



**CHAPTER 8**  
FINANCIAL AND  
IMPLEMENTATION  
PLAN





# 8. Financial and Implementation Plan

This chapter presents the Airport Layout Plan (ALP) Drawing Set, Project Phasing Plan, Airports Capital Improvement Plan (ACIP), and Airport’s Capital Improvement Program (CIP) for the Tweed-New Haven Airport (HVN or the Airport), which comprise the final recommendations of the Master Plan Update (MPU) for the Airport. It also details the public participation process that informed the planning of the MPU for the Airport.

The proposed development depicted on the ALP Drawing Set is derived from the Preferred Airport Development Alternative presented in Chapter 7, *Alternatives Analysis*. The Project Phasing Plan presents a recommended phasing schedule for implementing the proposed improvements shown on the ALP over the 20-year planning period, while the CIP details the potential funding mechanisms and costs for implementing those projects. The ALP, Project Phasing Plan, ACIP, and CIP are all subject to review and comment by the Federal Aviation Administration (FAA). After final review and approval, these documents will become the final recommendations of the MPU.

The major components of this chapter are listed below:

- Airport Layout Plan Drawing Set
- Project Phasing and Capital Improvement Plan
- Sources of Funding and Project Eligibility
- Airport Financial Analysis
- Public Participation Process

## 8.1. AIRPORT LAYOUT PLAN DRAWING SET

The ALP Drawing Set has been prepared in accordance with generally accepted planning practices and FAA guidance materials, including the following:

- FAA Advisory Circular 150/5070-6B, *Airport Master Plans*
- FAA Advisory Circular 150/5300-13A, *Airport Design*
- FAA Advisory Circular 150/5360-9, *Planning and Design of Airport Terminal Facilities at Non-Hub Locations*
- FAA Advisory Circular 150/5360-13, *Planning and Design Guidelines for Airport Terminal Facilities*
- Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*
- FAA Standard Operating Procedures (SOP) ALP Checklist

The ALP Drawing Set for the Airport consists of a Title Sheet and 23 drawings as follows:

<u>Sheet No.</u>	<u>Title</u>
1	Existing Airport Layout Plan
2	Airport Layout Plan
3	Terminal Area Plan
4	Airport Airspace Plan



<u>Sheet No.</u>	<u>Title</u>
5	Outer Airport Airspace Plan
6	Inner Approach Plan Existing Runway 2
7	Inner Approach Plan Existing Runway 20
8	Inner Approach Plan Existing Tables
9	Inner Approach Plan Proposed Runway 2
10	Inner Approach Plan Proposed Runway 2 Tables
11	Inner Approach Short-Term Plan Runway 20
12	Inner Approach Short-Term Plan Runway 20 Tables
13	Inner Approach Plan Long-Term Runway 20
14	Inner Approach Plan Long-Term Runway 20 Tables
15	Departure Surface Runway 2
16	Departure Surface Runway 2 Tables
17	Departure Surface Runway 20
18	Obstruction Information
19	Land Use Plan
20	Land Use Tables
21	Airport Property Map
22	Airport Property Tables
23	Airport Environmental Inventory Map

The ALP Drawing Set is provided in **Appendix F**. Narrative descriptions of each of the drawings are provided below.

**8.1.1. Title Sheet**

The *Title Sheet* provides identifying information for the ALP Drawing Set. This information includes a drawing index listing each of the sheets within the set, as well as the specific FAA project number and information on the preparer of the document. Two maps are also placed on the title sheet to identify the location of the Airport within the context of the State of Connecticut (location map) and the area immediately adjacent to the Airport (vicinity map).

**8.1.2. Existing Airport Layout Plan**

Sheet 1, *Existing Airport Layout Plan*, provides the current configuration and existing airport facilities at HVN. Details shown include airport buildings, airport infrastructure, local roads and neighborhoods, property lines, and water bodies on or adjacent to the Airport. These details are based on aerial photography and photogrammetric mapping.

This sheet also serves as a base upon which development proposed within this MPU is placed upon. The current dimensions of the airside and landside facilities are depicted within the sheet, as well as the dimensions of applicable FAA safety and object free areas, protection zones, and other dimensions relevant to airport design. The sheet also includes a number of tables that provide relevant information about the Airport as required by the FAA. These tables include the runway data table, facilities table, runway safety area determination, modification to design standards, declared distances, airport data, and wind coverage. A title block and revisions table are also provided.



### 8.1.3. Airport Layout Plan

Sheet 2, *Airport Layout Plan*, illustrates the recommended development at HVN over the 20-year planning period and beyond. The ALP serves as the approved planning document for the Airport and is used by the FAA to allocate federal grant funding and to approve Passenger Facility Charge (PFC) collections for projects. As a result, this sheet is a key deliverable as part of the MPU. The major recommended airside and landside improvements depicted on the ALP are discussed in further detail below. The alternatives included within the ALP and described below were developed in consideration of safety and design standards. The tables included on the ALP sheet are similar to those included within Sheet 1, but also include information for future conditions. The sheet also includes signature boxes for the acceptance of the ALP by the Tweed-New Haven Airport Authority (TNHAA) and the FAA. The major recommended airside and terminal and landside (including general aviation (GA), terminal, and support facilities) improvements depicted on the ALP are described in the following sub-sections.

#### *Airside Improvements*

The airside development presented on the ALP is derived from the recommended alternative selected in Chapter 7, *Alternatives Analysis*. The major airside alternatives address:

- Meeting and exceeding current FAA design standards, to the extent practicable
- Improving the airfield to meet FAA geometry standards, to the extent practicable
- Acquiring properties to meet FAA design standard and protect airspace

The primary airside development components are described below.

#### **Runway Extension**

The preferred alternative proposed a runway extension to both the Runway 2 and Runway 20 ends. The Runway 2 end will be lengthened by 699 feet and install a 200-foot by 635-foot engineered materials arresting system (EMAS). The Runway 20 end will be lengthened by a 336-foot displaced threshold.

#### **Taxiway Modifications**

The preferred alternative shows the construction of a full parallel taxiway on the east side of Runway 2-20 and a partial parallel taxiway on the west side of Runway 2-20. This alternative also shows the removal of multiple non-standard taxiways along with the removal of the portions of closed Runway 14-32.

#### **Land/Easement Acquisition**

It is recommended that runway protection zones (RPZs) be under Airport control. Approximately 50.3 acres of land with the RPZs are off Airport property and are recommended to be acquired via fee simple or avigation easement on a willing seller basis. It is also recommended that approximately 0.2 acres of land within the proposed Taxiway A taxiway object free area (TOFA) be acquired.



