Infrastructure Law (BIL), which was signed into law in 2021 and plans for \$25 billion for the National Aerospace System (NAS). \$5 billion of the BIL will fund FAA facility upgrades and the remaining \$20 billion is to be invested into America's airports over the next five years. BIL funds are sourced from the U.S. Treasury General Fund and are split into two funding buckets, \$20 billion for Airport Infrastructure Grants (AIG) and \$4.85 billion for the Airport Terminal Program (ATP). **Under BIL, HDE can receive \$145,000¹⁰ in allocated AIG funding each year for the next five years.** Beginning in FY2023, this money can be used for repair and maintenance of existing infrastructure or construction of new facilities (e.g., airfield pavement, nav aids, lighting, terminal building, etc.). ATP grants can be used for multi-modal terminal development and relocating, reconstructing, repairing, or improving an airport traffic control tower. The federal share for AIG is the same as an AIP grant, 90 percent with a local 10 percent match, while the federal share for ATP grants is 95 percent for small hub, non-hub, and non-primary airports. The same grant assurances that apply to AIP grants will also apply to BIL grants. BIL and AIP grants cannot be combined/mingled into a single grant; therefore, BIL funds cannot pay the matching share for AIP grants.

Apportionment (Entitlement) Funds

Federal AIP funds are distributed each year by the FAA from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports based upon minimum enplanement levels of at least 10,000 passengers annually. If the threshold is met, the airport receives \$1 million annually in entitlement funds. Other entitlement funds are distributed to cargo service airports, states and insular areas (state apportionment), and Alaska airports.

AIP provides funding for eligible projects at airports through an apportionment (entitlement) program. Non-primary airports included in the *National Plan of Integrated Airport Systems* (NPIAS), such as HDE, receive a guaranteed minimum level of up to \$150,000 each year in non-primary entitlement (NPE) funds. These funds can be carried over and combined for up to four years, thereby allowing for completion of a more expensive project.

The states also receive an apportionment based on a federal formula that takes into account area and population. The FAA then distributes these funds for projects at various airports throughout the state.

Small Airport Fund

If a large- or medium-hub commercial service airport chooses to institute a PFC, which is a fee of up to \$4.50 per airline ticket for funding of capital improvement projects, then their apportionment is reduced. A portion of the reduced apportionment goes to the small airport fund. The small airport fund is reserved for small-hub primary commercial service airports, non-hub commercial service airports, reliever, and general aviation airports. As a general aviation airport, HDE is eligible for funds from this source.

¹⁰ <https://www.faa.gov/bil/airport-infrastructure>

Discretionary Funds

In several cases, airports face major projects that will require funds in excess of the airport's annual entitlements. Thus, additional funds from discretionary apportionments under AIP become desirable. The primary feature of discretionary funds is that they are distributed on a priority basis. The priorities are established by the FAA, using a priority code system. Under this system, projects are ranked by purpose. Projects ensuring airport safety and security are ranked as the most important priorities, followed by maintaining current infrastructure development, mitigating noise and other environmental impacts, meeting design standards, and increasing system capacity.

It is important to note that competition for discretionary funding is not limited to airports in the State of Nebraska or those within the FAA Central Region. Discretionary funds are distributed to all airports in the country and, as such, are more difficult to obtain. High-priority projects will often fare favorably, while lower-priority projects may not receive discretionary grants.

Set-Aside Funds

Portions of AIP funds are set-asides designed to achieve specific funding minimums for noise compatibility planning and implementation, certain former military airfields (Military Airports Program), and certain reliever airports. HDE does not qualify for set-aside funding.

FAA Facilities and Equipment (F&E) Program

The Airway Facilities Division of the FAA administers the Facilities and Equipment (F&E) Program. This program provides funding for the installation and maintenance of various navigational aids and equipment of the national airspace system. Under the F&E Program, funding is provided for FAA air traffic control towers (ATCTs), enroute navigational aids, on-airport navigational aids, and approach lighting systems.

While F&E still installs and maintains some navigational aids, on-airport facilities at general aviation airports have not been a priority; therefore, airports often request funding assistance for navigational aids through AIP and then maintain the equipment on their own.¹¹

STATE AID TO AIRPORTS

In support of the state aviation system, the Nebraska Department of Transportation (NDOT) Division of Aeronautics also participates in airport improvement projects. The source for state airport improvement funds is the State Aid Program, which was established in 1945 and amended in December 2003. This program is administered by the Nebraska Division of Aeronautics. Project approval and funding limits are determined by the Nebraska Aeronautics Commission, which also has the right to fund projects outside the scope of the program at its discretion.

