



2. Inventory

The first step in the airport master planning process, as outlined in Federal Aviation Administration (FAA) Advisory Circular 150/5070-6B, *Airport Master Plans*, involves gathering information about the airport and its environs. An inventory of current conditions is essential to the success of a master plan since the information also provides a foundation, or starting point, for subsequent evaluations.

2.1 Introduction

Located on the North Shore of Massachusetts, the Beverly Regional Airport (the Airport or BVY) lies in the northwestern section of the City of Beverly (Beverly or the City) with portions of the property also falling within the Town of Danvers (Danvers) and the Town of Wenham (Wenham). BVY is a publicly owned (by the City of Beverly) public-use General Aviation (GA) airport. It provides Beverly, Danvers, Wenham, and the surrounding areas with direct access to aviation facilities designed to accommodate an array of general aviation services, operations, and aircraft types ranging from small piston-engine aircraft to larger corporate turbine or jet aircraft. At the time of this Airport Master Plan, BVY has no scheduled commercial air service.

Along with its aviation-related businesses and facilities, the Airport represents a significant transportation and economic asset for its host communities and the greater region. In addition to its direct aviation-related benefits, the Airport supports local industries and encourages business development and expansion for cities and towns throughout the area by providing direct, quick, convenient access to the region, free from the typical congestion experienced in the Boston metropolitan area. Many of these direct benefits are reflected in the *2019 Massachusetts Statewide Airport Economic Impact Study* which quantified the total aviation and non-aviation related economic impacts attributable to the Beverly Regional Airport to be 269 jobs, with total annual wages of approximately \$11.6 million, and a total annual economic output of \$34.3 million. Beyond those impacts, the Airport is also an important attractant for new industries that generate jobs for the community. A prime example of this is the Cherry Hill Corporate Center that for over thirty years has provided convenient accessibility to BVY. The center is home to multiple businesses accounting for over 1,400 jobs and includes an advanced manufacturing cluster currently comprised of semiconductor manufacturer, Axcelis; integrated circuit manufacturer, IXYS; Aero Manufacturing, among others. The payroll, taxes, and local investments generated by these types of businesses, in addition to those economic impacts that result from Airport business and maintenance operations, reflect the degree to which BVY serves as an economic generator for the area.

The previous BVY Airport Master Plan was completed in 2000, with the most recent substantive airport planning effort being the *2010 Beverly Municipal Airport Layout Plan Update*. Since that time, many changes have occurred at the Airport and within the general region in terms of population and economics. Additionally, the aviation industry itself is highly dynamic with significant changes often occurring very quickly on local, regional, and national levels, all of which have the potential to impact the aviation facilities and services provided by BVY. Based on the time that has passed since these studies were last completed, as well as on the regional and aviation industry changes that occurred over that timeframe have dictated that a new Airport

This Airport Master Plan will provide a comprehensive evaluation of BVY and result in a long-term facilities and operational plan for the Airport.





Master Plan (AMP) be completed as a formal means of analyzing current and forecasted operational characteristics and facilities, as well as updating the Airport's program for future development.

The focus of this chapter will be on the total aviation facility and its environs with the overall planning goal being the identification of a long-term (20-year) airport development plan that "right-sizes" BVY to accommodate the future demands and requirements for the host communities. The initial step in the preparation of this Airport Master Plan is the collection or identification of information pertinent to the Airport and the surrounding areas. The *Inventory of Existing Conditions* chapter coalesces that data into a single document to provide a foundation for subsequent planning analyses conducted within this Airport Master Plan. Specifically, Chapter 2 examines three basic elements involved with the existing and future development of Beverly Regional Airport:

1. The Airport's facilities (runways, taxiways, aircraft parking aprons, hangars, maintenance facilities, ground access, etc.);
2. The relationship of the Airport to the regional airport system and the National Airport System (NAS); and
3. The Airport environs.

As with any proper planning study, efforts have been made to utilize existing data or information in associated planning documents to the maximum extent possible. The information collected and included in this chapter was obtained from many sources, including those listed below:

- Airport site visits by AGG and Aviation;
- Tenant and user interviews;
- Airport administration records;
- FAA 5010 forms;
- BVY Airport Master Plan (2000);
- 2010 Massachusetts Statewide Airport System Plan (MSASP); and
- Other pertinent data and studies from the Federal Aviation Administration (FAA), Massachusetts Department of Transportation (MassDOT) Aeronautics Division, and the Beverly Airport Commission.

Subsequent chapters in this Airport Master Plan detail the Airport's forecasts of aviation activity, the ability of Airport facilities to safely and efficiently meet the needs associated with the projected aviation activity, and the recommended future development within and around Airport property.

2.1.1 Airport Setting

The Airport's relative location within the region is shown below in **Figure 2-1**. Located within Essex County on the North Shore, the City of Beverly is bordered by the City of Salem, the City of Peabody, and the Towns of Danvers, Wenham, and Manchester-by-the-Sea. At the time of the last census (2010), the Airport's host communities of Beverly, Danvers, and Wenham respectively had populations of 39,502, 26,493, and 5,284, making them the 34th, 70th, and 243rd largest municipalities in Massachusetts.



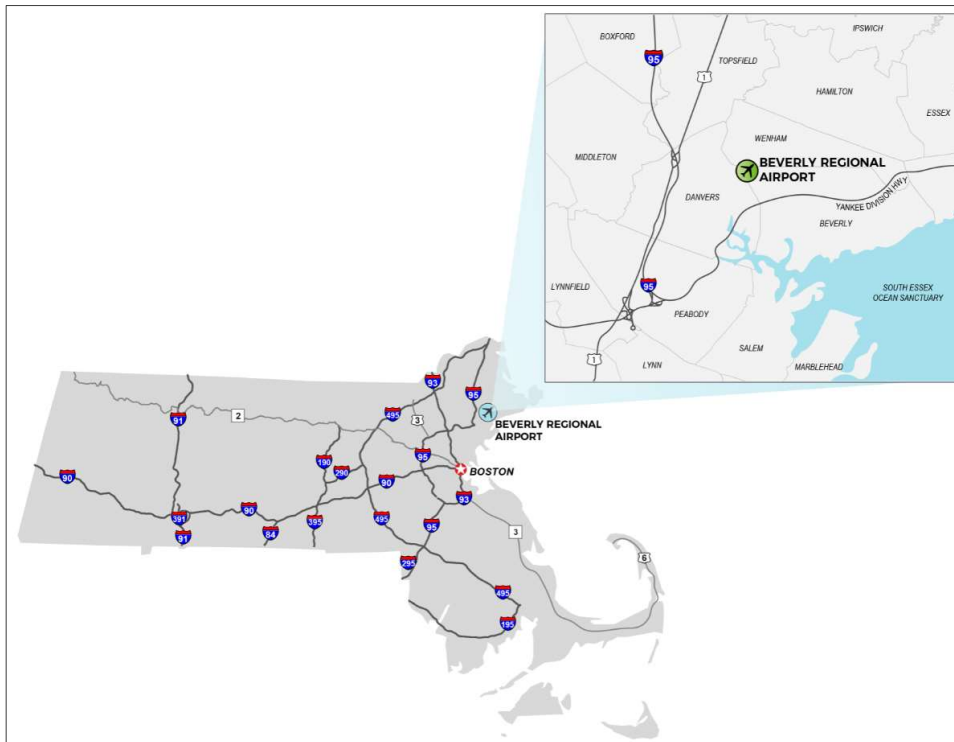
Located in close proximity to Boston, the North Shore of Massachusetts itself has long been a desirable destination for residence and tourism alike.

One of the oldest cities in the United States, Beverly has been called the "birthplace of the American Industrial Revolution" as the site of the first cotton mill in America, as well as the birthplace of the U.S. Navy. Today, with recreation, shopping, and dining options for all tastes and styles, along with miles of coastline, public parks and open spaces, Beverly is aptly called the "Garden City." Additionally, having excellent access to Route 128 and Route 1A, as well as being only 26 miles from downtown Boston, Beverly boasts strong partnerships between business, government, and the community coupled with a thriving downtown and a wide array of businesses and hubs.

Located approximately three miles from downtown Beverly, the Airport itself is situated less than ½ mile from Routes 128 and 62 to the south, Route 97 to the east, and Routes 35 to the west, affording it excellent accessibility to the regional roadway network. The east side of the Airport is directly accessed via LP Henderson Road off Cabot Street (Route 97), while the west side of the Airport must be accessed via Bill Mahoney Way off Burley Street, a largely residential area.

The Airport encompasses 470 acres and has a defined elevation of 107.3 feet Mean Sea Level (MSL). The FAA site number for BVY is 08762*A. The Airport Reference Point (ARP) is Latitude 42-35-02.9000N and Longitude 070-54-58.1000W. The mean high temperature of the hottest month (July) at the Airport is 81.8 degrees Fahrenheit.

Figure 2-1: Airport Location Map



Source: Jviation.



2.1.2 Airport History

Construction of the Beverly Municipal Airport started in March 1928 through the efforts of the Beverly Aero Club who, in association with the City of Beverly, were focused on the future possibilities of air transport and its potential to benefit the community. The City appropriated \$1,000 to help fund the acquisition of two properties (a total of 20 acres) to construct a 1,450 foot-runway. In April 1929, the Aero Club received a charter from the Commonwealth of Massachusetts to conduct flight activities. During the 1930s, the Airport grew in size and facilities as part of the federal government’s Works Progress Administration (WPA).



In anticipation of World War II and the need for airports to support national defense, the City submitted an airport master plan to the WPA and the War Department. Following this, the U.S. Navy acquired the Airport from the City (for a lease price of \$1 per year) to train pilots, and constructed Runway 16-34, which was the longest paved runway in New England at that time. The Airport was rededicated on August 10, 1941. During the war, the U.S. Navy operated the Airport under a joint-use agreement formerly named Naval Auxiliary Air Facility Beverly, itself operating as an auxiliary air facility of Naval Air Station Squantum. Commissioned on May 15, 1943, the Airport was upgraded with a longer Runway 16-34 and a new Runway 9-27, a control tower, barracks, and other structures. The Airport was used for touch-and-go practice for students at Naval Air Station Squantum as well as Fleet Air Arm student pilots. Aircraft from Coast Guard Air Station Salem also utilized the facility for maritime patrol flights, as well as a detachment from VS-31 Sea Control Squadron that flew anti-submarine patrols with Douglas SBD-5 aircraft.



With the conclusion of the war, the Navy decommissioned the facility on August 1, 1945. At that time, the Airport started to experience growing fixed based operations including flight training, aircraft maintenance and sales, ownership of the Airport reverted to the City in 1950. Since then, the Airport has continued to grow and develop into one of the preeminent general aviation airports within Massachusetts. Reflecting its increasing profile as a regional transportation asset, the Airport formerly changed its name to the Beverly Regional Airport in November 2015.

Additional data related to the historical development of the Airport can be gleaned by examining the history of FAA Airport Improvement Program (AIP) grants, as shown below in **Table 2-1**.

The FAA alone has invested over \$31 million in BVY since 1991.

Table 2-1: BVY’s FAA AIP History

Fiscal Year	Project	FAA AIP Funding
1991	Tree Clearing	\$156,934
1994	Vegetation Clearing; Approach Lights; Pavement Repair	\$406,800
1994	Design Taxiway-A Reconstruction and Security Fencing	\$68,220
1995	Airfield Security Fencing	\$256,320
1995	Reconstruct Taxiway-A	\$265,000
1996	RWY 16/34 Edge Lights, Groove 16/34, Remove Shoulders and Remark	\$315,000
1997	Purchase SRE	\$126,900

Fiscal Year	Project	FAA AIP Funding
1998	Airport Master Plan Update	\$94,500
1999	Land Acquisition (Runway 16 RPZ)	\$566,460
1999	Extend Taxiway-D and Upgrade Guidance Signs/MALS Maintenance	\$385,071
2001	Purchase Snow Removal Equipment (SRE) (2 Dump Trucks w/Plows and Sander Box)	\$190,800
2001	Prepare ENF for Airport Improvements	\$140,387
2002	Prepare EA and obtain permitting and Approvals for Master Plan Improvements	\$242,751
2004	Crack Repair and Fencing	\$577,600
2005	Runway 34 Extension (Design Only)	\$292,600
2005	Conduct Environmental Study	\$76,427
2005	Construct Runway Safety Area - 09/27	\$292,600
2006	Rehabilitate Runway - 09/27	\$276,450
2006	Extend Runway - 16/34, Extend Taxiway, Improve Runway Safety Area - 16/34	\$2,924,100
2007	Rehabilitate Runway - 09/27	\$3,125,500
2008	Update Airport Master Plan Study	\$152,475
2009	Rehabilitate Runway - 16/34	\$529,150
2009	Rehabilitate Taxiway	\$816,000
2011	Rehabilitate Taxiway	\$130,150
2011	Conduct aeronautical survey for WAAS approach	\$236,550
2012	Rehabilitate Apron, Rehabilitate Taxiway	\$2,907,900
2013	Rehabilitate Apron	\$2,380,500
2015	Install Guidance Signs, Install Runway Vertical/Visual Guidance System - 09/27, Install Taxiway Lighting	\$714,600
2017	Runway 9 Avigation Easement Acquisition	\$53,861
2018	Wildlife Hazard Assessments	\$89,370
2018	Update Airport Layout Plan with Geometry Study	\$66,690
2018	Rehabilitate Runway - 16/34	\$1,313,500

Source: FAA.

2.1.3 Airport Administration

The Beverly Regional Airport is owned and operated by the City of Beverly, Massachusetts. Additionally, and as required by Massachusetts General Law Chapter 90, Section 51E, the Airport is administered by an airport commission (the Beverly Airport Commission or BAC). The Beverly Airport Commission (BAC) is a seven-member board that meets on the second Monday of each month, and is comprised of representatives from Beverly, Danvers, and Wenham. Each commissioner serves a three-year term.

The Airport is managed by a dedicated full-time Airport Manager who is supported by operations/maintenance staff, an administrative assistant, and other City resources. Additional support can be provided as required by seasonal employees. For example, BVY will typically hire part-time/seasonal employees to assist with snow removal, as well as grass cutting.



2.1.4 Airport Mission Statement

The Beverly Airport Commission has adopted the following primary and secondary mission statements:

*A **mission statement** is a statement of the purpose of an organization’s reason for existing. It guides the actions of the organization, spells out its overall goal, provides a path, and guides decision-making.*

The primary mission of Beverly Regional Airport is to provide aerial access to Beverly and the North Shore region for private, business, and corporate aircraft.

To enhance the desirability of Beverly and the North Shore as a location for businesses, outlets, offices, and manufacturing facilities by providing direct corporate access for executive visits, raw materials/components, and finished products. Another important mission is the continued support of recreational and instructional flying.

2.1.5 Airport Finances

The FAA requires that those airports that accept financial grants “maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, considering such factors as the volume of traffic and economy of collection.”

Because BVY is owned and operated by the City of Beverly, the fiscal responsibility of the Airport resides with the City and, by extension, airport management. Airport finances are managed through a municipal enterprise fund, which is a fund that is segregated in purpose and use from other municipal funds and accounts with the intent that revenues generated by the enterprise activity and deposited to the enterprise fund will be devoted principally to funding all operations of the enterprise activity. In this case, the airport enterprise fund is dedicated to the operation and maintenance of BVY. Airport revenues are generated from aviation fuel flowage fees, landing fees, tiedown fees, hangar fees and leases, and ground leases (see **Table 2-2**). Airport is fully self-sufficient and does not receive subsidies from the City of Beverly.

The majority of facilities on the Airport, including all of the hangar structures, are privately owned where owners have a ground lease with the Airport. The facility owners are also taxed at the prevailing property tax rate, and as result, the property taxes generate revenue in addition to fees generated by the leases.

Refer to Chapter Seven, *Program Implementation Plan*, for additional information on the Airport’s financial structure.

Table 2-2: BVY Rates and Fees

Source/Service	Fee
Landing Fees	
Single Engine less than 6,700 lbs.	No charge
Twin Engine less than 6,700 lbs.	\$20.00
Helicopters	\$20.00
Aircraft over 6,700 lbs. to 30,000lbs	\$3.00 per 1,000 lbs. MTOW
Aircraft over 30,000 lbs.	\$4.00 per 1,000 lbs. MTOW
East Side Ramp Fees	
0 - 5,000 lbs. Single Engine	\$10.00

Source/Service	Fee
0 - 5,000 lbs. Twin Engine	\$15.00
Tiedown Fees	
Yearly Lease Paid before August 1 st of Each Year	\$960.00
Yearly Lease Paid after August 1 st of Each Year	Prorated @ \$80/month plus \$50 annual processing fee
Month-to-Month	\$100.00
Leases	
Ground Lease Rate per sq. ft	\$0.20
Hangar Lease Rate per sq. ft	\$0.60
Fuel Flowage	
Avgas (100LL)	\$0.10
Jet-A	\$0.10
Aircraft Oil	
Per Quart	\$0.10

Source: BVY Management.

2.1.6 Airport Role

Airports can play a variety of different functional roles and contribute at varying levels in meeting the transportation and economic needs on national, regional, state and local levels. Identifying and understanding the various roles that an airport plays is essential for that airport to be developed with facilities and services appropriate to fulfilling its respective roles. Following are the various role classifications for the Beverly Regional Airport.

National Plan of Integrated Airport Systems (NPIAS)

The NPIAS is an FAA-sponsored national airport system plan whose purpose is to identify those airports that are considered important to the national air transportation system, as well as how those airports currently operate within the system. Being identified within NPIAS also makes an airport eligible to receive grants under the FAA Airport Improvement Program (AIP) for the planning and implementation of airport capital improvements and infrastructure development. In practice, for those airports included in the NPIAS, a specific service level or role is defined based on the types of services those airports provide their host communities. These service levels or roles also help define the AIP funding categories established by Congress to assist in the distribution of financial resources for airport development.

The 2018 NPIAS classified Beverly Regional Airport as General Aviation Regional Reliever Airport. This classification is defined by the FAA as an airport that:

Supports regional economies by connecting communities to regional and national markets. Located in metropolitan areas serving relatively large populations. Regional airports have high levels of activity with some jets and multiengine propeller aircraft.

It is also defined as an airport that meets one of the following minimum criteria for annual activity:





In a Metropolitan or Micropolitan Statistical Area, 10 or more domestic flights over 500 miles, 1,000 or more instrument operations, and 1 or more validated based jet or 100 or more validated based aircraft.

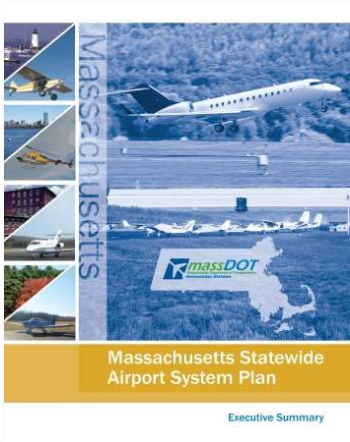
Finally, in being designated as a Reliever Airport by the Secretary of Transportation, BVY has been designated to:

relieve congestion at a commercial service airport and to provide more general aviation access to the overall community

2010 Massachusetts Statewide Airport System Plan (MSASP)

MassDOT Aeronautics Division conducted the MSASP to provide a strategic analysis of the statewide airport system of public-use airports. The MSASP produced an extensive assessment of the current state airport system’s condition, as well as a guide for meeting its current and future needs. This plan provided tools to help facilitate the continued successful development of its aviation system, to respond to future challenges, and to meet changes in demand in order to promote system sustainability. This plan also identified roles for each airport in the state.

Beverly Regional Airport is currently classified in the MSASP as a Corporate/Business Airport. This is defined as an airport that serves a primary role in regional economic activities, connecting to state and national economies. They accommodate a full range of regional and local business activities, as well as most types of general aviation aircraft including corporate jet and multi-engine activity.



2.1.7 Primary Airport Data

Table 2-3 below provides a summary of some of the important primary data elements for the Beverly Regional Airport.

Table 2-3: BVY Primary Data – Existing Conditions

Beverly Regional Airport (BVY) - Primary Airport Data	
Associated Town	Beverly, MA
Airport Owner / Sponsor	City of Beverly (Public)
Airport Management	Beverly Airport Commission Full-time Airport Manager
Date Established	1928
Airport Roles	FAA NPIAS: General Aviation Regional Reliever MSASP 2010: Corporate/Business
Commercial Air Service	NA
Air Traffic Control Tower (ATCT)	Hours of operation: 0700-2100
Part 139 Classification	NA
ARFF Index	NA - ARFF available with 24-hour notice
Airport Acreage	470
Airport Reference Point (ARP)	42-35-02.9000N 070-54-58.1000W
Airport Elevation	107.3 Mean Sea Level (MSL) Surveyed
Area Mean Maximum Temp.	80.0° F (July)
FAA Sectional Chart	New York

Source: Aviation; FAA 5010.

2.1.8 Airport Services

Airports can provide a wide range of services in order to meet the varied demands of its individual market area. **Table 2-4** provides a general listing of Beverly Regional Airport’s current range of aviation-related services, as well as the entities that provide them.

Table 2-4: BVY Aeronautical Services

Service	Provider
Fixed Base Operator (FBO) Services - Aircraft support services (e.g., fueling, deicing, oxygen, GPU, lavatory, etc.) - Passenger support services (e.g. ground transportation, catering, etc.)	North Atlantic Air, Inc.
Flight Training	AVIER Flight School Beverly Flight Center
Aircraft Management	Baker Aviation Management
Aircraft Maintenance	Air Bear Aviation (Maintenance Repair and Overhaul)
Aircraft Parking (based/transient) - Tie Downs & Hangars	Aero Specialties of BVY Cat Aviation City of Beverly North Atlantic Air, Inc.

Source: BVY Management

2.1.9 Accident History at BVY

An examination of the National Transportation Safety Board (NTSB) records was made to see if any trends in types of accidents have occurred over the previous 30 years. Accident history is particularly important to note those that might be attributable to airport design, layout, or aircraft operation. Most accidents at BVY are typical of most GA airports (e.g., during landings). The accident history was recorded since the National Transportation Safety Board (NTSB) has been collecting this data. The accident reports and NTSB Conclusions are presented in **Table 2-5**. Since 1989, there have been a total of five fatalities at the Airport due to accidents. Note that none of the accident causes have been directly attributed to the Airport’s design or operation.