## Terminal and Landside Improvements

The terminal and landside developments presented on the ALP are derived from the recommended alternatives selected in Chapter 7, *Alternatives Analysis*, for the terminal, GA, and other landside facilities. The primary improvements recommended within each of the landside development components are described below.

### Terminal

A new passenger terminal, along with a new proposed terminal apron, on the east side of airfield is depicted on the ALP. The new terminal will be located on the former/closed crosswind runway. This terminal will be approximately 50,000 square feet (SF) accompanied by an approximately 440,000 SF parking lot and a new access road. The proposed apron is approximately 12,000 square yards with room to expand on either side should demand warrant in the future.

### General Aviation

While the planning period facility requirements did not identify a need for specific facilities, the ALP shows areas where the Airport could expand GA opportunities should activity grow faster than forecast and as demand warrants.

### Landside

Improvements to the landside facilities at the Airport include the expansion of the aircraft rescue and firefighting (ARFF) building, expansion of the fuel farm, and expansion of maintenance/snow removal equipment (SRE) building.

#### 8.1.4. Terminal Area Plan

Due to the significant number of changes proposed within the terminal area, Sheet 3, *Terminal Area Plan*, has been included at a scale to clearly illustrate all changes that have been proposed within the vicinity. Sheet 3 depicts an expanded view of the proposed terminal area and provides a more detailed layout of the proposed terminal and GA development, including the construction of a new passenger terminal and terminal apron on the east side of the airfield, proposed terminal parking lot, ARFF building expansion, maintenance/SRE building expansion, fuel farm expansion, and proposed aeronautical development areas. Open areas on the Airport are either protected for wetlands (or expanded wetlands) and aeronautical use; no non-aeronautical areas have been identified.

#### 8.1.5. Airport Airspace Plans

Title 14 of the CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, describes the airspace surrounding airports through the establishment of “Imaginary Surfaces,” which include the primary, approach, transitional, horizontal, and conical surfaces.

Sheets 4 and 5 depict the 14 CFR Part 77 Imaginary Surfaces for HVN. Sheet 4, the *Airport Airspace Plan*, depicts those imaginary surfaces directly adjacent to, and above the Airport, while Sheet 5, *Outer Airport Airspace Plan*, shows the outer areas of the precision approach surface to Runway 2, which extends out 50,000 feet from the end of the runway. The intent of the airport airspace



plans is to identify obstructions to all the 14 CFR Part 77 surfaces outside of the inner approach surfaces, which are detailed in later sheets.

The 14 CFR Part 77 surfaces are shown over a United States Geological Survey (USGS) map to orient the surfaces over the Airport and surrounding community. USGS quadrangles that make up this area are shown on the plan. Additionally, an isometric view of the 14 CFR Part 77 surfaces is shown to provide an understanding of what is being depicted in a three-dimensional view.

Based on the analysis of the 14 CFR Part 77 surfaces identified on these sheets, vegetation is the predominant horizontal and conical surface penetration, along with man-made obstructions such as power lines and power poles, among others.

#### 8.1.6. Existing Inner Approach Surface Plans

Sheets 6 through 8 depict close-in obstructions to the existing 14 CFR Part 77 primary, approach, and transitional surfaces, as well as obstructions to the appropriate surfaces identified in FAA's Airport Design Approach Surface (ADAS) approach/departure standards (also known as threshold siting surfaces). The sheets include both plan and profile views of the runway, the RPZ, and the various surfaces. A composite view of obstructions in the profile view illustrates the height of obstructions relative to the runway elevations. Obstructions to the various imaginary surfaces are identified with a symbol and a numeric identifier.

The obstruction tables, included on Sheet 8, list the obstructions, elevation of the surface and object, and the degree of each penetration (or near penetration). A recommended action is also presented for each obstruction. The obstruction tables indicate that most of existing obstructions are trees or other vegetation. These obstructions should be removed where feasible. In instances where removal of vegetation obstructions, fences, poles, buildings, railroad, vehicle, and ground obstructions may not be feasible, the installation of obstruction lights could be considered.

#### 8.1.7. Proposed Inner Approach Surface Plans

Sheets 9 through 14 depict close-in obstructions to the proposed Runway 2 and short-term and long-term Runway 20 14 CFR Part 77 primary, approach, and transitional surfaces, as well as obstructions to the appropriate ADAS. The sheets include both plan and profile views of the runway, the RPZ, and the various surfaces. A composite view of obstructions in the profile view illustrates the height of obstructions relative to the runway elevations. Obstructions to the various imaginary surfaces are identified with a symbol and a numeric identifier.

The obstruction tables included on each of the sheets list the obstructions, elevation of the surface and object, and the degree of each penetration (or near penetration). A recommended action is also presented for each obstruction. The obstruction tables indicate that most of existing and proposed obstructions are trees or other vegetation. These obstructions should be removed where feasible. In instances where removal of vegetation obstructions, fences, poles, buildings, railroad, vehicle, and ground obstructions may not be feasible, the installation of obstruction lights could be considered.



### 8.1.8. Departure Surface Plans

The development of plan sheets assessing ADAS #9 (departure surface) is considered optional and depicts departure surfaces associated with instrument departures. Sheets 15 through 17 depict the close-in obstructions to the departure surface based on the existing runway configuration for Runways 2-20. Obstructions identified within the departure surfaces affect departure minimums (cloud height and visibility). Objects within the surface should be removed, if possible, to maintain the lowest possible departure minimums.

Obstructions to the departure surface can be addressed in two ways at the Airport per FAA guidelines. If an obstacle cannot be removed, non-standard climb rates and/or non-standard departure minimums can be established to mitigate the potential hazard these obstacles pose to aircraft. All obstacles to the departure surfaces for each runway end are identified within the tables on the plan, including the type of obstruction, the elevation of the object, the elevation of the surface, the level of penetration, and the proposed action. Obstructions identified to the existing and future departure surface to Runway 2-20 are primarily trees, utility lines, buildings, and poles.

### 8.1.9. Airport Land Use Plan

Sheets 19 and 20, *Land Use Plan* and *Land Use Tables*, respectively, provide general guidance for future land development on and adjacent to Airport property. Since aircraft noise is a major factor influencing land use compatibility, FAA's Aviation Environmental Design Tool (AEDT) was used to plot noise levels in the year 2040 based upon the forecasted activity. The forecast chapter of this MPU estimated approximately 28,000 total operations by the end of 2040.

The AEDT estimates aircraft noise levels (in decibels – dB) at ground level. Noise levels were quantified according to the A-weighted scale (which approximates the range of human hearing) using the Day-Night Average Noise Level (DNL). A DNL of 65 dB is considered by the FAA to be the threshold of impact for noise sensitive areas. The AEDT output includes noise contours, which are lines of equal loudness, with higher levels centered on the runway and quieter levels expanding outward.

