

Barnstable Municipal Airport

Airport Master Plan



Inventory



2. Inventory

2.1. INTRODUCTION

The inventory chapter provides an overview of the Barnstable Municipal Airport – Boardman/Polando Field (HYA or the Airport) including its location and ownership, history, physical facilities, airspace, land use, and zoning. This information was obtained through on-site investigations of the Airport, interviews with Airport personnel, and review of published information as of the Fall of 2019. Information was also obtained from available planning documents and studies concerning the Airport and surrounding areas. The information presented in this chapter serves as the basis for the development of aviation forecasts as well as the baseline data to be used in the Facility Requirements Chapter.

This chapter is organized into the following sections:

- Airport Background
- Airside Facilities
- Landside Facilities
- Support Facilities
- Airspace
- Air Traffic Control
- Land Use and Zoning

2.2. AIRPORT BACKGROUND

2.2.1. Airport Background and History

The Airport opened as a single grass airstrip known by the name of Hyannis Airport, due to its location to the Village of Hyannis, the largest of the seven villages in the Town of Barnstable, Massachusetts. The official airport opening was in July, but June 17, 1928 saw the first landing. In the 1930's, the Town of Barnstable took over the Airport and eventually renamed the Airport: Barnstable Municipal Airport.

The Airport gained in popularity, seeing daily deliveries of the *Boston Herald Traveler* newspaper and hosting numerous air shows which attracted the public to the Airport. Scheduled air service began at the Airport on July 2, 1931. This flight carried five passengers from Boston. The plane left Hyannis at 7:45 a.m. every day to connect with the 8:30 a.m. flight from Boston to New York. By 1937 an average of four planes were landing per day during the summer season.

In 1940, leading up to World War II, the Airport expanded to three 4,000-foot runways for armed forces use. The Navy later assumed control of the Airport for pilot training, including former President George H.W. Bush. However, after the war, the Airport was returned to the town as a municipal airport and restarted civilian flights in February 1946. In 1957, Runway 6-24 was extended to 5,600 feet and a new terminal was constructed. Four years later, in 1961, a new air traffic control tower (ATCT) was built.



Given increasing popularity and operations, the Airport continued to improve infrastructure to accommodate capacity and ensure the safety of aviators and the public. In 2003, an Engineered Material Arresting System (EMAS) was installed at the end of Runway 6, to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. This engineered system requires significantly less land area than a traditional runway safety area and was the first EMAS installed in New England.

Progress in improving Airport infrastructure continued throughout the 2000's, and between 2011 and 2012, the Airport demolished the old ATCT and Terminal Building and constructed new facilities as part of a \$40 million airport improvement program¹.

A history of FAA grants administered to the Airport can be seen in **Appendix A**

2.2.2. Airport Location

Barnstable Municipal Airport is located approximately one mile north of downtown Hyannis (see **Figure 2-1**). Major access to the Airport is provided by Massachusetts Routes 28 and 132 (Iyannough Road) which connects Massachusetts Route 6 (Mid Cape Highway) to the Airport. Local access to the Airport is provided by Hinckley Road, Barnstable Road, and Mary Dunn Way. A rotary connecting these roads is located adjacent to the Airport. The Airport property is located in the Town of Barnstable, within the Village of Hyannis.

The Airport reference point (latitude and longitude of the approximate geometric center of the Airport) is located at 41° 40' 09.60" North latitude and 70° 16' 49.30" West longitude. The Airport is situated at an elevation of 54.1 feet above mean sea level (MSL). HYA occupies 639 acres in areas identified with commercial development, residential properties, and environmental areas. Environmental considerations will be further discussed in the Environmental Overview Chapter.

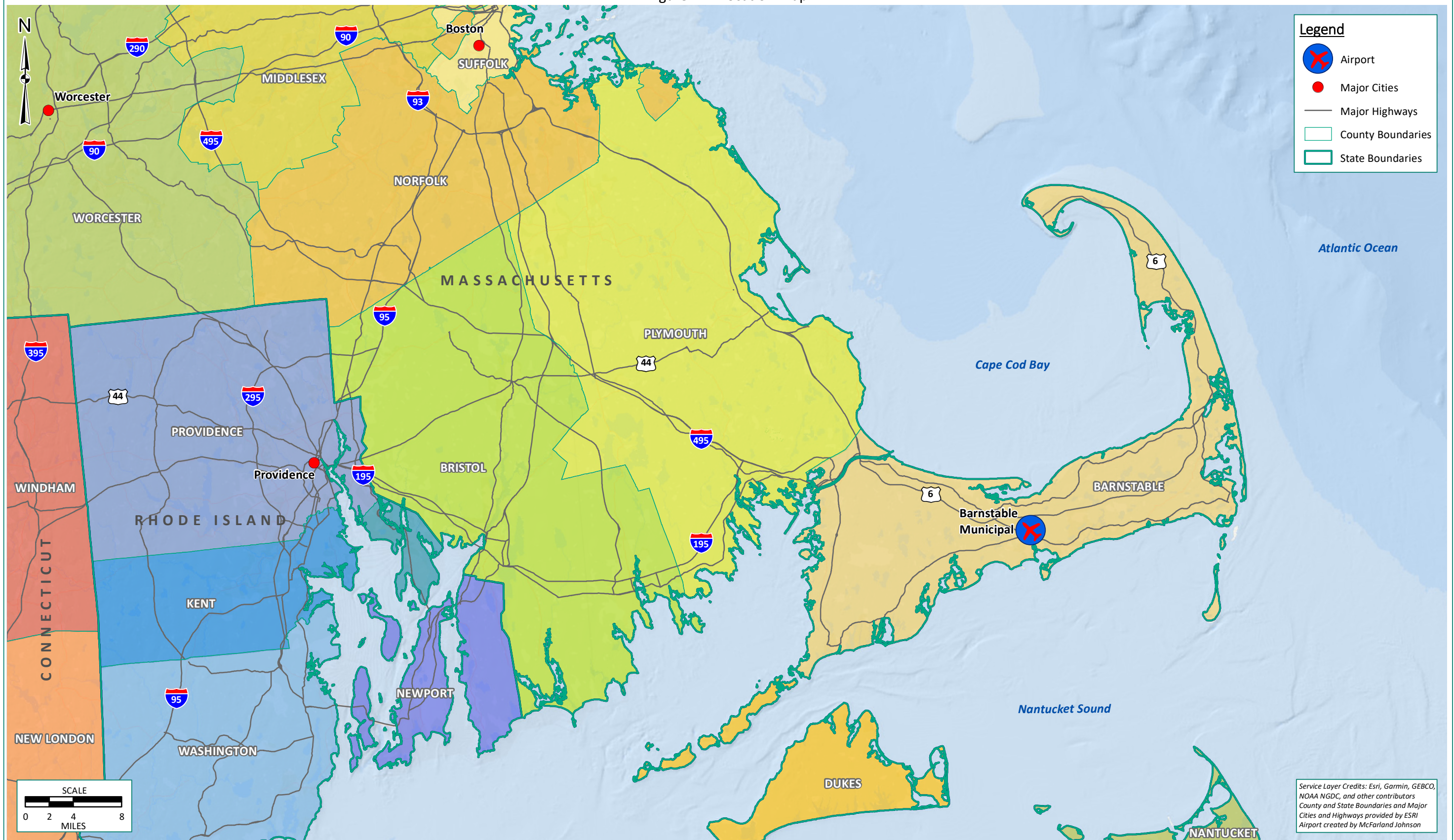
The climate of Barnstable County can be described as a "humid continental" climate. This is characterized by large seasonal temperature contrasts with warm summers and cold winters. Humid continental climates experience ample precipitation which is evenly distributed throughout the year (Encyclopedia Britannica)². Historical data from Hyannis, Massachusetts marks July as the hottest month of the year with an average maximum temperature of 78° F and January as the coldest month of the year with an average maximum temperature of 38° F. Records also indicate the annual average rainfall is 43.3 inches while the average annual snowfall is 15.6 inches (Current Results)³.

¹ <https://www.town.barnstable.ma.us/airport/about/about.aspx>. Retrieved September 3, 2019.

² T. (Ed.). (2016, March 14). Humid continental climate. In *Encyclopædia Britannica*. Retrieved September 3, 2019, from <https://www.britannica.com/science/humid-continental-climate>.

³ <https://www.currentresults.com/Weather/Massachusetts/average-massachusetts-weather.php>. Retrieved September 3, 2019.

Figure 2-1: Location Map



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2.3. AIRSIDE FACILITIES

Airside facilities enable the arrival and departure of aircraft, including the following:

- Runways
- Taxiways
- Ramps
- Instrumentation
- Visual Aids
- Navigational Aids

The locations of the runways and taxiways are depicted in the Barnstable Municipal Airport Layout, **Figure 2-2**.

2.3.1. Runways

HYA has two runways, Runway 15-33 and Runway 6-24. Pertinent information regarding HYA's runways can be found in **Table 2-1** and **Table 2-2**.

Runway 15-33

Runway 15-33 measures 5,253 feet long by 150 feet wide. It is generally aligned in a northwest to southeast direction. Winds predominantly favor Runway 15-33 for approximately 75 percent of operations during the winter months. The runway is constructed of grooved asphalt. The runway has high intensity runway edge lights (HIRL). Runway 15 is equipped with 2,400-foot medium intensity approach lighting system with runway alignment indicator lights (MALSR). Runway 33 is equipped with 4-box precision approach path indicator (PAPI) with a standard 3-degree glide path. Runway 15-33 has precision instrument markings in good condition⁴. The runway was reconstructed in 2017.

Table 2-1: Runway Data

Runway	15-33		6-24	
Surface	Grooved Asphalt		Grooved Asphalt	
Dimensions	5,253' by 150'		5,425' by 150'	
Pavement Condition	Good Condition		Good Condition	
Displaced Threshold	N/A	150'	406'	N/A
Markings	Precision Instrument		Precision Instrument	
Lighting	HIRL		HIRL	
End Elevation (MSL)	54.1'	42.6'	44.4'	39.2'
Code of Federal Regulation (CFR) Part 77 Approach Surface Slope	50:1-40:1	34:1	34:1	50:1-40:1

⁴ FAA Airport Master Record (Ford 5010), Retrieved October 29, 2019 from <https://www.gcr1.com/5010ReportRouter/HYA.pdf>.



Runway	15-33		6-24	
Approach Minima	254' Decision Altitude (DA) – 2,400' Runway Visibility Range (RVR)	300' DA – 1 Statue Mile (SM)	316' DA – 1 SM	293' DA – 4,000' RVR
Visual Approach Aids	None	PAPI	PAPI	PAPI
Instrument Approach Aids	ILS, DME	GPS	GPS	ILS, DME
CFR Part 77 Category	PIR	C	C	PIR
Declared Distances	TORA: 5,253' TODA: 5,253' ASDA: 5,253' LDA: 5,253'	TORA: 5,253' TODA: 5,253' ASDA: 5,253' LDA: 5,103'	TORA: 5,425' TODA: 5,425' ASDA: 5,425' LDA: 5,019'	TORA: 5,425' TODA: 5,425' ASDA: 5,425' LDA: 5,425'
Pavement Strength (lbs.)				
Single Wheel	30,000 lbs.		30,000 lbs.	
Dual Wheel	108,000 lbs.		108,000 lbs.	
Tandem	N/A		N/A	
Pavement Classification Number	43/F/A/X/T		32/F/A/X/T	

Note: Non-Applicable (N/A), Precision Instrument Runway (PIR), Non-Precision Instrument Approach with Visibility Minimums Greater than ¾ Mile (C), Takeoff Run Available (TORA), Takeoff Distance Available (TODA), Accelerate-Stop Distance Available (ASDA), Landing Distance Available (LDA)

Source: FAA Form 5010 (accessed on Sept. 3, 2019)

Runway 6-24

Runway 6-24 measures 5,425 feet long by 150 feet wide. It is generally aligned in a southwest to northeast direction. Winds predominantly favor Runway 6-24 for approximately 75 percent of operations during the summer months. The runway is constructed of grooved asphalt. The runway has high intensity runway edge lights (HIRL). Runway 24 is equipped with 1,400-foot medium intensity approach lighting system with sequenced flashers (MALSF). The runway is equipped with 4-box PAPI on both runway ends and both have a standard 3-degree glide path. Runway 6-24 has precision instrument markings in good condition⁵. An EMAS bed is located at the approach end of Runway 6. Improvements to the Runway 6-24 safety areas were completed in 2013; the EMAS bed were not included in this project.