¹¹ Guidance on the eligibility of a project for federal AIP grant funding can be found in FAA Order 5100.38D, *Airport Improvement Program Handbook, Change 1*, effective February 26, 2019.

Under the program, all Nebraska public use airports that are included in the Nebraska State Aviation System Plan are eligible. In addition, the following requirements should be met:

- The project is reasonably consistent with the Nebraska Aviation System Plan for the development of the area in which the airport is located.
- The project can be completed without undue delay on the sponsor's part.
- The sponsor has sufficient funds to cover their share of the airport.

The funding limits are as follows:

- State projects: up to 90 percent state funds
- State projects acquiring land or terminal buildings: 50 percent state funds
- Federal projects: two percent state funds on federally funded projects with total costs greater than \$500,000

State funds are limited to \$100,000 per airport per fiscal year; however, runway construction for state-aid projects is limited to \$200,000. State funds allocated for a federal project are limited to a total of \$100,000. A federal project includes the entire scope of the federal grant. Multiple grants that are used to finance the same scope of work are considered to be one project.

The following is a partial list of airport projects that are generally **eligible** for funding from the state:

1. Grading, paving, pavement rehabilitation and federally funded seal coating:
 - a. Runways and turnarounds.
 - b. Taxiways, including hold aprons and taxiways between hangars. Individual hangar ramps up to the hangar doors are eligible only under the Hangar Loan Program.
 - c. Aprons - except pavement within 25 feet of a building since aircraft cannot park in this area. This 25-foot area is partially eligible for new hangars under the Hangar Loan Program.
2. Lighting of eligible paved or graded items, including a vault, electrical equipment, beacon, standby generator, reflective markers, flood lights, etc.
3. Visual nav aids - PAPI, REIL, ALS, and AWOS. Emphasis will be placed on nav aids for instrument runways and on those needed for obstacle clearance.
4. Airport Layout Plans (ALPs), Environment Assessment Reports (EAs), and other planning studies.
5. Obstruction removal of objects in the runway protection zones and objects violating Part 77 obstruction standards. Includes the relocation of roads to allow necessary airport development.
6. Land and easement acquisition for all airport developments, including fencing and relocation.
7. Administration and terminal buildings - public use areas only. Areas rented or reserved for private use are not eligible. Airport offices, such as the manager's office or the authority's meeting room, are eligible. The eligible amount will be determined by prorating the actual square footage of each area.

8. Related items (listed below) are eligible at the same rate of participation as the item to which they are related.
 - a. Consulting and other fees, such as engineering, testing, advertising, administrative, and legal fees. These fees are only eligible when the project to which they are related is completed within a reasonable time. Typically, the fees are not reimbursed until after the construction/acquisition contracts are executed.
 - b. Related construction items like pavement repairs, utility relocation, incidental fencing, marking, seeding, drainage structures, ducts, etc.

The following is a partial list of projects **not eligible** under the State Aid Program:

1. Not eligible under any state program:
 - a. Security (FAR Part 107) and guidance signs (FAR Part 139)
 - b. Vehicles (SRE and ARFF) and associated buildings
 - c. Passenger lifts for commuter aircraft
 - d. Other regular maintenance items
 - e. Paving access roads and parking lots
 - f. Runway development not shown on an approved ALP
2. Not eligible under this program, but eligible under other NDA programs:
 - a. Crack/joint sealing not related to construction
 - b. Seal coats, slurry seals, and rejuvenators
 - c. Marking not related to construction
 - d. Hangars
 - e. Fuel storage
 - f. NDB, VOR, and ILS

Revolving Hangar Program

The NDOT and the Nebraska Aeronautics Commission offer the Revolving Hangar Program, which was approved in December 2012. This program helps municipalities increase or improve the available hangar space at their public-use airports and provides no-interest loans for hangar construction (typically T-hangar construction). Any municipality (airport authority, city, county, or village) that operates a public-use airport is eligible for the program, as are persons owning privately-owned public-use airports.