As shown on Sheet 19, the 65 dB noise contours do not extend off Airport property except for a few small areas. The areas where it extends include a roadway, some residential, and light industrial zones bordering the Airport.

Existing land uses and zoning boundaries, including, but not limited to, residential, commercial, industrial, and vacant are shown on Sheet 19.

In addition to land use, this sheet also contains the RPZ Control Plan. Both RPZs depicted on Sheet 19 include portions of parcels that extend beyond the current boundary of the Airport. Easements are in place for a portion the Runway 2 RPZ. Residential land uses are present within both RPZs for Runway 2 and Runway 20. Guidance included within the FAA Memorandum on *Land Use Compatibility and Airports, a Guide to Effective Land Use* notes that residential land uses are not considered compatible within an RPZ. It is recommended that the Airport pursue the acquisition of aviation easements or in fee simple on a willing seller basis, to improve future control within



the RPZs. Sheet 19 shows these areas to be acquired in easement or fee simple on a willing seller basis.

#### 8.1.10. Airport Property Map

Sheets 21 and 22, the *Airport Property Map* and *Airport Property Tables*, respectively, identify the Airport's current property boundaries as obtained through the TNHAA and the Cities of New Haven and East Haven. Sheet 21 shows all the individual properties and easements that make up the entire Airport. Sheet 22 shows tables that list all the properties that were acquired to date as well as proposed property acquisition via easement or fee simple on a willing seller basis. Information in the tables includes a numerical identifier, tax parcel number, the grantor, the grantee, acreage, the FAA grant number, record document, acquisition date, and notes.

#### 8.1.11. Environmental Inventory Map

Sheet 23, *Environmental Inventory Map*, provides a map of the Airport and the surrounding area and highlights major environmental areas on and off the Airport. This information includes Morris Cove historic district, natural diversity area, prime farmland soils, statewide important farmland soils, coastal boundary, previously delineated wetlands, Freshwater Health Index wetlands 2019, National Wetlands Inventory wetland cover types (freshwater forested/shrub wetland, freshwater emergent wetland, estuarine wetland, estuarine deep water, and freshwater pond), and Federal Emergency Management Agency floodplains (zone AE and 0.2 percent annual change flood hazard).

The purpose of the map is to provide a reference for key environmental features around the Airport. It will serve as a reference for future development that may occur at the Airport beyond those projects outlined in this MPU.

### 8.2. PROJECT PHASING AND CAPITAL IMPROVEMENT PLAN

The phasing plan presents a phased implementation of 20-year planning projects identified on the ALP as well as other major projects such as design and environmental projects. Projects that are not included in the phasing plan are projects such as basic airfield maintenance and long-term pavement rehabilitation projects.

#### 8.2.1. Project Identification

Projects identified in the Airport's development plan are a response to identified facility or user needs and programed based on a reasonable expectation of when demand warrants and funding becomes available. The identification of projects is determined through recommendations resulting from Master Plan findings, in which the assignments of project priorities, phasing, and estimated costs were consulted with Airport staff. The following sources of project improvements have been reviewed for incorporation into the 20-year airport development plan:

- Existing ACIP fiscal year (FY) 2022 to FY 2026 (dated 2020)
- Airport operating and maintenance improvement needs
- Airport MPU recommendations





### 8.2.2. Project Phasing Periods

The phasing recommendations have been developed to coordinate with the aviation forecasts presented in Chapter 4 of this MPU. The forecasts project aviation demand through 2040 from a base year of 2019. Because funding for FY 2021 has already been allocated, the projects shown in the CIP begin with FY 2022 projects. The Phasing Plan has been divided into four phases as follows:

- Phase I covers the short-term airport growth (2022 to 2026)
- Phase II covers the medium-term airport growth (2027 to 2031)
- Phase III covers the long-term airport growth (2031 to 2040)
- Phase IV covers the airport growth beyond the 20-year planning period or as demand warrants

### 8.2.3. Capital Improvement Projects

Table 8-1 presents the proposed phasing of projects over the 20-year planning period. Projects were phased to prioritize addressing immediate needs in Phase I. These projects include Runway 2 and 20 extensions and EMAS, on-going land/easement acquisition/obstruction removal, taxiway reconfiguration phase I, east side terminal building, east side terminal apron, noise mitigation, a Part 150 noise exposure map update, and a fuel farm expansion. Phase II, or medium-term, projects include ARFF building expansion, on-going land/easement acquisition/obstruction removal, maintenance/SRE building expansion, and taxiway reconfiguration phase II. Phase III includes projects that address long-term needs and meet long-term aviation demand, including on-going land/easement acquisition/obstruction removal and taxiway reconfiguration phase III.

The phasing plan may change if forecasted demand changes. If aviation demand is less than forecasted, then demand-based projects may be deferred to a later date. However, should demand increase, these projects would be moved to an earlier timeframe. The phasing plan may also be altered if federal, state, or local monies are not available. Phases I, II, III, and beyond the 20-year planning period (Phase IV) are shown in Figure 8-1.

Table 8-1: Capital Improvement Program Phasing Plan

Description	Total Cost	FAA	Local
<b>Phase I Projects (2022-2026)</b>			
Runway 2-20 Extensions and EMAS - Design	\$1,563,200	\$1,406,880	\$156,320
Land Acquisition/ Obstruction Removal (2022)	\$500,000	\$450,000	\$50,000
Runway 2-20 Extensions and EMAS - Construction	\$15,632,000	\$14,068,800	\$1,563,200
Land Acquisition/ Obstruction Removal (2023)	\$500,000	\$450,000	\$50,000
Taxiway Reconfiguration Phase I: Full-Length Parallel Taxiway A (Terminal Area) - Design	\$290,000	\$261,000	\$29,000
Taxiway Reconfiguration Phase I: Full-Length Parallel Taxiway A (Terminal Area) - Construction	\$2,900,000	\$2,610,000	\$290,000
East Side Terminal Building, and Landside Development – Design <sup>1</sup>	\$3,990,800		
Land Acquisition/ Obstruction Removal (2024)	\$500,000	\$450,000	\$50,000