Table 2-5: NTSB Accident Reports at BVY: 1989-2019

Date	Aircraft Type	Accident and Location	Injuries/Fatalities
07/09/1989	PIPER PA-28-161	Landing RW 27; attempted go-around; landed long and into trees	Minor Injury (1)
04/15/1994	AERONCA 7AC	Attempted go-around; collided with ground	Serious Injury (1)
12/21/1996	PIPER PA-28-140	Touch-and-Go’s – stall/spin on takeoff	Fatal (1)
05/30/1998	Cessna 172D	Landing RW 34 - loss of control due to crosswind	None
07/03/2000	Cessna 152	Landing RW 16 – nosewheel damage (student pilot)	None
05/21/2001	Piper PA-28-161	Failure to maintain aircraft control; attempted VFR in marginal conditions	Fatal (3)
07/11/2004	Robinson R-44 II	Hover taxi – collision with transmission lines	None
08/02/2004	Pascucci RAF 2000	Landing RW 16 - loss of control/rolled over due to crosswind	None
06/20/2005	Piper PA-31-350	Landing RW 16 – Engine on fire on takeoff; hard landing near runway	None



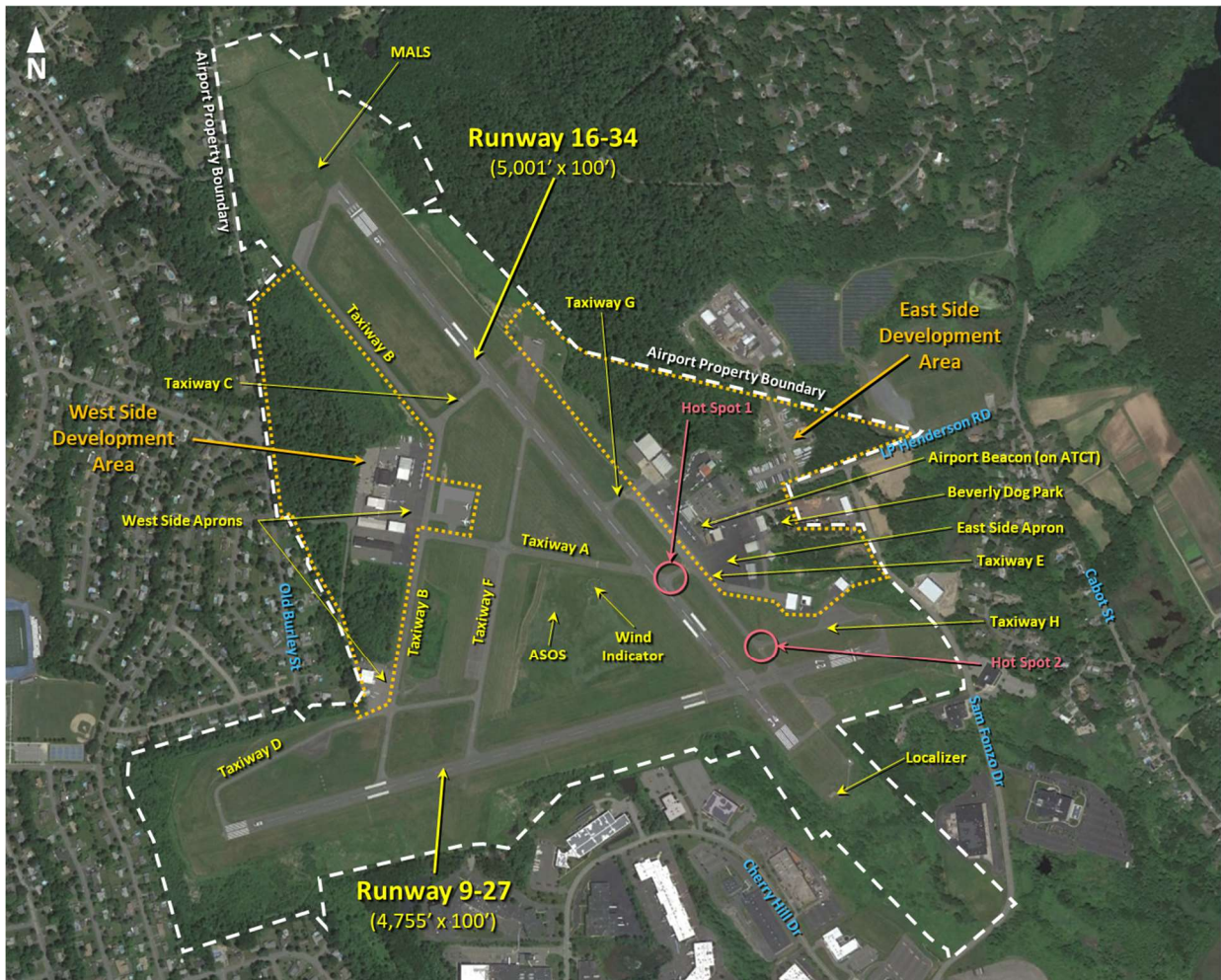
Date	Aircraft Type	Accident and Location	Injuries/Fatalities
06/17/2006	Cessna 182F	Landing RW 27 – nosewheel collapsed	None
03/17/2007	Cessna 500	Landing RW 16 – ice on aircraft; wingtip strike	None
07/15/2007	Cessna 172S	Landing RW 16 – nosewheel collapsed	None
09/28/2008	PIPER PA 28-161	Landing RW 16 – deer strike	None
08/27/2010	PIPER PA-28-161	Operational accident - person stumbled into prop	Fatal (1)
03/04/2012	ACA 8KCAB	Takeoff RW 27 – taildragger loss of control during takeoff roll	None
05/21/2014	BELL 206 L4	Mechanical failure shortly after liftoff; hard landing due to autorotation	None
09/10/2018	Piper PA-28	NTSB-TBD (nosewheel fell off)	None

Source: NTSB.

2.2 Airside Facilities

Airside facilities are the portions of the Airport that accommodate the movement of aircraft and encompass runways, taxiways, airfield lighting, and other facilities necessary to support flight activity. **Figure 2-2** depicts BVY’s existing airside facilities.

Figure 2-2: BVY Airside Facilities



Source: Jviation; Google Earth 2019.

2.2.1 Runways

Beverly Regional Airport is comprised of two intersecting runways – Runway 16-34 is a paved asphalt runway with a northwest/southeast orientation, while Runway 9-27 is also a paved asphalt runway with an east/west orientation that acts as the secondary or crosswind runway. All runway ends are served by an instrument approach procedure. Both runways have partial parallel taxiways and connecting taxiways that provide aircraft access to the various ramp areas and other facilities on the Airport. **Table 2-6** provides additional detail about the runways at BVY.

Table 2-6: BVY Runway Data

	Runway 16-34	Runway 9-27
Dimensions	5,001 ft x 100 ft	4,755 ft x 100 ft
Runway Surface Type	Asphalt - Grooved	Asphalt - Grooved
Pavement Condition	Fair	Excellent
Runway End Location	(16) 42-35-31.0040N / 070-55-18.9310W (34) 42-34-52.8130N / 42-34-52.8130N	(9) 42-34-47.0784N / 070-55-29.1191W (27) 42-34-59.8069N / 070-54-27.9431W
Runway End Elevations	(16) 107.3 MSL (34) 82.1 MSL	(9) 71.6 MSL (27) 91.3 MSL
Effective Gradient	(16) 0.5% (34) -0.5%	(9) -0.4% (27) 0.4%
Runway Markings	Non-Precision Instrument	Non-Precision Instrument
Runway Surface Type	Asphalt / Grooved	Asphalt / Grooved
Runway Strength	Single Wheel: 30,000 lbs. Double Wheel: 55,000 lbs. Double Tandem: 103,000 lbs.	Single Wheel: 30,000 lbs. Double Wheel: 114,000 lbs. Double Tandem: 180,000 lbs.
Threshold Displacement	(16) 239 ft (34) 0 ft	(9) 0 ft (27) 250 ft
Visual Approach Slope Indicator (VGSI)	(16) Prec. Approach Path Indicator (PAPI) (34) NA	(9) Prec. Approach Path Indicator (PAPI) (27) Prec. Approach Path Indicator (PAPI)
Edge Lighting	MIRLS	MIRLS
Approach Lighting	(16) NSTD MALS 800ft (34) NA	(9) NA (27) NA
Other Runway Lighting	(16) NA (34) Runway End Identifier Lights (REILS)	(9) NA (27) NA
Runway Design Code (RDC)	B-II 5000	B-II 5000
Critical Aircraft	Citation Excel	Citation Excel

Source: FAA 5010, 2010 BVY Airport Layout Plan.

2.2.2 Taxiways

Taxiways are paved areas over which airplanes move from one part of the airfield to another with their primary use being providing access between the terminal/hangar facilities and the runways. There are two general types of taxiways: parallel and connector. Taxiways that are located parallel to runways generally provide a route for aircraft to reach a runway end. Connector taxiways, which can connect runways to parallel taxiways, provide paths for aircraft to enter the runway for departure or leave the runway after landing. Connector taxiways also provide a means for aircraft



to move among the various airside components of an airport including aircraft hangar and storage areas, fueling area, and aircraft parking and aprons. Note that taxiways are generally identified by letters.

BVY has a comprehensive taxiway system that provides access between the two main ramp areas and the two runways. The taxiway system is shown in **Figure 2-2** and **Table 2-7** details information about each taxiway.

Table 2-7: Taxiway Details

Taxiway ID	Type	Width	Condition
A	Connector	50 ft	Fair
B	Partial Parallel	40 ft	Fair
C	Connector	50 ft	Poor
D	Partial Parallel	35 ft	Satisfactory
E	Partial Parallel	35 ft	Good
F	Connector	35 ft	Satisfactory
G	Connector	40 ft	Good
H	Partial Parallel	35 ft	Good

Source: Jviation

It is also important to recognize that BVY has two “hot spots,” defined by the FAA as being runway safety related problem areas on an airport that presents increased risk to aircraft during surface operations. Typically, it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. The area of increased risk has either a history of or potential for runway incursions or surface incidents, due to a variety of causes, such as but not limited to the following: airport layout, traffic flow, airport marking, signage and lighting, situational awareness, and training. Hot spots are depicted on airport diagrams until such time the increased risk has been reduced or eliminated. Following are the two BVY hot spots identified by FAA (see also **Figure 2-11** later in the chapter for their specific locations):

- *Hot Spot 1 (HS 1) Prepare to hold short of Rwy 16-34 immediately after exiting the East Ramp.*
- *Hot Spot 2 (HS 2) Acft taxiing SE on Twy E fail to turn on Twy H and enter Rwy 27 without authorization.*

2.2.3 Aprons

An aircraft apron is used for aircraft movement and positioning, aircraft storage and tiedowns, aircraft fueling, and vehicle movement and parking. BVY has aircraft apron areas on both the west side and east side of the Airport (see **Figure 2-4** and **Figure 2-5** later in the chapter). There are aprons in three locations on the west side with the FBO managing the largest two aprons measuring approximately 250,000 square feet including taxilanes, as well as an associated 33,000 square-foot apron located across Taxiway B. The third apron is located southwest of the FBO and measures approximately 40,000 square feet. The apron located on the east side of the Airport is approximately 350,000 square feet including all aircraft movement areas (e.g., taxilanes, tiedowns, other aircraft parking areas, etc.).

Note that generally, transient aircraft prefer power-in/power-out parking versus nested tie-downs that requires physically moving (e.g., manually/by hand or by tug) an aircraft into and out of each parking position. Note that power-in/power-out parking requires more space on an apron than nested tie-downs due to the need for additional taxi-lanes and space between aircraft parking spots. BVY has both types of aircraft parking available. Specifically, the east apron has 30 marked tie-down spaces and an additional 13 unmarked tie-down locations spread throughout the area. The west apron has 13 marked tie-down spaces as well as approximately 20 additional unmarked parking locations and two helicopter parking positions. These totals do not include any transient power-in/power-out parking positions.

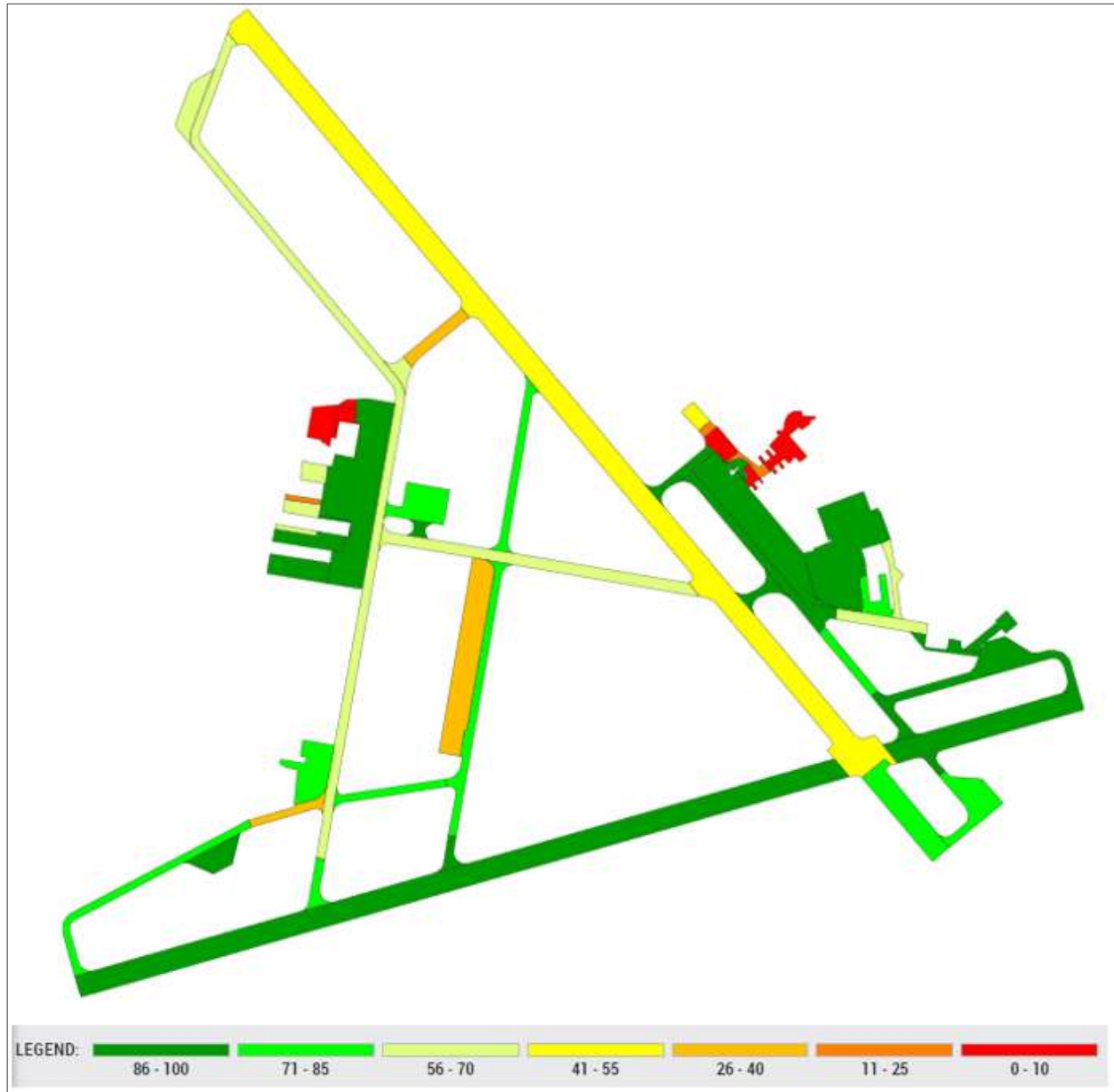
2.2.4 Pavement Condition

FAA AC 150/5380-6B, *Guidelines and Procedures for Maintenance of Airport Pavements*, recommends conducting a detailed pavement inspection that follows the American Society for Testing and Materials (ASTM) D5340, *Standard Test Method for Airport Pavement Condition Index Surveys*. A detailed pavement inspection is conducted for airport pavements to employ a visual rating system for pavement distress. The condition and strength values are summarized in the Pavement Condition Index (PCI). The PCI scale ranges from a value of zero (representing a pavement in a failed condition) to a value of 100 (representing a pavement in excellent condition).

MassDOT Aeronautics completed a PCI study for BVY in 2016. Overall, the surfaces at BVY range from a PCI of 85 to 100 (good) to a PCI of 0-10 (failed) with several pavement areas classified as being fair (see **Figure 2-3**). (Please note that Figure 2-3 reflects a pavement inspection effort that occurred in 2016. Since that time, the center 54 feet of the entire length of Runway 16-34 pavement has been overlaid, resulting in that condition improving to good.) BVY's overall airfield pavement is predominately considered to be in "satisfactory" condition with an average airport PCI of 76. BVY's lowest PCI values, indicating pavement in "failed" condition, are limited to a selected aircraft apron areas.



Figure 2-3: Pavement Condition Index Map



Source: MassDOT Aeronautics, Airport Pavement Management System (Field inspection 11/2016).

2.2.5 Airfield Lighting

Airport Identification Lighting

A rotating beacon identifies the location of the Airport at night and during periods of poor visibility. This beacon projects alternating green and white beams from dusk to dawn. When activated during daylight hours, the beacon signals Instrument Flight Rule (IFR) conditions. The BVY rotating beacon is located on top of the air traffic control tower on the east side of the Airport.

Runway Lighting

Runway lighting aids are necessary to provide pilots with critical takeoff and landing information concerning runway alignment, lateral displacement, rollout operations, and runway distance remaining. BVY's existing runway lighting capabilities are detailed in **Table 2-8**.

Runway edge lights are used to outline the edges of runways during periods of darkness or restricted visibility conditions. Both Runway 16-34 and Runway 9-27 are outfitted with Medium Intensity Runway Lights (MIRL). When required, the runway lights can either be activated by the air traffic control tower during its hour of operations, or when the tower is closed, by pilots operating at the Airport through the use of pilot-controlled lighting (PCL) over BVY's Common Traffic Advisory Frequency (CTAF) of 125.2 MHz. Once activated through PCL, the lights remain on for 15 minutes, at which time they will then automatically shut down.

A Precision Approach Path Indicator (PAPI) is a series of lights that provide visual guidance during a runway approach. Four-light PAPI systems are installed on Runway 16, Runway 9, and Runway 27. It should be noted that the Runway 16 PAPIs are set to a 3.5-degree glidepath to account for visual obstructions. Additionally, Runway 16 is equipped with a nonstandard Medium Intensity Approach Lighting System (MALS). Note that approach light systems are designed to provide pilots with the basic means of transitioning from instrument flight to visual flight during landing.

Runway End Identifier Lights (REILs) are high intensity white strobe lights located on each side of the runway threshold to enable rapid identification of the runway threshold, particularly at night and during periods of poor visibility. Runway 34 is equipped with REILs.

Table 2-8: BVY Runway Lighting

Lighting	Runway 16	Runway 34	Runway 9	Runway 27
Approach Lighting	MALS	-	-	-
Runway Edge Lighting	MIRL	MIRL	MIRL	MIRL
Centerline Lights	-	-	-	-
Visual Approach Slope Indicator (VGSI)	PAPI-4 (Left)	-	PAPI-4 (Left)	PAPI-4 (Left)
Other Lighting	-	REILs	-	-

Source: FAA 5010.



Taxiway Lighting

Taxiway edge lights aid in providing visual guidance to pilots and ground service/maintenance vehicles accessing the taxiway in low visibility or night conditions. BVY has Medium Intensity Taxiway Light (MITL) systems installed along the edge of all taxiways to guide aircraft between the runway to the apron areas.

Other Visual Aids

Additional visual aids and instrumentation at BVY assist pilots in arriving or departing. The Airport's segmented circle and integrated wind cone provide pilots with traffic pattern and wind direction/velocity information. This equipment is centrally located in the middle of the airfield.

Signage provides essential guidance to identify items and locations on an airport. Airfield signage gives pilots visual guidance information for all phases of movement on the airfield. BVY is equipped with FAA-compliant signs that include instruction, location, direction, destination, and information signs.

2.2.6 Automated Surface Observation System (ASOS)

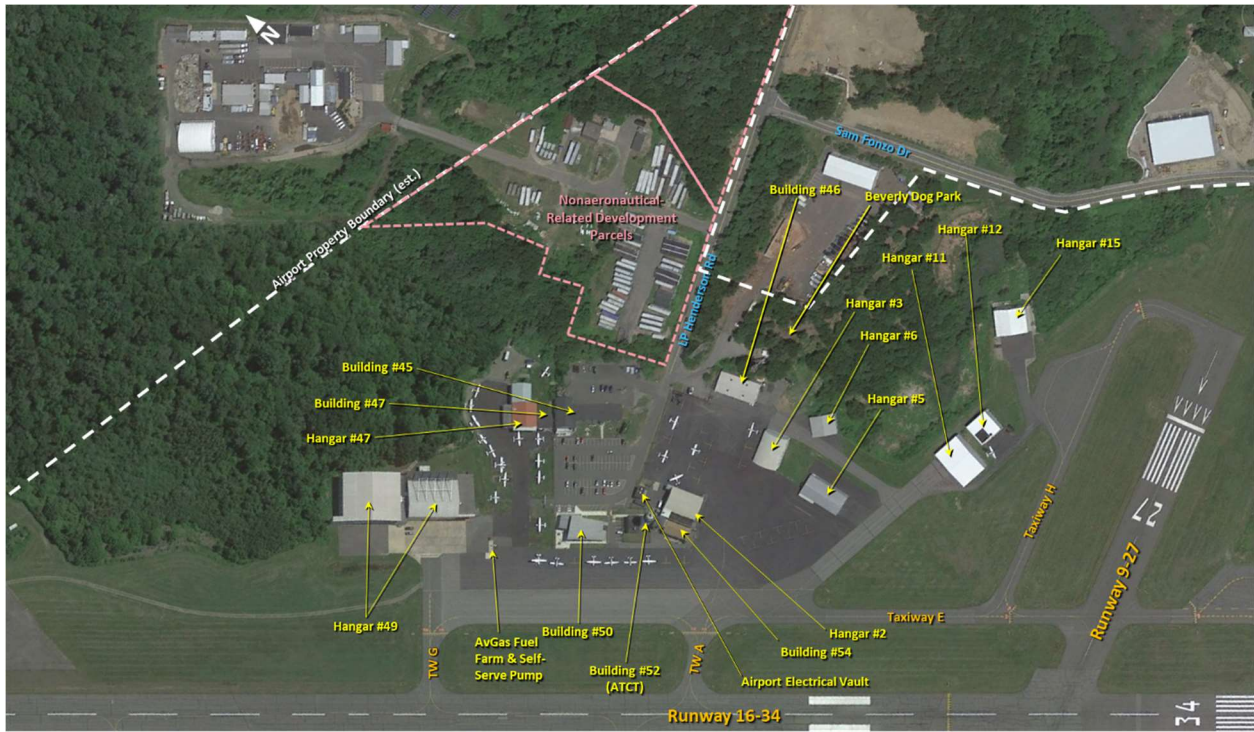
Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the FAA, and the Department of Defense, and serves as the nation's primary surface weather observing network. It is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. The ASOS is located in the middle of the airfield near the wind indicator and segmented circle. The system provides on-site weather data collection and reporting capabilities. Without on-airport weather reporting, charter/air taxi flights may not be allowed to takeoff or land in instrument (poor) weather conditions. The ASOS collects and transmits weather data to pilots on a frequency of 119.2 MHz and is also available by telephone (978-921-5042). Note that the present location of the ASOS meets current FAA siting criteria.

2.3 Landside Facilities

Landside development at the Airport is divided into two primary development areas, one located on the east side of the Airport and one located on the west side. In general, these facilities include an administration building, Fixed Base Operator (FBO) facilities, aircraft hangar facilities, fuel storage facilities, access roadways and utilities.

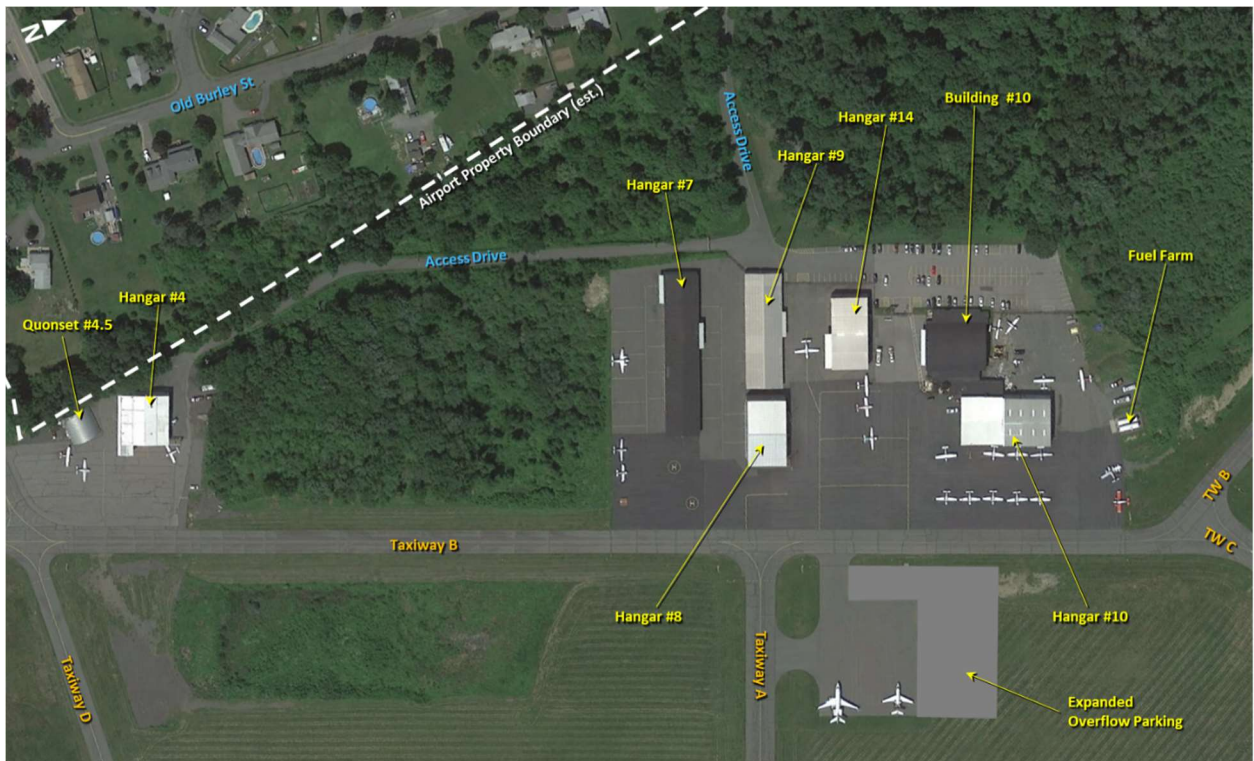
BVY's East Side and West Side Development Areas are represented in **Figure 2-4** and **Figure 2-5**, and are described in the following sections.

Figure 2-4: BVY Airside Facilities (East Side)



Source: Jviation; Google Earth 2019.

Figure 2-5: BVY Airside Facilities (West Side)



Source: Jviation; Google Earth 2019.