⁵ FAA Airport Master Record (Ford 5010), Retrieved October 29, 2019 from <https://www.gcr1.com/5010ReportRouter/HYA.pdf>.

Figure 2-2: Barnstable Municipal Airport Layout



2.3.2. Taxiways

HYA has seven taxiways designated A, A1, B, C, C1, D, and E. All of the taxiways are of asphalt construction and are equipped with light-emitting diode (LED), high intensity taxiway lights (HITL) with the exception of Taxiway B from Taxiway D to Runway 24, which has incandescent, medium intensity taxiway lights (MITL) and Taxiway E, which is unlit. The Airport also has reflective markers to mark the pavement edge of the run-up area near Runway 24 on Taxiways B and to mark the no-taxi island on the East Ramp beyond the intersection of Taxiways B and D. Taxiway data is shown in **Table 2-2**.

Taxiway A measures 50 feet wide and serves as a full-length parallel taxiway to Runway 15-33 adjacent to the Terminal Ramp. A portion of Taxiway A from the Terminal Ramp to the Runway 15 threshold was shifted in 2013. The remainder of Taxiway A was rehabilitated and straightened in 2015. The Airport perimeter fence is located approximately 110 feet from the taxiway centerline at the closest point. A review of the taxiway object free area (TOFA) near the Runway 15 end in relation to both the fence and the perimeter road will occur in the Facility Requirements chapter.

Taxiway A1 measures 65 feet wide and is a stub taxiway that connects Runway 15-33 to Taxiway A approximately 1,120 feet from the Runway 15 threshold.

Taxiway B measures 40 feet wide and serves as a partial parallel taxiway to Runway 6-24 adjacent to the East Apron. It connects with Taxiway A near the threshold of Runway 33 and terminates at the intersection of Runway 6-24. Taxiway B in front of the East Ramp was rehabilitated in 2016. Taxiway B between Runway 15-33 and the East Ramp was rehabilitated as part of the Runway 15-33 rehabilitation in 2017. Taxiway B from the terminus of the East Ramp to Runway 24 was last reconstructed in 1985 with a PCI of 63 during the most recent 2016 inspection.

Taxiway C measures 50 feet wide and serves as a full-length parallel taxiway to Runway 6-24. Taxiway C crosses Runway 15-33 approximately 1,200 feet from the Runway 33 threshold. Taxiway C from Taxiway D to the Runway 24 threshold was rehabilitated in 2016. The remainder of Taxiway C was straightened and reconstructed in 2017.

Taxiway C1 measures 55 feet wide on the north side of Runway 6-24. Taxiway C1 is a stub taxiway that connects Taxiway C to Runway 6-24.

Taxiway D measures approximately 65 feet wide at the hold bar west of Runway 15-33, 75 feet wide at the hold bar north of Runway 6-24, and 50 feet wide everywhere else. The majority of Taxiway D intersects both Runways 15-33 and 6-24 at an acute angle. Taxiway D extends from the North ramp, across Taxiway A and Runway 15-33 to Taxiway B east of Runway 6-24.

Taxiway E measures 50 feet wide and connects to Runway 15-33 to a run-up pit, measuring approximately 4,700 SY, located north of Runway 15-33.

2.3.3. Ramps

There are three ramps located on the Airport; the Terminal Ramp, East Ramp, and North Ramp. These ramps are defined as areas of the Airport intended for use by aircraft for loading and unloading passengers and cargo, parking, refueling, or maintenance.



Terminal Ramp

The Terminal Ramp is located adjacent to the terminal on the west side of Runway 15-33 and spans approximately 24,000 square yards (SY). The Terminal Ramp is comprised of asphalt and is in good condition with the exception of tire rutting in close proximity to Terminal Gates 2 and 3 due to the heavy loading of the Embraer E190 used by JetBlue. The Terminal Ramp is used for passengers boarding and deboarding aircraft. The northern section of the Terminal Ramp was rehabilitated in 2013. Additional portions of the Terminal Ramp were rehabilitated in 2015 and a deicing pad and aircraft wash rack area were installed as part environmentally friendly improvements being made at the Airport. Ramp data is shown in **Table 2-2**.

East Ramp

The East Ramp is located east of Runway 6-24 and spans approximately 45,600 SY. The East Ramp is constructed of asphalt and is mostly in good condition; it was last rehabilitated in 2014. The pavement surrounding the Hexagon hangars as well as the pavement around the Airport T-hangars, AMA hangar, and airport electrical vault is in poor condition. The majority of hangars that provide storage for single engine aircraft are found on the East Ramp. There are 55 tie-downs on the East Ramp, with 18 located in front of the Air Cape Cod hangar and 37 in front of the Hyannis Hangar LLC T-hangars and the Hexagon hangar.

North Ramp

The North Ramp is connected to the Terminal Ramp closest to the Runway 15 end and spans approximately 55,500 SY. The North Ramp is asphalt and is mostly in fair condition. Pavement conditions surrounding the hangars vary from fair to poor condition. A portion of the North Ramp located north of the Hangar 51 LLC and Airline Realty Trust ramps was rehabilitated in 2011. The entire east side of the North Ramp was rehabilitated in 2013. The ramp has limited space available for aircraft tie-downs.

2.3.4. Summary of Airfield Pavement

Table 2-2 summarizes airport pavement. The Massachusetts Department of Transportation (MassDOT) is starting a new pavement condition index update project in early 2020.

Table 2-2: Airfield Pavement Information

Pavement	Length	Width
RWY 15-33	5,253'	150'
RWY 6-24	5,425'	150'
TWY A	5,800'	50'
TWY A1	400'	65'
TWY B	3,750'	40'
TWY C	5,800'	50'
TWY C1	400'	55'
TWY D	3,600'	65'
TWY E	990'	50'

Pavement	Length	Width
Terminal Ramp	501,028 SF	
East Ramp	657,637 SF	
North Ramp	438,754 SF	

Source: Pavement Condition Index (PCI) MassDOT, 2016; McFarland Johnson, 2019.

2.3.5. Instrumentation

Navigational aids (NAVAIDs) are any electronic or visual devices, airborne or on the ground, which provide point-to-point guidance information or position data to aircraft in flight. There is an ATCT on the Airport that operates 16 hours daily from 6:00 a.m. until 10:00 p.m. HYA has several electronic and visual navigational aids that pilots use to locate, navigate to, and land at the Airport, which are discussed below. Instrument approach procedures use the aircraft's onboard equipment, coupled with either physical or satellite-based components to enable pilots to land in less than ideal meteorological conditions when visibility is reduced. Instrument approaches at HYA can be seen in **Table 2-3**.

Table 2-3: HYA Instrument Approaches

Runway End	Type of Approach	Approach Minima (Ceiling-Visibility)
Runway 15	ILS or LOC	254' Decision Altitude (DA) – 2,400' Runway Visibility Range (RVR) (200-½)
Runway 24	ILS or LOC	293' DA – 4,000' RVR (300-3/4)
Runway 6	RNAV (GPS)	316' DA – 1 Statue Mile (SM) (300-1)
Runway 15	RNAV (GPS)	254' DA – 2,400' RVR (200-½)
Runway 24	RNAV (GPS)	318' DA – 5,000' RVR (300-1)
Runway 33	RNAV (GPS)	300' DA – 1 SM (300-1)
Runway 6	VOR	855' AGL – 1 SM (A) (900-1), 1 ¼ SM (B) (900-1 ¼), 2 ½ SM (C/D) (900-2 ½)

Note: Numbers in parentheses are for military/non-civil pilots.

Source: FAA HYA Terminal Procedures, effective date: October 10 – November 7, 2019.

Instrument Landing System (ILS)

An ILS utilizes both a glideslope antenna and a localizer antenna (LOC) to provide both horizontal and vertical guidance to a specific point where a pilot must decide whether or not to continue the approach visually down to the runway. The localizer provides horizontal guidance, while the glideslope provides vertical guidance.

Approach light systems are used in conjunction with an ILS to assist pilots in the transition from instrument to visual conditions. Runway 15 is equipped with a MALSR and Runway 24 is equipped with a MALSF.

RNAV (GPS) Approaches

Global Positioning System (GPS) approaches use satellites to geospatially pinpoint the aircraft position relative to the airport. GPS approaches are typically classified as area navigation (RNAV)



and can also include a Localizer Performance with Vertical guidance (LPV) as is the case with HYA's GPS approaches. The GPS approaches at HYA also include options for Lateral Navigation (LNAV) and LNAV/Vertical Navigation (VNAV) procedures.

Very-High Frequency Omni-Directional Range (VOR)

A Very High Frequency Omni-Directional Range (VOR) system transmits very high frequency (VHF) radio signals to aircraft equipped with receivers, which allows pilots to determine position and course relative to the VOR facility.

The VOR transmits radio signals outward like the spokes of a wheel. When tuned to the VOR frequency, equipment in the aircraft gives pilots an indication of which spoke they are travelling on or through. Two VOR frequencies can be utilized to provide an exact fix of the aircraft position relative to the ground. The VOR systems used to navigate to HYA are primarily Nantucket, Martha's Vineyard, and Marconi (located in North Truro, Massachusetts) systems. HYA does not have a VOR on the airfield.

2.3.6. Visual Aids

Precision Approach Path Indicator (PAPI)

The systems consist of 4-light units installed on the left side of the Runways 6, 24, and 33. The light units are equipped with red and white beams that project various degrees of glide path to the runway. A PAPI system provides pilots with vertical guidance information regarding the position and flight path of their aircraft versus a standard, constant approach path to clear obstructions. The Runway 6 PAPI is owned and maintained by HYA. Runway 15, Runway 24 and Runway 33 PAPIs are owned and maintained by the FAA.

Runway End Identifier Lights (REILs)

REILs provide rapid and positive identification of the end of the runway. REILs are installed at Runway 6. They consist of a pair of synchronized flashing lights located on each side of the Runway 6 threshold.

Wind Cone/Segmented Circle

The primary lighted wind cone and segmented circle are located between Runway 15-33, Taxiway D, and Taxiway C.

There are two additional lighted supplemental wind cones on the Airport. One is located on the northeast side of Runway 15 adjacent to Taxiway A1. The other is located on the southeast side of Runway 24 between the Automated Surface Observing Station (ASOS) and Taxiway B.

Airport Beacon

A rotating beacon with alternate white-green lenses helps pilots operating into the Airport environment and flying in the local area. Airport beacons assist pilots in locating airports at night and in inclement weather. The alternating white and green light denotes a lighted, civilian-use

airport. The HYA beacon operates from dusk until dawn or when meteorological conditions fall below visual conditions. It is located on top of the Air Traffic Control Tower (ATCT).

2.3.7. Navigational Aids

Various systems described below are used by pilots in the safe operation of aircraft, and to enhance or increase utilization of the Airport and are located at HYA.

Automated Surface Observing Station (ASOS)

Weather reporting equipment at HYA consists of an ASOS accessible from the perimeter road and located adjacent to Runway 24, northeast of Taxiway B. An ASOS provides continuous minute-by-minute observations and performs basic observing functions necessary to generate an aviation routine weather report (METAR) and other aviation weather information. An ASOS has the capability to report altimeter, wind, temperature/dew point, density altitude, visibility, clouds/ceiling, precipitation, and remarks. This includes a standalone weather sensor (SAWS) located near the primary wind cone between Runway 33 and Taxiways C and D.

Runway Visual Range (RVR)

HYA is equipped with an RVR for Runway 15 that is located on the northeast side of Runway 15-33 between the supplemental windsock and glide slope equipment. There is also an RVR station in close proximity to the ASOS and Runway 24 glide slope equipment that serves Runway 24. The RVR supports precision landing and takeoff operations. The system measures visibility, background luminance, and runway light intensity to determine the distance a pilot should be able to see down the runway.

2.4. LANDSIDE FACILITIES

2.4.1. Airport Buildings, Land Leases, and Facility Leases

The existing buildings at HYA are depicted in **Figure 2-3** and show the general location of buildings, hangars, and other Airport and tenant facilities located on Airport property.

Conventional Hangars

There are currently eight conventional hangars located on the Airport on both the East and North Ramps.

Six of the eight conventional hangars are located on the North Ramp: Ross Rectrix, Cape Air/Nantucket Airlines, Griffin Avionics, Hangar II, and Allies Air (Hangars 1 and 2). The other two conventional hangars are located on the East Ramp (Air Cape Cod and Cape Flight Instruction Inc.). Information on these hangars is shown in **Table 2-4**.



