CHAPTER 5 – FACILITY REQUIREMENTS

The purpose of this chapter is to determine the improvements required to address capacity shortfalls identified in Chapter 4, *Forecasts of Aviation Demand and Capacity*; security requirements, non-compliant designs, and outdated facility conditions, while considering the needs of airport businesses and the surrounding community. This chapter utilizes FAA Advisory Circular 150/5300-13A, *Airport Design* (AC 150/5300-13A), and other FAA design documents, to determine airfield design requirements and 14 CFR Part 77, *Objects Affecting Navigable Airspace* (Part 77), to identify protected airspace penetrations.

5.1 PERMITTING REQUIREMENTS

According to Maine Revised Statutes, Title 38, Chapter 3, §481-490, the State of Maine, in consultation with appropriate state agencies, may control the location of developments to ensure that such developments will have a "minimal adverse impact on the natural environment within the development sites" and "protect the health, safety and general welfare of the people." A "development" includes, among many others, any commercial or industrial development that is a structure as defined in the section. A "structure" means, "buildings, parking lots, roads, paved areas, wharves or areas to be stripped or graded and not to be revegetated that cause a total project to occupy a ground area in excess of 3 acres. Stripped or graded areas that are not revegetated within a calendar year are included in calculating the 3-acre threshold."

Under this section, no development may be constructed without obtaining approval from the Maine Department of Environmental Protection (MaineDEP), and all construction activities must abide by the conditions of the Site Location of Development (SLOD) permit. During the permitting process for the 2020 Runway 06-24 reconstruction, MaineDEP confirmed that any upcoming construction projects resulting in additional impervious surface area would likely trigger the threshold requirements for a SLOD permit. Prior to the implementation of capital improvements, the Airport is advised to coordinate with MaineDEP regarding the need for a SLOD and other applicable permits.

5.2 AIRSIDE CAPACITY AND REQUIREMENTS

Airside facilities are those facilities that are accessible to aircraft, and include runways, taxiways, aprons, navigational aids, and airfield lighting systems. Through the planning period, the following facilities will be designed according to the standards of the design aircraft, the Cessna 182A, or a family of aircraft with similar characteristics, which has an approach speed of 70-80 knots, a wingspan of 39.17 feet, and a tail height of 9 feet. The dimensions of the Cessna 182A determine the classification of B19 as Airport Reference Code (ARC) A-I, as prescribed by FAA AC 150/5300-13A[1].

5.2.1 RUNWAY CAPACITY

Airfield capacity is defined as the number of airport operations that a particular runway and taxiway configuration is able to accommodate in a given period. This number is typically expressed as annual capacity (or annual service volume, ASV) and hourly capacity (or throughput). FAA AC 150/6050-5, *Airport Capacity and Delay*, utilizes computer models developed by the FAA to evaluate airport capacity and reduce aircraft delay. These models use an airport's ASV to approximate the capacity of the runway, while accounting for differences in runway configuration, fluctuations in aircraft fleet mix, touch and go activity levels, and weather conditions, among other factors.

The FAA models estimate the Airport's ASV capacity to be up to 230,000 operations per year. The Airport's annual operations volume in 2019 was approximately 7,200, and forecasted annual operations are expected to remain around 9,437 through the planning period. Therefore, runway capacity is not an existing problem, nor does it appear that it will be a problem during the planning period. Further, according to FAA requirements, the Airport's runway capacity will be considered adequate until operations reach 60% of its ASV (138,000 annual operations).

Finding: Runway capacity is currently meeting the needs of the Airport and is anticipated to do so for the duration of the planning period.

[1] The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport.

5.2.2 RUNWAY REQUIREMENTS

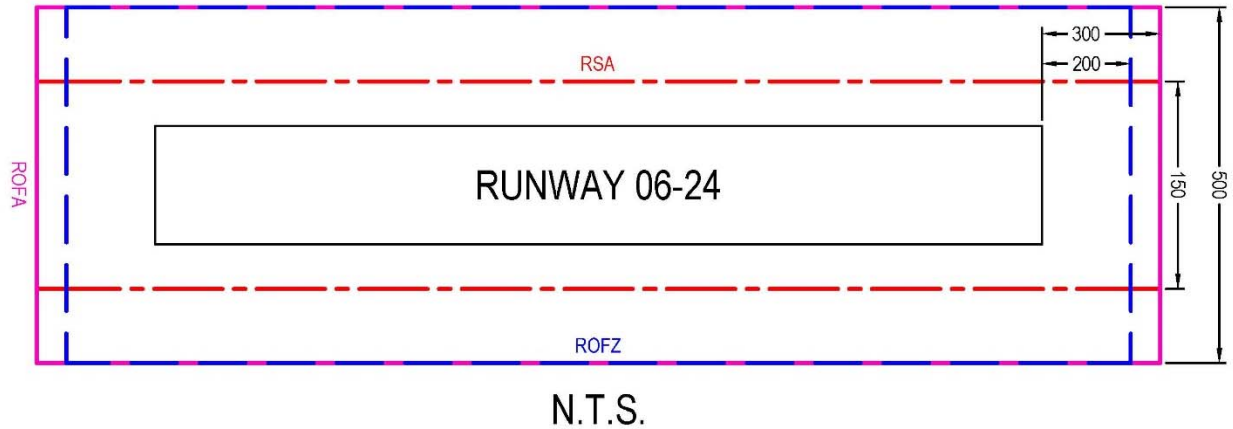
Runway dimensional requirements at B19 are based on the Airport Reference Code of A-I (small aircraft). An outline of B19's compliance with FAA standards can be found in Table 5-1 below:

