

**CHAPTER 5**  
ENVIRONMENTAL  
OVERVIEW

This image shows a wide aerial view of a coastal town and an airport. The town is situated along the coast, with a large body of water in the background. The airport is visible in the middle ground, and the foreground is dominated by a dense forest with vibrant autumn foliage in shades of yellow, orange, and red. A grey text box is overlaid on the left side of the image, containing the chapter title.





## 5. Environmental Overview

### 5.1. LAND USE

#### 5.1.1. Land Use

Tweed-New Haven Airport (HVN or the Airport) property is located along the New Haven-East Haven town-line with Long Island Sound approximately ¾-mile to the south and Morris Cove approximately ¼-mile to the west. According to field observations during a site visit conducted on September 11, 2019 and based on a review of aerial photographs of the area, the Airport is set within a mixed residential, commercial, and industrial area. To the west of the Airport (between Dean Street and Townsend Avenue) land use is mostly residential and to the east (along Proto Drive and Commerce Street) it is mostly industrial. There is undeveloped land (wetlands) to the south of Runway 2-20 and to the southeast of the HVN property boundary. There are several parks and playgrounds proximate to the Airport. See **Figure 5-1** for a depiction of land uses and for locations of parks and playgrounds.

#### 5.1.2. Zoning

Abutting property to the west of the airport is zoned residential (RS-2 -single family) (New Haven Zoning Map, 2019), except for a commercial zone (BA) at the intersection of Townsend Avenue, Lighthouse Road, and Morris Causeway where there is a convenience store, fire station, restaurant, and liquor store.

Abutting property to the east of the Airport is zoned industrial (LI-3), which is “designed to provide spacious sites for heavy commercial and industrial development” according to the Town of East Haven’s zoning regulations. The zoning regulations state, “because they will be likely to be located near residential areas, applicable standards are designed to assure a high quality of construction within the district, and review of site plans will be essential to assure adequate parking and traffic facilities, agreeable relationship to residential areas and coordination with the comprehensive plan of zoning” (Town of East Haven Zoning Regulations, effective January 10, 2001).

Abutting property to the north and south of the Airport is zoned residential in both New Haven (RS-2; PDU-planned development units) and East Haven (R-1 - single family, two family and multi-family structures; R-3 – single family; RA-2 - multi-story, high density apartments).

### 5.2. HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

#### 5.2.1. Regulatory Framework

Pursuant to Section 303 of the U.S. Department of Transportation (USDOT) (49 USC 303, commonly referred to as Section 4(f)), programs or projects requiring the use of any publicly-owned land, including public parks, recreation areas, wildlife or waterfowl refuge areas, and historic sites (including traditional cultural properties) of national, state, or local significance shall not be approved by the Secretary of Transportation unless there is no feasible and prudent alternative to the use of such land, and such program includes all possible planning to minimize





Figure 5-1: Land Use, Historic Places, and Community Resources Map



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harm. In addition, Section 106 of the Historic Preservation Act requires that any project needing federal funding or permit consider the effects of the project on properties on or eligible for listing on the National Register of Historic Places (NRHP), before such funding or permit can be issued.

### 5.2.2. Existing Conditions

Several properties in the New Haven neighborhoods surrounding the Airport are listed on the NRHP. These include two houses, Fort Nathan Hale, the carousel and lighthouse at Lighthouse Point Park, and the Morris Cove Historic District, designated in 2018 (see **Table 5-1**). **Figure 5-1** depicts the locations of these NRHP resources. Fort Wooster Park, which contains the remains of a Revolutionary War fort, while not currently listed, may be eligible for listing in the NRHP.

There are no known historic or archaeological sites on HVN property, and the State Historic Preservation Office (SHPO) assessed the Airport to have a low archaeological sensitivity according to the previous Master Plan (2002).

**Table 5-1: National Register Properties in the Airport Vicinity**

Property	Location	Date Listed	Reference No.
Five Mile Point Lighthouse	Lighthouse Point Park	08/01/1990	90001108
Lighthouse Point Carousel	Lighthouse Point Park	12/15/1983	83003578
Fort Nathan Hale	South end of Woodward Avenue	10/28/1970	70000711
Morris Cove Historic District	Between Myron Street and Morris Causeway, Dean Street and Long Island Sound	04/19/2018	100002320
Morris House	325 Lighthouse Road	12/04/1972	72001341
Raynham	709 Townsend Avenue	07/11/1980	80004062

Source: National Park Service, National Register Research and Database, <https://www.nps.gov/subjects/nationalregister/index.htm> (accessed December 18, 2019).

## 5.3. SECTION 6(F) RESOURCES

### 5.3.1. Regulatory Framework

Where U.S. Land and Water Conservation Fund (LWCF) Act funds were utilized to purchase or improve public parks, federal protection is afforded under Section 6(f) of the LWCF Act. Section 6(f) protection requires approvals under LWCF for conversion of grant-assisted properties to uses other than public outdoor recreation.





### 5.3.1. Existing Conditions

There are two Section 6(f) resources in the project environs: East Shore Park and Lighthouse Point Park. See **Figure 5-1** for the location of these resources.

## 5.4. FARMLANDS

### 5.4.1. Regulatory Framework

The Farmland Protection Policy Act (FPPA) of 1994 regulates federal actions with the potential to convert farmland to non-agricultural uses. The FPPA assures that to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland.

### 5.4.2. Existing Conditions

A review of U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soils mapping accessed through Connecticut Environmental Conditions Online (<http://www.cteco.uconn.edu/viewers/index.htm>, on December 20, 2019) has determined that there are no prime farmland soils on Airport property. There is a small area designated as a Soil of Statewide Importance (SWI) in the northwestern corner of the Airport, south of Dodge Avenue and east of Burr Street. These SWIs consist of Manchester gravelly sandy loam (3 to 15 percent slopes) and Deerfield loamy fine sand (0 to 3 percent slopes). These soils are formed from glaciofluvial parent material. There is no land on or surrounding the Airport in active agricultural uses (or actively farmed). See **Figure 5-2** for a depiction of farmland soils.

## 5.5. BIOLOGICAL RESOURCES

### 5.5.1. Regulatory Setting

The U.S. Endangered Species Act (ESA) of 1973 requires avoidance of actions that would jeopardize threatened or endangered species or their critical habitats. Section 7 of the ESA describes the steps for informal and formal consultation with United States Fish and Wildlife Service (USFWS), for terrestrial and freshwater species, or with the National Marine Fisheries Service (NMFS), for marine species and diadromous fish species. The Migratory Bird Treaty Act (MBTA) provides for the preservation and maintenance of stocks of migratory birds, including their body parts (feathers, plumes etc.), nests, and eggs. Federal-aid transportation projects that are likely to result in a “take” of birds protected under the MBTA may require take permits from the USFWS. The Bald and Golden Eagle Protection Act provides for the protection of Bald Eagles and Golden Eagles by prohibiting the taking, possession, and commerce of these birds except under certain specified conditions.

Natural Diversity Database (NDDB) mapping, maintained by the Connecticut Department of Energy and Environmental Protection (CT DEEP) Bureau of Natural Resources, Wildlife Division, depict areas of state listed species and significant natural communities within the project limits (see **Figure 5-3**). Therefore, the presence of rare species could potentially be a concern within Airport property. Rare species are defined as any of Connecticut’s flora or fauna included on the CT DEEP list of endangered, threatened, and special concern species (CT DEEP, 2015). Any species federally designated as threatened or endangered, by Connecticut definition, are also listed as such in



Figure 5-2: Farmland Soils

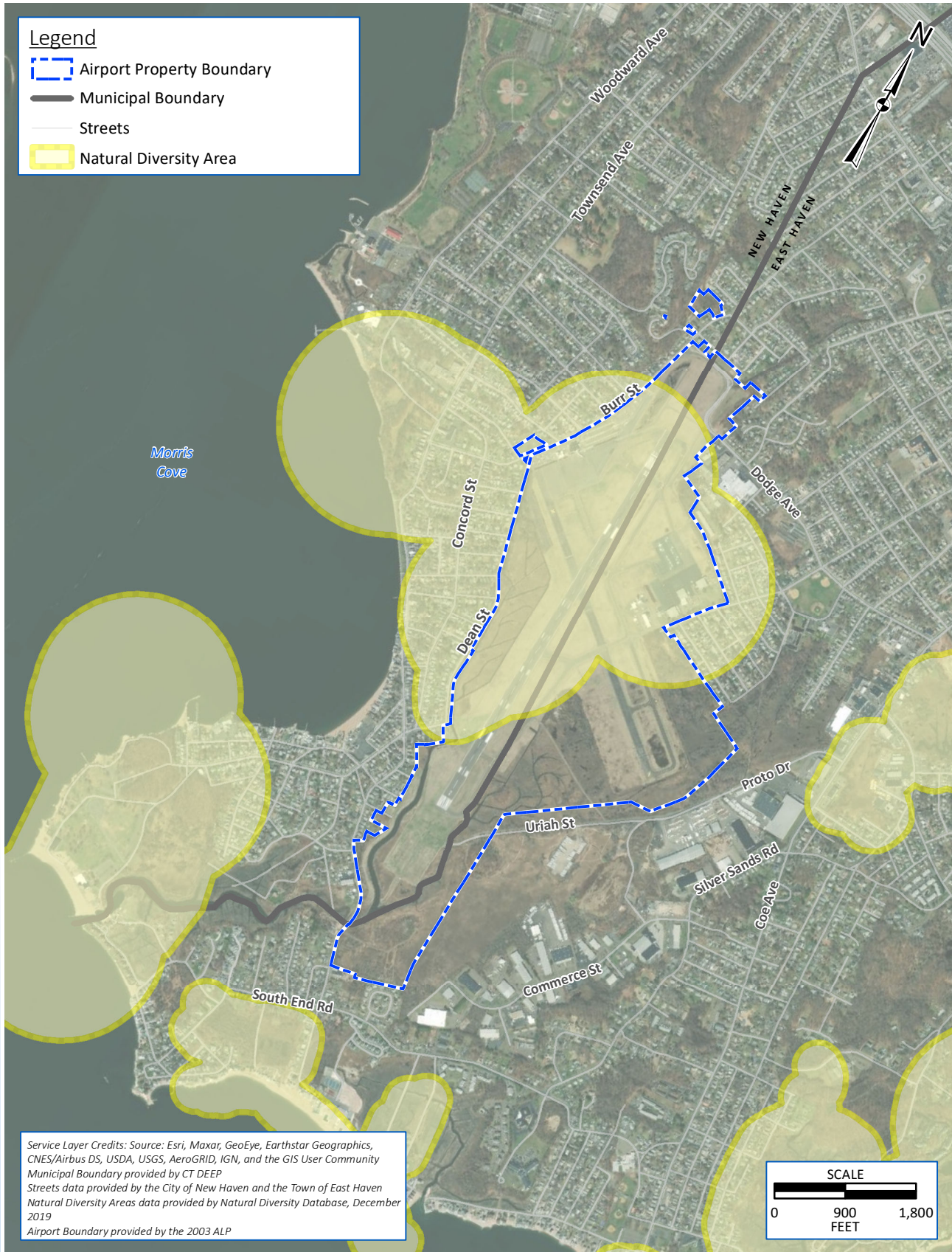


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Figure 5-3: Potential Threatened and Endangered Species