2.3.1 Administration Building

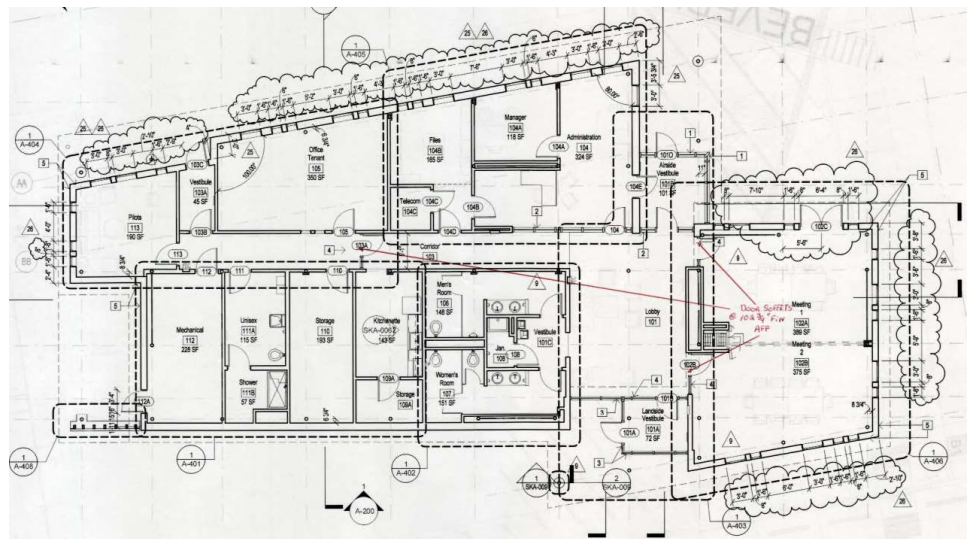
The Beverly Regional Airport Administration Building was completed in 2016 as part of a statewide construction project sponsored by MassDOT Aeronautics. Starting with a prototype, this building was customized to the site, particular building operations, as well as to the specific needs of the Airport and its community, both in terms of interior layout and exterior expression. The 4,500 square foot facility (identified as BVY Building #50) features a variety of upgraded facilities including office and meeting room for airport staff, interior and exterior space for the public to engage with airport activities, and quiet rooms for pilots. Designed to maximize its efficiency for construction and maintenance while promoting economic and environmental sustainability, the administration building was the recipient of the 2018 Wood Design Regional Excellence Award for public-use airport buildings presented by Woodworks.

Figure 2-6: BVY Administration Building



Source: BVY.

Figure 2-7: Administration Building As-Built Schematic Plan



Source: BVY.

2.3.2 Airport Traffic Control Tower (ATCT)

The BVY Airport Traffic Control Tower (ATCT) was opened on January 13, 1975, in response to a significant increase to aviation operations largely driven by flight training activities as well as a growth in corporate aircraft activity. The BVY ATCT was staffed by FAA controllers until July 1997 when its operations were transferred to a private company via FAA's Contract Tower Program. This program is used by airports that benefit from Air Traffic Control yet may not meet the criteria that supports full-time FAA staffing. The 2,500 square-foot ATCT (identified as BVY Building #52) provides air traffic separation and sequencing services to aircraft within a four-mile radius of BVY during its hours of operation (7:00 AM to 9:00 PM from May 15 through October 31, and 7:00 AM to 8:00 PM from November 1 through May 14) on 125.2 MHz. During the hours of operation, the BVY ATCT also operates the ground control frequency of 121.6 MHz. Boston approach and departure control operate on frequency 124.4 MHz.

In 2018, the BVY ATCT was named the Facility of the Year by Midwest Air Traffic Control (ATC) Service, Inc. The award was based in part on its record of safety with over 1,600,000 error-free operations since 1997, the many pilot assistance awards it has received, its commitment to customer service, its record of working with the Airport, and its involvement in the community.



2.3.3 Airport Buildings and Hangars

BVY has a wide variety of buildings located on the Airport that serve a range of purposes. Note that many of these buildings are aircraft hangars, which are enclosed structures constructed for the parking, servicing, and maintenance of aircraft, and designed to protect aircraft from adverse weather conditions such as wind, snow, hail, ice, sun, and rain. BVY currently has over 177,000 square feet of enclosed building space, of which approximately 140,000 square feet is hangar space (e.g., box hangars and T-hangars), with the remaining areas being utilized for other purposes not dedicated to aircraft storage (e.g., office, general storage, business areas, etc.). (See **Table 2-9** for a complete listing of BVY buildings and hangars, and **Figure 2-4** and **Figure 2-5** for their locations.) All hangars are privately-owned but lease their land from the Airport.



As noted above, the Airport's aircraft hangars are classified as either T-hangars or box (or conventional) hangars. T-hangars are a series of interconnected aircraft hangars with footprints in the shape of a "T" that can store one single- or multi-engine aircraft in each unit. They typically accommodate piston-engine aircraft and are one of the most common types of hangars at GA airports, since they are usually the least expensive structure to construct. BVY currently has three T-hangars structures (a total of 32,400 square feet) located on Airport property that have ground space to accommodate a total of 22 aircraft.



Box hangars, also known as conventional hangars, have a square or rectangular footprint that can be sized to accommodate a wide range of aircraft storage needs, ranging from one single-engine aircraft up to multiple corporate jets. Beyond aircraft storage, they can also be utilized for aircraft maintenance. There are currently 15 box hangars (a total of 122,200 square feet) on the Airport that range in size from 3,000 to 19,000 square feet.





Table 2-9: Building and Hangar Details

Identification	Current Tenant(s)	Current Use	Area
East Side Development Area			
Building #45	City of Beverly	Public Services/Police	7,500 SF
Building #46	Beverly Regional Airport	Airfield Maintenance	5,000 SF
Building #50	Beverly Regional Airport	Administration	4,500 SF
Building #52	FAA	Government (ATCT)	2,500 SF
Building #54	Reel Tape Solutions	Private Business	1,900 SF
Building #56	Civil Air Patrol	Government	1,000 SF
Hangar #02	Baker Aviation Management	Box Hangar	6,300 SF
Hangar #03	Baker Aviation Management	Box Hangar	4,800 SF
Hangar #05	Baker Aviation Management	4-Unit T-Hangar	5,400 SF
Hangar #06	Cummings Cove Air	Box Hangar	3,000 SF
Hangar #11	Roma Ventures II	Box Hangar	7,500 SF
Hangar #12	Godfrey Forest Products	Box Hangar	3,600 SF
Hangar #15	BAT Hangar	Box Hangar	5,000 SF
Hangar #47	Avier Flight School; Aero Specialties of BVY	Box Hangar; Flight School	7,000 SF
Hangar #49	North Atlantic Air	Corporate Hangar	14,000 SF
Hangar #49	North Atlantic Air	Corporate Hangar	19,000 SF
West Side Development Area			
Building #10	North Atlantic Air; Beverly Flight Center; Air Bear Aviation	Corporate Hangar; FBO Services; Offices; Flight Training; Aircraft Maintenance	14,500 SF
Hangar #04	Cat Aviation	Box Hangar	7,700 SF
Quonset #4.5	Cat Aviation	Box Hangar (Quonset)	2,700 SF
Hangar #07	North Atlantic Air	10-Unit T-Hangar	15,000 SF
Hangar #08	North Atlantic Air	Box Hangar	7,200 SF
Hangar #09	North Atlantic Air	8-Unit T-Hangar	12,000 SF
Hangar #10	North Atlantic Air	Corporate Hangar	12,400 SF
Hangar #14	North Atlantic Air	2-Unit Box Hangar	7,500 SF

Source: BVY Management.

2.3.4 Fixed Base Operator (FBO)



Airports must provide a wide range of services to meet the varied demands of its individual market area. These demands are frequently accommodated by a fixed base operator (FBO) located on the airport that provides a variety of aeronautical services for pilots, aircraft, and passengers. FBO Services at BVY are offered by North Atlantic Aviation, a private company that leases buildings, hangars, aprons, and other lands from the Airport. It is a full-service FBO located on the west side of the Airport (off Old Burley Street) that is open from 6:30 AM to 8:30 PM daily and/or during other hours with prior arraignment. Specific services include the following:

- aircraft fueling
- corporate and general aviation services
- courteous, professional line service

- aircraft maintenance and repair (including avionics)
- ramp side vehicle service
- customs and immigration/foreign nationals
- on-site international regulated/garbage removal
- deicing/anti-ice (I & IV) (34' boom height)
- heated hangars
- aircraft parking: short and long term
- courtesy crew car
- ground transportation / rental cars
- passenger and pilot lounge
- flight planning and weather room
- long and short-term vehicle parking
- catering
- hotel reservations
- ground power units / lavatory services



The FBO has a terminal facility located within Building #10, located on the west side of the Airport. The FBO terminal houses a pilot briefing room, a lounge area, snooze recliners, WiFi, restrooms, snacks, coffee, etc. Note that the FBO also provides de-icing capabilities with a deicer unit that has 500 gallons of Type-I aircraft deicing fluid and 50 gallons of Type-IV aircraft deicing fluid. The FBO also has approximately 122 marked ground vehicle parking spaces available.



It should also be noted that the administration building (Building #50) on the east side of the Airport also serves as a GA pilot and passenger support services building primarily for those aircraft based on that side of the Airport, as well as for some transient aircraft. (The self-serve AvGas fueling station is located to the immediate northwest of the building.) This building houses the airport administration offices along with restrooms, a large conference room, pilot briefing room, tenant office space, and other amenities. It is also surrounded by various hangars and tiedown locations. Supporting the administration building are 84 public vehicle parking spots.



2.3.5 Fuel Facilities

BVY currently has two (2) 10,000-gallon aboveground Jet-A fuel storage tanks located on the west side of the Airport near the FBO, and one (1) 8,000-gallon Avgas (100LL) underground storage tank located on the east side of the Airport near the Administration building.

The Airport's FBO (North Atlantic Air) is responsible for ensuring the availability and quality of aviation fuel sold at BVY. This includes receiving fuel from suppliers and delivering fuel to all transient and based aircraft via two (2) 3,000-gallon Jet-A fuel trucks, and two (2) 1,000-gallon 100LL fuel trucks. Fuel services are provided during normal operating business hours (6:30 AM to 8:30 PM daily) but can be extended through advance notification. Additionally, there is a self-serve station associated with the Avgas storage tank that is available 24-hours a day. BVY's historical fuel flowage is shown below in **Table 2-10**.



**Table 2-10: Fuel Flowage**

Year	100LL (Gallons)	Jet- A (Gallons)	Total (Gallons)
2005	72,041	336,068	408,109
2006	87,050	368,579	455,629
2007	112,503	367,661	480,164
2008	101,985	331,240	433,225
2009	95,008	202,204	297,212
2010	100,050	216,026	316,076
2011	91,571	248,186	339,757
2012	109,934	287,922	397,856
2013	94,409	304,081	398,490
2014	90,273	400,873	491,146
2015	67,659	408,454	476,113
2016	90,223	455,904	546,127
2017	69,993	570,046	667,039
2018	152,659	588,968	741,627
2019*	108,333	607,596	714,019

* Through October 2019.

Source: BVY Management; North Atlantic Aviation.

2.3.6 Non-Aviation-Related Development Areas

Airports that have properties that are not reasonably accessible for aviation-related purposes will often pursue opportunities to lease those properties to non-aviation-related development. This is often done to generate additional revenue streams for the airport in order to promote its financial sustainability. It is important to note that airports that have accepted federal grants through the Airport Improvement Program (AIP) must sign grant assurances that commit the airport to developing airport properties for aviation-related purposes unless those properties are specifically released from that obligation by the FAA. Additionally, and among other assurances, those properties can only be leased for reasonable time periods, must be leased at fair market value, and any income derived from those leases must remain on the airport.

Historically, BVY has been able to release multiple airport properties from those FAA obligations in order to facilitate economic growth and development on and around the Airport. Currently, BVY has an 11.6-acre site that has been released by FAA for the development of non-aviation-related purposes. (Note that this was done in association with a 2006 Land Release Environmental Assessment for a total of five areas on the Airport.) Specifically, the property is located at 35, 25, and 39 L. P. Henderson Rd (see **Figure 2-4**) and the Airport is currently soliciting bids to extend a lease for development that is consistent with current zoning regulations, is to be used in a manner that best reflects the purposes of the City of Beverly, and that will maximize revenue to the Airport. BVY anticipates awarding a lease in 2020.

2.4 Airport Support Facilities

2.4.1 Snow Removal Equipment (SRE) / Airfield Maintenance Building

An airport requires a wide range of equipment to support its continued safe and efficient operations. Airfield maintenance can include grass cutting, pavement crack sealing, brush/tree removal, building maintenance, fence/gate repair, etc. Snow Removal Equipment (SRE) is often much larger and more specialized to quickly clear runway, taxiways, and aprons during snow events. All equipment requires regular maintenance and should be stored inside a covered facility to avoid long-term exposure to weather.

BVY has a 5,000-square foot building located south of L.P. Henderson Road that serves as the airport vehicle maintenance and storage building. Approximately 2,500 square feet of this building serves as storage for airport maintenance (e.g., grass- and brush-cutting equipment) and snow-removal vehicles, with another 1,250 square feet serving as a vehicle maintenance bay. The remaining areas of the building are used for general storage. There is also a 2,500-square foot paved area south of the building that is used for outdoor airport maintenance vehicle storage. The building is currently at capacity for equipment storage with some equipment stored outside and in the elements.

BVY currently owns and operates various pieces of SRE and airfield maintenance equipment (see **Table 2-11**):

Table 2-11: Current BVY SRE/Airfield Maintenance Equipment

Model Year	Manufacturer	Equipment Type	Condition
1983	Vohl	Snowblower	Poor
1995	Ford	F-350 Utility Body w/ 9' Plow	Poor
1997	Caterpillar	IT28G Loader w/ 12' Plow	Poor
2002	Sterling	Dump truck w/ 12' plow and 11' wing-plow	Fair
2002	Sterling	Dump truck w/ 12' plow and 11' wing-plow	Fair
2002	John Deere	5410 Tractor	Fair
2008	Dodge	Charger	Fair
2010	John Deere	5425 Tractor	Good
2013	Ford	F-350 Utility Body 9.5' Plow	Good
2013	Sno-Go	Wk-800 Snow Blower Attachment	Fair
2015	CLAAS	Tractor w/ 20' Broom	Good
2016	Bobcat	T-770 w/ 90" snow blower or Plow	Good
2017	Ford	F-250 Pickup	Good
2019		Snow Sweeper	Excellent

Source: BVY Management.

2.4.2 Airport Access Roadways and Auto Parking

Adequately accommodating automobile traffic and parking are important considerations during a master plan as they facilitate ease of access to airport users



and can enhance the customer service experience. Access to the surrounding road network is provided to each side of the Airport. The east side is accessed via L.P. Henderson Road, a two-lane road that leads to Cabot Street that runs north to Wenham and south to Beverly. The west side is accessed via McCulloch Road that leads to Old Burley Street.

At the end of L.P. Henderson Road is a centrally located automobile parking lot with 84 parking spaces. This lot serves all the facilities on the east side. Additionally, there are seven parking spaces located adjacent to the SRE/Airfield Maintenance building. There are also five parking spots available for use by ATCT personnel. On the west side, there are 122 marked spaces are provided in the area of the North Atlantic Air complex. Additionally, there are approximately 10 vehicle spaces are also available in the area of Hangar #4; however, these spaces are unpaved and not well defined.

2.4.3 Fencing

Airport fencing is intended to prevent animals and unauthorized people from intruding on airport property. BVY's airfield is completely enclosed by an airport security fence of varying types and in various conditions. The terminal area is enclosed by an eight-foot chain link fence topped with barbed wire to enhance security near the hangars and aircraft. The aircraft apron is accessible to pilots and tenants through a controlled access system gate located next to the parking lot.

2.4.4 Airport Utilities

Water

Water to the east side of the Airport is supplied by the Salem/Beverly Water Supply Board through water mains owned by the City of Beverly. Water to west side of the Airport is supplied by the Danvers Water Department via two separate water systems. North Atlantic Air is connected to the water main on Old Burley Street with an 8-inch water line running west of the FBO, while Hangar 4 is connected to the Town of Danvers water-supply system, with a utility easement across adjoining private property to connect with the main water lines on Old Burley Street.

Sanitary Sewer

Sewage disposal on the east side of the Airport is provided by an 8-inch sewer line that connects to a City line along Sam Fonzo Drive. On the west side, Hangar 4 and North Atlantic Air both have connections to the municipal sewer system. The connection at North Atlantic Air was constructed in 1997; the Hangar 4 connection runs through an easement.

Electric

Three-phase electric service infrastructure to the east side of the Airport is supplied by National Grid, while the west side is supplied by Danvers Electric. The Airport installed a backup electrical system in 1990, including relocation and construction of a new electrical vault and installation of an 80-kW generator. This system is used for the airfield lighting circuit in the event of a power failure of the public utility system. The FAA also has an electrical vault for the localizer at the Runway 34 end.

Gas

Natural gas is provided to the Airport by National Grid and City of Beverly. The Airport also has several propane holding tanks located at various facilities on both the west and east sides.

Communications

Internet and telephone service lines to the Airport are provided by Verizon and Comcast.

2.5 Airspace System/Navigation and Communication Aids

Beverly Regional Airport operates within the larger National Aviation System (NAS), which comprises a wide array of services, systems, and requirements for the airports and pilots that function within it. The following sections provide an overview of some of BVY's key considerations with respect to navigating and operating within the NAS.

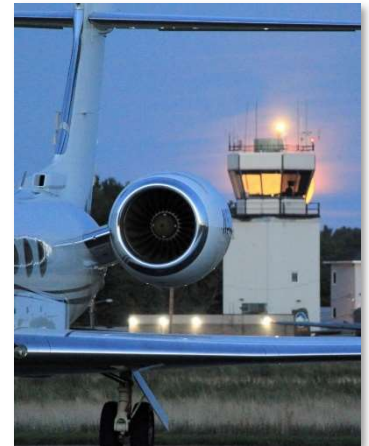
- Air Traffic Service Areas and Aviation Communications,
- the National Airspace System,
- Navigational Aids, and
- Part 77 Airspace Surfaces.

2.5.1 Air Traffic and Aviation Communications

Within the continental United States, there are some 22 geographic areas that are under Air Traffic Control (ATC) jurisdiction. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers (ARTCC). The ARTCCs provide air traffic service to aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, and primarily during the enroute phase of flight. Those aircraft operating under Visual Flight Rules (VFR) that depend primarily on the "see and avoid" principle for separation, may also contact the ARTCC or other airport traffic control (ATC) services to request traffic advisory services. Traffic advisory service is used to alert pilots of other air traffic known in the vicinity of, or within the flight path of, the aircraft. The airspace overlying BVY is contained within the Boston ARTCC jurisdiction, which includes the airspace ranging from Maine to upstate New York and all of New England. BVY can be found on the New York sectional chart.

The primary means of controlling aircraft employed by air traffic controllers is computerized radar systems that are supplemented with two-way radio communications. Altitude assignments, speed adjustments, and radar vectors are examples of techniques used by controllers to ensure that aircraft maintain proper separation. The specified lateral and vertical separation criterion for aircraft used by controllers is as follows:

- Lateral Aircraft Separation: three miles (radar environment)
- Lateral Aircraft Separation: five miles (non-radar environment)
- Vertical Aircraft Separation: 1,000 feet (below 29,000 feet) and 2,000 feet (29,000 feet and above)





Traffic at BVY is controlled by an Air Traffic Control Tower (ATCT) located on the east side hangar/ramp area. The ATCT is a contract tower staffed by controllers daily between 8:30 am and 4:30 pm. Aviation communication frequencies associated with BVY are shown in **Table 2-12**.

Table 2-12: BVY Communication

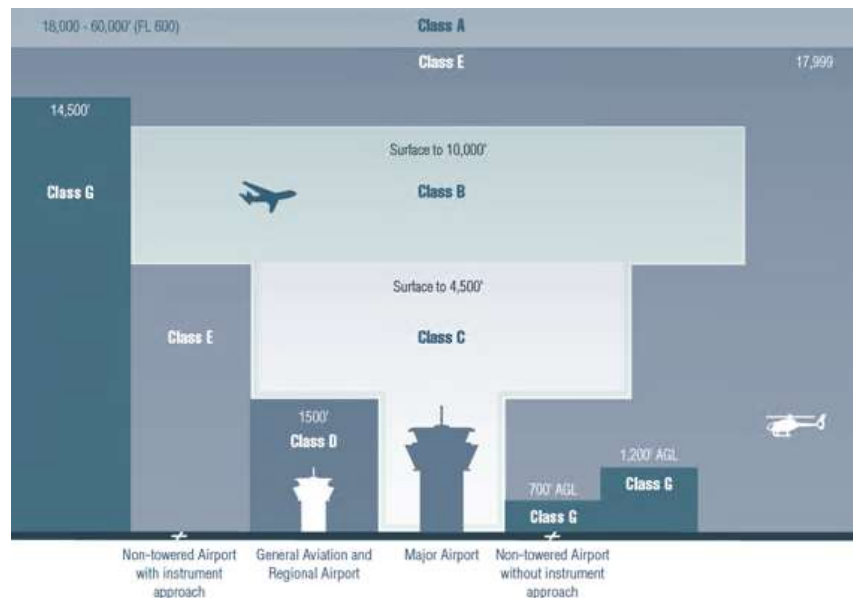
Communications Method	Frequency / Phone Number
Common Traffic Advisory Frequency (CTAF)	125.2 MHz
UNICOM (Universal Communications)	122.95 MHz
Automatic Terminal Information Service (ATIS)	119.2 MHz
Automated Surface Observation System (ASOS)	978-921-5042
Beverly Ground	124.4 MHz
Beverly Tower	125.2 MHz
Boston Approach and Departure	124.4 MHz

Source: Airnav.com

2.5.2 Airspace

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure through the Federal Aviation Regulations (FAR) that regulates and establishes procedures for aircraft that use the NAS. This airspace structure provides for two basic categories of airspace: controlled (classified as Class A, B, C, D, and E) and uncontrolled (classified as Class G). **Figure 2-8** below generally illustrates each airspace type.

Figure 2-8: Airspace Classification Illustration



Source: FAA.

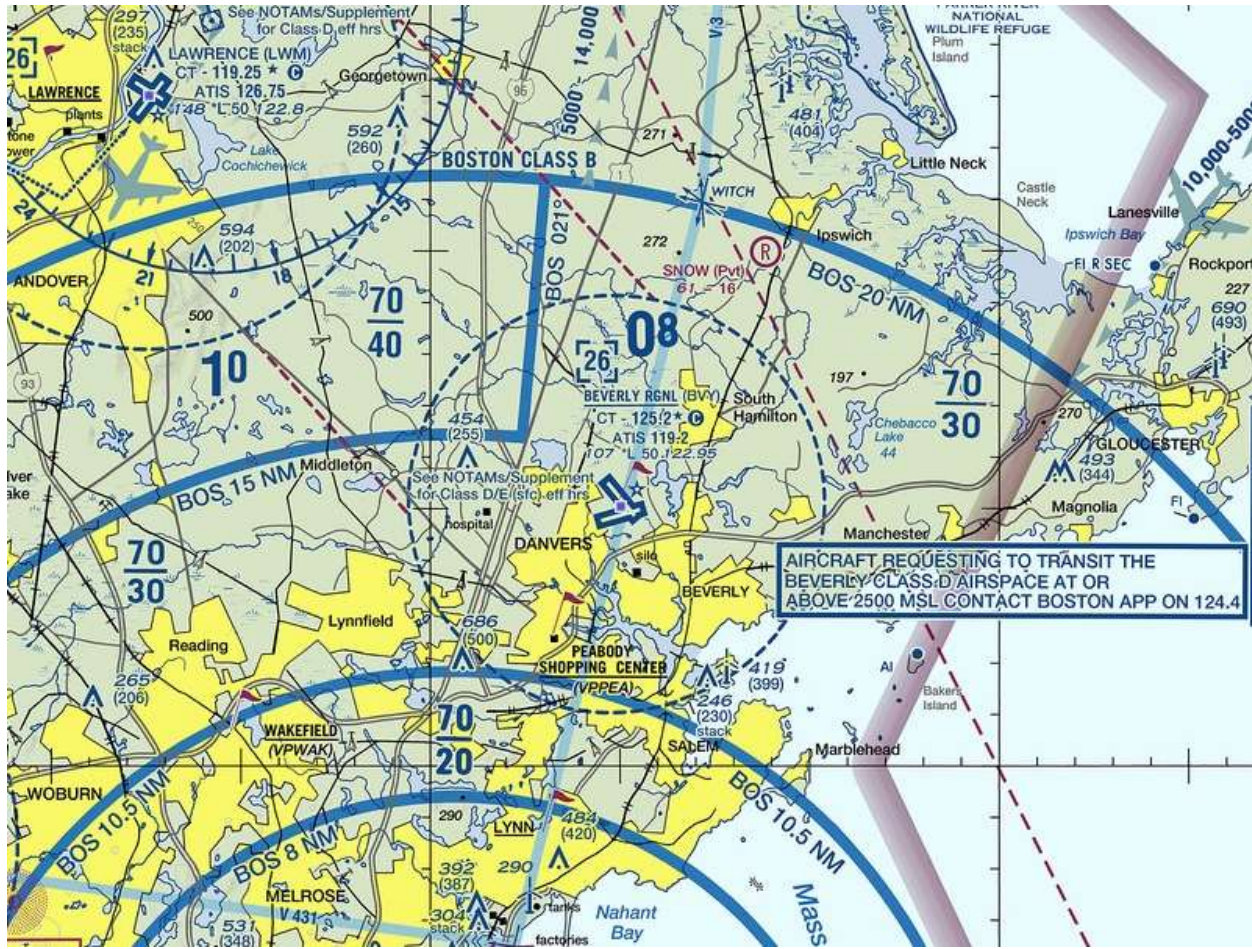
Further, FAR Part 71 and FAR Part 73 establish these classifications of airspace with the following characteristics:

- Class A airspace is generally the airspace from 18,000 feet mean sea level (MSL) up to Flight Level 600 (approximately 60,000 feet MSL). Unless otherwise authorized, all operation in Class A airspace is conducted under instrument flight rules (IFR).
- Class B airspace is generally airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace.
- Class C airspace is generally airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements. Each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace.
- Class D airspace is generally airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. Unless otherwise authorized, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace.
- If the airspace is not Class A, B, C, or D, and is controlled airspace, then it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. Only aircraft operating under IFR are required to be in contact with air traffic control when operating within Class E airspace.
- Class G or uncontrolled airspace is the portion of the airspace that has not been designated with any of the above classifications. It extends from the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic, pilots must still abide by visual flight rules (VFR) minimums in Class G airspace.

