



**CHAPTER 1**  
EXECUTIVE SUMMARY



# 1. Executive Summary

This Airport Master Plan Update (MPU) has been undertaken by the Tweed-New Haven Airport Authority (TNHAA) to assure that the Tweed-New Haven Airport (HVN or the Airport) and its environs are safe and efficient, and to evaluate the changing needs of HVN, including the needs of New Haven County, the Airport users, and passengers.

This planning document will serve as a guide to identifying necessary improvements and “right-sizing” those improvements to meet future Airport needs. This document will serve to:

- Evaluate market demand to prepare forecasts of enplanements and operations. Existing facilities are constraining commercial service at HVN; therefore, constrained and unconstrained forecasts were prepared.
- Identify airfield improvements needed to accommodate forecast demand. A key consideration was determining the ultimate length of Runway 2-20.
- Identify terminal area improvements needed to accommodate forecast demand for commercial service.
- Determine the future disposition of closed Runway 14-32.
- Identify opportunities for economic sustainability at the Airport as required by grant assurances.
- Develop a phasing and implementation plan for the recommended improvements.
- Engage the public throughout the planning process for the purposes of information sharing and collaboration.
- Maintain planning flexibility for future changes in the aviation industry.

The specific objects to be accomplished under this MPU include:

- The development of a flexible, scenario-based model that allows adjustments to facility requirements and alternatives.
- The development of a plan to meet the changing needs of the Airport.
- The evaluation and recommendation of alternatives to address aviation and aviation-related development.
- The approval from the Federal Aviation Administration (FAA) of the resulting Airport Layout Plan (ALP).

## 1.1. INTRODUCTION TO TWEED-NEW HAVEN AIRPORT

The Airport is a non-hub, commercial service primary airport located in the both the City of New Haven and Town of East Haven, New Haven County, Connecticut approximately three miles southeast of the central business district of New Haven. The Airport has one paved asphalt runway: Runway 2-20, which is 5,600 feet long by 150 feet wide. This Master Plan determined that Runway 14-32 is not eligible for federal funding as a crosswind runway and will remain closed permanently. Runway 2-20 has two partial parallel taxiways, one supporting each runway end. The Airport has an Airport Traffic Control Tower (ATCT) that provides guidance to the Airport and the Airport’s airspace. HVN occupies approximately 437 acres of land.



The Airport is currently served by American Airlines. In addition, Avelo Airlines announced that it will begin operations and create its East Coast base in HVN in fall 2021. Presently, airlines operate out of the Airport terminal building. This building, originally constructed as a conventional hangar, was built in 1930 and then converted into the terminal building in 1995. The passenger terminal building is undersized for the current aircraft operations out of the building and needs to be appropriately upgraded to accommodate demand. The terminal building, comprising of approximately 14,800 square feet (SF), contains the following:

- Pre-security area: common greeter/sender area, baggage claim, airline ticketing, rental car counters, vending machines, and restrooms.
- Post-security checkpoint area: TSA security checkpoint/screening area, secure/restricted common waiting area, restrooms, office space, and one passenger boarding bridge.

The Airport’s fixed base operator (FBO), Robinson Aviation Inc., offers services including aviation fuel services, aircraft maintenance, and aircraft storage.

The Airport’s sponsor, TNHAA, is governed by four executive board members and an eleven-member Board of Directors (the Board). The Airport is currently managed by Aviation Facilities Company (AFCO) Avports.

### 1.2. MASTER PLAN UPDATE

The TNHAA wants to update the Airport’s Master Plan, which is the official FAA airport planning document. The MPU is to reflect TNHAA’s goals for the Airport and depicts future Airport development. The MPU was completed in accordance with the guidelines and requirements of the current FAA Advisory Circulars (ACs) regarding airport planning, including AC 150/5300-13A, *Airport Design*, and AC 150/5070-6B, *Airport Master Plans*.

### 1.3. EXISTING CONDITIONS

Existing conditions at HVN were reviewed to identify airside and landside facility requirements to accommodate existing and forecasted demand at the Airport in accordance with FAA design, geometry, and safety standards. The facility requirements are based upon several sources, including the aviation demand forecasts presented in the Forecasts chapter; FAA AC 150/5300-13A, *Airport Design*; and 14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*.