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Connecticut. As established by Public Act 89-224, the definition of endangered, threatened, and special concern species in Connecticut are as follows:

"Endangered Species" (E) means any native species documented by biological research and inventory to be in danger of extirpation throughout all or a significant portion of its range within the state and to have no more than five occurrences in the state, and any species determined to be an "endangered species" pursuant to the federal Endangered Species Act.

"Threatened Species" (T) means any native species documented by biological research and inventory to be likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range within the state and to have no more than nine occurrences in the state, and any species determined to be a "threatened species" pursuant to the federal ESA, except for such species determined by the Commissioner to be endangered in accordance with Section 4 of the Act.

"Species of Special Concern" (SC) means any native plant species or any native non-harvested wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state, to be at a low population level, to be in such high demand by man that its unregulated taking would be detrimental to the conservation of its population or has been extirpated from the state.

#### 5.5.2. Threatened and Endangered Species

These species are typically evaluated separately in ecological assessments as their protected status is due to the increased susceptibility of their populations to a number of impacts including habitat loss, over-harvesting, and other anthropogenic effects. Due to species susceptibility, loss, or adverse impacts to even one individual may be considered significant.

When CT DEEP NDDB mapping identifies the potential for rare, threatened, or special concern species and/or critical habitat within a project area, formal consultation with CT DEEP NDDB is required. A request for additional information was submitted on January 28, 2020 and a response was received on February 18, 2020. Consistent with correspondence received from the CT DEEP NDDB in association with past projects at the Airport, the NDDB response identified several rare species potentially occurring on or proximal to the site. Additionally, salt marsh habitat, which is found at the site, is typically identified by the CT DEEP NDDB as state critical habitat because of the various state-listed species that depend on the habitat for one or more stages of their life cycles (breeding, migration, foraging, etc.). The CT DEEP NDDB records of listed species that have been reported to occur on the Airport and an assessment of their likelihood for applicability/occurrence on or adjacent to the site are discussed below. The rare, threatened, or special concern species letter can be found in **Appendix C**.

#### ***Bobolink (Dolichonyx oryzivorus) – State SC***

This state special concern species is described by Zeranski and Baptist (1990) as an uncommon to fairly common migrant and uncommon to locally common nester in Connecticut. Nesting and eggs occur primarily in June in CT (Haniseck, 2005). Females incubate the eggs for approximately 13 days, and young fledge within 10 to 14 days (Terres, 1980). Vegetation management measures





(routine mowing to comply with FAA guidance) may have rendered the Airport unsuitable for successful breeding.

### ***Eastern Meadowlark (Sturnella magna) – State T***

This state threatened species is described by Zeranski and Baptist (1990) as an uncommon migrant and declining nester in Connecticut. Breeding in CT is reported to occur from late April to mid or late June 28 (Haniseck, 2005), after which the female incubates for 13-14 days. Young leave the nest within another 11 to 12 days (Terres, 1980). Similar to the Bobolink, vegetation management measures (routine mowing to comply with FAA guidance) may have rendered the Airport unsuitable for successful breeding.

### ***Saltmarsh Sparrow (Ammodramus caudacutus) – State SC***

This is one of the very few bird species that breeds exclusively in salt marshes. In addition to being listed by the CT DEEP as a species of special concern, the Saltmarsh Sparrow has an International Union for Conservation of Nature (IUCN) ranking of “vulnerable” (to extinction) (Nature Serve, 2019) due to its limited habitat range and very particular breeding requirements. Its breeding range extends from the coastal marshes of Maine to North Carolina, with birds wintering from New York (rare) to Florida. However, the total acreage of the narrow band of suitable breeding habitat is less than the total area of Connecticut (CT). This limited range and specialized habitat make the Saltmarsh Sparrow a species of global conservation concern. Threats to this species include habitat loss and degradation, pollution, and rising sea levels. In southern New England, this species usually nests in salt marshes with native vegetation (Benoit & Askins 1999, Shriver 2002); specifically in the high marsh where *Spartina patens* dominates and *Juncus gerardii* is most abundant (Elphick et al. 2005, Gjerdrum et al., 2005) and where thatch has accumulated providing nest concealment (Gjerdrum et al., 2008). Predictive mapping for Saltmarsh Sparrow nesting conducted by Dr. Chris Elphick’s laboratory at the University of Connecticut has identified the tidal marsh area adjacent and proximal to the Airport property as having a low probability for being suitable Saltmarsh Sparrow nesting habitat. This inferred unsuitability is based upon the lack of the singular most important special habitat attribute in this portion of the marsh that the Saltmarsh Sparrow needs for nesting which is the development of a substantial high marsh zone. A field visit conducted on October 15, 2019 verified the absence of this special habitat attribute (high marsh emergent zone development) in the marsh systems within and proximal to the Airport. Habitat conditions improve further downstream away from the Airport property along the lower reaches of Morris Creek. However, non-breeding individuals or post-breeding dispersals may occur within the marsh adjacent to the site from time to time.

### ***Grasshopper Sparrow (Ammodramus savannarum) – State E***

The Grasshopper Sparrow requires extensive warm season grasslands with dense bunchgrass coverage interspersed with bare soil patches for breeding habitat suitability. The CT DEEP NDDB reported occurrence of this species on the Airport was based upon a historic record from 1967 according to the 2002 Master Plan. Current vegetation management measures (i.e., routine mowing to comply with FAA safety guidance) render the Airport property unsuitable for breeding residents, but migrant individuals may occur at HVN from time to time.



### *Savannah sparrow (Passerculus sandwichensis) – State SC*

This grassland species is a fairly common migrant in CT (Zeranski and Baptist, 1990), but is an uncommon to rare breeder. As a breeder and migrant species in CT, the Savannah Sparrow inhabits lightly grazed pastures, meadows, hayfields, salt marsh, and certain agricultural fields. Field margins also provide migration foraging habitat and cover. Since these conditions occur on the Airport, this species could occur there as a breeding resident. However, like the Grasshopper Sparrow, vegetation management measures may have rendered the Airport unsuitable for successful breeding.

### *Horned Lark (Eremophila alpestris) – State E*

The Horned Lark is a rare breeding resident, uncommon fall and spring migrant, and uncommon winter resident. It is an endangered species in CT and is known to breed in only a few locations. This is a species that inhabits a variety of vast, wide open, treeless habitats including airports, golf courses, dunes, and sandplains in the northeast. Within these grassland areas, it requires sparsely vegetated open areas for nesting and foraging (DeGraaf and Yamasaki, 2001). Since these conditions remain on the Airport, this species still has potential to occur as a breeding resident, despite routine vegetation management (mowing). The CT DEEP reported confirmation of breeding in 1991. In order to assess potential impacts to this species from future land use at the Airport, its current status as a breeding resident would need to be confirmed via surveys conducted during their breeding season.

In addition to the above reported species, the following species were identified by NDDB in response to past requests involving former Master Plan updates, but did not appear on the updated NDDB response received on February 18<sup>th</sup>, 2020 and may reflect updated population status or usage distribution information relative to the site.

### *Great Egret (Ardea alba) – State T*

Although the Great Egret is a fairly common coastal migrant and summer visitor to CT (Zeranski and Baptist, 1990), it remains a rare and local breeding resident in the state; hence its state status as threatened. The limited breeding sites for this species in CT occur on offshore islands. It frequents marshes in search of fish, frogs, snakes, crayfish, and aquatic insects or other invertebrate prey. This species is not currently known to breed within the marshes adjacent to the Airport but visit them for foraging and as post breeding summer dispersals.

### *Snowy Egret (Egretta thula) – State T*

Similar to its larger cousin, the Great Egret, the Snowy Egret is also a fairly common coastal migrant and summer visitor to CT (Zeranski and Baptist, 1990), yet remains a rare and local breeding resident in the state. It is also listed as state threatened. The Snowy Egret frequents marshes in search of fish, frogs, snakes, crayfish, and aquatic insects or other invertebrate prey. This species is also not currently known to breed within the marshes adjacent to the Airport, but often visits them for foraging during the breeding season, after the breeding season as a post breeding summer dispersal, and during migratory movements.





## *Least Tern (Sternula antillarum) – State T*

Least Terns nest at coastal sandy beach sites in CT. They establish colonies in shoal areas – a habitat that tends to be dynamic and sometimes ephemeral. These birds can be found searching for prey within the waters of Long Island Sound from May to September (Sibley, 1994). They do not breed within the marshes adjacent to the Airport but have historically nested at coastal sandy beach sites proximal to the Airport, such as Sandy and Morse Points in West Haven. They may be observed from time to time within lower reaches of Morris Creek searching for small estuarine fish that reside in the channel or are chased up the channel by predatory fish.