Description	Total Cost	FAA	Local
East Side Terminal Building and Landside Development – Construction <sup>1</sup>	\$39,908,000		
East side Terminal Apron - Design	\$420,000	\$378,000	\$42,000
East side Terminal Apron - Construction	\$4,200,000	\$3,780,000	\$420,000
Land Acquisition/ Obstruction Removal (2025)	\$500,000	\$450,000	\$50,000
Noise Mitigation	\$2,040,000	\$1,836,000	\$204,000
Land Acquisition/ Obstruction Removal (2026)	\$500,000	\$450,000	\$50,000
Part 150 Noise Exposure Map Update	\$200,000	\$180,000	\$20,000
Expand Fuel Farm	\$720,000	\$648,000	\$72,000
<b>Total Phase I Costs</b>	<b>\$74,364,000</b>	<b>\$27,418,680</b>	<b>\$3,046,520</b>
<b>Phase II Projects (2027-2031)</b>			
Expand ARFF Building	\$900,000	\$810,000	\$90,000
Land Acquisition/Obstruction Removal (2027)	\$500,000	\$450,000	\$50,000
Expand Maintenance/SRE Building	\$5,500,000	\$4,950,000	\$550,000
Land Acquisition/ Obstruction Removal (2028)	\$500,000	\$450,000	\$50,000
Taxiway Reconfiguration Phase II: Full-Length Parallel Taxiway A (Runway 20 to East Ramp) – Design	\$177,000	\$159,300	\$17,700
Land Acquisition/ Obstruction Removal (2029)	\$500,000	\$450,000	\$50,000
Taxiway Reconfiguration Phase II: Full-Length Parallel Taxiway A (Runway 20 to East Ramp) – Construction	\$1,770,000	\$1,593,000	\$177,000
Land Acquisition/ Obstruction Removal (2030)	\$500,000	\$450,000	\$50,000
Land Acquisition/ Obstruction Removal (2031)	\$500,000	\$450,000	\$50,000
<b>Total Phase II Costs</b>	<b>\$10,847,000</b>	<b>\$9,762,300</b>	<b>\$1,084,700</b>
<b>Phase III Projects (2032-2040)</b>			
Land Acquisition/ Obstruction Removal (annually) <sup>2</sup>	\$4,500,000	\$4,050,000	\$450,000
Taxiway Reconfiguration Phase III: Partial Parallel Taxiway B – Design	\$474,400	\$426,960	\$47,440
Taxiway Reconfiguration Phase III: Partial Parallel Taxiway B – Construction	\$4,744,000	\$4,269,600	\$474,400
<b>Total Phase III Costs</b>	<b>\$9,718,400</b>	<b>\$8,746,560</b>	<b>\$971,840</b>
<b>Phase IV projects (Beyond 20-Year Planning Period)</b>			
Upgrade Runway 2 MALSF to MALSR	\$3,000,000	\$2,700,000	\$300,000
Taxiway Reconfiguration Phase IV: Full-Length Parallel Taxiway A (Runway 2 to Terminal Area) – Design	\$678,200	\$610,380	\$67,820
Taxiway Reconfiguration Phase IV: Full-Length Parallel Taxiway A (Runway 2 to Terminal Area) – Construction	\$6,782,000	\$6,103,800	\$678,200
<b>Total Phase IV Costs</b>	<b>\$10,460,200</b>	<b>\$9,414,180</b>	<b>\$1,046,020</b>
<b>Total Program Costs (2022-2040+)</b>	<b>\$105,389,600</b>	<b>\$55,341,720</b>	<b>\$6,149,080</b>



Description	Total Cost	FAA	Local
<b>As Demand Warrants Projects<sup>1</sup></b>			
10-unit T-Hangar	\$700,000	\$0	\$0
50' by 50' Box Hangar	\$300,000	\$0	\$0
100' by 100' Conventional Hangar	\$1,500,000	\$0	\$0
170' by 155' Conventional Hangar	\$3,952,500	\$0	\$0

<sup>1</sup> Privately funded projects, <sup>2</sup> Amounts counted nine times towards total Phase III costs  
*Sources: Airport Management; McFarland Johnson, 2021.*

As shown in **Table 8-1**, cost estimates are shown and then for eligible projects, broken down into federal and local shares. Projects more appropriately funded through private sources only depict a total cost estimate. As shown, all projects, with the exception of the east side terminal hangar and local landside development and hangars, are eligible for funding through federal and local dollars. Federal funding accounts for 90 percent of these project costs while the local share is 10 percent. The local share through the planning period is approximately \$6.2 million, which averages to approximately \$324,000 annually.

### 8.3. SOURCES OF FUNDING AND PROJECT ELIGIBILITY

To cover project costs as well as the local share, HVN has several ways in which to fund projects. They are summarized in the following sections.

- FAA funding
- State funding
- Local funding options

#### 8.3.1. FAA Funding

The funding as shown in **Table 8-1** represents the following breakdown for projects eligible for funding through the FAA's Airport Improvement Program (AIP) for HVN:

