

## 6.0 RECOMMENDED PLAN

This chapter presents the Airport Capital Improvement Plan (ACIP) and Airport Layout Plan (ALP) that is associated with the recommended future developments at Hartford-Brainard Airport (HFD). The ACIP provides a phasing plan for the projects proposed during the 20-year planning period. The ALP illustrates the proposed future airport layout, and serves as the official development plan for the Airport.

### 6.1 Summary of the Recommended Plan

Chapter 5 presented development alternatives and the recommended airport development plan for HFD. The plan contains recommendations for airfield and landside development, which are further discussed in terms of three implementation phases. The recommendations include the following (See Figure 5-12 for number corresponding with each recommendation):

#### Airfield Recommendations

- **Runway Safety Improvements:** Removal of the sewage treatment lagoons for a standard RSA. Declared distances will be implemented for both runway ends to satisfy OFA requirements.
- **Runway Extension:** Potential southern extension of the runway to the recommended length of 5,000 feet.
- **Decommission H1 (Midfield Helipad):** Conversion of the helipad to a helicopter parking position.
- **Tree Removal:** The indicated trees should be removed as they are obstructions to HFD's airspace.
- **Instrument Approaches:** Publish "Localizer Precision with Vertical Guidance" (LPV) procedures to both runway ends. FAA must confirm it this is permissible based on the location of the Dike.

#### Landside Recommendations

- **Vehicle Access Road:** A vehicle access road between Murphy Road and Lindbergh Drive.
- **T-Hangars:** To fulfill the deficiency, T-hangars can be built in the locations shown, provided they are no taller than the existing structures so they do not obstruct the ATCT line-of-sight. A taxiway connection to Taxiway A would also be provided. Vehicle parking would be located near the ATCT.
- **Tiedown Removals:** To provide FAA standard TLOFA dimensions, select tiedowns will need to be removed.

- **Conventional Hangars:** The area shown is ideal for a series of conventional hangars, associated apron, and vehicle parking. The existing tiedowns and taxilanes would be removed or modified as necessary. Hangars should be outfitted with floodlights to provide light on the Midfield Ramp.
- **Proposed Maintenance Facility:** The depicted maintenance facility will be developed by CTDOT for airport operations staff.
- **Wildlife Incursion Control Fence:** Although it will require coordination among several parties, security fence construction is recommended on the eastern slope of the Clark Dike.
- **Hangar Redevelopment:** The area along Maxim Road is a prime location for the redevelopment of buildings as their useful life expires or as market conditions permit.
- **Midfield Ramp Lighting:** Increase nighttime visibility on the midfield to increase security.
- **Security Policies:** TSA guidelines also included the following policy items that the CTDOT should consider implementing at HFD:
  - Vehicle Identification
  - Secondary Aircraft Locking Devices
  - An Airport Security Committee and Procedures Document that incorporate the following:
    - Law Enforcement Officer procedures
    - Challenge Procedures (for confronting unfamiliar individuals and suspicious activity)
    - Transient Pilot Sign-in/Sign-out Procedures
    - A procedure for charter and flight training operators to positively identify all passengers and cargo
- **Noise Abatement** – Continue current protocol for promotion of the noise abatement procedures with these adjustments:
  - Replace the textual signs with graphical signs.
  - Revise ATIS to state “Please review Airport/Facility Directory for noise abatement procedures in effect.”
  - Update brochures and flyers to simplify information on procedures and make more graphical for pilots.
  - Update contours as part of future master plan updates.
  - Increase information listed in the A/FD.
  - Provide noise abatement procedure materials on airport website
  - Formalize the right traffic pattern
  - Depict noise sensitive areas on Aeronautical Charts

## **6.2 Airport Capital Improvement Plan**

The Airport Capital Improvement Plan (ACIP) lists the recommended projects and associated cost estimates for the 20-year planning period. Grant-eligible projects at HFD may receive 95 percent federal funding, with CTDOT responsible for the remaining share. Grant-eligible capital projects include planning and environmental studies, runway and taxiway development and rehabilitation, airport lighting, security enhancements, aircraft parking aprons, obstruction removal, land acquisition, and navigational aids.