## *American Kestrel (Falco sparverius) – State SC*

This species is a rare to uncommon breeder in southern New England that continues to decline. It inhabits a wide range of habitats, but in New England, prefers forested edges, grasslands, pastures, utility rights-of-way, marshes, and beaver flowages. It is a rare winter resident, uncommon to fairly common spring and fall migrant, and a rare breeder (Haniseck, 2005). Its natural nest cavities are typically in trees with a diameter at breast height of greater than 12 inches, and they require elevated perches from which to sight prey (DeGraaf and Yamasaki, 2001). This species typically passes through CT on spring migration from March through late April. Some individuals remain as localized breeders in the state in areas of more open and extensive habitat. Where suitable habitat occurs (i.e., open areas where prey is in abundant supply and where appropriate nesting cavities are available), American Kestrels begin nesting in CT in early May, with the breeding period lasting until approximately early to mid-June. Reported egg dates occur in CT from April 27 to May 26 (Haniseck, 2005).

Finally, two additional species – the Willet and the Northern Diamondback Terrapin – were mentioned by the CTDEEP (then known as the CTDEP) in past communications associated with land use activities at the airport (e.g., the runway safety improvements and taxiway realignment projects). Both species were identified by the CTDEP in these past communications as species of conservation concern that could likely occur on the site in the future. The Willet has since been removed from CT ESA list of *Connecticut's Endangered, Threatened, and Special Concern Species* (CTDEEP, 2015) and populations appear to be relatively secure in the state as of late. The Northern Diamondback Terrapin has since been added to the list and is discussed below.

## *Northern Diamondback Terrapin (Malaclemys terrapin terrapin) – State SC*

No records of this species were reported for the site based upon the February 18<sup>th</sup>, 2020 response letter from the NDDB. However, the potential occurrence of this turtle species on Airport property was identified by the CT DEEP during the 2002 Master Plan update via communications with the Wildlife Division personnel. During that time, the Terrapin was regulated to control impacts from overharvesting but was not listed in the CT Endangered Species Act (ESA). However, the Terrapin was added to the CT ESA as a Special Concern Species in 2015 (CT DEEP, 2015). It is a denizen of brackish water environments within its Atlantic coast range extending from Cape Cod, Massachusetts to the Florida Keys. In CT, most are found west of the Connecticut River, with the highest densities found between New Haven and the Connecticut River Estuary (Klemens, 1993). Terrapins are often found foraging within tidal creeks where they hunt mollusks, snails, invertebrates, and carrion. They also depend on the tidal creeks as hibernation sites; either



burrowing down into the soft mud of the benthic substrate or into the side of the creek beneath undercut banks. They use adjacent sandy areas associated with estuaries for nesting. Terrapins are relatively tolerant of pollution. They could reasonably be expected to occur within the reaches of Morris Creek and Tuttle Creek (and their tributary channels) adjacent to and surrounding the Airport.

## 5.6. COASTAL RESOURCES

### 5.6.1. Regulatory Framework

Lands within the coastal boundary fall under the purview of the Connecticut Coastal Management Act (CCMA). The CCMA defines legislative goals for policies concerning development, facilities, and uses within the coastal boundary. The CCMA is administered by the CT DEEP Land and Water Resources Division (LWRD). The CCMA policies are applied through CT DEEP regulatory programs and through the state and federal coastal consistency review processes. These processes require that each state department, institution, or agency responsible for a proposed action that may significantly affect the environment within the coastal boundary, demonstrate that those actions are consistent with all applicable policies and standards contained in the CCMA. Those intending such actions must also incorporate all reasonable measures mitigating any adverse impacts of such actions on coastal resources as codified in the Connecticut General Statutes (CGS Sec. 22a-90 - 22a-112, inclusive). Applicable state and federal permits may not be issued until a finding of consistency is achieved. A coastal consistency determination would be necessary for any proposed project undertaken at the Airport.

### 5.6.2. Existing Conditions

As depicted on the coastal boundary map of New Haven and East Haven<sup>1</sup>, the entire Airport property, except for a small corner between Dodge Avenue and Holmes Street and at the extreme eastern limit of the Airport at the terminus of Thompson Avenue, falls within the coastal boundary as established by C. G. S. Section 22A – 94 (see **Figure 5-4**).

Within the coastal boundary the lands and waters are comprised of coastal resources which are defined to include coastal waters of the state, their natural resources, the related marine, and terrestrial habitats, and adjacent shorelands - both developed and undeveloped - that together form an integrated terrestrial and estuarine ecosystem. Coastal resources on and in the vicinity of the Airport are shown on the coastal resource maps for New Haven and East Haven accessed via online mapping resources<sup>1</sup>.

The following coastal resources occur on and adjacent to the Airport property:

- Coastal (flood) hazard areas
- Shorelands
- Regulated tidal wetlands
- Freshwater wetlands

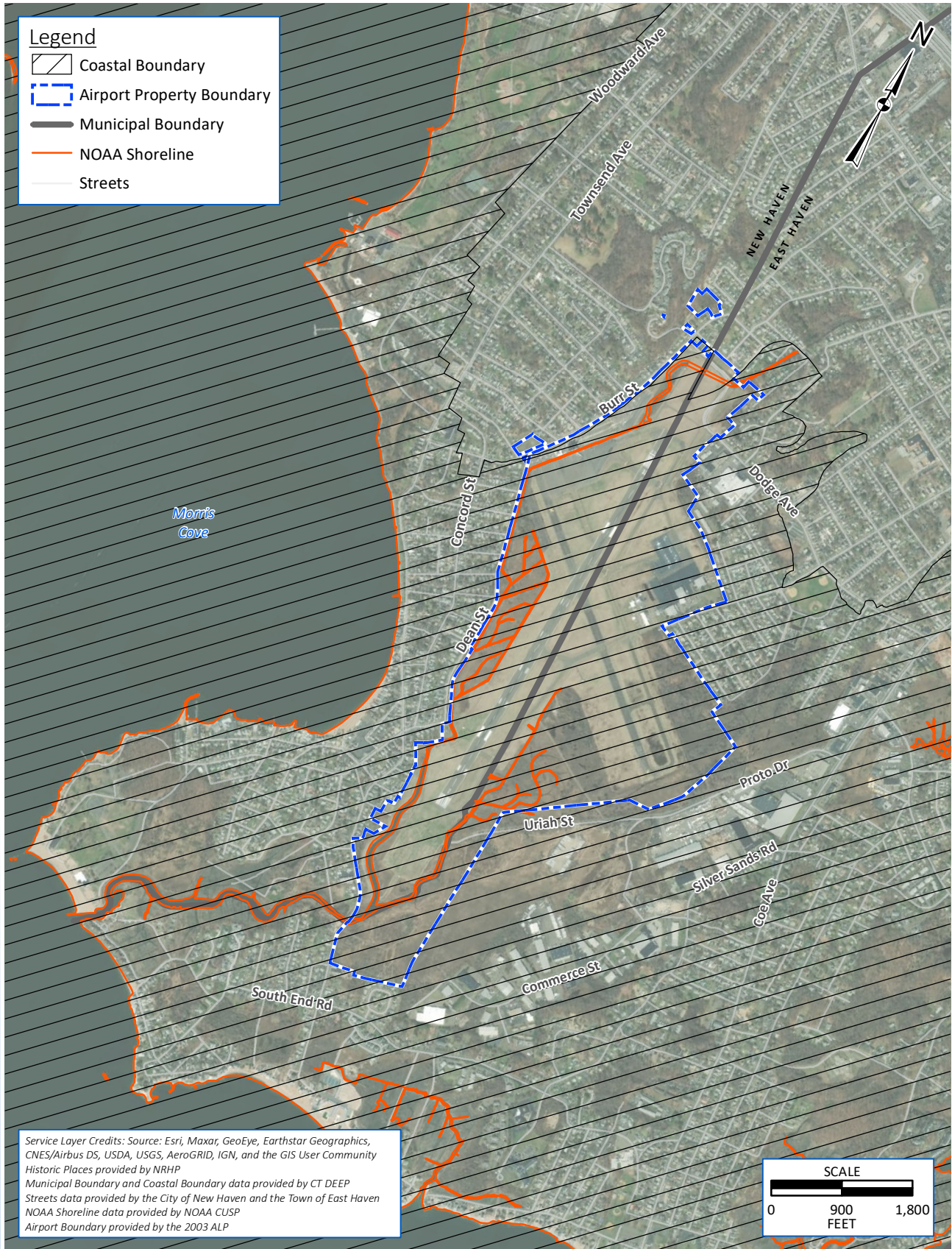
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<sup>1</sup> [http://cteco.uconn.edu/maps/town/Coastal\\_Boundary/cstlbnd\\_EAST\\_HAVEN.pdf](http://cteco.uconn.edu/maps/town/Coastal_Boundary/cstlbnd_EAST_HAVEN.pdf)





Figure 5-4: Coastal Resources



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These resources, their definitions, and their locations are presented in **Table 5-2**. Resources located directly on Airport property are denoted in bold face type.

Depending on the type, magnitude, and scale of alternatives proposed in the Master Plan Update, there may be numerous applicable coastal resource policies. The most applicable would undoubtedly be those relating to the four coastal resources that occur on the Airport property: tidal wetlands, freshwater wetlands, coastal flood hazard areas, and shorelands. Note that the coastal flood hazard areas are contiguous with Federal Emergency Management Agency (FEMA) 100-year (base, Zone AE) floodplains and Coastal areas with a one percent or greater chance of flooding and an additional hazard associated with storm waves. See **Figure 5-5** for a depiction of FEMA floodplains.