Pilots must obtain air traffic clearances when operating to and from BVY in both IFR and VFR conditions. BVY lies in Class D airspace, which extends up to 1,500 feet above the Airport's published elevation (so the Class D above BVY extends to 1,607 MSL). Above that Class D airspace lies the Class B airspace associated with Boston Logan International Airport. Aircraft requesting to transit BVY's airspace at or above 3,000 MSL must contact Boston Approach Control at 124.4 MHz. **Figure 2-9** and **Figure 2-10** shows a portion of the sectional aeronautical chart published by the FAA's National Aeronautical Charting Office for the airspace around BVY.



Figure 2-9: BVY Immediate Airspace



Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

Figure 2-10: BVY Vicinity Airspace



Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

2.5.3 NAVAIDS

A variety of navigational facilities are currently available to pilots around the Beverly Regional Airport, whether located at BVY or at other locations in the region. Many of these navigational aids are available to enroute air traffic as well. The navigational aids (NAVAIDS) available for use by pilots in the vicinity of Beverly Regional Airport are Very High Frequency Omni Directional Range (VOR)/Distance Measuring Equipment (DME), VOR/Tactical Aircraft Control (VORTAC) and Non-Directional Beacon (NDB) facilities. These NAVAIDS are listed below in **Table 2-13**.

A VOR/DME system is a Very High Frequency Omnidirectional Range Station (VOR) with Distance Measuring Equipment (DME) transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north. This DME equipment is used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. There are four VOR/DMEs in range of BVY. A VORTAC (VHF Omnidirectional Range/Tactical Air Navigation) is a ground-based electronic navigation aid transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in nautical miles, the slant range distance of an aircraft from the navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. There is one VORTAC in range of BVY. A non-directional beacon (NDB) is a



Low/Medium Frequency (L/MF) radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and track to or from the station. There are four NDBs in range of BVY.

Table 2-13: NAVAIDS in Proximity to BVY

Type	ID	Name	Frequency	Radial	Range
VORTAC	BOS	Boston	112.7	030	16 nm
VOR/DME	LWM	Lawrence	122.1	160	14.8 nm
VOR/DME	MHT	Manchester	114.4	145	30.4 nm
VOR/DME	PSM	Pease	116.5	200	34.5 nm
VOR/DME	GDM	Gardner	110.6	100	55 nm
NDB	SKR	Shaker Hill	251	270	17.5 nm

Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

There is also a network of low-altitude published federal airways (i.e., Victor airways), in the vicinity of Beverly Regional Airport, which traverse the area and span between the regional ground-based VOR/DME and VORTAC equipment. Victor airways include the airspace within parallel lines located four nautical miles on either side of the airway and extend 1,200 feet above the terrain up to, but not including, 18,000 feet MSL. When an aircraft is flying on a federal airway below 18,000 feet average mean sea level MSL, the aircraft may be operating within Class B, C, or E airspace. Near Beverly Regional Airport, there are two low altitude Victor airways (V3 and V431) that utilize the nearby Boston VORTAC located south of the Airport. Note that the Airport lies directly underneath V3.

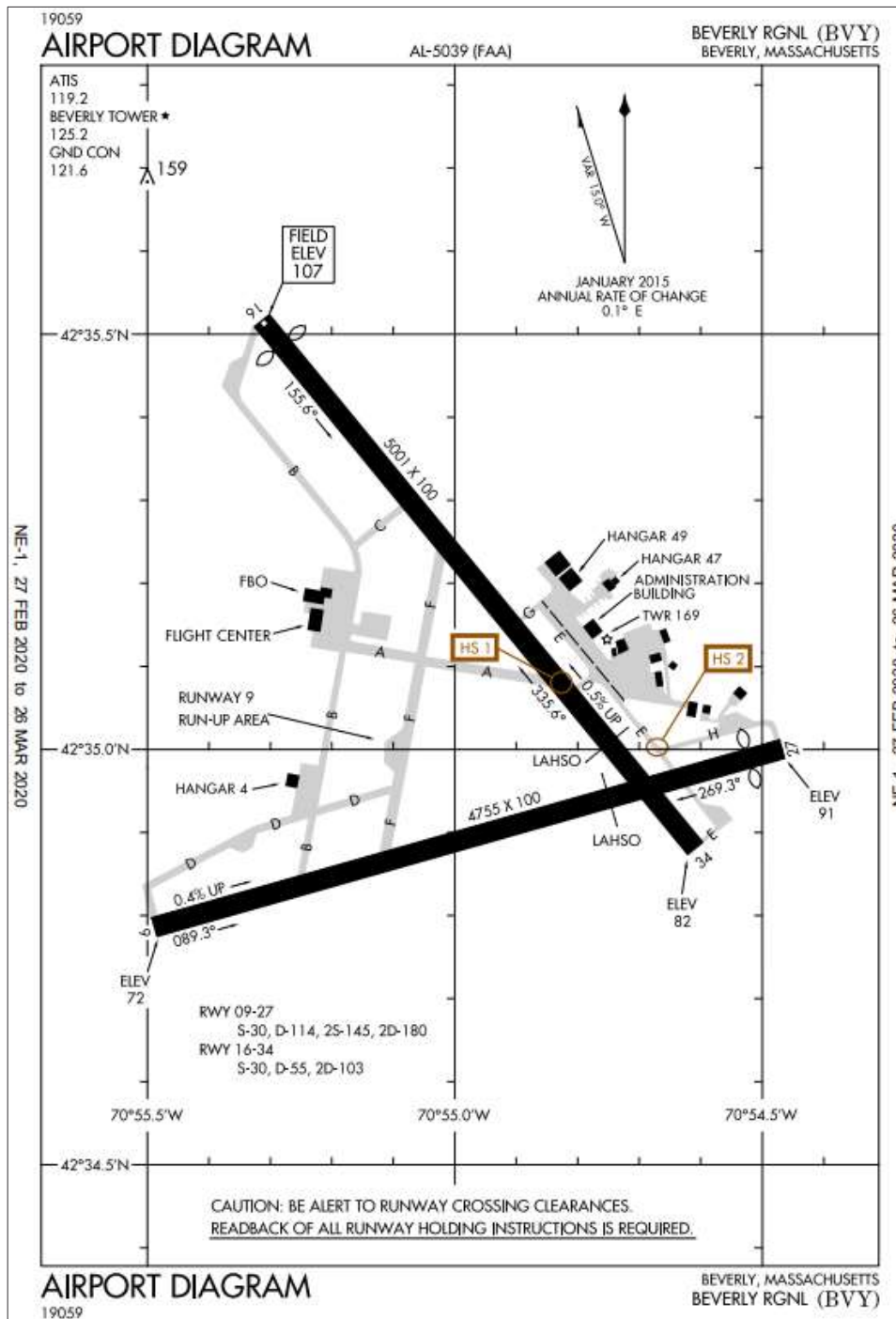
There are six published instrument approaches at Beverly Regional Airport. **Table 2-14** summarizes the approach and visibility minimums of these published approaches. **Figure 2-11** through **Figure 2-17** show the current approach plates for these published instrument approaches.

Table 2-14: Lowest Published Instrument Approach Minima at BVY

Instrument Approach	Lowest Straight-In Minimums		Lowest Circling Minimums	
	Ceiling (MSL/AGL)	Visibility	Ceiling (MSL/AGL)	Visibility
RNAV (GPS) RWY 09	480' / 394'	1-mile (A/B)	680' / 573' (A/B)	1-mile (A/B)
RNAV (GPS) RWY 16	357' / 250'	1-mile	620' / 513' (A/B)	1-mile (A/B)
RNAV (GPS) RWY 27	444' / 353'	1-mile	600' / 493'(A/B)	1-mile (A/B)
RNAV (GPS) RWY 34	382' / 280'	1-mile	600' / 493'(A/B)	1-mile (A/B)
LOC RWY 16	580' / 473'	1-mile (A/B)	620' / 513' (A/B)	1-mile (A/B)
VOR RWY 16	720' / 613'	1-mile (A/B)	720' / 613' (A/B)	1-mile (A/B)

Source: FAA, U.S. Terminal Procedure Publications.

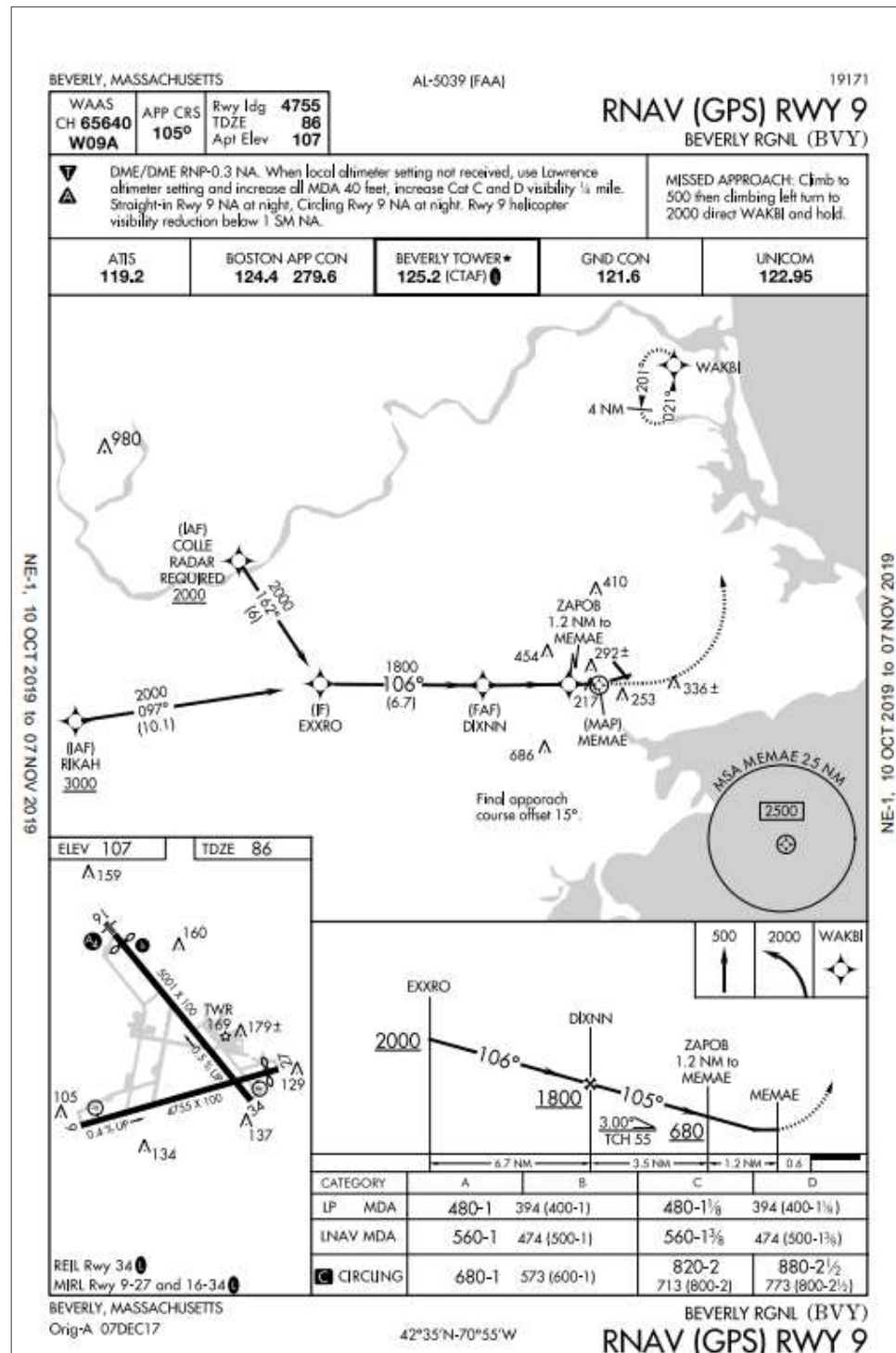
Figure 2-11: BVY Airport Diagram



Source: FAA, U.S. Terminal Procedure Publications.



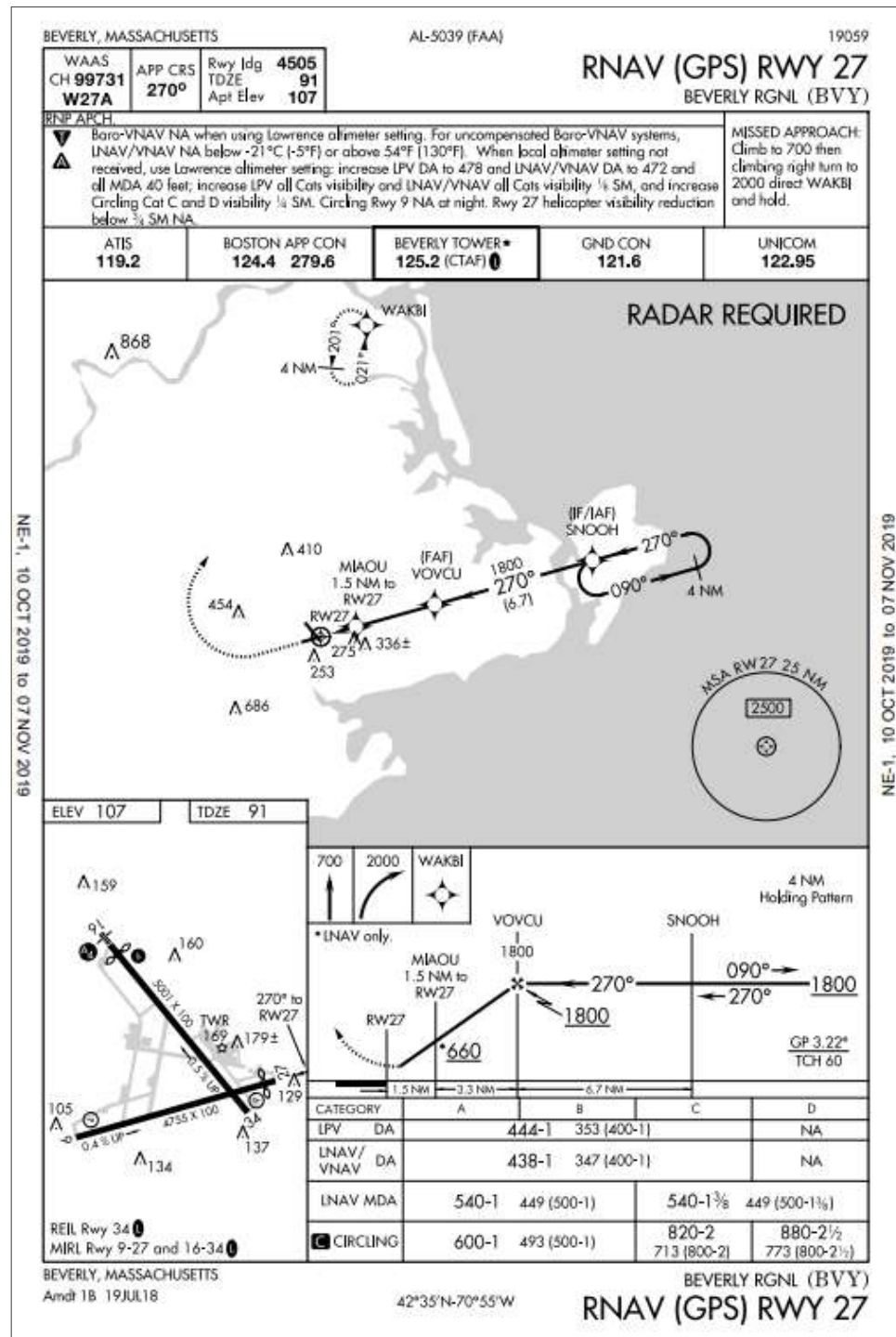
Figure 2-12: Instrument Approach Plate – RNAV (GPS) RWY 9



Source: FAA, U.S. Terminal Procedure Publications.

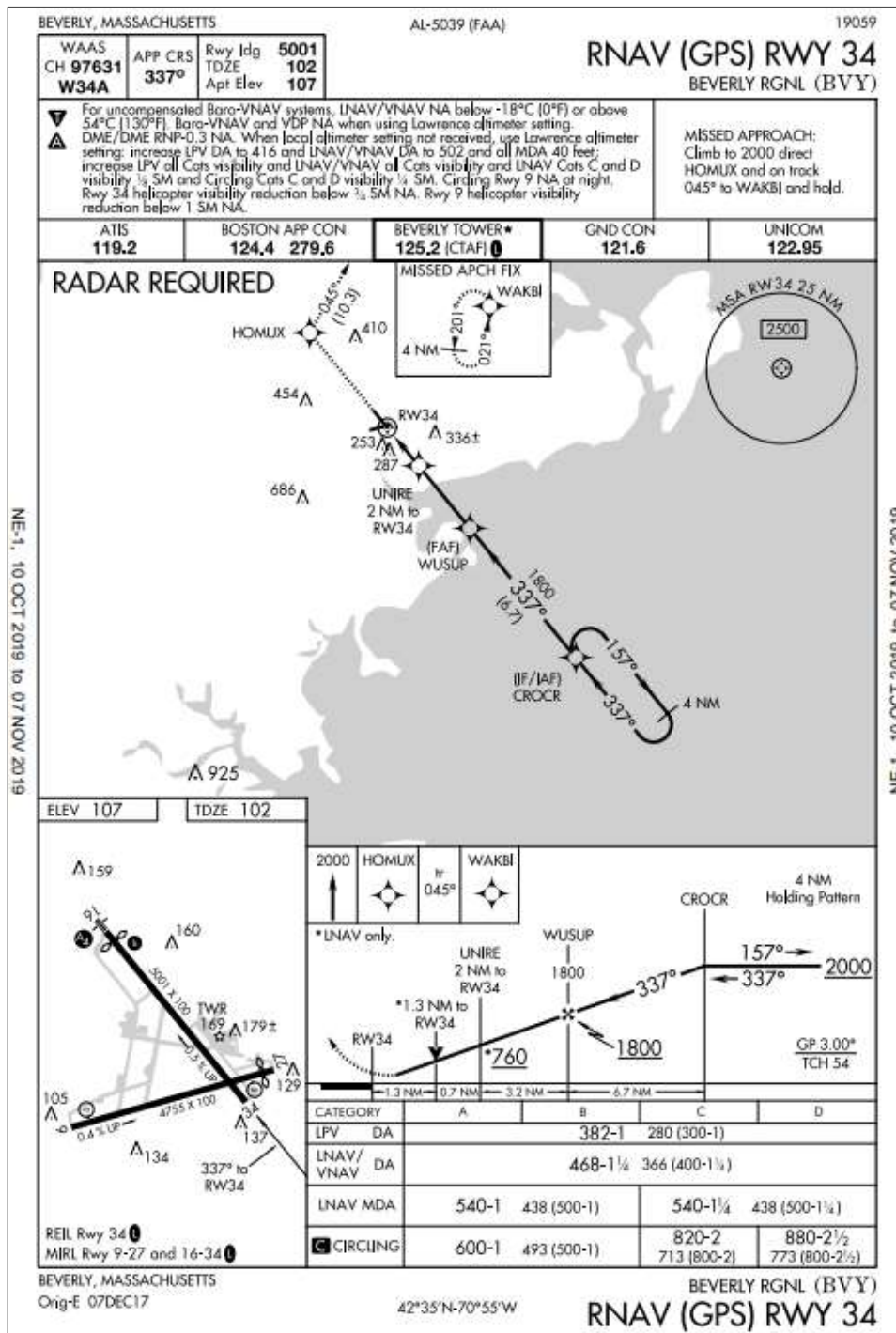


Figure 2-14: Instrument Approach Plate – RNAV (GPS) RWY 27



Source: FAA, U.S. Terminal Procedure Publications.

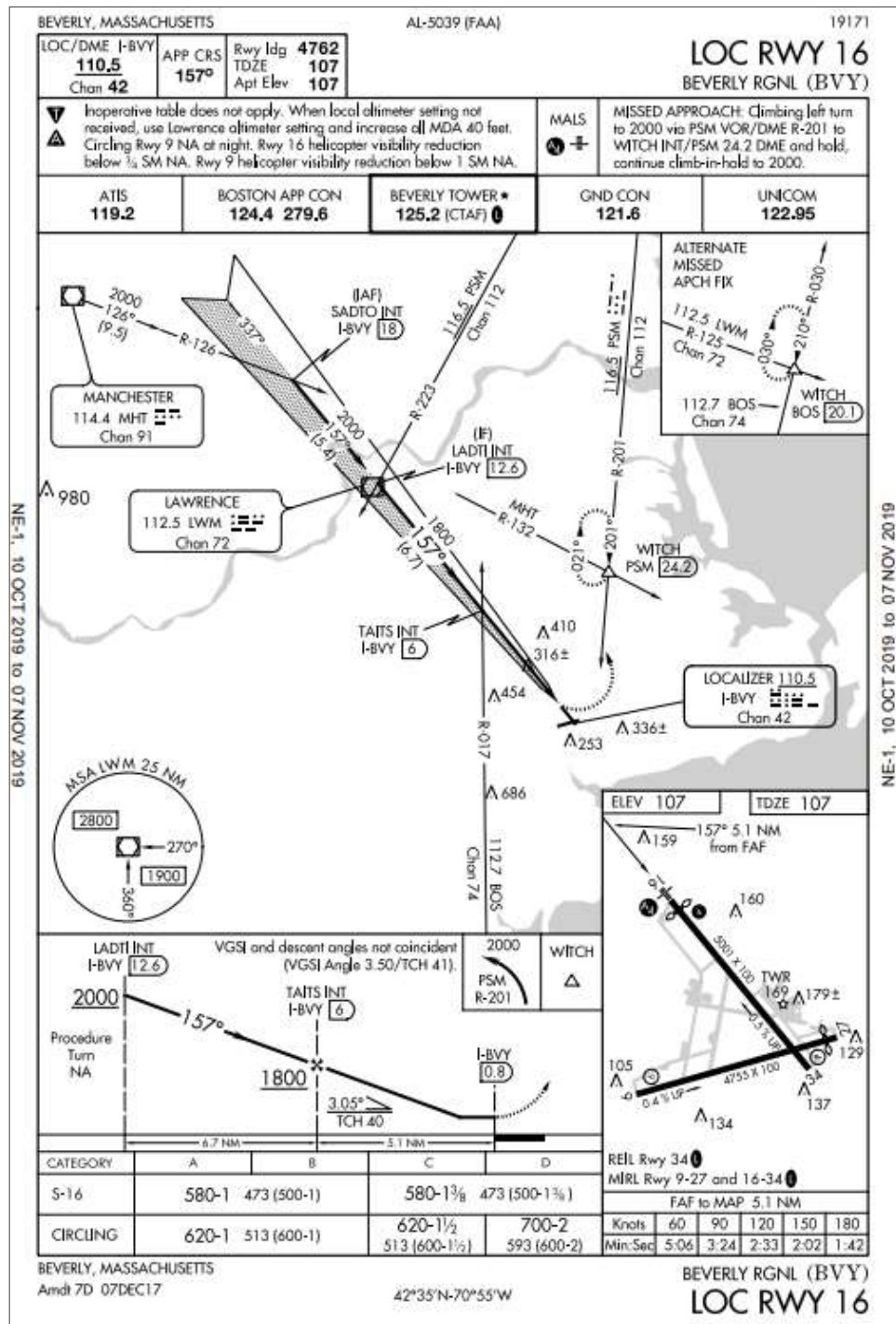
Figure 2-15: Instrument Approach Plate – RNAV (GPS) RWY 34



Source: FAA, U.S. Terminal Procedure Publications.