Table 2-4: Conventional Hangars

Building	Owner (Lessee)	Approx. Size	Use
1	Ross Rectrix Aerodrome Center	35,000 square feet (SF)	FBO, FAA and Cape Air office Space, and aircraft storage
2	HYA Fleet Hangar (Leased by Hyannis Air Service AKA Cape Air and Nantucket Airlines)	39,500 SF	Aircraft storage, offices and maintenance (Hyannis Air Service only)
3	Griffin Avionics	19,000 SF	FBO, aircraft storage, aircraft maintenance and offices
5	HYA Hangar II (Leased Cape Air)	12,500 SF	Cape Air office and storage space, Airport SRE storage
7	Airline Realty Trust (Leased by Allies Aviation)	5,000 SF	Aircraft charters and aircraft storage
8	Hangar 51 LLC (Leased by Allies Aviation)	10,500 SF	Aircraft charters and aircraft storage
13	Air Cape Cod	6,000 SF	FBO and aircraft storage
18	Cape Flight Instruction Inc.	7,500 SF	Aircraft storage

Source: Airport Management, McFarland Johnson, 2019.

Individual Unit Hangars (T-Hangar/Box Hangar)

There are currently six individual unit hangar buildings located on the East Ramp: HYA owned T-hangar, Aero Management Associates Hangar, Hyannis Hangar LLC, Hexagon Hangar, and Kingsbury (Hangars 1 and 2). There is currently a 17-person wait list for the Airport hangars. Kingsbury Aviation has varying levels of occupancy and occasional vacancy; information on these hangars is shown in **Table 2-5**.

Table 2-5: Individual Unit Hangars

Building	Owner	Lessee	Approx. Size	Use
16	Airport T-hangar	Individual Lessees	6-units	Aircraft storage, maintenance and SRE storage
17	Aero Management Association (AMA), Inc	Individual Lessee	3-units	Aircraft maintenance and storage
19	Hyannis Hangar LLC	Individual Lessee	8-units	Aircraft storage
20	Hexagon Hangars (Privately Owned)	Individual Lessee	6-units	Aircraft storage
21	Kingsbury Aviation	Individual Lessee	4-units	Aircraft storage
22	Kingsbury Aviation	Individual Lessee	6-units	Aircraft storage

Source: Airport Management, McFarland Johnson, 2019.

Other Aeronautical Buildings

The Airport also has two buildings that are used to support aviation operations but are not used by tenants or passengers. The airport lighting vault (Building 15) houses the electrical facilities and equipment used to power airfield lighting. This facility also houses a backup generator to power

the airfield lighting in the event of a power outage. This is located adjacent to the Rectrix fuel farm (Building 14) on the East Ramp near Air Cape Cod. The other building is the housing unit of the emergency backup generator (Building 10). This supports the terminal building in the event of a power outage so the terminal can remain operational. This building is in the employee parking lot adjacent to the terminal in a space that occupies 15 vehicle parking spots. The Airport Terminal is discussed in further detail in Section 2.4.2. Aeronautical support facilities and air traffic control information are in Sections 2.5 and 2.7 respectively.

Non-Aeronautical Use Land and Facility Leases

The Airport currently has nine land leases on Airport property that are used for non-aviation purposes. These land leases generate additional revenue for the Airport outside of those leases inside the terminal or leases used for aeronautical purposes. A list of non-aeronautical land leases and through-the-fence agreements are shown in **Table 2-6** also shows the location of each of the associated land leases within the Airport property line. These leases can also be seen on **Figure 2-4**.

Table 2-6: Airport Land and Facility Leases

Company	Square Footage (SF)	Use
Avis Wash Rack	18,018 SF	Land
Hertz Wash Rack	21,281 SF	Land
Pain D'Avignon Bakery	17,645 SF	Land
DPW Water Supply Division	719,645 SF	Land
WS Landing at Hyannis	1,127,324 SF	Land
Steamship Authority Area I	37,090 SF	Land for Parking (Lot G)
Steamship Authority Area II	264,658 SF	Land for Parking (Lot H)
CC Auto Transporters/Avis/Budget	11,120 SF	Wash Rack-Land and Building
Michele Kennedy Art Studio	368 SF	Terminal Space
Cape Cod Coffee	1,333 SF	Terminal Space
MAJ Commercial Realty	8,400 SF	Parking and Loading Dock
Griffin Avionics (Building 4)	4,000 SF	Building
AMA Lumber	152,641 SF	Land
Atlantic Aero Support	N/A	Land Use (Access)
Heritage Turbines	N/A	Land Use (Access)

Source: Barnstable Municipal Airport, 2019.

2.4.2. Passenger Terminal Facilities

Airport Terminal Building

The terminal building is located on the southwest side of the Airport property and serves as the point of transition for travelers between surface and air transportation utilizing commercial airlines. The Barnstable Municipal Airport terminal also serves as the airport administration building and a community asset for artists to display their work, the Massachusetts Air and Space Museum to showcase historic aviation artifacts as well as a public gathering space for various



community events. The current Airport terminal building was constructed in 2011 and has two floors.

Figure 2-5 depicts the first floor of the terminal building and **Figure 2-6** depicts the second floor of the terminal building. The following use areas are identified.

Ticketing/Check-In

On the first floor of the Terminal, inside the Main Concourse, there are ten ticketing counters. Each airline occupies two ticket counters. The ticket counter to the north is currently vacant. Extending south, ticket counters are occupied by Rectrix Shuttle, Nantucket Airlines, Cape Air, and JetBlue.

Passenger Screening

Passenger screening at the Airport takes place at the Transportation Security Administration (TSA) checkpoint. The entrance to the TSA checkpoint is located on the first floor of the Terminal up to the baggage screening. There is both an x-ray scanner as well as a full body scanner. At the far end of the checkpoint are two private rooms; one used for private screening and the other as a TSA office. The TSA leases space from the Airport for additional offices on the second floor of the terminal building.

Hold Rooms

There are two separate passenger hold rooms located at the Airport: non-secure and secure.

Secure

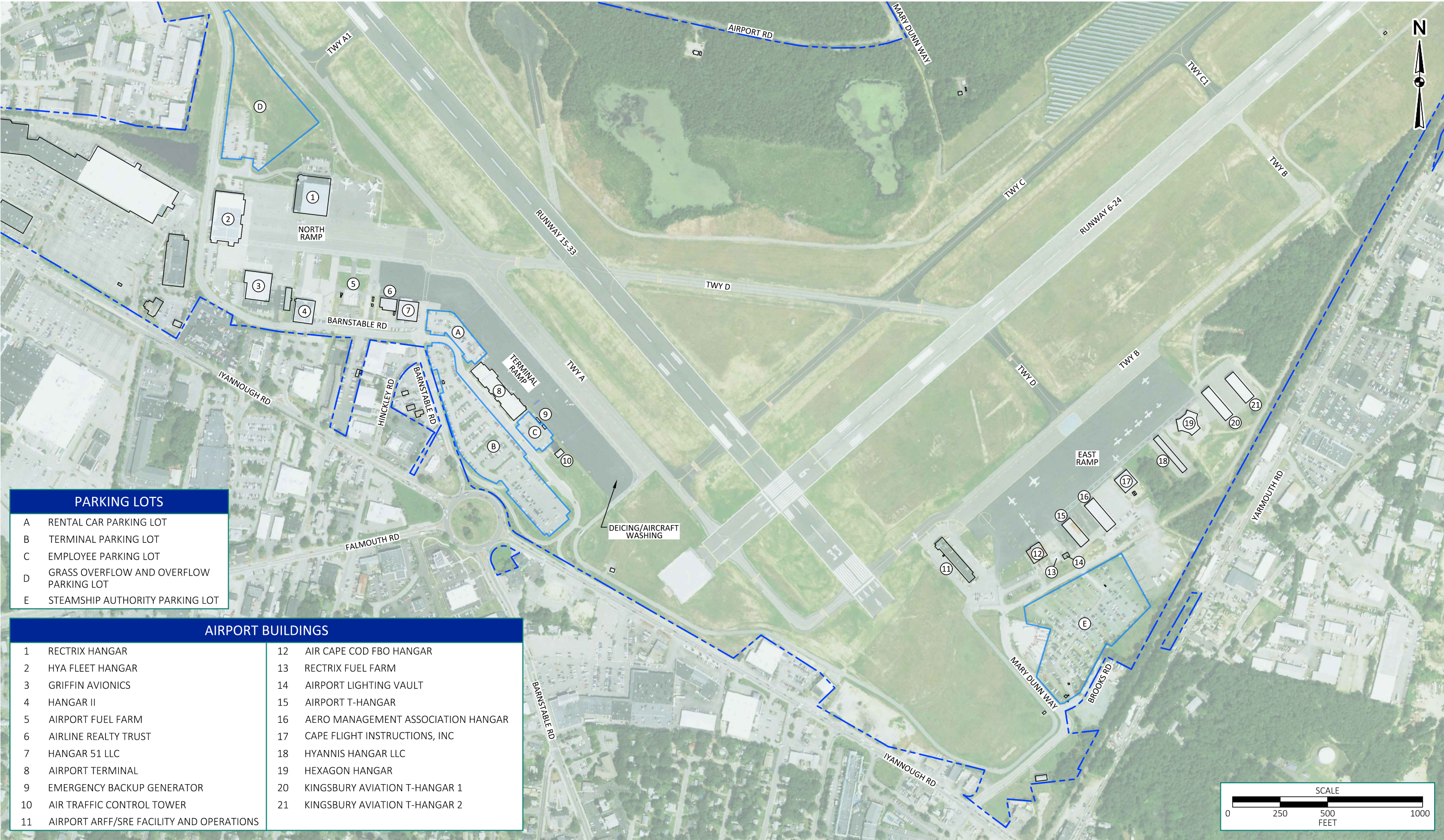
The secure hold room is utilized by passengers who have gone through passenger screening and ticketing for airline travel, such as Jet Blue passengers and Cape Air passengers flying to Boston. The secure hold room is located beyond the checkpoint, behind a textured glass wall. This room can comfortably accommodate 82 chairs for seating. On the far southwest side of the hold room are restrooms for use of those in the secure area.

Non-Secure

The non-secure hold room is utilized by passengers who are not required to go through passenger screening or anyone who is at the terminal and wishing to utilize the 81 chairs available for seating.

The non-secure hold room is located on the north side of the terminal near baggage claim. Cape Air passengers arrive at Martha’s Vineyard and Nantucket outside of the secure area and therefore do not need to go through security at the Airport.

Figure 2-3: Landside Facilities



PARKING LOTS

- A RENTAL CAR PARKING LOT
- B TERMINAL PARKING LOT
- C EMPLOYEE PARKING LOT
- D GRASS OVERFLOW AND OVERFLOW PARKING LOT
- E STEAMSHIP AUTHORITY PARKING LOT

AIRPORT BUILDINGS

- | | |
|---|---------------------------------------|
| 1 RECTRIX HANGAR | 12 AIR CAPE COD FBO HANGAR |
| 2 HYA FLEET HANGAR | 13 RECTRIX FUEL FARM |
| 3 GRIFFIN AVIONICS | 14 AIRPORT LIGHTING VAULT |
| 4 HANGAR II | 15 AIRPORT T-HANGAR |
| 5 AIRPORT FUEL FARM | 16 AERO MANAGEMENT ASSOCIATION HANGAR |
| 6 AIRLINE REALTY TRUST | 17 CAPE FLIGHT INSTRUCTIONS, INC |
| 7 HANGAR 51 LLC | 18 HYANNIS HANGAR LLC |
| 8 AIRPORT TERMINAL | 19 HEXAGON HANGAR |
| 9 EMERGENCY BACKUP GENERATOR | 20 KINGSBURY AVIATION T-HANGAR 1 |
| 10 AIR TRAFFIC CONTROL TOWER | 21 KINGSBURY AVIATION T-HANGAR 2 |
| 11 AIRPORT ARFF/SRE FACILITY AND OPERATIONS | |

Concessions

There are six separate concessions at the Airport: four rental car companies, an art gallery, and a café. On the west side of the building, there are four rental car counters occupied by Enterprise/National/Alamo, Avis, Hertz/Dollar, and Budget. In the northwest corner of the Terminal is an art gallery occupied by Michelle Kennedy Gallery. The vendor space in the South end of the concourse is occupied by Cape Cod Coffee. This is the only food and beverage concession at the Airport and is open seasonally. Vending machines existing at all three terminal gates.