Table 5-1: Runway 6-24 Dimensional Requirements

Facility	FAA Design Criteria (A-I Small)	Existing RW 06-24	RW 06-24 Compliance
Runway centerline to holdline	125'	125'	Compliant
Runway centerline to parallel taxilane centerline	125'	215'	Compliant
Runway centerline to edge of aircraft parking	125'	130'	Compliant
Runway Protection Zone: Length Inner width Outer width	 1,000' 250' 450'	 1,000' 250' 450'	Compliant
Runway pavement width	60'	75'	Compliant
Runway safety area width	120'	150'	Compliant
Runway safety area length beyond runway end	240'	300'	Compliant
Runway object-free area width	250'	250'	Compliant
Runway object-free area length beyond runway end	240'	240'	Compliant
Runway obstacle-free zone width	250'	250'	Compliant
Runway obstacle-free zone length beyond runway end	200'	200'	Compliant

Source: AC 150/5300-13A

Figure 5-1: Runway 06-24 Protection Areas



N.T.S.

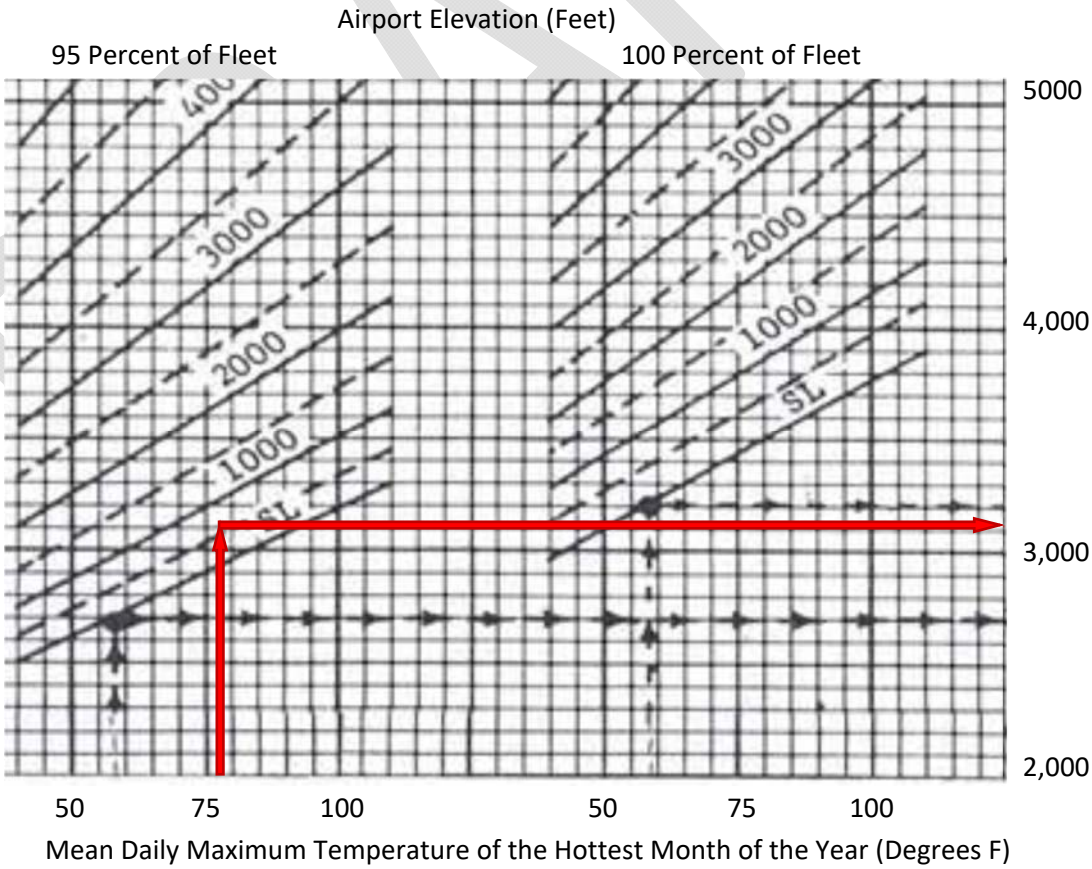
5.2.2.1 Runway Length Requirements

FAA's runway length design recommendations are contained in FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, which utilizes characteristics of an airports' design aircraft and other airport factors to calculate runway length. The factors that determine recommended runway length at B19 are as follows:

- The Cessna 182A is categorized as a small airplane because it has a maximum certified takeoff weight under 12,500 pounds;
- The Cessna 182A has an approach speed between 70 and 80 knots (category A);
- Because B19 is not located in a major metropolitan area or on the fringe of a major metropolitan area, the percentage of fleet at B19 was determined to be 95 percent;
- The mean daily maximum temperature of the hottest month of the year (July) in Biddeford is 79 degrees; and
- The airport elevation is 157 feet above mean sea level.