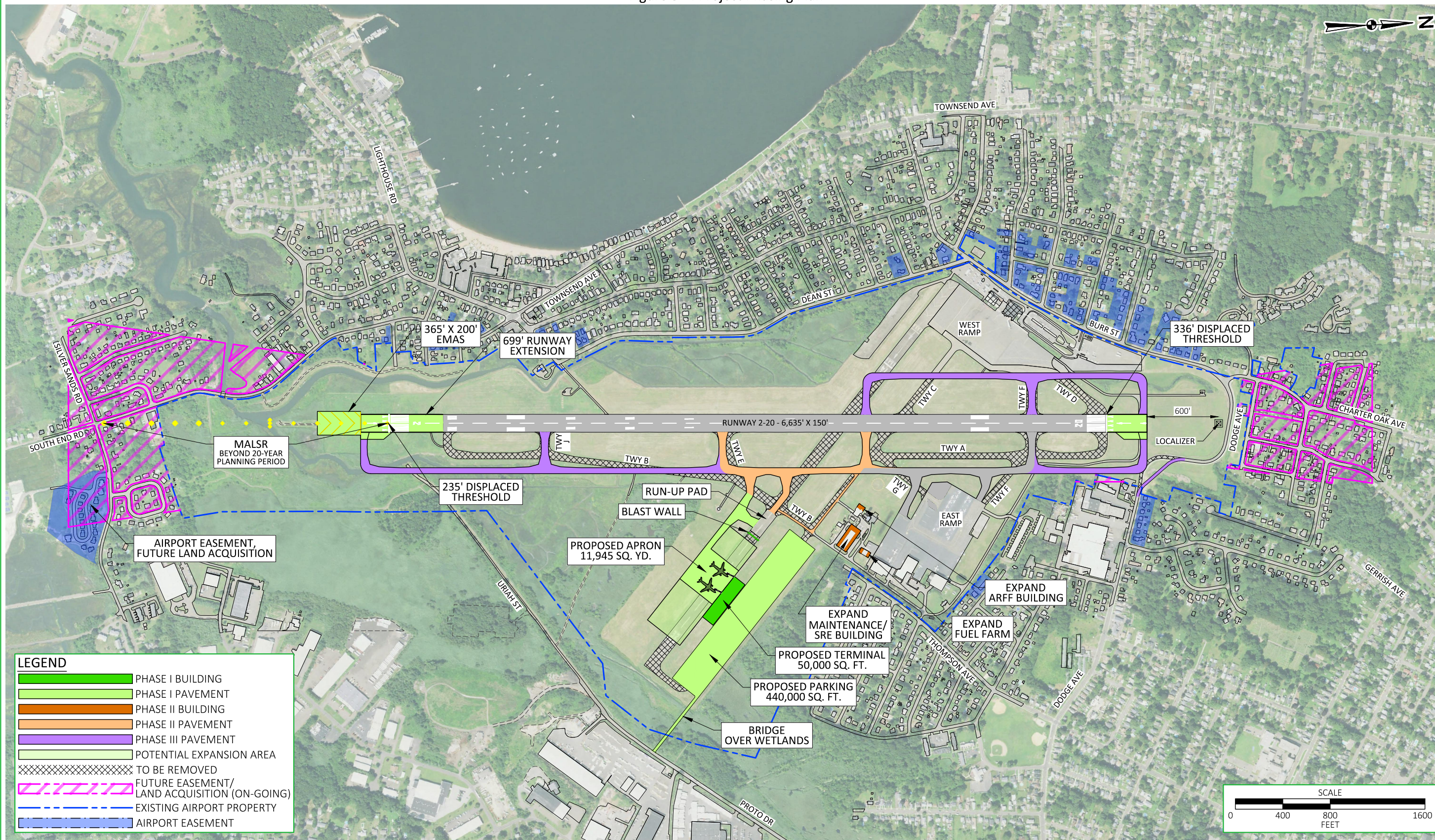
- FAA share – 90 percent
- Local share – 10 percent

For public-use facilities like HVN, the FAA AIP provides up to 90 percent funding for public, non-revenue generating elements of the Airport such as runways, taxiways, aprons, and lighting, as well as necessary planning and environmental studies. The remaining ten percent is the responsibility of the Airport sponsor. FAA funding available for the HVN capital program is as follows:

- **Entitlement Funds:** The Airport receives entitlement funding from the FAA based on the number of passengers that are enplaned at the Airport annually. Entitlement funding is applied to projects eligible for federal funding.



Figure 8-1: Project Phasing Plan





This page intentionally left blank.



- **Discretionary Funds:** Funding above the entitlement amount is obtained from the FAA through discretionary funding. It should be noted that discretionary funding is competitive. Therefore, HVN competes for these funds nationally as well as with regional airports.

### 8.3.2. State Funding

Presently, there is no state share for federally funded projects. State funding from the Connecticut Airport Authority (CAA) to the Airport is provided through a subsidy. This subsidy is in the amount of \$125,000 a month or \$1,500,000 annually. However, with the new agreement put into place with Avports (see **Section 8.4.3**), the subsidy will be phased out and HVN will no longer receive money from CAA. This money is calculated as part of Airport operating revenues and can be utilized to aid in the local match for CIP projects.

### 8.3.3. Local Funding Options

The local share for federally funded projects at HVN is ten percent. HVN has several options to fund their local share, which are summarized in this section.

#### *Passenger Facility Charges (PFCs)*

With oversight from the FAA, HVN has the authority to collect PFCs up to \$4.50 for each passenger enplaning at the Airport. PFCs are collected by the air carriers on behalf of the Airport and are remitted monthly. HVN has been utilizing PFCs since 1993, with a current program in place through January 1, 2025, at the current FAA-approved level of \$4.50 per enplanement. Approved collections for all approved PFC applications at the Airport total \$4,957,187.

PFCs can be utilized on projects that are considered AIP eligible, as well as for additional improvements to the passenger terminal. A summary of eligible uses of PFC revenues include:

- All or part of the allowable cost of an FAA approved project,
- Debt service and financing costs associated with bond issuance, and
- Combined with AIP and aviation capital grants on eligible projects as the local match to reach 100 percent funding.

To be considered eligible for PFC funding, projects must meet certain criteria and address one or more of the following:

- Preserve or enhance safety, security, or capacity of the national air transportation system,
- Reduce noise or mitigate noise impacts resulting from an airport, and
- Present opportunities to enhance competition between or among air carriers.

Use of PFC collections is restricted to projects identified in the PFC application and approved by the FAA. To fund new projects added to the CIP from this Master Plan, the existing PFC program at HVN can be amended or extended by following the FAA application projects.



### *Airport Operations Revenues and Subsidies*

HVN has the option to utilize any operating surplus income or subsidies from the City of New Haven and CAA to fund airport improvements. The City of New Haven provides a \$325,000 annual subsidy to assist with the local share of projects and, as stated previously, CAA provides an annual subsidy of \$1.5 million. Both subsidies are included in the Airport's operating revenues. Depending upon the financial performance of the Airport and continuation of subsidies, funding may not be available consistently. Therefore, funding projects through HVN operating revenues and subsidies are likely most appropriate to bridge gaps in federal and PFC revenue for eligible projects, or for projects that are not eligible for grant funding.

### *Private Funding*

For HVN, there are several projects identified as privately funded, such as GA hangar development. These types of projects are most appropriate for private funding because airports are not often positioned to spend limited public resources on speculative projects.

However, in some instances project funding can be mobilized more quickly by partnering with private interests to advocate for state tax incentives or job creation tax credits if the projects are of a substantial scale and scope. In this way, HVN can partner with private interests to broker development deals that will benefit the Airport over the long term by increasing operations, utilizing other on-airport maintenance providers, and increasing fuel sales.

### *Public Financing or Bonding*

For large projects that are not eligible for federal funding but may have widespread local public impact and interest, airports can use municipal bonds. Airports frequently utilize capital market bonds to finance long-term construction projects. There are four basic types of municipal bonds available to the Airport: general obligation (GO) bonds, general airport revenue bonds (GARB), PFC-backed bonds, and special facility bonds. Bond proceeds are the largest sources of funds for airport capital needs nationwide<sup>1</sup>.

A summary of these bonds is as follows:

- **GO Bonds:** Supported by the overall tax base of the issuing entity (the airport sponsor), GO bonds often carry the lowest interest rate.
- **GARB:** Repaid by the revenues generated by the airport, or other revenues as defined in the bond indenture, GARBs are the most common form of airport debt.
- **PFC-Backed Bonds:** Either stand-alone or "double-barrel", PFC-backed bonds are backed solely by PFC revenues or by PFC revenues and other airport revenues generated by rentals, fees, and charges. General airport revenues can be pledged as a backup if enplanement activity decreases and PFC revenues do not meet the obligation.