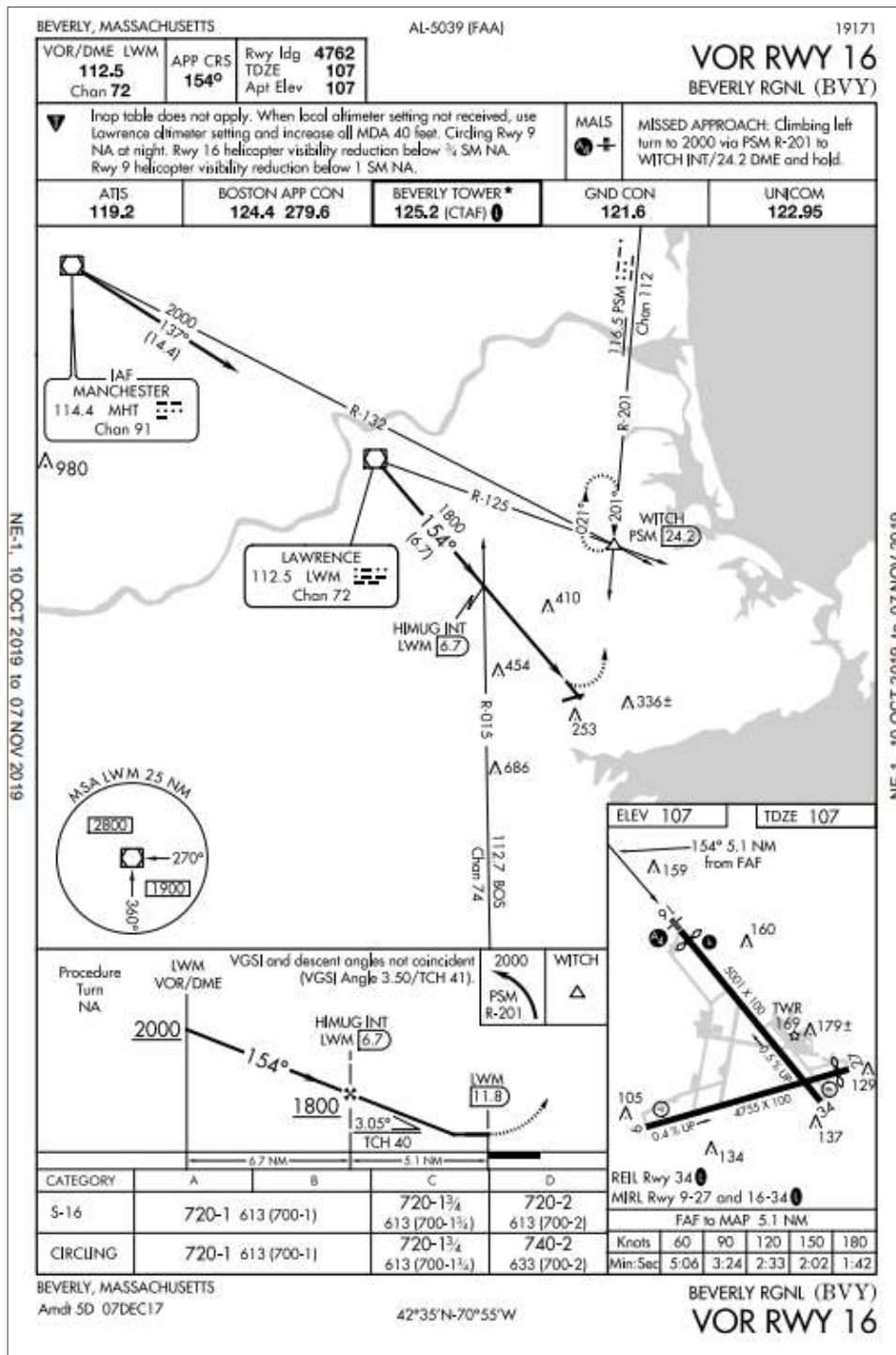


Figure 2-16: Instrument Approach Plate – LOC RWY 16



Source: FAA, U.S. Terminal Procedure Publications.

Figure 2-17: Instrument Approach Plate – VOR RWY 16



Source: FAA, U.S. Terminal Procedure Publications.

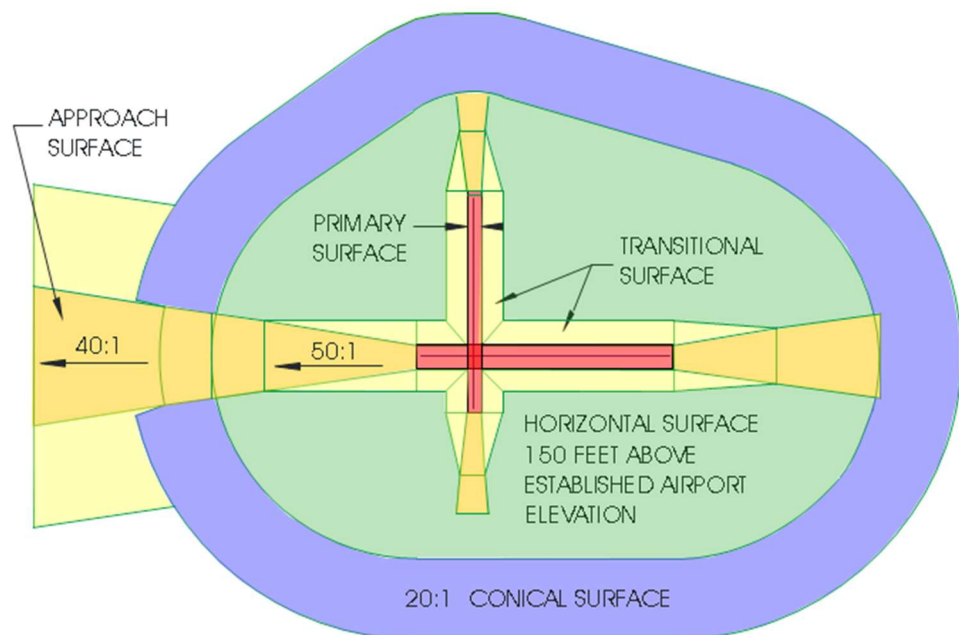


2.5.4 Part 77 Airspace Surfaces

Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, is a tool used to protect the airspace over/around a given airport, and each of its runway approaches, from potential obstructions to air navigation. (It is important to note that as a federal regulation, all airports included in the NAS are subject to the requirements of Part 77.) To determine whether an object is an obstruction to air navigation, Part 77 establishes several imaginary airspace surfaces in relation to an airport and to each runway end. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. The size of the imaginary surfaces depends largely upon the type of approach to the runway in question. The principal imaginary surfaces are generally described below and are illustrated in **Figure 2-18**.

- Primary Surface: Longitudinally centered on the runway at the same elevation as the nearest point on the runway centerline.
- Horizontal Surface: Located 150 feet above the established airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each the primary surface end, connected via tangent lines.
- Conical Surface: Extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- Approach Surface: Longitudinally centered on the extended centerline and extending outward and upward from each runway end at a designated slope (e.g. 20:1, 34:1, 40:1, and 50:1) based on the runway approach.
- Transitional Surface: Extends outward and upward at a right angle to the runway centerline at a slope of 7:1 up to the horizontal surface.

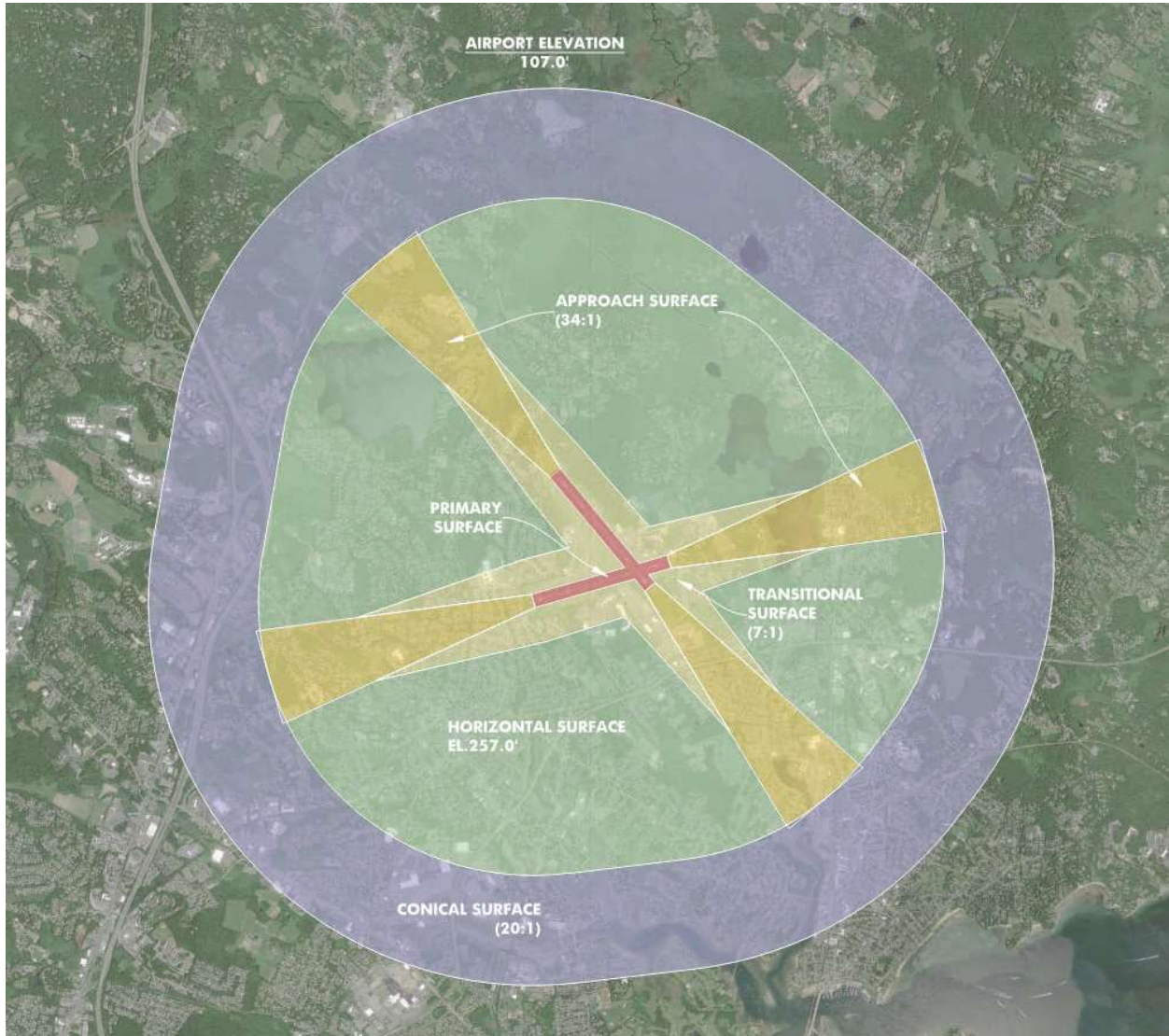
Figure 2-18: Part 77 Plan View



Source: FAA.

Based on the current operational types and approaches presented in the previous sections, the current Part 77 airspace surfaces for Beverly Regional Airport are reflected in **Figure 2-19** below. Note that greater details related to Part 77 are presented in the Airport Layout Plan (ALP) located in **Chapter Six: Airport Plans**.

Figure 2-19: BVY Part 77 Airspace Plan View (current conditions)



Source: Jviation.



2.6 Airports Within the Region

An airport service area evaluation has been prepared, which identifies selected surrounding public-use airports in relatively close proximity to Beverly Regional Airport (see **Figure 2-20**). The evaluation also includes an assessment of these airports existing roles, airside facilities/services, and operational data (see **Table 2-15**). The information presented in the table below indicates that airports located closer to Beverly Regional Airport, providing similar facilities and services, will tend to exert a greater influence on the demands at the Airport. There are five public-owned/public-use airports within 28 nautical miles of BVY

Figure 2-20: Airports Proximate to BVY



Source: New York Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration.

Table 2-15: Comparable Area Airports

	Beverly Regional Airport	Lawrence Municipal Airport	Laurence G Hanson Field Airport	Norwood Memorial Airport	George Harlow Field
Identifier	BVY	LWM	BED	OWD	GHG
Ownership	City of Beverly	City of Lawrence	Massport	Town of Norwood	Town of Marshfield
Airport Use	Public	Public	Public	Public	Public
Location Relative to BVY	--	14 miles NW	21 miles W	30 miles SW	36 miles SE
NPIAS Role	GA Regional Reliever	GA Regional Reliever	GA National Reliever	GA Regional Reliever	GA Regional
MSASP Role	Corporate/Business	Corporate/Business	Corporate/Business	Corporate/Business	Corporate/Business
Elevation	107.3' MSL	147.6' MSL	132.0' MSL	49.2' MSL	8.9' MSL
Runways	<u>RW 16-34</u> Paved 5,001' x 100'	<u>RW 5-23</u> Paved 5,001' x 100'	<u>RW 11-29</u> Paved 7,011' x 150'	<u>RW 17-35</u> Paved 4,007' x 100'	<u>RW 6-24</u> Paved 3,900' x 100'
	<u>RW 9-27</u> Paved 4,755' x 100'	<u>RW 14-32</u> Paved 3,654' x 100'	<u>RW 5-23</u> Paved 5,107' x 150'	<u>RW 10-28</u> Paved 3,995' x 75'	
Instrument Approaches	RNAV(GPS), LOC, VOR	ILS, LOC, RNAV(GPS)	ILS, LOC, RNAV(RNP), RNAV(GPS)	RNAV (GPS), LOC	RNAV (GPS)
NAVAIDS	Rotating Beacon, MIRL, MALS, PAPI, REILS, ASOS	Rotating Beacon, MIRL, PAPI, REILS, ASOS	Rotating Beacon, MIRL, MALSF, ASOS	Rotating Beacon, MIRL, PAPI, MALSF, ASOS	Rotating Beacon, MIRL, PAPI, AWOS
ATCT	Yes	Yes	Yes	Yes	No
Based Aircraft	SE: 87 ME: 9 Jet: 5 Helo: 4 UL: 0 GL: 0 Total: 105	SE: 146 ME: 14 Jet: 9 Helo: 8 UL: 0 GL: 1 Total: 178	SE: 141 ME: 25 Jet: 83 Helo: 13 UL: 0 GL: 0 Total: 262	SE: 84 ME: 9 Jet: 7 Helo: 13 UL: 0 GL: 0 Total: 113	SE: 24 ME: 2 Jet: 4 Helo: 0 UL: 2 GL: 0 Total: 32
Total Annual Operations	56,800	39,331	128,598	58,346	23,600
Average Operations. Per Day	156	108	352	160	65
Aircraft Storage	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars	Tiedowns, Hangars
Airport Services	100LL, Jet-A, Major Airframe and Powerplant, Avionics, Charter, Instruction, Rental, Sales	100LL, Jet-A, Major Airframe and Powerplant, Avionics, Ambulance, Instruction, Rental, Sales	100LL, Jet-A, Major Airframe and Powerplant, Avionics, Oxygen (high/low) Charter, Ambulance Instruction, Rental, Sales	100LL, Jet-A, Major Airframe and Powerplant, Oxygen (low) Charter, Ambulance Instruction, Rental, Sales	100LL, Jet-A, Major Airframe and Powerplant, Oxygen (High) Charter, Instruction, Rental, Sales
Acreage	470	420	1,125	688	232

Source: Jviation, FAA 5010, FAA NPIAS, MassDOT MSASP.

Note: As a large hub, commercial air service airport, BOS has not been included in this listing.



2.7 Airport Environs

The purpose of following is to identify the community and regional conditions within which the Beverly Municipal Airport is currently set. This includes demographic and economic considerations in the City of Beverly and a brief discussion of other factors such as land use planning and zoning.

2.7.1 Community Overview

As referenced on the Beverly Historical Society’s website, the Beverly area had originally been settled along the coast in 1626. The beginning of Beverly as a community was in 1635 when 1,000 acres was granted to a group of men known as the “old planters.” Originally named after a county town in Yorkshire, England, Beverly is situated north of Boston on the northeast coast of Massachusetts (commonly known as the North Shore). The Beverly area is a mix of urban, suburban and rural landscapes and is also known as the “birthplace of the American Industrial Revolution,” as it hosted the first cotton mill in America (1787).

According to the United States Census Bureau, the City has a total area of 22.59 square miles. Towns and cities surrounding Beverly include Salem to the south, Peabody and Danvers to the west, Wenham to the north, and Manchester-by-the-Sea to the northeast.

2.7.2 Community Demographics

According to the 2010 US Census, the City of Beverly had a population of 39,502 people. The population density of Beverly is 2,617 persons per square mile. The male/female percentage split of the City’s population is approximately 47.5/52.5. The racial makeup of the City’s population is 91.4 percent white, 1.5 percent African American, 3.6 percent of another race, and 3.5 percent describing themselves as having Hispanic or Latino origins.

2.7.3 Area Economy

Beverly has a very diverse economic history. Being on the east coast, fishing was a major part of Beverly’s history and flourished after the Revolutionary War. Farming was also a major part of the area’s economy but slowly diminished as the population grew and the area became more developed. As fishing and farming faded, the area migrated towards industry and manufacturing, particularly with respect to shoes. Today, Beverly’s economy is largely based on healthcare, manufacturing, retail, educational and professional services, with its largest companies including Northeast Health Systems, Inc.; American Renal Associates; Oxford Global Resources; ATN International; and Axcelis Technologies.

The 2017 the per capita annual personal income for Essex County was estimated to be \$63,640, 32 percent higher than the national average of \$48,150. Median household income for the City of Beverly was estimated at \$77,893 which is consistent with the Massachusetts median of \$77,385, but 26 percent higher than the national median of \$61,619.



Massachusetts' airports are also recognized as being significant generators of revenues, wages, and jobs. The *Massachusetts Statewide Airport Economic Impact Study 2019* calculated the economic impact totals associated with individual airports throughout the Commonwealth. Through that process, it was established that not only do the airports themselves generate economic benefits, but many other non-aviation-related employers that contribute to building the State's economy rely on the Massachusetts airport system to support their daily business activities. Through that planning effort, the total (direct and indirect) annual economic impact benefit of Beverly Regional Airport for the local area was established at approximately \$34.3 million, including 269 jobs and \$11.6 million of payroll.

2.7.4 Local Comprehensive Planning

A local comprehensive plan is a strategic long-range document that addresses land use and zoning as it relates to growth and development of a municipality. With respect to an airport that lies within a community, it is prudent for local comprehensive planning efforts to acknowledge and address the issue of land use compatibility near an airport to help prevent future development that may be ultimately incompatible with existing and future airport operations (e.g., residential, etc.).

The City of Beverly is completed a new Community Master Plan in 2020. References to the Beverly Regional Airport in the plan include the following:

Economic Development

- *Goal A: Expanded Tax Base Expand and diversify the tax base to increase revenue for municipal services including public safety, public education, community services, and infrastructure upgrades.*

...

4. *Explore development incentives, invest in infrastructure and relax dimensional restrictions and parking requirements in commercial areas along Rt. 128, including Cherry Hill, the Beverly Airport, Dunham Road, and Sohier/Tozer Road, in order to position limited land in key areas for future office expansion. [see land use section]*

...

- *Goal B: Retain and Attract Quality Jobs Promote economic sustainability by retaining existing and attracting new employers that offer well-paying jobs and opportunities for advancement.*

4. *Promote Beverly's connectivity to the region's multimodal transportation network in all business attraction and retention efforts.*

a. *Promote highway connectivity and proximity to Beverly Airport to attract and retain advanced manufacturing employers in Cherry Hill Industrial Park.*

Mobility and Access

- *Airport: Beverly Regional Airport (BVY) is located on the north-western boundary of the city. The airport covers the area of 470 acres and has two runways. The airport has been classified as a 'reliever airport,' which means*





that it is only used for commercial flights when a primary airport reaches capacity. The Boston Flight Simulation Academy is also located within the airport.

Beverly Regional is a highly respected facility in the aviation industry, with its control tower named Facility of the Year award in 2018 by Midwest Air Traffic Control (ATC) Service, Inc.

BVY is busy and growing transportation facility. According to the January 2020 Massachusetts Statewide Airport Economic Impact Study, the airport generated \$34 million in economic activity to the North Shore over the 5-year period of 2014-2018.

There are over 18 businesses at the airport currently, with hanger space at capacity – there is a wait list. The airport experienced an 18% growth in takeoffs and landings in the last year alone, and a 50% growth over the last five years. The majority of this growth comes from business jet travel.

To meet the needs of this growth, its runway rehabilitation project is underway, and an airport master plan is in the works having recently received a \$1.8 million grant.

There are no Airport-related references within planning documents from the Town of Danvers or the Town of Wenham.

2.7.5 Existing Land Use and Zoning



Of critical interest to any airport is the degree to which it is compatible with surrounding land uses. Airport compatible land uses can be defined as “those uses that can co-exist with an airport without constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or hazards.” This definition is intentionally broad since there are many variables that must be factored when considering whether a given land use is compatible with in an airport operational environment.

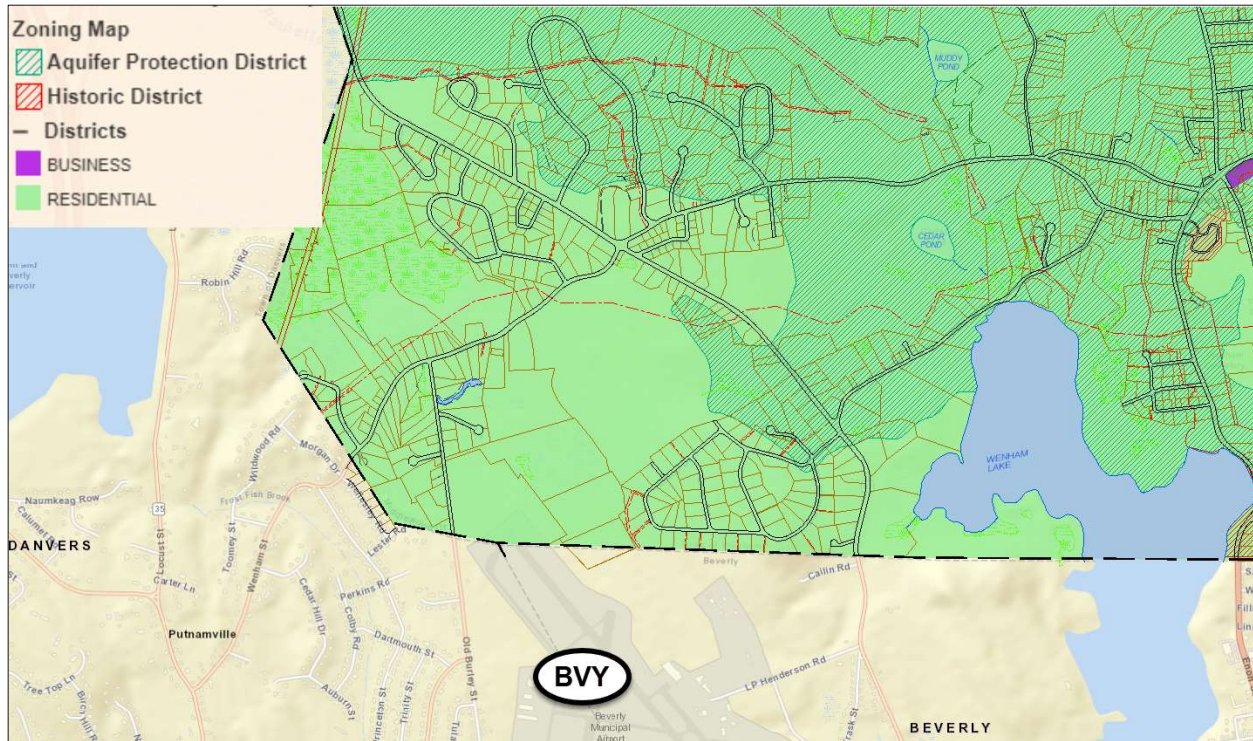
Appropriate land-use compatibility promotes the safety, health, and welfare of airport users and surrounding neighbors by protecting airspace and ensuring appropriate uses of lands both within and surrounding airport property boundaries. Typically, development actions that may affect surrounding land uses are changes in airport fleet mix and/or the number of aircraft operations, air traffic changes, and new approaches.