Using the table provided on Page 7 of AC 150/5325-4B *(Small Airplanes with Fewer than 10 Passenger Seats*), it was concluded that 3,100 feet of runway length is recommended to accommodate the Cessna 182A at B19. See Figure 5-2 below:

Figure 5-2: Runway Length Calculation for Cessna 182A



Source: AC 150/5325-4B, Figure 2.1 Small Airplanes with Fewer than 10 Passenger Seats

A summary of available runway lengths at B19 is contained in Table 5-2 below:

Table 5-2: Available Runway Lengths at B19

Runway End	Pavement Length (feet)	Threshold Displacement (feet)	Maximum Takeoff Length (feet)	Maximum Landing Length (feet)
06	3,001	None	3,001	3,001
24	3,001	None	3,001	3,001

Source: Gale Analysis

Findings per AC 150/5325-4B: The Airport's existing runway length is 99 feet shorter than the recommendations for small airplanes with fewer than 10 passenger seats. It is important to note that discussions with FAA for the development of this Master Plan indicated that failing to construct additional runway length is not considered a safety concern.

Recommendation per AC 150/5325-4B: As funding permits, the Airport should make considerations for a 99-foot runway extension to satisfy the recommendations of AC 150/5325-4B, for a total runway length of 3,100 feet.

Findings per AC 150/5300-13A: The recommended length for runways with instrument approach procedures is 3,200 feet per *Table 3-4, Standards for Instrument Approach Procedures*. Though not required to satisfy the Airport's existing non-precision approach, a runway length of 3,200 feet is required to support approaches with vertical guidance.

Recommendation per AC 150/5300-13A: As funding permits, the Airport should make considerations for a runway extension to 3,200 feet on its Airport Layout Plan for potential long-term development to serve its existing fleet by opening up the possibility of an approach with vertical guidance in the future. A runway extension of 199 feet should be planned for the Runway 24 end, with a displaced threshold on the Runway 24 end. This will allow the Airport to gain an additional 199 feet of landing and takeoff distance on Runway 06 without the need for additional tree clearing or easement acquisitions.

5.2.2.2 Runway Approach Requirements

The following section reviews the adequacy of the airport's approach types and outlines the airport's protected airspace. Currently, the airport has RNAV (GPS), VOR, and Circling approaches to Runway 06. Runway 06-24 is supported by the following navigational/visual/communication aids:

- Runway lighting (MIRLS – Medium Intensity Runway Light System)
- Runway End Identifier Lights (on Runway 06)
- Precision Approach Path Indicator (PAPI) (on Runway 06)
- Airport Rotating Beacon

FAA airport design guidance defines the following Standards for Instrument Approach Procedures:

Table 5-3: Standards for Instrument Approach Procedures

Visibility Minimums	*< ¾ statute mile*	*¾ to < 1 statue mile*	*≥ 1 statute mile non-precision*	*Circling*
Height Above Touchdown Zone	< 250'	≥ 250'	**≥ 250'**	≥ 350'
TERPS Chapter 3, Section 3	34:1 clear	20:1 clear	**20:1 clear, or penetrations lighted for night minimums**	
Precision Obstacle Free Zone	Required		**Recommended**	
Minimum Runway Length	4,200' (paved)		**3,200' (paved)***	
Runway Markings	Precision	Non-Precision	**Non-Precision**	Visual (Basic)
Holding Position Sign & Markings	Precision	Non-Precision	**Non-Precision**	Visual (Basic)
Runway Edge Lights	HIRL/MIRL	HIRL/MIRL	**MIRL/LIRL**	MIRL/LIRL (for night minimums only)
Parallel Taxiway	Required	Required	**Recommended**	Recommended
Approach Lights	MALSR, SSALR, or ALSF	Recommended	**Recommended**	Not Required
Airport Layout Plan	Required	Required	**Required**	Recommended

*Runway 06 standards identified in **bold**.*
Source: FAA AC 150/5300-13A, Table 3-4
**However, runways as short as 2,400 ft could support an instrument approach provided the lowest HATh is based on clearing any 200-ft obstacle within the final approach segment.*

5.2.2.3 FAR Part 77

The airspace surrounding public use airports is governed by regulations found within 14 Code of Federal Regulations (CFR) Part 77. This regulation is known by its more common title as **14 CFR, Federal Aviation Regulation (FAR) Part 77- Objects Affecting Navigable Airspace** (Part 77), which was promulgated by the FAA, and includes areas around airports (sometimes called Imaginary or Protected Surfaces) that must be kept clear of penetrating objects, called "obstructions". By accepting FAA funding, an airport agrees to make all reasonable efforts to keep its Part 77 protected surfaces clear of obstructions. Part 77 also includes guidance for analysis and marking of penetrating objects in specific cases. Objects are defined by Part 77 as:

"any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment and materials used therein, and apparatus of a permanent or temporary character; and

alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or lateral dimensions, including equipment or materials used therein."

Part 77 specifies the dimensions of imaginary surfaces for each individual airport based on the type and size of aircraft using the facility, the runway surface treatment, as well as the type of navigation and approach aids available to pilots. The following five imaginary surfaces are identified and defined under Part 77: Primary Surface, Approach Surface, Transitional Surface, Horizontal Surface, and Conical Surface.