---

<sup>1</sup> Airports Council International – North America



- **Special Facility Bonds:** Special facility bonds are used to construct a terminal or facility for a named airline and are backed by lease payments which are structured to cover debt service to the bonds.

Depending on the nature of the projects being financed by the airport, most bonds are considered a special form of municipal bonds called private activity bonds (PABs). Often, PABs are subject to the Alternative Minimum Tax, thereby raising the return demanded by the investor and the financing costs for the airport.

#### 8.4. AIRPORT FINANCIAL ANALYSIS

This section describes and summarizes information and analysis related to the financial performance of the Airport, and is presented in the following sections:

- Airport governance, management, and business policies
- Historical operating revenues and expenses
- Future airport operating financial performance
- Summary of capital program funding needs

##### 8.4.1. Airport Governance, Management, and Business Policies

HVN is owned by the City of New Haven and is operated by the TNHAA. The TNHAA is comprised of four executive board members and eleven board of directors. The TNHAA has partnered with Avports for more than 20 years for the management and operation of the Airport.

HVN maintains policies that provide structure to the operating environment at the Airport and protect the interests of the Airport and the public. These policies govern the operations of airlines providing scheduled commercial passenger service and GA businesses offering services to aircraft operators and the public. At HVN, policies include minimum standards for aeronautical business operators and lease and use agreements with airlines. A brief review of these policies was performed and is summarized in the following sections.

##### *Minimum Standards*

The objective of minimum standards as set forth in FAA (Advisory Circular 150/5190-7, *Minimum Standards for Commercial Aeronautical Activities, 2006*) is to promote safety in all Airport activities, protect Airport users from unlicensed and unauthorized products and services, maintain and enhance the availability of adequate services for all Airport users, promote the orderly development of Airport land, and ensure efficiency of operations. Additionally, for public-use airports that accept federal grants through the FAA's AIP program, minimum standards also aid those airports in complying with FAA grant assurances pertaining to Economic Discrimination (Grant Assurance 22) and Exclusive Rights (Grant Assurance 23).

Minimum standards at HVN set the threshold of entry for current and future operators, such that they are applied objectively and uniformly, and avail the opportunity to any entity that can meet the standards provided suitable space is available for the conduct of the operation.





The Minimum Standards in place at HVN (revised July 24, 2008) are thorough and well-organized, stating up front that the TNHAA and commercial aeronautical operators are subject to Federal obligations in Grant Agreements and applicable Federal regulations. A written agreement, permit, or lease is required for any entity conducting business on the Airport, which shall be compatible with the Minimum Standards, which defining requirements for 17 variants of aeronautical operators that may come to HVN, including:

- Air cargo providers, air passenger carriers, aircraft charter, and air taxi
- Aircraft sales and rental, flight training, repair facilities, and flying clubs
- Fixed Base Operators (FBOs) and specialized aircraft repair services

The minimum standards also detail requirements for aeronautical operators providing multiple services, those conducting commercial and non-commercial self-serve fueling, operators providing commercial hangars for lease, and sub-lease agreements between HVN tenants.

To ensure that patrons of commercial aeronautical operators at HVN are properly serviced and both the public and the Airport is protected, the Minimum Standards address issues such as financial responsibility, experience, insurance, motor vehicle operation, hours of operation, general maintenance, and upkeep of leased premises.

### *Signatory and Non-Signatory Airline Agreements*

HVN also maintains agreements with commercial air carriers providing scheduled passenger service. At the time of this writing (Spring 2021), American Airlines is the single airline operating from the Airport. Avelo Airlines is scheduled to start service in the third quarter of 2021.

There are generally two types of airline use and lease agreements between airports and airlines, signatory and non-signatory agreements, as follows:

- **Signatory Airline:** As described in the FAA's *Airport Compliance Manual, Order 5190.6B*, a signatory airline is one that commits to a long-term agreement with an airport, leasing space in airport facilities that supports the development and operation of the airport. The debt for airport facilities is typically secured by signatory tenant leases. In return for their financial commitment, signatory carriers may have a rate, fee, and rental structure that differs from non-signatory carriers that choose not to make the same financial commitment.
- **Non-Signatory Airline:** A non-signatory airline does not make the same commitment to the Airport, which is often on a month-to-month term basis and with a separate rate, fee, and rental structure for the use of airport facilities. Obligations for non-signatory carriers are generally less restrictive than that imposed on signatory airlines; however, rights of use for spaces in the terminal building are assigned by the Airport and can be less preferable than space allocations negotiated by signatory airlines.

The combination of HVN's ownership and governance structure and management agreement with Avports for operation and management of the facility has a direct impact on the financial performance of the Airport.



### 8.4.2. Historical Operating Revenues and Expenses

Historical revenue and expense statements for HVN were provided by Airport management for the 2017-2020 period. Financial information for the 2017-2019 period gives some indication of trends that can be useful for forecasting future financial performance. Given the impacts of the COVID-19/Coronavirus pandemic, financial information for 2020 is separated from the previous 3-year period. **Table 8-2** shows the historical revenues and expenses from the audited financial statements for the 2017-2020 period, and the compound annual growth rate (CAGR) for that period. Financial results for 2020 and the growth rate for 2019-2020 is included for comparison purposes.