**Table 5-2: Coastal Resources in Airport Vicinity**

Resource Name	Definition	Location in Relation to HVN
Coastal Bluffs and escarpments	These resources are naturally eroding shorelands marked by dynamic escarpments or sea cliffs which have slope angles that constitute an intricate adjustment between erosion, substrate, drainage, and degree of plant cover	The faces of Morris Cove, and areas around Morgan Point east to portions of West Silver Sands Beach and Silver Sands Beach in between the rocky shorefronts of the New Haven and East Haven shoreline fit the definition of this resource
Rocky Shorefronts	These are shorefront areas composed of bedrock, boulders, and cobbles that are highly erosion-resistant and are an insignificant source of sediments for other coastal landforms	Rocky shorefront areas occur to the east of the Airport in association with portions of the East Shore Park shoreline, to the southwest at Lighthouse Point Park in New Haven, and to the south in association with Morgan Point and South End Point in East Haven
Beaches and dunes	Moderately sloping shores composed of water worked sand, gravel, or cobble deposits (beach) and when present, wind-deposited sands (dunes or sand flats). Beaches occur within the topo-sequence between mean low water and the coastal bluff, escarpment, dune, or vegetation. They include “barrier beach spits and tombolos, barrier beaches, pocket beaches, land contact beaches and related dunes and sandflats” (CT DEEP, Connecticut Coastal Management Manual, 2000).	Beach and dune resources are located along the shorelines of New Haven Harbor and Long Island Sound.
<b>Coastal (Flood) Hazard Area</b>	The CCMA defines these areas as <i>“land areas inundated during coastal storm events or subject to erosion induced by such events, including flood hazard areas as defined and</i>	Most of the Airport occurs within the coastal flood hazard area which encompasses all lands below the 11-foot floodplain elevation as defined by FEMA. The





Resource Name	Definition	Location in Relation to HVN
	<i>determined by the National Flood Insurance Act, as amended (USC 42 Section 4101, P.L. 93-234) and all erosion hazard areas as determined by the commissioner”</i>	only area of the Airport above the flood hazard area is a small portion of airport property on the north end in the vicinity of the relocated Dodge Avenue.
<b>Freshwater Inland Wetlands</b>	Freshwater Inland wetlands are defined in Section 22A - 38 of the Connecticut General Statutes as “land, including submerged land, not regulated pursuant to sections 22a - 28 to 22A - 35 (Tidal Wetlands and Watercourses Act), inclusive, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial and floodplain.	A number of freshwater inland wetlands occur on and adjacent to the airport property. Refer to Section 4.12.1 Wetlands for a description of the freshwater wetlands, their characteristic vegetation, and their relative locations on site.
<b>Tidal and Estuarine Wetlands</b>	Wetland resources regulated pursuant to sections 22a - 28 to 22A - 35 inclusive – Tidal Wetlands and Watercourses Act	These resources that occur on site are described in Section 4.6.3 Wetlands. Those that occur off-site but proximal to the Airport include the tidal wetlands that have formed along the lower reaches of Morris Creek downstream of South End Road to the southwest, and various tidal wetland areas landward of the East Haven Beaches to the south. Extensive tidal and estuarine wetlands occur to the east of the airport in association with the Farm River watershed and estuary at Short Beach in Branford.
<b>Shorelands</b>	The CCMA defines shorelands as <i>“those land areas within the coastal boundary exclusive of coastal hazard areas, which are not subject to dynamic coastal processes and which are comprised of typical upland features such as bedrock hills, till hills and drumlins”</i>	There are small areas of shorelands in the northwest corner of the Airport at the intersection of Dodge Avenue and Burr Street, and at the extreme eastern limit of the Airport at the terminus of Thompson Avenue.
<b>Intertidal flats</b>	These features are defined as <i>“very gently sloping or flat areas located between high and low tides composed of muddy, silty and fine sandy sediments and generally devoid of vegetation”</i> .	Topographic maps depict tidal flats adjacent to the shoreline surrounding the airport from Morris Cove to Lighthouse Point to the west and southwest of the airport, and from Shell Beach to Momauguin Beach in East Haven to the east.



Resource Name	Definition	Location in Relation to HVN
Offshore waters	Defined by the CCMA as <i>“the area comprised of those waters and their substrates lying seaward of a depth approximated by the ten-meter contour”</i>	These areas are basically the open waters extending out into Long Island Sound approximately 8,000 feet south of Morgan Point and approximately 7,000 feet south of South End Point in East Haven.
Estuarine embayment	Defined by the CCMA as <i>“a protected coastal body of water with an open connection to the sea in which saline sea water is measurably diluted by fresh water including tidal rivers, bays, lagoons and coves”</i>	Long Island Sound itself fits the definition of an estuary in accordance with the CCMA and the Cowardin (1979) Wetlands and Deepwater Classification System. The mouth of Morris Creek is an estuarine embayment that lies downstream of the tidal creeks draining the marshes surrounding the airport. The mouth of Morris Creek is depicted as an Ecologically Sensitive Area in the Long Island Sound Blue Plan online draft Viewer <sup>2</sup>
Nearshore waters	Waters that lie between the intertidal zone and landward of a depth approximated by the ten-meter contour	Proximal to the Airport, these waters include those within New Haven Harbor including the waters of Morris Cove; the waters surrounding the East Breakwater; and the waters immediately surrounding, Old Head Reef, Quixes Ledge, The Chimneys off of Morgan Point in East Haven , and the waters surrounding Round Rock off of South End Point in East Haven
Shellfish concentration areas	Actual, potential, or historic areas in coastal waters, in which one or more species of shellfish aggregate	Suitable shellfish is provided by the intertidal zones of Morris Cove and areas of New Haven Harbor proximal to the Airport.

Source: CT DEEP. 2000. Connecticut Coastal Management Manual.

<sup>2</sup> <https://cteco.uconn.edu/viewer/index.html?viewer=blueplan>





Figure 5-5: FEMA Floodplain Map





The importance of coastal resource policies in airport planning is given further recognition by the *Connecticut Conservation and Development Policies Plan* (2013) developed by the Connecticut Office of Policy and Management (OPM). It is also commonly known as the State Plan of Conservation and Development (POCD). This guidance document for planning states that applications for development of coastal airports shall be in accordance with coastal area policies. While the *Connecticut Conservation and Development Policies Plan* is not a regulatory device, it provides guidance for state funding approvals and other actions. HVN is located in a conservation area. The plan indicates that state actions in conservation areas should promote resource management, support only uses compatible with the resources of concern, demonstrate lack of alternative sites for proposals incompatible with conservation, and include mitigation measures to enhance environmental quality.

### 5.6.3. Wetlands

There are 24 wetland systems on the Airport property as identified on **Figure 5-6**. These wetlands were identified and delineated during previous master planning efforts and as part of the planning and design of recent developments and improvements constructed at the Airport. Their presence was field verified during site visits conducted on October 15<sup>th</sup>, 23<sup>rd</sup>, and November 1<sup>st</sup>, 2019. Characteristics of each of these wetlands, such as size and dominant vegetation, are presented in **Table 5-3**. The wetlands are described according to the Cowardin classification system, which includes five main types of wetland systems: marine wetlands, which are exposed to open ocean; estuarine wetlands, which are partially enclosed by land and exposed to a mixture of fresh and salt water; riverine wetlands, associated with flowing water; lacustrine wetlands, associated with a lake or other fresh water body; and palustrine wetlands, freshwater wetlands not associated with a river or lake.

The Airport property is bordered to the northeast and east by an extensive palustrine emergent wetland. By definition, a Palustrine (P) System “includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 parts per thousand (ppt).” The class “emergent” (EM) means the system is “characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens”. The vegetation is typically dominated by perennial plants present for most of the growing season. This particular emergent wetland contains areas dominated by the non-native invasive Common Reed. This marsh system is flanked by a Palustrine Forested (PFO) wetland adjacent to the northwest (north side of Runway 32) and a Palustrine Scrub/Shrub (PSS) wetland adjacent to the southwest (south side of Runway 32).

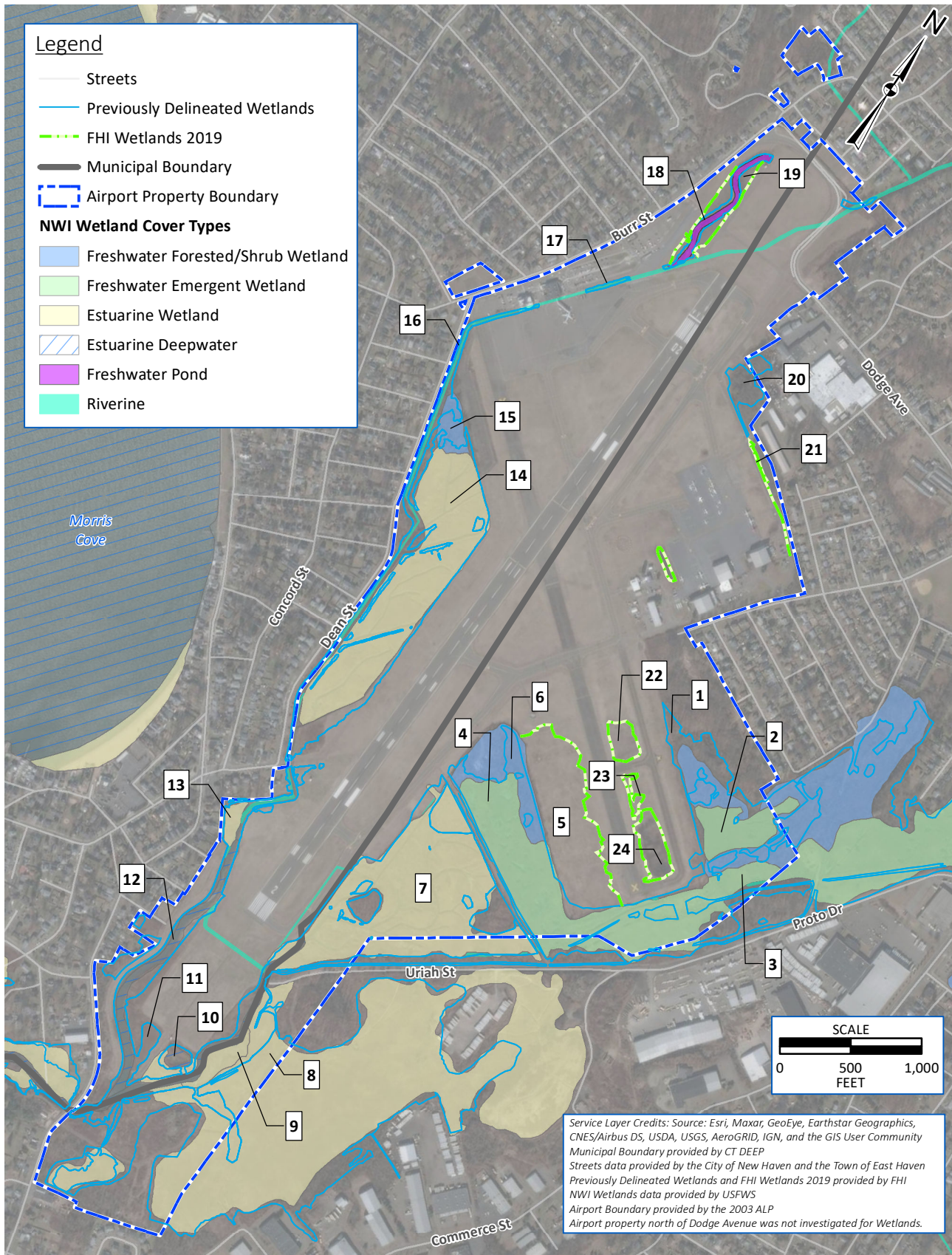
Morris Creek drains the tidal wetlands adjacent to the southeast side of the Airport. These wetlands are bordered by Pig Farm Road (an unimproved airport access road) to the north, and Taxiway B to the west, then extend easterly and southerly to the limits of the Airport property. Morris Creek flows southerly then southwesterly passing under South End Road before discharging into Morris Cove in New Haven Harbor, an embayment of Long Island Sound.