Figure 5-3 depicts the relationship of these surfaces to a typical runway. Dimensions for each of these surfaces are stipulated in Part 77. Depending upon the application of criteria outlined in the regulation, surface dimensions may vary from runway to runway. The surfaces are defined as follows:

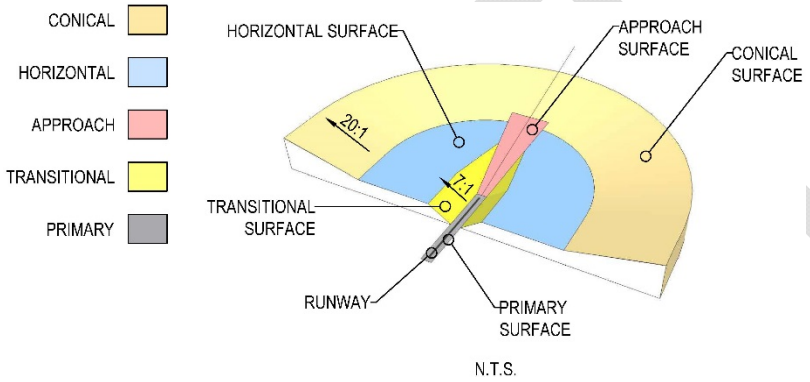


Figure 5-3 Part 77 Surfaces

- Primary Surface- A rectangular shaped surface longitudinally centered on the runway centerline with the same elevation as the nearest corresponding point on the runway centerline. The primary surface dimensions will vary depending on the runway approach type and the type of runway surface.
- Approach Surface- A trapezoidal shaped surface centered on the runway centerline and extending outward and upward from each end of the primary surface at a prescribed slope angle. Approach surface dimensions and slope angle will vary according to the runway approach type.
- Transitional Surface- This surface is an inclined plane running parallel to the runway centerline beginning at the edges of the primary and approach surfaces. They then extend upward and outward at a slope of seven feet horizontally for every one foot vertically (7:1) from the sides of the primary and approach surfaces to the horizontal surfaces (150' above the Airport elevation).
- Horizontal Surface- This surface is an oval shaped, horizontal plane established by Part 77 to be 150 feet above the Airport elevation. It is established by swinging arcs from the intersection of the extended runway centerline and primary surface at each end of the runway then closing each area with tangent lines. In areas where the primary, approach, and transitional surfaces may overlap, the surface with the lowest elevation is the controlling surface.

- Conical Surface- This surface extends upward and outward from the edge of the horizontal surface at a slope of twenty feet horizontally for every one foot vertically (20:1) for 4,000 horizontal feet from the edge of the horizontal surface.

The Part 77 surface dimensions and their compliance status for Runway 06-24 at the Airport are shown below in Table 5-4 and on ALP Sheet 7, Part 77 Approach Plan. Clear, as identified below, means that the surface is unobstructed by penetrating objects or that penetrating objects are properly mitigated through FAA approved lighting or other means.

Table 5-4: Non-Precision Instrument Runway Part 77 Compliance

Protected Surfaces		*Dimensions (Non-precision RW 06)*	*Dimensions (Visual RW 24)*	*Compliance*
Primary Surface	Width	500 feet	500 feet	Clear
	Length beyond R/W End	200 feet	200 feet	
Approach				Obstructions
	Width at Inner end	500 feet	500 feet	
	Width at Outer end	2,000 feet	1,500 feet	
	Length	10,000 feet	5,000 feet	
	Slope	34:1	20:1	
Transitional surface slope		7:1	7:1	Obstructions
Horizontal surface radius		10,000 feet	10,000 feet	Unknown
Conical surface	Slope	20:1	20:1	Unknown
	From Edge of Horizontal Surface	4,000 feet	4,000 feet	

Source: Federal Regulation Title 14, Part 77, Safe Efficient Use and Preservation of the Navigable Airspace

According to the FAA Flight Procedures database, obstructions to the 20:1 approach surface to Runway 06 are imposing nighttime restrictions at the Airport. Based on a preliminary investigation using drone photographs and estimated elevations, it appears that the identified obstructions were removed as part of the 2017 Runway 06 tree clearing project and were not updated in the Flight Procedures database at the time. A letter from Airport Management to FAA Flight Procedures dated October 4, 2017 indicates that a survey of the approach was conducted by a licensed surveyor following obstruction removal and that the 20:1 approach to Runway 06 was clear at that time. Consultation with Flight Procedures regarding this issue took place during the development of this Master Plan, and subsequently, a flight

check was scheduled for late fall of 2021 (the earliest available time slot). Based on the results of that survey, Flight Procedures will issue one of the following determinations:

- Satisfactory – This will occur if no obstructions to the 20:1 approach surface are identified at the time of the survey and will result in the re-authorization of nighttime operations by December 2, 2021.
- Satisfactory with changes – This will occur if a small change (e.g., removal of 1 tree) is required at the time of the survey. After the Airport has removed the identified obstruction and confirmed its removal with Flight Procedures, nighttime operations can be restored.
- Unsatisfactory – This will occur if obstructions are identified at the time of the survey and will result in the NA at night restriction remaining in place. Restoration of nighttime operations after an unsatisfactory survey will require removal of identified obstructions and re-scheduling a flight check with Flight Procedures.

The Airport completed an obstruction analysis and Vegetation Management Plan (VMP) in 2007 to identify vegetative obstructions to the Airport's Part 77 surfaces and propose methods for removal and management. The VMP identified obstructions to B19's primary surface, approach surfaces, and transitional surface but did not include obstruction data for the horizonal or conical surfaces. The VMP recommended a combination of tree clearing and lighting to mitigate identified obstructions, including removing all penetrations to the primary and approach surfaces and lighting obstructions to the transitional surfaces. Primary and approach surface obstructions have been removed in accordance with the VMP, as identified above, but obstructions to the Airport's transitional surfaces have not been addressed to date.

The 2007 VMP also recommended management activities to be conducted periodically to maintain previously cleared areas, including:

- Regular mowing of turf areas surrounding the aprons, terminal facilities, and the perimeter of the Runway from May through October.
- Hiring a contractor to brush hog the remainder of the airfield and upland areas every 2-3 years.
- Conducting a biennial survey of wetland areas and performing selective clearing as needed.
- Conducting a field survey of avigation easement areas every 3-5 years and performing selective clearing as needed.