Projects that are ineligible for funding include those that generate revenue and do not directly benefit the general public, such as hangars, fuel farms, and office buildings. A private entity or developer, such as a fixed base operator (FBO) or other corporation, may fund and construct grant-ineligible projects. Periodically, CTDOT has funded the cost of an ineligible project, or an eligible project with a lower FAA priority (e.g., new hangar) as part of the state transportation budget or infrastructure bond act. If such opportunities are available in the future, the State will pursue this funding.

In addition to the potential new airport developments, the airport must also continually rehabilitate existing airfield facilities (e.g., pavement rehabilitation typically occurs every 20 years). As such, the ACIP includes these additional items. Although these items are not considered new capital developments, the associated costs can comprise the majority of an airport's annual capital investment.

Note that the ACIP does not constitute a commitment on behalf of the State or FAA to fund any of the projects. In addition, the ACIP does not imply that the projects would receive environmental approvals. Thus, the ACIP serves as a planning document that must remain flexible. The ACIP should undergo regular updates as project priorities and demands indicate. It should also be noted that the costs are planning level estimates and will need to be refined prior to obtaining a grant.

Table 6-1 provides the 20-year ACIP for HFD, organized into the following three phases:

- Phase I (0 to 5 years)
- Phase II (6 to 10 years)
- Phase III (11 to 20 years)