Baggage Claim

Baggage claim is located in the North Concourse next to the non-secure hold room. There are two metal roll-up doors that open to deliver passenger luggage onto the metal baggage drop. To the right of the baggage claim (as viewed from inside the terminal) is a secure door that opens out to the airfield. This door is used for non-secure flight arrivals and exclusively by badged Airport employees or those being escorted by badged employees of the airport or an authorized airport operator.

Airline Offices/Operations

Airline offices are located beyond the ticketing hall on the first floor of the terminal building. They include break areas, airline terminal manager's office, and a pilot lounge per airline. TSA's secure baggage screening is also located in offices in this area, behind the JetBlue ticket counters.

Baggage Screening System

As indicated above, baggage screening areas are located beyond the ticketing hall on the first floor of the terminal building. Outbound baggage is located behind each respective ticket counter. Secure baggage screening is conducted in the areas behind the JetBlue counter for all JetBlue flights, Cape Air Flights to Boston and JFK and any other flight that arrive into a sterile environment. Baggage to the Islands and non-secure flights to White Plains on both Cape Air and Rectrix Shuttle is processed through their own individual outbound baggage makeup areas behind their respective counters and is not screened.

Support Areas

Terminal support areas, which are necessary for the building to function, are located throughout the building. Support areas include the following:

- **Storage rooms:** There are two storage rooms; one located near the restrooms on the second floor and one located on the first floor near the baggage claim area.
- **IT rooms:** There are two IT rooms located on the second floor of the terminal.



- **Electrical rooms:** There are two electrical rooms; one located between the IT room and janitor closet on the second floor of the terminal and the other is located on the southwest corner of the first floor of the building.
- **Plumbing rooms:** The plumbing room is located on the south side of the first floor of the terminal next to the electric room.
- **Mechanical rooms:** An elevator mechanical room is located next to the elevator in the North Concourse on the first floor. The room is accessed through the non-secure hold room. A telephone and data mechanical room is located in the South Concourse of the first floor.
- **Janitor closet:** The janitor closet is located on the south side of the second floor of the terminal building.
- **Utility room:** The large utility room is located on the north side of the second floor of the terminal.

Airport Management and Operations

The second floor of the terminal is occupied by Airport administration. The Airport also has two conference rooms both located on the north side of the building; one on the first floor and one on the second floor. An office utilized by the Barnstable Police is located on the south side of the first floor.

Circulation

Passengers enter the terminal through one of five entrances. The two main entrances are located at the Main Concourse of the Terminal Building facing the airport access road. The north door is located closest to the rental car parking lot outside of the North Concourse. There is an entrance door located between the rental car counters. The south door is connected to the employee parking lot. When arriving through either of the main entrance doors, passengers walk through two sets of doors to arrive in the terminal ticketing hall. Benches are located throughout the Terminal Building.

Figure 2-4: Airport Leases and Agreements

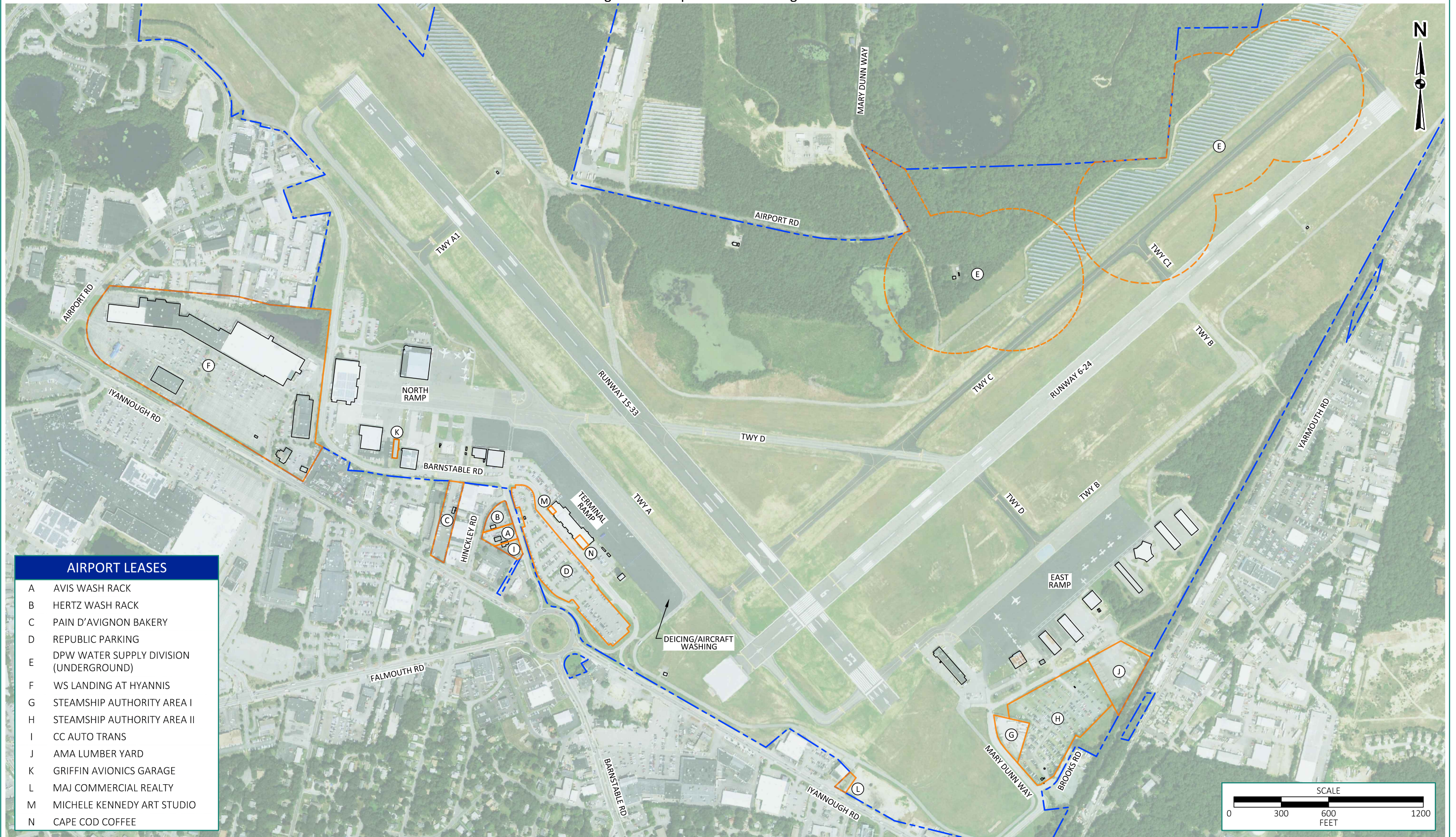


Figure 2-5: Terminal Building First Floor

AREA	SYMBOL	SQUARE FEET
FIRST FLOOR TOTAL	N/A	26,600
AIRLINE OFFICES & OPERATIONS AREAS		2,035
AIRPORT MANAGEMENT & OPERATIONS		745
BAGGAGE CLAIM		1,385
BAGGAGE MAKE UP & SCREENING		2,000
CONCESSIONS		3,065

AREA	SYMBOL	SQUARE FEET
HOLDROOMS		4,550
PASSENGER SCREENING \ TSA		1,320
PUBLIC \ CIRCULATION		8,425
SUPPORT AREAS		705
TICKETING \ CHECK-IN		1,635

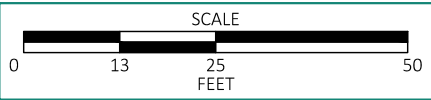
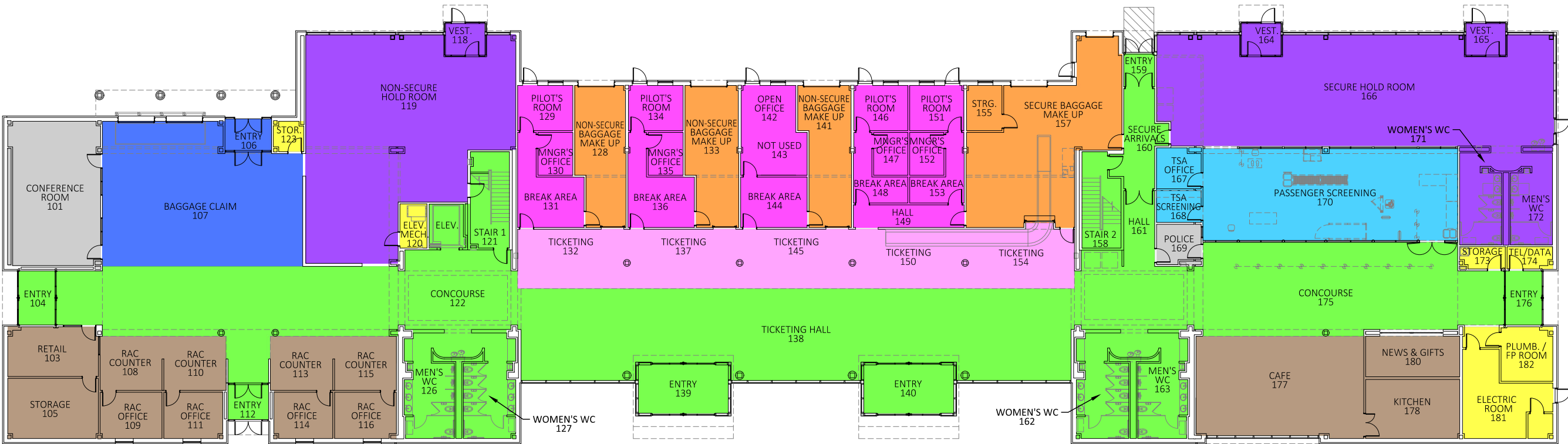
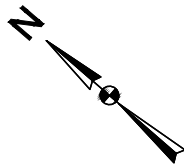
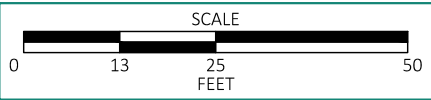
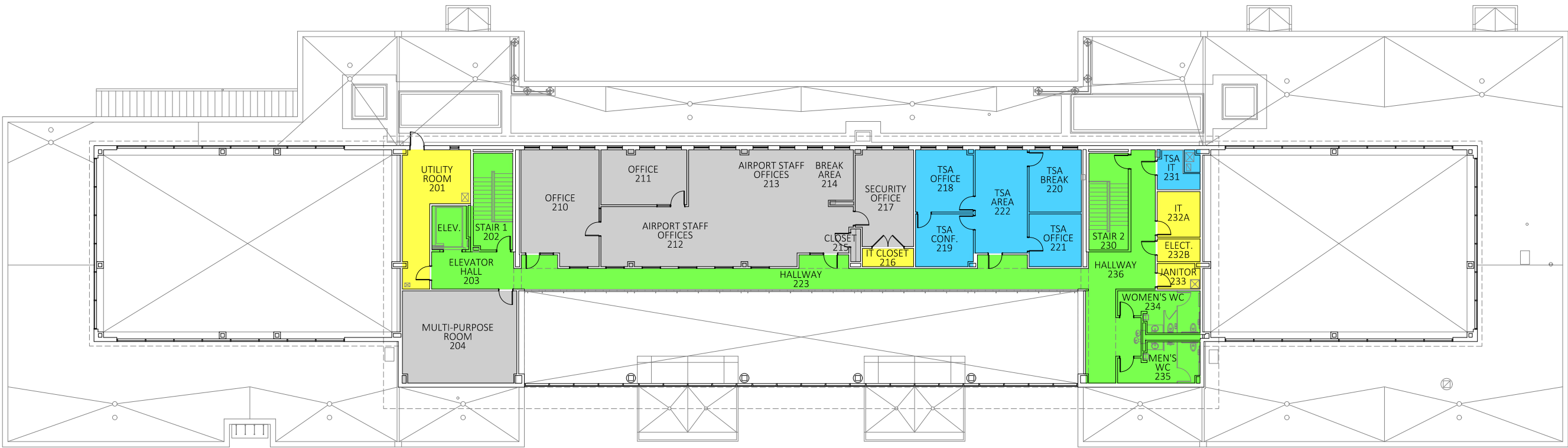
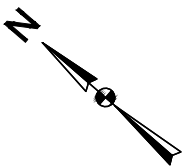


Figure 2-6: Terminal Building Second Floor

AREA	SYMBOL	SQUARE FEET
SECOND FLOOR TOTAL	N/A	6,435
AIRPORT MANAGEMENT & OPERATIONS		2,625
PASSENGER SCREENING \ TSA		985
PUBLIC \ CIRCULATION		2,055
SUPPORT AREAS		540



Passenger Terminal Parking Facilities

There are three automobile parking lots for the Terminal Building at HYA: rental car parking, passenger parking, and employee parking.