Recommendation: It is recommended that the Airport consult a professional surveyor to identify any obstructions to the Runway 06 approach surface that might have grown since the time of the 2017 obstruction removal project in advance of the fall 2021 flight check. The Airport should promptly remove any identified obstructions before the flight check takes place.

Following certification that the Runway 06-24 approach surfaces are clear, it is recommended that the Airport conduct periodic vegetation management activities in accordance with the VMP to ensure that their protected surfaces remain clear. The Airport should coordinate with FAA and MaineDOT

regarding the priority of transitional surface obstruction lighting and obstruction identification and analysis within the horizontal and conical surfaces[2].

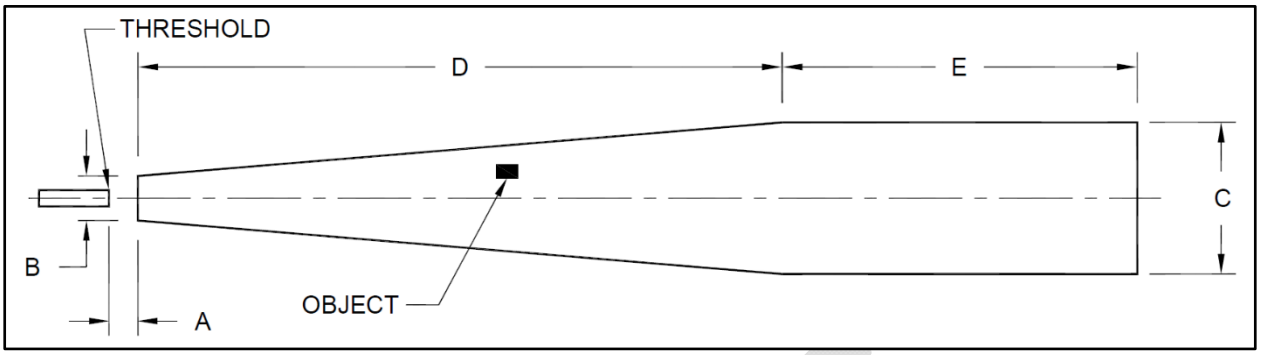
5.2.2.4 Approach/Departure Standards

AC 150/5300-13A, Table 3-2 Approach/Departure Standards Table, as updated in Engineering Brief No. 99A, contains dimensional standards for approach and departure surfaces according to aircraft categories, approach categories, and instrument minimums. Approach/Departure Standards recommend minimum obstacle clearances considered by the FAA to supply a satisfactory level of vertical protection to aircraft approaching the Airport. These are not requirements, but rather guidelines for enhancing aircraft safety. Table 5-5 shows the Approach/Departure standards for Runway 06-24:

Table 5-5 Approach/Departure Standards Table

		Dimensional Standards				
Runway Type		*Start of Surface (A)*	*Inner Width (B)*	*Outer Width (C)*	Length (D & E)	*Slope*
06	Line 4 – Approach end of runway expected to accommodate instrument approaches having visibility greater than or equal to ¾ statute mile.	200’ from runway end	400’	3,400’	(D)10,000’ (E) 0’	20:1
24	Line 2 – Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more. (Visual runways only, day/night).	Threshold	250’	700’	(D) 2,250’ (E) 2,750’	20:1

[2] Following the 2017 Runway 06 clearing and the 2021 Runway 24 clearing projects, both approach surfaces are assumed to be clear. The other Part 77 surfaces (transitional, horizontal, conical) were not analyzed due to budgetary constraints.



Source: AC 150/5300-13A, Table 3-2 Approach/Departure Standards Table & Figure 3-2 Threshold Siting Based on Approach Slope

Recommendation: Maintain the Runway 06-24 approach surfaces so that they remain clear of obstructions by conducting periodic vegetation management in accordance with the methods identified in the VMP.

5.2.2.5 Runway Pavement Conditions

According to MaineDOT's 2018 Pavement Condition Index, prior to its reconstruction in 2020, Runway 06-24 was in poor condition, having been last maintained in 1992 with an overlay. Runway 06-24 was reconstructed in place to full depth in the summer of 2020, including compliant Runway Safety Areas.

Recommendation: Perform maintenance activities (i.e., preservative treatments, crack sealing, etc.) as necessary to preserve the life of newly-constructed pavement.

5.2.3 TAXIWAY CAPACITY

Taxiway capacity calculations are typically computed only at airports where aircraft operational demand levels are very high and have taxiways that cross active runways where a capacity-limiting condition would exist. Since these situations aren't applicable at the Airport, taxiway capacities are considered adequate through the planning period. B19 currently has two stub taxiways – one leads from Runway 06-24 to the Main Apron and the other leads from the Main Apron to the West Apron. B19 does not currently have a parallel taxiway.

According to AC 150/5300-13A, a parallel taxiway is only required for instrument approach procedures with visibility minimums below one mile; however, it is recommended in AC 150/5300-13A for all other conditions. Discussions with FAA for the development of this Master Plan indicated that constructing a full-length parallel taxiway was not justified based on the peak hour operations forecast, which currently estimates 7 operations during the peak hour, with an estimated 9 peak hour operations by 2039. FAA confirmed that a partial parallel taxiway could be a viable solution for accessing a new hangar complex or other facilities, depending upon the location of new facilities on the airfield.