According to the City of Beverly, the Town of Danvers, and the Town of Wenham’s municipal zoning maps, the areas surrounding the Airport are comprised of a wide variety of land uses, including residential, agricultural, recreational, wetlands, urban public/institutional, brushland/successional and open land (see **Figure 2-21**, **Figure 2-22**, and **Figure 2-23**). Note that potential incompatibilities lie all around the Airport due to many areas with residential development and zoning.



Figure 2-23: Town of Wenham Zoning near BVY



Source: Town of Wenham Planning Department.

2.8 Environmental Settings and Considerations

Local, state, and federally regulated natural resources exist on and around the Beverly Regional Airport can have the potential to impact airport activities and future improvements. Permitting or environmental review (e.g. NEPA) is often required for future projects that impact regulated environmental resources; therefore, it is important to conduct a review of those resources in their current condition and in the current regulatory environment. This following environmental overview follows the of framework of the Impact Categories listed in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*.

Since many natural resources are protected by local, state, and federal regulations, the scope, location, and feasibility of future projects could be impacted. Permits are almost always required before projects can proceed to construction. Many permits contain conditions that mandate that construction proceeds according to specific sequences and methods, which can affect project costs and timing. Further, permits typically have expiration dates and if a project is not started within a given timeframe, the permit must either be extended, or a new permit may be required.

Additionally, the natural environment of a site may influence the location and layout of improvement projects since both the cost of construction and permitting can be prohibitive when the proposed development plan involves direct impacts to protected natural resources and/or involves the use of land with physical constraints

(e.g., steep slopes, bedrock, and poor soils). Through the identification of these resources early in the planning process, project alternatives can be selected that avoid these resources or, in cases where avoidance is not possible, minimize the impacts and plan for acceptable mitigation measures. By conducting project planning in this manner, significant time and cost savings can be realized. Additionally, project cost estimates are more accurate when permitting requirements regulatory constraints are considered.

Natural resources information was obtained from: municipal, state, and federal websites and reports from governmental agencies, Beverly Airport, ASG, and Aviation. The following resources were utilized in the preparation of this document:

- Massachusetts Division of Fisheries and Wildlife (Natural Heritage Endangered Species Program)
- Massachusetts Historic Commission
- Massachusetts Department of Food and Agriculture
- Massachusetts Department of Environmental Protection
- City of Beverly
- Town of Danvers
- Town of Wenham
- U.S. National Park Service
- U.S. Fish and Wildlife Service
- U.S. Department of Agriculture
- U.S. Natural Resources Conservation Service
- U.S. Department of Transportation
- U.S. Federal Aviation Administration
- Federal Emergency Management Agency
- Previous Airport Environmental Documents
- Beverly, Danvers, and Wenham Wetland Ordinances and Bylaws

Information from the sources listed above were reviewed and compiled into the sections below.

2.8.1 Environmental Setting

The Airport is located within the City of Beverly and the Towns of Danvers and Wenham; although most of the Airport is located within Beverly and Danvers, with a small northern portion of the Runway 16 approach end located within Wenham. The Airport is located within an area of mixed industrial and residential properties, although primarily the latter. Cherry Hill Industrial Park forms most of the southern border of the Airport; a recent expansion of this industrial park along Sam Fonzo Drive to the south and southeast is within the approaches and approach transitions of Runway 34 and Runway 27.

Higher density residential development is primarily located outside the eastern and western portions of the property, much of which is along Runway 9 and Runway 27 approaches. To the north, northeast, and northwest of the Airport at the Runway 16



approach end, some small open space exists, mainly forest with some trails, sporadic housing exists there. There are some shrub-covered areas that transition to forested areas at the periphery of the Airport.

Stormwater from the western side of the Airport flows westward into Frost Fish Brook and then south to Porter River; the brook is listed as Class SB waters in the Massachusetts Surface Water Quality Standards. Stormwater on the eastern portion of the Airport flows in two directions. Runoff generated north of L.P. Henderson Road flows toward Airport Brook and discharges to Wenham Lake near Topsfield Road, which is listed as a Class A water body. Both Airport Brook and Wenham Lake are within the Ipswich River Basin, with a general flow to the northeast. Flow generated south of L.P. Henderson Road, including the entire area of Sam Fonzo Drive, forms the headwaters of Bass River, a perennial tributary of the Danvers River and a Class SB water of the North Shore Drainage. General flow for the Danvers and Porter rivers is to the south.

2.8.2 Environmental Categories

This section addresses environmental factors that specifically apply to BVY according to FAA Advisory Circular 150/5070-6B, *Airport Master Plans*. Current information from federal, state and local agencies concerning environmental conditions on and near BVY have been reviewed and presented below.

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act: Implementation Instruction for Airport Actions*, address specific environmental categories that are evaluated in environmental documents in accordance with the National Environmental Policy Act (NEPA). The sections below provide an inventory of the applicable environmental categories as related to BVY.

Air Quality

An air quality analysis for federally funded projects must be prepared in accordance with applicable air quality statutes and regulations that include:

- Clean Air Act, as amended [42 U.S.C. 7401-7671] [P.L. 91-604, P.L. 95-95, P.L. 101-549];
- EPA air regulations, 40 CFR Parts 50 and 51; and
- Massachusetts regulations, 310 CMR 6 and 310 CMR 7.

Section 176 of the Clean Air Act Amendments of 1977 states, in part, that no federal agency shall engage in; support in any way; provide financial assistance for; or license, permit, or approve any activity that does not conform to a State Implementation Plan (SIP) for meeting air-quality standards after it has been approved or promulgated under Section 110 of that Act. It is the FAA's responsibility to ensure that federally funded airport actions conform to state plans for controlling area-wide air-pollution impacts.

FAA Order 5050.4B also states that general aviation airports projecting less than 180,000-aircraft operations annually do not require an air-quality analysis as part of an environmental assessment. The existing number of annual operations for BVY in

2018 was 56,800, well below the 180,000-operation threshold established by the FAA.

The EPA has designated Nonattainment Areas for Criteria Pollutants and Essex County was previously in a nonattainment area for 1-Hour Ozone (1979) and 8-hour ozone levels (1997); however, it is currently in attainment for these criteria pollutants and for the remaining criteria air pollutants of carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead.

Biological Resources

Both federal- and state-listed rare and endangered wildlife species receive additional regulatory protection under the U.S Endangered Species Act of 1973 which is managed by the U.S. Fish and Wildlife Service (USFWS). State listed species in Massachusetts are regulated under the Massachusetts Endangered Species Act of 1990 (MESA) which is managed by the Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Department of Fish and Game.

In general, the regulations prohibit the “taking” of rare species either through direct removal of individuals or the disturbance of their prime habitat. MESA defines a taking as: “In reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct, and in reference to plants, means to collect, pick, kill, transplant, cut or process or attempt to engage or to assist in any such conduct. Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of Habitat.”

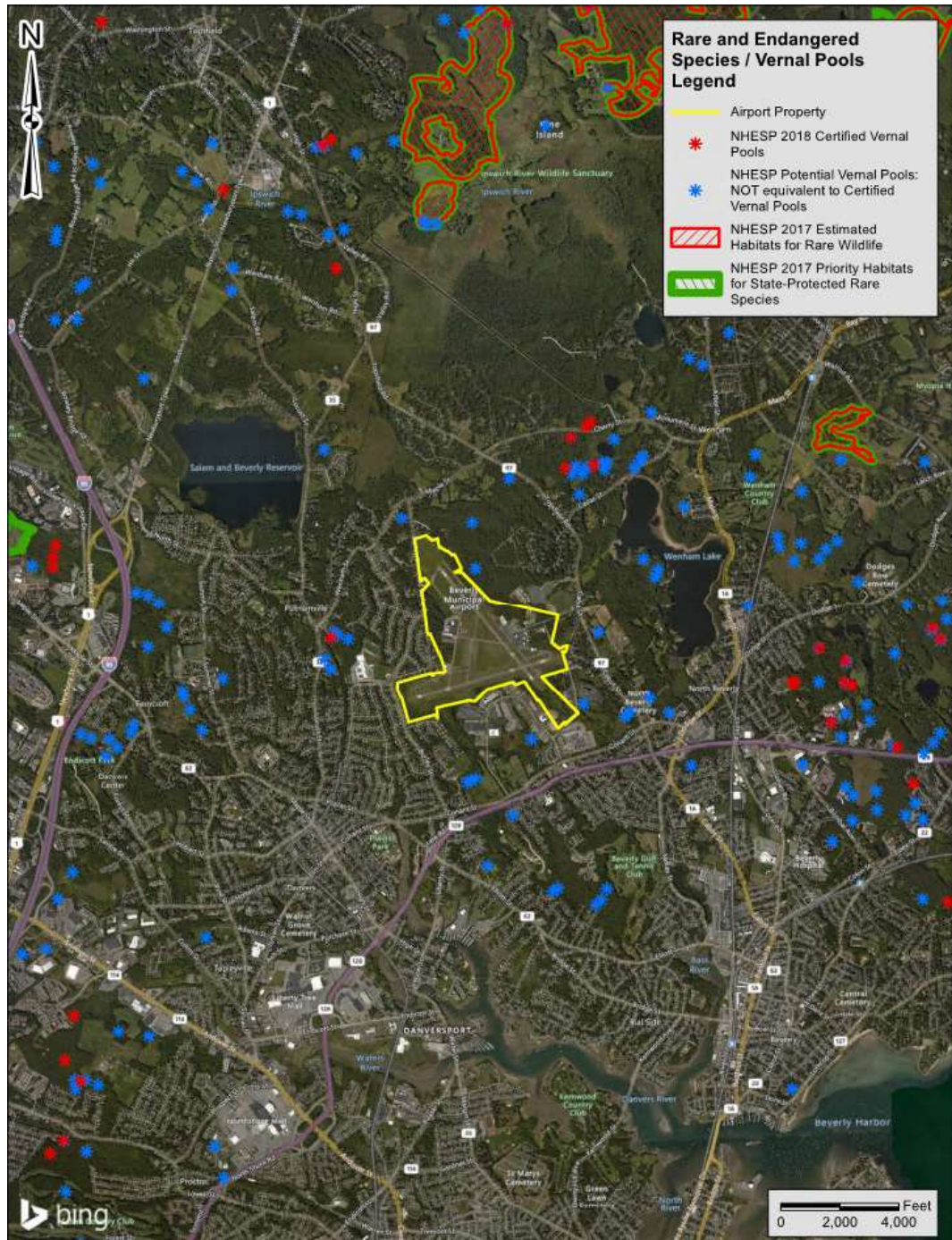
When a rare species is located, the protected area usually includes the site where specimens were identified and all adjacent contiguous habitat that could support the species. Information regarding the extent of rare species habitat is maintained primarily at the federal level by the USFWS (the National Marine Fisheries Service for marine aquatic species) and at the state level by the NHESP. Both agencies have online review processes, and each were consulted as part of this process.

The USFWS through use of its Information for Planning and Consultation (IPaC) indicated the possible presence of the federally protected species the Northern Long-Eared Bat (*Myotis septentrionalis*); although, no critical habitats are present at the airport. This means that no further review is required beyond re-running the IPaC report again at each instance that a new airport project is proposed.

There are a few Potential Vernal Pools (PVP) located just off airport property to the north and north east, and to the south (see **Figure 2-24**). PVP’s are not protected in the same manner as Certified Vernal Pools (CVP) but should be kept in mind if future projects may be located where they are located.



Figure 2-24: BVY Biological Resources Map



Source: GZA.

Climate

Beverly and the entire northeastern portion of Massachusetts has a climate classification of “Dfa” according to the Koppen Climate Classification System. The Dfa designation describes a Humid Continental Hot Summer with Year-Round Precipitation climate. Summers are generally hot and humid and winters are cold. The summer average temperature highs are in the high 70s/low 80s and the winter average lows are in the upper teens. There are occasionally summer temperatures reaching the 90s, but rarely over 100 degrees. The winter can be below zero degrees and nor’easters and blizzards are possible occurrences. The precipitation in this area averages 46.8 inches per year¹

Hurricanes have struck New England on multiple occasions including Hurricane Carol in 1938, Hurricane Bob in 1991, Hurricane Irene in 2011, and Hurricane Sandy in 2012. Each have brought substantial rains and strong winds. Hurricanes are very unpredictable and where they strike is difficult to project, while the hurricanes listed above have stayed to the west of the Airport, making landfall mostly in Connecticut and moving northward towards Vermont, they could come directly towards the airport if weather conditions permit.

Nor’easter storms are the greatest threat to Airport operations. These occur when winds and precipitation come from the northeast off the Atlantic Ocean. They are most prevalent between September and April and can occur as blizzards or hurricane-like storms.

According to the *Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning, 2013* published by the Massachusetts Office of Coastal Zone Management (CZM), sea level rise is expected to continue as a result of a changing (warmer) climate. The increase in the volume of water from the oceans raises the level of the sea and connecting waters from its historic elevations. The Airport is located roughly 3 miles inland from the Atlantic Ocean, a distance likely sufficient to prevent hazardous coastal flooding which may occur from reaching the airport perimeter. However, climate change can affect inland waters as well by increasing the intensity of storms which could expand existing inland flood zones along the perimeter of the airport in the future.

Coastal Resources

Coastal resources in Massachusetts are protected under the following federal and state statutes and regulations:

- Coastal Barrier Resources Act of 1982 as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3501-3510) (PL 97-348); U.S. Department of Interior Coastal Barrier Act Advisory Guidelines (57 FR 52730, November 5, 1992).
- Coastal Zone Management Act as amended (16 U.S.C. 1451-1464) (PL 92-583); 15 CFR part 930, subparts C and D, 15 CFR part 923.

¹ per NOAA’s Data Collection Tool for Normal Precipitation for Beverly Airport
<https://www.ncdc.noaa.gov/cdo-web/datatools/normal>



- Massachusetts Wetlands Protection Act (M.G.L. ch. 131, §40); Massachusetts Wetlands Regulations (310 CMR 10.00).

No coastal barriers exist on or are adjacent to the Airport. The CZM-mapped Coastal Zone, although it extends into Beverly, is approximately 3,000 feet from the Airport.

Department of Transportation Act, Section 4(f)

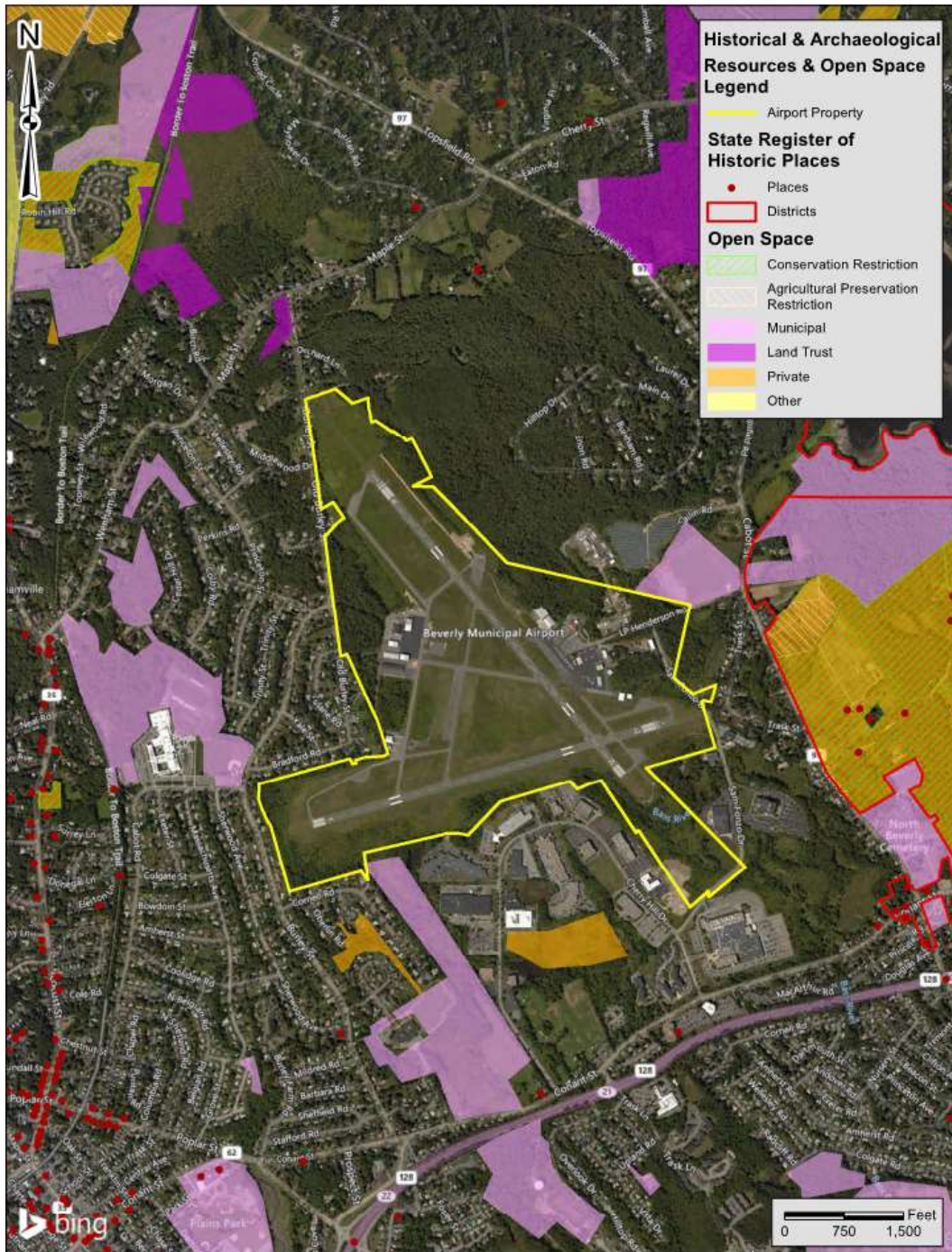
Section 4(f) of the U.S. Department of Transportation Act of 1966 requires the Federal Transportation Authority (FTA) and other U.S. Department of Transportation (USDOT) agencies to consider alternatives from using publicly-owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use (see 23 CFR Part 774).

This may limit the ability of airports to expand into 4(f) properties which surround an airport or to manage 4(f) areas outside of airport property. In particular, runway approaches, where many of the safety-related design criteria stipulate the optimal physical characteristics of the land including slope, elevation, cover type, and use have the potential to encroach upon 4(f) properties. Agreements between the airport and the public entity that owns the 4(f) property would help expedite the 4(f) evaluation process.

The current (2019) zoning maps of all three municipalities were investigated to identify any publicly owned open space and/or historic districts or places adjacent to the airport or within the runway approaches where obstructions may occur, none were found (see **Figure 2-25**).

In general, it is not anticipated that work resulting from the maintenance of Part 77 surfaces will impact any of the homes to the west of Runway 9, although there are several Historic Places (residences) listed on the State Register of Historic Places along Locust Street in Danvers.

Figure 2-25: BVY Historical/Archaeological Resource and Open Space Map



Source: GZA.

Farmlands

The Farmland Protection Policy Act (7 U.S.C. 4201-4209) (PL 97-98 amended by section 1255 of the Food Security Act of 1985, PL 99-198) (FPPA) addresses the conversion of farmland to non-agricultural uses (either active farmland or otherwise areas of notable agricultural soils). In Massachusetts, Executive Order 193 (March 19,



1981) is intended to avoid or minimize the conversion of farmland to non-agricultural uses. The identification of both active farmland and areas of prime, statewide, or unique importance agricultural soil types is critical to the preservation of these soils which may be lost to development.

No active agricultural fields exist on the Airport or within any areas that may be altered by the construction of any proposed improvement projects; however, prime agricultural soils and farmland of statewide importance exist on Airport property. Data for the soils map for the airport and adjacent areas is provided by the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO).

For proposed improvement projects within areas of farmland importance (identified in **Figure 2-26**), the Airport should keep in mind that conversion of that land may be reviewable by the U.S. Department of Agriculture (USDA), although as the farmland soils currently present are not in active farm use, this may not be necessary. The USDA uses a scoring of impact system called the Farmland Conversion Impact Rating form; this is done using Form AD-1006 (03-02). The results of this scoring will determine the significance of the impacts and the need for further actions, including mitigation.

The primary soils on the Airport's property consist of Udorthents, Ridgebury fine sandy loam, Woodbridge fine sandy loam, and Whitman loam (see **Figure 2-26** and **Table 2-16**). The following are NRCS descriptions of each soil type.

- Udorthents, smoothed, consists of areas from which soil material has been excavated, and nearby areas in which this material has been deposited. The original soil material is generally excessively drained to moderately well drained, and ranges from nearly level to very steep.
- The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum.
- The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 25 percent. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum.
- The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum.

Figure 2-26: BVI Farmlands / Soil Types Map



Source: GZA.



Table 2-16: Key to Farmlands / Soil Types

Map Unit Symbol	Map Unit Name
1	Water
600	Pits, gravel
602	Urban land
651	Udorthents, smoothed
102C	Chatfield-Hollis-Rock outcrop complex, 3 to 15 percent slopes
254B	Merrimac fine sandy loam, 3 to 8 percent slopes
254C	Merrimac fine sandy loam, 8 to 15 percent slopes
276A	Ninigret fine sandy loam, 0 to 3 percent slopes
276B	Ninigret fine sandy loam, 3 to 8 percent slopes
300B	Montauk fine sandy loam, 3 to 8 percent slopes
301B	Montauk fine sandy loam, 3 to 8 percent slopes, very stony
301D	Montauk fine sandy loam, 15 to 25 percent slopes, very stony
305B	Paxton fine sandy loam, 3 to 8 percent slopes
305C	Paxton fine sandy loam, 8 to 15 percent slopes
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes
310C	Woodbridge fine sandy loam, 8 to 15 percent slopes
311B	Woodbridge fine sandy loam, 3 to 8 percent slopes, very stony
311D	Woodbridge fine sandy loam, 15 to 25 percent slopes, very stony
316B	Scituate fine sandy loam, 3 to 8 percent slopes, very stony
43A	Scarboro mucky loamy fine sand, 0 to 1 percent slopes
52A	Freetown muck, 0 to 1 percent slopes
622C	Paxton-Urban land complex, sloping
626B	Merrimac-Urban land complex, gently sloping
70B	Ridgebury fine sandy loam, 0 to 6 percent slopes
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony
73A	Whitman loam, 0 to 3 percent slopes, extremely stony

Source: GZA.

Hazardous Materials, Solid Waste, and Pollution Prevention

Hazardous materials, pollution prevention, and solid waste at the Airport may be regulated under the following federal and state statutes and regulations:

- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (as amended by the Superfund Amendments and Reauthorization Act of 1986 and the Community Environmental Response Facilitation Act of 1992) [42 U.S.C. 9601-9675]; 40 CFR parts 300, 311, 355, and 370.
- Pollution Prevention Act of 1990 [42 U.S.C. 1310-1319]; CEQ Memorandum on Pollution Prevention and the National Environmental Policy Act, January 12, 1993 (58 FR 6478).
- Toxic Substances Control Act of 1976, as amended (TSCA) [15 U.S.C. 2601-2692] [PL 94-469]; 40 CFR parts 761 and 763.
- Resource Conservation and Recovery Act of 1976 (RCRA) [PL 94-580, as amended by the Solid Waste Disposal Act of 1980 (SWDA), PL 96-482, the Hazardous and Solid Waste Amendments of 1984, PL 98-616, and the Federal

Facility Compliance Act of 1992, (FFCA) PL 103-386] [42 U.S.C. 6901-6992(k)]; 40 CFR parts 240-280.

- Executive Order 12088, Federal Compliance with Pollution Control Standards, October 13, 1978 (43 FR 47707), amended by Executive Order 12580, January 23, 1987 (52 FR 2923) January 29, 1987.
- Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements (58 FR 41981, August 3, 1993).
- Executive Order 12580, Superfund Implementation, amended by Executive Order 13016 and 12777.
- Massachusetts Contingency Plan 310 CMR 40.00
- Solid Waste Facility Regulations 310 CMR 19.00

To determine the potential for encountering contaminated soil and/or groundwater during construction at the Airport, the U.S. Environmental Protection Agency Envirofacts Multisystem (“Envirofacts”) database and MassDEP’s Waste Site and Reportable Release database were reviewed. The U.S. Envirofacts database contained records for two “Conditionally Exempt Small Quantity Generators” (CESQGs) located within the airport property: Beverly Municipal Airport (EPA Handler ID: MAV000011798) and North Atlantic Air (EPA Handler ID: MAR000535344). Revere Aviation Inc. (EPA Handler ID: MAD019169549) was identified as a “Unspecified Universe” generator.

A review of the MassDEP Waste Site and Reportable Release database indicated that five recordable Release Tracking Numbers (RTN) (RTN 3-0000230, 3-0000231, 3-0000236, 3-0024363, 3-0033420) are associated with the Airport property. RTN 3-3-0000230 is associated with impacted soils encountered during the removal of a 10,000-gallon aviation fuel underground storage tank (UST) at the GTE Service Hanger in 1987. RTN 3-0000231 and 3-0000236 were assigned to the GTE Service Hanger during subsequent environmental assessment activities associated with former Site use activities (Casco/Nike/Vitale/DOD) and impacts. In 2007, at the airport a Class A-2 response action outcome (RAO) was submitted for the release, as a level of No Significant Risk and restoration to or approaching background has been shown to be infeasible.