The southern half of the Airport is flanked on the west and east sides by an estuarine intertidal emergent wetland dominated by Common Reed and other marsh vegetation. The Common Reed dominated areas of emergent wetlands likely provide limited habitat for aquatic invertebrate biota, avifauna, and mammals.





Figure 5-6: Wetlands Map



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In contrast, the estuarine wetlands to the south of the site across Short Beach Road are part of a large, expansive interspersed estuarine system of the lower reaches of Morris Creek with notable habitat value to a variety of species of conservation concern. Water Resources, Water Quality, and Stormwater Pollution Prevention.

**Table 5-3: Wetland Areas Located on and Adjacent to Tweed-New Haven Airport Property**

Symbol	Wetland Cover Type	Location Notes	Characteristic Wetland Vegetation	Map Locator No.
PFO1E	Palustrine Forested Broad-leaved Deciduous, Seasonally flooded/saturated	Northeast of Taxiway C	Tree Layer: Red Maple, Black Gum Shrub Layer: Northern Spicebush	1
PEM1/5F	Palustrine Emergent persistent, <i>Phragmites australis</i> ; semi-permanently flooded	Northeast of Taxiway C	Common Reed	2
PFO1Ed	Palustrine Forested Broad-leaved Deciduous, Seasonally flooded/saturated, Partially drained/ditched	Northeast of Taxiway C	Tree Layer: Red Maple, Black Gum Shrub Layer: Northern Spicebush,	3
PEM1/5Ed	Palustrine Emergent Persistent, <i>Phragmites</i> Seasonally flooded, Partially drained /ditched	East and northeast of Taxiway C	Common Reed	4
PEM2	Palustrine Emergent, non-persistent wetland with an undetermined but non-tidal water regime	Between Runway 32 and Taxiway C; also, west of Runway 32	Soft Rush, Broom sedge, spike rush various other unidentified hydrophytic graminoids (various rushes and sedges)	5
PSS1E	Palustrine Scrub/Shrub, broad-leaved deciduous, seasonally flooded/saturated	South of Runway 32; East of Runway 2 and Taxiway B	Gray Birch saplings, Northern Arrowwood, Highbush Blueberry, willow sp., Silky Dogwood, Poison Ivy	6
E2EM1Pd	Estuarine Intertidal Emergent Persistent, Irregularly flooded, Partially drained/ditched	East of Runway 2 and Taxiway B	Common Reed, Smooth Cordgrass at channel edges	7
E2EM1/5Pd	Estuarine Intertidal Emergent Persistent/ <i>Phragmites</i> , Irregularly flooded, partially drained/ditched	East of Runway 2, south of West Ramp	Common Reed, Smooth Cordgrass	8
E2EM1N	Estuarine Intertidal Emergent Persistent, regularly flooded	East of Runway 2 RSA	Smooth Cordgrass, Common Reed	9
E1UBL	Estuarine Subtidal waterbody with a subtidal water regime	Southeast of Runway 2	None (open water)	10



Symbol	Wetland Cover Type	Location Notes	Characteristic Wetland Vegetation	Map Locator No.
E2EM1P	Estuarine Intertidal Emergent Persistent, Irregularly flooded	South of Runway 2 and RSA, between channels	Common Reed	11
E1UBLx	Estuarine Subtidal waterbody with a subtidal water regime, modified via excavation	Southwest of Runway 2	None (open water associated with Tuttle Creek)	12
E2EM1P	Estuarine Intertidal Emergent Persistent, Irregularly flooded	West of Runway 2 and RSA, between channels	Common Reed	13
E2EM1/5Pd	Estuarine Intertidal Emergent Persistent/ Phragmites, Irregularly flooded, partially drained/ditched	West of Runway 2/20, south of West Ramp	Common Reed, Sea Lavender, Saltmarsh Aster, Seaside Goldenrod	14
PFO1E	Palustrine forested, broad-leaved deciduous, seasonally flooded/saturated	Southwest of Runway 14, south of West Ramp	Tree Layer: Red Maple Shrub Layer: Northern Arrowwood	15
R5UBFX	Riverine Unknown Perennial semi-permanently flooded, excavated	Northwest and Southwest of the West Ramp	Cattail and various hydrophytic graminoids (unidentified sedges and rushes).	16
R4SBC	Riverine Intermittent Stream Bed, seasonally flooded	Northwest of the West Ramp	Cattail, Common Reed, Jewelweed	17
PUBHx (slow moving reach of Tuttle Creek)	Palustrine Unconsolidated bottom, permanently flooded, excavated	Northwest of Runway 20; (relocated segment of a former watercourse)	Shrub/Sapling Layer: alder sp.; Silky Dogwood, Eastern Cottonwood  Herbaceous Layer: Common Reed, Reed Canary Grass, Arrow-leaved Tearthumb, Cattail, joe pyeweed, jewelweed, Purple Loosestrife, Curly Dock, beggar's ticks.	18
PEM1/2	Palustrine Emergent, non-persistent wetland	Northwest of Runway 20; on either side of Tuttle Creek	Silky Dogwood, Cattail, Pickerel Weed	19
PFO1E	Palustrine Forested, seasonally flooded/saturated	Northeast of Runway 20 (along property line)	Red maple, Black Gum, Spicebush	20



Symbol	Wetland Cover Type	Location Notes	Characteristic Wetland Vegetation	Map Locator No.
PFO1Ed	Palustrine Forested, seasonally flooded/saturated, ditched	Northeast of Runway 20 (along property line)	Red maple, Black Gum, Spicebush, Common Reed	21
PEM2E	Palustrine Emergent, nonpersistent, seasonally flooded/saturated	North of Runway 32	Soft Rush, Broom sedge, spike rush various other unidentified hydrophytic graminoids (various rushes and sedges)	22
PEM2E	Palustrine Emergent, nonpersistent, seasonally flooded/saturated	North of Runway 32	Soft Rush, Broom sedge, spike rush various other unidentified hydrophytic graminoids (various rushes and sedges)	23
PEM2E	Palustrine Emergent, nonpersistent, seasonally flooded/saturated	North of Runway 32	Soft Rush, Broom sedge, spike rush various other unidentified hydrophytic graminoids (various rushes and sedges)	24

Source: FHI, site observations October 15, 23, and November 1, 2019.

The majority of wetland acreage associated with the systems on and surrounding the Airport are tidal wetlands. The tidal wetlands generally extend from the southwestern side of Runway 2-20 on the west side of the Airport, around the southern end of the Airport, and to the east side of Runway 14 north of Runway 32. However, in areas where former hydraulic connectivity to tidal waters has been highly modified by fill, culverts, and tide gates, the limits of tidal versus freshwater wetlands are often unclear; especially where the invasive, non-native Common Reed (*Phragmites australis*) has become the dominant species of vegetation.

### 5.6.1. Regulatory Framework

The CT DEEP has established a clean water program in response to the federal and state (CGS Chapter 446k) Clean Water Acts, outlining the authorities and procedures for permitting discharges to the waters of the U.S. and the state and for abatement of pollution. These procedures are carried out through various regulatory and permitting programs. Additional regulations protecting watercourses and waterbodies are described under the *Wetlands* section of this chapter.

### 5.6.2. Surface Water Quality

The Airport is situated in the lower reaches of the Tuttle Brook Watershed, which drains an area of approximately 4.4 square miles. The watershed is predominantly developed with residential, commercial, and industrial uses. Tuttle Brook, which becomes known as Morris Creek at the East Haven-New Haven boundary, flows south through the length of the Airport property, approximately parallel and very close to its western boundary. This watercourse is tidally influenced upstream to approximately the location of the long-term parking facility on the east side of the Airport. Near the southern boundary of the Airport, the creek turns west and flows





through a tidal wetland area before it discharges into New Haven Harbor at Lighthouse Point Park.

The creek is tidal within the Airport property, even though a tide gate just south of South End Road partially restricts the tidal flow to the Airport. The water quality classification of the creek in the vicinity of the Airport is Surface Water Quality Classification “B” (SB) and “A” (SA), indicating a coastal/marine surface water that is presently not meeting the SA Water Quality Criteria for one or more designated uses, while the goal is the attainment of class SA criteria and designated uses. The SA designated uses include marine fish, shellfish, wildlife habitat, shellfish harvesting for direct human consumption, recreation, and other legitimate uses including navigation. The SB designated uses are similar except they include industrial use, and any shellfish harvested must be transferred to a depuration area for purification prior to human consumption. The CT DEEP has developed water quality criteria for each surface water classification, outlining descriptive and numerical standards for each class.