During the development of this Master Plan, the Airport Commission emphasized that a parallel taxiway or a taxiway turnaround/runup area would provide a great benefit and enhance safety for its existing

fleet by giving pilots an area to turn around to position for takeoff, eliminating the need for back-taxiing on the runway.

Recommendation: Though FAA has confirmed that there is no near-term justification for construction of a parallel taxiway at this time, the Airport should evaluate the impacts of constructing a partial parallel taxiway to allow aircraft that have landed past the exit taxiway a safe place to exit without back taxiing to service future hangars and other airside and landside facilities. As an alternative, the Airport should evaluate constructing a taxiway turnaround as an interim solution to a partial parallel taxiway to allow aircraft that have landed past the exit taxiway a place to turn around safely, or to provide a place for aircraft that have back-taxied to position for takeoff. It is recommended that a taxiway alternative be included on the Ultimate Airport Layout Plan with the understanding that actual demand must materialize before the project can be implemented.

5.2.3.1 Taxiway and Taxilane Pavement Conditions

Table 5-6 below outlines the dimensions, type of pavement, and condition of each taxiway or taxilane.

Table 5-6: Taxiway and Taxilane Pavements

Taxiway/Taxilane	*Dimension*	*Type of Pavement*	*Condition*
Stub Taxiway: Runway to Apron	93’ x 50’ (Approx.)	Flexible	Good[3]
Stub Taxiway: Main Apron to West Apron	85’ x 45’ (Approx.)	Flexible	Poor (PCI 41)
Hangar Row 1 Taxilane	690’ x 22’ (Approx.)	Flexible	Very Poor (PCI 39)
Hangar Row 2 Taxilane	670’ x 18’ (Approx.)	Flexible	Fair (PCI 69)

Source: B19 MaineDOT 2018 Pavement Condition Report

5.2.4 APRON CAPACITY

The Airport has two aprons: The Main Apron (approx. 217’ x 250’) and the West Apron (approx. 238’ x 223’) , which together can accommodate 26 aircraft. In 2019, the Airport reported 38 based aircraft, of which 34 are stored in hangars. The Airport’s based aircraft fleet is projected to increase to 45 aircraft by the end of the planning period in 2039. Assuming that 10 percent of based aircraft will require tie-downs at the end of the planning period, 5 tie-downs will be needed to accommodate them.

Additionally, transient aircraft make use of the parking aprons. Airport operations are anticipated to reach 9,437 by 2039 with 1,418, or 15 percent, being performed by transient aircraft. In order to identify the number of required parking spaces for potential transient aircraft, the formula listed below was used. The formula multiplies the number of operations per peak month (1,887) by the percent of itinerant aircraft operations (15 percent), dividing by the number of days in the month (31), multiplying that number by 100 percent, and dividing by 2, assuming that only half of itinerant operations will require apron space:

[3] Reconstructed as part of 2020 Runway 06-24 Reconstruction

([{3,000 x 12.6%}/31] x 100)/2
= 5 transient parking spaces

The calculation concluded that 5 transient parking spaces would be needed to accommodate the transient fleet during the planning period. Based upon the calculation, it is reasonable to conclude that the Airport will require 10 tie-down spaces by the end of the planning period. Since, the Airport currently has a total of 26 tie-down spaces between its two aprons, it is assumed that apron space will be adequate through the planning period.

The Main Apron was last reconstructed in 1977, and the West Apron was last reconstructed in 1987. According to MaineDOT's 2018 Pavement Condition Report for B19, the Main Apron and West Apron are both in poor condition with PCI ratings of 42 and 41 respectively.

Recommendations: Since apron pavements have long exceeded their useful life of 20 years and are in poor condition, the Airport should consider reconstructing the Aprons as funding allows. Timing for the Main Apron reconstruction should be carefully considered due to upcoming 2028 expiration of the Airport's underground fuel storage tank, which is currently located under the Main Apron (see section *5.2.4 Fuel Facility* for details). Removal of some tie-down spaces from the West Apron may be required to accommodate construction of hangar taxilanes.

5.2.5 HANGAR BUILDINGS

There are currently box 30 hangar buildings on site at B19 with a combined capacity for 34 aircraft. These existing buildings vary in age and are in generally fair condition; however, they are not meeting the Airport's existing demand. Airport management currently has a list of 12 individuals waiting to hangar their aircraft at B19 when additional units become available. Private developers have expressed interest in funding the construction of additional hangar units on airport property as soon as possible. Included in these interested parties is a flight school owner, who hopes to open a branch operation at Biddeford as soon as areas are designated and approved for hangar construction.

Recommendation: The Airport should designate areas on airport property for the construction of additional hangar units in preparation for the private development of hangars on airport property. Further, it is recommended that the Airport create a "developer's tool kit" outlining federal, state, and local requirements necessary to build additional hangars at the Airport.

5.2.6 NAVIGATIONAL AND APPROACH AIDS

Navigational and approach aids provide pilots with information to assist in locating the Airport and guidance for safely approaching the runway, especially during inclement weather conditions. Navigational and approach aids at B19 include a rotating beacon, two windcones, a precision approach path indicator (PAPI), runway lights, runway end identifier lights (REILS), and taxiway lights. The Airport does not have an Automated Weather Observing System (AWOS) and currently relies on weather information from nearby weather stations. Pilots have reported weather data from other facilities being inaccurate for Biddeford, causing them to turn around due to poor visibility to land at a different facility. It should be noted that, although AWOS systems are AIP eligible, they are not eligible for discretionary funding, which would require the Airport to save its non-primary entitlements for a number of years

before an AWOS system could be implemented. To move this project forward, the City could elect to invest additional local funding for its construction.