### 1.4. SUMMARY OF FORECASTS

**Table 1-1** summarizes the forecasts approved as part of this MPU for HVN and does not include anticipated Avelo Airlines flights and enplanements, which were announced after the FAA’s Forecasts approval.

**Table 1-1: Summary of Baseline Forecasts**

	Actual	Forecast		
	Baseline	2025	2030	2040
<b>Enplanements</b>				
Air Carriers/Airline	50,355	82,723	94,531	123,999



	Actual	Forecast		
	Baseline	2025	2030	2040
Peak Hour	63	168	168	168
<b>Aircraft Operations</b>	<b>25,219</b>	<b>25,923</b>	<b>26,476</b>	<b>27,631</b>
Air Carrier/Air Taxi	5,267	5,558	5,810	6,351
General Aviation				
GA Itinerant	10,084	10,298	10,453	10,771
GA Local	9,411	9,610	9,755	10,052
Military	457	457	457	457
Peak Hour	10	10	11	11
<b>Based Aircraft</b>	<b>50</b>	<b>51</b>	<b>53</b>	<b>56</b>
Single	42	43	43	43
Multi	3	3	3	3
Helicopter	0	0	1	2
Turboprop	2	2	2	3
Jet	3	3	4	5

Source: McFarland Johnson analysis, 2019.

As of summer 2020, there was a great deal of short-term uncertainty surrounding the COVID-19/Coronavirus pandemic. The estimated recovery time was and continues to be three to five years for passenger demand. While the uncertainty exists for the short-term, the near- and long-term changes for the regional and network airlines could result in operational constraints should airside infrastructure not meet operational needs at the Airport. Therefore, as incremental growth continues at the Airport during and after recovery from COVID-19, the forecast for the near-term and long-term periods is still valid.

### 1.5. SUMMARY OF FACILITY REQUIREMENTS

Table 1-2 summarizes all the facility requirements recommended for HVN.

**Table 1-2: Summary of Facility Requirements**

Item/Facility	Existing	Ultimate Requirement	Deficit
<b>Airside Facility Requirements</b>			
Runway Length	5,600'	7,600'	2,000'
Runway Width	150'	150'	None
Runway Safety Areas (RSAs)	Small corner outside of RSA on the north end; Lateral edges not to standard grade	Standard or RSA determination	Meet standards or RSA determination
Runway Object Free Areas (ROFAs)	Portion of Airport perimeter fence and Dodge Ave in ROFA	Standard or Modification of Standard (MOS)	Meet standards or request MOS



Item/Facility	Existing	Ultimate Requirement	Deficit
Runway Protection Zones (RPZs)	Portions off Airport property	Under airport control through ownership or avigation easements	Acquire off-Airport portions of RPZs in fee simple or easements
Runway Lighting	High Intensity Runway Lights (HIRLs)	HIRLs	Update cabling from direct burial to cable in conduit (see also Utilities) Remove lighting from former Runway 14-32
Runway Visual Aids	PAPI/MALSF (2) PAPI (20)	PAPI/MALSR (2) PAPI/REIL (20)	Install MALS (2) Install REILs (20)
Instrument Approaches	Runway 2 – ILS/GPS Runway 20 – GPS	Runway 2 – ILS/GPS Runway 20 – GPS	Lower minimums for Runway 2 Provide vertical guidance for Runway 20
Taxiways	Some non-standard taxiway geometries Objects within taxiway object free areas (TOFAs)/taxilane object free areas (OFAs)	Standard taxiway geometries TOFAs/taxilane OFAs clear of obstacles	Address non-standard taxiway geometries Meet TOFA/taxilane OFA standards or MOS
Taxiway Lighting	Medium Intensity Taxiway Lights (MITLs)	MITLs	None
<b>Passenger Terminal Facility Requirements</b>			
Passenger Terminal Facilities	14,800 SF	30,000 SF – 70,000 SF	15,200 SF – 55,200 SF
Terminal Apron	30,500 SY <sup>1</sup>	11,945 SY	Support activities of E175 and A320 simultaneously <sup>2</sup>
<b>Parking and Roadway Access Facility Requirements</b>			
Terminal Area Parking	585 Spaces	680 – 1,700 Spaces	95 – 1,115 Spaces <sup>2</sup>
Roadway Access	Terminal access goes through residential neighborhoods with low speed limits Lack of signage Lack of terminal curb frontage (100 LF)	Meet terminal access land use compatibility standards Clear signage Meet terminal curb needs of 135 – 338 LF Cell phone lot	Create new Airport access Improve signage Expand terminal curb frontage by 35 – 238 LF Add cell phone lot