Historic water quality data for Morris Creek, both upstream of and in the vicinity of HVN reflects runoff from the larger watershed area, with its commercial, industrial, and residential uses, as well as from airport uses. Water quality parameters detected in past studies at elevated levels included nitrate, copper, zinc, total dissolved solids, and total phosphorus indicating impacts from adjacent land uses. Sources of these constituents in the watercourse have been attributed to various land uses in the watershed as well as contributions of these components from parent surficial and bedrock geologic formations.

There are no public surface water supplies or reservoirs in the vicinity of HVN, which is supplied with public water via a municipal water distribution system. HVN, like the overall area, is connected to the local sewer system, with sewage pumped to the East Shore Water Pollution Abatement Facility located on the east shore of New Haven Harbor, approximately 1.2 miles northwest of the Airport.

### 5.6.3. Groundwater Quality

The CT Water Quality Classifications Maps for New Haven and East Haven depict the Airport entirely within an area with a Groundwater Classification “B” (GB) groundwater classification ([www.cteco.uconn.edu](http://www.cteco.uconn.edu)). This designation is assigned to “ground water within a historically highly urbanized area or an area of intense industrial activity and where public water supply service is available. Such ground water may not be suitable for human consumption without treatment due to waste discharges, spills or leaks of chemicals or land use impacts”.

Surficial geology mapping<sup>3</sup> provided by the CT DEEP depicts the Airport as “artificial fill”. Surficial geology to the north of the Airport is mapped as “sand overlying fines” and to the south of the Airport as “salt-marsh and tidal marsh deposits”. There are no public water supply wells in the vicinity of the Airport, and the Airport and most of the surrounding area adjacent to and hydrologically downgradient is supplied by public water.

There are several groundwater monitoring wells on-site that are sampled or have been sampled periodically; several which lie along the edge of the site adjacent and close to hydrologically down-

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<sup>3</sup> [http://cteco.uconn.edu/maps/town/surfmat/SurfMat\\_EastHaven.pdf](http://cteco.uconn.edu/maps/town/surfmat/SurfMat_EastHaven.pdf)



gradient wetlands and watercourses. Groundwater sampling, analysis, and assessment was not conducted as part of this Master Plan Update.

Groundwater is likely anticipated to flow south and west through the Airport property and to discharge to Morris Creek and its tributary.

#### 5.6.4. Stormwater Pollution Prevention

The only discharges made to surface waters from HVN are non-point discharges from stormwater runoff to Morris Creek. HVN is registered under the CT DEEP's General Permit program pursuant to the National Pollutant Discharge Elimination System (NPDES), and currently operates under a stormwater discharge permit from CT DEEP. The NPDES permit conditions require HVN to take routine surface water samples and report the results to the CT DEEP, with samples taken from Morris Creek at the south end of the Airport which are then sent to an independent laboratory for requisite testing. Sampling results have routinely been within acceptable ranges for the NPDES Permit.

### 5.7. HAZARDOUS MATERIALS AND SOLID WASTE

#### 5.7.1. Regulatory Framework

There are several federal and state regulations which address the presence of site contamination and hazardous materials in construction and demolition activities. The U.S. Resource Conservation and Recovery Act (RCRA) created a federal regulatory framework for "cradle to grave" hazardous waste management, from the time it is generated until its ultimate disposal. The 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorized the U.S. Environmental Protection Agency (EPA) to respond to releases of hazardous substances that endanger public health, welfare, or the environment. The applicable regulations for addressing asbestos-containing materials (ACM) are EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP). The Occupational Safety and Health Administration's (OSHA's) Lead in Construction regulations (29 CFR 1926.62) regulate the exposure to lead in construction.

CT has adopted hazardous waste regulations that incorporate federal hazardous waste requirements (under both RCRA and CERCLA), and in some cases, has modified several federal requirements which make CT's program more stringent or broader than the federal program. Connecticut's Remediation Standard Regulations (RSRs), CGS Section 22a-208a(c)(2); RCSA Sections 22a-133k-1 through 22a-133k-3, provide detailed guidance and standards that are used to determine whether or not remediation of contamination is required. The Connecticut Department of Public Health implements the standards for asbestos abatement (RCSA Sections 19a-332a-1 through 19a-332a-16) and lead abatement (RCSA Sections 19a-111-1 through 19a-111-11 and 20-478-1 and 20-478-2).

#### 5.7.2. Existing Conditions

An environmental records database search of the EPA's Facility Registry Service (FRS) was conducted to obtain information pertaining to federal and state environmental quality records for the Airport. The FRS provides facility data to support EPA's mission of protecting human health



and the environment. It contains information on programs under the purview of both the EPA and CT DEEP.

HVN is not included in any of the superfund-related databases (i.e., CERCLIS List, CERLCIS No Further Remediation Action Planned [NFRAP] Site List, Delisted National Priority List [NPL] Site List, NPL Site List, and Superfund Enterprise Management System [SEMS] databases) as reported by the FRS. No superfund properties in these databases are reported to occur on or adjacent to the Airport. The closest superfund site to the project area is the Win Manufacturing Company located at 22 Hemingway Avenue in East Haven, located just under a half mile east of the Airport.

As part of the Airport's Stormwater Pollution Prevention Plan (SWPPP), which is required by the NPDES General Permit (described in Section 4.7.3 above), HVN is equipped with emergency response equipment and an emergency response plan in the event of an accidental release of hazardous materials at the Airport.

### *RCRA Database Facilities*

Robinson Aviation, Inc. located at 50 Thompson Avenue in East Haven, CT is registered with the USEPA as a Conditionally Exempt Small Quantity Generator (CT Handler ID No. CTR000010629 as of 12/07/19).

Other facilities are listed in the RCRIS database as unspecified handlers. They include the following:

- Shoreline Aviation Inc, (EPA Registry ID: 110002497815), located at 40 Thompson Avenue in East Haven, CT (Handler ID: CTR000010611)
- Advanced Composite Products (EPA Registry Id: 110003011473) located at 37 Washington Avenue East Haven, CT (Handler ID: CTD012136354).

### *State Site Information Management System*

HVN has multiple records in the State Site Information Management System (SIMS). SIMS is part of a suite of web-based applications designed to allow CT DEEP staff to collect environmental interest information from the various departmental programs into a single agency-wide data repository. The goal of the repository is to provide a tool for identifying and resolving duplicate data, querying data (using both tabular and geospatial methods) and viewing/maintaining documents associated to the data. ([www.epa.gov/frs/frs-data-sources#SIMS](http://www.epa.gov/frs/frs-data-sources#SIMS)).

HVN appears in this state registry for the following facilities/sites:

- The Airport proper (FRS ID No. 1540469)
- The wetlands south of Morris Creek (SIMS ID 1555523)
- Runway improvements (SIMS ID 1504982)
- Culvert replacement (FRS No. 555762, SIMS No. TSD-KZ-00-3301)
- Underground Storage Tanks (USTs) registered for the Maintenance Garage (FRS ID Nos. 1520006, 1533815; and SIMS Nos. 44-12340 and 93-5972); Hangar I (SIMS No. 44-12842).





### *Fuel Storage*

Since the 2002 Master Plan, a new fueling station was installed by Robinson Aviation. Three above-ground storage tanks (ASTs) used for the storage of aviation fuel are located on the east side of the Airport, between the Robinson Aviation hangar and the airport maintenance building. Fuel dispensing is conducted via four mobile fuelers (trucks).

### *Pesticide and Herbicide Use*

No pesticides are used on Airport grounds. Small quantities of herbicides are applied, manually, to problem areas, where necessary, to prevent the growth of woody stems and roots around runway pavements. Such small amounts, properly applied, are generally taken up by the plants at the point of application, and do not enter stormwater runoff.

### *Deicing Fluids*

Deicing fluids are used at HVN during cold weather, primarily by tenant aviation service providers. The deicing agent used is propylene glycol. Propylene glycol, when discharged, has the effect of increasing biochemical oxygen demand (BOD), which decreases the available oxygen for aquatic life in receiving waters. Since the 2002 Master Plan Update, the Airport undertook efforts to address deicing fluid recovery, including stormwater contaminated with aircraft deicing fluid. Deicing is conducted at the West Terminal Ramp in the area equipped with a glycol recovery system. Work to install the glycol recovery system was conducted in 2007. Based upon the record plan set of the newly installed Glycol Recovery System (Edwards and Kelcey, 2008) the system is designed to capture the fugitive deicing agent and associated stormwater, and direct it to a catch basin at the center of the deicing pad located at the West Ramp. The deicing pad catch basin leads to a diversion chamber that, under normal stormwater flow conditions, directs the collected stormwater to its regular discharge outfall. During application of the deicing agent, the normal stormwater outfall outlet is closed within the distribution chamber, and the collected product and stormwater is then directed via an opened outlet that leads to an eight foot diameter by ten foot deep wet well. The product is then pumped from this well and transferred underground via force main first northerly, under Taxiway F, then westerly under Taxiway D to the entrance of the Airport off Burr Street. Here, the product is stored within one of two, 12,000-gallon Convault ASTs before it is pumped off site to the sanitary sewer.

## **5.8. NATURAL RESOURCES AND ENERGY SUPPLY**

HVN currently uses electricity, fossil fuels, and other sources of energy for lighting, heating, air conditioning, and building climate control; airfield lighting (locational, directional, and safety); powering computers, printers, servers, switchboards, modems, radios, television monitors, passenger ticketing stations, parking pay stations, and other technology; aircraft; and ground vehicles and equipment, including vehicle lifts, bobcats, plow trucks, and lawn mowers.