Lot A has 100 designated rental car parking spots; 25 for each of the four rental car companies. This parking lot is located out of the northwest doors of the Terminal near the terminal baggage claim and is shown on **Figure 2-3**.

Lot B is the passenger parking lot. It is a surface parking lot located outside of the Terminal and has a total of 585 parking spots. This parking lot is managed by Republic Parking. The price for parking is as follows:

- First 30 minutes -Free
- First Hour - \$3, Each additional Hour - \$1
- 24 Hour Period - \$9
- One Week - \$50 (Contact Republic Parking prior)
- Annual Permit - \$1,800 (Contact Republic Parking prior)

Lot C is the employee parking lot and is located between the southeast end of the Terminal and the ATCT. This lot has 65 total parking spaces; however, only 50 parking spaces are usable for vehicle parking. Fifteen parking spaces are occupied by the diesel terminal generator and storage shed and cannot be used for vehicle parking.

During periods of peak seasonal activity, there is one overflow parking lot available. This parking area (**Lot D**) is located along the west side of Airport Road north of the North Ramp and has approximately 400 parking spaces. All parking lots can be identified in **Figure 2-3**. The overflow parking lot runs at a rate of \$6 per day when the main parking lots are full.

Ground Access and Circulation

There is no clear entrance to the Airport. Traffic is routed different ways, depending on where it is coming from. Traffic coming from north along Route 6 via Exit 6 are directed to Attucks Lane and Airport Road. Attucks Lane dead-ends into Airport Road, which turns into Barnstable Road. Traffic coming from the west along Routh 6 via Exit 7 is directed to Iyannough Road which provides access to the Airport's general aviation facilities on the East ramp and terminal facilities prior to the rotary. Traffic coming from the south and the west are directed to access Barnstable Road via Hinckley Road after passing through the rotary. Accessing the Airport can be confusing to its users and during peak season, traffic through the rotary backs up, making accessing the Airport difficult.

Ground Transportation

Barnstable Municipal Airport is accessible to public transit through the Cape Cod Regional Transit Authority (CCRTA). The Airport is a stop on the Barnstable Villager transit route represented as the Yellow Line.

The Airport is the first stop of the Barnstable Villager line and runs in a loop. The Barnstable Villager runs three seasonal schedules. During the fall and winter/spring schedules, the line runs 7:30 a.m.



to 5:30 p.m. Monday through Friday, stopping at the Airport 11 times per day and 8:30 a.m. to 5:30 p.m. on Saturdays, stopping at the Airport 10 times. During the summer schedule, the line also runs on Sundays from 8:30 a.m. to 5:30 p.m., stopping at the Airport 10 times.

Peter Pan Bus Lines also operates at the airport with bus stops located at the front of the terminal. The Peter Pan Bus Lines operate 6 daily routes from HYA to Boston Logan International Airport (BOS) between 5:10 a.m. and 3:25 p.m. and 9 daily routes from BOS to HYA between 7:30 a.m. and 6:00 p.m. Additional routes are added during the summer months.

2.4.3. Airport Security

Airport security for both passengers and the Airport itself is regulated by Title 49 CFR Part 1542. Many commercial service airport security procedures are considered Security Sensitive Information (SSI) and cannot be publicly disclosed; however, general information regarding airport security can be discussed.

As a commercial service airport, HYA operates under an Airport Security Plan (ASP) which is approved by the TSA and outlines how the Airport remains in compliance with CFR Part 1542. The Airport will comply with other requirements of CFR Part 1542 such as training requirements, law enforcement support of TSA screening operations, record-keeping, public advisories, incident management, etc.

The TSA is responsible for providing passenger and baggage screening services. In addition, there are numerous gates and fences on and around the Airport, as well as security signage displayed throughout Airport property. The Barnstable Police Department maintains a small office in the non-sterile area of the South Concourse. The Police Department provides passenger screening presence, local arresting authority for TSA and provides general security for the Airport campus. They are also responsible for landside traffic management and issuance of citations for parking/standing violations at the drop-off curb.

2.4.4. General Aviation

Fixed Base Operators (FBOs)

There are three FBOs at the Airport: HYA, Rectrix, and Griffin Avionics.

The Airport owned FBO, known as “Airport Operations”, is located on the East Ramp. This is the only FBO that provides Jet-A fuel to customers. The Airport FBO provides 24-hour services for both executive and general aviation aircraft. A pilot’s lounge with wi-fi and computer access is available to pilots flying into HYA. The use of a Ground Power Unit (GPU) is available. Access to additional aircraft parking and tie downs can be utilized by pilots.

The Rectrix FBO caters to all types of aircraft. The FBO building houses FAA offices, Cape Air offices, and two conference rooms in addition to Rectrix staff and pilot accommodations. Rectrix offers the following services: National Air Transportation Association (NATA) trained line service, in-flight catering, crew cars, ground power units and service equipment, secure aircraft apron, lavatory series, potable water, Jet-A fuel through agreement with HYA, and overnight hangar service. They also offer services for smaller aircraft on the East Ramp out of their facility known as Air Cape Cod.

The Griffin Avionics FBO is the primary GA FBO on the Airport. The FBO provides Avgas for fueling of GA aircraft. They specialize in GA services including:

Avionics Installation: Griffin installs avionics for single engine piston aircraft, turboprops, and rotorcraft.

Line Service: The FBO line services include but are not limited to help with baggage, fueling with their 100LL truck, booking rental cars, and making hotel reservations.

Aircraft Maintenance: Griffin provides aircraft maintenance for single engine piston aircraft, turboprops, and rotorcraft. They perform annual and progressive aircraft inspections, engine repair, overhauls and replacements, aircraft structural repair, major alterations and repair, sheet metal, pre-purchase consulting and inspections.

Autopilot Repair: The FBO preforms bench repairs and troubleshooting.

Avionics Repair: The FBO preforms bench repairs and troubleshooting for ADF to GPS, radar, navigation/communications, and transponders.

2.4.5. Summary of Airport Revenue Generating Leases

A comprehensive list of runway, taxiway, and apron information shown in **Table 2-7**.

Table 2-7: Summary of Airport Revenue Generating Leases

Asset	Size	Use
Hangars		
Ross Rectrix Aerodrome Center	35,000 SF	FBO, FAA and Cape Air office Space, and aircraft storage
HYA Fleet Hangar (Leased by Hyannis Air Service AKA Cape Air and Nantucket Airlines)	39,500 SF	Aircraft storage, offices and maintenance (Hyannis Air Service only)
Griffin Avionics	19,000 SF	FBO, aircraft storage, aircraft maintenance and offices
HYA Hangar II (Leased Cape Air)	12,500 SF	Cape Air office and storage space, Airport SRE storage
Airline Realty Trust (Leased by Allies Aviation)	5,000 SF	Aircraft charters and aircraft storage
Hangar 51 LLC (Leased by Allies Aviation)	10,500 SF	Aircraft charters and aircraft storage
Air Cape Cod	6,000 SF	FBO and aircraft storage
Cape Flight Instruction Inc.	7,500 SF	Aircraft storage
Airport T-hangar	8,900 SF (6-units)	Aircraft storage, maintenance and SRE storage
Aero Management Association (AMA), Inc	11,450 SF (3-units)	Aircraft maintenance and storage
Hyannis Hangar LLC	7,550 SF (8-units)	Aircraft storage



Asset	Size	Use
Hexagon Hangars (Privately Owned)	10,250 SF (6-units)	Aircraft storage
Kingsbury Aviation	10,000 SF (4-units)	Aircraft storage
Kingsbury Aviation	9,700 SF (6-units)	Aircraft storage
Land and Facility Leases		
Avis Wash Rack	18,018 SF	Land
Hertz Wash Rack	21,281 SF	Land
Pain D'Avignon Bakery	17,645 SF	Land
DPW Water Supply Division	719,645 SF	Land
WS Landing at Hyannis	1,127,324 SF	Land
Steamship Authority Area I	37,090 SF	Land for Parking (Lot G)
Steamship Authority Area II	264,658 SF	Land for Parking (Lot H)
CC Auto Transporters/Avis/Budget	11,120 SF	Wash Rack-Land and Building
Michele Kennedy Art Studio	368 SF	Terminal Space
Cape Cod Coffee	1,333 SF	Terminal Space
MAJ Commercial Realty		Parking and Loading Dock
Griffin Avionics (Building 4)	4,000 SF	Building
AMA Lumber	152,641 SF	Land
Through-the-Fence Agreements		
Atlantic Aero Support	N/A	Land Use (Access)
Heritage Turbines	N/A	Land Use (Access)
Parking Facilities		
Lot A	39,300 SF (100 spaces)	Rental Car Parking
Lot B	221,150 SF (585 spaces)	Passenger Parking
Lot C	24,950 SF (50 usable spaces)	Employee Parking
Lot D	207,350 SF (400 spaces)	Grass Overflow Parking

N/A – not applicable

Source: Airport Management, McFarland Johnson, 2019.

2.5. SUPPORT FACILITIES

2.5.1. Aviation Fueling Facilities

HYA offers two types of aviation fuel at the Airport: Jet-A and 100LL Avgas. **Table 2-8** shows the fuel tanks at the Airport along with the operator, location, type of fuel, tank type, and volume of the tank. The Airport exercises the Airport's exclusive right to sell Jet-A fuel to the public. Both Rectrix and the Airport are seller and providers Jet-A fuel. Both purchase their supply of Jet-A fuel from World Fuel. There are no self-fueling facilities.

Table 2-8: Aviation Fueling Facilities

Operator	Location	Type of Fuel	Tank Type	Volume (Gallons)
Rectrix – Air Cape Cod	East Ramp – Building 14 – Fuel Farm	Avgas	Aboveground Storage	10,000
Rectrix	East Ramp – Building 14 – Fuel Farm	Jet-A	Aboveground Storage	10,000
HYA	North Ramp – Building 6 – Fuel Farm	Jet-A	Aboveground Storage	Three 20,000 for a total of 60,000
Griffin Avionics	North Ramp – Griffin Avionics	Avgas	Underground Storage	Two 10,000 for a total of 20,000

Source: Barnstable Municipal Airport, 2019.

2.5.2. Aircraft Rescue and Fire Fighting (ARFF)

ARFF is housed in a shared building with airport maintenance and equipment storage, as identified in **Figure 2-3**. The ARFF/airport maintenance building was constructed in 1996 and totals approximately 15,000 SF. This facility functions as a multi-use facility. The airport ARFF staff also function as airport operations employees. The building has a locker room, restrooms, an office, pilot lounge/break area, and a breakroom on the second floor, which also functions as an observation area to view the airfield. This building is staffed 24 hours a day. There are two ARFF bays on the northwest side of the building. The ARFF space of this building occupies approximately 3,000 SF of the 15,000 SF total. The building houses a backup generator to power the facility in the event of a power outage. This building is currently in poor condition. The roof leaks in numerous places with multiple leaks coming from the roof above the ARFF trucks; however, plans are in place for replacement of the roof in 2020. There is also extensive water damage to the ceiling throughout the building leaving some areas unusable for ARFF/operations staff. The environmental filtering system located in the bays has broken and is unable to be repaired due to the age of the equipment. The 2020 roof replacement project is not programed to address these additional issues.

CFR Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, Section 139.315, *Aircraft Rescue and Firefighting: Index Determination*, indicates that an index is required for each CFR Part 139 certificate holder. The index is based on the length of air carrier aircraft using the airport and the average number of daily departures. The minimum designated Index is Index A. HYA is designated ARFF Index A. However, during seasonal JetBlue operations, HYA operates under an ARFF Index B.

A list of the ARFF equipment owned by the Airport can be seen in **Table 2-9**.