<b>Table 6-1 - Hartford-Brainard Airport Capital Improvement Plan</b>				
<b>Project</b>	<b>Est. Cost</b>	<b>Federal (90%)</b>	<b>State (10%)</b>	<b>Private / Other</b>
<b>Short-Term (2013 - 2017)</b>				
Runway 2 Safety Area Improvements*	\$ -	\$ -	\$ -	\$ -
Runway 2 Extension to 5,000' Environmental Assessment (EA)	\$ 150,000	\$ 135,000	\$ 15,000	\$ -
Runway 2 Property Acquisition Phase II*	\$ -	\$ -	\$ -	\$ -
Decommission H1 (Midfield Heliport) & Remove Tiedowns**	\$ 1,000	\$ 900	\$ 100	\$ -
Develop Pavement Management Plan	\$ 75,000	\$ -	\$ 75,000	\$ -
Runway 2-20 Reconstruction (Design & Construction)	\$ 8,000,000	\$ 7,200,000	\$ 800,000	\$ -
T-Hangar (18 Bay)	\$ 990,000	\$ -	\$ -	\$ 990,000
T-Hangar (10 Bay)	\$ 575,000	\$ -	\$ -	\$ 575,000
Wildlife Incursion Control Fence	\$ 430,000	\$ 387,000	\$ 43,000	\$ -
Tree Removal (Design & Construction)**	\$ 300,000	\$ 270,000	\$ 30,000	\$ -
Add Ceiling Insulation in Terminal (ECM 1.4)	\$ 11,500	\$ -	\$ -	\$ 11,500
Lighting Upgrades in Terminal (ECM 1.6)	\$ 4,600	\$ -	\$ -	\$ 4,600
Window Tinting in Terminal (ECM 1.7)	\$ 1,080	\$ -	\$ -	\$ 1,080
Replace Domestic Hot Water Heaters in Building #18 (ECM 2.2)	\$ 4,000	\$ -	\$ -	\$ 4,000
Install Occupancy Sensors in Building #18 (ECM 2.3)	\$ 2,250	\$ -	\$ -	\$ 2,250
Add Wall Insulation in Building #14 (ECM 3.1)	\$ 30,000	\$ -	\$ -	\$ 30,000
Replace Domestic Hot Water Heaters in Building #14 (ECM 3.2)	\$ 4,000	\$ -	\$ -	\$ 4,000
Replace DX Gas Rooftop Units in Building #13 (ECM 4.1)	\$ 5,000	\$ -	\$ -	\$ 5,000
Install Programmable Thermostats in Building #10 (ECM 5.1)	\$ 300	\$ -	\$ -	\$ 300
Install Programmable Thermostats at Starbase (ECM 8.1)	\$ 1,200	\$ -	\$ -	\$ 1,200
Install Insulated Curtain on Bay Door in Police Hangar (ECM 9.1)	\$ 17,000	\$ -	\$ -	\$ 17,000
Lighting Upgrades in State Police Hangar (ECM 9.2)	\$ 16,750	\$ -	\$ -	\$ 16,750
Replace A/C Units in FBO Terminal (ECM 1.3)	\$ 1,800	\$ -	\$ -	\$ 1,800
Runway 2, 20, & 29 RPZs Avigation Easements	\$ 215,000	\$ 193,500	\$ 21,500	\$ -
<b>Total</b>	<b>\$ 10,835,480</b>	<b>\$ 8,186,400</b>	<b>\$ 984,600</b>	<b>\$ 1,664,480</b>
<b>Mid-Term (2018 - 2022)</b>				
Runway 2 Extension to 5,000' (including preparation site work)	\$ 3,200,000	\$ 2,880,000	\$ 320,000	\$ -
T-Hangar (18 Bay)	\$ 990,000	\$ -	\$ -	\$ 990,000
Midfield Ramp Lighting (including electrical)	\$ 25,000	\$ 22,500	\$ 2,500	\$ -
Runway 11-29 Pavement Rehabilitation	\$ 1,380,070	\$ 1,242,063	\$ 138,007	\$ -
Conventional Hangar - 200' x 200' (No Office)	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000
Conventional Hangar - 100' x 100'	\$ 500,000	\$ -	\$ -	\$ 500,000
Vehicle Access Road (includes ROW)	\$ 63,100	\$ -	\$ 63,100	\$ -
Pavement Rehabilitation (Twys A, C, D, H, & W)	\$ 3,483,480	\$ 3,135,132	\$ 348,348	\$ -
Replace Boilers with Condensing Boilers in FBO Terminal (ECM 1.1)	\$ 15,000	\$ -	\$ -	\$ 15,000
Install Occupancy Sensors in FBO Terminal	\$ 3,000	\$ -	\$ -	\$ 3,000
Replace Windows at Airport Manager's Building (ECM 6.2)	\$ 15,000	\$ -	\$ 15,000	\$ -
Install Infrared Heaters in State Police Hangar (ECM 9.3)	\$ 40,000	\$ -	\$ -	\$ 40,000
Runway 11 RPZ Avigation Easement	\$ 140,000	\$ 126,000	\$ 14,000	\$ -
<b>Total</b>	<b>\$ 11,854,650</b>	<b>\$ 7,405,695</b>	<b>\$ 900,955</b>	<b>\$ 3,548,000</b>
<b>Long-Term (2023 - 2033)</b>				
Pavement Rehabilitation (Taxiway J & H1)	\$ 1,310,400	\$ 1,179,360	\$ 131,040	\$ -
Pavement Rehabilitation (Taxiways B & V)	\$ 823,200	\$ 740,880	\$ 82,320	\$ -
T-Hangar (8 Bay)	\$ 500,000	\$ -	\$ -	\$ 500,000
Conventional Hangar - 100' x 100'	\$ 500,000	\$ -	\$ -	\$ 500,000
Conventional Hangar - 150' x 50'	\$ 375,000	\$ -	\$ -	\$ 375,000
Pavement Rehabilitation (H2, North Ramp, FBO Ramp, Midfield Ramp, CT Aerotech Taxiway)	\$ 6,988,800	\$ 6,289,920	\$ 698,880	\$ -
Replace Domestic Hot Water Heaters in FBO Terminal (ECM 1.2)	\$ 4,000	\$ -	\$ -	\$ 4,000
Lighting Upgrades in Building #14 (ECM 3.3)	\$ 5,000	\$ -	\$ -	\$ 5,000
Replace Unit Heaters with Infrared Heaters in DOT Maintenance Garage (ECM 7.1)	\$ 16,000	\$ -	\$ 16,000	\$ -
<b>Total</b>	<b>\$ 10,522,400</b>	<b>\$ 8,210,160</b>	<b>\$ 928,240</b>	<b>\$ 1,384,000</b>
<b>ACIP Grand Total</b>	<b>\$ 33,212,530</b>	<b>\$ 23,802,255</b>	<b>\$ 2,813,795</b>	<b>\$ 6,596,480</b>
*While unknown at this time, it is anticipated that these costs will be covered by agencies outside of CTDOT.				
** Project will likely be included as part of another pavement project.				