## 5.9. ENVIRONMENTAL JUSTICE, SOCIOECONOMICS, AND CHILDREN'S HEALTH & SAFETY

### 5.9.1. Environmental Justice

#### *Regulatory Framework*

Executive Order No. 12898, issued February 11, 1994, requires that each federal agency incorporate Environmental Justice (EJ) into its mission. This is to be accomplished "by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." Note that EJ focuses upon a different categorization of population than addressed by Title VI, which was concerned with race, color, or national origin. However, for some individuals and neighborhoods, these areas of federal interest overlap. Therefore, EJ principles are incorporated into the processes and products of federally funded regional transportation planning. As guidance, the USDOT outlined three principles to guide EJ evaluations, as follows:

Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.

Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.

Prevent the denial of, the reduction in, or the significant delay in, the receipt of benefits by minority and low-income populations.

#### *Existing Conditions*

An EJ population area is defined by the USDOT as one in which there is a concentration of either minority, limited English proficiency (LEP), or low-income individuals as compared with a larger geographic region.

As presented in **Table 5-4** and **Table 5-5**, in the study area, comprised by the Census Block Groups within half mile of HVN, there is:

- A lower percentage of minority (23%) than the Town of East Haven (33%), the City of New Haven (58%), the South-Central Planning Region (29%). The percentage of minority in the Study and the state of CT is the same.
- A lower percentage of LEP households (2%) than the Town of East Haven (7%), the City of New Haven (8%), the South-Central Planning Region (5%), and the state of CT (5%).
- A lower percentage of unemployed (6%) than the Town of East Haven (7%), the City of New Haven (11%), the South-Central Planning Region (8%), and the state of CT (8%).
- A lower percentage of poverty (8%) than the Town of East Haven (9%), the City of New Haven (25%), the South-Central Planning Region (12%), and the state of CT (10%).

The study area does not meet the USDOT definition of an environmental justice population area, as the percent minority and percent LEP households are lower than progressively larger geographic areas of the Town of East Haven, the City of New Haven, the South Central Region, and



CT as a whole. The percent poverty and percent unemployed in the study area are also lower than each of these larger geographic areas.

**Table 5-4: Population, Minority, and Limited English Proficiency Demographics**

Geography	Total Population	Minority Population	Percent Minority	LEP Households	LEP Household Percentage of Total Population
Study Area	16,525	3,836	23%	269	2%
Town of East Haven	29,006	5077	33%	367	7%
City of New Haven	130,884	74,552	58%	4,356	8%
South Central Region	563,611	156,306	29%	10,128	5%
State of Connecticut	3,594,478	837,414	23%	70,562	5%

Source: U.S. Census, 2010, mid-decade and 2017 American Community Survey.

**Table 5-5: Employment and Income Demographics**

Geography	Total Employed	% Unemployed	Percentage Poverty
Study Area	7,254	6%	8%
Town of East Haven	11,270	7%	9%
City of New Haven	49,987	11%	25%
South Central Region	7,254	8%	12%
State of Connecticut	11,270	8%	10%

Source: U.S. Census, 2010, mid-decade and 2017 American Community Survey.

### 5.9.2. Socioeconomics

Socioeconomic conditions, such as major employers, employment levels, and household characteristics, were obtained through available sources such as the U.S. Census data (2010, mid-decade, and 2017 American Community Survey), the City of New Haven, the Town of East Haven, the South Central Region Council of Governments (SCRCOG), and local economic development organizations. Particular parameters of interest were qualitatively evaluated in order to characterize existing conditions, including the following:

- Housing characteristics in neighborhoods in the study area
- Neighborhood organizations/associations and town neighborhood planning programs within the study area
- Local transportation patterns such as accessibility to businesses, neighborhoods, and recreational and cultural facilities
- Locations of major employers in the study area vicinity
- Location of community assets in the study area
- Income, employment, and economic activity within the project area

According to data from the Connecticut Economic Resource Center (CERC) 2019 Town Profile for East Haven, the business/industry sectors providing the greatest number of jobs in East Haven in 2018 were retail/trade (1,356), health care/social assistance (1,039), government (901), accommodation/food services (589), construction (371), and manufacturing (313). Major





employers in 2016 included the Town of East Haven, Home Depot, Town Fair Tire, Stop and Shop, and Shop Rite. According to the CERC 2019 Town Profile for New Haven, the business/industry sectors providing the greatest number of jobs in New Haven in 2018 were health care/social assistance (21,889), educational services (18,238), government (11,502), retail/trade (3,835), (1,039), manufacturing (2,117), and construction (159). Major employers in 2016 included Yale University, Yale Medical Group, New England Home Care Inc., Yale-New Haven Health, and Southern Connecticut State University.

Housing characteristics are presented in **Table 5-6** including number of housing units, percent owner/renter occupied, percent vacant, average household size, and median household income in the study area, as compared with the Town of East Haven, City of New Haven, South Central Region, and CT as a whole. The Study Area housing characteristics are similar to those of East Haven, the South-Central Region, and CT. There are more owner-occupied residents in the study area than in the City of New Haven as a whole.

Table 5-6: Household Demographics

Geography	Total Housing Units	Percent Owner Occupied	Percent Renter Occupied	Percent Vacant	Average Household Size	Median Household Income
Study Area	7,254	65%	35%	13%	2.28	\$60,997
Town of East Haven	11,270	68%	32%	11%	2.56	\$63,993
City of New Haven	49,987	29%	71%	14%	2.51	\$42,421
South Central Region	218,134	61%	39%	12%	2.51	\$71,012
State of Connecticut	1,361,755	67%	33%	12%	2.58	\$78,804

Source: U.S. Census, 2010, mid-decade and 2017 American Community Survey.

The City of New Haven is divided into 21 neighborhoods, with two abutting HVN: The East Shore and the Annex. Geographically separated from downtown New Haven by the Mill River and New Haven Harbor, these are among the least densely populated and the most suburban of neighborhoods in New Haven. The East Shore Neighborhood is described in the City’s Plan of Conservation and Development (New Haven Vision 2025: A Plan for a Sustainable, Healthy, and Vibrant City, 2015) as follows: “The East Shore neighborhood is remarkably stable and well connected to the waterfront. The Commission recommends stewardship of public waterside resources, compatible infill development policies, and code enforcement to ensure the long-term viability of this neighborhood.”

The City of New Haven’s POCD (*New Haven Vision 2025*, November 2015) notes that “Tweed New Haven Airport is remarkably underused given the size of the local market. Efforts should be made to implement the capital program in a manner that protects nearby residents from undue hardship.” The POCD notes that “economic and runway length issues have so far hampered efforts to attract additional air carriers.”



The Town of East Haven Plan of Conservation and Development (POCD) (February 2019) notes that the Airport “has the potential to become a greater regional economic asset and a draw for business development at the East Haven Industrial Park.” While the POCD acknowledges controversy with potential runway expansion and resident’s concerns about noise and safety, the POCD also notes the Airport has been “underutilized to date,” and is “an economic asset to the community, which may result in beneficial opportunities.” The Town of East Haven POCD also notes tidal wetlands surround the Airport. Growth and development of the Airport is consistent with the POCD, as long as it occurs in accordance with “environmental standards to protect the sustainability of the wetlands.”

The Town of East Haven has identified the industrial park that borders the Airport property to the east as one of its key economic development areas to help broaden the municipal tax base and attract high-quality employers. There are several vacant buildings within the industrial park available for use or redevelopment.

East of the Airport, the POCD identifies the area along Hemmingway Avenue between Edward Street and Proto Drive as a transition area extending south of the Central Business District towards the shoreline and beach area. This area east of the Airport offers a neighborhood-scale commercial area, such as commercial strip plazas. While south of the Airport, the POCD notes “very significant environmental resources and the Town Beach” and states “the future of this area would not include any new significant development.” These environmental resources include both inland and tidal wetlands. Coe Avenue is the main road connecting the beach area with the center of East Haven.

The State’s *Conservation and Development Policies: The Plan for Connecticut 2013-2018* includes a recommendation to “implement necessary Tweed New Haven Airport improvements to connect to two to three hub cities.”

## 5.10. VISUAL EFFECTS

### 5.10.1. Regulatory Setting

According to Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policies and Procedures*, the FAA has not established a significance threshold for Light Emissions or for Visual Resources / Visual Character. However, the guidance provided by FAA is to assess the degree to which the action would have the potential to:

- Create annoyance or interfere with normal activities from light emissions
- Affect the visual character of the area due to the light emissions, 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
- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

### 5.10.2. Existing Conditions

HVN is situated on flat land with one- and two-story homes to the north and west; tidal wetlands and homes to the south; and tidal wetlands and industrial buildings to the east. The topography



remains flat off Airport property to the west, south, and east. The land rises, approximately 100 feet, northwest of Burr Street. Further to the south and west is Morris Cove and Long Island Sound. Morris Cove and Long Island Sound cannot be seen from the Airport property, while on the ground; however, views of these waterbodies are visible from airborne aircraft.

The visual landscape, for viewer groups on the ground, is dominated by airport land uses, including the wide swaths of turf, the terminal building and airport administration building on the west side of the north-south running runway (Runway 2-20), and hangars, on the east side of Runway 2-20. Each of these Airport buildings are of greater height and mass than any of the other surrounding structures. The visual setting on Airport property also the creeks that traverse the perimeter of the Airport property on the north west, and south/southeast, runway and taxiway pavement. The visuals setting includes surface parking areas, particularly to the north of the terminal east of Burr Street, and south of the administration building. Pavement and concrete associated with roadways and accompanying sidewalks, as well as perimeter fencing, encircle much of the Airport (Burr Street, Dodge Avenue, Dean Street, South End Road, Uriah Street) except to the south, where there are emergent tidal wetlands. Views are intermittently obstructed by mature street trees growing between the roadways and Airport property.

Lighting on the Airport property dominates the nighttime visual setting. Lighting is employed for aircraft safety reasons, to provide critical information to pilots in take-offs and landings.

The key viewer groups in the project area are 1) HVN employees, 2) airline passengers (both from the ground and in-flight), 3) residents of, visitors to, and travelers through surrounding neighborhoods in New Haven and East Haven. Representative photographs of views for each user group follow.