Table 2-9: Airport ARFF Equipment

Vehicle Call Sign	Year	Condition	Make/Model	Index	Storage Location
*820	1992	Fair	E-One Titan	B	ARFF/SRE
*817	2006	Good	E-One Titan	B	ARFF/SRE
*816	1999 / 1998	Poor	Ford F-450 / 11102; Fire Combat Skid Plate & Fire Compression System	A	Outside ARFF/SRE

*AIP Eligible

Source: Barnstable Municipal Airport, 2019.

2.5.3. Airfield Maintenance and Snow Removal Equipment (SRE)

Airfield maintenance and SRE are housed in a shared facility with ARFF. Equipment is stored in different locations: ARFF/SRE building, outside of the ARFF/SRE building, end unit of the Airport owned t-hangar, Hangar II, and on the Terminal Ramp. This 15,000 SF building has seven bays dedicated to maintenance and equipment storage. The maintenance and storage bays occupy approximately 10,500 SF of the 15,000 SF total. The remaining 1,500 SF of the building are occupied by the indoor spaces which comprise office space, locker rooms, break rooms, restrooms, and other meeting spaces. Maintenance occupies the southeastern portion of the joint-use facility. This facility provides office space, locker room, break room and restrooms. This facility is too small to house all SRE and maintenance equipment owned by the Airport. Equipment that does not fit in this building are stored outside or in the other previously listed buildings located on the Airport.

A list of Airport maintenance and snow removal equipment can be seen in **Table 2-10**.

Table 2-10: Airport Equipment List

Vehicle Call Sign	Year	Condition	Make/Model and Attachments	Function	Storage Location
Maintenance Equipment					
31	1995	Fair	Ford F-350	Stakebody	Outside
26	1995	Fair	Ford L-8000	Dump	Hangar II
53	2000	Good	Kubota F36	Mower	T-hangar End Unit
29	2000	Good	New Holland TN75	Loader-Mower	Outside
30	2001	Fair	Chevy 2500HD	Pickup	ARFF/SRE
27	2001	Fair	Chevy 2500HD	Pickup	ARFF/SRE
12	2003	Fair	Ford Aerotech	Bus	Outside ARFF/SRE
16	2004	Unknown	Ford Aerotech	Bus	Outside
52	2005	Good	Harlan Tug	Operations	Outside ARFF/SRE
35	2007	Fair	Chevy 2500HD	Utility	ARFF/SRE

Vehicle Call Sign	Year	Condition	Make/Model and Attachments	Function	Storage Location
51	2010	Good	International 4300	Refueler	Outside ARFF/SRE
50	2010	Good	International 7400	Refueler	Outside ARFF/SRE
49	2010	Good	International 7400	Refueler	Outside ARFF/SRE
72	2011	Poor	Ford Crown Vic	Security	Terminal Ramp
40	2012	Good	Terex PT 30	Skid St	Hangar II
22	2015	New	Chevy Silverado	Operations	Outside ARFF/SRE
54	2015	New	Kubota F2690	Mower	T-hangar End Unit
24	2015	New	Chevy 3500HD	Dump	ARFF/SRE
None	2016	Good	Premier Hotshot	Operations	Hangar II
25	2016	New	Chevy G35	Operations	Outside ARFF/SRE
32	2016	New	Chevy 3500HD	Pickup	ARFF/SRE
34	2017	New	John Deere 5100m	Loader-Mower	Outside in summer / Hangar II in winter
20	2019	New	Chevy 2500HD	Pickup	ARFF/SRE
21	2019	New	Chevy K-2500	Pickup	ARFF/SRE
Snow Removal Equipment					
48	1986	Fair	Oshkosh WT2206 with 20-foot angle plow	Snowplow	Hangar II
*88	1992	Fair	Oshkosh snow blower model HB2518MP3 (4,000-ton maximum)	Rotary Plow	Hangar II
*26	1995	Poor	Ford L8000 with 11-foot angle plow and sander (5-7 yard)	Displacement Plow / Spreader	Hangar II
*37	1997	Poor	Caterpillar 950 Loader with 7.5-yard snow bucket, 1 3/4-yard construction bucket, and 16-foot snow pusher and snow blower attachment	Wheel Loader	ARFF/SRE
*36	1998	Poor	Kodiak model DE multi-purpose vehicle with snow blower (4,000-ton maximum)	Rotary Plow	ARFF/SRE



Vehicle Call Sign	Year	Condition	Make/Model and Attachments	Function	Storage Location
27, 30	2001	Fair	2 Chevy K2500 pick-ups with 9-foot angle plow	Displacement Plow	ARFF/SRE
N/A	2001	Good	Bowmonk Friction Meter (mechanical decelerometer) (Blue: AF-12089)	Friction Measuring	ARFF/SRE
*38	2004	Fair	ASV RC 100 (EMAS snow blower and snow bucket)	Rotary Plow	ARFF/SRE
*47	2006	Fair	Sterling 10 Wheel Dump with 22-foot high speed plow and 14-yard sander	Displacement Plow/Spreader	ARFF/SRE (in season), Hangar II
None	2008	Good	Bowmonk Friction Meter (mechanical decelerometer) (Yellow: AF-12488)	Friction Measuring	ARFF/SRE
40	2012	Good	Terex PT 30 with V plow and bucket	Wheel Loader	Hangar II
*33	2015	New	Caterpillar 980 with 40-foot snow pusher and 20-yard snow bucket/construction bucket	Wheel Loader	ARFF/SRE
32	2016	New	Chevy 3500HD pick-up with 9-foot angle plow	Displacement Plow	ARFF/SRE
24	2016	New	Chevy 3500HD pick-up with 1.8-yard sander and 9-foot angle plow	Displacement Plow	ARFF/SRE
20, 21	2019	New	Chevy K2500 pick-up with 9-foot angle plow	Displacement Plow	ARFF/SRE

*AIP Eligible

Source: Barnstable Municipal Airport, 2019.

2.5.4. Deicing

Deicing at the Airport occurs on the southeast side of the Terminal Ramp. The deicing pad also serves as an aircraft washing facility. Deicing is not presently provided by the Airport or the FBOs. However, the deicing pad is open for use by any Airport tenant using their own equipment in compliance with airport approved procedures. Deicing fluids drain directly into the town sewer system.

2.6. AIRSPACE

Airspace in the United States is classified as controlled, uncontrolled, or special use. Examples of the different types of airspace can be seen in **Figure 2-7**. Controlled airspace covers the five different classes of airspace: Class A, B, C, D, and E and defines which air traffic control (ATC) service is provided to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) flights. Class G is uncontrolled airspace where ATC has no authority or responsibility to control aircraft. Typically, special use areas are located around military training facilities. To view the airspace surrounding the Barnstable Municipal Airport, refer to **Figure 2-8**.

2.6.1. Controlled Airspace Classes

Class A

Class A airspace covers all United States airspace from 18,000 feet MSL up to and including flight level 600 (60,000 feet MSL) where high altitude airways and jet routes occur. While flying in Class A airspace, aircraft must operate under IFR.

Class B

Class B airspace requires ATC clearance before operating an aircraft within this airspace. All aircraft are subject to IFR or Controlled Visual Flight Rules (CVFR). Class B airspace surrounds the nation's busiest airports and has the appearance of an upside-down multi-tier cake that funnels aircraft traffic toward the airport. Generally, the airspace is within a 20-nautical mile radius and 10,000

Class C

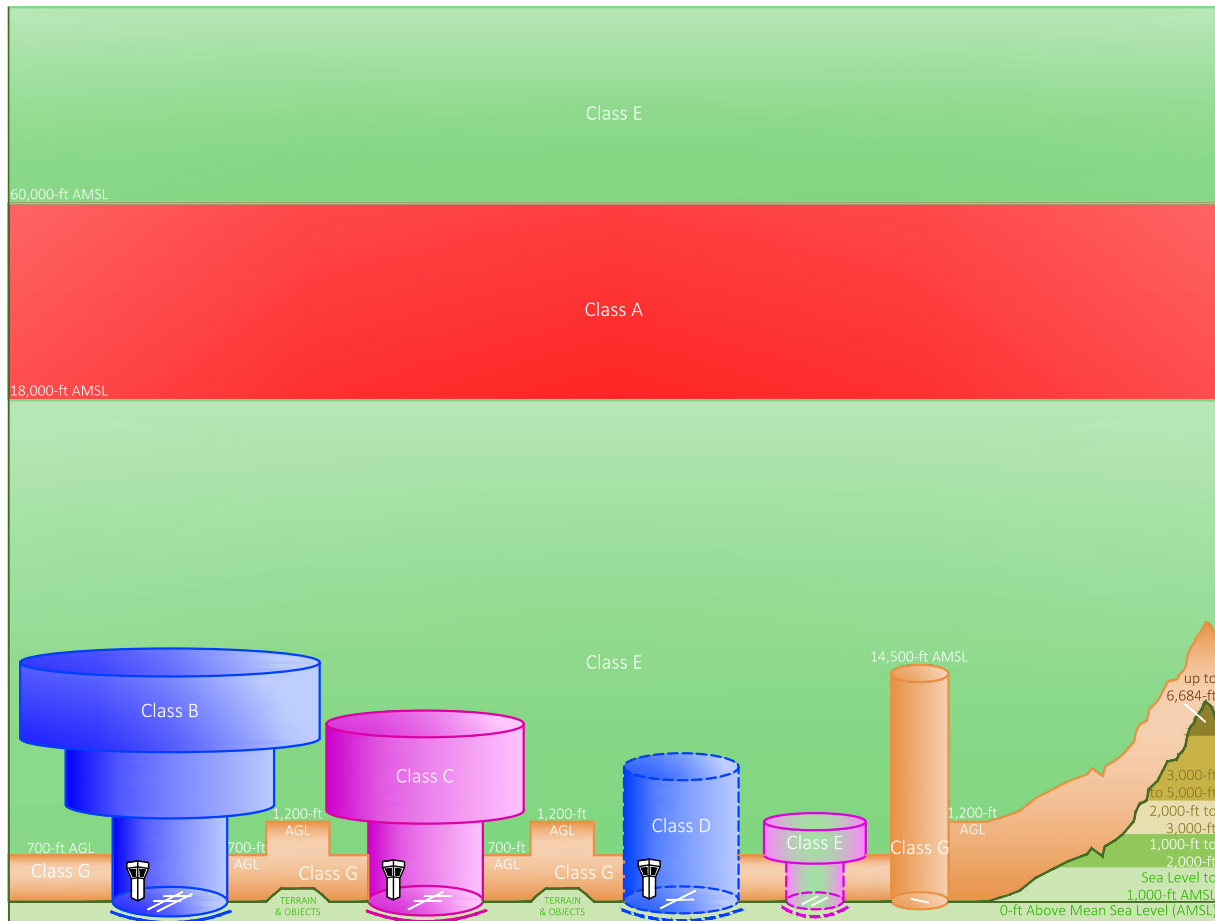
Similar to Class B, Class C airspace requires ATC clearance before operating an aircraft within this airspace. All aircraft are subject to IFR or CVFR. Class C airspace generally starts at 4,000 feet MSL and has two tiers, the top tier has a radius of around 10 NM and the bottom tier has a radius of around five nautical miles. Theodore Francis Green State Airport (PVD) is the closest airport to HYA with Class C airspace surrounding it and is located 51.5 NM west of HYA.

Class D

Class D airspace generally extends upward to an altitude of 2,500 feet MSL and is within a five-statute mile radius. Aircraft must maintain two-way radio communication with the control facility while operating in this airspace. The FAA has designated the airspace around HYA as Class D airspace. Other nearby facilities with Class D airspace include Martha's Vineyard Airport and Nantucket Memorial Airport.



Figure 2-7: Airspace Classification



Communication Requirements and Weather Minimums

Minimum Pilot Qualification	Instrument Rating	Student *	Student *	Student *	Student *	Student *
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 AMSL **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 AMSL	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal ***
VFR Visibility 10,000 AMSL and Above **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 AMSL and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal
Airport Application	N/A	• Radar • Instrument Approaches • Weather • Control Tower • High Density	• Radar • Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather	
Special VFR Permitted?	No	Yes	Yes	Yes	Yes	N/A

* Prior to operating within Class B, C, or D airspace (or Class E airspace with an operating control tower), student, sport, and recreational pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recreational pilot operations are prohibited at those airports listed in FAR Part 91, Appendix D, Section 4.
** Student pilot operations require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.
*** Class G VFR cloud clearance at 1,200 AGL and below (day): clear of clouds.