A weather camera system could be utilized as an interim or alternative solution to installing an AWOS system. Weather cameras provide pilots with nearly real-time weather condition reporting by updating images from various vantage points on the airfield approximately every ten minutes. This allows pilots to compare images of current conditions against images of ideal weather conditions to determine current visibility.[4]

Recommendation: Identify a suitable location[5] for the construction of an AWOS at B19 or consider the installation weather cameras as an alternative or interim solution.

5.2.6.1 ROTATING BEACON

The Airport's rotating beacon, located behind the maintenance hangar, was installed in 2014 and is currently in good condition.

Recommendation: Provide periodic routine maintenance.

5.2.6.2 WINDCONES

There are two windcones on the airfield – a lighted windcone and segmented circle located southwest of the Main Apron, and a supplemental windcone located approximately 100 feet to the west of the Runway 24 end. Both windcones were installed as part of the 2020 Runway 06-24 reconstruction project and are in new condition.

Recommendation: Provide periodic routine maintenance.

[4] https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/fs/alaskan/weather_cams/

[5] According to FAA Order 6560.20C, Siting Criteria for Automated Weather Observing Systems, the AWOS wind sensor must be mounted at 30 to 33 feet above the average ground height within a radius of 500 feet, all obstructions must be at least 15 feet lower than the height of the sensor within the 500-foot radius and be at least 10 feet lower than the height of the sensor from 500 to 1,000 feet.

5.2.6.3 PRECISION APPROACH PATH INDICATOR (PAPI)

A two-light PAPI was installed on the Runway 06 end as part of the 2020 Runway reconstruction project. The PAPI is FAA-owned and is in new condition.

Recommendation: Coordinate with FAA as necessary for periodic routine maintenance.

5.2.6.4 RUNWAY END IDENTIFIER LIGHTS (REILS)

The Airport's REILS were installed on the Runway 06 end as part of the 2020 Runway reconstruction project and are in new condition.

Recommendation: Provide periodic routine maintenance.

5.2.6.5 RUNWAY LIGHTS

The Airport's medium intensity runway lights (MIRLs) were installed on the Runway 06 end as part of the 2020 Runway reconstruction project and are in new condition.

Recommendation: Provide periodic routine maintenance.

5.2.6.6 TAXIWAY LIGHTS

Taxiway lights were installed along the stub taxiway between Runway 06-24 and the Main Apron as part of the 2020 Runway reconstruction project and are in new condition.

Recommendation: Provide periodic routine maintenance.

5.3 LANDSIDE CAPACITY AND REQUIREMENTS

Airport facilities that are not required for the movement of aircraft are referred to as landside facilities. These facilities usually consist of terminal and maintenance buildings, hangars, and automobile parking areas. This section will provide a review of the capacity and functionality of the Airport's landside facilities.

5.3.1 TERMINAL BUILDING

The Airport's terminal building consists of an approximately 1,550 square foot facility containing a pilot lounge, Airport Manager's office, and restrooms, among other facilities. Attached to the terminal building is the Airport's maintenance hangar. According to discussions with airport personnel, this facility was constructed in approximately 1985 and fails to comply with the Americans with Disabilities requirements including ramps to the main entrance, width of hallways, and bathrooms. The steel on the outside of the building is beginning to corrode and leaks in the roof are present.

Recommendation: The Airport should renovate the terminal building to repair corrosion and leaks, and to comply with accessibility requirements in the short-term.

5.3.2 ELECTRICAL VAULTS

There are two electrical vaults on the airfield – one FAA-owned vault, which powers the FAA-owned equipment (PAPIs and REILs), and one Airport-owned vault, which powers the remaining airport facilities, including but not limited to the terminal building, hangar buildings, runway and taxiway lights, and the fuel facility. Both of these vaults were upgraded in 2020 as part of the Runway 06-24 reconstruction project.

Recommendation: Provide periodic routine maintenance to the Airport-owned vault, and coordinate with FAA as necessary for periodic maintenance of the FAA-owned vault.

5.3.3 AUTOMOBILE PARKING

The Airport's vehicle parking lot, located adjacent to the terminal building, is marked for 14 vehicles. The parking lot is in fair condition and is generally meeting the current needs of the Airport.

Recommendation: Provide periodic routine maintenance.

5.3.4 FUEL FACILITY

The Airport's 100-LL fuel facility consists of a 10,000-gallon, double-walled underground storage tank, as well as a QTpod service system. The tank is equipped with a leak indicator, which sounds an alarm if moisture is detected between the tank walls. Installed in 1998, the fuel system is in good condition. According to the Underground Oil Storage Tank Annual Inspection Report conducted by the Maine Department of Environmental Protection (Maine DEP) in October 2020, the Airport's underground storage tank (UST) will expire on January 15, 2028. In accordance with 38 M.R.S. §564(5), a tank and its associated piping must be taken out of operation and properly abandoned upon the expiration date of the tank warranty unless the tank, its associated piping and other facility components meet certain requirements,[6] including but not limited to tightness testing and secondary containment system. An extension cannot be pursued until six months before the expiration of the existing tank, or July 15, 2027.