**Table 8-2: Historical Operating Revenues and Expenses**

Category	2017	2018	2019	CAGR	2020	CAGR
<b>Operating Revenues</b>						
Air Carrier Landing Fees	\$51,879	\$ 62,796	\$74,462	20%	\$116,682	57%
GA Landing Fees	\$152,655	\$141,094	\$138,227	-5%	\$123,852	-10%
FBO Fuel Flowage	\$114,449	\$105,491	\$107,032	-3%	\$80,028	-25%
Air Carrier Fuel Flowage Fee	\$21,790	\$25,573	\$ 34,670	26%	\$33,626	-3%
Airport Auto Parking	\$182,907	\$224,053	\$271,752	22%	\$224,352	-17%
Terminal & Rental Car Rent	\$68,729	\$68,694	\$66,633	-2%	\$119,496	79%
Land/Lease Rent	\$111,543	\$112,475	\$118,723	3%	\$118,694	0%
Parking Space Rentals	\$34,929	\$27,800	\$29,080	-9%	\$34,080	17%
City of New Haven Subsidy	\$325,000	\$325,000	\$325,000	0%	\$325,000	0%
CAA Subsidy	\$1,480,000	\$1,500,000	\$1,500,000	1%	\$1,500,000	0%
Miscellaneous	\$5,840	\$5,344	\$5,280	-5%	\$4,049	-23%
Rental Car Concessions	\$216,572	\$202,288	\$233,003	4%	\$197,813	4%
CARES Act Grant	-	-	-	-	\$77,362	N/A
<b>Total Revenues</b>	<b>\$2,766,293</b>	<b>\$2,800,607</b>	<b>\$2,903,861</b>	<b>2.5%</b>	<b>\$2,955,034</b>	<b>1.8%</b>
<b>Operating Expenses</b>						
Airport Expenses	\$609,742	\$731,074	\$757,745	11%	\$641,965	-15%
Airport Insurance	\$59,838	\$62,070	\$69,123	7%	\$83,601	21%
Airport Payroll & Benefits	\$1,256,373	\$1,259,947	\$1,375,727	5%	\$1,545,153	12%
Authority Management	\$132,490	\$137,867	\$94,852	-15%	\$72,632	-23%
Legal	\$235,823	\$138,915	\$140,376	-23%	\$115,944	-17%
Marketing	\$38,914	\$35,395	\$28,610	-14%	\$74,364	160%
ASD Fund	\$98,867	\$101,833	\$75,000	-13%	\$77,250	3%
AFCO AvPorts	\$291,773	\$279,021	\$280,000	-2%	\$357,568	28%
Miscellaneous	\$14,182	\$16,125	\$30,842	47%	\$10,864	-65%
<b>Total Expenses</b>	<b>\$2,738,003</b>	<b>\$2,762,249</b>	<b>\$2,852,277</b>	<b>2.1%</b>	<b>\$2,979,341</b>	<b>3.5%</b>
<b>Net Income/ (Deficit)</b>	<b>\$28,290</b>	<b>\$38,359</b>	<b>\$51,585</b>	<b>35%</b>	<b>(\$24,307)</b>	<b>N/A</b>

Source: Airport Management, 2020.



As shown in **Table 8-2**, operating revenues at HVN have grown at a CAGR of 2.5 percent between 2017 and 2019. In 2020, operating revenues were maintained at nearly two percent increase thanks to operating support from the CARES Act grant in 2020 of about \$77,400. Revenues from airline activity in the form of landing, fuel flowage, and passenger auto parking fees have shown the largest steady average annual growth during the period. During 2020, airline landing fees continued to grow as did revenues from terminal and rental car space rents and parking space rentals.

During the same period, operating expenses increased at an average annual rate of approximately two percent. Increases in airport expenses, insurance, and payroll costs were offset by large decreases in expenses related to authority management, legal and accounting, marketing, and air service development costs. Overall, HVN performed well during the 2017-2019 period, producing a net income that grew by more than 80 percent. The impacts of the global pandemic pushed expenses to nearly \$3 million - the highest level over the period, which was driven by increases in insurance and payroll and additional spending for marketing, air service development, and to Avports.

*Airport Revenues from Lease Agreements and Tenant Fees*

Aeronautical operators at HVN are charged a variety of fees associated with their activities. Charges and fees are based on rates established by the Airport but can be the subject of negotiation. Rates and charges of fees at airports can vary, but often consist of the following:

- Rent for terminal, hangars, parking, and building facilities
- Rent for undeveloped land for aeronautical and non-aeronautical uses
- Aircraft landing fees, parking/ramp, and tie-down fees
- Commissions on fuel flowage, operating revenues, and aircraft managed/brokered/sales

A summary of operating revenues from operator fees, facility rents, and tenant fees for the 2018-2020 period and budgeted for 2021 is presented in **Table 8-3**.

As indicated, revenues generated by these facilities during the 2018-2020 period, along with tenant and itinerant business activity drives fees to represent more than 35 percent of the Airport’s operating revenues. These revenue streams are critical to the long-term financial performance of the Airport, especially as it relates to the sponsor’s ability to self-fund or finance the short-term and long-term CIP projects.

For 2021, the HVN budget anticipates an overall 31 percent decline in revenues in these categories but includes a new revenue stream from jet bridge usage, which is budgeted for revenues of \$27,000.

**Table 8-3: Summary of Revenues from Facility Rents and User Fees**

Facility Rents & Tenant Fees	2018	2019	2020	2021 Budget
Air Carrier Landing Fees	\$62,796	\$74,462	\$116,682	\$116,682
GA Landing Fees	\$141,094	\$138,227	\$123,852	\$123,852
FBO Fuel Flowage	\$105,491	\$107,032	\$80,028	\$80,028



Facility Rents & Tenant Fees	2018	2019	2020	2021 Budget
Air Carrier Fuel Flowage Fee	\$25,573	\$34,670	\$33,626	\$33,626
Airport Auto Parking	\$224,053	\$271,752	\$224,352	\$224,352
Terminal & Rental Car Rent	\$68,694	\$66,633	\$119,496	\$119,496
Land/Lease Rent	\$112,475	\$118,723	\$118,694	\$118,694
Parking Space Rentals	\$27,800	\$29,080	\$34,080	\$34,080
Jet Bridge Usage Fee	-	-	-	\$27,000
Rental Car Concessions	\$202,288	\$233,003	\$197,813	\$112,698
<b>Total Facility Rents &amp; Tenant Fees</b>	<b>\$970,264</b>	<b>\$1,073,582</b>	<b>\$1,048,623</b>	<b>\$721,893</b>
Total Operating Revenues	\$2,800,607	\$2,903,861	\$2,877,672 <sup>1</sup>	\$2,508,547 <sup>1</sup>
Percentage of Total Operating Revenues	37%	37%	36%	28%

<sup>1</sup> Operating revenues shown for 2020 and 2021 Budget do not include operating grants from Department of Homeland Security for Law Enforcement Officers and CARES Act.

Source: *Airport Management, 2020.*

### Passenger Facility Charge Revenues

PFCs are a local fee-per-ticket collected by airlines on behalf of the Airport to fund capacity, safety, security, or environmental projects. Use of PFC collection monies is restricted to capital projects approved by the FAA; therefore, PFC collections has a significant impact on the Airport's ability to complete projects on the ACIP. **Table 8-4** shows a summary of PFC collections and expenditures from 2018 to 2019.