Figure 2-8: HYA Surrounding Airspace





Class E

Class E airspace covers all the controlled airspace that is not classified as A, B, C, or D. The airspace is also used as a transitional airspace to and from an airport and begins at the surface, at 700 feet or 1,200 feet, above ground level (AGL) (or 14,500 feet MSL in remote areas). This class has no special restrictions on pilot qualifications or aircraft equipment rules. Nevertheless, it is still controlled airspace and ATC services can still be provided through Air Route Traffic Control Center (ARTCC). HYA operates as Class E airspace above 700 feet AGL when the ATCT is closed. The closest Class E airspace to HYA is anything above HYA Class D airspace (above 2,600 feet AGL) or anything outside of HYA extents of Class D airspace.

2.6.2. Uncontrolled Airspace Class – Class G

Class G airspace covers all uncontrolled airspace. VFR minimums apply in this airspace. This includes all low-level airspace below 700 feet or 1,200 feet AGL (depending on where Class E airspace starts) and it extends up to 14,500 feet MSL in remote areas without airport traffic. HYA operations as Class G airspace up to 700 feet AGL when the ATCT is closed.

2.6.3. Special Use Airspace

Special Use Airspace consists of prohibited, restricted, warning, alert, controlled firing, and military operation areas (MOA). Pilots are cautioned to be extra vigilant when transitioning through MOA's; however, restricted airspace is off limits when in use by a controlling agency such as the U.S. military.

There are several special use airspaces surrounding HYA. These areas are listed below.

- **Restricted Area R-4101** is located northwest of the Airport approximately 10 SM from HYA. This airspace is used by the United States Air Force and has a Precision Acquisition Vehicle Entry Phased Array Warning System (PAVE PAWS) that is hazardous to aircraft.
- **Nomans Land Island National Wildlife Refuge (Nomans Island)** located southeast of the Airport and is approximately 39 SM away from the Airport at its closest point.
- **Cape Cod National Seashore** located 17 SM east of HYA at its closest point. This special use airspace runs the length of the eastern most edge of the cape cod peninsula.
- **Monomoy National Wildlife Refuge** is located approximately 16 SM southeast of the Airport.
- **Warning Area W-105A** is located south of HYA approximately 37 SM at its closest point. This airspace is used for military operations, including missile firing⁶.

⁶ Dempsey, Paul Stephen. *Aviation Security: The Role of Law in the War Against Terrorism*. Compiled by United States. Department of Transportation. Research and Special Programs Administration, National Center for Intermodal

- **Warning Area W-506** is located southeast of HYA approximately 63 SM at its closest point. This airspace is used as a training area by the Air Force for high speed aircraft⁷.

2.7. AIR TRAFFIC CONTROL TOWER

The ATCT at HYA is located southeast of the terminal building. The ATCT at the Airport is a federal contract tower owned by the Airport and operated by Midwest Air Traffic Control Services. The HYA tower is operational from 6:00 a.m. until 10:00 p.m. local time. While the ATCT is operating, all aircraft within HYA's Class D airspace are provided radar services below 2,600 feet MSL. Prior to operating in HYA's airspace, pilots must establish two-way radio communication with the ATCT to enter the Class D airspace.

The ATCT also houses its own backup generator to power the tower in the event of a power outage.

2.8. LAND USE AND ZONING

2.8.1. Land Use

The Airport falls under the land use designations of both the Town of Barnstable and the Town of Yarmouth. The following land uses fall within Airport property: industrial, commercial, and open land. The land uses surrounding Airport property include: agriculture, commercial, industrial, mixed use-other, open land, residential multi-family, residential -single family, tax exempt, unknown, and water. These can be seen in **Figure 2-9**.

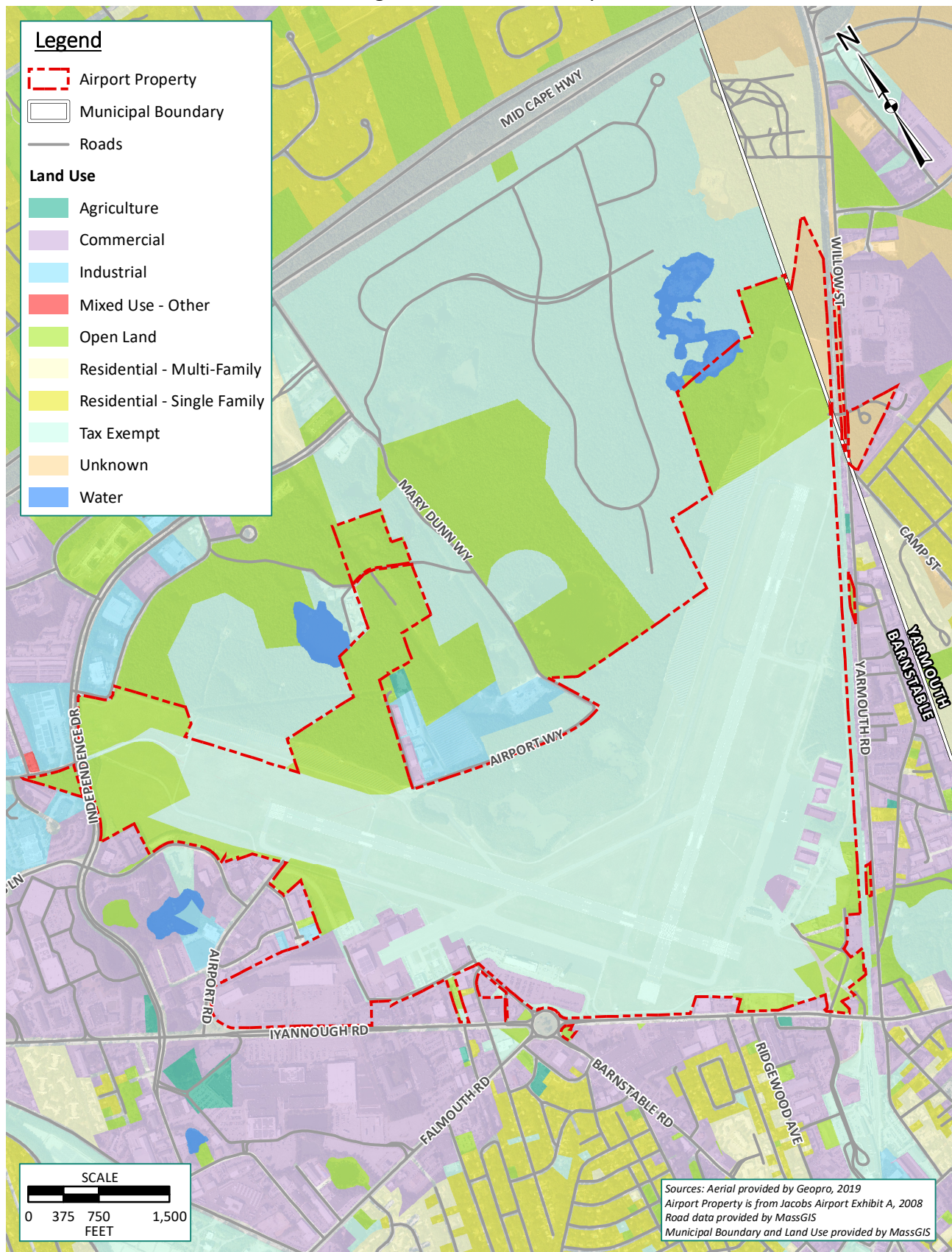
HYA is surrounded by medium-density commercial and industrial land uses on the west, south, and east perimeter of the Airport. Iyannough Road (Route 132) is a major arterial road connecting the Hyannis Village Center with both the Airport and the interstate road network via the Mid-Cape Highway (Route 6). As a result of this visibility and traffic volume, multiple planned unit commercial developments surround vicinity of the Airport, notably the Cape Cod Mall, WS Landing at Hyannis (formerly Capetown Plaza). The commercial developments house multiple tenants and provide large parking areas to accommodate the businesses. Abutting the east side of the Airport is Yarmouth Road which is densely populated with low-density commercial and industrial uses. Such uses include automobile dealerships, metal recycling shops, marine repair shops, residential properties and home improvement supply warehouses. Yarmouth Road also connects the Hyannis Village Center with the Mid-Cape Highway at Exit 7. The land uses north of the area are generally undeveloped areas of wooded land, wetlands, and ponds. In addition to the area's environmental value, the area is deemed critical to the public health, safety, and welfare as it is designated as a Wellhead Protection District for the municipal drinking water supply. Very few land uses are present aside from municipal utility infrastructure and public infrastructure for water and power distribution.

Transportation (U.S.), University of California, Berkley, U.S. Department of Transportation, Research and Special Programs Administration, 2003, 2003. Retrieved October 28, 2019.

⁷ United States. Materials Management Service. *North Atlantic OCS (Outer Continental Shelf) Lease Sale No.96: Environmental Impact Statement*. Northwestern University, 1988.



Figure 2-9: Land Use Map



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2.8.2. Zoning and Overlay

Zoning

The Airport property is subject to the zoning ordinance of both the Town of Barnstable⁸ and the Town of Yarmouth⁹. The Airport property is currently zoned as nine different zoning codes, five in Barnstable and four in Yarmouth along with seven others in close proximity of the Airport, as can be seen in **Figure 2-10**. The Airport property is also subject to six overlay districts in the Town of Barnstable.

The following are the principal uses of the Town of Barnstable zoning districts:

- **Business District (B):** B established the principal uses as retail and wholesale stores, retail trade service or shop, office and bank, restaurants and other food establishments, multifamily dwellings (apartments), hotels and motels, gasoline and oil filling stations and garages, and places of business for baker, barber, blacksmith, builder, carpenter, caterer, clothes cleaner or presser, confectioner, contractor, decorator, dressmaker, dyer, electrician, florist, furrier, hairdresser, hand laundry, manicurist, mason, milliner, news dealer, optician, painter, paper hanger, photographer, plumber, printer, publisher, roofer, shoemaker, shoe repairer, shoe shiner, tailor, tinsmith, telephone exchange, telegraph office, undertaker, upholsterer, and wheelwright.
- **Highway Business (HB):** The purpose of the Highway Business District is to encourage investment in Barnstable's aging commercial corridors and respond to current market demands, while promoting an increase in property values, appropriate protection for adjacent residential land uses, and Barnstable's unique character and exceptional quality of life. HB district includes principal uses such as artist galleries, artisan, craftspersons, and makers, Artists' lofts, Bank, Bed-and-breakfasts, Business support services, single-family dwelling, two-family dwelling, multifamily dwelling, Educational institutions, Fraternal or social organizations, Health club, Mixed use development, Movie theatre, Museums, business and professional Office, dental or medical Office, Performing arts facilities, Personal service establishments, Recreational establishment, Research and development, technological and computer research, software development, data processing including computer operations services, Restaurant and other food establishment, Retail and wholesale, Senior living, Veterinary hospital/clinic.