View of Airport from Burr Street (west side of Airport looking southeast). *Source: Google Earth.*





View of Airport from Dodge Avenue (north end of Airport looking south). *Source: Google Earth.*



View of airport from Dean Street (southwest side of airport looking east). *Source: Google Earth.*





View of Runway 2-20 (south end) from aircraft (looking north).

Source: Fred Boothman (<https://fredboothmanphotography.smugmug.com/Avports/Avports-Airports-Corporate/Tweed-New-Haven-10-22-18/n-ksxDDn/>).



View of Runway 2-20 (north) in flight (looking south).

Source: Fred Boothman (<https://fredboothmanphotography.smugmug.com/Avports/Avports-Airports-Corporate/Tweed-New-Haven-10-22-18/n-ksxDDn/>).



## 5.11. AIR QUALITY

### 5.11.1. Regulatory Setting

The air quality regulations which are applicable to the proposed activities at HVN include the 1990 Clean Air Act Amendments (CAAA)<sup>4</sup>. Air quality is regulated nationally by the EPA. The EPA delegates authority to CT DEEP for monitoring and enforcing air quality regulations in CT.

Under the U.S. CAA, as amended, the EPA established National Ambient Air Quality Standards (NAAQS) for concentrations of six “criteria” air pollutants — carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), and sulfur dioxide (SO<sub>2</sub>). There are standards for two sizes of PM—PM<sub>2.5</sub> which are particles with a diameter of 2.5 microns or less and PM<sub>10</sub> which are particles with a diameter of 10 microns or less. There are also two sets of standards being (i) primary standards that provide protection for the health of the public and (ii) secondary standards that provide public welfare protection. The NAAQS and their averaging periods are provided in **Table 5-7**. These national standards have been adopted by CT and a State Implementation Plan (SIP) has been developed to monitor attainment and maintenance of the standards.

**Table 5-7: National Ambient Air Quality Standards**

Pollutant		Primary/ Secondary	Averaging Period	Standards	Form
CO		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Pb		Primary and Secondary	Rolling month average <sup>3-</sup>	0.15 µg/m <sup>3</sup>	Not to be exceeded
NO <sub>2</sub>		Primary	1-hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb <sup>(1)</sup>	Annual mean
O <sub>3</sub>		Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
PM	PM <sub>2.5</sub>	Primary	1 year	12 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
		Secondary	1 year	15 µg/m <sup>3</sup>	Annual mean, averaged over 3 years

<sup>4</sup> The 1990 Clean Air Act Amendments, U.S. Congress, Public Law 101-549.





Pollutant		Primary/ Secondary	Averaging Period	Standards	Form
PM <sub>10</sub>		Primary and Secondary	24-hour	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
		Primary and Secondary	24-hour	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
SO <sub>2</sub>		Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Notes: ppb = parts per billion, ppm = parts per million, and µg/m<sup>3</sup> = micrograms per cubic meter of air. Carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), sulfur dioxide (SO<sub>2</sub>).

<sup>(1)</sup> The level of the annual NO<sub>2</sub> standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of comparison to the 1-hour standard level.

Source: EPA, National Ambient Air Quality Standards (NAAQS) at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>, December 2019.

### 5.11.2. Air Quality Designation Status

The EPA (Greenbook, [https://www3.epa.gov/airquality/greenbook/anayo\\_ct.html](https://www3.epa.gov/airquality/greenbook/anayo_ct.html), accessed, November 25, 2019) designates areas with respect to the level of criterial pollutants within a specific area in the state. An area with measured pollutant concentrations that are below the NAAQS is designated as “attainment” and an area with pollutant concentrations that exceed the NAAQS is designated as “nonattainment”. After air pollutant concentrations in a nonattainment area are reduced to levels below the NAAQS, the EPA re-designates the area to be “maintenance”— a designated that is maintained for a period of 20 years. Finally, an area is designated as unclassifiable when there is a lack of sufficient data to determine the status of a pollutant.

The Airport is located within New Haven County, CT. According to the EPA, the area around and inclusive of HVN is designated as non-attainment for the eight-hour Ozone NAAQS for both the 2015 and 2008 standards. New Haven County is in attainment for Pb and SO<sub>2</sub>, and it is in maintenance for CO, NO<sub>2</sub>, and PM<sub>2.5</sub>. Part of New Haven County is in attainment for PM<sub>10</sub>.



## Literature Cited

- Benoit, L.K., and R.A. Askins. 1999. Impact of the spread of *Phragmites* on the distribution of birds in Connecticut tidal marshes. *Wetlands* 19(1):194-208.
- City of New Haven. *New Haven Vision 2025*. November 2015.
- CT DEEP. 2000. *Connecticut Coastal Management Manual*.
- CT DEEP. 2019. *Connecticut Natural Diversity Database*.
- Connecticut Department of Energy and Environmental Protection. October 2013. *Connecticut Water Quality Standards*.
- Connecticut Environmental Conditions Online, <http://www.cteco.uconn.edu/viewers/index.htm> (accessed December 20, 2019).
- Connecticut Department of Environmental Protection (2016). "Attainment and Non-Attainment of the National Ambient Air Quality Standards in Connecticut." Available at [https://www.ct.gov/deep/cwp/view.asp?a=2684&q=321762&deepNav\\_GID=1744](https://www.ct.gov/deep/cwp/view.asp?a=2684&q=321762&deepNav_GID=1744)
- CT DEEP. 2013. Connecticut Water Quality Standards and Classification Maps.
- Connecticut Economic Resource Center (CERC) (2019) Town Profile for East Haven available at [https://www.cerc.com/Content/Town\\_Profiles.asp](https://www.cerc.com/Content/Town_Profiles.asp).
- Connecticut Economic Resource Center (CERC) (2019) Town Profile for New Haven available at [https://www.cerc.com/Content/Town\\_Profiles.asp](https://www.cerc.com/Content/Town_Profiles.asp).
- Connecticut Office of Policy and Management. 2013. *Connecticut Conservation and Development Policies Plan 2013-2018*.
- Cowardin, L. M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Government Printing Office. Washington D.C. GPO 024-010-00524-6 103 pp.
- CT DEEP. 2015. Connecticut's Endangered, Threatened and Special Concern Species. State of Connecticut Department of Environmental Protection, 2015.  
[http://www.ct.gov/dep/cwp/view.asp?a=2702&q=323488&depNav\\_GID=1628](http://www.ct.gov/dep/cwp/view.asp?a=2702&q=323488&depNav_GID=1628)
- DeGraaf, R. M., & Yamasaki, M. 2001. *New England Wildlife: Habitat, Natural History, and Distribution*. Hanover, New Hampshire: University Press of New England.
- Elphick, C.S., C. Gjerdrum, P. Comins and M. Rubega. 2005. Salt marsh-breeding sparrows in Long Island Sound: status and productivity of globally important populations. Final report submitted to the Environmental Protection Agency. Pages 1-94.
- EPA, Greenbook, Connecticut Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants at [https://www3.epa.gov/airquality/greenbook/anayo\\_ct.html](https://www3.epa.gov/airquality/greenbook/anayo_ct.html), December 2019.



- Federal Emergency Management Administration (FEMA), Flood Insurance Rate (FIRM), National Flood Hazard Layer FIRMette, Panel 09009C0444J (effective July 8, 2013).
- Fred Boothman. (<https://fredboothmanphotography.smugmug.com/Avports/Avports-Airports-Corporate/Tweed-New-Haven-10-22-18/n-ksxDDn/>).
- Gjerdrum, C., C. S. Elphick and M. Rubega. 2005. Nest site selection and breeding success in salt marsh sparrows. *The Condor* 107: 849-862.
- Gjerdrum, C., C. S. Elphick and M. Rubega. 2008. How Well Can We Model Numbers and Productivity of Saltmarsh Sparrows (*Ammodramus caudacutus*) Using Habitat Features? *The Auk* 000(0): 1-10, 2008
- Haniseck, G. 2005. Connecticut Birds by the Season. *The Connecticut Warbler. A Journal of Connecticut Ornithology*. 25 (1) 1-44. January 2005.
- Klemens, M. W. 1993. Amphibians and Reptiles of Connecticut and Adjacent Regions. State Geological and Natural History Survey of Connecticut, Bulletin 112, 1993.
- National Park Service, National Register Research and Database, <https://www.nps.gov/subjects/nationalregister/index.htm> (accessed December 18, 2019).
- Nature Serve, <https://www.natureserve.org> (accessed 2019).
- New Haven Zoning Map. <https://www.newhavenct.gov/gov/maps.htm>. Accessed November 8, 2019.
- Shriver, W. G. 2002. Conservation Ecology of Salt Marsh Birds in New England. Ph.D. Dissertation. State University of New York, Syracuse.
- Sibley, F.C. 1994 Least Tern. In: Bevier, Louis. 1994. Editor: The Atlas of Breeding Birds of Connecticut. State Geological and Natural History Survey of Connecticut Department of Environmental Protection. Bulletin No. 113. 461pp.,
- State of Connecticut. *Conservation and Development Policies: The Plan for Connecticut 2013-2018*.
- Terres, J. K. 1980. The Audubon Encyclopedia of North American Birds. New York: Alfred A. Knopf. 1109 pp.
- Town of East Haven Geographic and Property Information. Zoning Map. Accessed November 8, 2019.
- Town of East Haven Plan of Conservation and Development Update. Adopted February 1, 2019.
- Town of East Haven Zoning Regulations, Effective January 10, 2001.
- U.S. Census Bureau (2017), American Community Survey (ACS), available at <https://www.census.gov/programs-surveys/acs/news/data-releases.html>.
- U.S. Conservation Department of Agriculture, NRCS Web Soil Survey. Accessed December 20, 2019. <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.





U.S. Fish & Wildlife Service (USFWS) National Wetland Inventory. Accessed December 20, 2019.  
<http://www.fws.gov/wetlands/Data/Mapper.html>

Zeranski, Joseph D. and Thomas R. Baptist. 1990. Connecticut Birds. University Press of New  
England. Hanover, N.H. 328 pp.