Once the tank reaches expiration, it must be taken out of service and subsequently removed by a certified tank installer within 60 days. Under existing regulations, a replacement tank may be installed in the location of the expired tank. Though Maine DEP does not have any specific regulations for distance between an underground tank and a building, they do require that the tank be installed in a location that does not hinder the safe removal of the tank in the future. Additionally, National Fire Protection Code 30A specifies that fuel dispensing systems installed outside at motor fuel dispensing stations must be located 10 feet or more from property lines, 10 or more feet from buildings having combustible exterior wall surfaces or buildings having noncombustible exterior wall surfaces that are not a part of a 1 hour fire-resistive assembly, and such that the nozzle, when the hose is fully extended, will not reach within 5 feet of building openings. Coordination and consultation with Maine DEP, The City of Biddeford's Code Enforcement Office, and the Maine Fire Marshall should be conducted in advance of tank replacement.

[6] Maine Department of Environmental Protection, Chapter 691: Rules for Underground Oil Storage Facilities

The Airport does not currently offer jet fuel; however, the Commission feels that the lack of jet fuel is limiting the Airport's ability to serve potential customers, and would like to consider constructing a facility over the planning period.

Recommendation: The Airport should explore alternative locations for constructing an aboveground fuel facility. The existing 100-LL fuel tank should be relocated in advance of the UST expiration date, prior to the reconstruction of the Main Apron. Reconstruction of the Main Apron is currently on the Airport's CIP for FY-2023.The fuel facility should be sited in a location that will allow for the addition of Jet-A fuel as demand warrants in the future.

5.4 SUPPORT FACILITY CAPACITY AND REQUIREMENTS

Support facilities are amenities that assist the airport in maintaining efficient operations. Support facilities at B19 include snow removal equipment (SRE) and security fencing, which must be maintained and upgraded as needed to sustain efficient day-to-day operations.

5.4.1 FENCING AND GATES

Fencing at B19 consists of approximately 1,500 LF of 8-foot-high chain link fencing, including two motorized slide gates and one vehicle pedestrian gate, running from the terminal area to the hangar complex. This fencing was constructed in 2014 and is in good condition.

According to discussions with the Airport Commission and Airport personnel, wildlife incursions by deer and other mammals is an ongoing issue at the Airport. The upcoming Wildlife Hazard Site Visit Report will provide valuable recommendations for managing wildlife on the airfield. The findings from that report will be incorporated into this chapter as they become available. In addition to known wildlife concerns, there is a consistent history of trespassing taking place on airport property. This creates a safety hazard to pilots and individuals accessing the airfield without permission, as well as a security risk to public and private property.

Recommendation: Construct perimeter fencing as necessary.

5.4.2 SNOW REMOVAL EQUIPMENT

The Airport's existing SRE was purchased in 2004 and consists of a John Deere loader with 3-yard snow bucket, 14-foot snow blade, snow blower, and snow basket and is currently in good condition. Snow removal of priority areas at B19 is completed by airport personnel following each weather event.

Advisory Circular 150/5200-30D defines the Priority 1 clearance areas as those that directly contribute to safety and re-establishment of aircraft operations at a minimum acceptable level of service. For B19, this includes Runway 06-24, the stub taxiway leading from Runway 06-24 to the Main Apron, and the Main Apron. Together, these areas account for approximately 280,000 square feet of pavement.

Per Advisory Circular 150/5220-20A, Table 2-2, a noncommercial service airport with fewer than 10,000 annual operations, and greater than 30 inches of annual snowfall, is eligible for one high-speed rotary plow supported by two snow plows. The Airport is eligible for two carrier vehicles – one for a rotary plow and one for a displacement plow.

Recommendation: Though the Airport's equipment is in working condition, it has exceeded its 10-year useful life. The Airport should maintain existing equipment and replace as funding allows. Consider purchasing a second carrier vehicle as necessary and as funding permits.

5.4.3 SNOW REMOVAL EQUIPMENT STORAGE BUILDING

Snow removal equipment buildings are intended to protect AIP-funded snow removal equipment and materials. The Airport does not currently have a snow removal equipment building and stores its equipment in the hangar building adjacent to the West Apron. Funding snow and ice control buildings is limited to space in the building necessary for eligible Snow Removal Equipment as well as storing chemicals used in treatment of paved areas. FAA AC 150/5220-18A, Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials, provides recommendations for equipment storage based on the number and type of equipment comprising the fleet. According to the AIP Handbook (FAA Order 5100.38D), snow and ice control buildings are limited to the space in the building necessary for eligible equipment, and all other areas must be paid for by the sponsor.

For airports that are not 14 CFR part 139 certificated airports and are only eligible for one snow removal carrier vehicle, it is FAA policy that a 1,600 square foot SRE building is eligible.[7]

Recommendation: Construct a snow removal equipment building as funding allows.

5.4.4 SKYDIVING LANDING ZONE

The Airport's skydiving operation, Skydive Coastal Maine (SCM), currently utilizes the vacant area adjacent to the existing hangar complex as its drop zone. The location is clearly identified by the coordinates marked in red in Figure 5-4 below:

Figure 5-4: SCM Skydiving Landing Zone

[7] FAA Order 5100.38D, AIP Handbook, Table O-3, Item c.(9)

SCM takes the safety of its customers and fellow airport users very seriously. Safety protocols include escorting all customers to and from the administration building before and after their dives. All customers meet the instructors inside of the administration building in advance of their jump, and no customer is permitted to enter the airfield or cross movement areas without an escort.

Recommendation: Identify alternative locations for the skydiving landing zone as additional hangar units are constructed.