### 6.3 Airport Layout Plan

The ALP drawing set illustrates all development projects identified for Sidney Airport throughout the 20-year planning horizon. Upon approval by FAA and NYSDOT, the ALP becomes the official document to be referenced for future development at the Airport. The FAA requires that the ALP be followed consistently regarding all new airport facilities. As such, keeping the drawings accurate and up to date is a high priority. FAA policy requires that the ALP be updated at least every five years.

Although the ALP is the only drawing that is signed by the FAA, it is part of a larger drawing set that includes the sheets listed below. These ALP drawings can be found in Appendix c.

<b>Table 6-2 – Drawing Index</b>		
<b>Sheet No.</b>	<b>Sheet Title</b>	<b>Drawing No.</b>
	Cover Sheet & Drawing Index	---
1	Existing Airport Layout	ALP-1
2	Airport Layout Plan	ALP-2
3	Terminal Area Plan	ALP-3
4	Inner Approach Surface Drawing	ALP-4
5	Airport Airspace Plan	ALP-5
6	Land Use Plan	ALP-6
7	Property Plan	ALP-7

#### 6.3.1 Existing and Proposed Airport Layout Plan

The first sheet of the drawing set (ALP-1) illustrates the existing airport layout as it exists today. The drawing identifies key FAA airfield design standards (e.g., Runway Safety Areas, Object Free Areas, and Runway Protection Zones) and illustrates existing landside facilities. Key information, such as runway end elevations and runway-taxiway offsets, is also illustrated on ALP-1.

The proposed ALP (ALP-2) includes all features of ALP-1, and illustrates each recommended facility for HFD. Several offices within the FAA review this drawing for consistency with airport design standards, flight procedures, surrounding airspace, and environmental requirements. Approval of ALP-2 represents the acceptance of the general location of future facilities. However, prior to the development phase of each project, the State is required to submit the final locations, heights, and exterior finish of each proposed structure for approval. ALP approval does not represent environmental clearance under the National Environmental Policy Act (NEPA), or compliance with permit requirements. Such approvals must be obtained prior to development, and are not part of the ALP process. ALP-3 displays the terminal area in greater detail.

It is also noted that ALP approval does not represent a commitment on behalf of FAA, NYSDOT, or others to fund or pursue the projects depicted. Rather, this Master Plan and associated ALP represent the first products of the planning and development process, and are intended to depict a broad and long-range view of the potential improvements to the Airport.

The ALP drawings were prepared in accordance with FAA design standards for Airport Reference Code (ARC) B-II. Aircraft within ARC B-II include Cessna Citation Jet or Beech King Air.

The following publications were used during the drawing preparation:

- FAA Advisory Circular 150/5300-13A, *Airport Design*
- FAA Advisory Circular 150/5070-6B, *Airport Master Plans*
- Federal Aviation Regulations, Part 77, *Objects Affecting Navigable Airspace*

The major proposed facilities on the ALP include a land release of property to the south of Runway 11-29, extending Runway 2-20 to 5,000 feet, and hangar construction.

### **6.3.2 Airport Airspace Plan**

The next two sheets of the ALP Drawing Set (ALP-5 and 6) illustrate the airspace requirements associated with Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*. Part 77.23 identifies a series of geometric planes (i.e., imaginary surfaces) that extend outward and upward from an airport's runways to define obstruction clearing requirements. These surfaces identify the maximum acceptable height of objects by defining three dimensional surfaces surrounding all sides of the airfield. When an object penetrates an imaginary surface, it is considered an airspace obstruction and may present a hazard to air navigation.

The height and dimensions of the imaginary surfaces are determined by the airfield elevation, design aircraft, and the type of approach to each runway end. The specific surfaces for HFD are described below.

Primary Surface: A surface longitudinally centered at the runway elevation extending 200 feet beyond each runway end. The width of the primary surface is 500 feet for the existing non-precision GPS IAP Runway 2-20. The width of the primary surface for Runway 11-29 is 250 feet as it is a utility runway with only visual approaches.