In 2004, RTN 3-0024363 was assigned based on a 100-gallon aviation fuel release at General Aviation. Initial remedial actions included spill response and soil excavation activities. Correspondence from MassDEP indicates the potential for additional PRPs and residual impacts associated with a separate source. RTN 3-0024363 remains open with a Default Tier 1D status (12/2005).

In 2016, RTN 3-0033420 was assigned when assessment activities supporting a real-estate transaction identified a release of petroleum at North Atlantic Air, Inc. (former GTE location). Reports indicate that the petroleum impact was associated with historical releases and no new release has occurred. Submittals for Tier reclassification were filed and UST testing and consolidation records were found to be in compliance; however, this RTN remains open.

Hazardous materials used for operation and maintenance of aircraft, runways, and taxiways include fuels, degreasers, and aviation lubricants and oils. The Airport has a current Spill Prevention Control and Countermeasures (SPCC) Plan that establishes



procedures for handling these substances. North Atlantic Air, Inc. (NAA) currently operates a single 8,000-gallon aviation gasoline UST, which was installed in 1994, and two 10,000-gallon aviation gasoline above ground storage tanks (ASTs). Available records from the MassDEP Waste Site and Reportable Release database indicate that the UST is in full compliance with current U.S. Environmental Protection Agency (EPA) and Massachusetts regulations regarding USTs. NAA operates three mobile refuelers used for fueling aircraft. The mobile refuelers used by NAA at the Airport are fully compatible with their representative contents in the manner in which they are stored. Other known releases at the Airport are reflected below in **Table 2-17**.

Table 2-17: BVY Known Pollutant Releases

Year	GZA File # / Source	Permit Type	Permit Title	Preparer	Document Summary
1987-2008	MADEP / RTN 3-0000230	N/A	Soil Disposal Summary	Env Applications Inc.	(1987) GTE Services Hangar - Impacted soil encountered during 10K AV UST Removal activities. Soil excavation activities and closure soil sampling <MA Criteria.
1987-2008	MADEP / RTN 3-0000230, 0231 & 0236	Various Regulatory Submissions	Investigation and Remedial Action Reports	Various	(1987 - 2008) Additional RTNs (0231 & 0235) associated with former/other Site use activities (Casco/Nike/Vitale/DOD) and impacts. Final GW Report (2008) indicated residual impacts at various locations.
1987-2008	MADEP / RTN 3-0000230, 0231 & 0236	RAO	Revised RAO Statement	Alliance Env Group, Inc.	(2007) Site qualifies for designation as a Class A-2 RAO, as a level of No Significant Risk has been demonstrated at the Site, and restoration to or approaching background has been shown to be infeasible. RTN #'s Status: CLOSED
2004	MADEP / RTN 3-0024363	Various Regulatory Submissions	Immediate Response Action Plan	ENPRO	100-gallon Aviation Fuel Spill at General Aviation. Initial remedial actions included spill response and soil excavation. Correspondence from MADEP indicates the potential for additional PRPs and residual impact assoc. with a separate source. RTN # Status: OPEN - Default Tier 1D status (12/2005)
2016-2018	MADEP / RTN 3-0033420	Various Regulatory Submissions	Phase I - Initial Site Investigation Report and Eligible Tenant Status Submittal + Other Regulatory Submittals	Various	Assessment activities for real-estate transaction indicated a release of petroleum at North Atlantic Air, Inc. (Former GTE location). Reports indicate that the presence of petroleum impact is associated with historical releases and no new release has occurred. Submittals for Tier reclassification. UST testing and consolidation records are in compliance. RTN # Status: OPEN

Source: GZA.

Historical, Architectural, Archeological, and Cultural Resources

Laws Governing National Historic Preservation Programs, National Natural Landmarks, and National Historic Landmarks include the following:

- National Historic Preservation Act of 1996, as amended, including Executive Order 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921, May 13, 1971) [16 U.S.C. 470, 470 note] [PL 102-575 (1992)]; 36 CFR parts 60 (National Register of Historic Places (NRHP)), 65, 65.1 (National Historic Landmarks), 68 (standards), 73 (World Heritage Program), 78 (Waiver of Federal agency section 110 responsibilities), 79 (curation) and 800

(consultation), as revised (65 FR 77697; December 12, 2000, effective January 1, 2001).

Laws Governing the Federal Archeology Program include the following:

- Antiquities Act of 1906 [16 U.S.C. 431, 432, 433] [PL 59-209 (1906)]; 43 CFR part 3, 25 CFR part 261.
- Archaeological and Historic Preservation Act of 1974, as amended [16 U.S.C. 469-469c] [PL 89-665]; Guidelines for Archaeology and Historic Preservation: Standards and Guidelines (DOI) (48 FR 44716, September 29, 1983) 36 CFR part 68.
- Archaeological Resources Protection Act of 1979, as amended [16 U.S.C. 470aa-470mm] [PL 96-95 (1979)]; 43 CFR parts 3 and 7, 36 CFR part 79, 25 CFR part 262, Federal Archeological Preservation Strategy.
- Native American Graves Protection and Repatriation Act of 1990 [25 U.S.C. 3001] [PL 101-601 (1990)]; 43 CFR part 10, 25 CFR 262.8.
- Other Major Federal Historic and Cultural Resource Preservation Laws and Executive Orders:
 - American Indian Religious Freedom Act of 1978 [42 U.S.C. 1996, 1996 note] [PL 95-341 (1978)]; 43 CFR 7.7 and 7.32, 25 CFR 262.7.
 - Department of Transportation Act [49 U.S.C. 303].
 - Public Building Cooperative Use Act of 1976 [40 U.S.C. 601(a), 601(a)(1), 606, 611(c), 612(a)(4)] [PL 94-541]; 41 CFR parts 101-117, 101-17.002(l), (m), (n) (rural areas), 101.17.002(i)(2)(urban areas) and 101-19.
 - Executive Order 13006, Locating Federal Facilities on Historic Properties in Our Nation's Central Cities (61 Fe 26071, May 24, 1996).
 - Executive Order 13007, Indian Sacred Sites (61 FR 26771, May 29, 1996).
 - Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000), and the Presidential Memorandum of April 29, 1994, Government-to-government Relations with Native American Tribal Governments.
 - Executive Order 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921, May 13, 1971) (16 U.S.C. 470 note).

As part of a Vegetation Management Plan completed for the airport in 1996 SHPO was contacted to obtain information of known historic/archeological resources within the Airport vicinity. Their response indicated that no known resources existed on the airport property.

Section 106 of the National Historic Preservation Act (36 CFR 800 [Section 106]) requires federal agencies to consider the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (Council) reasonable opportunity to comment on such undertakings. Projects subject to Section 106 must consult with the State Historic Preservation Officer, Tribal Historic Preservation Officer(s), and Council to determine if the Project has the potential to affect historic properties listed on or eligible for listing on the National Register of Historic Places and what, if any, alternatives exist to avoid, minimize or mitigate the adverse effect(s) to National Register and National Register-eligible properties.



The National Historic Preservation Act of 1966 requires that projects involving a federal action undergo an evaluation for the presence of historical, archaeological, and/or cultural resources on land that could be impacted. The Massachusetts Historic Commission (MHC) does as well for any state action including the issuance of permits under 950 CMR 71.00 (M.G.L. Ch. 9 ss.26-27C). The applicable Tribal Historic Preservation Office (THPO) must also be consulted during these processes.

If a Project requires destruction of properties listed on the State Register of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth, the proponent must consider alternatives to destruction of the resource in consultation with MHC and other consulting parties (including Native American tribes and local historical commissions). Such an action may also be subject to the Massachusetts Environmental Policy Act (MEPA) unless the Project has a determination of No Adverse Effect or a Memorandum of Agreement with the MHC.

If work will go beyond simply the removal of an Inventoried property then a Project Notification Form (PNF) must be submitted to MHC. At that point, MHC would make a determination whether a more detailed evaluation would be required. Typically, an evaluation would include a review of existing data, as well as on-site studies, if it is deemed that such resources may be present. On-site investigations may involve a review of historical literature and references or may involve the completion of a subsurface investigation for artifacts, done by a professional archeologist. The extent of the onsite work is scoped by the historical sensitivity of the area, as determined by the State Historic Preservation Officer (SHPO) and/or the National Park Service, usually the former. There are various phases of onsite archeological study ranging from sifting soils in small areas to larger excavations, called pits. If artifacts are discovered, search areas may be expanded.

In 1996 Native American archeological sites were identified in the area; therefore, there was potential for sites to exist on the Airport. In response to this, an archeological survey was conducted on the Airport and it was concluded that overall archaeological sensitivity of the site was low. Based on this investigation, it was concluded that the proposed improvement projects at the time would not result in impacts to sensitive historic and/or archeological resources.

The National Park Service's National Register of Historic Places online data viewer was reviewed for this report and no new resources were identified at the Airport; therefore, no federal historic review is required (see **Figure 2-25**). The Massachusetts Historic Commission should be contacted prior to the onset of a proposed airport project to ensure the commission has no new concerns. This is done through a Project Notification Form submission with site locus and any known historic documents submitted to SHPO/THPO.

Natural Resources and Energy Supply

The existing energy used at BVY is typical of other General Aviation airports. The buildings and lighting facilities respond to the demand which is triggered principally by airport operations. Energy is provided from offsite via transmission and distribution lines via LP Henderson Rd and West Airport Rd. Fuel consumption for aircraft will remain generally the same, unless a significant increase in demand occurs. The expected modest growth rate combined with the minor increases in

electrical demand will not jeopardize the availability of these resources in the future to the airport or the community. Additionally, only common construction machinery and methods are needed to construct projects as their implemented, putting no continued burden on the area's ability to supply fuel, such as gasoline or diesel. Future improvements to facilities at the Airport will likely result in greater fuel efficiency as a result of improvements in architectural and mechanical equipment and materials.

Noise and Noise-Compatible Land Use

Aircraft noise and other airport-related noise, in particular aircraft noise, is often an area of primary concern as related to the airport environment. Within the context of an Airport Master Plan, actions and development that may be considered that change runway configurations, airport operational patterns, aircraft fleet mix, flight patterns, among others that have the potential to alter noise impacts on communities located in the vicinity of an airport. Laws governing airport noise include the following:

- 49 U.S.C. 47501-47507 (Aviation Safety and Noise Abatement Act of 1979, as amended); 14 CFR part 150, Noise Control and Compatibility Planning for Airports Advisory Circular, 150/5020.
- 49 U.S.C. 40101 et seq., as amended by PL 103-305 (Aug. 23, 1994) (The Federal Aviation Act of 1958).
- The Control and Abatement of Aircraft Noise and Sonic Boom Act of 1968; 14 CFR part 161 Notice and Approval of Airport Noise and Access Restrictions.
- 49 U.S.C. 47101 et seq., as amended by PL 103-305 (Aug. 23, 1994) (The Airport and Airway Improvement Act).
- 49 U.S.C. 2101 et seq. (Airport Noise and Capacity Act of 1990).
- 49 U.S.C. 44715 (The Noise Control Act of 1972).

The FAA reviews Compatible Land Use under the Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 47501-47507) and 14 CFR Part 150, and assumes that an airport's compatibility with surrounding land uses is generally associated with an airport's noise impacts.

Existing land use surrounding BVY consists of a mix of light-industrial, high-density residential, and moderate-density residential uses. Both ends of Runway 9-27 contain high-density, single-family residential developments within the approaches, with some residences occurring within the Runway Protection Zone (RPZ). The Runway 16 approach occurs over lower density residential development. The Runway 34 approach occurs within existing industrial development. The access road for this development was constructed within the approach of Runway 27. Controls are in place for this development that will restrict structure heights to below Part 77 surfaces.

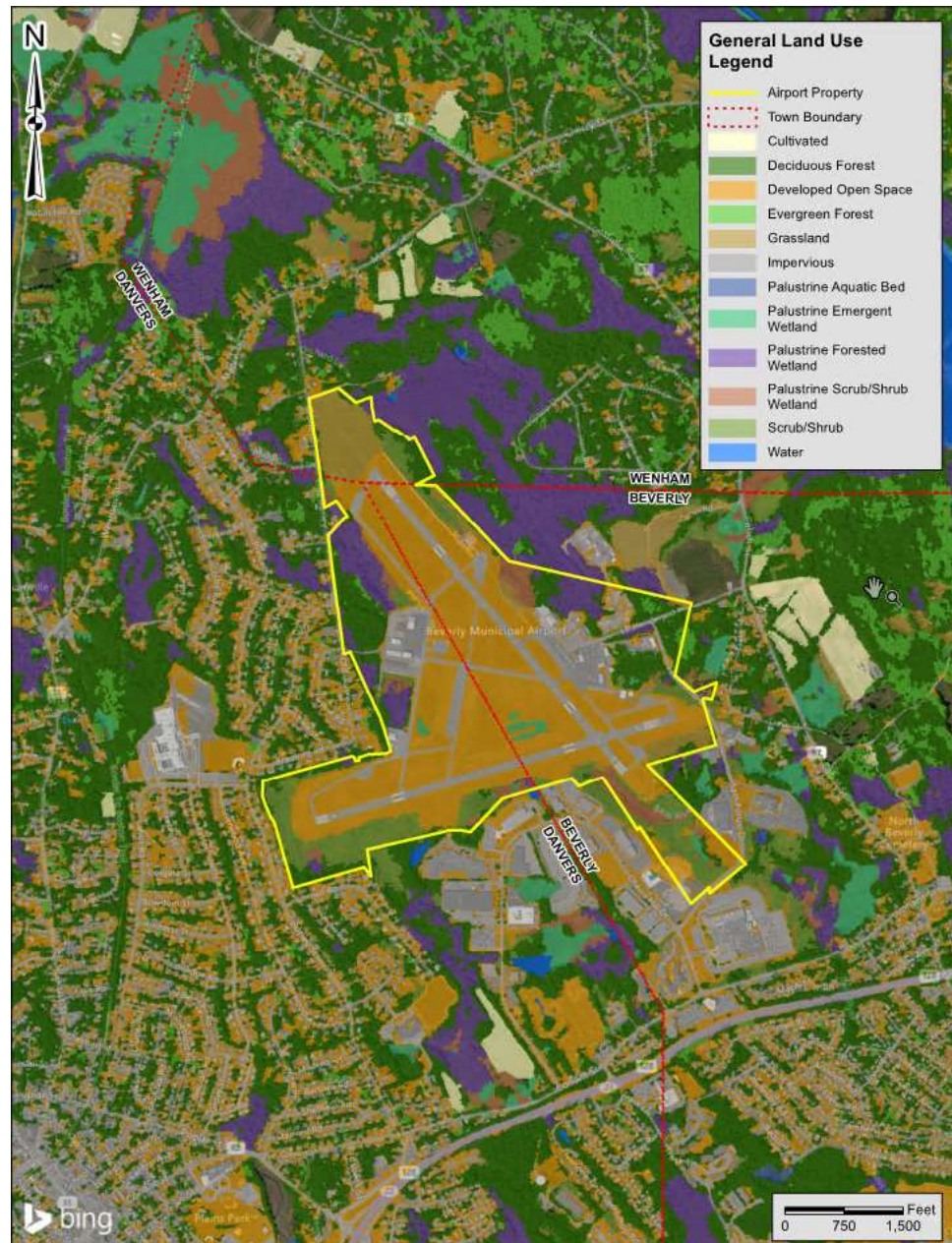
Current zoning adjacent to the airport within the three municipalities includes mainly residential and light-industrial districts (see **Figure 2-27**). To the east watershed protection areas exist for Wenham Lake, much of the non-lake areas are deciduous forest. Nearer to the airport to the northeast is palustrine forested wetland. A



palustrine wetland consists of inland wetland types such as marshes, swamps, bogs and fens.

The Danvers Rail Trail passes by the airport to the north, an area which would otherwise likely be forested with very limited human presence. This trail brings in passing bikers and hikers which may therefore be exposed to airport noise.

Figure 2-27: BVY General Surrounding Land Use Map



Source: GZA.

BVY has a Noise Abatement Program that was developed by the Beverly Airport Commission with input from airport users, businesses, the ATCT, and other

stakeholders. The program includes the following voluntary measures (see the **Appendix** for a full copy of the BVY Noise Abatement Program):

- Adoption of Preferential Runway Use Program
- Adoptions of a use restriction on times for touch-and-go operations
- Publication of a noise abatement procedures pamphlet for the airport and pilots
- Review of changes in noise exposure as necessary
- Publication of noise sensitive areas map
- Periodic review of the noise complaint procedure
- Advise neighbors and public officials when air shows or other public aviation events will occur

Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks

The United States Environmental Protection Agency (EPA) defines environmental justice on its website as:

“...the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

Essentially, Environmental Justice doctrine attempts to prevent the exposure of environmental negligence to disproportionately affected communities, primarily those of color and the poor. In U.S. history, polluting factories, or landfills, or even highways were sited nearer to communities of color and the poor, rather than near middle- or upper-class neighborhoods. Environmental Justice serves to prevent such policies from continuing into the future. Several executive orders, as listed below, have required federal agencies to consider Environmental Justice when planning, funding, or permitting a project.

Laws governing Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks include the following:

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629, February 16, 1994); Order DOT 5610.2, Environmental Justice in Minority and Low-Income Populations, April 15, 1997, CEQ Environmental Justice: Guidance Under the National Environmental Policy Act, December 10, 1997, Final Guidance For Consideration of Environmental Justice in Clean Air Act 309 Reviews, July 1999.
- Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (62 CFR 19883, April 23, 1997).; 40 CFR 1508.27.
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 [42 U.S.C. 4601] [PL 91-528 amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, PL 100-117]; FAA Advisory

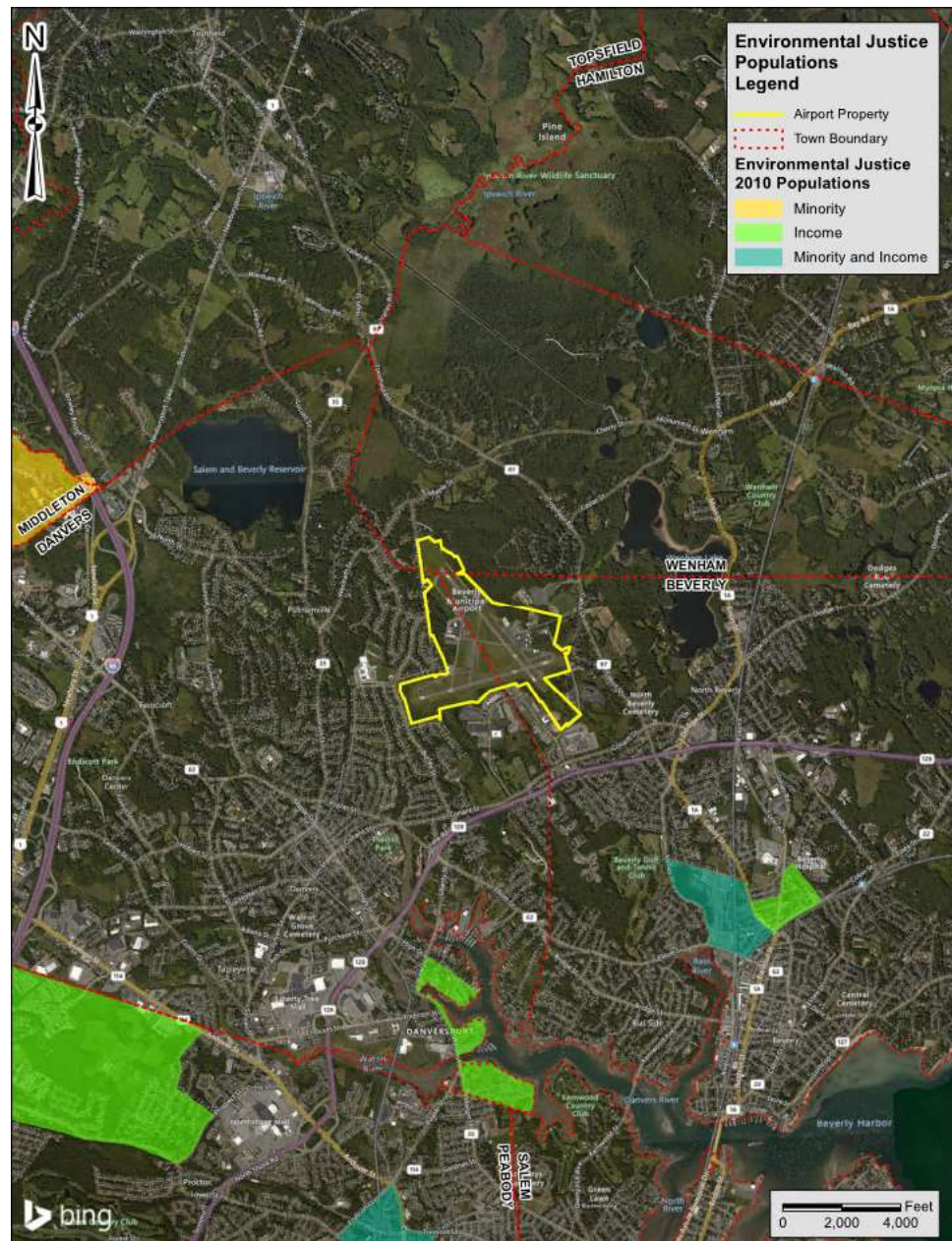


Circular 150/5100-17, 49 CFR part 24, FAA Order 5100.37A, Land Acquisition and Relocation Assistance for Airport Projects.

- Environmental Justice Policy of the Executive Office of Environmental Affairs, October 9, 2002.

According to the MassGIS Environmental Justice population layer, which represents neighborhoods across the state with high minority, non-English speaking, low-income, and foreign-born populations, the closest Environmental Justice populations are located more than one mile south of the Airport (see Figure 2-28).

Figure 2-28: BVY Environmental Justice Populations Map



Source: GZA.

Light Emissions, Visual Resources, and Visual Character

The visual and aesthetic character of the Airport is similar to that of other General Aviation airports. BVY is surrounded by industrial and residential uses, the densest residential development being immediately west of the Airport. This western portion is well-screened with a dense stand of trees except at the far northwest end. Therefore, ground-based airport buildings and operations are generally not visible from the surrounding neighborhood.

Visual or aesthetic impacts from existing and future conditions are difficult to define due to the subjectivity involved. Aesthetic impacts deal more broadly with the extent that the development contrasts with the existing environment and whether a jurisdictional agency or neighboring community considers this contrast objectionable. Because of the relatively low levels of on-airport light intensity compared to background levels associated with most facilities (runways and taxiways) and air navigation facilities (NAVAIDS), light emissions impacts are unlikely to have potential adverse impact.

Potential adverse impacts from light emissions refer to the potential for creating an annoyance to residents in the vicinity of the lighting installation or modification. FAA Order 5050.4B states that “Only in unusual circumstances, as for example when high-intensity strobe lights would shine directly into people’s homes, will the impact of light emissions be considered sufficient to warrant special study and a more detailed examination of alternatives in an environmental impact statement.” FAA does allow for Categorical Exclusions (CATEX) for standard lighting such as hazard lights for example.

Water Resources

Water resources include wetlands, floodplains, surface waters, ground waters, and Wild and Scenic Rivers. Vital to society, water resources provide drinking water and support recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. These resources act together as one integrated natural system. Impacts to one resource can disrupt the entire system. Water resources near BVY are summarized in the following sections.

Wetlands

Federal, state and local agencies are required to minimize the destruction, loss, or degradation of wetlands. Laws governing wetlands generally include the following:

- Clean Water Act, section 401 and 404 [33 U.S.C. 1344] [PL 92-500, as amended by PL 95-217 and PL 100-4]; 33 CFR parts 320-330.
- Rivers and Harbors Act of 1899, section 10; Order DOT 5660.1A, Preservation of the Nation’s Wetlands.
- Executive Order 11990, Protection of Wetlands (May 24, 1977) (42 FR 26961).
- Massachusetts Wetlands Protection Act (M.G.L. ch. 131, §40); Massachusetts Wetlands Regulations (310 CMR 10.00).
- Local Wetlands Ordinances.



There are more than 55 acres of wetlands subject to federal, state, and/or local jurisdiction present on Airport property (see **Figure 2-29**). The local Conservation Commission confirmed wetland boundaries were last delineated more than three years ago and are no longer valid for use under the Massachusetts Wetlands Protection Act (MWPA) or local wetland regulations (each municipality has either a wetlands bylaw, or ordinance). Wetland areas on the Airport were obtained from three sources including:

- Wetland mapping completed in 1995 as part of the 1996 vegetation-management plan;
- A 2004 Environmental Assessment prepared for the Airport that included a 2004 wetland map that resulted from a wetland assessment on and adjacent to the Airport; and
- Wetland resources that were field delineated in 2019 for the northern, western, and southern portions of the Airport in support of a then-pending permit application to replace the perimeter fence. Currently, the 2019 delineated wetlands have not been confirmed by the local Conservation Commissions, but their locations are similar to those depicted on the other maps noted above.