Eligible projects include the following:

- T-hangars with 40- to 48-foot-wide doors – larger doors may be eligible upon special approval from the commission
- Shop and storage hangars
- Ramps – from the hangar door to the edge of the taxiway, including fillets (limitations exist based on the maximum eligible dimensions of the hangars)
- Moving an existing hangar to another location on the same airport when that hangar violates state or federal safety or design standards

- Existing hangar rehabilitation, to include re-sheeting roof and sides
- Hangar door replacements
- Other – finished end units, full or partial floors, electrical service, outlets, lights, stubbed in utilities, other necessary items within 27.5 feet of the building, and engineering fees
- Private hangar acquisition – eligible for state funds if no state funds were previously expended for the hangar

Not Eligible – Full utilities, such as water and heat (except for electricity, framing, insulation, and other miscellaneous interior work)

Other conditions that must be met:

- The hangar must be built on a site that is shown on the currently approved Airport Layout Plan.
- The hangar building must meet the department's minimum standards (Aeronautics Specification H-40).
- The sponsor must insure the hangar life of the loan agreement.
- The airport must meet the department's licensing standards, Title 17, Chapter 1 of the Nebraska Administrative Code.

The funding limits are as follows:

- NDOT Share: NDA will loan up to 70 percent of the cost of new construction and 50 percent of eligible costs for existing hangar rehabilitation and/or door replacement, up to the amount approved by the Nebraska Aeronautics Commission (NAC).
- Maximum: \$600,000 per airport, inclusive of all loans made under the program. New construction must be repaid in 10 years, and rehabilitation or door replacement must be repaid in five years.

Fuel Storage Program

NDA and the NAC offers the Fuel Storage Loan Program, which was established in 1992 and approved in 2004. This is a no-interest loan that helps municipalities with the installation, expansion, or improvement of static fuel storage facilities. Any municipality (airport authority, city, county, or village) that operates a public-use airport is eligible for the program, as are persons owning privately-owned public-use airports. The balance must be repaid within 10 years.

Eligible projects include the following:

- Fuel tanks used to store aviation only (100LL, jet, Avgas). Total fuel capacity at the airport must be justified by the volume of fuel sales. Mobile tanks are not eligible for this program.
- Pipes, pumps, dispensing systems, berms, security items, electric power, lighting, monitoring systems, access roads, and other necessary appurtenances are eligible, as well as removal of existing fuel tanks if done with the installation of new tanks.
- Engineering and surveying costs are eligible.
- Systems for metering fuel flowage for different accounts are eligible.

Other conditions that must be met:

- The construction must be according to the approved Airport Layout Plan.
- The construction must comply with the State Fire Marshal's regulations, Aeronautics' minimum standards and all applicable laws, regulations, and building codes.
- The tanks or other items must remain the property of the sponsor for the life of the loan agreement.
- The sponsor must insure the facility for the life of the loan agreement.
- The airport must meet the department's licensing standards, *Title 17, Chapter 1 of the Nebraska Administrative Code*.

The funding limits are as follows:

- Aeronautics will loan 70 percent of the eligible costs.
- Maximum per airport is \$50,000 for the total of all loans outstanding under this program.

Crack/Joint Sealing Program & Marking Program

NDA and NAC offer a pavement crack/joint sealing program and marking program. The cost for the crack/joint sealing program is \$0.35 per lineal foot, which includes two NDA personnel, NDA equipment, and supplied filler materials. These programs are cost sharing programs, in which a portion of the cost is subsidized by NDA.

Seal Coat Fund

The sealcoat fund is part of the Pavement Preservation Program and is intended to preserve, restore, and protect existing airport pavements. The sealcoat fund is available for a surface treatment on public-use airport pavements. This may be a seal coat, slurry seal, micro-surfacing, rejuvenator, or other similar products. Aeronautics is the project engineer, and the work is done by a private contractor. Aeronautics pays 75 percent of the costs. Any municipality (airport authority, city, county, or village) that operates a non-primary public-use airport is eligible for the program, as are persons owning privately-owned public-use airports.

Other conditions that must be met:

- The airport must be included in Aeronautics' State System Plan.
- The airport must meet the department's licensing standards, *Title 17, Chapter 1 of the Nebraska Administrative Code*.
- If the airport does not meet the department's minimum standards for runway length and width, then the maximum state grant will be \$10,000.