**Table 8-4: Summary of PFC Collections and Expenditures**

Category	2018	2019
Total Revenues	\$160,376	\$189,472
Total Expenses	\$956	\$20
Revenues in Excess of Expenditures	\$159,420	\$189,452
Fund Net Position – Beginning of the Year	\$254,531	\$259,019
Interfund Transfers	(\$154,932)	(\$229,009)
Fund Net Position – End of the Year	\$259,019	\$219,462

Source: *Airport Financial Statement, 2019.*

As shown in **Table 8-4**, \$160,376 were collected in 2018 while \$956 was spent. This left the Airport with \$159,420 in revenues after expenses. After factoring the balance from the beginning of the year and interfund transfers between the general fund and the PFC account to fund projects, the Airport ended the year with an overall balance of \$259,019. In 2019, \$189,472 were collected while only \$20 was spent. This left the Airport with \$189,452 in revenues after expenses. After factoring the balance at the beginning of the year from 2018 and the interfund transfers, the Airport ended the year with an overall balance of \$219,462. While revenues were up in 2019, as well as expenses being down, there were higher interfund transfers. Therefore, the overall balance at the end of the year was less than that of 2018.



### 8.4.3. Future Airport Operating Financial Performance

The future financial performance of HVN will depend upon the timeline of recovery from the COVID-19/Coronavirus pandemic, which hinges on recently announced (May 2021) service by startup Avelo Airlines to begin in the third quarter of 2021. Shortly after (June 2021) the TNHAA's long-term operating partner, Avports announced a proposal and agreement with the TNHAA that will have immediate and long-term impacts to passenger service, routes, and development at the Airport. The agreement calls for Avports, under a sublease of HVN facilities, to continue to operate and manage the Airport, and includes the renovate the existing terminal, finance and build a new terminal on the east side of the Airport, and extend the runway.

Additional highlights of proposed TNHAA and Avports agreement includes<sup>2</sup>:

- The plan will eliminate the need for existing subsidies from the City of New Haven and CAA, currently totaling approximately \$1.8 million each year.
- Avports will undertake and pay for the terminal renovations, new terminal construction, runway extension including a full environmental assessment, and a carbon-neutral passenger terminal.
- Operate and manage the Airport on behalf of the TNHAA for a period of 43 years, after which the improved assets will revert to the full control and ownership of the TNHAA and the community it serves.

During the period of the lease, Avports proposes to assume significant long-term operational risk and will invest in excess of \$100 million in capital. Under the proposed lease, Avports would assume responsibility for all capital projects and operating expenses, transferring significant financial risk from the TNHAA, City, and CAA.

During operations, Avports will pay rent and will make revenue-share payments to the TNHAA. The TNHAA would use this revenue to fund its operations and oversight functions and any additional funds would be placed in a special Airport reserve fund for unforeseen needs or capital requirements. As required by FAA assurances and sponsor compliance regulations, all money that the TNHAA receives from Avports will be used for Airport purposes.

#### *Anticipated Financial Changes*

The final terms of the agreement between the TNHAA and Avports is not known at this time. Based on this uncertainty, it is not yet clear how the commercial terms to the agreement will impact TNHAA's financial structure, the Airport's performance, or financial position will be for year-end 2021 and forward. Despite these uncertainties, it is reasonable to anticipate an improvement to the HVN's financial position and realization of break-even and/or modest net income over the near- and mid-term periods.

---

<sup>2</sup> <https://www.nbcconnecticut.com/news/local/officials-to-discuss-future-of-tweed-new-haven-airport/2481862/>



#### 8.4.4. Summary of Capital Program Funding Needs

The purpose of this section is to estimate the Airport’s ability to fund the local match of FAA-approved projects. As shown in **Table 8-5**, the short-, mid-, and long-term capital improvement needs at HVN are as follows:

**Table 8-5: Total HVN Long-Term Program Costs**

Description	Total Cost	FAA	Local	Private
Total Phase I Costs	\$74,364,000	\$27,418,680	\$3,046,520	\$43,898,800
Total Phase II Costs	\$10,847,000	\$9,762,300	\$1,084,700	\$0
Total Phase III Costs	\$9,718,400	\$8,746,560	\$971,840	\$0
Total Phase 20-Year+ Costs	\$10,460,200	\$9,414,180	\$1,046,020	\$0
<b>Total Program Costs (2022-2040+)</b>	<b>\$105,389,600</b>	<b>\$55,341,720</b>	<b>\$6,149,080</b>	<b>\$43,898,800</b>

Sources: Airport Management and McFarland Johnson, 2021.

As shown, total need surpasses \$105 million over the coming 20-year period. The proposed agreement between Avports and TNHAA includes more than \$100 million in investment for capital improvements primarily for a runway extension, renovations to the existing terminal building, and a new terminal on the east side of the Airport<sup>3</sup>. Based upon assumptions related to what is currently known about new service to be initiated by Avelo Airlines, proposed capital investments by Avports, it is assumed that the TNHAA will have the resources to fund the local match of FAA-eligible projects for the short-, mid- and long-term periods.

#### 8.5. PUBLIC PARTICIPATION PROCESS

The ALP Drawing Set, Project Phasing Plan, ACIP, and CIP are the culmination of a planning process that was designed to permit comment from interested parties. The planning process included Technical and Community Advisory Committees (TAC and CAC, respectively) meetings held at key stages in the planning process. A series of interim reports, documenting the various stages of the planning process, were presented to the TAC and CAC for their review/comment. A total of four meetings were held for each the TAC and the CAC. Copies of the presentations provided at each of the meetings, along with meeting summaries, are provided in **Appendix G**.

Four public meetings were also held to present general information about the Airport to the public and detailed the aviation forecasts, environmental overview, facility requirements, and terminal, airside, and landside alternatives. A draft recommended alternative was provided for feedback. Public Workshop notices were published by the TNHAA in local newspapers to publicize the meeting. Copies of the information presented at the public meetings, sign-in sheets to identify attendees, meeting summaries, as well as a comprised list of public comments are provided in **Appendix H**.

<sup>3</sup> AvPorts, <https://avports.com/static/Avports-HVN-Announcement.pdf>



The meetings were held on the following dates:

- Public Meeting 1 December 11, 2019
- Public Meeting 2 December 12, 2019
- TAC Meeting 1 February 13, 2020
- CAC Meeting 1 February 13, 2020
- TAC Meeting 2 (Virtual) October 15, 2020
- CAC Meeting 2 (Virtual) October 15, 2020
- TAC Meeting 3 (Virtual) January 5, 2021
- CAC Meeting 3 (Virtual) January 5, 2021
- Public Meeting 3 (Virtual) January 7, 2021
- TAC Meeting 4 (Virtual) March 8, 2021
- CAC Meeting 4 (Virtual) March 8, 2021
- Public Meeting 4 (Virtual) March 10, 2021

Due to COVID-19, all meetings after two public meetings and the first TAC and CAC meetings were held through a virtual forum.