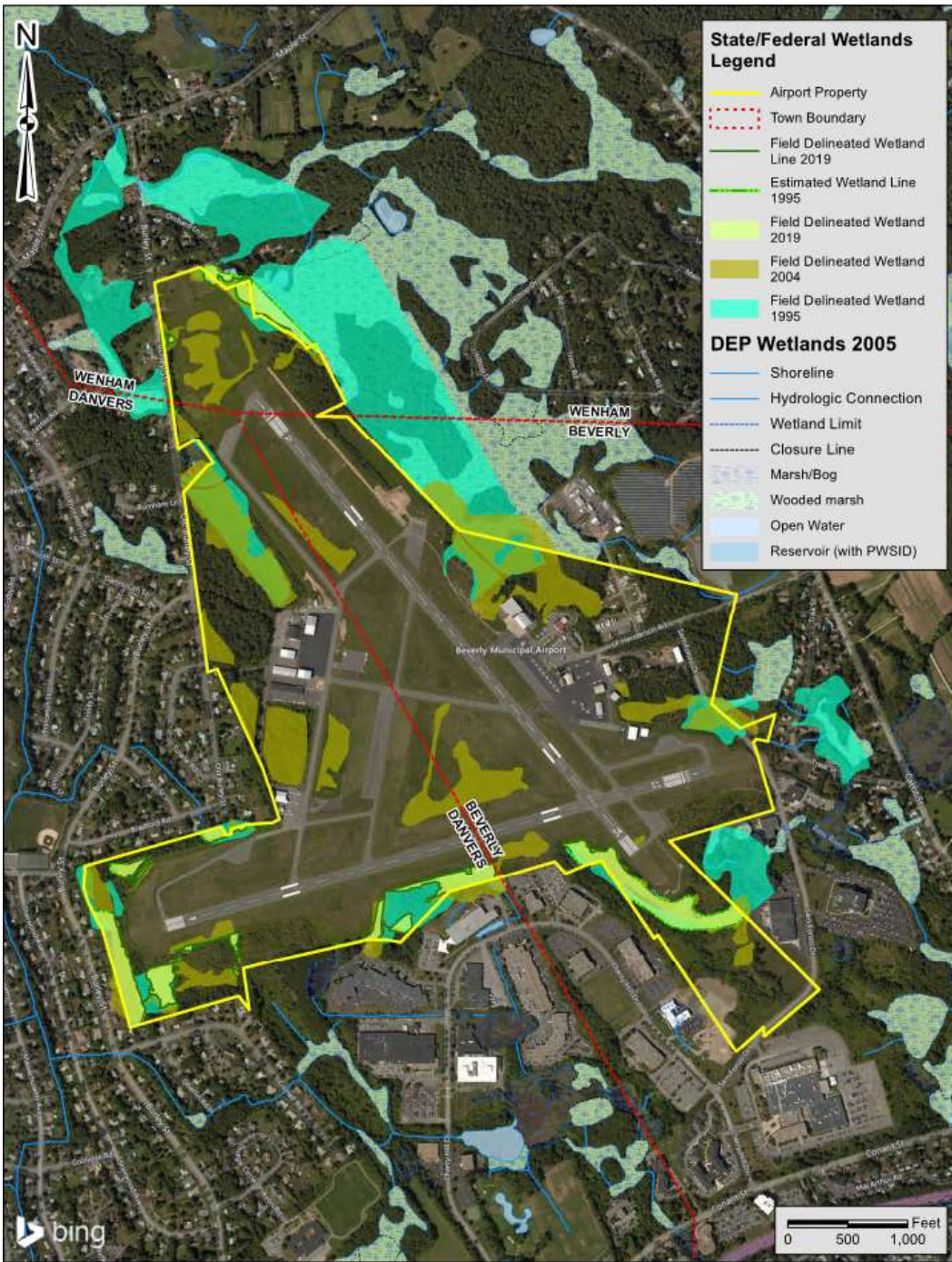
The Airport also contains wetland areas located within the infield area between Runway 16-34 and Runway 9-27 and generally include emergent and shrub wetlands that would be headwater wetlands that convey drainage in a westerly direction towards Frost Fish Brook.

The wetland areas are located within the three drainage sub-basins (i.e., Ipswich River, Danvers River, and Porter River) that overlap the Airport's property. The dominant cover type for most of the wetlands is a scrub-shrub community that is the result of the vegetation-management activities on the airport; however, some open water and forested wetland areas are also present as well. The areas of wetlands on the Airport represent a constraint that could limit the availability of future development alternatives for the Airport.

In addition to state and federal wetland jurisdiction, construction and activities would also be subject to local jurisdiction resulting from wetland protection Bylaws (Danvers and Wenham) and Ordinance (Beverly) that are more restrictive than the State wetland regulations. Each of the three have local wetlands regulations that include a "no disturbance zone" that is a 25- to 35-foot wide immediately adjacent to the wetland boundary. These no disturbance zones would further limit the extent of development on the property.

Potential future improvement projects that may result in the alteration of state and federal wetlands both on- and off-Airport property, if significant in impact, may require a variance pursuant to the MWPA, and an Individual Permit pursuant to Sections 401 and 404 of the Federal Clean Water Act. Timeframes for these types of permits are typically extended over general permits. **Table 2-18** below lists permits received for various projects at the airport since 1995.

Figure 2-29: BVY Federal / State Wetlands Map



Source: GZA.



Table 2-18: Previous Wetlands Environmental Permits Obtained at Airport²

Year	GZA File # / Source	Permit Type	Permit Title	Preparer	Document Summary
1995	Beverly Airport Files	Vegetation Management Plan (VMP)	Vegetation Management Plan for the Beverly Municipal Airport	Camp Dresser & McKee	Initial VMP submittal prepared in accordance with the Massachusetts Aeronautical Commission (MAC) to comply with FAA, state regulations, advisories, rules and orders related to maintain navigable airspace free from obstructions. The VMP outlined a five-year vegetation management program for the Airport.
1996	03-1109	VMP Findings Report	Findings Report for the Implementation of the Beverly Municipal Airport VMP	GZA	Supplement document to the VMP prepared to further evaluate initial recommendations and verify and update Site information in order to implement the VMP activities.
1997	03-1109-1	NOI Permit Application	Notice of Intent - Removal of Vegetation in Protected Airspace	GZA	Notice of Intent permit application submitted to Beverly, Danvers, and Wenham in support of implementation of the VMP activities in Regulated Areas.
1998	03-1109-1	VMP - Environmental Monitoring Program	Beverly Municipal Airport VMP - Environmental Monitoring Program	GZA	Document outlining the short and long-term monitoring procedures, specific methodologies, products and mechanisms to be followed during the implementation of the vegetation management activities in accordance with wetland permits issued to perform the work.
1998, 1999, 2000 & 2002	03-1109-1	VMP - Environmental Monitoring Report(s)	Beverly Municipal Airport VMP - Environmental Monitoring Status Report(s)	GZA	Annual Monitoring Reports provided to Beverly, Danvers, and Wenham summarizing the vegetation management activities and subsequent monitoring that occurred at the Airport.
2004	03-1109-1	NOI Permit Application	Notice of Intent - Work within the 100-foot Buffer Zone to a Wetland Resource	GZA	Notice of Intent permit application submitted to Danvers in support of installing 5,300 linear feet of security fencing.
2004	03-1109-1	NOI Permit Application	Notice of Intent - Work Associated with the Installation of 7 MALS within a Wetland Resource and Buffer Zone	GZA	Notice of Intent permit application submitted to Wenham in support of the installation of a Medium-Intensity Approach Light System within a Wetland Resource and associated Buffer Zone during Airport improvement activities.
2004	03-1109-1	NOI Permit Application	Notice of Intent - Work within a Wetland Resource and Buffer Zone	GZA	Notice of Intent permit application submitted to the Town of Beverly in support of the construction activities to extend Runway 34 end and the Runway 27 taxiway.
2005	03-1109-2	VMP Operational Plan Update	Modification to Beverly Municipal Airport Vegetation Management Plan Yearly Operational Plan Update	GZA	Letter report summarizing revisions to the VMP Yearly Operational Plan between 2005 and 2009.
2013	15.01666317.00	Permit Application	Stormwater Pollution Prevention Plan (SWPPP)	GZA	SWPPP prepared for the Airport as guidance to prevent or significantly reduce the potential for polluted stormwater to leave the Facility and to impact waters, through the implementation of stormwater controls, Best Management Practices (BMPs) and pollution prevention inspections and maintenance. This SWPPP supersedes previous SWPPP plans submitted for the Airport.
2019	15.0166759.00	NOI Permit Application	BVY Permit Airfield Fencing	GZA	Notice of Intent permit application submitted to Beverly, Danvers, and Wenham in support of fencing removal and replacement along the perimeter of the Airport.

Source: GZA.

² Does not necessarily contain all environmental permits received at the Airport during this timeframe.

Floodplains

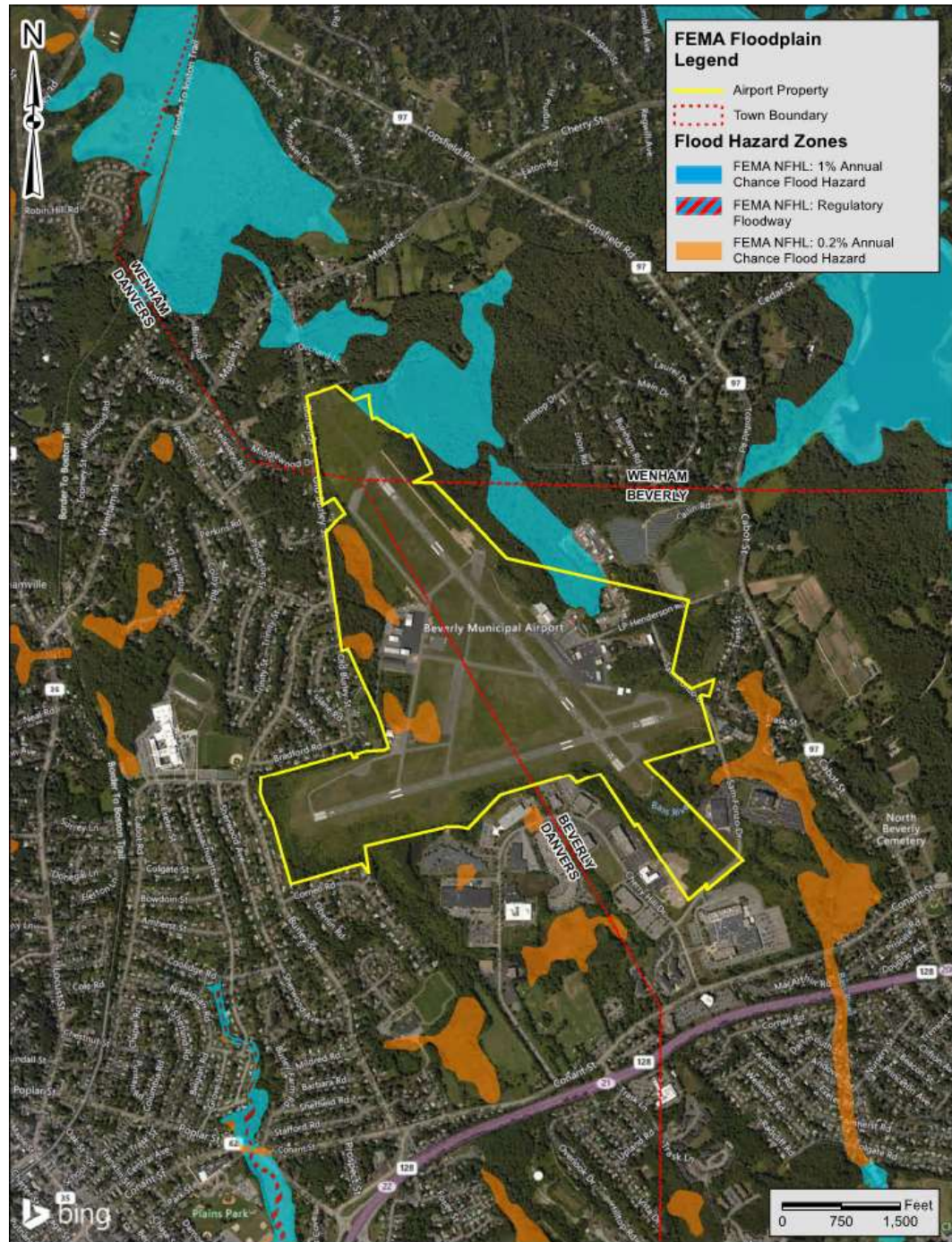
Construction in floodplains is regulated to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values provided by floodplains. Executive Order 11988, *Floodplain Management*, May 24, 1977 (42 FR 26951) and Order DOT 5650.2, *Floodplain Management and Protection*, address development in floodplains.

According to Federal Emergency Management Agency (FEMA) mapping BVY has both 100-year (1% annual chance) and 500-year (0.2% annual chance) FEMA flood zones within its property (see **Figure 2-30**). The 1% zone and any work which may occur within it is regulated as a Resource Area, Bordering Land Subject to Flooding, under the Massachusetts Wetlands Protection Act (MWPA). This zone is described as serving an array of functions, the most important of which includes the retention of floodwaters, thereby minimizing damage resulting from severe storm events. Impacts to this resource area are allowable, provided that suitable mitigation in the form of compensatory flood storage areas is provided and a permit from the affected municipality is obtained. In general, compensatory flood storage refers to the creation of new floodplain areas through the excavation of non-floodplain land on a cubic foot by cubic foot mitigation at the same elevation is given. The requirements for compensatory storage areas are detailed in the 310 CMR 10.57.

The FEMA FIRMettes were consulted for all three municipalities were reviewed and are provided below (panels 25009C04008F and 25009C0409F, both effective 7/3/2012). The 1% zone is located in Beverly, north of JP Henderson Rd and a small portion to the northwest of Hilltop Drive. Although not regulated by the MWPA, the 0.2% chance exists to the east of Old Burley St in Danvers on the western portion of the Airport. FEMA requires review of proposed changes to flood structures if they exist.



Figure 2-30: BVY FEMA Floodplains Map



Source: FEMA, GZA.

Surface and Ground Waters

The Federal Water Pollution Control Act, as amended by the Clean Water Act (CWA)³ and the Safe Drinking Water Act, as amended, protect and regulate Federal actions that have the potential to impact surface and ground waters⁴. According to the Massachusetts Surface Water Quality Standards, Dec. 6, 2013 (314 CMR 4.00) the Airport is located within two different drainage basins (watersheds): the North Shore Coastal Tributaries and Islands Basin (south), and the Ipswich River Basin (northeast) (see **Figure 2-31**). In general, areas east of Runway 16 and north of L.P. Henderson Road are within the Ipswich River Basin and drain to Wenham Lake. Areas west of Runway 16 and south of L.P. Henderson Road are within the North Shore Coastal Drainage Area and drain to either Porter River or Danvers River.

The water-quality classification assigned to the wetlands and water bodies in the vicinity of the Airport by 314 CMR 4.00 establishes the level of protection they will receive by certain permitting authorities. Airport-improvement projects are required to provide mitigation for any degradation of these waters to below the established standards. Wenham Lake is designated as a Class A water; therefore, the on-airport wetlands that drain to this surface water receive the highest level of protection. Class A wetlands are designated as Outstanding Resource Waters (ORW) pursuant to state regulations promulgated under Section 401 of the Federal Clean Water Act. Wetlands designated as such receive additional regulatory protection, including a “no alteration of wetlands or waters” limitation on many projects. The remaining on-airport wetlands drain to Class SB waters and do not receive this additional level of protection associated with Outstanding Resource Waters (ORW). A Surface Water Protection Zone C is present on the Airport in the Ipswich River Basin east of Runway 16 and north of LP Henderson Road.

A Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) [as amended under the authority of 40 CFR 122/ 55 FR 48063] controls maintenance activities and operations on the site that have the potential to impact stormwater.

The Airport conducts snow removal operations for measurable snowfall events. Snow removal operations comply with MassDEP’s Snow Removal Guidance (March 2001). Snow removed from runways, taxiways and aprons is stored in upland areas. Snow pile consolidation in these upland areas may occur as necessary. No chemicals or salt are used on the runways, taxiways and aprons.

Public Water Supply

Wenham Lake is a primary drinking-water supply source for Beverly and Salem and a secondary source for Wenham (see **Figure 2-31**). It is used as a holding reservoir for water pumped from the Ipswich River, which is done during the high flow winter months. The Salem-Beverly Water Supply Board has jurisdiction over activities in the watersheds of Wenham Lake, Putnamville Reservoir, and the Salem-Beverly Waterway Canal. This includes most of the Airport’s property located east of Runway

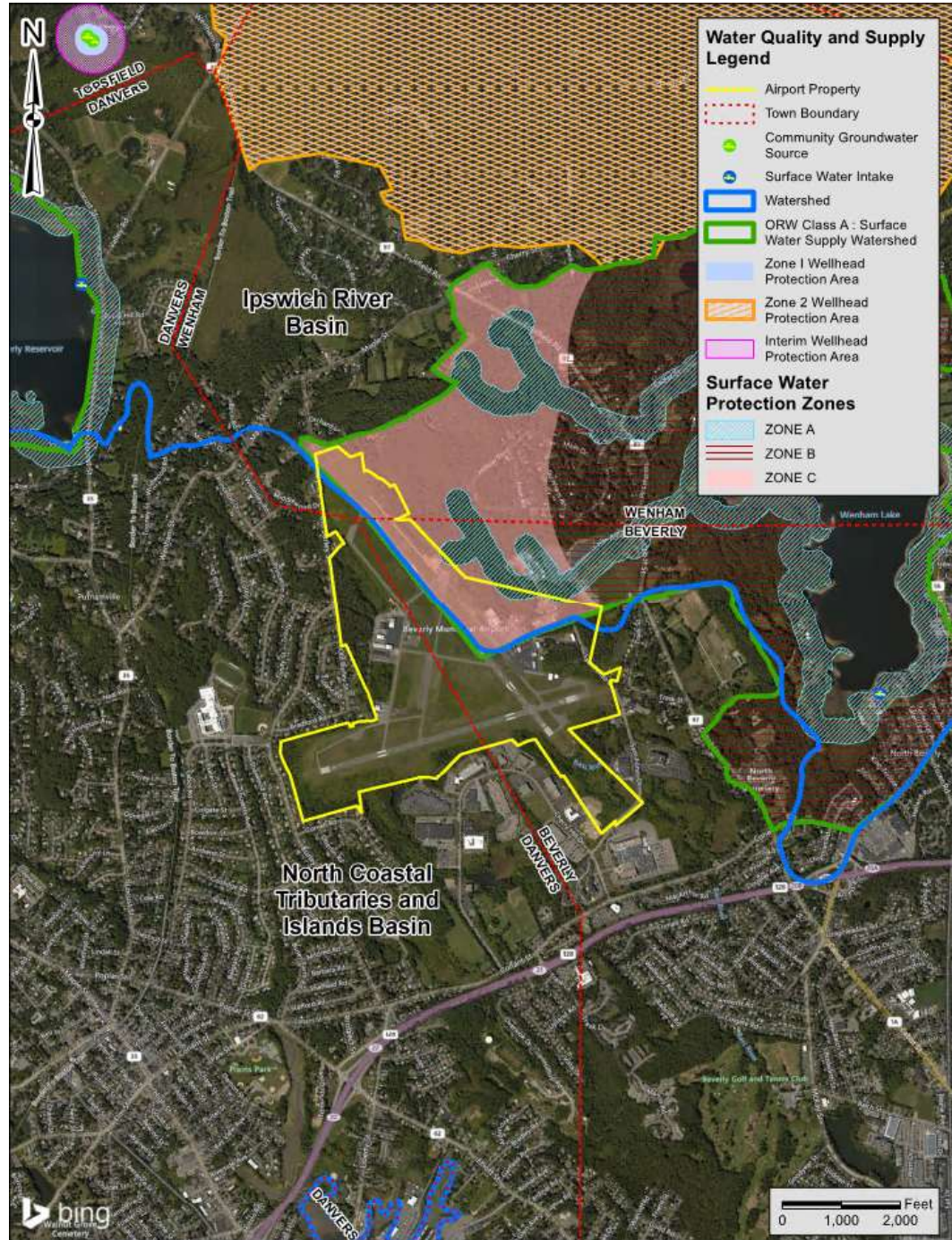
³ 33 U.S.C. Chapter 26.

⁴ 42 U.S.C. 300.f.



16 and north of LP Henderson Road. This portion of the Airport in Beverly is zoned Restricted Industrial, Research and Office (IR) within a Watershed Protection Overlay. Zoning in Danvers is Industrial II, and in Wenham it is Residential, although few residences actually exist in this portion of the town along the nearby streets of Nathaniel Circle, Burley Street, Orchard Lane and Middlewood Drive.

Figure 2-31: BVY Water Quality and Supply Map



Source: GZA.

Wild and Scenic Rivers

Laws governing Wild and Scenic Rivers include the following:

- Wild and Scenic Rivers Act of 1968 [16 U.S.C. 1271-1287] [PL 90-542 as amended by PL 96-487]; 36 CFR part 297, subpart A (USDA Forest Service), Department of the Interior and Department of Agriculture, Wild and Scenic River Guidelines for Eligibility, Classification and Management of River Areas (47 FR 39454, September 7, 1982), CEQ Memorandum on Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory, August 11, 1980 (45 FR 59190, September 8, 1980).

The Wild and Scenic Rivers Act was passed on October 2, 1968, which granted authority to Congress or the Secretary of the Interior to designate important rivers or river segments for additional federal protection. These comprise the National Wild and Scenic Rivers System that currently consists of 209 rivers or river segments. Projects that include the alteration of area within the designated river corridors must coordinate with the U.S. Department of the Interior to ensure sufficient protection for the resource. Wetland alterations within these corridors are reviewed in detail by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Federal Clean Water Act.

The U.S. National Park Service maintains a database listing all rivers and river segments that are currently listed as wild and scenic or have been afforded the status of a “study river” and may be eligible in the future for inclusion on the list. This list was updated in April 2019 and does not include the Danvers or Porter Rivers or any of the smaller tributaries that receive drainage from the Airport. Thus, there are no water resources within the Airport vicinity designated as “wild or scenic”.

2.8.3 Environmental Considerations Summary

Information from the environmental categories data described above were reviewed, compiled, and have been summarized below in **Table 2-19**.



Table 2-19: Environmental Category Summary

Environmental Category	Present or Absent	Comments
Air Quality	Present	Current Airport operations are below the 180,000-level required to conduct air quality analysis.
Biological Resources	Absent	None present, although relic species identified previously
Climate	Present	Airport location/elevation such that likely precludes potential future hazardous coastal flooding.
Coastal Resources	Absent	No coastal barriers or zones exist on or are adjacent to the Airport.
Department of Transportation Act, Section 4(f)	Absent	No public park land exists on the airport
Farmlands	Present	Limited amount present; Some farmland soils exist on the airport, although none in active use.
Hazardous Materials, Solid Waste, and Pollution Prevention	Present	The airport does produce solid waste, although only that which is typical of an airport its size
Historical, Architectural, Archeological, and Cultural Resources	Absent	No listed properties or buildings on airport, some places proximal to airport within Part 77
Natural Resources and Energy Supply	Present	The airport uses energy typical of its size.
Noise and Noise-Compatible Land Use	Present	Dense residential development exists at two runway ends. Additional development is possible within the Runway 16 approach along Burley Street
Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks	Present	EJ populations do exist within proximity of the airport, although outside of the 1-mile EJ Screen radius
Light Emissions, Visual Resources, and Visual Character	Present	The airport does have lighting systems, although with minimal impact to the community. Visual impacts are minimal.
Wetlands	Present	More than 55 acres of wetlands exist on BVY property. Wetlands are located primarily on the perimeter, but a few wetlands are located within the interior of the airport
Floodplain	Present	FEMA Designated FEMA flood zones (1% and 0.5%) are present on the airport
Surface and Ground Waters	Present	A portion of the wetlands at the airport that drain to Wenham Lake are Class A waters;
Public Water Supplies	Present	The northeastern portion of the airport is within the watershed of Wenham Lake, a public water supply for the towns of Wenham and Beverly
Wild and Scenic Rivers	Absent	None present nor proximal
Environmental (RCRA & CERCLA & MassDEP)	Present	There have been reported spills on the airport, although all have been managed or are being managed per state and federal laws and regulations

Source: GZA.