LOCAL FUNDING

The balance of project costs, after consideration has been given to grants, must be funded through local resources. A goal for any airport is to generate enough revenue to cover all operating and capital expenditures, if possible.

There are several local financing options to consider when funding future development at airports, including airport revenues, issuance of a variety of bond types, leasehold financing, implementing a customer facility charge (CFC), pursuing non-aviation development potential, and collecting money from special events. These strategies could be used to fund the local matching share or complete a project if grant funding cannot be arranged. Below is a brief description of the most common local funding options.

Airport Revenues

The airport's daily operations are conducted through the collection of various rates and charges. These airport revenues are generated specifically by airport operations. There are restrictions on the use of revenues collected by the airport. All receipts, excluding bond proceeds or related grants and interest, are irrevocably pledged to the punctual payment of operating and maintenance expenses, payment of debt service for as long as bonds remain outstanding, or for additions or improvements to airport facilities.

All airports should establish standard basis rates for various leases. All lease rates should be set to adjust to a standard index, such as the consumer price index (CPI), to ensure that fair and equitable rates continue to be charged into the future. Many factors will impact what the standard lease rate should be for a particular facility or ground parcel. For example, ground leases for aviation-related facilities should have a different lease rate than for non-aviation leases. When airports own hangars, a separate facility lease rate should be charged. The lease rate for any individual parcel or hangar can vary due to availability of utilities, condition, location, and other factors. Nonetheless, standard lease rates should fall within an acceptable range.

Bonding

Bonding is a common method of financing large capital projects at airports. A bond is an instrument of indebtedness of the bond issuer to the bond holders, thus a bond is a form of loan or IOU. While bond terms are negotiable, the bond issuer is typically obligated to pay the bond holder interest at regular intervals and/or repay the principal at a later date.

Leasehold Financing

Leasehold financing refers to a private developer or tenant financing improvements under a long-term ground lease. The advantage of this arrangement is that it relieves the airport of the responsibility of having to raise capital funds for the improvement. As an example, an FBO might consider constructing hangars and charging fair market lease rates while paying the airport for a ground lease. A fuel farm can be undertaken in the same manner, with the developer of the facility paying the airport a fuel flowage fee.

Customer Facility Charge (CFC)

A CFC is the imposition of an additional fee charged to customers for the use of certain facilities. The most common example is when an airport constructs a consolidated rental car facility and imposes a fee for each rental car contract. That fee is then used by the airport to pay down the debt incurred from building the facility.

Non-Aviation Development

In addition to generating revenue from traditional aviation sources, airports with excess land can permit compatible non-aviation development. Generally, an airport will extend a long-term lease for land not anticipated to be needed for aviation purposes in the future. The developer then pays the monthly lease rate and constructs and uses the compatible facility. It should be noted that each individual proposed non-aviation development must be reviewed and approved by the FAA.

Special Events

Another common revenue-generating option is permitted use of airport property for temporary or single events. For example, some airports host fly-in events that attract thousands of spectators from around the region. Airports can also permit portions of their facility to be utilized for non-aviation special events, such as car shows or video production of commercials. This type of revenue generation must be approved by the FAA.

PLAN IMPLEMENTATION

To implement the plan recommendations, it is key to recognize that planning is a continuous process and does not end with approval of this document. The airport should implement measures that allow it to track various demand indicators, such as based aircraft, hangar demand, and operations. The issues on which this study is based will remain valid for a number of years. The primary goal is for Brewster Field Airport to best serve the air transportation needs of the region while achieving economic self-sufficiency.

The CIP and phasing program presented will change over time. An effort has been made to identify and prioritize all major capital projects that would require federal or state grant funding. Nonetheless, the airport and FAA review the five-year CIP on an annual basis.

The key value of this study lies in keeping the issues and objectives at the forefront of the minds of decision-makers. In addition to adjustments in aviation demand, decisions on when to undertake the improvements recommended in this study will impact how long the plan remains valid. The format of this plan reduces the need for formal and costly updates by simply adjusting the timing of project implementation. Updates can be completed by airport management, thereby improving the plan's effectiveness. Airports are typically encouraged to update their master plans and/or ALPs every seven to 10 years, or sooner if significant changes occur in the interim.

In summary, the planning process requires the Holdrege Airport Authority to consistently monitor the progress of the airport. The information obtained from continually monitoring activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.