Item/Facility	Existing	Ultimate Requirement	Deficit
<b>General Aviation and Landside Facility Requirements</b>			
Individual T-Hangars	20 Units	22 Units	2 Units
Conventional Hangars	28,500 SF	70,700 SF	42,200 SF
Based Aircraft Parking	24 Tie-Downs	24 Tie-Downs	None
Transient Aircraft Parking	21 Tie-Downs	11 Tie-Downs	None
GA Auto Parking	95 Spaces	216 Spaces	121 Spaces
<b>Utilities and Support Facilities Requirements</b>			
Utilities	Terminal power load is inadequate Some cable is direct burial	Increase Terminal power load Cable in conduit	Review/improve power load coming into the Terminal Construct future lighting projects cable in conduit
Aircraft Rescue and Firefighting (ARFF)	ARFF Index A	ARFF Index B	Increase building size to house all ARFF equipment
Snow Removal Equipment (SRE)	1 displacement plow 1 material spreader 1 pavement broom	1 high-speed plow 2 displacement plows 3 material spreaders 3 pavement brooms	1 high-speed plow 1 displacement plow 2 material spreaders 2 pavement brooms Replacement vehicles
SRE Building	9,500 SF	22,000 SF	12,500 SF
Fuel Facilities	24,000 gallons Jet-A 12,000 gallons Avgas	75,400 gallons Jet-A 5,200 gallons Avgas	Jet-A tank(s)

GPS – global positioning system, ILS – instrument landing system, LF – linear feet, MALSF – medium intensity approach light system with sequenced flashing lights, MALSR – medium intensity approach lighting system with runway alignment indicator lights, PAPI – precision approach path indicator, REIL - runway end identifier lights, SF – square feet, SY – square yards

<sup>1</sup> This only includes the portion of the terminal apron up to the non-movement line. The ALP measures the terminal apron up to the Taxiway D edge.

<sup>2</sup> This demand may be increased due to the introduction of flights by Avelo Airlines.

Source: McFarland Johnson analysis, 2020.

### 1.6. AIRPORT ALTERNATIVES AND AIRPORT LAYOUT PLAN (ALP)

Based on the Airport’s facility requirements, various alternatives were developed, evaluated, and proposed to meet the airside, passenger terminal, parking and roadway access, GA and landside, and utilities and support facility needs. The preferred alternative, shown in **Figure 1-1**, is the basis for the comprehensive ALP.



1.7. PROJECT PHASING AND AIRPORT CAPITAL IMPROVEMENT PLAN (ACIP)

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 were not included in the phasing plan are projects such as basic airfield maintenance and long-term pavement rehabilitation projects.

**Table 1-3** presents the proposed phasing of projects over the 20-year planning period. Projects were phased to prioritize addressing immediate needs in Phase I (1-5 years). 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 (6-10 years), 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 (11-20 years) includes projects that address long-term aviation demand, including on-going land/easement acquisition/obstruction removal and taxiway reconfiguration Phase III.

**Table 1-3: Capital Improvement Program Phasing Plan**

Description	Total Costs	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	\$0	\$0
Land Acquisition/ Obstruction Removal (2024)	\$500,000	\$450,000	\$50,000
East Side Terminal Building and Landside Development – Construction <sup>1</sup>	\$39,908,000	\$0	\$0
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



Description	Total Costs	FAA	Local
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>
<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: TNHAA and McFarland Johnson, 2021.