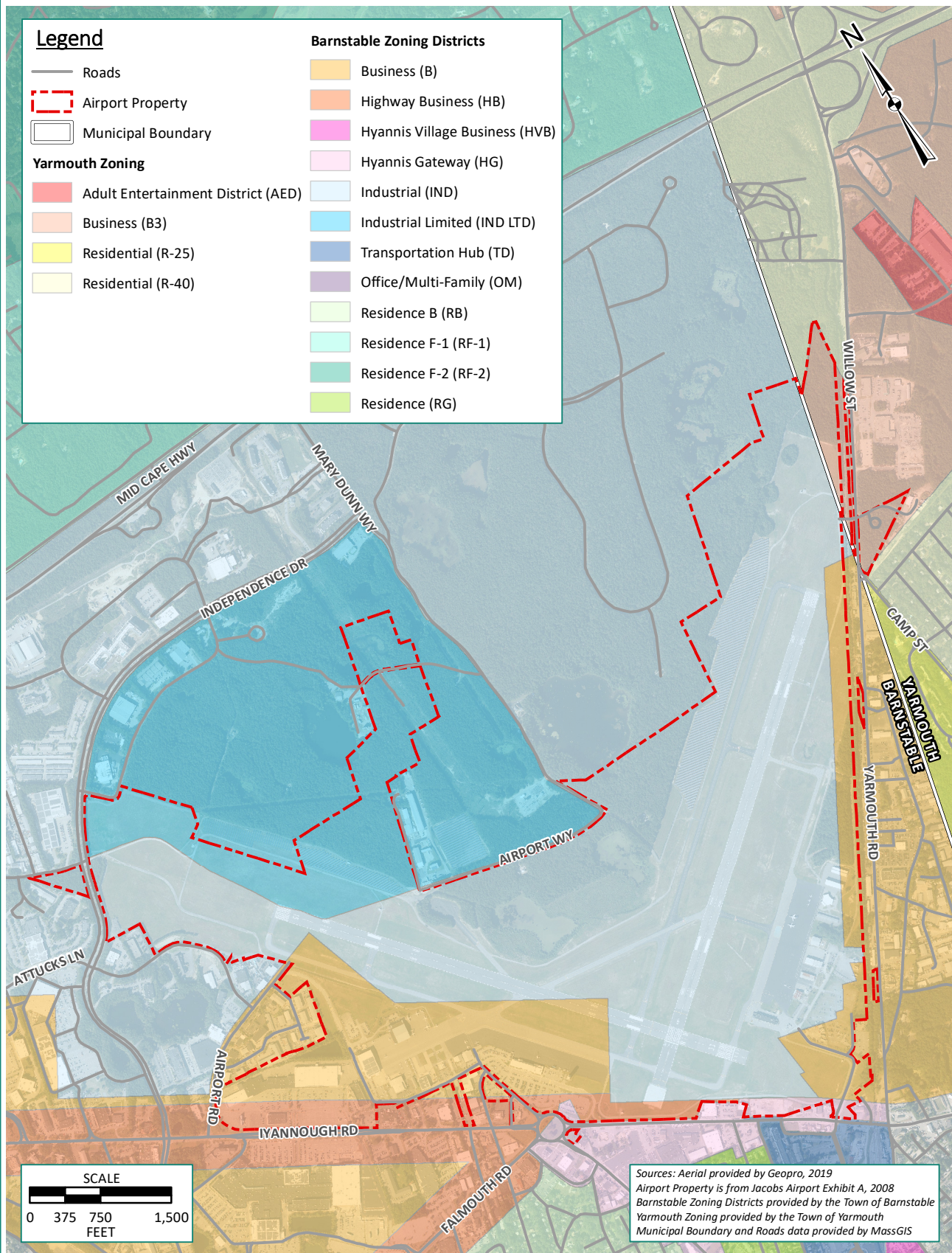
⁸ <https://ecode360.com/31772702>; Retrieved October 20, 2019.

⁹ <https://www.yarmouth.ma.us/DocumentCenter/View/8621/Zoning-Bylaw-thru-05-04-19?bidId=>; Retrieved October 20, 2019.

Retrieved



Figure 2-10: Zoning Map



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- **Hyannis Village Business (HVB):** HVB establishes principal uses as business and professional offices, banks, retail uses, personal services establishments, packaging and delivery services, research and development facilities, publishing and printing establishments, restaurants, health clubs, movie theaters, artist's lofts, art galleries, museums, performing arts facilities, educational institutions, bed-and-breakfasts, fraternal or social organizations, hotels, motels, conference centers, recreational establishments, mixed use development with building footprint not exceeding 20,000 SF and totaling not more than 60,000 SF, and apartments and multi-family housing, not including mixed use development, totaling not more than 12 dwelling units per acre.
- **Hyannis Gateway (HG):** HG establishes principal uses as business and professional offices, banks, restaurants, business support services not exceeding 5,000 SF, dental and medical clinics, retail uses, mixed-use development, and multi-family housing not more than four dwellings per acre or eight bedrooms per acre.
- **Industrial District (IND):** IND establishes principal uses as any use permitted in the B District as well as lumber, fuel and ice establishments, contractors' yards, manufacturing and industrial uses, any use permitted in the Services and Distribution District, recreation ice rink facilities, and sports and recreation facility.
- **Industrial Limited District (IND LTD):** IND LTD establishes principal uses as warehousing and wholesale distribution facilities of non-toxic and non-hazardous materials, light manufacturing and assembly facilities, research and development facilities, professional or business offices, banks, architectural, engineering and drafting firms, computer operations centers, recreation facilities, and such sewerage treatment facilities as may have been allowed by previous Zoning Ordinance.
- **Transportation Hub (TD):** TD establishes principal uses as restaurants, tourist information service, parking facilities outside of the Wellhead Protection (WP) Overlay District, bicycle rental services, shuttle services, alternative transportation facilities, car rental services outside of WP overlay district, and automated banking facilities (ATM)
- **Office/Multi-Family (OM):** OM establishes principal uses as business and professional offices, personal services establishments, repair services, publishing and printing establishments, packaging and delivery services, artist's lofts, restaurants, multi-family housing totaling not more than 12 dwelling units or 24 bedrooms per acre, mixed-use development and office, dental or medical.
- **Residence B (RB):** RB allows for single-family residential dwelling (detached).
- **Residence F-1 (RF-1):** RF-1 allows for single-family residential dwelling (detached).
- **Residence F-2 (RF-2):** RF-2 allows for single-family residential dwelling (detached).
- **Residence (RG):** RG allows for single-family residential dwelling (detached).



The following are the principal uses of the Town of Yarmouth zoning districts:

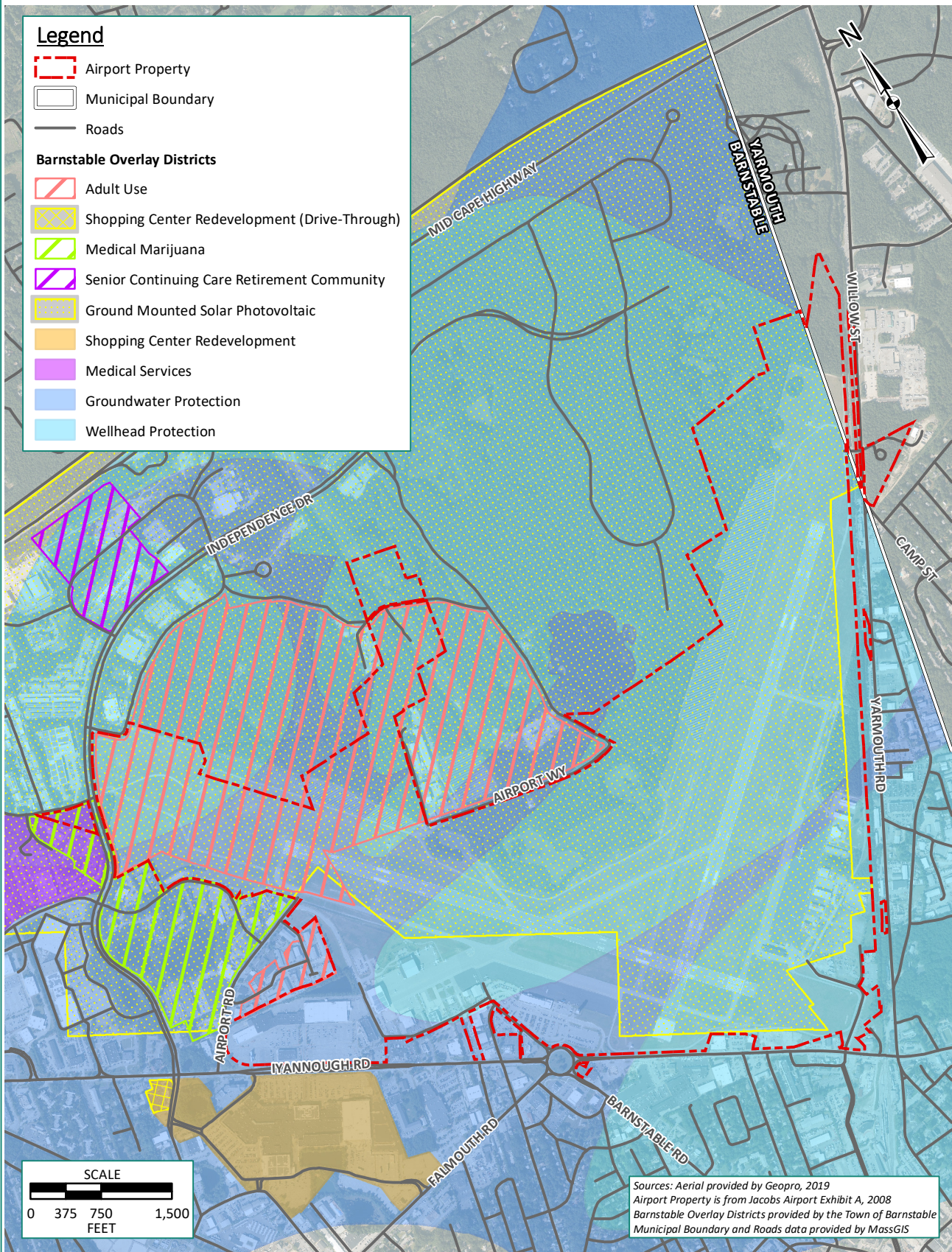
- **Adult Entertainment District (AED):** AED established a place for adult entertainment given a special permit is acquired. Strict permit requirements are in place in order to address and mitigate the secondary effects of adult entertainment entities and the adverse effects that these industries have shown to have on public health, business climate, property values or residential and commercial properties, quality of life, and general welfare of the town.
- **Business (B3):** B3 is located along Route 6 and has a minimum parcel requirement of 40,000 SF.
- **Residential (R-25):** R-25 allows residential homes with a minimum lot size of 25,000 SF.
- **Residential (R-40):** R-40 allows for single family homes with a minimum lot size of 40,000 SF.

Zoning Overlay

The Airport property also falls under six zoning overlay districts designated by the Town of Barnstable with two additional zoning overlay districts in close proximity of the Airport and can be seen in **Figure 2-11**. The following are definitions of zoning overlay districts on the Airport:

- **Adult Use Overlay District:** This district is established and is considered as superimposed over any other districts established. Within the Adult Use Overlay District, and only within the Adult Use Overlay District, an adult use may be permitted, provided that a special permit is first obtained from the Zoning Board of Appeal and subject to conditions
- **Medical Marijuana:** The purpose of the Medical Marijuana Overlay District is to provide for the limited establishment of registered marijuana dispensaries as they are authorized pursuant to state regulations set forth at 105 CMR 725.000, *Implementation of an Act for the Humanitarian Medical Use of Marijuana*. Given that registered marijuana dispensaries shall be limited in number and strictly regulated by the Massachusetts Department of Public Health, these zoning regulations intend to permit them where there is access to both regional roadways and public transportation, where they may be readily monitored by law enforcement for health and public safety purposes, and where their impacts are ameliorated by these locations.

Figure 2-11: Zoning Overlay Map



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- **Senior Continuing Care Retirement Community:** The purpose of this overlay is to encourage the development of residential communities designed to offer shelter, convenience, services, and personal medical care, including nursing facility services to senior persons while providing adequate and economical provision of streets, utilities and public spaces and preserving the natural and scenic qualities of the open areas. These facilities shall offer a continuum of care, ranging from independent living to assisted living and nursing home care that reflects the changing needs of their residents.
- **Ground Mounted Solar Photovoltaic:** This overlay promotes the creation of new large-scale, ground-mounted solar photovoltaic installations by providing standards for the placement, design, construction, operation, monitoring, modification, and removal of such installations that address public safety, minimize impacts on scenic, natural, and historic resources and for providing adequate financial assurance for the eventual decommissioning of such installations. This section ordinance is adopted pursuant to the Commonwealth of Massachusetts Green Communities Act.
- **Shopping Center Redevelopment:** The purpose of this overlay is to permit the renovation and redevelopment of a large-scale integrated retail shopping center on a large site with convenient highway access. The Shopping Center Redevelopment Overlay District is established as a special district which overlays another non-residential zoning district or districts (including a Groundwater Protection Overlay District).
- **Medical Services:** The purpose of this overlay is to permit the development and relocation of medical and healthcare services on a previously developed site with convenient regional access. The Medical Services Overlay District is established as a special district which overlays the Industrial Zoning District and, in part, the Groundwater Protection Overlay District.
- **Groundwater Protection:** The Groundwater Protection Overlay District is based on Zone II delineations for public water supply wells, to existing, proven future, and proposed future public supply wells. The purpose of this district is to protect public health, safety, and welfare by encouraging nonhazardous, compatible land uses within groundwater recharge areas, and includes several prohibitions on incompatible uses.
- **Wellhead Protection:** The Well Protection Overlay District is based on a five-year time of travel zone to existing, proven future and potential future public supply wells. The purpose of this district is to protect public health, safety, and welfare by encouraging nonhazardous, compatible land uses within groundwater recharge areas, and includes several prohibitions on incompatible uses.