Horizontal Surface: A horizontal plane 150 feet above the airport elevation. As the elevation of Sidney Airport is 18 feet above mean sea level (AMSL), the horizontal surface is situated at 168 feet AMSL. The shape of the surface is created using radial arcs of 10,000 feet, from the ends of the primary surface, connected by lines tangent to the arcs.

Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1, for a horizontal distance of 4,000 feet. The elevation of the outer edge of the conical surface at HFD is 368 feet AMSL.

Approach Surface: Surfaces longitudinally centered on the extended runway centerlines, extending outward and upward from the ends of the primary surface. For HFD, the dimensions and slopes of the approach surfaces are listed in Table 6-3.

<b>Runway End – Current</b>	<b>Inner Width</b>	<b>Outer Width</b>	<b>Length</b>	<b>Slope</b>
Runway 2 (NPI)	500'	3,500'	10,000'	34:1
Runway 20 (Visual)	500'	1,500'	5,000'	20:1
Runway 11(Visual)	250'	1,250'	5,000'	20:1
Runway 29 (Visual)	250'	1,250'	5,000'	20:1

Transitional Surface: Surfaces extending outward and upward at right angles from the sides of the primary and approach surfaces at a slope of 7 to 1. The transitional surfaces terminate at the overlying horizontal surface.

Objects that penetrate the imaginary surfaces are depicted on ALP-4 and ALP-5. Currently, there are numerous tree penetrations within the Inner Approach Surface. The State is currently working on a plan to remove these trees.

ALP-3, the Inner Approach Surface Plan and Profile Drawing, provides greater detail regarding the close-in airspace obstructions, particularly to the inner portions of each approach surface. For each obstruction, the height, penetration, ownership, and proposed action/disposition are indicated in the associated tables.

ALP-4, Airport Airspace Plan, illustrates the overall dimensions of the Part 77 surfaces, and highlights penetrations to the outer surfaces. As shown, there are some penetrations to the outer portions of the imaginary surfaces; including trees, utility poles, and buildings.

### **6.3.3 Land Use Plan**

This plan (ALP-6) depicts the existing and proposed land uses within proximity to the airport. More detailed information on the land use and zoning is located in Section 4.5 – Compatible Land Use & Zoning.

The majority of the Study Area within Hartford, CT includes commercial and industrial uses. These uses are located north and west of the Airport, along Murphy Road, Maxim Road, and Brainard Road. An open space area is located east and south of HFD, along the flood levee. According to the Hartford Zoning Map, dated February 11, 2008, HFD is zoned as an Industrial District (I-2). Properties located north and west of the Airport are also zoned as an Industrial District (I-2). No residentially-zoned districts are located within the City of Hartford in the immediate vicinity of HFD.

Land use immediately south of HFD, within the Town of Wethersfield, generally includes open space. The area consists of wetland and floodplain areas associated with the Connecticut River and Wethersfield Cove. Residential areas are located south and west of Wetherfield Cove, further away from HFD.

As discussed in Section 5.2.1 – Runway Protection Zone, for all four RPZs at HFD, there is a total of nearly 40 acres beyond the airport property boundaries. As the property is not owned or controlled by the airport, the FAA guidance recommends acquiring avigation easements.

Land use compatibility is also related to airport noise exposure. The FAA uses a Day-Night Average Sound Level (DNL) expressed in decibels (dB), which is a 24-hour average noise level used to define the level of noise exposure on a community. The DNL represents the average sound exposure during a 24-hour period and does not represent the sound level for a specific noise event. The threshold of significance (i.e., noise impact) is when noise exposure over sensitive areas is at or above DNL 65 dB.

The current and future noise exposure anticipated at HFD is a maximum noise level of DNL 55 dB in locations beyond the airport property. The DNL 65 dB is situated with the airport property. Because the average airport-generated noise level is low, all land use surrounding the Airport (beyond the RPZs) is considered compatible. The noise contours are illustrated on ALP-6.

ALP-7 provides a detailed Airport Property Map, including acquisition history. The primary purpose of this sheet is to provide information indicating how various tracts of airport property were acquired (i.e., federal programs, local funds only, etc.). The map identifies for the FAA the aeronautical use of properties acquired with federal funds.