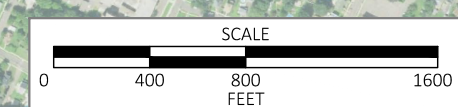
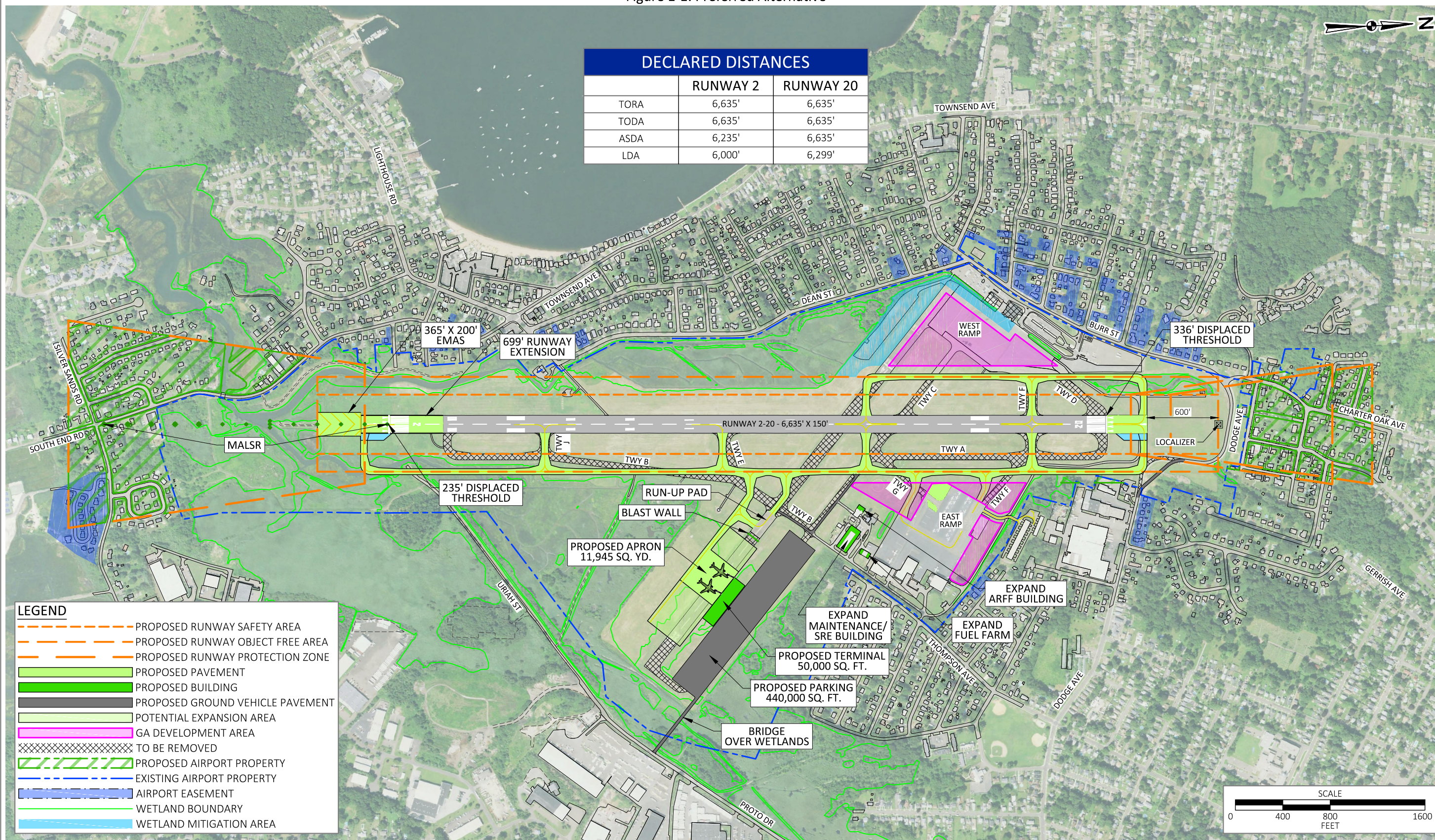




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Figure 1-1: Preferred Alternative



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